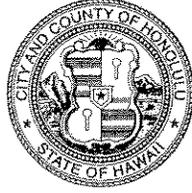


DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4432 • FAX: (808) 527-6743
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MUFI HANNEMANN
MAYOR

HENRY ENG, FAICP
DIRECTOR

DAVID K. TANQUE
DEPUTY DIRECTOR

2005/ED-24 (TH)

June 9, 2006

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

Dear Ms. Salmonson:

Re: Final Environmental Assessment (FEA) for the Condominium/Timeshare
Development at 2121 Kuhio Avenue Tax Map Key: 2-6-018:010 (portion),
042 and 052, Waikiki, Oahu, Hawaii

RECEIVED
06 JUN 13 12:29
OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

The Department of Planning and Permitting (DPP) has reviewed the comments received during the 30-day public comment period, which began on October 23, 2005. The DPP has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the June 23, 2006 OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form and four (4) copies of the final EA. Should you have any questions, please call Tim Hata of our staff at 527-6070.

Very truly yours,

A handwritten signature in cursive script, appearing to read "Henry Eng".

Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:js

Enclosures

p:/DivFunction/ea-eis/2005/2121 Kuhio Avenue/fonsi

2006-06-23-0A-FEA 2121 KUHIO AVE CONDOMINIUM/TIMESHARE DEVELOPMENT JUN 23 2006

FILE COPY

**FINAL
ENVIRONMENTAL ASSESSMENT**

**CONDOMINIUM/TIMESHARE DEVELOPMENT
2121 KUHIO AVENUE**

**WAIKIKI, OAHU, HAWAII
TAX MAP KEY 2-6-018: 010 (portion), 042 AND 052**

**K3 OWNERS, LLC
850 RICHARDS STREET, SUITE 601
HONOLULU, HAWAII 96813**

APPLICANT

**Kusao & Kurahashi, Inc.
Planning and Zoning Consultants
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822**

AGENT

May 2006

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QUALITY CONTROL

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and PERMITTING
CITY & COUNTY OF HONOLULU



**FINAL
ENVIRONMENTAL ASSESSMENT**

**CONDOMINIUM/TIMESHARE DEVELOPMENT
2121 KUHIO AVENUE**

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TAX MAP KEY 2-6-018: 010 (portion), 042 AND 052**

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850 RICHARDS STREET, SUITE 601
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APPLICANT

**Kusao & Kurahashi, Inc.
Planning and Zoning Consultants
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822**

AGENT

May 2006

TABLE OF CONTENTS

	PAGE
I. INTRODUCTION	1
II. GENERAL INFORMATION	3
A. Applicant	3
B. Recorded Fee Owners	3
C. Approving Agency	3
D. Tax Map Key	4
E. Agent	4
F. Location	4
G. Lot Area	4
H. Zoning	4
I. State Land Use	4
J. Development Plan	4
K. Special District	4
L. Existing Use	4
M. Proposed Zone Change	4
N. Agencies Consulted	5
III. DESCRIPTION OF PROPOSED ACTION	9
A. General Description	9
1. Land Use History	9
2. Existing Conditions	12

3.	Proposed Development	13
4.	Location	15
5.	Surrounding Area	15
6.	Land Use Approvals	16
	a. State Land Use	16
	b. General Plan	16
	c. Primary Urban Center Development Plan (PUCDP)	19
	d. Zoning	25
	e. Waikiki Livable Community Project	25
B.	Technical Characteristics	27
	1. Use Characteristics	27
	2. Physical Characteristics	28
	a. Floor Area Ratio	28
	b. Number of Structures	29
	c. Lot Coverage	29
	d. Floor Area	29
	e. Number of Parking Spaces	29
	f. Recreational Amenities	30
	g. Height of Structures	31
	3. Construction Characteristics	31
IV.	IMPACTS	33
	A. Demographic Impacts	33
	1. Residential Population	33
	2. Visitor Population	34

3.	Character or Culture of the Neighborhood.	34
4.	Displacement	35
B.	Economic Impacts	35
1.	Economic Growth	35
2.	Employment	35
3.	Government Revenues/Taxes	35
C.	Housing Impacts	36
1.	Increase Supply	36
2.	Affordable Units	36
D.	Public Services	37
1.	Access and Transportation	37
2.	Water	43
3.	Wastewater	43
4.	Drainage	44
5.	Flood Plain Management	45
6.	Solid Waste Disposal	45
7.	Schools	45
8.	Parks	47
9.	Police	47
10.	Fire	47
11.	Utilities	48
E.	Environmental Impacts	48
1.	Historical and Archaeological Resources	48
2.	Cultural Impact Assessment	51

3.	Natural Resources	51
a.	Water Resources	51
b.	Flood Plain Management	52
c.	Wetlands Protection	52
d.	Coastal Zone Management	52
e.	Unique Natural Features	53
f.	Flora	53
g.	Fauna	54
h.	Agricultural Lands	54
i.	Open Space	54
F.	Topography	54
G.	Soils	55
H.	Noise	55
I.	Air Quality	56
J.	Visual Impact	56
K.	Hazards	58
V.	MAJOR IMPACTS AND ALTERNATIVES CONSIDERED	58
A.	Commercial Development Under the Existing Resort Commercial Precinct	59
B.	Zone Change with Condominium, Timeshare, or combination Condominium /Hotel Tower with a Restaurant/retail Complex .	59
VI.	MITIGATION MEASURES	60
A.	Excavation and Dewatering	60

B.	Traffic	62
C.	Noise	64
D.	Air Quality	64
VII.	REQUIRED APPROVALS AND LAND USE REGULATIONS	65
A.	Required Approvals	65
B.	Primary Urban Center Development Plans	65
C.	Permitted Uses	66
D.	Resort Mixed Use Precinct Development Standards	66
1.	Minimum Lot Area	66
2.	Minimum Lot Width and Depth	67
3.	Yards	67
4.	Density	67
5.	Open Space	67
6.	Height	67
7.	Height Setback	67
E.	Waikiki Special District	68
1.	Objectives	69
2.	District Guidelines	69
3.	Urban Design Controls	75
4.	Waikiki Livable Community Project	77
VIII.	SIGNIFICANCE CRITERIA	77

COMMUNITY CONCERNS	84
A. Waikiki Neighborhood Board Number 9	84
1. Meeting on March 9, 2004	84
2. Meeting on May 11, 2004	84
B. Four Paddles and La Casa Residents	85
C. Other Community Presentations	85
X. PHOTOGRAPHS	85
XI. RECOMMENDATION	86

EXHIBITS

		PAGE
EXHIBIT 1	Location and Zoning Map	5
EXHIBIT 2	Development Plan Land Use Map	6
EXHIBIT 3	Development Plan Public Facilities Map	7
EXHIBIT 4	Proposed Zoning Map	8

APPENDICES

APPENDIX I	Plans
APPENDIX II	Traffic Impact Report
APPENDIX III	Agency Comments and Response Letters
APPENDIX IV	Archaeological Assessment
APPENDIX V	Cultural Impact Assessment
APPENDIX VI	Community Concerns
APPENDIX VII	Photographs
APPENDIX VIII	Shadow Study
APPENDIX IX	State Historic Preservation Division Letter

FINAL ENVIRONMENTAL ASSESSMENT
CONDOMINIUM/TIMESHARE DEVELOPMENT
2121 KUHIO AVENUE

Waikiki, Oahu, Hawaii
Tax Map Key 2-6-018: 010 (portion), 042 and 052

I. INTRODUCTION

The applicant, K3 Owners LLC, proposes to develop the vacant mauka (north) portion of a 2.66-acre lot at 2121 Kuhio Avenue and 2100 Kalakaua Avenue, that includes the existing 2100 Kalakaua Avenue retail/commercial development. The lot has an existing retail commercial development, 2100 Kalakaua, consisting of a three-story, 110,000-square foot structure located along Kalakaua Avenue that will remain.

In conjunction with this development the applicant, will file an application for rezoning of the entire 2.66 acres from Resort Commercial Precinct to a Resort Mixed Use Precinct which is consistent with the Primary Urban Center Development Plan Land Use Map Resort designation for the property. Prior to adoption of the latest Primary Urban Center Development Plan and for at least the past 18 years, the property has been designated Resort or Resort Mixed Use, uses that would allow hotel, timeshare and multi-family dwelling use, in addition to retail and restaurant use.

The existing retail commercial development, and proposed condominium or timeshare or combination residential condominium/hotel tower and restaurant/retail development at 2121 Kuhio Avenue, will be permitted uses in the proposed Resort Mixed Use Precinct.

The 2.66 acre lot consists of three parcels that make up the land area of a

Final Environmental Assessment - 2121 Kuhio Avenue

previously approved Waikiki Special District Permit application (2000/SDD-31) for a retail commercial development. This Final Environmental Assessment Report for the development of a condominium or timeshare or some combination of condominium/hotel tower and restaurant/retail complex is prepared pursuant to and in accordance with the requirements of Chapter 343 HRS and Chapter 200 of Title 11, Administrative Rules - Environmental Impact Statement Rules. The action that triggers this assessment is the proposed development in the Waikiki Special District at 2121 Kuhio Avenue and 2100 Kalakaua Avenue. The applicant will be filing a Waikiki Special District Permit application for the project should the proposed zone change be approved.

The three parcels are subject to a joint development agreement (2000-CUP-98) with a fourth parcel that has been approved by the (DPP). The fourth parcel (Tax Map Key 2-6-18: 43) is under separate ownership and not ready to move forward with development. Therefore, it is not planned, at this time, to be a part of this development. Excess density (beyond that needed to accommodate a 32,400 square foot building, as stated in the joint development agreement) which exists on Tax Map Key 2-6-18: 43 was conveyed to the project site by the joint development agreement. The applicant is considering modifying the project to utilize this additional density. Project modifications would include a slightly larger building footprint.

There are three land use options being considered. These include construction of 1) a condominium tower, 2) a timeshare tower or 3) a combination condominium/hotel tower. Each of these would have a low-rise restaurant/retail

component. Both the condominium and timeshare development would offer approximately 220 units. The third alternative would have approximately 140 hotel units and 120 residential condominiums. Under all of the schemes parking is planned to be provided in two levels of underground parking. An additional below grade level to accommodate the required parking for 2100 Kalakaua is under consideration.

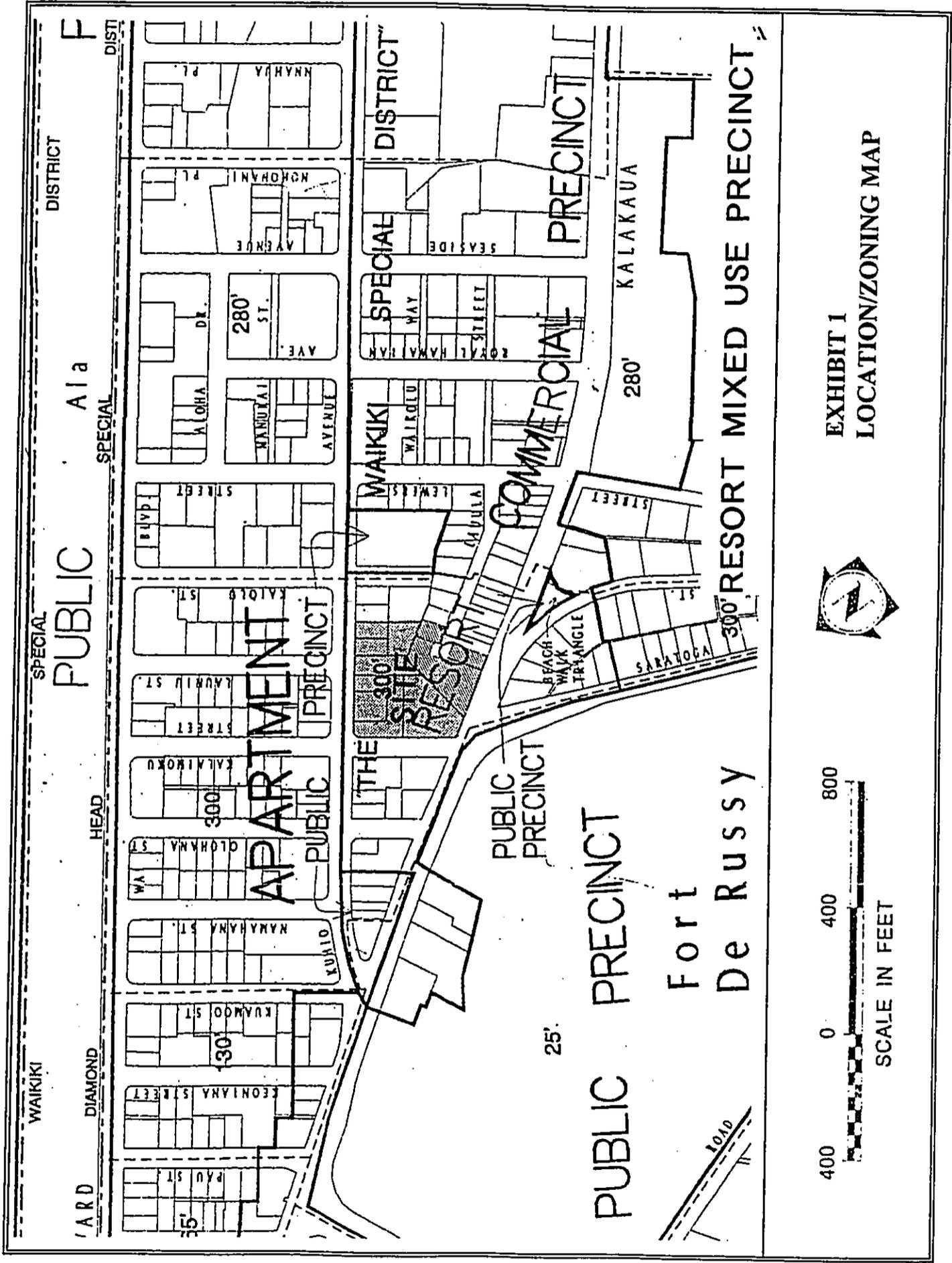
Two different site plans are being considered. The preferred plan, labeled "Site Plan" in Appendix I features an entry off of Kalaimoku Street. An "Alternative Plan", also included in Appendix 1, would offer an entry off of Kuhio Avenue. The proposed towers would be within the current height limit of 300 feet.

II. GENERAL INFORMATION

- A. Applicant : K3 Owners, LLC
850 Richards Street, Ste. 601
Honolulu, Hawaii 96813
- B. Recorded Fee Owners : K3 Owners, LLC
850 Richards Street, Ste. 601
Honolulu, Hawaii 96813
- C. Approving Agency : Department of Planning & Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

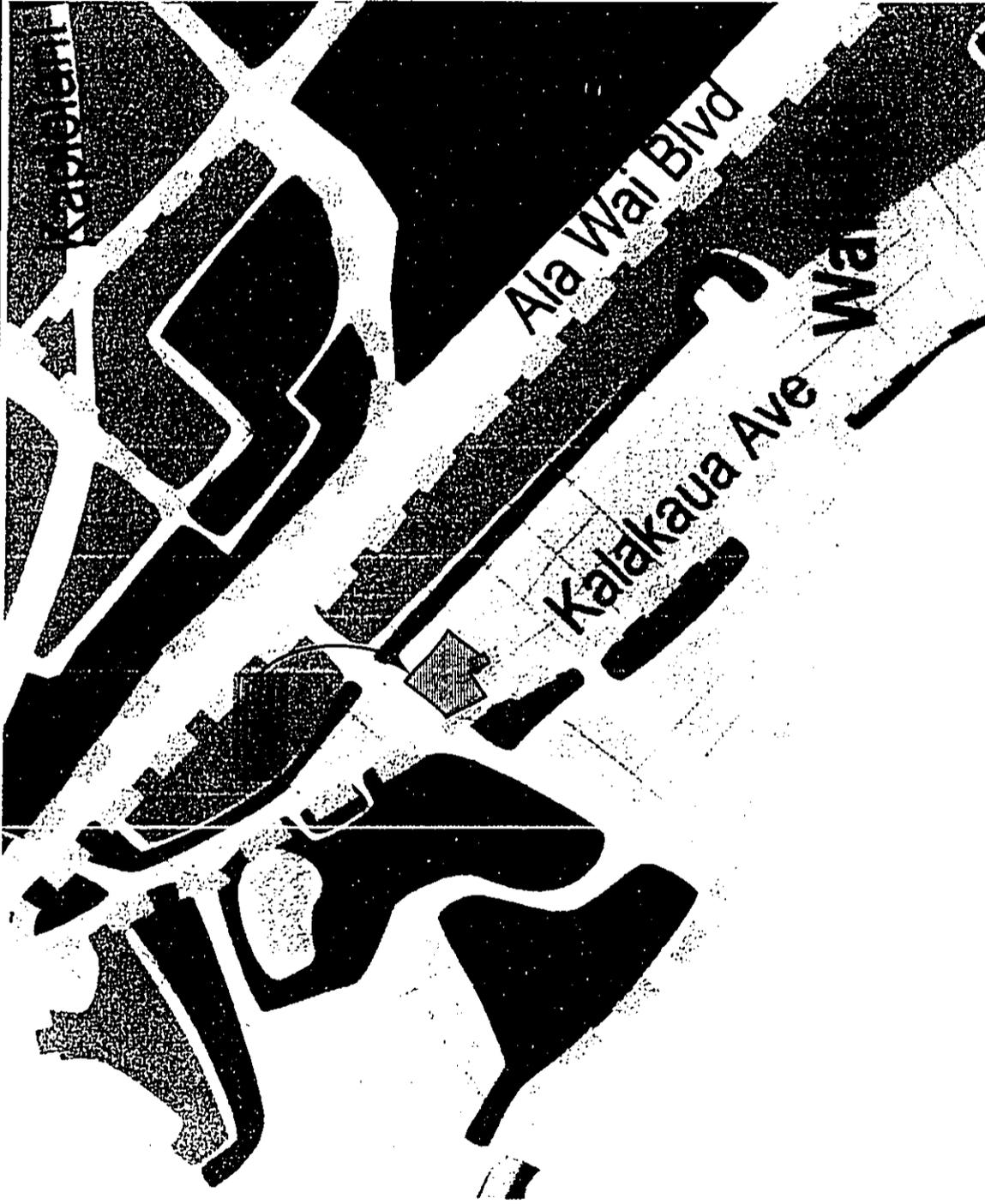
Final Environmental Assessment - 2121 Kuhio Avenue

- D. Tax Map Key : 2-6-018: 010 (portion), 042, and 052
- E. Agent : Kusao & Kurahashi, Inc.
Planning and Zoning Consultants
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822
Phone - 988-2231
- F. Location : 2100 Kalakaua Avenue and 2121
Kuhio Avenue in Honolulu, Hawaii
(Exhibit 1)
- G. Lot Area : 115,716 square feet or 2.66 acres
- H. Zoning : Resort Commercial Precinct (Exhibit 1)
- I. State Land Use : Urban
- J. Development Plan
Land Use Map : Resort (Exhibit 2)
- Public Infrastructure
Map : Proposed transit corridor on Kalakaua
Avenue, Kalaimoku Street and Kuhio Avenue
(Exhibit 3)
- K. Special District : Waikiki Special District
- L. Existing Use : The south (makai) side of the lot contains
2100 Kalakaua Avenue, a three-story, 110,00-
square foot, retail commercial development.
The north (mauka) side of the lot is vacant.
- M. Proposed Zone Change : Resort Mixed Use Precinct (Exhibit 4)



**PRIMARY URBAN CENTER
DEVELOPMENT PLAN**

**A.6: Land Use Map
PUC - East**



- Lower-Density Residential
- Medium and Higher-Density Residential/Mixed Use
- Community/Neighborhood Commercial
- Distinct Commercial
- Industrial
- Resort
- Institutional
- Major Parks and Open Space
- Preservation
- Military
- Urban Community Boundary
- Pedestrian Network
- College/University
- Hospital/Medical Center
- Intermediate School (State)
- High School (State)
- Small Boat Marina
- Harbor
- Airport



Department of Planning & Permitting
City & County of Honolulu
June 2004

0 1000 2000



SCALE IN FEET

EXHIBIT 2

RESOLUTION NO.: 2004-246, CD1
 DATE: OCTOBER 13, 2004

PUBLIC INFRASTRUCTURE MAP
PRIMARY URBAN CENTER

LEGEND

PUBLIC FACILITY PROGRAMMED FOR COMMENCEMENT OF LAND ACQUISITION AND/OR CONSTRUCTION

- DRAINAGE SYSTEM: D ———— D
- TRANSPORTATION SYSTEMS: R - - - - - R
- ARTERIAL ROADWAY: TC ●●●●●●●● TC
- TRANSIT CORRIDOR: TC ●●●●●●●● TC
- PUBLIC FACILITY: STP (square symbol) STP (circle symbol)



Example: 024 = SYMBOL NO.

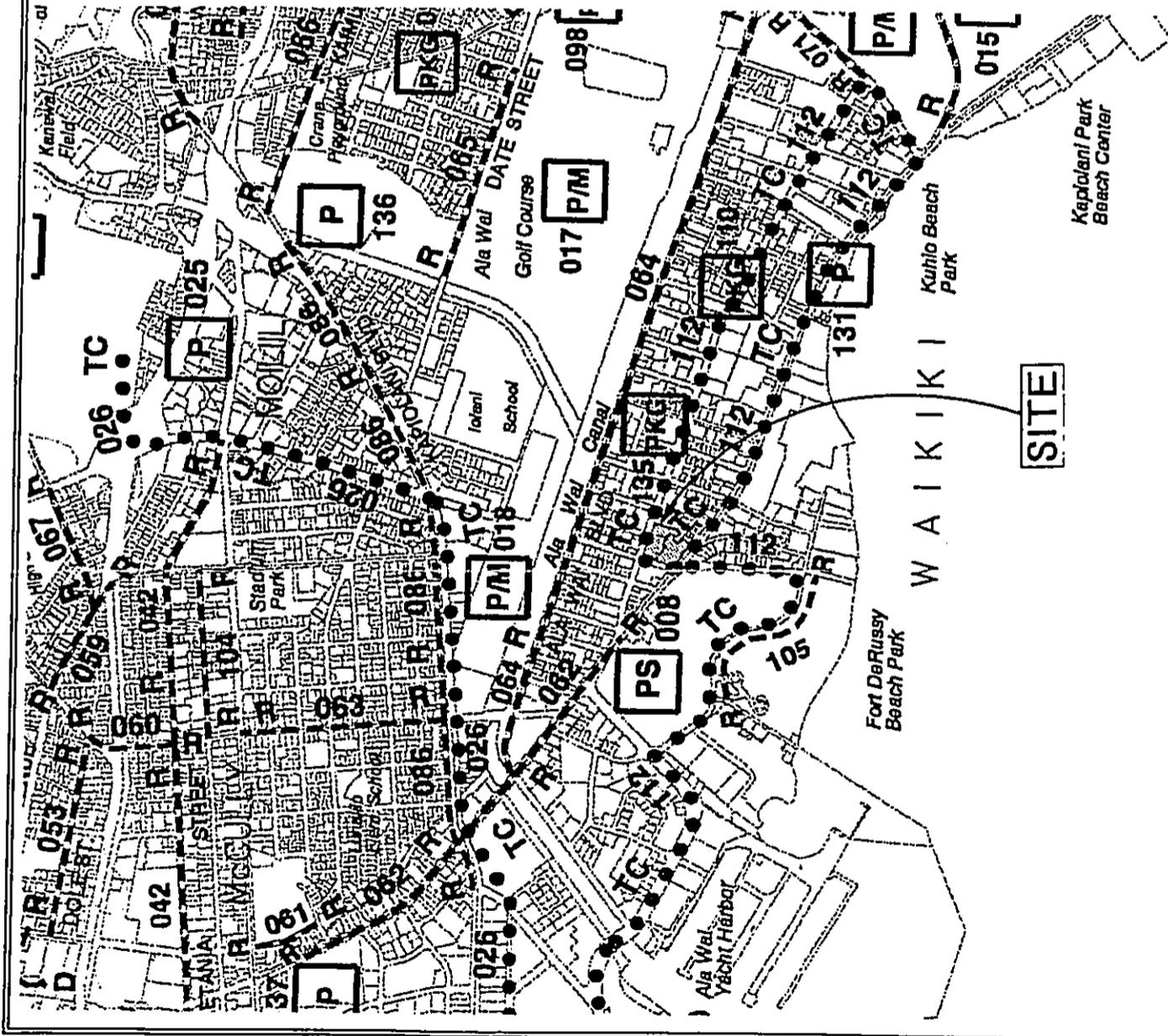
0 1000 2000



SCALE IN FEET

- CDP
 - D
 - EG
 - ET
 - FB
 - GC
 - GG
 - P
 - PKG
 - RES
 - STP
 - SW
 - TC
 - R
 - SPS
 - W
 - WPF
- CORPORATION YARD
 - DEBRIS PLANT
 - DRAINAGE WAY (OPEN CHANNEL)
 - ENERGY GENERATION
 - ELECTRICAL TRANSMISSION
 - FIRE STATION
 - GOVERNMENT BUILDING
 - PARK
 - POLICE STATION
 - PARKING FACILITY
 - WATER RESERVOIR
 - SEWAGE TREATMENT PLANT
 - SOLID WASTE FACILITY
 - TRANSIT CORRIDOR
 - ARTERIAL & COLLECTOR ROADWAY
 - SEWAGE PUMP STATION
 - POTABLE WELL
 - MAJOR PUBLIC FACILITY

EXHIBIT 3



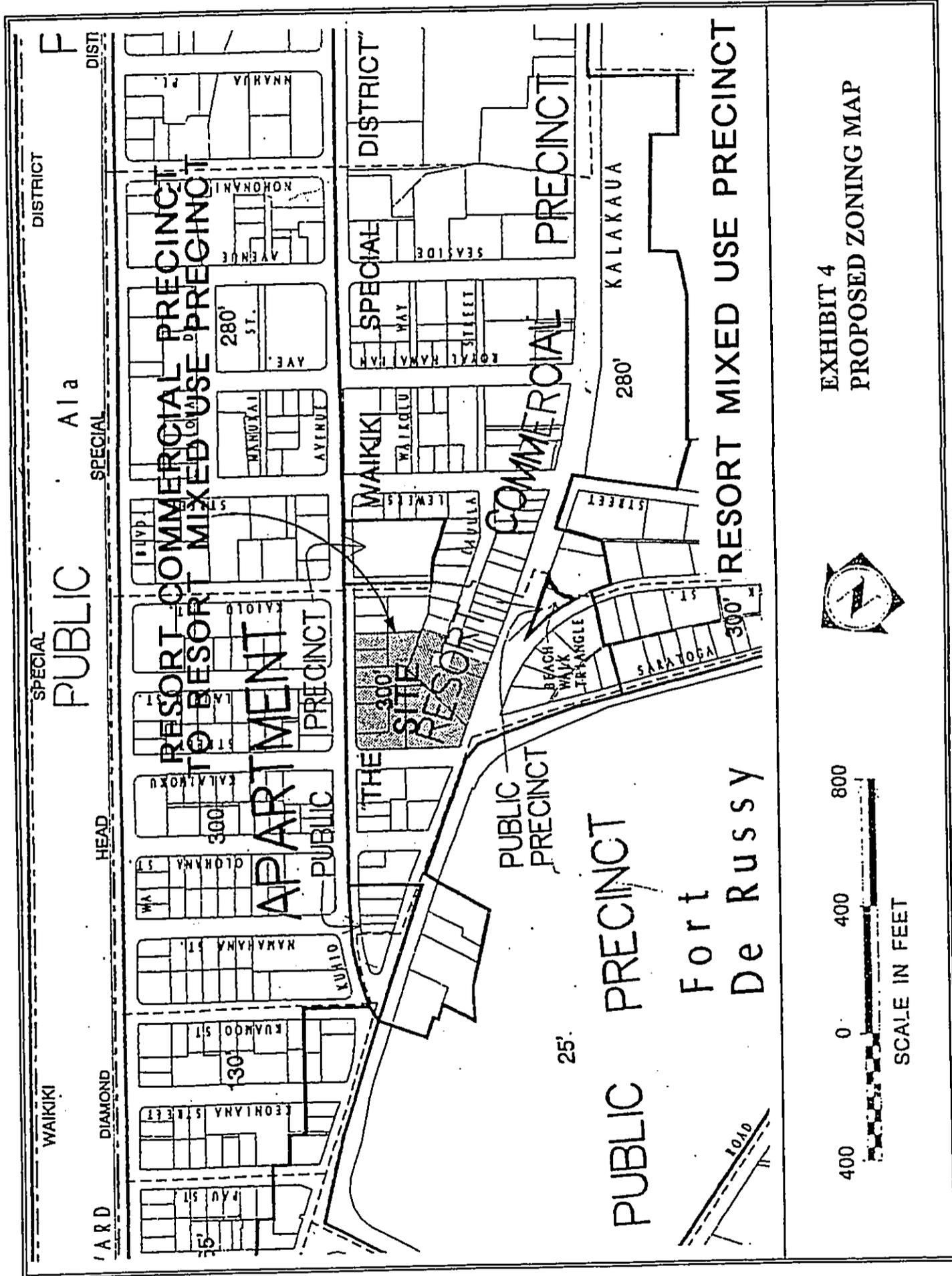


EXHIBIT 4
PROPOSED ZONING MAP

- N. Agencies Consulted :
- Department of Transportation Services
 - Board of Water Supply
 - Department of Planning and Permitting
 - Wastewater Branch
 - Traffic Review Branch
 - Department of Design and Construction
 - Fire Department
 - Police Department
 - Department of Parks and Recreation
 - Department of Accounting and General Services
 - Department of Health
 - Department of Hawaiian Home Lands
 - Department of Education
 - Office of Hawaiian Affairs
 - State Historic Preservation Division
 - Waikiki Neighborhood Board No. 9

III. DESCRIPTION OF PROPOSED ACTION

A. General Description

1. Land Use History

The site was formerly known as the Old Waikiki Market and before that the Kuhio District. The site contained a retail Bazaar and commercial complex, with 75,575 square feet of commercial floor area (including restaurant/retail, retail, offices and personal services) and 17,160 square feet of hotel use (Hotel Honolulu) and a retail cart operation. Two of the more well known establishments in the Old Waikiki Market were the Canlis Restaurant/retail and Hula's Bar and Grill.

Final Environmental Assessment - 2121 Kuhio Avenue

In 2002, 2100 Kalakaua Avenue was developed. 2100 Kalakaua Avenue is a retail complex with about 110,000 square feet of retail space situated in a three-story structure. The northern half of the property remains vacant at this time.

In November 1998, DPP approved a Finding of No Significant Impact (FONSI) for the Final Environmental Assessment for the then proposed 2100 Kalakaua development which included development across both the 2100 Kalakaua lot and the 2121 Kuhio lot.

In December 1998, DPP approved a minor Waikiki Special District Permit (1998/SDD-508) for the demolition of existing structures and the removal and replacement of 47 trees more than 6 inches in trunk size.

In May 2000, DPP determined that, due to a decrease in the scope of the planned development, a supplemental Environmental Assessment was not required. A minor Waikiki Special District Permit (2000/SDD-25) was issued by DPP for the demolition of an existing non-historic structure on Parcel 34. The applicant submitted a major Waikiki Special District Permit for a 110,000 square foot retail structure and parking.

In July 2000, DPP approved a minor Waikiki Special District Permit (2000/SDD-41) for tree removal on Parcel 34.

In December 2000 DPP approved a Conditional Use Permit,

minor, (2000/CUP-98, as amended) for joint development of parcels 2-6-18: 10 (portion), 34, 36, 42, 43, 52, 53, 57, 58, 59, 62, 63, 64 and 75. These parcels have since been consolidated into the areas that are the subject of this Draft EA (2-6-18: 10 (portion), 42 and 52) and the parcel owned by Food Pantry, Inc. 2-6-18: 43.

In May 2001 DPP approved a conditional use permit (2001/CUP-16, as amended) to allow required parking for the 2100 Kalakaua development to be provided off-site at the King Kalakaua Plaza across Kalaimoku Street. Of the 92 required parking stalls provided 77 parking stalls are provided at the King Kalakaua Plaza. (The required number of stalls is based on a recent minor modification to the Land Use Ordinance which eliminated parking requirements for ground floor uses in Waikiki). The applicant intends to provide the required parking stalls for 2100 Kalakaua at King Kalakaua Plaza. An additional below grade level to accommodate the required parking for the 2100 Kalakaua is also under consideration.

In September 2001 DPP approved 2000/SSD-31, a Waikiki Special District Permit, for the 2100 Kalakaua development. In December of 2004 the DPP approved a minor modification to 2000/SSD-31 to reduce the required parking for the 2100 Kalakaua development to 92 parking stalls, which recognized the elimination of parking requirements for ground floor uses in Waikiki. These 92 required parking stalls are provided at the King Kalakaua Plaza parking

garage via a parking agreement.

2. Existing Conditions

The developed portion of the lot, along Kalakaua Avenue, is developed with a three-story, 110,000 square foot retail complex, 2100 Kalakaua.

The vacant mauka portion of the lot, along Kuhio Avenue, is a flat, grassy area surrounded by an 8-foot tall construction barricade fence. It is intended that the large banyan tree located on the property at the corner of Kuhio Avenue and Kalaimoku Street will be moved closer to the corner of Kalaimoku Street and Kuhio Avenue intersection to further protect it during construction activity. It is intended that the banyan tree be an integral part of the gathering place open to the public at this corner.

The existing vacant lot has groundcover, but minimal other landscaping and trees. The net result of the proposed plan will be to significantly increase the landscaping beyond what exists today.

In December of 2004 the DPP approved a minor modification to 2000/SSD-31 to reduce the required parking for the 2100 Kalakaua development to 92 parking stalls, which recognized the elimination of parking requirements for ground floor uses in Waikiki. At this time, the applicant is providing the 92 parking stalls at the King Kalakaua Plaza across Kalaimoku Street. The applicant intends to implement a traffic management plan to reduce the number of required stalls.

3. Proposed Development

The applicant proposes to continue the retail/commercial use of the existing 2100 Kalakaua Development (110,000 square feet of retail development in a three-story structure) and to develop the remaining vacant portion of the property subsequent to the proposed zone change.

The applicant proposes to rezone the entire property from Resort Commercial Precinct to Resort Mixed Use Precinct which is consistent with the site's existing Primary Urban Center Development Plan Land Use Map Resort designation.

There are three land use options being considered. These include construction of 1) a residential condominium tower, 2) a timeshare tower or 3) a combination residential condominium/hotel tower. Each of these would have a low-rise restaurant/retail component with up to 10,000 square feet. The condominium and timeshare development would both offer approximately 220 two bedroom units. The third alternative would have approximately 140 hotel units and 120 residential condominiums. Under all of these schemes, parking is planned to be provided in two levels of underground parking. An additional below grade level to accommodate the require parking for 2100 Kalakaua is under consideration.

The zone change will allow the applicant to continue the retail/commercial use of the existing 2100 Kalakaua Development and to add a residential condominium, timeshare, or condominium/hotel

tower to the vacant mauka portion of the lot. The applicant is considering these alternative uses for the site with a final decision to be made based on the market conditions just prior to application for a Waikiki Special District Permit. The proposed tower will be built within the 300-foot height limit that has been established for the property.

There are two different site plans included in the Final EA for consideration. The preferred site plan is labeled "site plan" in Appendix I, and features a main entrance off of Kalaimoku Street. The second "Alternative Site Plan", also included in Appendix I, is similar to the site plan previously presented in the Draft EA however the driveway entry has been aligned with Launiu Street to address comments from the DPP. As indicated on the ground floor plan, the preferred plan identifies open space areas along both Kalaimoku Street and Kuhio Avenue. In each site plan the high rise tower is centrally located on the lot with a mauka-makai orientation. It is planned that parking will be provided in two levels of underground parking.

As previously stated, 2121 Kuhio Avenue and 2100 Kalakaua Avenue are subject to a joint development agreement that was approved by 2000-CUP-98. This development agreement also includes a parcel identified by Tax Map Key 2-6-18: 43. The applicant is considering utilizing the excess density from parcel 43 in the development of the project. A plan to utilize this excess density would entail a

modification to the site plan to provide a slightly larger building footprint.

4. Location

The area of the proposed 2121 Kuhio Avenue development is the site bounded by the existing 2100 Kalakaua commercial development on the south which is included in the area proposed to be changed from Resort Commercial Precinct to Resort Mixed Use Precinct.

The area of the proposed zone change is bounded by Kalakaua Avenue (south), Kalaimoku Street (west), Kuhio Avenue (north) and commercial development (east) and includes both the 2121 Kuhio Avenue and the 2100 Kalakaua Avenue properties (see Exhibit 1).

5. Surrounding Area

The project site is located in Waikiki, Honolulu, Oahu, Hawaii and is surrounded by hotel, timeshare, apartment, condominium, commercial developments and park and public uses.

Makai of the site is Kalakaua Avenue with Fort DeRussy and retail and dining establishments. West of the site is Kalaimoku Street. Directly across Kalaimoku Street is the King Kalakaua Plaza development with tenants such as Niketown and Banana Republic. North (mauka) of the site is Kuhio Avenue. Across Kuhio Avenue are the La Casa Condominium (23-story, 102 units), a lot with a duplex and a single family residence, the Tropic Surf (a four-story, 15 units),

the Waikiki Cove (a seven-story, 23 units) and the Four Paddle Condominium (25-story, 250 units). East of the site are commercial developments.

6. Land Use Approvals

a. State Land Use

The site is in the State Urban Land Use District and the proposed Resort Mixed Use Precinct is consistent with the purpose of the Urban District. The proposed development would be consistent with this Urban designation.

b. General Plan

The proposed development will meet the intent and objectives of the General Plan's Population, Objective C, Policy 1, stated as follows:

“Facilitate the full development of the primary urban center.”

Comment: The proposed development as either a condominium or a timeshare or combination will facilitate the full development of the primary urban center by developing this vacant lot to support additional residential population or visitor population in Waikiki.

The proposed development will meet the General Plan's Population, Objective C, Policy 4 which established a 46% share of the 2025 islandwide population of Honolulu.

Comment: The proposed project will increase the residential population of the area if the applicant chooses to develop condominium units. The proposed development as a condominium project would provide about 220 multi-family dwelling units which will provide for additional residential population in the Waikiki area. Based on DPP standards for dwellings in Waikiki, the average household size is estimated at 1.72 which translates to about 378 residents living in the 220 condominium units. Based on the DPP's "Annual Report on the Status of Land Use on Oahu, Fiscal Year 2004", the Year 2000 population for the Primary Urban Center is about 419,300 which is about 47.9% of the Year 2000 island-wide population. Although the 419,300 population is only a little over the 46% General Plan Benchmark for 2025, and the DPP projects that the Primary Urban Center will grow by about 37,500 persons by the Year 2010. The proposed 220 multi-family dwelling units will provide for about 378 persons in this projected population increase to the Year 2010. Due to the nature of new condominium buyers in Waikiki, the population increase based on the 220 units will probably be less than a typical 220 unit condominium development, since a certain percentage of buyers are expected to be off-shore owners and second or vacation home buyers. A project with a combination of condominium and hotel

units would result in a smaller increase in population for the area.

The proposed development will meet the intent and objectives of the General Plan's Economic Activity, Objective B, stated as follows:

"To maintain the viability of Oahu's visitor industry."

Comment: The proposed development may provide new timeshare development which will help to offset the loss of hotel units experienced in the recent past. These hotel units were lost in the growing hotel to condominium conversion projects spurred by the lower interest rates and dwindling supply of "for sale" condominiums in the Waikiki area. The additional retail establishments would serve to vitalize the area.

The General Plan's Housing, Objective C, Policy 3, stated as follows:

"Encourage residential development near employment centers."

Comment: The proposed development site is located in the heart of Waikiki, one of the major employment centers on the island. The development site is also in close proximity to the Kapiolani Corridor and the City's Central Business District.

c. Primary Urban Center Development Plan (PUCDP)

I. The Vision for the PUC's Future

"Section 2.2 Livable Neighborhoods have Business Districts, Parks and Plazas, and Walkable Streets - ...Livable neighborhoods include business and community services as well as residences. Key to livability is convenient access to work and to the many services and attractions found in an urban center. Rather than segregate residential from commercial uses, the goal is to integrate them in ways that provide greater convenience and bring activity to neighborhood streets."

The proposed development is situated in close proximity to community services and attractions and is conveniently located to Waikiki and the Central Business District, two major employment centers. The proposed development will be located on the same lot as the 2100 Kalakaua retail development and will provide the mixed use development encouraged in the Vision for the PUC.

"Section 2.4 Honolulu is the Pacific's Leading City and Travel Destination - ...With ongoing redevelopment and improvement, Waikiki remains the State's largest and most popular visitor destination. An ever-growing number of visitors are drawn to Honolulu for business

reasons. Many organizations travel here for conferences and meetings at the City's highly rated Hawaii Convention Center. Newer hotels are located near the Convention Center and in Downtown."

With the ongoing conversion of major hotels to condominium development, the number of resort units in Waikiki has been decreasing over the past several years. The proposed development may offer a timeshare development to help off-set this trend. Even if developed as a condominium, this addition to the condominium market may help meet the increasing demand for condos in Waikiki and may discourage a future hotel to condo conversion depending on the market.

"Section 2.5 A Balanced Transportation System Provides Mobility - ...A fully built-out rapid transit system serves thousands of people every day."

The success of a rapid transit line will depend on having high density development near its transit center. Under the formerly proposed BRT (Bus Rapid Transit) development, a transit center was planned in close proximity to this development. The applicant expects that under a future rapid transit scenario a transit center would continue to be warranted in close proximity to this

development.

ii. Land Use and Transportation

“Section 3.2 Neighborhood Planning and Improvement - ...‘In-town residential neighborhoods’ refers to areas on the centrally located coastal plains of Honolulu and Pearl City-Aiea that are generally planned to include higher density residential use.”

The applicant proposes a high rise, higher density mixed use and possibly residential in keeping with this vision statement for the coastal plains of Honolulu.

Section 3.2.2.1 of the PUCDP states that there are many opportunities to create street environments that invite pedestrian use, such as widening sidewalks, planting trees to provide shade and buffer pedestrians from vehicular traffic. The sidewalks and existing landscaping have been widened with the development of the 2200 Kalakaua project and Kuhio Avenue improvements. The developer of 2121 Kuhio proposes to maintain as much of these improvements as possible. Additional landscaping is planned as part of the development. The nearest designated “Pedestrian Network” as indicated on the PUCDP Land Use Map, A.6, and Figure 3.14 is along the Ala Wai Boulevard and Kalakaua Avenue. The 2000 US

Census estimates that 5.6 percent of Oahu commuters walk to work. The site is easily accessible via pedestrian means, such as the improved sidewalks fronting the property, which is consistent with Section 3.2.2.1 of the PUCDP.

“Section 3.2.2.3 In-Town Residential Neighborhoods - ...Density. Areas close to transit lines and the major east-west arterials should be zoned for medium-density residential, which may range from 13 to 90 units per acre, or high-density residential mixed use, which may range up to 140 units per acre. Neighborhoods in these zones would also include reinforcing uses which support resident lifestyle and livelihood choices, such as convenience or neighborhood stores, dining establishments, professional and/or business services, or other similar activities.”

The applicant proposes a high-density residential mixed use development with about 220 units, which is within the recommended density for high-density residential mixed use areas. Plans for the recently unveiled mass-transit routes and stations indicate a transit line and several stations along Kuhio Avenue. Locating a high-density residential mixed use project, such as the proposal, in close proximity to the transit line is consistent with Section

3.2.2.3 of the PUCDP.

“Section 3.3.2 Policies - ...Provide for high-density housing options in mixed use developments around transit stations. This type of ‘transit-oriented development’ facilitates transit use and allows for increased densities without generating increased vehicular congestion.”

Under the formerly proposed BRT development, a transit center was planned in close proximity to this development. The applicant expects that under a future rapid transit scenario a transit center would continue to be warranted in close proximity to this development. The applicant’s proposed high density, mixed-use development will help to implement this policy.

“3.4.1.2 Visitor Industry - ...The need to upgrade Waikiki. Waikiki is competing in the global marketplace and, as a mature destination, needs to be refurbished and improved. In addition to upgrading streets and public spaces, the City and State need to adopt policies that will elicit private reinvestment in Waikiki’s physical plant.”

The applicant is providing a major investment to revitalize the area beyond the former low-rise commercial

use and the current vacant status.

iii. Policies

As discussed in Section IV.D.1, the site is easily accessible via alternative urban travel modes. The site is easily accessible to pedestrians and bus patrons and is located adjacent to previously planned transit lines. A high percentage of the existing employees take alternative transit.

iv. Section 3.5.3, Guidelines

The project is consistent with the first guideline of Section 3.5.3 as it consists of an infill redevelopment near existing and future transit corridors. The remaining guidelines are generally functions of government.

v. Land Use Map

The Primary Urban Center Development Plan Land Use Map designation for the property is Resort. The proposed rezoning to Resort Mixed Use Precinct is consistent with this designation. The proposed development is consistent with this designation.

vi. Public Infrastructure Map

The Public Infrastructure Map designates a proposed transit corridor on Kalakaua Avenue, Kalaimoku Street and Kuhio Avenue.

d. Zoning

The property is currently zoned Resort Commercial Precinct with a 300-foot height limit.

According to Article 9 (Waikiki Special District) of the Land Use Ordinance (LUO), the proposed condominium (multi-family dwelling), timeshare, condominium/hotel and the restaurant/retail complex (eating establishments) are permitted uses in the Resort Mixed Use Precinct. The proposed rezoning to Resort Mixed Use Precinct is requested to allow the proposed uses which are not a permitted uses in the property's present Resort Commercial Precinct zoning designation. This zone change is supported by and will implement the property's Resort designation on the Primary Urban Development Plan Land Use Map.

The applicant will be requesting a rezoning to a Resort Mixed Use Precinct with a 300-foot height limit.

e. Waikiki Livable Community Project (December 2003)

The proposed development will improve the pedestrian experience along Kuhio Avenue and Kalaimoku Street, by offering a gathering place open to the public at the corner of Kuhio Avenue and Kalaimoku Street with appropriate street furniture to encourage the public to enjoy the open space provided by the applicant. This gathering place and the proposed

restaurant/retail development with outdoor dining will provide a welcoming feature at the corner of Kuhio Avenue and Kalaimoku Street.

Along Kuhio Avenue, as recommended by the DPP, a meandering sidewalk has been provided as part of the City's Kuhio Avenue beautification project, enhancing the pedestrian experience along the Kuhio Avenue frontage. This frontage will be further improved by the proposed landscaped area that will provide visual relief from the surrounding developments that incorporate little open space amenities. The applicant feels that this enhanced pedestrian experience, in lieu of a more commercial frontage is appropriate and will enhance the tropical "Main Street" that Kuhio Avenue is envisioned to become. This extensive new landscaping is in keeping with the Kuhio Avenue Vision Statement which states in part:

"Visually, the pedestrian experience will be transformed through extensive new landscaping for shading, historic light fixtures, textured or sidewalk paving and more benches."

The applicant has worked with the DPP to implement other concepts of the Kuhio Avenue "Main Street" vision, including historic light fixtures, textured or sidewalk paving, and widening the sidewalk, during the recent Kuhio Avenue improvement

project by the City.

The visual and pedestrian connection between 2121 Kuhio Avenue and 2100 Kalakaua will be provided to some degree at the restaurant/retail complex and the gathering place provided at the corner of Kuhio Avenue and Kalaimoku Street. The sidewalk materials continue along Kalaimoku Street fronting the project and widen and extend into the project at the gathering place near the corner as indicated on the site plans.

B. Technical Characteristics

1. Use Characteristics

The applicant proposes to rezone the 2.66 acre project site from Resort Commercial Precinct to Resort Mixed Use Precinct.

The zone change will allow the applicant to continue the retail/commercial use of the existing 2100 Kalakaua Development and to add a other desired uses to the vacant mauka portion of the lot. The applicant is considering these several alternative uses for the site with a final decision to be made based on the market conditions prior to application for a Waikiki Special District Permit.

As previously indicated, there are three land use options being considered. These include construction of 1) a residential condominium tower, 2) a timeshare tower or 3) a combination residential condominium/hotel tower. Each of these would have a low-rise restaurant/retail component with up to 10,000 square feet. The

condominium and timeshare development would both offer approximately 220 two-bedroom units. The third alternative would have approximately 140 hotel units and 120 residential condominium units. Under all of these schemes, parking is planned to be provided in two levels of underground parking.

Two site plans have been developed for the project and are provided in Appendix I .

2. Physical Characteristics

The development site is currently a grassy, flat graded lot surrounded by an 8-foot tall construction barricade along the storefront. The proposed development will consist of a 300-foot high tower and low-rise restaurant/retail area.

As previously indicated there are currently two site plans and several different uses being considered. The following provides a description of the physical characteristics. These characteristics are relevant to both site plans and the uses being considered.

a. Floor Area Ratio

Development on the project site (including 2100 Kalakaua) consists of approximately 110,000 square feet. With the addition of the proposed development, the applicant expects to have a floor area ratio (FAR) will be upto 2.80.

b. Number of Structures

As indicated in the site plans, the proposed tower is generally separated from the restaurant/retail component. The pool is generally located on the Diamond Head side of the tower in both site plans.

c. Lot Coverage

The proposed condominium development would result in 50% open space over the entire property.

d. Floor Areas

The proposed development will add about 306,300 square feet of floor area to the existing 110,000 square feet (2100 Kalakaua) for a total floor area of about 416,300 square feet. The FAR will be upto 2.80 based on the lot area and one-half the abutting right-of-way of the public streets. As previously indicated, the applicant is considering using the excess density from the parcel identified by Tax Map Key 2-6-18: 43. If this excess density is incorporated into the proposed development, there will be additional floor area added to the project .

e. Number of Parking Spaces

The project presently provides 262 parking stalls. The highest number of stalls that the new development would required is based on the following: Condominium - 220

stalls, one per unit; Restaurant/retail - 4 stalls; and 2100 Kalakaua - 92 stalls. The parking for the restaurant/retail facility will be provided in a portion of the underground parking lot with access through a stairway and/or elevator to provide access to the ground level and restaurant/retail complex on the property. At this time, it is planned that the 92 stalls required for 2100 Kalakaua will continue to be provided at the King Kalakaua Plaza across Kalaimoku Street. The applicant may seek to reduce the required parking through development of a parking management plan. Generally, the applicant seeks to provide the required parking on site. An additional below grade level to accommodate the required parking for 2100 Kalakaua is under consideration.

f. Recreational Amenities

The proposed development will provide 50% open space with a portion open to the public and a private recreation area and swimming pool.

g. Heights of Structures

The condominium tower will be about 300 feet tall. The restaurant/retail complex will be about 30 feet tall. The existing 2100 Kalakaua development is about 60 feet tall.

3. Construction Characteristics.

The development will be constructed over an approximate 18 to 24 month period. Construction will begin as soon as the applicant is able to receive approval of the development by the City, including building permit approvals.

The construction cost of the proposed development is expected to be approximately \$75 to \$85 million.

In order to create the two levels of the underground parking garage, 43,000 cubic yards will be excavated. If a third level of parking is constructed this volume will increase proportionately. The following summarizes the proposed plans for excavation and dewatering:

In order to minimize or eliminate excessive draw downs in lagoonal soils beyond the excavation site that could cause structural problems for surrounding properties, the following is proposed:

- The applicant will utilize a perimeter anchored sheet pile wall extending to a depth of about 60 feet which will require lateral support with tieback anchors. The perimeter sheet pile wall will be installed within a partially predrilled hole to better enable a tight interlocking of the sheets. The sheet pile wall will minimize direct water leakage through the sheets; cutoff the underlying alluvial deposits; and

partially cutoff the coralline deposits.

- Dewatering will be conducted from sump wells combined with a five foot thick drainage blanket constructed below the proposed bottom of mat elevation. The sump wells will extend through the lagoonal deposits but will not extend through the alluvial layer. Initially the sump wells would be used for initial dewatering, but would eventually be used to drain groundwater collected by the drainage blanket.
- The pumped ground water will be re-injected adjacent to the site with a combination of gravity injection wells and trenches.
- Off-site groundwater discharge should be limited to initial dewatering from the sump wells. If limited off-site discharge is conducted, it should not exceed 2,000 gpm and should not exceed one week in duration. If significant draw downs are noted in observation wells outside the sheet pile wall, discharge should be discontinued.

The following monitoring program will be conducted to minimize structural problems and address impacts to surrounding structures:

- Inspect and photograph existing structures adjacent to the site.

- Determine settlement monitoring benchmarks within the potential settlement area.
- Determine settlement monitoring points at adjacent existing structures and at four site perimeters.
- Install crack monitors at major existing cracks for existing structures adjacent to the site.
- Install observation wells at the four site perimeters to monitor groundwater level drawdowns.

The applicant will provide more detailed plans and specifications for the excavation and dewatering prior to construction.

Construction of the project will require grading and trenching.

IV. IMPACTS

A. Demographic Impacts

1. Residential Population

The proposed project will increase the residential population of the area if the applicant chooses to develop a condominium. The proposed development as a condominium project would provide approximately 220 multi-family dwelling units which will provide for additional residential population in the Waikiki area. Based on the DPP's "Annual Report on the Status of Land Use on Oahu, Fiscal Year 2004", the Year 2004 population for the Primary Urban Center is

approximately 419,422 which is approximately 47.9% of the Year 2000 island-wide population. Although the 419,422 population is only a little over the 46% General Plan Benchmark for 2025, and the DPP projects that the Primary Urban Center will grow by approximately 22,596 persons by the Year 2010. The proposed 220 multi-family dwelling units will provide for some of this projected population increase to the Year 2010. Due to the nature of new condominium buyers in Waikiki, the population increase based on the 220 units will probably be less than a typical 220 unit condominium development, since a certain percentage of buyers are expected to be off-shore owners and second or vacation home buyers.

2. Visitor Population

The proposed change in zoning will have an impact on the number of visitors to the islands if the applicant chooses to develop a timeshare. The approximately 220 timeshare units would provide a nice boost to the number of visitor units in Waikiki, particularly in light of the recent trend of hotel to condominium unit conversions that has been experienced in Waikiki, spurred on by lower interest rates and a dwindling supply of condominium units available for sale in Waikiki.

3. Character or Culture of the Neighborhood.

The proposed development and restaurant/retail complex will conform to the mixed use character of the existing neighborhood where nearby hotel, condominium, restaurant/retail and retail developments can be found.

4. Displacement

No residents or businesses will be displaced by the proposed zone change and development.

B. Economic Impacts

1. Economic Growth

The proposed development as either a condominium, timeshare or combination with a restaurant/retail complex will provide significant short term construction jobs, as well as permanent jobs to support the restaurant/retail complex and either the condominium or timeshare development. The timeshare would provide a significantly greater number of permanent jobs with approximately 50 permanent jobs servicing the timeshare development. This added to approximately 40 jobs generated by the restaurant/retail complex will result in up to 90 permanent jobs with the timeshare and restaurant/retail complex development.

2. Employment

As mentioned earlier, the development will provide short term construction jobs. The development will also provide long term jobs (approximately 40) in the form of restaurant/retail service employees and condominium management if the project has condominium units. Similarly, there could be long term employment jobs (up to approximately 90) in the form of hotel related service jobs.

3. Government Revenues/Taxes

Tax revenues will be generated by the short-term construction

work and the long term permanent jobs in the form of restaurant/retail employees and condominium manager or jobs similar to those in the hotel industry. In addition, property tax revenues to the City will go up substantially in relation to the improvement value on the property with the new building versus the existing commercial development.

C. Housing Impacts

1. Increase Supply

The proposed development will provide either 220 condominium, 220 timeshare units or combination of condominium/hotel units and will increase the number of available dwelling or resort units in Waikiki. A proposed condominium development would add to the housing market in Waikiki and provide opportunities to live, work and play in the vibrant Waikiki Resort community. With relatively quick sales recently experienced in Waikiki, it is evident that there is pent up demand for condominium units in Waikiki.

2. Affordable Units

In the subsequent zone change application, the applicant understands that there may be an affordable housing condition should the project be developed with condominium units.

D. Public Services

1. Access and Transportation

Kuhio Avenue, an east-west oriented roadway, will serve as the primary access way to the project site. Kalakaua Avenue and Ala Wai Boulevard are both one-way roadways that run parallel to Kuhio Avenue and collectively form a couplet system providing access routes throughout Waikiki. After completion of the preferred project, the primary access to the new development will be via a new driveway off of Kalaimoku Street. It is anticipated that the existing retail porte cochere structure located along Kalaimoku Street and straddling both the 2100 Kalakaua and 2121 Kuhio parcels would be removed or relocated and that the 2121 Kuhio restaurant/retail service entrance would have access from the porte cochere driveway within the 2121 Kuhio parcel. The trolley off-street drop-off/pick-up driveway will remain.

The proposed expansion may involve some short term construction disruption of traffic for transportation of construction equipment to and from the site and delivery of building materials to the site. The delays are normally of short duration and will end when the construction is completed.

Wilson Okamoto Corporation, has prepared a "Traffic Impact Report 2121 Kuhio Development" and dated March 2006. Please refer to Appendix II - Traffic Impact Report (TIR).

The TIR section "Conclusion" states the following:

"The 2121 Kuhio development is currently in the preliminary planning stages and, as such, the ultimate land use and primary access location have still not been determined. The project will include timeshare, residential condominium-hotel units with a restaurant and underground parking. Access to the development will either be provided via a new driveway adjacent to the existing drop off area along Kalaimoku Street or a new driveway off Kuhio Avenue. As such, this study assessed various combinations of these land use alternatives and primary access locations to ascertain the impact of this development on the surrounding roadway network. With the implementation of the recommended traffic signal timing modifications and the provision of adequate staging and loading areas within and near the project site, traffic operations in the vicinity are generally anticipated to continue operating at levels of service similar to without project conditions under all land use and primary access location combination scenarios. As such, the 2121 Kuhio development is not anticipated to have a significant impact on traffic operations in the project vicinity."

The TIR section "Recommendation" states as follows:

"For the three land use alternative and two primary access locations currently under consideration the following are the recommendations of this study associated with the project implementation based on the analysis of the traffic data: "

"1. Provide sufficient driveway width to accommodate safe vehicle

ingress and egress.”

- “2. Provide adequate turning radii at all project driveways to avoid or minimize vehicle encroachment to oncoming traffic lanes.”
- “3. Maintain adequate sight distances for motorist to safely enter and exit all project driveways”
- “4. Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.”
- “5. *Modify the traffic signal timing at the intersection of Ala Wai Boulevard and Kalaimoku Street to accommodate anticipated increases in traffic along both those roadways.*”
- “6. *Modify the traffic signal timing at the intersection of Ala Wai Boulevard and Lewers Street to accommodate anticipated increases in traffic along both those roadways.*”
- “7. *Modify the traffic signal timing at the intersection of Kuhio Avenue and Launiu Street to accommodate anticipated increases in traffic along Kuhio Avenue.*
- “8. Provide adequate valet staging and loading areas to ensure that vehicular queues do not extend onto the adjacent City and County of Honolulu streets.”
- “9. Provide adequate staging and loading areas for trolleys and buses currently utilizing the porte cochère area along Kalaimoku Street to ensure that vehicular queues do not extend onto the adjacent City and County of Honolulu streets.”

The 2006 TIR currently analyses the traffic impacts based on alternate

uses and site plans. The intended use and site plan will be selected prior to application of a WSD permit. At that time, the TIR will be modified. Inapplicable information will be deleted and the TIR will be revised to focus on and analyze the traffic impacts and mitigation measure of the selected use and site plan.”

The applicant has modified the site plan in response to comments related to traffic from the DPP and the Department of Transportation Services. To minimize the traffic impact of the proposed development applicant will implement the recommended traffic mitigation measures. The applicant will coordinate implementation of these recommendations with DPP and DTS.

As currently envisioned in the preferred plan, the valet service for the restaurant/retail is not anticipated to impact Kalaimoku Street. Cars would be dropped off near the restaurant and at the main entrance off of Kalaimoku Street and park in the proposed underground parking garage, accessed by the proposed ramp. If the alternative plan were to be developed cars delivering patrons to the restaurant/retail complex would be dropped off using the existing retail drop off area and park in the underground parking via an access off of Kuhio Avenue.

The traffic study recommended that traffic movements at the project driveways be restricted to right-turn in and right-turn out. The project has been modified to restrict movement at the service drive to right turns. The alternate plan aligns the proposed Kuhio Avenue driveway with a signalized Launiu Street.

The traffic impact of the proposed project on Kaiolu and Launiu Street

intersections is discussed in the traffic study.

The applicant does not propose to remove the cross walk on the south side of the Kalakaua/Lewers Street. Provisions for this cross walk are discussed in the traffic report.

Under a previously conceived rapid transit plan, there was a bus stop planned across Kalaimoku Street from the project site. Although there are no plans to implement these improvements, it is likely that future transit plans will call for a transit stop in the same vicinity.

The TIR for the project recommends restricting traffic movements at the project driveways to prohibit left turns into and out of the project. This is expected to minimize impact to the public transit service along Kuhio Avenue and Kalaimoku.

The designers of the project will consider a possible waiting and drop-off area for the Handivan with accessible access to that location. Some possible locations are along the service road on the east side of the property sidewalk and or intersection improvements along the Kalaimoku side of the property.

The sidewalks fronting the project site on Kalakaua Avenue, Kuhio Avenue and Kalaimoku Street currently "meander". The applicant has worked with the City on the Kuhio Avenue beautification project to provide new meandering sidewalks and will provide meandering sidewalks along Kalaimoku Street with this development.

The loading stalls for both site plans is located near the porte cochere. This design will allow adequate room to maneuver on site so loading vehicles

may enter and exit front first.

The applicant will coordinate traffic mitigation measures such as adjustments to signal timing with the DPP and the Department of Transportation Services.

Construction plans for all work within or affecting city streets will be submitted to the DPP for review and comment/approval. Traffic control plans for work during construction will be submitted to the Traffic Review Branch of the DPP for review and approval.

Based on a survey conducted this year of employees for the establishments at 2121 Kalakaua, 40% reported taking alternate forms of transportation. It is anticipated that this will continue for those employed at the 2100 Kalakaua Avenue and also apply to future employees of the proposed commercial spaced at 2121 Kuhio Avenue.

The City's Ala Wai Bicycle Study considered alternatives for widening the Ala Wai Canal promenade between Kapahulu Avenue and Kalakaua Avenue to include a new bicycle path. Today there is a striped bike lane which extend from Kapahulu Avenue to the end of the on-street parking on Ala Wai Boulevard. As part of the Kuhio Avenue improvement project the City installed additional metal sculptures which allow bikes to be secured.

According to the Waikiki Livable Community Project, Kuhio Avenue is a critical corridor for public transit in Waikiki. It carries six important City bus routes traveling in both directions. The high capacity BRT line was planned for Kuhio Avenue for its ewa bound direction as part of a transit loop

serving Waikiki. Kalakaua Avenue was planned as part of that loop, traveling in the Diamond Head direction. This public transit circulation pattern will likely be used for future high capacity public transit programs. Because the project site is located between these potential future transit lines, it is conveniently located for site users who wish to use future public transit.

The Waikiki Livable Community Project calls for Kuhio Avenue to be transformed into a pedestrian friendly "Main Street". The project calls for increased sidewalk widths and landscaping and replacing the existing concrete pavement with quartzite tiling. The existing sidewalks currently provide this. The applicant will work with the city to implement this vision for a livable Waikiki.

2. Water

The off-site water transmission system includes an 8-inch line in Kalakaua Avenue, a 12-inch line in Kalaimoku Street and 16- and 24-inch lines in Kuhio Avenue.

The proposed development of a 220-unit timeshare development with a restaurant/retail complex would utilize approximately 63,600 gallons per day. The proposed development of a 220-unit condominium development with a restaurant/retail complex would utilize approximately 64,800 gallons per day.

In its November 17, 2005 letter the Board of Board of Water Supply indicated that the existing water system is adequate to accommodate the proposed condominium or timeshare development.

3. Wastewater

The sewer system at the project site consists of existing 6-inch and 8-

inch sewer lines that connect an 18-inch transmission sewer main located within Kuhio Avenue.

The existing off-site sewer collection system consists of an 18-inch gravity sewer transmission main located within Kuhio Avenue which flows to the Beachwalk Sewer Pump Station. From the Beachwalk Sewer Pump Station the sewage is pumped to the Ala Moana Sewage Pump Station and allowed to gravity flow to the Sand Island Wastewater Treatment Plant.

Under any scenario, the restaurant/retail with the condominium, timeshare, or combination residential condominium/hotel tower would generate about 54,400 gallons of waste water per day.

The DPP on May 11, 2004 approved a Sewer Connection Application (Appendix III - Agency Comments) for the proposed 2121 Kuhio Avenue. This Sewer Connection Application approval is valid for a period of two years.

4. Drainage

The existing drainage patterns on the property will remain unchanged. Although the interim open space use of the property has resulted in greater landscape areas, the former commercial use provided minimal landscaped areas with most of the property covered in concrete or pavement. The proposal for at least 50% open space on the property will be a significant improvement over the former commercial development on the property.

The project will connect to the City's municipal drainage system. Prior to connection to the City's system the applicant will apply for a drain

connection license. The on-site storm water will be filtered, per the City and County of Honolulu DPP, Rules Relating to Storm Drainage Standards, Storm Water Quality Section, dated January 2000.

5. Flood Plain Management

According to the Flood Insurance Rate Map of the Federal Emergency Management Area (FEMA), panel 370 of 395, Map Number 15003C0370 E, dated November 20, 2000, the project site is in Zone AO, an area determined to have an average flood depth of 2 feet.

The project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), since it is within a Special Flood Hazard Area. The applicant will also comply with the requirements of the City and County of Honolulu, Land Use Ordinance related to Flood Hazard Districts.

6. Solid Waste Disposal

The solid waste generated by the proposed development will be collected by a private firm and will not impact municipal refuse services.

7. Schools

If 220 condominium units are developed on the property, the following approximate increases in student population are anticipated, based on Department of Education standards:

- a) Elementary (Kindergarten to 5th) - 20 to 45
- b) Middle (6th to 8th) - 8 to 18
- c) High (9th to 12th) - 13 to 18

These increases in student population are estimates for Honolulu developments. However, due to the nature of new condominium buyers in Waikiki, the student population increase based on the 220 units will probably be less than a typical 220 unit condominium development, since a certain percentage of buyers are expected to be off-shore owners and second or vacation home buyers, as well as retirees. This mix of buyers is not expected to generate as many students as a typical condominium development.

The students generated by this development would attend Jefferson Elementary School, Washington Middle School and Kaimuki High School.

The following table provides the capacity, the actual 2005/2006 student enrollment, and the projected enrollment for 2007 and 2010, for each of the school that serve the area:

Public School Capacity and Enrollment

School	2005-2006 Capacity	2005-2006 Enrollment	2007-2008 Projection	2010-2011 Projection
Jefferson Elementary	603	479	409	466
Washington Middle	1,008	1,066	964	876
Kaimuki High	1,478	1,478	1,267	1,263

When the State Department of Education commented on the Draft EA for the proposed 183 condominium units, it stated that Kaimuki High School and Jefferson Elementary School appear to have adequate capacity to accommodate students who might live in 2121 Kuhio Avenue (This assumes a residential condominium is developed on the site.) Student enrollment at Washington

Middle School currently exceeds capacity. If residential condominium units are developed on the property, the applicant understands that it maybe required to contribute on a fair-share basis (estimated at \$219,390), toward the development, funding, and/or construction of school facilities.

8. Parks

The proposed zone change will result in the dedication of land on the property for park and recreational use, including a swimming pool, for the condominium residents or timeshare visitors. Recreational activities are also available at the beach fronting Fort DeRussy. The applicant will consult with the DPP and Department of Parks and Recreation regarding compliance with park dedication requirements.

9. Police

The Police Department's Alapai Headquarters is located approximately 2.5 miles away at the intersection of Alapai Street and Beretania Street. The Waikiki Substation is located approximately a mile away on Kalakaua Avenue and residents and visitors can expect a quick response time.

10. Fire

The Pawa Fire Station (Station 2) is located approximately 1 mile away on Makaloa Street. The Waikiki Fire Station (Station 7) is located approximately 1.2 miles away on Kapahulu Avenue. The applicant proposes to provide a fire apparatus access road if needed. A water supply system, approved by the county, capable of supplying the required fire flow for fire protection will be provided in accordance with City standards. Civil and

Construction drawings will be submitted to the Fire Department when the plans have been prepared.

11. Utilities

a. Electric

The Hawaiian Electric Company has existing power lines serving this area and the applicant will coordinate development of 2121 Kuhio to ensure that the power lines will be adequate to support the proposed condominium development.

b. Telephone

Verizon formally GTE Hawaiian Telephone Company has existing utility service lines in the area. It is expected that these existing lines will be used to service the project site. The applicant will coordinate with Verizon to determine if new lines will be required. No off-site work is expected.

E. Environmental Impacts

1. Historical and Archaeological Resources

In August 1998 an "Archaeological Assessment of King Kalakaua Plaza Phase II, Waikiki Island of O'ahu" was prepared by Cultural Surveys Hawaii for the proposed development site. This archaeological assessment is included in its entirety in Appendix IV.

The archaeological assessment provided the following recommendations:

- "1) It is likely that intact prehistoric and early contact cultural deposits are lying undisturbed beneath modern fill layers within the project area (as

has been documented in adjacent areas of Waikiki). Also, there is historic evidence indicating the prior existence of a major *auwai* and possible adjacent *lo'i* (irrigated terraces) in the project area. Therefore, an archaeological inventory survey is recommended. This survey would comprise subsurface testing of the entire project area consisting of a series of backhoe trenches. Particular attention would be given to locating the 'auwai (State site 50-80-14-4970) along the west side of the project area."

- "2) If major findings are encountered during subsurface testing, preparation of a mitigation plan would be appropriate. This plan would be reviewed and approved by the State Historic Preservation Division (SHPD)."
- "3) An additional concern is the possible presence of burials. If burials are encountered during the subsurface testing, the Burials Program of the SHPD should be notified to determine appropriate treatment. Provision should also be made for treatment of unanticipated finds during construction excavation."
- "4) Structures in the project area over fifty years old do not appear to have retained their historical integrity, as noted in the SHPD letter of August 3, 1998 (see Appendix IV) discussed in this report. However, the letter also notes the department's concern with the Canlis Charcoal Broiler building, citing 'its exceptional significance as one of the few intact examples left in Hawaii of the once popular restaurant/retail

trend and unique building type.’ Because of this concern, it is recommended that further consultation with the SHPD be pursued before development plans are finalized.”

The following follow up activities were done to implement these recommendations, prior to construction of the 2100 Kalakaua development:

- An Archaeological Inventory Survey was conducted for the King Kalakaua Phase II Project Area. This survey was accepted as a final report by the State Historic Preservation Division (SHPD), by letter dated July 18, 2000 (Appendix IV).
- In accordance with recommendation of the SHPD, a photographic essay on the small single story structures in Waikiki circa 1950 has been filed with the SHPD. On March 3, 2006 the SHPD approved the photographic essay. A copy of it’s approval letter is attached in Appendix IX.

In it’s November 17, 2005 comment letter the State Office of Hawaiian Affairs requested that an Archeological Monitoring Plan be prepared. An archaeological monitoring plan will be prepared prior to the initiation of ground altering activities.

“An Archaeological Inventory Survey of the King Kalakaua Plaza Phase II” included the 2121 Kuhio project site. Written approval of this report was granted on July 18, 2000. A copy of the approval letter is included in Appendix IV. The potential archeological and

historic resources that are expected to be encountered during excavation have been disclosed. An archaeological monitoring program will be prepared prior to ground altering activities in accordance with recommendation made by OHA and SHPD.

2. Cultural Impact Assessment

Scientific Consultant Services, Inc. (SCS) has completed a Cultural Impact Assessment for the project, provided in its entirety in Appendix V.

SCS cultural assessment is summarized as follows:

“The project area has not been used for traditional cultural purposes within recent times. The parcels were originally part of a lagoon/fish pond environment that shifted to banana cultivation and then commercial use in the 1940s. Based on historical research and response from those organizations contacted, it is reasonable to conclude that Hawaiian rights related to gathering, access or other customary activities within the project area will not be affected and there will be no adverse effect upon cultural practices or beliefs. Because there were no activities identified on Parcels 10 (portion), 42, and 52 there are no adverse effects.”

3. Natural Resources

a. Water Resources

There are no naturally occurring potable water resources within the project site. The development site is located

approximately 1,900 feet from the ocean and will not have an impact on coastal resources.

b. Flood Plain Management

According to the Flood Insurance Rate Map of the Federal Emergency Management Area (FEMA), panel 370 of 395, Map Number 15003C0370 E, dated November 20, 2000, the project site is in Zone AO, an area determined to have an average flood depth of 2 feet.

The project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), since it is within a Special Flood Hazard Area. The applicant will also comply with the requirements of the City and County of Honolulu, Land Use Ordinance related to Flood Hazard Districts.

c. Wetlands Protection

The development site is an urbanized lot that contains no wetlands.

d. Coastal Zone Management

Although the development is within the State's Coastal Zone Management Area it is not within the Special Management Area. As mentioned earlier, the development site is approximately 1,800 feet from the ocean.

e. Unique Natural Features

The development site is level with soil suitable to support commercial development as can be seen from other high rise complexes on nearby lots. There are no unique features such as sand dunes or sloped areas where erosion would be a concern.

f. Flora

The proposed development site, with the exception of a few trees, was cleared during the development of 2100 Kalakaua and new landscaping was introduced on the property. None of the trees or plants are considered rare or endangered.

It is intended that the large banyan tree located on the property at the corner of Kuhio Avenue and Kalaimoku Street will remain or be moved closer to the corner of Kalaimoku Street and Kuhio Avenue intersection to better protect it during construction activity. This would create a gathering place open to the public at this corner.

The existing vacant lot has groundcover, but not much more additional landscaping. The net result of the proposed landscape plan will be a significant increase over the existing trees presently on the property.

g. Fauna

Common species of cats, rats and mice normally found in urban city environments are probably present at the site. Further, species common to the area, such as sparrows, mynahs, doves and finches are likely to inhabit the project site. The project site does not contain any rare or endangered fauna. Nor does it contain habitat for rare or endangered avifauna.

h. Agricultural Lands

The development site is in an urban area where its use will not impact agricultural lands or lands with the potential for agricultural use.

i. Open Space

Under the proposed zone change to a Resort Mixed Use Precinct, the applicant's proposed development will require 50% open space and will provide a significant amount of open space not typically found in past or recent developments in the Waikiki area. This 50% open space will be boosted under the preferred plan with the provision of the a large landscaped recreation area along the mauka and Diamond Head portions of the property.

F. Topography

The property is relatively level and since the project site is located in an urban, fully developed area there are no unusual or unique topographic features on the property.

The southern half of the site is developed with the 2100 Kalakaua retail commercial development (Three-story, 110,000 square feet of floor area). The northern half of the site is vacant. The site is located about 1,800 feet from the shoreline at Fort DeRussy Beach Park.

G. Soils

According to the United States Department of Agriculture, Soil Conservation Service's "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii" the site is classified as fill land, mixed (FL).

The land occurs mostly near Pearl Harbor and in Honolulu in areas adjacent to the ocean. It consists of areas filled with 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.

H. Noise

Short term noise impacts at construction sites are a normal result of construction activity. The State Department of Health administers rules and regulations relating to the hours during which construction is permitted and the noise levels permitted during those hours. The contractor will be required to apply for a permit from the State Department of Health should noise from construction activities exceed regulatory limits. The contractor will abide by the noise regulations incorporated into the permit.

In order to mitigate construction noise concerns, where possible, use of vibratory pile drivers rather than noisier impact pile drivers will be

utilized. The use of vibratory pile drivers rather than impact pile drivers will also minimize the potential for impacts from ground vibration. Excavation of the site will be accomplished with out blasting, utilizing hydraulic and mechanical excavation equipment, since the hardest material expected to be encountered are ancient coral layers.

Long term noise impact from the proposed development are expected to be minimal due to the nature of the proposal. As mentioned earlier, the increase in traffic is not expected to have a significant impact on the surrounding area.

I. Air Quality

Short term impacts on air quality are expected to be primarily related to dust generated by the construction activity. Dust will be generated in the course of excavating for foundations and utility lines. Dust control measures appropriate to the situation will be employed by the contractor, including where appropriate, the use of water wagons, erection of dust barriers and other methods for minimizing dust.

Due to the minimal impact from traffic projected for the development as discussed in the previous section on Noise, vehicular emissions will have minimal impact on the surrounding area.

J. Visual Impact

The 2121 Kuhio Avenue development will comply with the 300 foot height limit of the existing Resort Commercial Precinct or the Resort Mixed Use Precinct.

The mauka/makai tower orientation was chosen because it is the Waikiki Special District Design Guideline's recommended building orientation intended to minimize impact to public mauka/makai views. The tower location was selected as the site with the least impact to makai and Diamond Head views from surrounding buildings, namely Four Paddles and La Casa condominium towers located on the mauka side of Kuhio Avenue. Although the applicant understands that protecting private views is not a requirement of the Waikiki Special Design District, it is the applicant's desire to respect neighbors view where possible. Because the tower is generally located centrally on the property, the tower mass will appear diminished in the context of the overall development. The applicant has provided axonometric views of the proposed development that are included in Appendix I and provides a depiction of the visual impact of the proposed development.

Other options explored included shifting the building in either the Diamond Head or Ewa direction but this placed the tower directly in front of the neighboring towers. Rotating the building's longitudinal axis in the Diamond Head/Ewa direction would have a similar effect.

A shadow study is included as Appendix VIII indicates that no significant shadows will be cast on neighboring buildings for extended periods of time. The shadow study covers the full annual spectrum by including six "snapshots" from 9:00 AM, Noon and 3:00 PM on both the Summer and Winter Solstice, the time of the year where the impacts would

be the greatest. Appendix I contains photo montages and renderings indicating that the tower's placement and configuration is aimed at minimizing visual impacts . By designing the tower in the city-preferred Mauka/Makai axis and aligning the building with the public roadway, Launiu Street, impacts to views from mauka buildings are minimized. Because the tower is generally located centrally on the property the tower mass will appear diminished and it will fit well within the context of the site.

The attached plans identify buildings and heights of the surrounding properties. Mauka of Kuhio the 23 story La Casa, 15 story Tropic Surf, 7 Story Waikiki Cove and 25 story Four Paddle. Immediately Makai is the existing 3-story commercial shops at 2100 Kalakaua.

The tower's concept design is preliminary for the purposes of complying with environmental assessment requirements and the zoning change request. It is the full intent of the design that it shall comply with the Waikiki Special District requirements for glazing reflectivity and the amount of reflective material, if any.

K. Hazards

The development site does not contain any nuisances, airport clear zones, or other features which would jeopardize its development.

V. MAJOR IMPACTS AND ALTERNATIVES CONSIDERED

As mentioned throughout this report the proposed zone change of the entire site and development at 2121 Kuhio Avenue will not have a significant impact on the surrounding area in terms of public services and the environment.

Positive socio-economic impacts are projected with the development at 2121 Kuhio Avenue as the vacant parcel will realize its potential and both short and long term employment opportunities will be provided.

A. Commercial Development Under the Existing Resort Commercial Precinct

The current commercial market could support the development of a major entertainment center, including multiplex theaters and amusement centers to bring residents and visitors to the site to boost the demand for dining facilities and retail and office space.

The present Resort Commercial Precinct designation allows for a retail/dinning entertainment center use. In that the Land Use Ordinance has no requirement for open space in the Resort Commercial Precinct, there would be less open space at the ground floor with this design concept.

This retail/entertainment development has economic potential, as evidenced by the nearby Ward Theaters and Retail development, but would not provide the open space that the applicant envisions for the property. At present, a commercial development is not considered the highest and best use by the applicant. It is anticipated that this type of development could also result in greater traffic.

B. Zone Change with Condominium, Timeshare, or combination Condominium /Hotel Tower with a Restaurant/retail Complex

The proposed zone change with development of a condominium, timeshare, or combination condominium/hotel tower with a restaurant/retail complex was selected because it is considered the highest and best use for the property at this time and is consistent with the land use policies of the PUCDP. Any of these uses will also help meet the demand for condominium and timeshare units in Waikiki.

The applicant has developed two different site plans for the project. The applicant-preferred site plan, labeled "Site Plan" in Appendix I, with the entry off Kalaimoku Street, would create better circulation patterns on the site and allow more area for landscaping and recreational amenities. The "alternative site plan" provides a vehicular access to the port cochere off of Kuhio Avenue. This alternative site plan would commit significantly more area on the Kuhio Avenue side of the project to drive way and vehicular maneuvering space than the preferred plan.

VI. MITIGATION MEASURES

Although the impacts from the proposed development are not expected to be significant, the following mitigation measures are planned to minimize impact on the surrounding area:

A. Excavation and Dewatering

In order to create the two levels of the underground parking garage, 43,000 cubic yards will be excavated. The applicant will provide more detailed plans

and specifications for the excavation and dewatering prior to construction.

The following summarizes the proposed plans for excavation and dewatering:

In order to minimize or eliminate excessive draw downs in lagoonal soils beyond the excavation site that could cause structural problems for surrounding properties, the following is proposed:

- The applicant will utilize a perimeter anchored sheet pile wall extending to a depth of about 60 feet which will require lateral support with tieback anchors. The perimeter sheet pile wall will be installed within a partially predrilled hole to better enable a tight interlocking of the sheets. The sheet pile wall will minimize direct water leakage through the sheets; cutoff the underlying alluvial deposits; and partially cutoff the coralline deposits.
- Dewatering will be conducted from sump wells combined with a five foot thick drainage blanket constructed below the proposed bottom of mat elevation. The sump wells will extend through the lagoonal deposits but will not extend through the alluvial layer. Initially the sump wells would be used for initial dewatering, but would eventually be used to drain groundwater collected by the drainage blanket.
- The pumped ground water will be re-injected adjacent to the site with a combination of gravity injection wells and trenches.
- Off-site groundwater discharge should be limited to initial dewatering from the sump wells. If limited off-site discharge is conducted, it

should not exceed 2,000 gpm and should not exceed one week in duration. If significant draw downs are noted in observation wells outside the sheet pile wall, discharge should be discontinued.

The following monitoring program will be conducted to minimize structural problems and address impacts to surrounding structures:

- Inspect and photograph existing structures adjacent to the site.
- Determine settlement monitoring benchmarks within the potential settlement area.
- Determine settlement monitoring points at adjacent existing structures and at four site perimeters.
- Install crack monitors at major existing cracks for existing structures adjacent to the site.
- Install observation wells at the four site perimeters to monitor groundwater level drawdowns.

The applicant will obtain a National Pollutant Discharge Elimination system (NPDES) permit for construction activities because the project area exceeds one acre. A dewatering permit will be needed for construction dewatering of material excavated below the water table.

B. Traffic:

The following traffic mitigation measures are proposed:

1. Provide sufficient driveway width to accommodate safe vehicle ingress and egress.
2. Provide adequate turning radii at all project driveways to avoid or

- minimize vehicle encroachment to oncoming traffic lanes.
3. Maintain adequate sight distances for motorist to safely enter and exit all project driveways.
 4. Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.
 5. Modify the traffic signal timing at the intersection of Ala Wai Boulevard and Kalaimoku Street to accommodate anticipated increases in traffic along both those roadways.
 6. Modify the traffic signal timing at the intersection of Ala Wai Boulevard and Lewers Street to accommodate anticipated increases in traffic along both those roadways.
 7. Modify the traffic signal timing at the intersection of Kuhio Avenue and Launiu Street to accommodate anticipated increases in traffic along Kuhio Avenue.
 8. Provide adequate valet staging and loading areas to ensure that vehicular queues do not extend onto the adjacent City and County of Honolulu streets.
 9. Provide adequate staging and loading areas for trolleys and buses currently utilizing the porte cochere area along Kalaimoku Street to ensure that vehicular queues do not extend onto the adjacent City and County of Honolulu streets.

As discussed in section IV.D.1, several alternate methods of transit can be used to access the site. Currently those modes of transit include

pedestrian access, bike access and bus. There is a good chance that the site will be adjacent to future mass transit lines.

C. Noise

1. The State Department of Health administers rules and regulations relating to the hours during which construction is permitted and the noise levels permitted during those hours. The contractor will be required to apply for a permit from the State Department of Health should noise from construction activities exceed regulatory limits. The contractor will abide by the noise regulations incorporated into the permit.
2. In order to mitigate construction noise concerns, where possible, use of vibratory pile drivers rather than noisier impact pile drivers will be utilized. The use of vibratory pile drivers rather than impact pile drivers will also minimize the potential for impacts from ground vibration.
3. Excavation of the site will be accomplished without blasting, utilizing hydraulic and mechanical excavation equipment, since the hardest material expected to be encountered are ancient coral layers.

D. Air Quality

Dust control measures appropriate to the situation will be employed by the contractor, including where appropriate, the use of water wagons, erection of dust barriers and other methods for minimizing dust.

VII. REQUIRED APPROVALS AND LAND USE REGULATIONS

A. Required Approvals

The development will require the following governmental permits or approvals:

- Zone Change - City Council
- Waikiki Special District Permit, Major; Grading Permit; and Building Permit - DPP
- Drain connection license - Department of Facility Maintenance
- Grading - DPP
- National Pollutant Discharge Elimination System Permit - State Department of Health

B. Primary Urban Center Development Plans

The Primary Urban Center Development Plan (PUCDP) states that the Resort land use designation is intended as a mixed-use designation to consist primarily of resort hotels, timeshares and other apartments used as transient visitor units and supporting commercial uses. Although this designation is primarily for resort uses, there is a high demand for condominiums in Waikiki resulting in conversion of hotel rooms to condominiums. If developed as a condominium building the project will help satisfy the demand for condo units in Waikiki and reduce the hotel conversion rate. If the project is developed as a timeshare, it will be consistent with the

Development Plan land use designation for resort as it would directly provide transient vacation accommodations. A condominium/hotel tower will satisfy both residential units and hotel units.

Section 3.2.2.1 of the PUCDP states that there are many opportunities to create street environments that invite pedestrian use, such as widening sidewalks, planting trees to provide shade and buffer pedestrians from vehicular traffic. The sidewalks and existing landscaping have been widened with the development of the 2100 Kalakaua project and Kuhio Avenue improvements. The developer of 2121 Kuhio proposes to maintain as much of these improvements as possible. The nearest designated "Pedestrian Network" as indicated on the PUCDP Land Use Map, A.6 is along the Ala Wai Boulevard and Kalakaua Avenue.

C. Permitted Uses

According to Article 9 (Waikiki Special District) of the Land Use Ordinance (LUO), the condominiums, timeshare, or a combination condominium/hotel are not permitted in the Resort Commercial Precinct. The proposed rezoning to Resort Mixed Use Precinct will be requested to allow the proposed condominium, or timeshare or combination condominium/hotel uses. This zone change is supported by and will implement the property's Resort designation on the Primary Urban Development Plan Land Use Map.

D. Resort Mixed Use Precinct Development Standards

1. Minimum Lot Area - 10,000 square feet

Final Environmental Assessment - 2121 Kuhio Avenue

The project site has a lot area of 2.654 acres (115,610 square feet).

2. Minimum Lot Width and Depth - 50 feet

The project site is about 300 feet wide and about 350 feet deep.

3. Yards - Front 15 feet (Kalaimoku Street)/20 feet (Kuhio Avenue and Kalakaua Avenue) and Side 0 feet

The existing 2100 Kalakaua Avenue has met the front yard requirements for Kalakaua Avenue and Kalaimoku Street through yard averaging.

The proposed 2121 Kuhio development will provide the required yards on both Kuhio Avenue and Kalaimoku Street, utilizing yard averaging if necessary.

4. Maximum Density (FAR) - 2.80

All of the proposed scenarios would result in an upto 2.80 FAR.

5. Minimum Open Space - 50%

Under either the condominium or the timeshare development the applicant will provide at least 50% open space.

6. Maximum Height - 300 feet

Under either the condominium or the timeshare development the applicant will develop a 300-foot tower.

7. Transitional Height Setback

The transitional height setback will be met possibly utilizing yard averaging.

E. Waikiki Special District

1. Objectives

a. Promote a Hawaiian Sense of Place

The proposed 2121 Kuhio development will provide lush landscaped open space, a water feature and recreational facilities (swimming pool) on about 50% of the lot, presenting a very tropical appearance from Kuhio Avenue and Kalaimoku Street. There will also be a gathering place open to the public at the corner of Kuhio Avenue and Kalaimoku Street with appropriate street furniture to encourage the public to enjoy the open space provided by the applicant.

The applicant's architectural consultant has been working to create articulation and rich visual textures by contrasting light and shadows on surfaces of the building to further the Hawaiian sense of place at 2121 Kuhio.

The applicant is considering some of the design elements discussed in the City's "Waikiki Special District Design Guidelines", including railing designs and building motifs to further promote a Hawaiian sense of place.

2. District Guidelines

a. Building Design

I. Orientation and Form

The proposed building orientation in the preferred site plan is sensitive to the need to protect public views from Kuhio Avenue. As indicated in the ground floor plan for the preferred site plan, the design presents open space toward both Kalaimoku Street and Kuhio Avenue. The high rise tower for both of the preferred and alternative site plans has a generally mauka-makai orientation as depicted in the Site Plan, Appendix I - Plans. The main tower of the alternate plan is similar to the preferred plan but the port cochere has been shifted to accommodate the Kuhio Avenue entry.

Through the use of indentations at right angles and providing angles at corners and curves along certain wings the design architect has created a non-symmetrical building with a varied and unique perimeter. At the ground level a large covered entry drive (port cochere) offered in the alternative site plan creates a stepping feature along the Kuhio Avenue frontage and the proposed restaurant/retail complex provides stepping from the Kalaimoku Street frontage.

Both site plans provide for landscaped views through the

structure and at the important pedestrian level creates a feel of even greater open space than the 50% provided on the lot.

ii. Open Space

The open space on the project site is located mainly along the perimeter of the property providing an important and significant visual link to the public corridors along Kuhio Avenue and Kalaimoku Street. The applicant expects to provide 50% open space, in an area where few lots have been developed with 50% open space.

iii. Parking Facilities

In order to maximize open space on the property and to minimize the impact of the parking on the views from the public corridors at Kuhio Avenue and Kalaimoku Street, the applicant will provide two levels of underground parking to meet the parking requirements for the development. Vehicular access to the underground parking will be from Kalaimoku Street for the preferred site plan and from Kuhio Avenue with the alternative site plan.

iv. Articulation, Scale, Material and Color

The building facade will be varied with articulation as evidenced in the Site Plan, Elevations and Rendering provided in Appendix I. The applicant is considering utilize lanais, shading devices, recessed windows and projecting eyebrows in

providing articulation and contrast.

The applicant will consider utilizing concrete and plaster finishes bringing out neutral tones for the condominium or timeshare structure to blend with the natural environment.

These elements of articulation, material and color are in keeping with the recommendation of the "Waikiki Special District Design Guidelines".

b. Ground Level Features

i. Entries, Lobbies and Arcades

The ground floor plan of the preferred site plan clearly demonstrates the amount of covered but open areas that will be provided under this scheme. There is a large covered port cochere off of Kalaimoku Street with open landscape areas including reflecting and recreational pools facing Kuhio Avenue.

In the alternative plan there is a large covered entry drive (porte cochere) which creates an inviting access to the enclosed lobby along Kuhio Avenue.

The restaurant/retail complex will consider open dining areas providing a blending of the landscaped open space with the dining experience. At the corner of Kuhio Avenue and Kalaimoku Street the applicant is providing a gathering place

open to the public with appropriate street furniture. These elements are in keeping with the recommendations of the "Waikiki Special District Design Guide lines".

ii. Visual Links

Both the preferred plan and alternative plan, provide open space, landscaped (with water features) areas over a major portion of the ground floor. The stepped port cocheres and surrounding retail structures provide a visual link for the pedestrian areas surrounding the structure. With the proposed zoning the applicant is planning to provide 50% open space

c. Features in Required Yards

i. Porte Cocheres

With both plans the new porte cochere is in an area outside of the required front yard. Landscaping will be added to soften the appearance of these structures from the public perspective. It is the applicant's intention to create a porte cochere that will present a pleasant formal open entry into the lobby and will provide an off-street drop off and pick up point.

ii. Walls and Fences

The applicant plans to utilize wrought iron type fences, as recommended by the "Waikiki Special District Design Guidelines", on the Kuhio Avenue and Kalaimoku Street sides of the proposed development to provide a visual benefit to the

pedestrians along both of these pedestrian corridors. These fences will allow views of the major landscaped open space provided by the applicant as well as allow visual relief from the existing developments that provide little open space amenities.

iii. Outdoor Dining

The restaurant/retail complex will consider outdoor dining that may encroach into the required yard, as permitted in the Waikiki Special District.

iv. Shading Devices

Shading devices such as roof overhangs, eaves and eyebrows are to be considered in the design.

v. Roof Design and Equipment Screening

Rooftop machinery, equipment and utility installations may exceed the established height limit as permitted by the LUO, but will be screened from view.

d. Landscaping

The applicant proposes a large landscaped open area over the property (at least 50%) which will provide a tropical image with a relatively small portion of hardscape from the lobby area and tower development and restaurant/retail complex.

The project is being designed to direct water runoff from roofs and other large impervious surfaces to the extensive open space

system, covering about 50% of the zoning lot.

The existing vacant lot has groundcover, but minimal landscaping and trees. The proposed landscape plan represents a significant increase in the number of trees presently on the property.

These landscape elements are in keeping with the recommendation of the "Waikiki Special District Design Guidelines".

- **Water Features and Artwork**

Both site plans provide a pond area/water feature and landscaping over much of the property at ground level. The large opening under the building is an area that could accommodate some form of artwork.

- **Sidewalks and Paving**

Private walkways will be developed with patterned and/or textured paving materials, consistent with the Kuhio Avenue improvements and the existing 2100 Kalakaua retail establishments, to provide a sense of scale and rhythm appropriate to the surrounding and proposed buildings. Public pedestrian sidewalks will be meandering as has been recommended by the DPP.

e. **Signage**

At this time, the applicant is proposing an indirectly illuminated ground sign to identify the 2121 Kuhio development. The

ground sign will not exceed 12 square feet, as permitted by the LUO.

f. Lighting

Lighting will be utilized to contribute to public safety and to enhance the night time ambiance of the outdoor recreational and open space areas on the property. Outdoor lighting will be subdued or shielded so as not to provide spillage onto surrounding properties or public rights-of-way.

3. Urban Design Controls

a. Waikiki Gateways

The property is not located near any of the five Waikiki Gateways.

b. Fort DeRussy

The existing 2100 Kalakaua development provides a landscaped open space and plaza area which provides a visual connection with the Fort DeRussy open space.

c. Major Streets

The proposed 2121 Kuhio development will provide lush landscaped open space, a water feature and recreational facilities (swimming pool) and barbecue area on about 50% of the lot, presenting a very tropical appearance from Kuhio Avenue and Kalaimoku Street. There will also be a gathering place open to the public at the corner of Kuhio Avenue and Kalaimoku Street with appropriate street furniture to encourage the public to enjoy the open

space provided by the applicant.

d. Waikiki Promenade

The project site is not in close proximity to the Waikiki Promenade.

e. Coastal Height Setback

The 2121 Kuhio development is not situated along the shoreline and is not subject to the coastal height setback.

f. Mini Parks

The applicant plans to provide a gathering place open to the public at the corner of Kuhio Avenue and Kalaimoku Street with appropriate street furniture to encourage the public to enjoy the open space provided by the applicant.

g. Significant Public Views

The 2121 Kuhio development will not affect significant public views described in Section 21-9.80-3(a) of the Land Use Ordinance.

h. Public Pedestrian Access

The project site is easily accessible to pedestrians via the existing sidewalks which front the property. It is intended that these sidewalks will be maintained or modified to continue to provide pedestrian access to the site.

i. Historic Structures, Significant Sites and Landmarks

The project site is vacant and will not affect historic properties or buildings.

4. Waikiki Livable Community Project

The Waikiki Livable Community Project calls for Kuhio Avenue to be a "Main Street" and function as a transportation corridor serving multiple purposes. According to this plan, Kuhio Avenue is to be transformed into a pedestrian friendly street with side sidewalks extensive landscaping, historic light fixtures, and the use of textured or sidewalk paving.

During the Kuhio Avenue improvements the City improved the side walk to better conform to the Waikiki Livable Community Project recommendations. The sidewalk was widened, the straighten alignment was modified to be more meandering and the surface now consists of flag stone. The street frontage is landscaped with coconut trees, shower trees and the large banyan tree at the corner of Kalaimoku Street and Kuhio. The applicant proposes to maintain many of these features to the extent possible. Although, some of these elements may need to be modified, the proposed changes will be consistent with the vision for a pedestrian friendly Kuhio Avenue.

VIII. SIGNIFICANCE CRITERIA

The following review of the significance criteria indicates that the development will not have a significant impact on the environment.

- **No irrevocable commitment to loss or destruction of any natural**

or cultural resource would result.

Following the recommendations of the archaeological assessment will minimize impact on natural or cultural resources that may be present on the property.

During the construction of the development, should any previously unidentified archaeological resources such as artifacts, shell, bone, or charcoal deposits, human burial, rock or coral alignments, pavings or walls be encountered, the applicant will stop work and contact the Historic Preservation Office for review and approval of mitigation measures.

There are no natural resources on the site.

- **The action would not curtail the range of beneficial uses of the environment.**

The proposed development will not curtail, but will instead enhance, the range of beneficial uses of the environment. The present vacant property will be developed with 50% open space and will provide a desirable condominium, timeshare, or a condominium/hotel tower. Rather than curtail the range of beneficial uses, the proposed zone change and development will allow these uses to be established. The open space, including some public open space at the restaurant/retail complex and gathering space at the corner of Kuhio Avenue and Kalaimoku Street will provide a beneficial use to the community and visitors.

- **The proposed action does not conflict with the state's long-term environmental policies or goals and guidelines.**

The State's environmental policies and guidelines are set forth in Chapter 344, Hawaii Revised Statutes, "State Environmental Policy". The broad policies set forth include conservation of natural resources and enhancement of the quality of life. As discussed earlier, the project does not affect significant natural resources, and will provide an enhancement of the quality of life by filling the demand for dwelling, timeshare or condominium/hotel units in Waikiki.

- **The economic or social welfare of the community or state would not be substantially affected.**

The development will give a temporary boost to the State's economy with the provision of short-term construction employment and related tax impacts, and long-term jobs in the dining sector and possibly in the hotel/timeshare sector.

The social welfare of the community would be positively affected by the development at 2121 Kuhio Avenue. The development will offer an attractive living environment and in addition will offer lush landscaping and open spaces all for the benefit of residents and visitors alike.

Resident, timeshare visitors or hotel patrons at 2121 Kuhio Avenue will have a long term positive economic affect on businesses in the area, as a source of new customers.

- **The proposed action does not substantially affect public health.**

The proposed action will not affect public health. The proposed land

use is compatible with the surrounding commercial, resort and residential developments.

- **No substantial secondary impacts, such as population changes or effects on public facilities, are anticipated.**

The proposed project could increase the residential population of the area if the applicant chooses to develop condominium units on the property. The proposed development as a condominium project would provide approximately 220 multi-family dwelling units which will provide for additional residential population in the Waikiki area. Based on the DPP's "Annual Report on the Status of Land Use on Oahu, Fiscal Year 2004", the Year 2000 population for the Primary Urban Center is approximately 419,300 which is approximately 47.9% of the Year 2000 island-wide population. Although the 419,300 population is only a little over the 46% General Plan Benchmark for 2025, and the DPP projects that the Primary Urban Center will grow by approximately 37,500 persons by the Year 2010. The proposed 220 multi-family dwelling units will provide for some of this projected population increase to the Year 2010. Due to the nature of new condominium buyers in Waikiki, the population increase based on the 220 units will probably be less than a typical 220 unit condominium development, since a certain percentage of buyers are expected to be off-shore owners and second or vacation home buyers.

According to a letter from the Board of Water Supply, the existing water system is adequate to accommodate the proposed development.

A sewer connection application was approved for this development by DPP (Appendix III - Agency Comments).

Wilson Okamoto Corporation has prepared a TIR for the development. The 2121 Kuhio Avenue development, when fully occupied in the year 2010, will have nearly negligible impacts to the Level-of-Service (LOS) at the studied intersections during peak commuter hours.

- **No substantial degradation of environmental quality is anticipated.**

The development will not result in a substantial degradation of the environment. Only minimal impact is projected during the construction phase with planned mitigation measures.

- **The proposed action does not involve a commitment to larger actions, nor would cumulative impacts result in considerable effect on the environment.**

The proposed development does not involve a commitment to larger actions nor will it result in cumulative impacts to the environment. The proposed development at 2121 Kuhio Avenue will not generate future developments, creating a cumulative impact.

- **No rare, threatened or endangered species or their habitats would be affected.**

No rare, threatened or endangered flora will be affected by the proposed development and renovations.

No rare, threatened or endangered species or their habitats would be affected by the proposed development and renovations.

- **Air quality, water quality or ambient noise levels would not be detrimentally affected.**

Short term impacts on air quality are expected to be primarily related to dust generated by the construction activity. Dust will be generated in the course of excavating for foundations and utility lines. Dust control measures appropriate to the situation will be employed by the contractor, including where appropriate, the use of water wagons, erection of dust barriers and other methods for minimizing dust.

Long term impact on air quality is expected to be minimal since the proposed development will not result in a significant impact on traffic in the area.

There are no potable water resources within the project site. The development site is located approximately 1,800 feet from the ocean and will not have an impact on coastal resources.

Short term noise impacts at construction sites are a normal result of construction activity. The State Department of Health administers rules and regulations relating to the hours during which construction is permitted and the noise levels permitted during those hours. The contractor will be required to apply for a permit from the State Department of Health should noise from construction activities exceed regulatory limits. The contractor will abide by the noise regulations incorporated into the permit.

Long term noise impact from the proposed development is expected to be minimal, and will not result in a significant impact on traffic in the area.

- **The project would not affect environmentally sensitive areas, such as flood plains, tsunami zones, erosion-prone areas, geologically hazardous lands, estuaries, fresh waters or coastal waters.**

According to the Flood Insurance Rate Map of the Federal Emergency Management Area (FEMA), panel 370 of 395, Map Number 15003C0370 E, dated November 20, 2000, the project site is in Zone AO, an area determined to have an average flood depth of 2 feet.

The project must comply with the rules and regulations of the National Flood Insurance Program (NFIP) presented in Title 44 of the Code of Federal Regulations (44CFR), since it is within a Special Flood Hazard Area. The applicant will also comply with the requirements of the City and County of Honolulu, Land Use Ordinance related to Flood Hazard Districts.

The development will not affect tsunami zones, erosion-prone areas, geologically hazardous lands, estuaries, fresh water nor coastal waters.

- **Substantially affects scenic vistas and view planes identified in county or state plans or studies.**

The proposed development will not have an impact on important coastal views described in the 1987 Department of Land Utilization Coastal View Study. In this portion of Waikiki, Kalia Road situated makai of the development site is considered to be a Coastal Road with intermittent coastal views. The proposed development will not affect significant public views identified in Section 21-9.80-3 of the Land Use Ordinance.

- **Requires substantial energy consumption.**

The Hawaiian Electric Company has existing power lines serving this area and the applicant will coordinate development to ensure that the power lines will be adequate to support the proposed condominium or timeshare development. The applicant will consider the use of energy saving appliances and fixtures in the design of the project.

IX. COMMUNITY CONCERNS

A. Waikiki Neighborhood Board Number 9

1. Meeting on March 9, 2004

The Zone Change proposal for the 2121 Kuhio Development was presented to the Waikiki Neighborhood Board at their regularly scheduled meeting on March 9, 2004, by the applicant's Planning and Zoning Consultant, Mr. Keith Kurahashi. The Neighborhood Board Minutes detailing our presentation to the Board, concerns raised and our responses are included in Appendix VI, Community Concerns.

2. Meeting on May 11, 2004

The Zone Change proposal for the 2121 Kuhio Development was presented to the Waikiki Neighborhood Board at their regularly scheduled meeting on May 11, 2004, by the applicant's Planning and Zoning Consultant, Mr. Keith Kurahashi. The Neighborhood Board Minutes detailing our presentation to the Board, concerns raised, and our responses are included in Appendix VI. Chair Robert Finley requested that Mr. Kurahashi inform the Board of any changes to the proposed project.

B. Four Paddles and La Casa Residents

The Zone Change proposal for the 2121 Kuhio Development was presented to the residents from the Four Paddles and La Casa condominiums at a special meeting on March 27, 2004, by the applicant's Planning and Zoning Consultant, Mr. Keith Kurahashi. The concerns raised and our responses are included in Appendix VI.

C. Other Community Presentations

On September 19, 2004, as part of the continuing community outreach effort for the 2121 Kuhio Avenue project, an on-site community talk-story on the proposed 2121 Kuhio development was held. The details surrounding that meeting, the concerns presented and our responses are included in Appendix VI.

A similar meeting was conducted on March 4, 2006 to update the community on the progress of the project. The details surrounding that meeting, the concerns presented and our responses are also included in Appendix VI.

X. PHOTOGRAPHS

Photographs of the project site have been provided in Appendix VII.

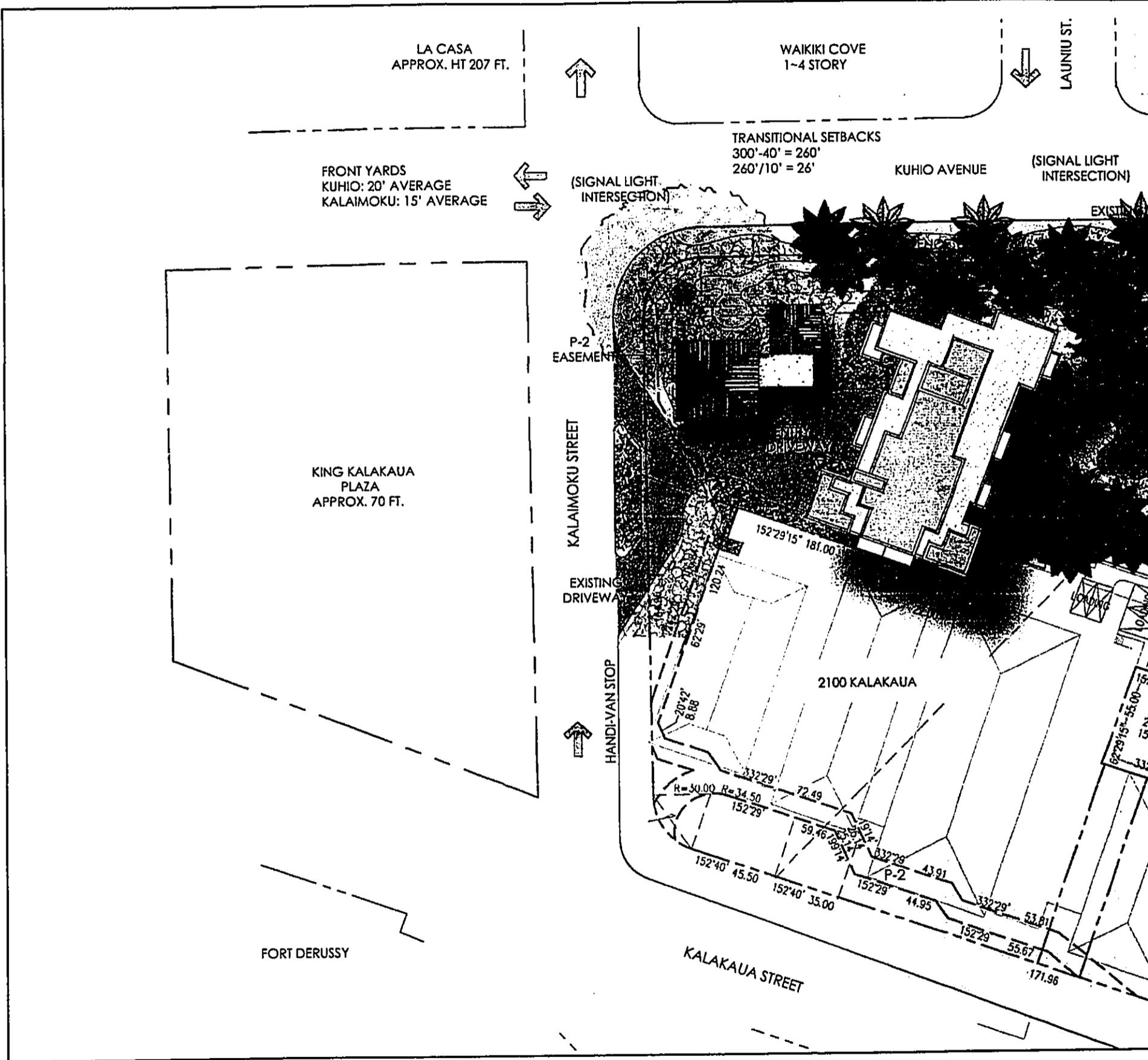
XI. RECOMMENDATION

Based on this Final Environmental Assessment, a Finding of No Significant Impact (FONSI) for the proposed development at 2121 Kuhio Avenue and the zone change for that property and 2100 Kalakaua is anticipated.

APPENDIX I

PLANS

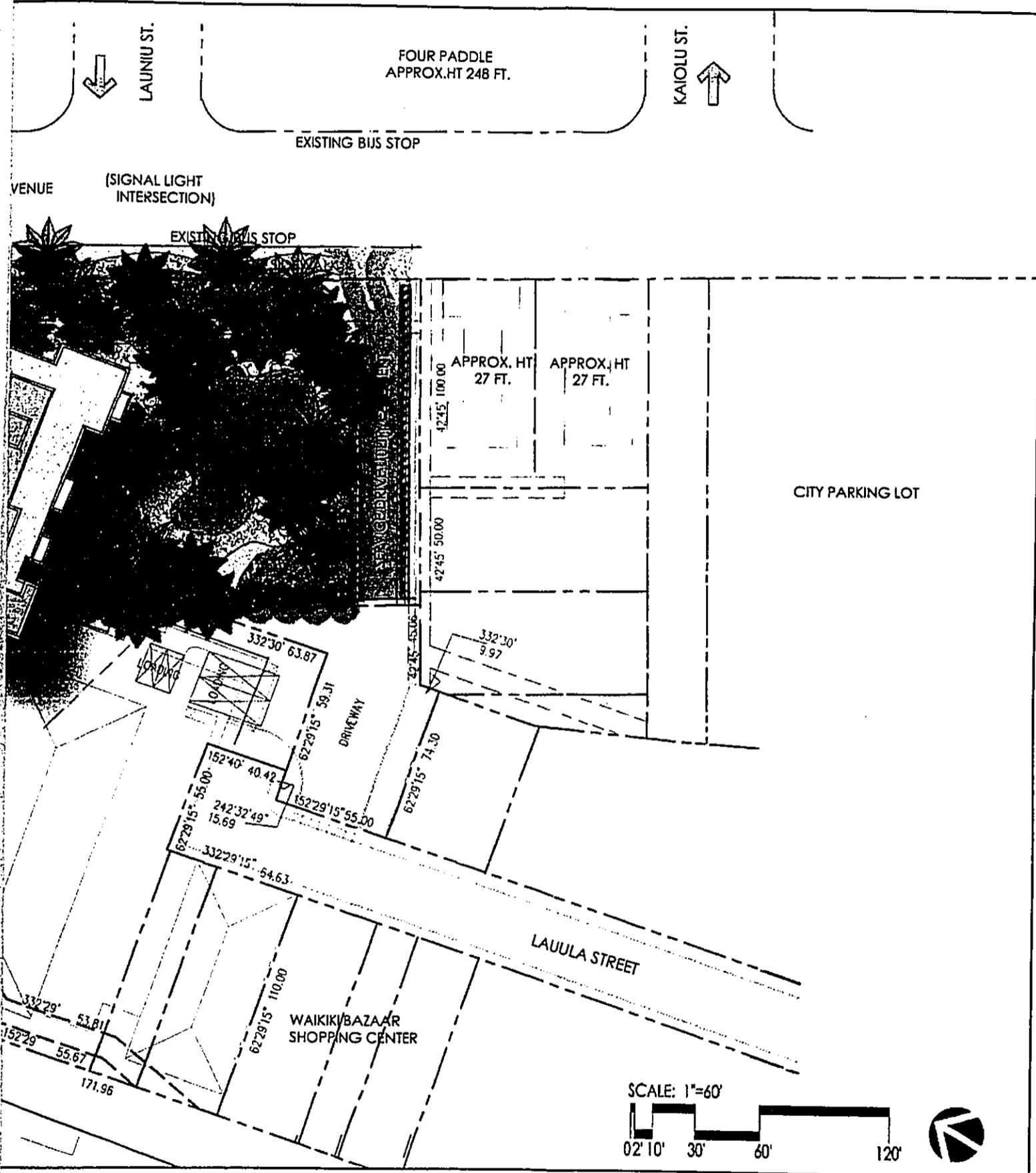
REPRODUCED FROM THE ORIGINAL DRAWINGS



SITE PLAN

2121 KUHIO AVENUE DEVELOPMENT
 Concept • Waikiki, Hawaii • 06 March 2006

K3 Owner, LLC.



AN

E DEVELOPMENT
 raii • 06 March 2006

A.3.1



Wimberly Allison Tong & Goo
 Architecture, Design, Planning and Consulting

LA CASA
APPROX. HT 207 FT.

WAIKIKI COVE
1-4 STORY

LAUNIU ST.

FRONT YARDS
KUHIO: 20' AVERAGE
KALAIMOKU: 15' AVERAGE

TRANSITIONAL SETBACKS
300'-40' = 260'
260'/10' = 26'

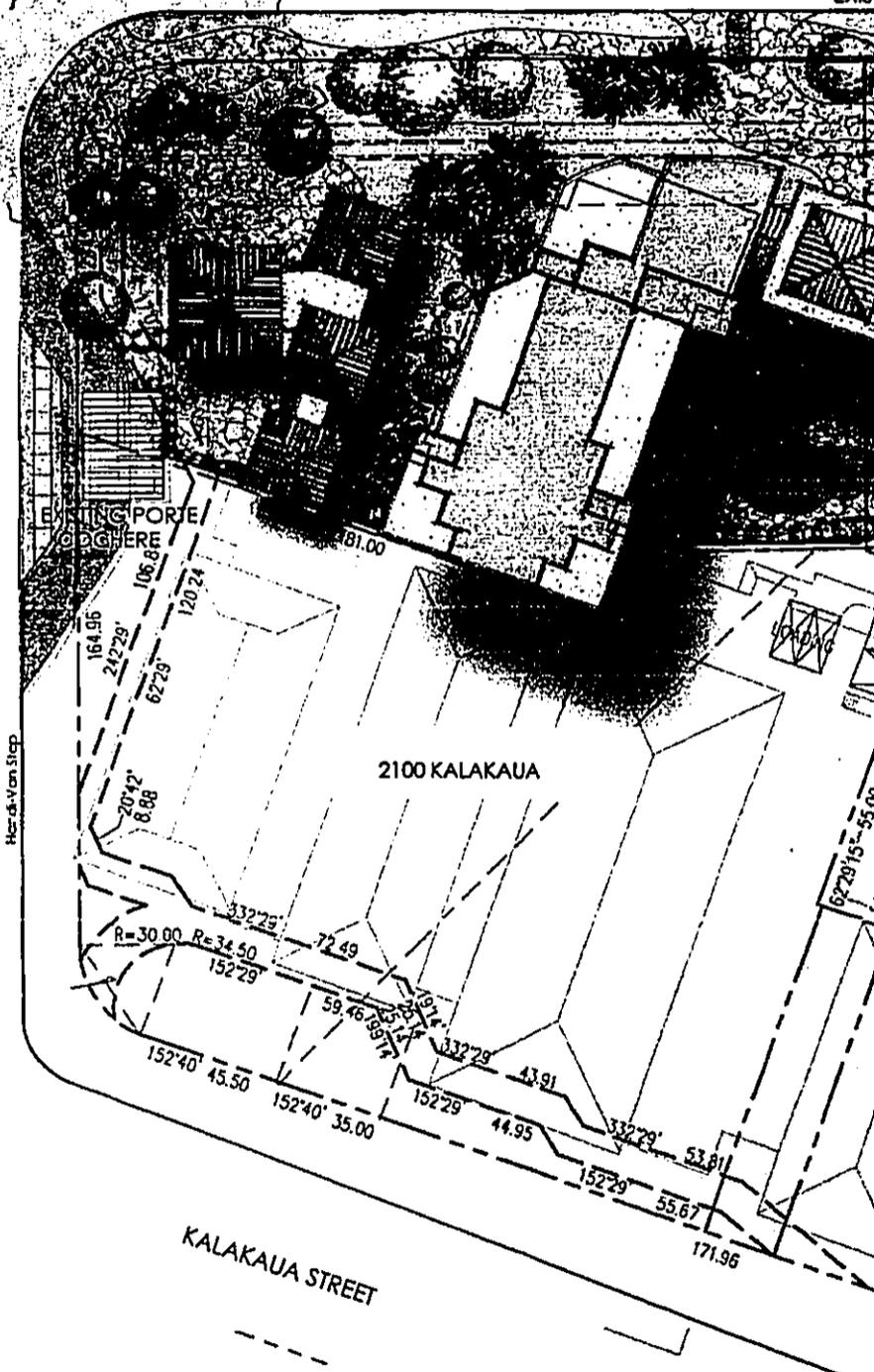
KUHIO AVENUE

(SIGNAL LIGHT
INTERSECTION)

EXIS

KALAIMOKU STREET

KING KALAKAUA
PLAZA
APPROX. 70 FT.

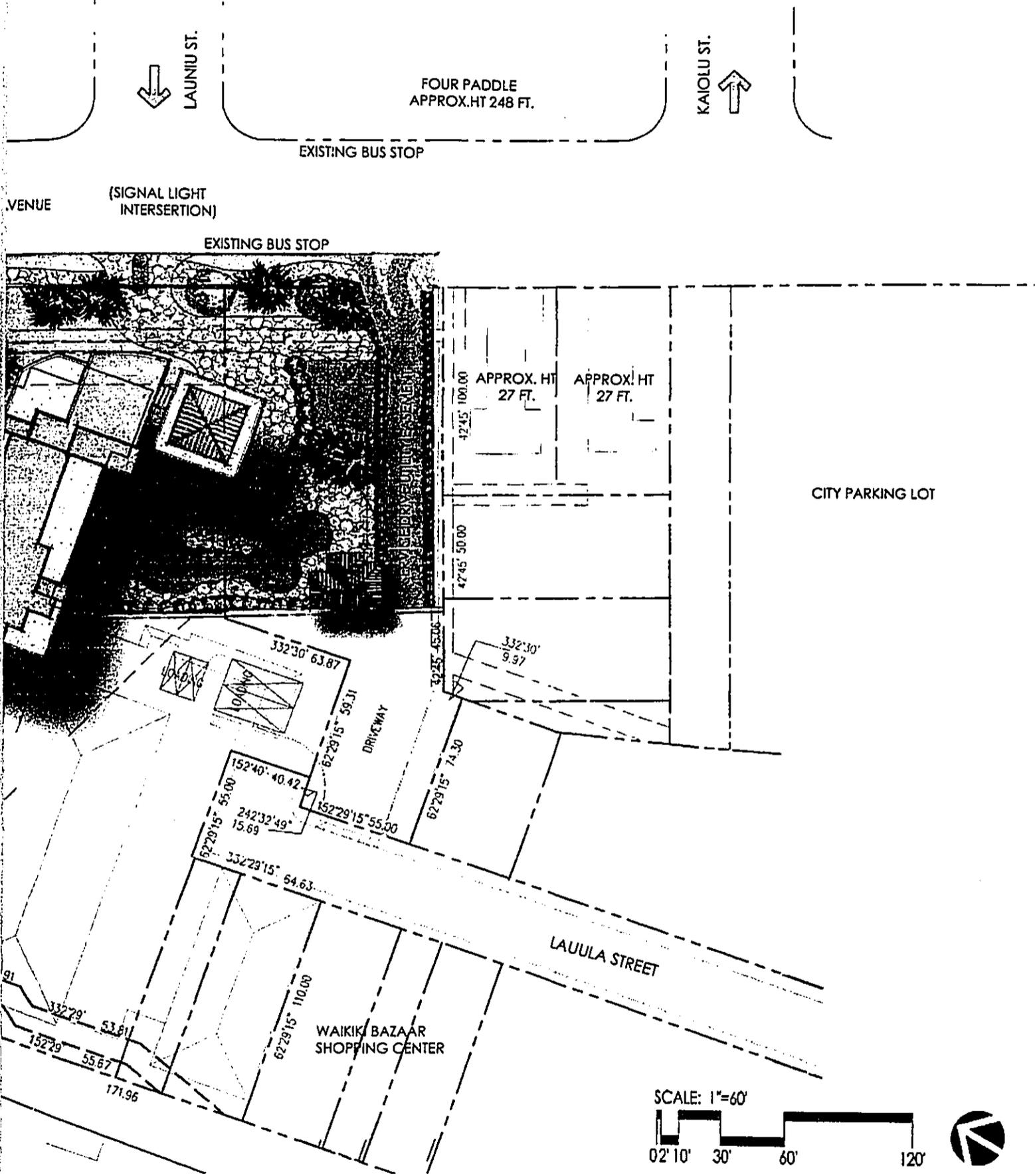


FORT DERUSSY

ALTERNATIVE SITE PLAN

2121 KUHIO AVENUE DEVELOPMENT
Concept • Waikiki, Hawaii • 06 March 2006

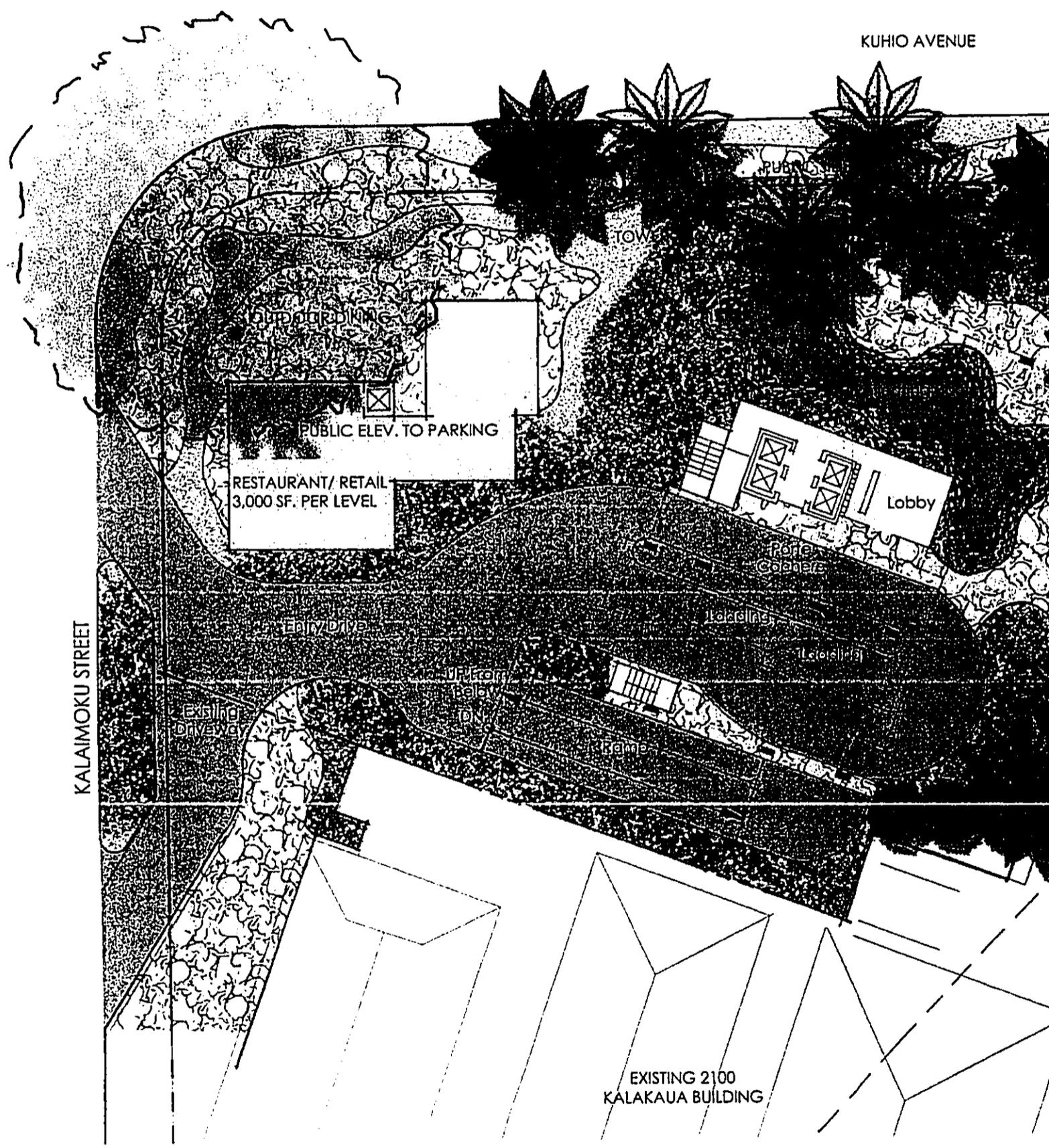
K3 Owner, LLC.



SITE PLAN
E DEVELOPMENT
 viii • 06 March 2006

A.3.2

 **Wimberly Allison Tong & Goo**
Architecture, Design, Planning and Consulting

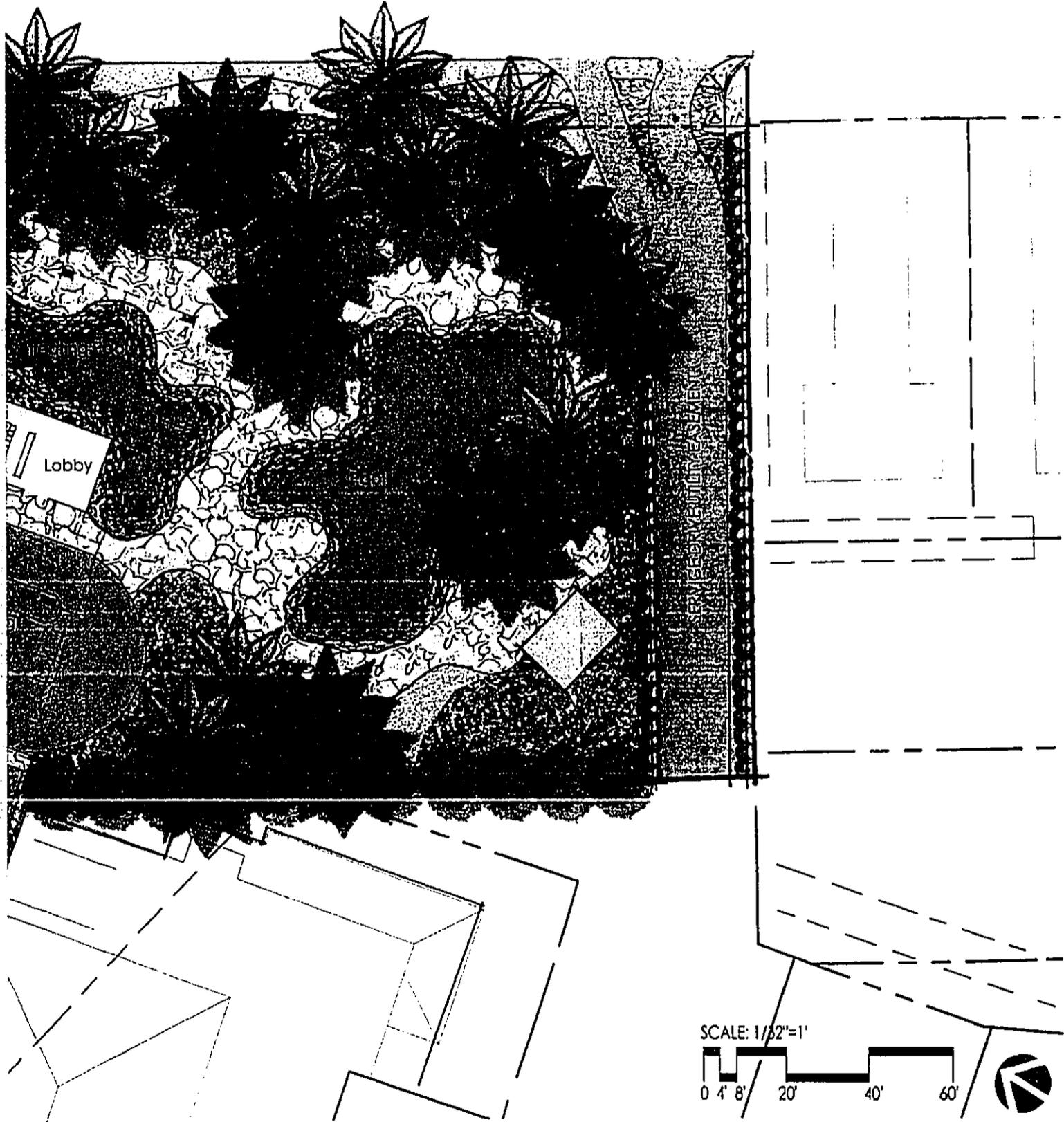


GROUND FLOOR PLAN

2121 KUHIO AVENUE DEVELOPMENT
 Concept • Waikiki, Hawaii • 06 March 2006

K3 Owner, LLC.

KUHIO AVENUE



FOR PLAN

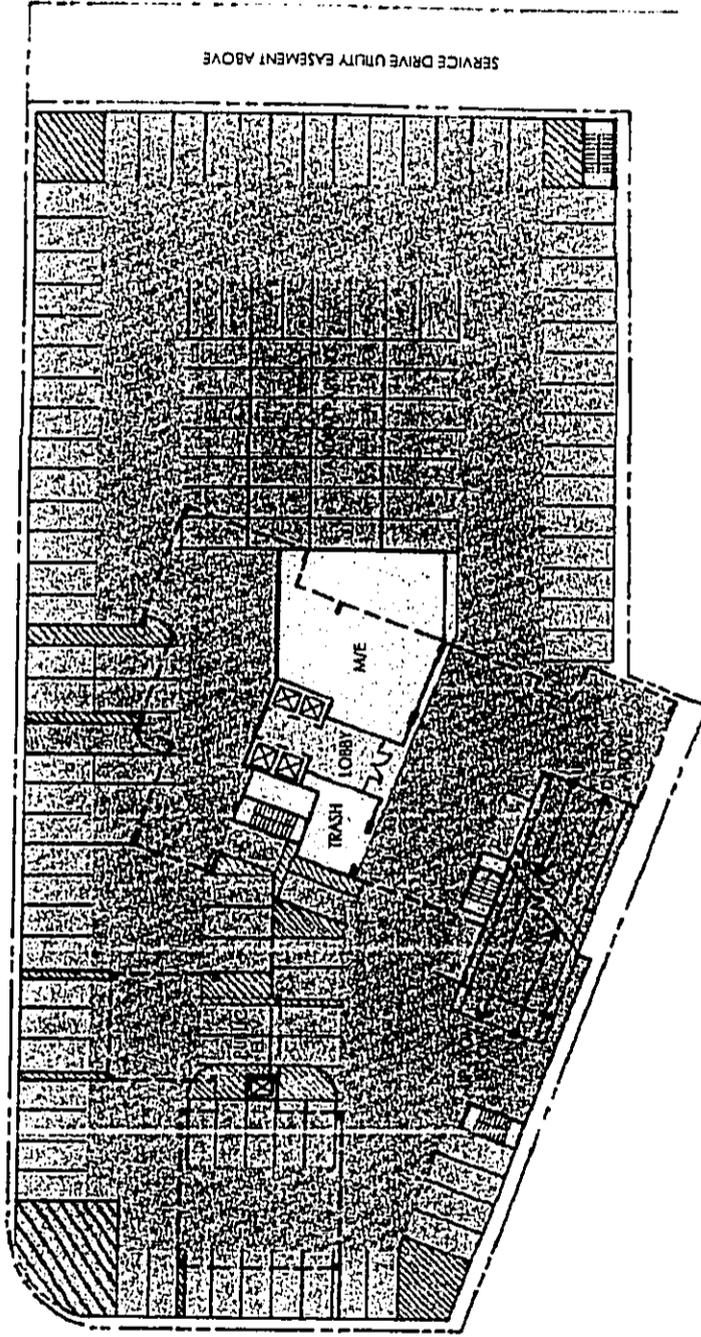
E DEVELOPMENT

06 March 2006

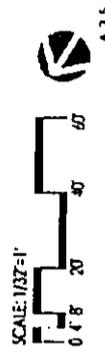
A.3.3



Wimberly Allison Tong & Goo
Architecture, Design, Planning and Consulting



NOTE
 P1 : 128 PARKING STALLS
 P2 : 134 PARKING STALLS
 TOTAL : 262 PARKING STALLS

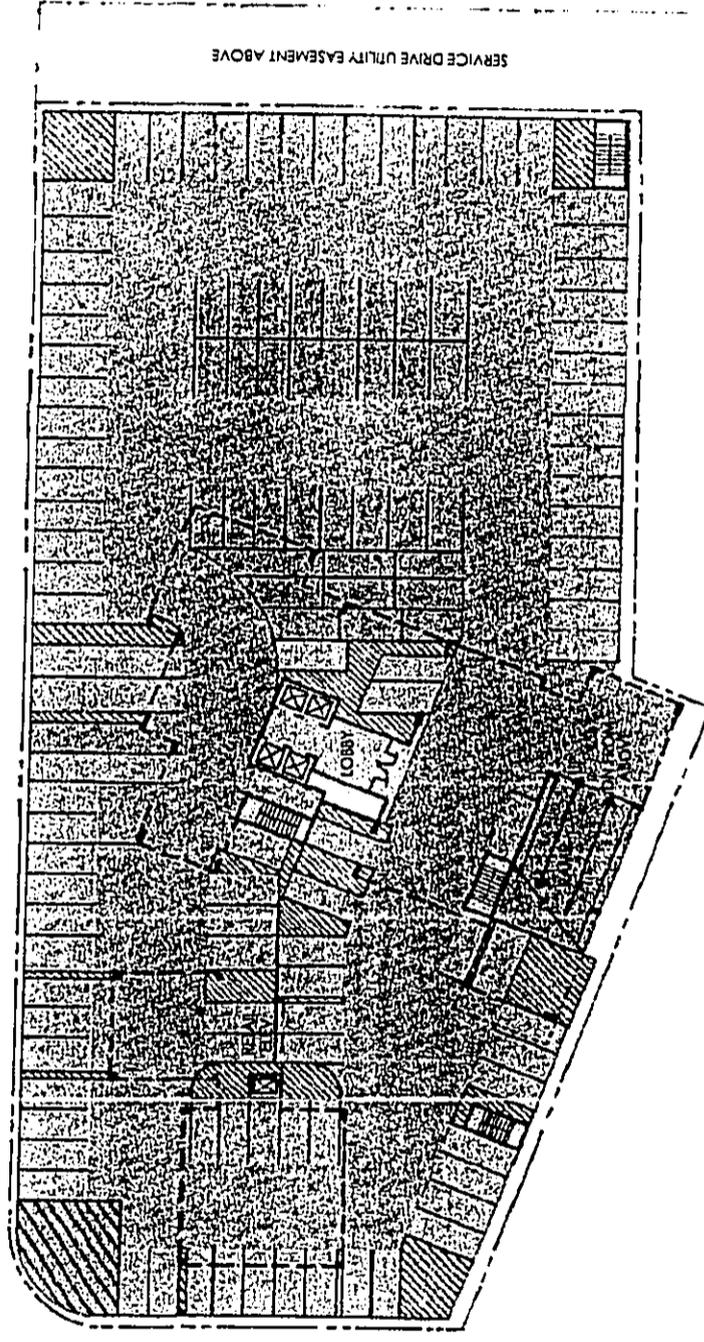


P1 BASEMENT FLOOR PLAN

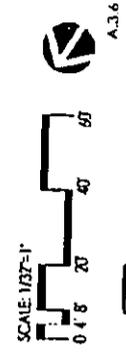
2121 KUHIO AVENUE DEVELOPMENT
 Concept - Wai'oli, Hawaii - 06 March 2006

K3 Owner, LLC.

A.3.5
 Wimberly Allison Tong & Goo
 Architects, Project Planning and Consulting



NOTE
 P2: 134 PARKING STALLS

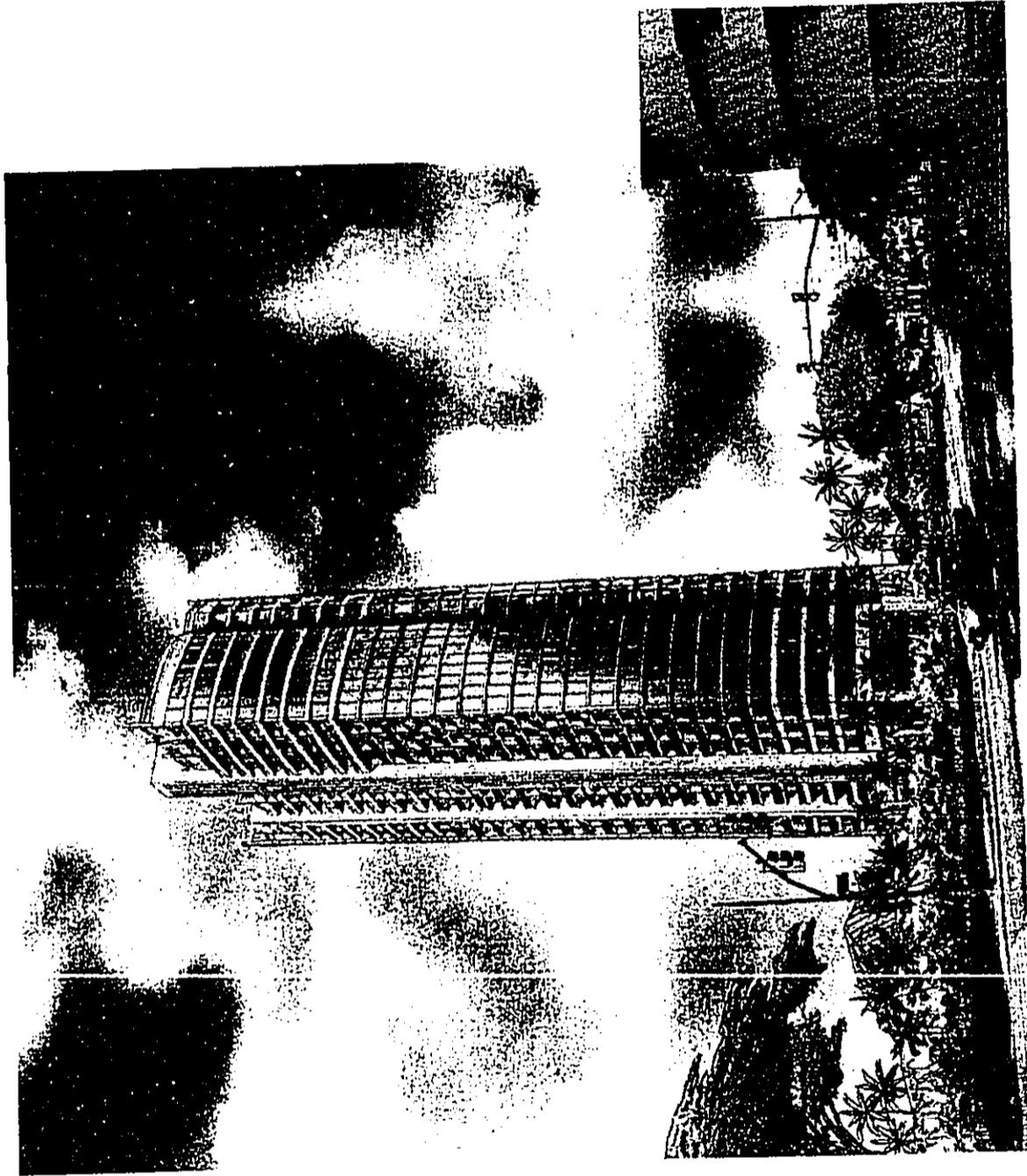


A.3.6
 Wimberly Allison Tong & Goo
 ARCHITECTS, DESIGN, PLANNING AND CONSULTING

P2 BASEMENT FLOOR PLAN
 2121 KUHIO AVENUE DEVELOPMENT
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K3 Owner, LLC.





MAKAI VIEW FROM KUHIO AVENUE

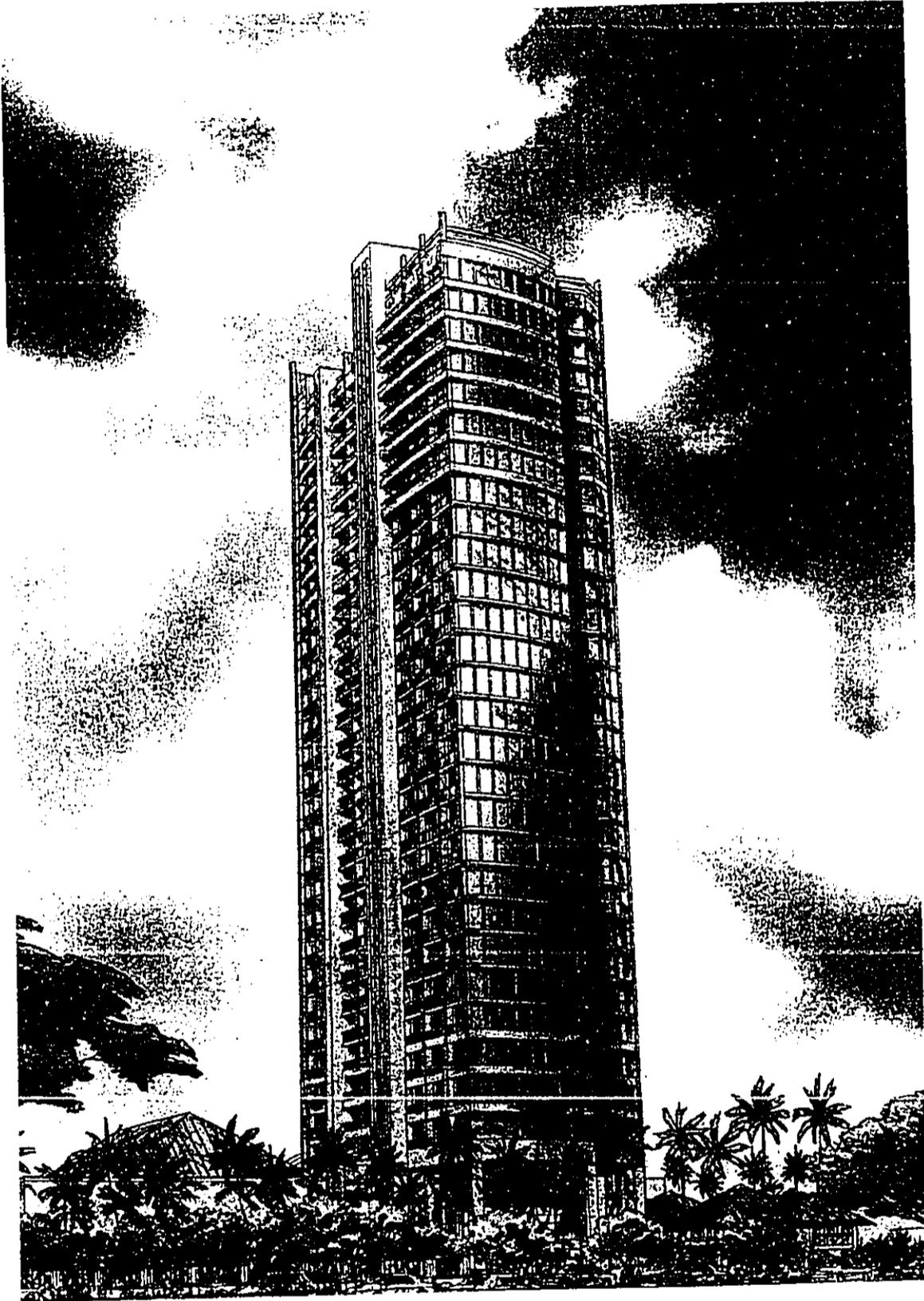
2121 KUHIO AVENUE DEVELOPMENT
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K3 Owner, LLC.



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A 6 1



OVERALL RENDERING

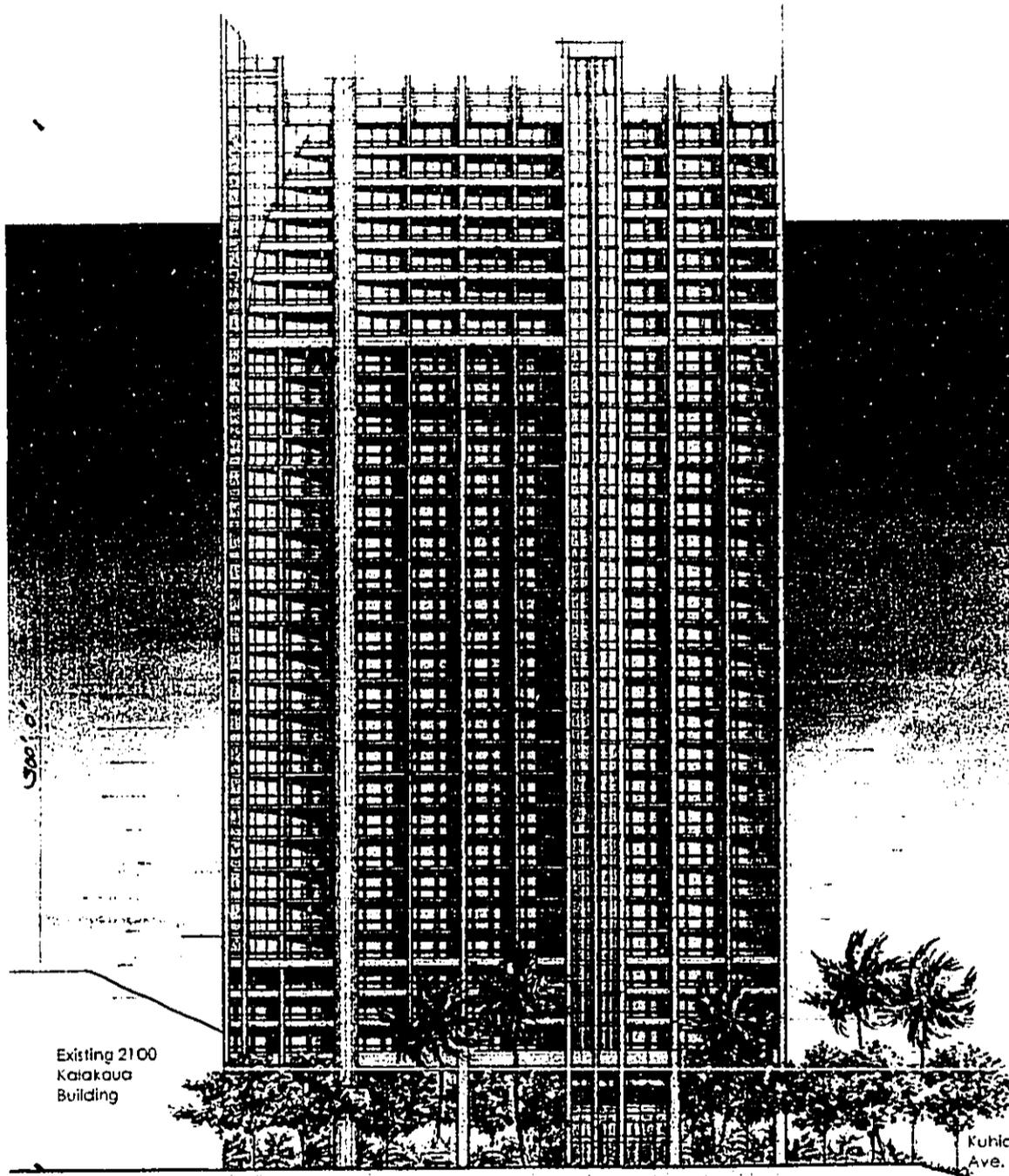
A.1

K3 Owner, LLC.

2121 KUHIO AVENUE DEVELOPMENT
CONCEPT • WAIKĪ, HAWAII • 26 MARCH 2006



Wimberly Allison Tong & Goo
ARCHITECTS • PLANNERS • DESIGNERS • ENGINEERS



SCALE: 1/4"=1'-0"
 0' 15' 30' 60'

DIAMOND HEAD ELEVATION

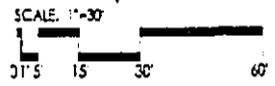
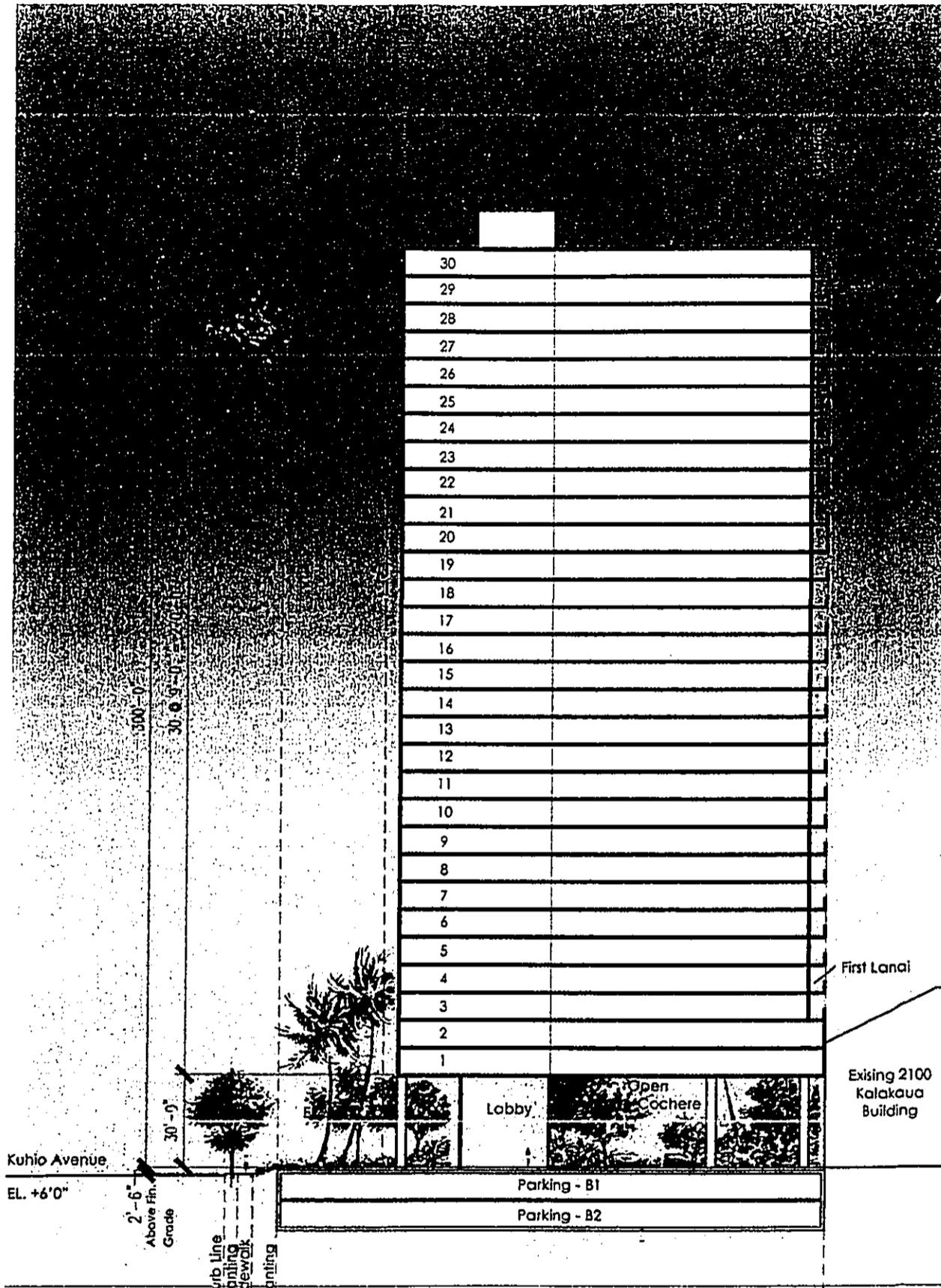
A.4.1

K3 Owner, LLC.

2121 KUHIO AVENUE DEVELOPMENT
 Concept • Waikiki, Hawaii • 30 March 2006



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 Architecture • Design • Planning • Interiors



SITE SECTION

A.5.1

K3 Owner, LLC.

2121 KUHIO AVENUE DEVELOPMENT
 Concept • Waikiki, Hawaii • 06 March 2006



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 Architecture, Interior Design, Planning and Consulting



KUHO AVENUE SIREESIDE VIEW LOOKING UAWOHO HEAD

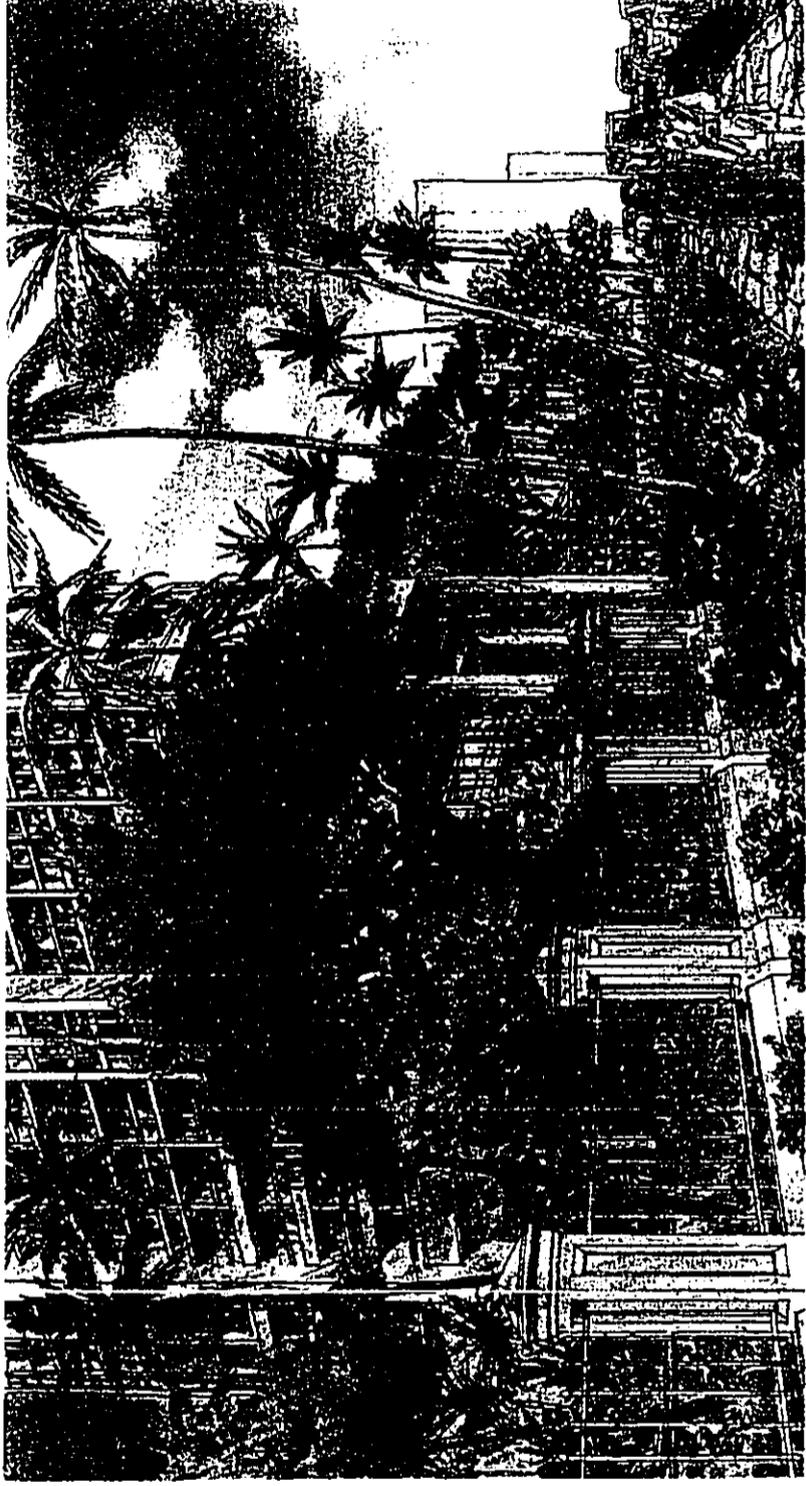
2121 KUHO AVENUE DEVELOPMENT

Concept - Waikiki, Hawaii - 06 March 2006



Wanda J. Simpson Architecture
www.wjsa.com

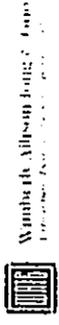
K3 Owner, LLC.



KUHO AVENUE SIDESIDE VIEW LOOKING E/W

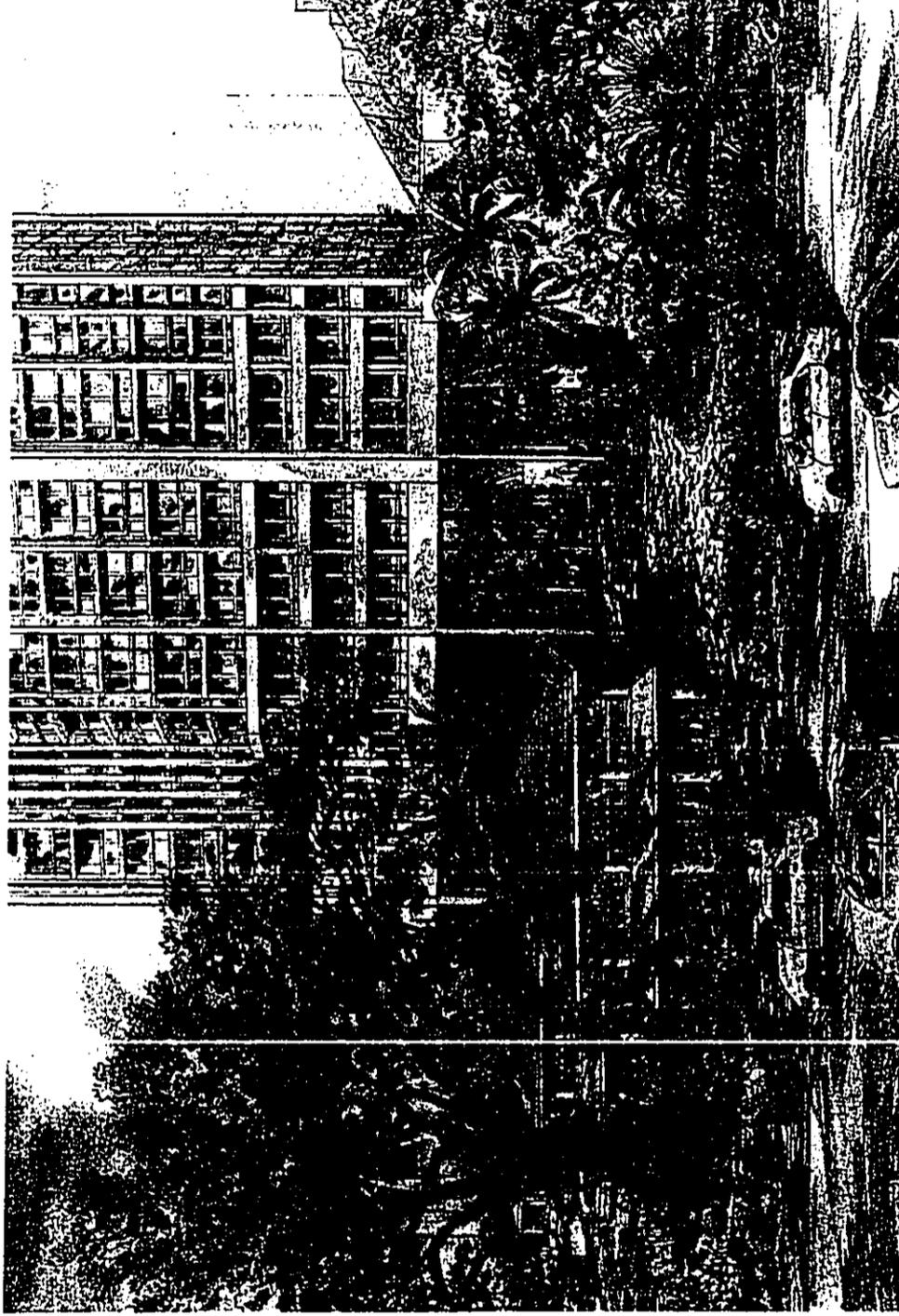
2121 KUHO AVENUE DEVELOPMENT
Concept • Wai Kit, Hovan • 06 March 2004

K3 Owner, LLC.



Wai Kit Hovan Architects
1000 10th Avenue, Suite 1000
San Francisco, CA 94103
Tel: 415.774.1000
Fax: 415.774.1001
www.wai-kit.com





EMIP: VIEW FROM ALAHIKULU STREET

2121 KUHIO AVENUE DEVELOPMENT

Concept • Waiuku, Hawaii • 05-March-2006



Wanda & Associates Inc.

K3 Owner, LLC.



K3 Owner, LLC.

RESTAURANT OUTDOOR DINING

2121 KUHIO AVENUE DEVELOPMENT

Concept • Waikiki, Hawaii • 06 March 2006

Page 2



Winchuk Allison Tong & Co.
Architectural Firm





EWA VIEW ON KUHO AVENUE

2121 KUHO AVENUE DEVELOPMENT
Concept • Waikī, Hawaiʻi • 06 March 2006

K3 Owner, LLC.


Winherb Allison Young & Co.
Architects, Planners, Engineers, Inc.



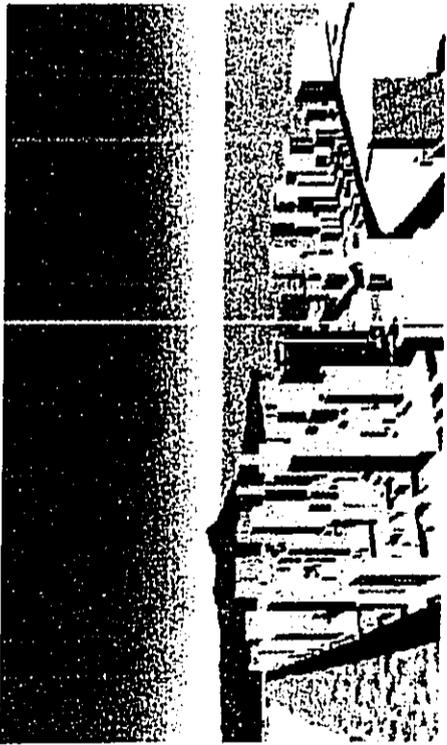
DIAMOND HEAD VIEW FROM KUHIO AVENUE

2121 KUHIO AVENUE DEVELOPMENT
Concept • Wai'oli, Hawaii • 06 March 2006

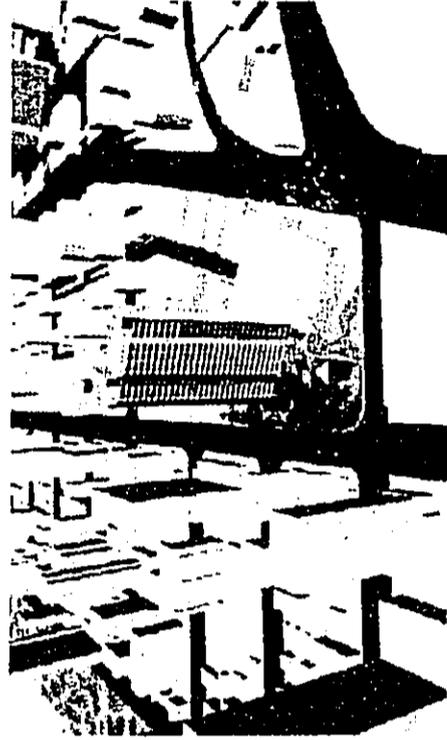
K3 Owner, LLC.



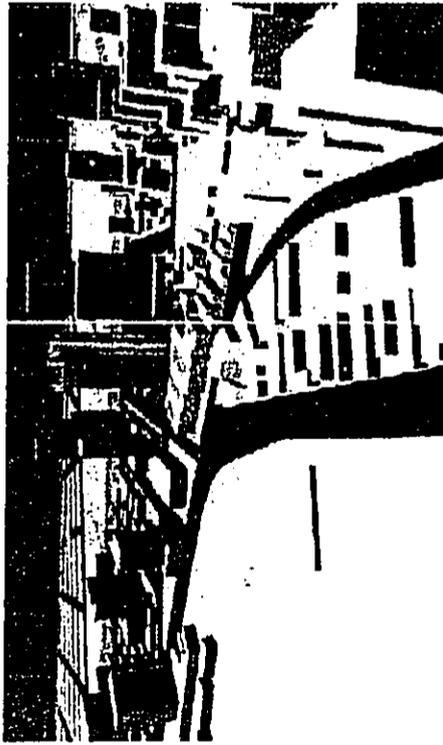
Wimberly Allison Tong & Goo
Architectural Design Planning Urban Design



DIAMOND HEAD VIEW



DIAMOND HEAD VIEW



MAUNA VIEW



MAUNA VIEW

3D MODEL VIEWS

K3 Owner, LLC.

2121 KUHIO AVENUE DEVELOPMENT
Concept - Waikiki, Hawaii - 06 March 2006



Winbush, Alpert, Tang & Co.
Architects, Planners, Engineers & Interiors

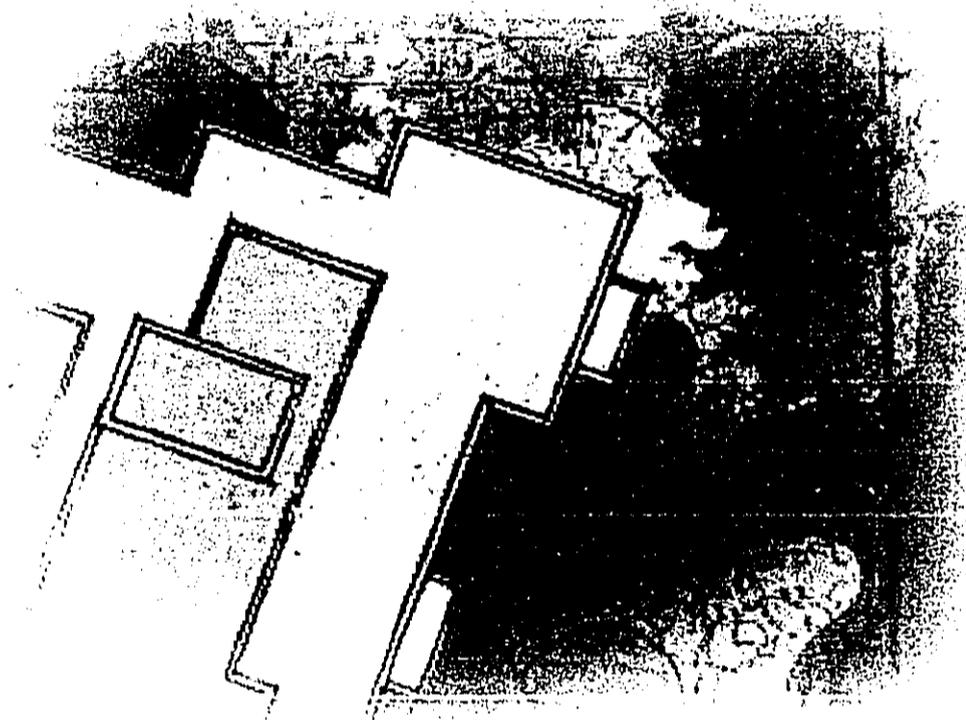
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APPENDIX II

TRAFFIC IMPACT REPORT

Traffic Impact Report

2121 Kuhio Development



Prepared for:
K3 Owners LLC

Prepared by:
Wilson Okamoto Corporation

March 2006
(Revised)

TRAFFIC IMPACT REPORT
FOR THE PROPOSED
2121 KUHIO DEVELOPMENT

Prepared for:

K3 Owners LLC

Prepared by:

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

March 2006
(Revised)

TABLE OF CONTENTS

	Page
I. Introduction	1
A. Purpose of Study	1
B. Scope of Study	1
II. Project Description	1
A. Location	1
B. Project Characteristics	3
III. Existing Traffic Conditions.....	3
A. General.....	3
B. Area Roadway System	3
C. Traffic Volumes and Conditions.....	8
1. General.....	8
a. Field Investigation.....	8
b. Capacity Analysis Methodology.....	8
2. Existing Peak Hour of Traffic.....	9
a. General	9
b. Kuhio Avenue and Kalaimoku Street.....	9
c. Kuhio Avenue and Launiu Street	12
d. Kuhio Avenue and Kaiolu Street	12
e. Kuhio Avenue and Lewers Street.....	12
f. Kalakaua Avenue, Kalaimoku Street, and Saratoga Road	13
g. Kalakaua Avenue and Lewers Street	13
h. Ala Wai Boulevard and Kalaimoku Street.....	14
i. Ala Wai Boulevard and Lewers Street.....	15
IV. Projected Traffic Conditions	15
A. Site-Generated Traffic.....	15
1. Trip Generation Methodology	15
2. Trip Distribution	18
a. General	18
b. Kalaimoku Street Primary Access	19
c. Kuhio Avenue Primary Access	22
B. Through-Traffic Forecasting Methodology	25
C. Other Considerations.....	25
1. 2100 Kalakaua.....	25
2. Royal Hawaiian Shopping Center	26
3. Waikiki Beach Walk.....	26
D. Total Traffic Volumes Without Project.....	27
E. Total Traffic Volumes With Project	31

TABLE OF CONTENTS (CONT'D)

	Page
V. Traffic Impact Analysis.....	31
A. Alternative A	31
B. Alternative B	45
C. Alternative C.....	46
VI. Recommendations.....	48
VII. Conclusion	49

LIST OF FIGURES

FIGURE 1	Location Map and Vicinity Map
FIGURE 2	Project Site Plan – Kalaimoku Street Primary Access
FIGURE 3	Project Site Plan – Kuhio Avenue Primary Access
FIGURE 4	Existing AM Peak Hour of Traffic
FIGURE 5	Existing PM Peak Hour of Traffic
FIGURE 6	Distribution of Site-Generated Vehicles – AM Peak Hour of Traffic Kalaimoku Street Primary Access
FIGURE 7	Distribution of Site-Generated Vehicles – PM Peak Hour of Traffic Kalaimoku Street Primary Access
FIGURE 8	Distribution of Site-Generated Vehicles – AM Peak Hour of Traffic Kuhio Avenue Primary Access
FIGURE 9	Distribution of Site-Generated Vehicles – PM Peak Hour of Traffic Kuhio Avenue Primary Access
FIGURE 10	Year 2010 AM Peak Hour of Traffic Without Project
FIGURE 11	Year 2010 PM Peak Hour of Traffic Without Project
FIGURE 12	Year 2010 AM Peak Hour of Traffic With Alternative A (Timeshare) Development – Kalaimoku Street Primary Access
FIGURE 13	Year 2010 PM Peak Hour of Traffic With Alternative A (Timeshare) Development – Kalaimoku Street Primary Access
FIGURE 14	Year 2010 AM Peak Hour of Traffic With Alternative A (Timeshare) Development – Kuhio Avenue Primary Access
FIGURE 15	Year 2010 PM Peak Hour of Traffic With Alternative A (Timeshare) Development – Kuhio Avenue Primary Access
FIGURE 16	Year 2010 AM Peak Hour of Traffic With Alternative B (Residential Condominium) Development – Kalaimoku Street Primary Access
FIGURE 17	Year 2010 PM Peak Hour of Traffic With Alternative B (Residential Condominium) Development – Kalaimoku Street Primary Access
FIGURE 18	Year 2010 AM Peak Hour of Traffic With Alternative B (Residential Condominium) Development – Kuhio Avenue Primary Access
FIGURE 18	Year 2010 PM Peak Hour of Traffic With Alternative B (Residential Condominium) Development – Kuhio Avenue Primary Access
FIGURE 19	Year 2010 AM Peak Hour of Traffic With Alternative C (Condominium- Hotel) Development Kalaimoku Street Primary Access
FIGURE 20	Year 2010 PM Peak Hour of Traffic With Alternative C (Condominium- Hotel) Development Kalaimoku Street Primary Access
FIGURE 21	Year 2010 AM Peak Hour of Traffic With Alternative C (Condominium- Hotel) Development – Kuhio Avenue Primary Access
FIGURE 22	Year 2010 PM Peak Hour of Traffic With Alternative C (Condominium- Hotel) Development – Kuhio Avenue Primary Access

LIST OF APPENDICIES

APPENDIX A	Existing Traffic Count Data
APPENDIX B	Level of Service Definitions
APPENDIX C	Capacity Analysis Calculations Existing Peak Hour Traffic Analysis
APPENDIX D	Capacity Analysis Calculations Year 2010 Peak Hour Traffic Analysis Without Project
APPENDIX E	Capacity Analysis Calculations Year 2010 Peak Hour Traffic Analysis With Alternative A Development
APPENDIX F	Capacity Analysis Calculations Year 2010 Peak Hour Traffic Analysis With Alternative B Development
APPENDIX G	Capacity Analysis Calculations Year 2010 Peak Hour Traffic Analysis With Alternative C Development

I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to identify and assess the traffic impacts resulting from the proposed 2121 Kuhio development in Waikiki on the island of Oahu. The project site for the proposed development is located at the intersection of Kuhio Avenue and Kalaimoku Street.

B. Scope of Study

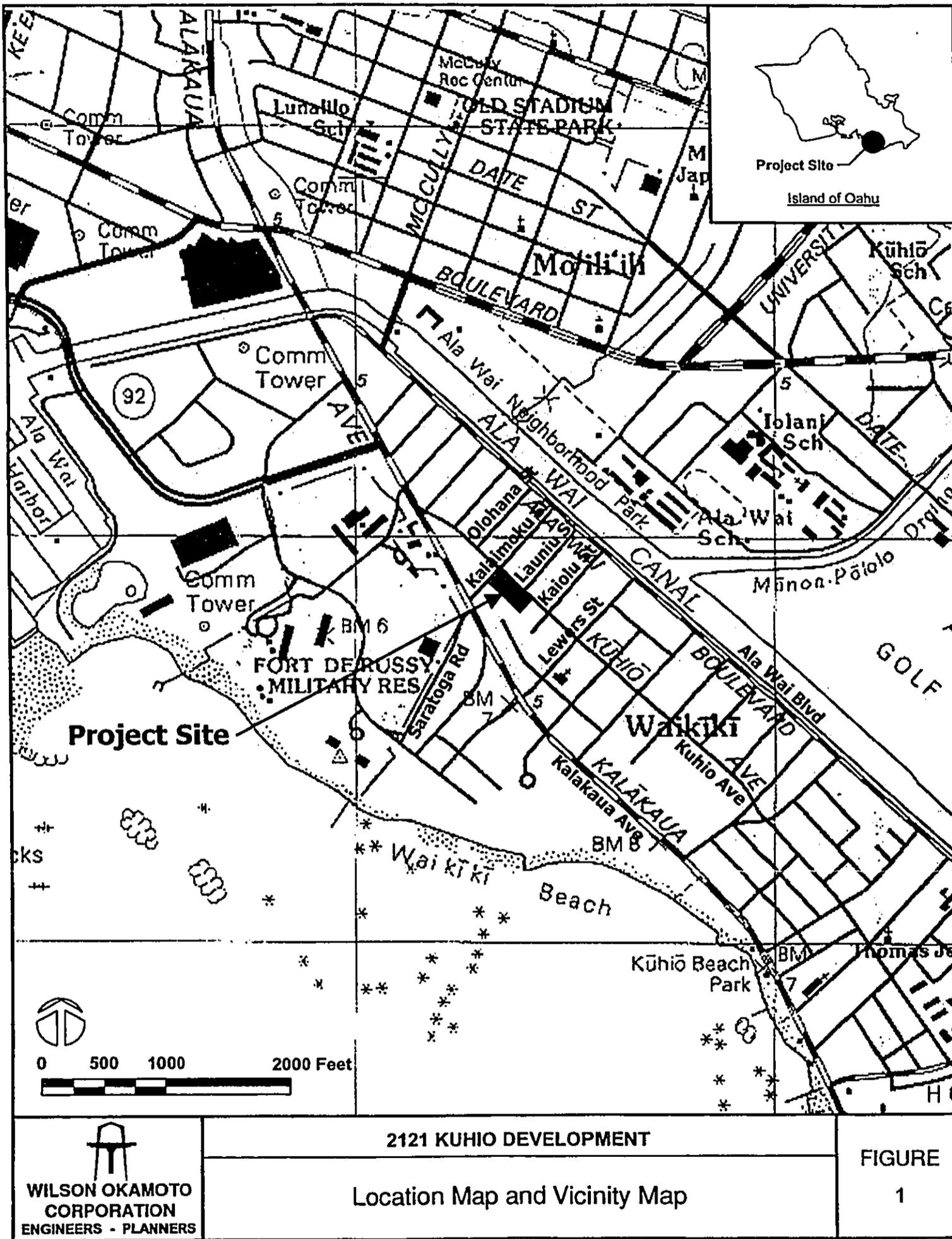
This report presents the findings and conclusions of the traffic study, the scope of which includes:

1. Description of the proposed project.
2. Evaluation of existing roadway and traffic operations in the vicinity.
3. Analysis of future roadway and traffic conditions without the proposed project.
4. Analysis and development of trip generation characteristics for the proposed project.
5. Superimposing site-generated traffic over future traffic conditions.
6. The identification and analysis of traffic impacts resulting from the proposed project.
7. Recommendations of improvements, if appropriate, that would mitigate the traffic impacts resulting from the proposed project.

II. PROJECT DESCRIPTION

A. Location

The project site is located in Waikiki on the island of Oahu (see Figure 1) and is further identified as Tax Map Keys: 2-6-18: 10, 42, and 52. The existing parcels are surrounded by residential apartments to the north and commercial uses to the west and south. Primary access to the project site will be provided either through a driveway off of Kuhio Avenue or Kalaimoku Street.



B. Project Characteristics

The 2121 Kuhio project will be located on at the intersection of Kuhio Avenue and Kalaimoku Street and is expected to be completed and occupied by the Year 2010. There are three different land use alternatives currently being considered for the property which include the following:

- Alternative A: 220 Timeshare Units
- Alternative B: 220 Residential Condominium Units
- Alternative C: 140 Hotel Units/120 Residential Condominium Units

In addition, the development will include a restaurant (up to 10,000 square feet) and underground parking, and offer valet service at the project's porte cochere and the drop off area along Kalaimoku Street. Primary access to the project site will most likely be provided through a new driveway adjacent to the existing drop off area along Kalaimoku Street. However, an alternate access location is also being considered off Kuhio Avenue. Figures 2 and 3 show the proposed project site plans.

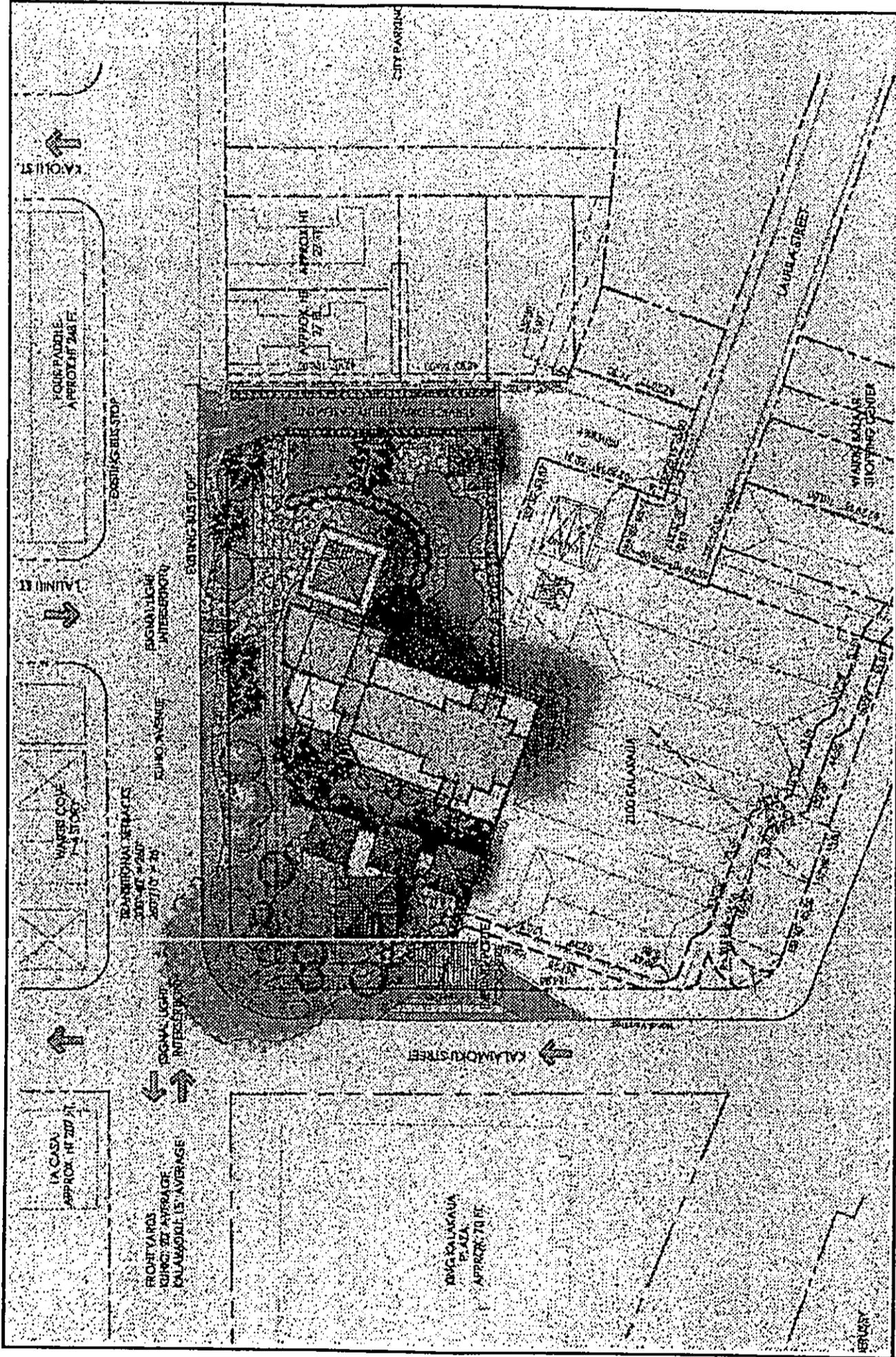
III. EXISTING TRAFFIC CONDITIONS

A. General

The project site is located adjacent to Kuhio Avenue, an east-west oriented roadway that serves as one of the major access roadways through Waikiki. Kalakaua Avenue and Ala Wai Boulevard are one-way roadways that run parallel to Kuhio Avenue and together form a couplet system providing access through Waikiki. In recent years, traffic volumes along Kalakaua Avenue and in the project vicinity have increased significantly due to growth in the tourism industry.

B. Area Roadway System

Kuhio Avenue is generally a four-lane, two-way City and County of Honolulu roadway. At the northwest corner of the project site, Kuhio Avenue intersects with Kalaimoku Street, a two-lane, one-way City and County of Honolulu roadway oriented in the north-south direction between Kalakaua Avenue and Ala Wai Boulevard. At this signalized intersection, the eastbound approach of Kuhio Avenue



2121 KUHIO DEVELOPMENT

FIGURE
3

PROJECT SITE PLAN - KUHIO AVENUE PRIMARY ACCESS


WILSON OKAMOTO CORPORATION
 ENGINEERS - PLANNERS

has two lanes that serve left-turn and through traffic movements while the westbound approach has two lane that serve through and right-turn traffic movements. The northbound approach of Kalaimoku Street has two lanes that serve all traffic movements at this intersection.

Approximately 180 feet southeast of the intersection with Kalaimoku Street, Kuhio Avenue intersects Launiu Street. At this signalized t-intersection, both approaches of Kuhio Avenue have two lanes that serve through traffic movements. Launiu Street is a two-lane, one-way (southbound) City and County of Honolulu roadway oriented in the north-south direction between Kuhio Avenue and Ala Wai Boulevard. At the intersection with Kuhio Avenue, Launiu Street has two southbound lanes that serve left-turn and right-turn traffic movements.

Further southeast, approximately 200 feet, Kuhio Avenue intersects Kaiolu Street and an access road. At this signalized t-intersection, both approaches of Kuhio Avenue have two lanes that serve all traffic movements. Kaiolu Street is a two-lane, one-way (northbound) City and County of Honolulu roadway oriented in the north-south direction between Kuhio Avenue and Ala Wai Boulevard. The northbound approach of the intersection is comprised of an access road to a City and County of Honolulu parking lot and other adjacent properties which has one northbound lane that serves all traffic movements.

Approximately 235 feet further southeast, Kuhio Avenue intersects Lewers Street. At this signalized intersection, the eastbound approach of Kuhio Avenue has an exclusive left-turn lane and two through lanes while the westbound approach has one through lane and a shared through and right-turn lane. Lewers Street is a north-south oriented City and County of Honolulu roadway that originates at Kalia Road as a two-lane, one-way (southbound) roadway and continues north on to Don Ho Street where it converts to a four-lane, two-way roadway until Kalakaua Avenue. North of Kalakaua Avenue, Lewers Street continues as a two-lane, one-way (northbound) roadway until its terminus at Ala Wai Boulevard. At the intersection with Kuhio Avenue, Lewers Street has two northbound lanes that serve all traffic movements.

Approximately 365 feet south of the intersection with Kuhio Avenue, Kalaimoku Street intersects Kalakaua Avenue and Saratoga Road. Kalakaua Avenue is a generally four-lane, one-way City and County of Honolulu roadway and at this signalized intersection, Kalakaua Avenue has four eastbound lanes that serve all traffic movements. Saratoga Road is generally a two-lane, two-way City and County of Honolulu roadway oriented in the north-south direction between Kalia Road and Kalakaua Avenue. At the intersection with Kalakaua Avenue and Kalaimoku Street, Saratoga Road has three northbound lanes that serve through and right-turn traffic movements with posted signs indicating that right-turn movements are prohibited on red.

Further southeast, approximately 400 feet, Kalakaua Avenue intersects Lewers Street. At this signalized intersection, Kalakaua Avenue has four eastbound lanes that serve all traffic movements while Lewers Street has two northbound lanes that serve through and right-turn traffic movements. Both of these approaches have posted signs indicating that right-turn movements are prohibited on red.

Approximately 450 feet north of the intersection with Kuhio Avenue, Kalaimoku Street intersects Ala Wai Boulevard. At this signalized t-intersection, Kalaimoku Street has two northbound lanes that serve left-turn traffic movements. Ala Wai Boulevard is a predominantly three-lane, one-way (westbound) City and County of Honolulu roadway with a 24-hour parking lane located on the north side of the roadway. At the intersection with Kalaimoku Street, Ala Wai Boulevard has three westbound lanes that serve through traffic movements.

Further southeast, approximately 840 feet, Ala Wai Boulevard intersects Lewers Street. At this signalized t-intersection, Ala Wai Boulevard has three lanes that serve through traffic movements while Lewers Street has two northbound lanes that serve left-turn traffic movements.

C. Traffic Volumes and Conditions

1. General

a. Field Investigation

Field investigations were conducted on March 30 & 31, 2004 and consisted of manual turning movement count surveys during the morning peak hours between 6:30 AM and 8:30 AM, and the afternoon peak hours between 3:30 PM and 6:30 PM at the following intersections:

- Kuhio Avenue and Kalaimoku Street
- Kuhio Avenue and Lewers Street
- Kalakaua Avenue, Kalaimoku Street, and Saratoga Road
- Kalakaua Avenue and Lewers Street
- Ala Wai Boulevard and Kalaimoku Street
- Ala Wai Boulevard and Lewers Street

In addition, supplemental manual turning movement count surveys were conducted on January 24 & 25, 2006 during the morning peak hour from 7:45 AM and 8:45 AM, and the afternoon peak hour of 4:15 PM and 5:15 PM at these intersections, as well as, the following intersections:

- Kuhio Avenue and Launiu Street
- Kuhio Avenue and Kaiolu Street

Appendix A includes the existing traffic count data.

b. Capacity Analysis Methodology

The highway capacity analysis performed in this study is based upon procedures presented in the "Highway Capacity Manual", Transportation Research Board, 2000, and the "Highway Capacity Software", developed by the Federal Highway Administration. The analysis is based on the concept of Level of Service (LOS) to identify the traffic impacts associated with traffic demands during the peak hours of traffic.

LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by LOS "A" through "F";

LOS "A" representing ideal or free-flow traffic operating conditions and LOS "F" unacceptable or potentially congested traffic operating conditions.

"Volume-to-Capacity" (v/c) ratio is another measure indicating the relative traffic demand to the road carrying capacity. A v/c ratio of one (1.00) indicates that the roadway is operating at or near capacity. A v/c ratio of greater than 1.00 indicates that the traffic demand exceeds the road's carrying capacity. The LOS definitions are included in Appendix B.

2. Existing Peak Hour Traffic

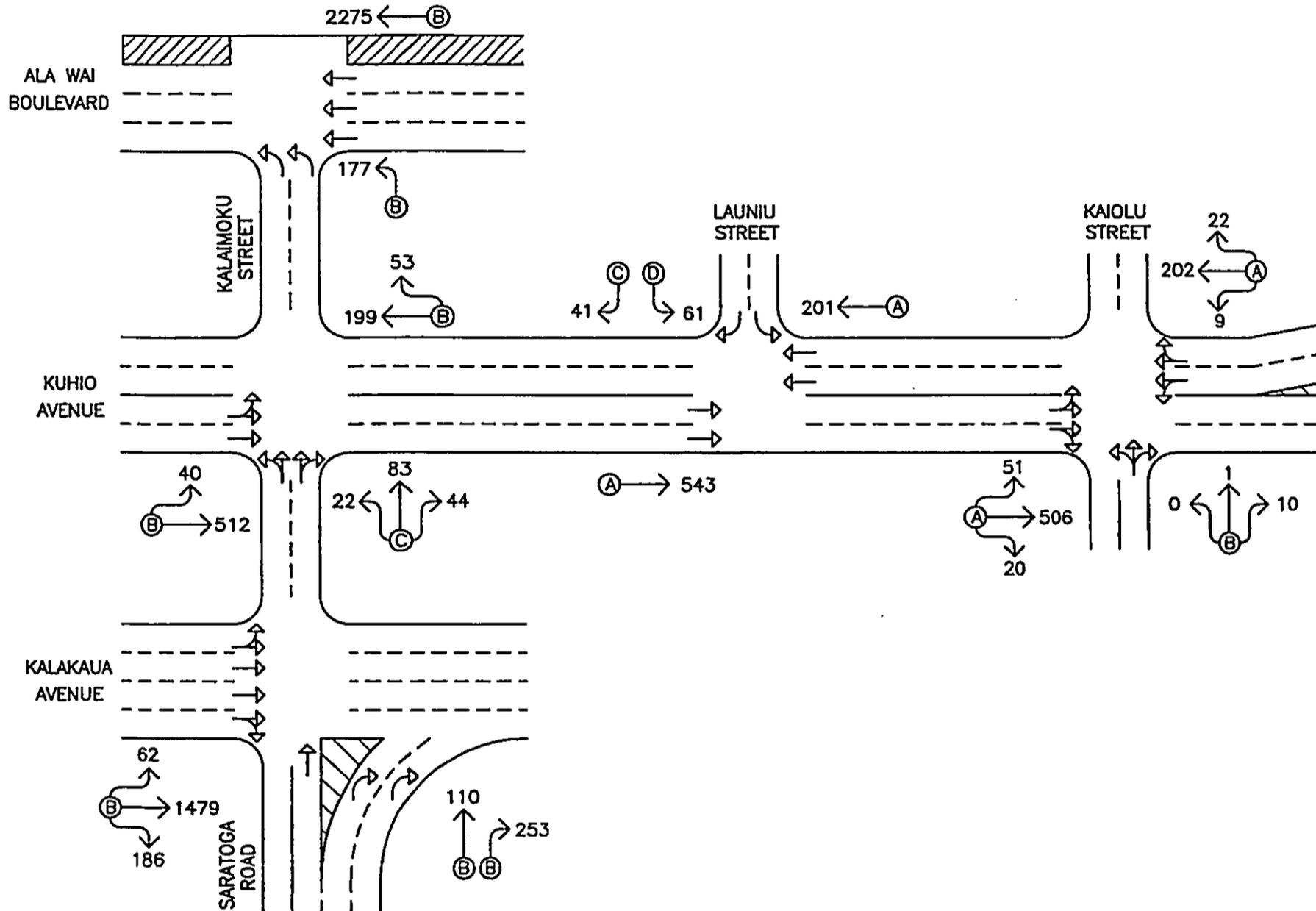
a. General

Figures 4 and 5 show the existing AM and PM peak hour traffic volumes and operating traffic conditions. The AM peak hour of traffic generally occurs between 7:45 AM and 8:45 AM in the vicinity of the proposed project. In the afternoon, the PM peak hour of traffic generally occurs between the hours of 4:15 PM and 5:15 PM. The analysis is based on these peak hour time periods to identify the traffic impacts resulting from the proposed project. The LOS calculation worksheets are included in Appendix C.

b. Kuhio Avenue and Kalaimoku Street

At the intersection with Kalaimoku Street, Kuhio Avenue carries 252 vehicles westbound and 552 vehicles eastbound during the AM peak hour of traffic. During the PM peak hour, traffic volumes are higher with 299 vehicles traveling westbound and 816 vehicles traveling eastbound. This critical traffic movement for the Kuhio Avenue approaches is the westbound left-turn and through traffic movement which operates at LOS "B" during both peak periods.

The Kalaimoku Street approach of this intersection carries 149 vehicles northbound during the AM peak hour of traffic. During the PM peak hour of traffic, the traffic volume is higher with 267 vehicles

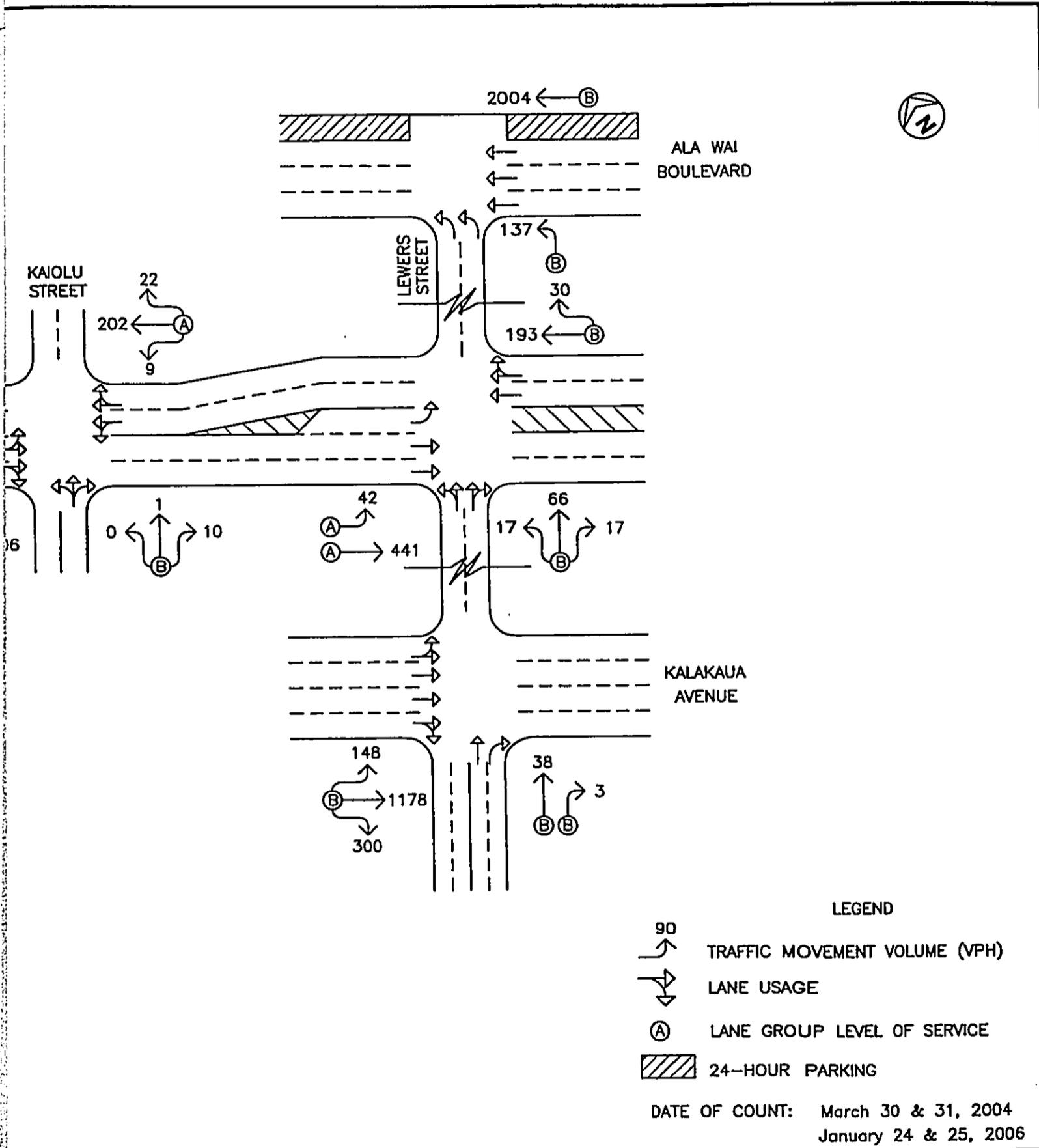


2121 KUHIO DEVELOPMENT

EXISTING AM PEAK HOUR OF TRAVEL

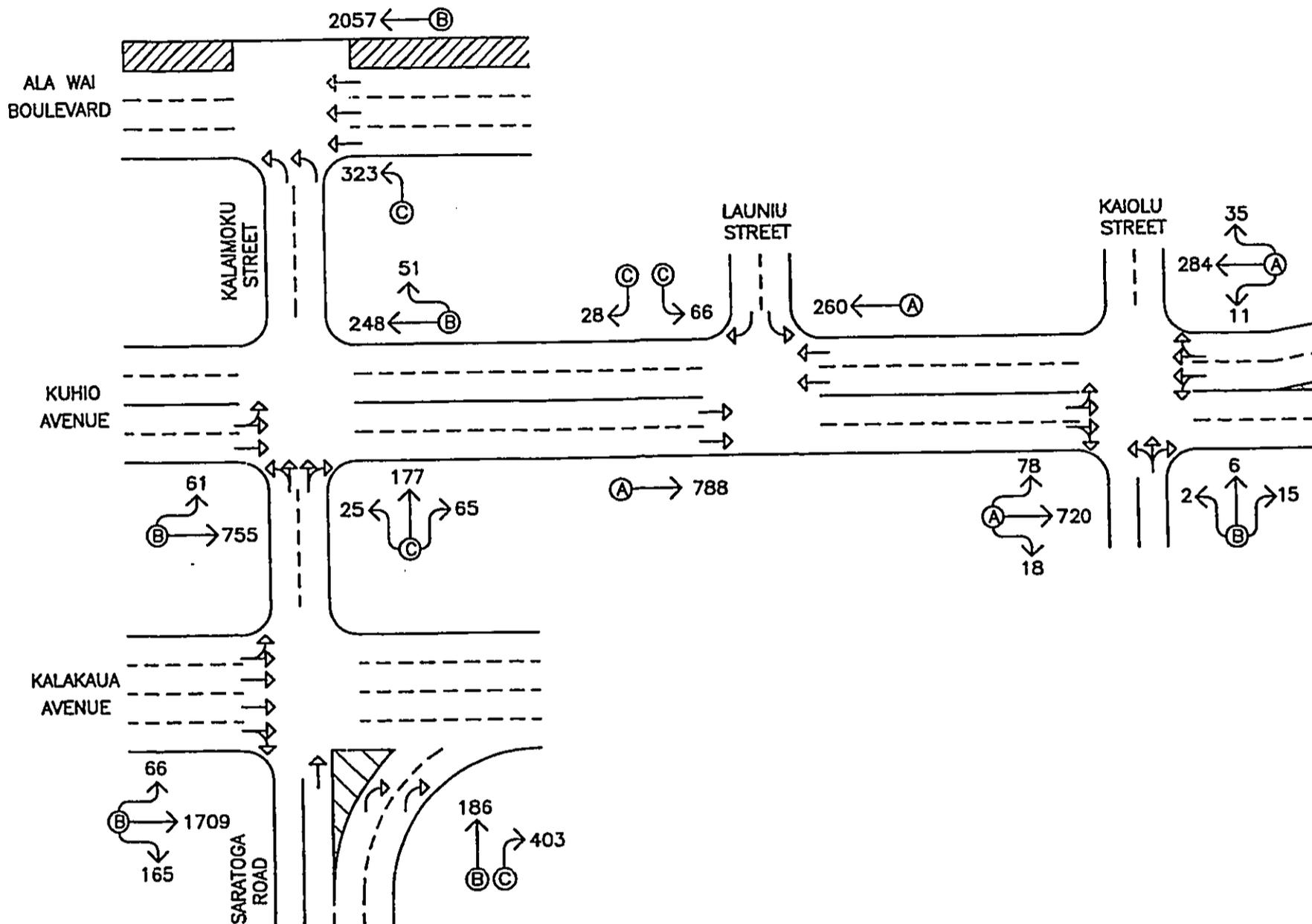


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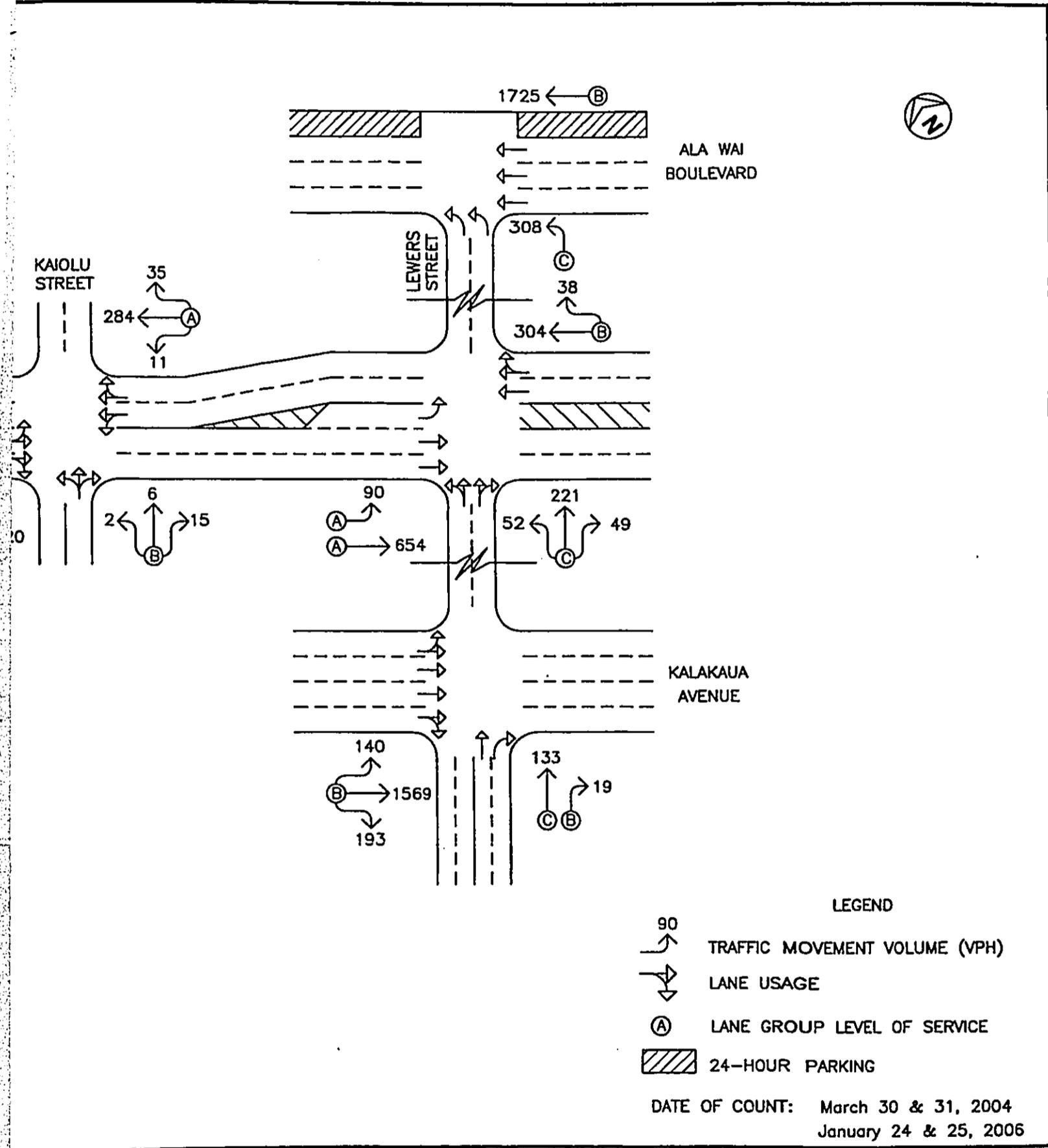
DEVELOPMENT
 PEAK HOUR OF TRAFFIC

FIGURE
 4



2121 KUHIO DEVELOPMENT

EXISTING PM PEAK HOUR OF TR



DEVELOPMENT
 PEAK HOUR OF TRAFFIC

FIGURE
 5

traveling northbound. The Kalaimoku Street approach operates at LOS "C" during both peak hours of traffic.

c. Kuhio Avenue and Launiu Street

At the intersection with Launiu Street, Kuhio Avenue carries 201 vehicles westbound and 543 vehicles eastbound during the AM peak hour of traffic while the Launiu Street approach carries 102 vehicles southbound. During the PM peak hour, traffic volumes are higher with Kuhio Avenue carrying 260 vehicles traveling westbound and 788 vehicles traveling eastbound, and the Launiu Street approach carrying 94 vehicles southbound. The critical traffic movement at this intersection is the southbound left-turn traffic movement along Launiu Street which operates at LOS "D" and LOS "C" during the AM and PM peak periods, respectively.

d. Kuhio Avenue and Kaiolu Street

At the intersection with Kaiolu Street, Kuhio Avenue carries 233 vehicles westbound and 577 vehicles eastbound during the AM peak hour of traffic. During the PM peak hour, traffic volumes are higher with 330 vehicles traveling westbound and 816 vehicles traveling eastbound. Both approaches of Kuhio Avenue operate at LOS "A" during both peak periods.

The northbound approach of this intersection is comprised of an access road for several adjacent properties and carries a relatively low volume of traffic during the peak hours of traffic. This approach carries 11 vehicles northbound during the AM peak period and 23 vehicles northbound during the PM peak period.

e. Kuhio Avenue and Lewers Street

At the intersection with Lewers Street, Kuhio Avenue carries 223 vehicles westbound and 483 vehicles eastbound during the AM peak hour of traffic. During the PM peak hour of traffic, the traffic volume is higher with 342 vehicles traveling westbound and 744

vehicles traveling eastbound. The critical traffic movement for the Kuhio Avenue approaches is the eastbound left-turn traffic movement which operates at LOS "A" during both peak periods.

The Lewers Street approach of this intersection carries 100 vehicles northbound during the AM peak hour of traffic. During the PM peak hour, the traffic volume is higher with 322 vehicles traveling northbound. The Lewers Street approach operates at LOS "B" and LOS "C" during the AM and PM peak hours of traffic, respectively.

f. Kalakaua Avenue, Kalaimoku Street, and Saratoga Road

At the intersection with Kalaimoku Street and Saratoga Road, Kalakaua Avenue carries 1,727 vehicles eastbound during the AM peak hour of traffic. During the PM peak hour of traffic, the traffic volume is higher with 1,940 vehicles traveling eastbound. The Kalakaua Avenue approach operates at LOS "B" during both peak hours of traffic.

The Saratoga Road approach of this intersection carries 363 vehicles northbound during the AM peak hour of traffic. During the PM peak hour, the traffic volume is higher with 589 vehicles traveling northbound. The critical movement of the Saratoga Road approach is the northbound right-turn traffic movement which operates at LOS "B" and LOS "C" during the AM and PM peak hours of traffic, respectively.

g. Kalakaua Avenue and Lewers Street

At the intersection with Lewers Street, Kalakaua Avenue carries 1,626 vehicles eastbound during the AM peak hour of traffic. During the PM peak hour, the traffic volume is higher with 1,902 vehicles traveling eastbound. This approach operates at LOS "B" during both peak hours of traffic.

The Lewers Street approach of this intersection carries 41 vehicles northbound during the AM peak hour of traffic. During the

PM peak hour of traffic, the traffic volume is higher with 152 vehicles traveling northbound. The critical traffic movement of the Lewers Street approach is the northbound through traffic movement that operates at LOS "B" and LOS "C" during the AM and PM peak periods, respectively.

Field observations indicated that there is a high volume of pedestrians crossing Lewers Street at this intersection. Pedestrian volumes during the AM peak period are fairly high with 295 pedestrians crossing on the south side of the intersection and 223 pedestrians crossing on the north side. During the PM peak hour of traffic, pedestrian volumes are significantly higher with 449 pedestrians crossing Lewers Street on the south side of the intersection and 720 pedestrians crossing on the north side. These pedestrians conflict with eastbound left-turning and right-turning vehicles along Kalakaua Avenue resulting in queuing along that roadway. Most of these queues would clear the intersection after each traffic signal cycle change, but occasionally vehicles had to wait for more than one traffic signal cycle length.

h. Ala Wai Boulevard and Kalaimoku Street

At the intersection with Kalaimoku Street, Ala Wai Boulevard carries 2,275 vehicles westbound during the AM peak hour of traffic. During the PM peak hour, the traffic volume is slightly lower with 2,057 vehicles traveling westbound. This approach operates at LOS "B" during both peak hours of traffic.

The Kalaimoku Street approach of this intersection carries 177 vehicles northbound during the AM peak hour of traffic. During the PM peak hour of traffic, the traffic volumes are higher with 323 vehicles traveling northbound. The Kalaimoku Street approach operates at LOS "B" and LOS "C" during the AM and PM peak hours of traffic, respectively.

i. Ala Wai Boulevard and Lewers Street

At the intersection with Lewers Street, Ala Wai Boulevard carries 2,004 vehicles westbound during the AM peak hour of traffic. During the PM peak hour, the traffic volume slightly lower with 1,725 vehicles traveling westbound. The Ala Wai Boulevard approach operates at LOS "B" during both peak hours of traffic.

The Lewers Street approach of this intersection carries 137 vehicles northbound during the AM peak hour of traffic. During the PM peak hour of traffic, the traffic volume is higher with 308 vehicles traveling northbound. The Lewers Street approach operates at LOS "B" and LOS "C" during the AM and PM peak periods of traffic, respectively.

IV. PROJECTED TRAFFIC CONDITIONS

A. Site-Generated Traffic

1. Trip Generation Methodology

The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in "Trip Generation, 7th Edition," 2003. The ITE trip generation rates are developed empirically by correlating the vehicle trip generation data with various land use characteristics such as the number of vehicle trips generated per dwelling unit or 1,000 square feet of development. There are three different land use alternatives currently under consideration for the project site: timeshare, residential condominium, condominium-hotel. Since the proposed development will be located in a neighborhood with limited parking, high volumes of pedestrian traffic, and a high density of attractive destinations, residents, guests, and customers destined for the project site may elect to walk rather than drive. However, for the purpose of this report, only a portion of the guests of the hotel and customers of the restaurant were assumed to walk rather than drive. All residents of the timeshare and residential condominium units were conservatively assumed to utilize their

vehicles for all trips. As such, the total number of trips generated by the proposed hotel were reduced by 20% while those generated by the proposed restaurant were reduced by 10% to more accurately reflect anticipated conditions. Tables 1 to 3 summarize the project site trip generation characteristics applied to the AM and PM peak hours of traffic under the three land use alternatives.

Table 1: Alternative A Peak Hour Trip Generation

TIMESHARE (RECREATIONAL HOMES)		
INDEPENDENT VARIABLE: Dwelling Units = 220		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	23
	EXIT	12
	TOTAL	35
PM PEAK	ENTER	23
	EXIT	34
	TOTAL	57
QUALITY RESTAURANT		
INDEPENDENT VARIABLE: 1,000 Sq. Ft. Development = 10		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	4
	EXIT	4
	TOTAL	8
PM PEAK	ENTER	45
	EXIT	22
	TOTAL	67
TOTAL		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	27
	EXIT	16
	TOTAL	43
PM PEAK	ENTER	68
	EXIT	56
	TOTAL	124

Table 2: Alternative B Peak Hour Trip Generation

HIGH-RISE RESIDENTIAL/CONDOMINIUM		
INDEPENDENT VARIABLE: Dwelling Units = 220		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	16
	EXIT	77
	TOTAL	93
PM PEAK	ENTER	60
	EXIT	30
	TOTAL	90
QUALITY RESTAURANT		
INDEPENDENT VARIABLE: 1,000 Sq. Ft. Development = 10		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	4
	EXIT	4
	TOTAL	8
PM PEAK	ENTER	45
	EXIT	22
	TOTAL	67
TOTAL		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	20
	EXIT	81
	TOTAL	101
PM PEAK	ENTER	105
	EXIT	52
	TOTAL	157

Table 3: Alternative C Peak Hour Trip Generation

HIGH-RISE RESIDENTIAL/CONDOMINIUM		
INDEPENDENT VARIABLE: Dwelling Units = 120		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	11
	EXIT	53
	TOTAL	64
PM PEAK	ENTER	38
	EXIT	18
	TOTAL	56

Table 3: Alternative C Peak Hour Trip Generation (Cont'd)

HOTEL		
INDEPENDENT VARIABLE: Units = 140 (Less 20% to account for ped traffic)		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	37
	EXIT	26
	TOTAL	63
PM PEAK	ENTER	31
	EXIT	33
	TOTAL	64
QUALITY RESTAURANT		
INDEPENDENT VARIABLE: 1,000 Sq. Ft. Development = 10		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	4
	EXIT	4
	TOTAL	8
PM PEAK	ENTER	45
	EXIT	22
	TOTAL	67
TOTAL		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	52
	EXIT	83
	TOTAL	135
PM PEAK	ENTER	114
	EXIT	73
	TOTAL	187

2. Trip Distribution

a. General

Primary access to the project site will most likely be provided through a new driveway adjacent to the existing drop off area along Kalaimoku Street. This driveway would serve as the primary access point for all residents, guests, and customers accessing the project site with a direct connection to the parking garage. An alternate access

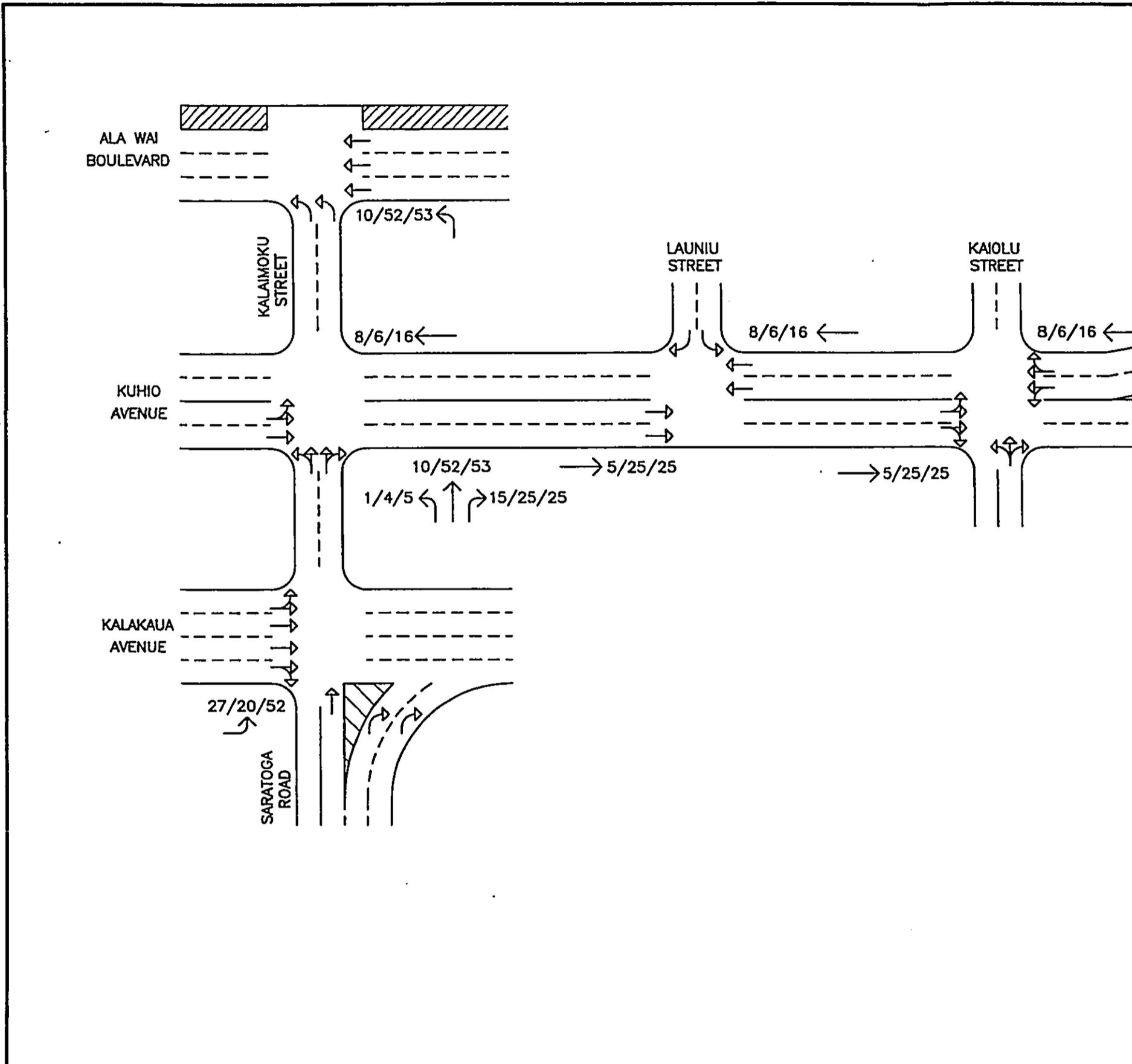
location is also being considered off Kuhio Avenue at the intersection with Launiu Street that would serve as the primary access point for residents and guests of the hotel/condominium/timeshare component of the project with valet service for customers of the restaurant provided near the existing drop-off area along Kalaimoku Street. Since access to the on-site parking would only be provided via the Kuhio Avenue driveway, valets would need to circulate on the adjacent roadways to transfer vehicles to and from the parking garage. This report includes assessments of both access locations currently under consideration.

b. Kalaimoku Street Primary Access

Figures 6 and 7 show the distribution of site-generated vehicular trips at the study intersections during AM and PM peak hours of traffic with the primary access for the project site located along Kalaimoku Street. The directional distribution of all site-generated vehicles was based upon the prevailing directional distribution of traffic along Kuhio Avenue. Entering eastbound vehicles were assumed to utilize Kalakaua Avenue to access the project site while exiting eastbound vehicles were assumed to utilize Kuhio Avenue. Entering westbound vehicles were assumed to utilize Kuhio Avenue, Olohana Street, and Kalakaua Avenue to access the project site while exiting westbound vehicles were assumed to utilize Kuhio Avenue or Ala Wai Boulevard.

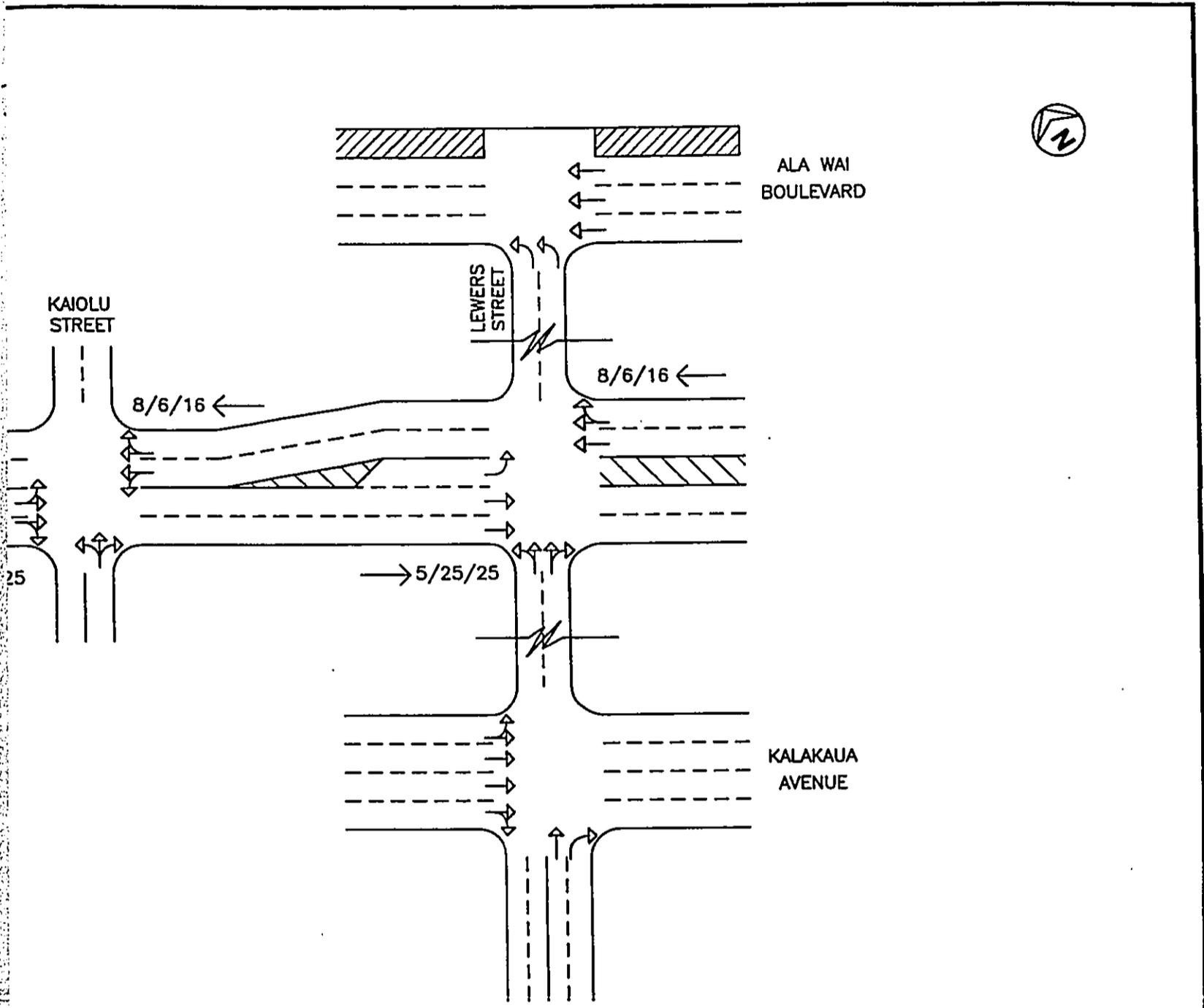
c. Kuhio Avenue Primary Access

Figures 8 and 9 show the distribution of site-generated vehicular trips at the study intersections during AM and PM peak hours of traffic with the primary access for the project site located along Kuhio Avenue. The directional distribution of vehicles generated by the timeshare/residential condominium/hotel units was



2121 KUHIO DEVELOPMENT

DISTRIBUTION OF SITE-GENERATED VEHICLES - AM
KALAIMOKU STREET PRIMARY A



LEGEND

- XX/XX/XX TIMESHARE/RESIDENTIAL CONDO/CONDO-HOTEL
- LANE USAGE
- 24-HOUR PARKING

NO DEVELOPMENT
 0 VEHICLES - AM PEAK HOUR OF TRAFFIC
 STREET PRIMARY ACCESS

FIGURE
 6

ALA WAI BOULEVARD

KALAIMOKU STREET

KUHIO AVENUE

KALAKAUA AVENUE

68/105/114

SARATOGA ROAD

LAUNI STREET

KAIOLU STREET

36/34/47

18/28/30

18/28/30

18/28/30

36/34/47

15/14/20

15/14/20

5/4/6

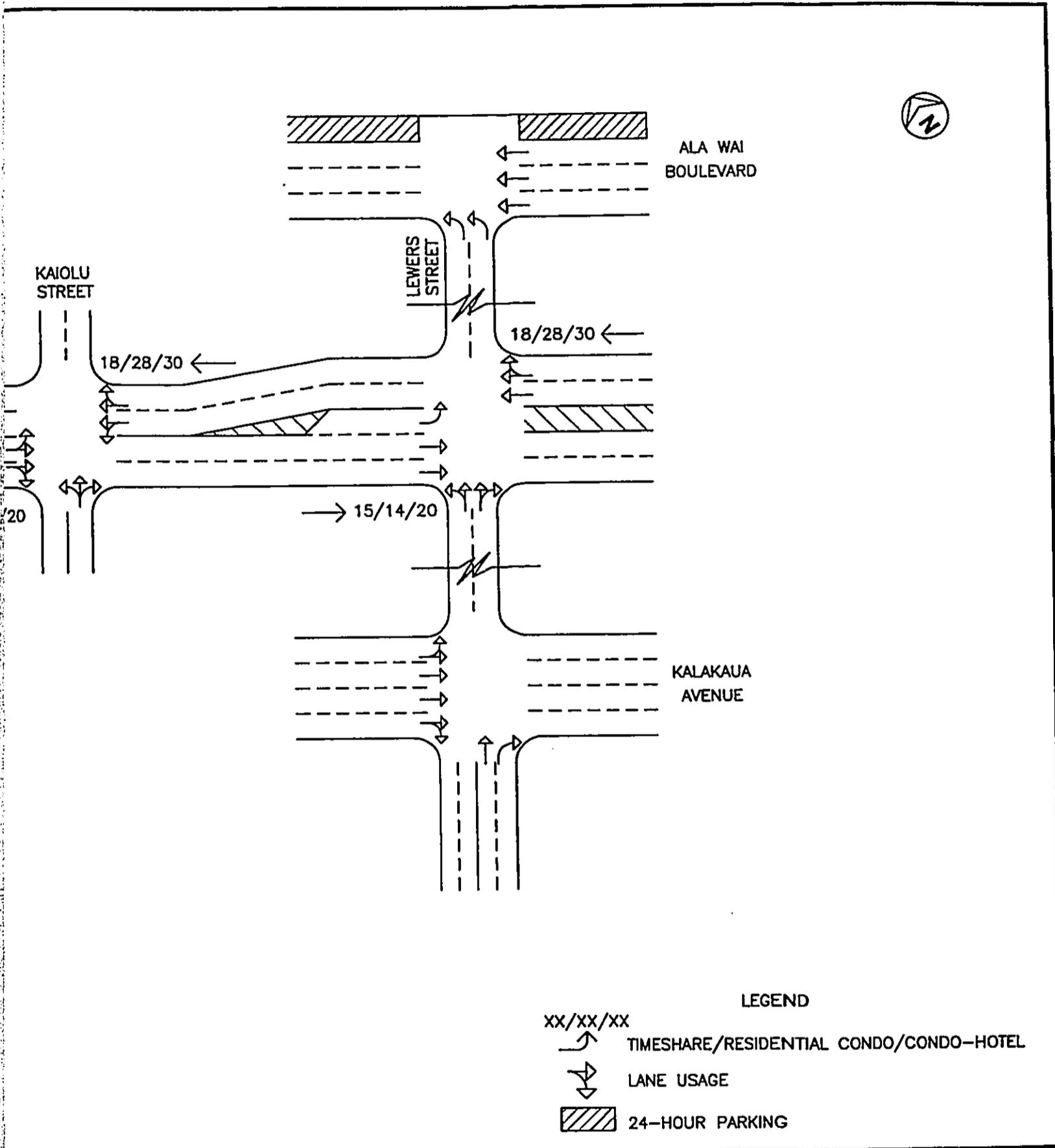
15/14/20

2121 KUHIO DEVELOPMENT

DISTRIBUTION OF SITE-GENERATED VEHICLES - PM PEAK
KALAIMOKU STREET PRIMARY ACC



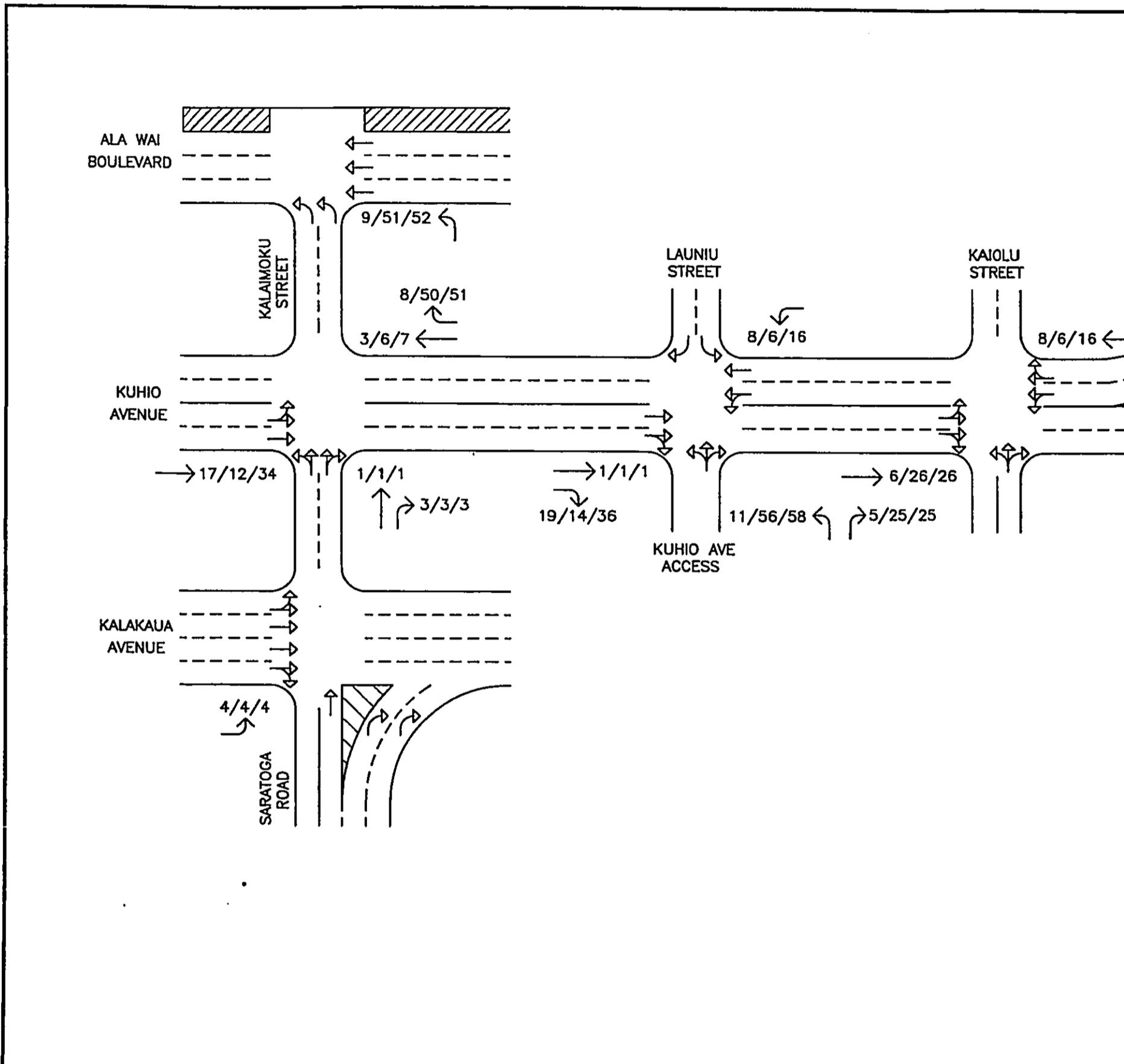
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TO DEVELOPMENT

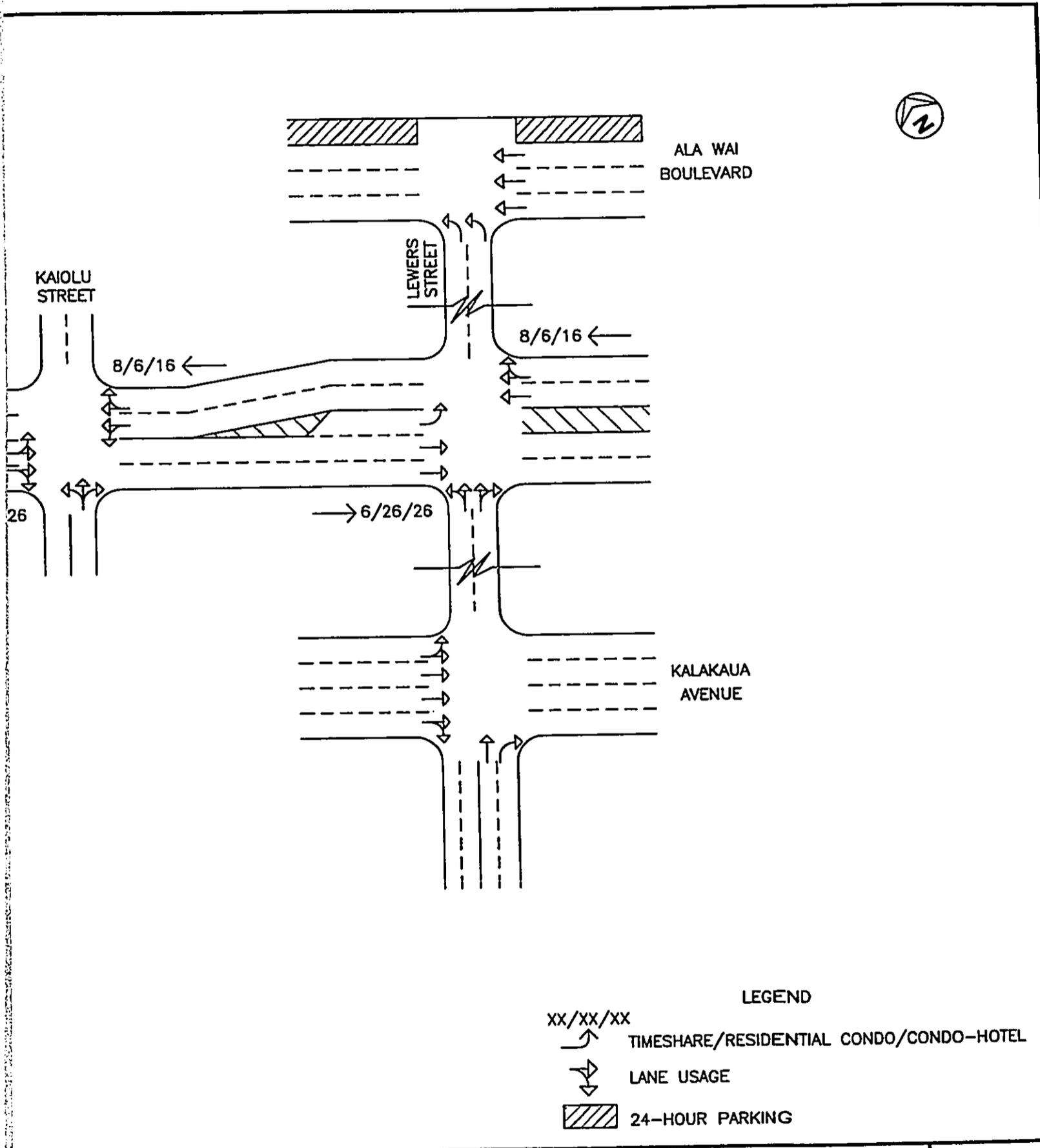
VEHICLES - PM PEAK HOUR OF TRAFFIC
 STREET PRIMARY ACCESS

FIGURE
 7



2121 KUHIO DEVELOPMENT

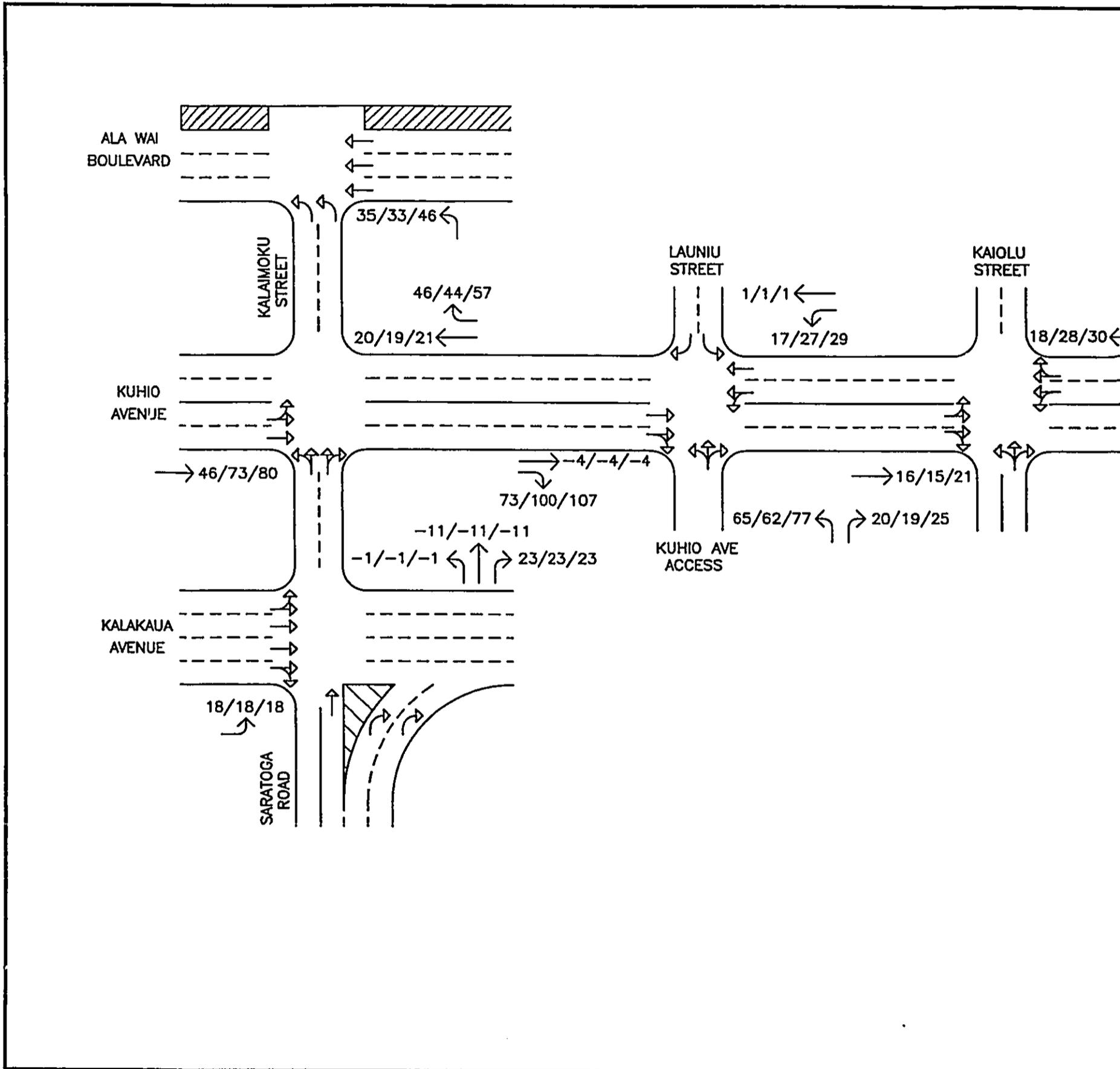
DISTRIBUTION OF SITE-GENERATED VEHICLES - AM
KUHIO AVENUE PRIMARY ACC



O DEVELOPMENT

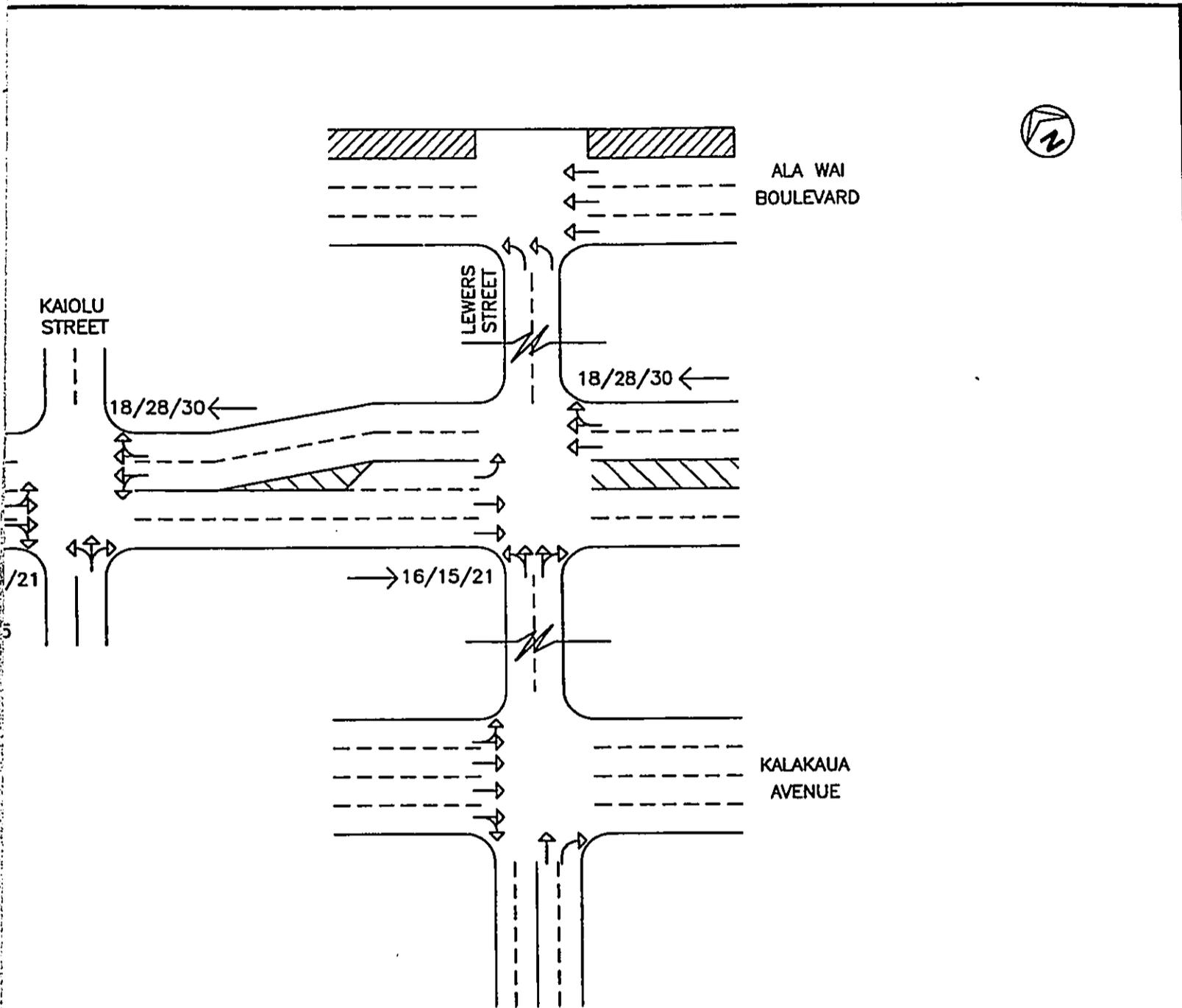
VEHICLES - AM PEAK HOUR OF TRAFFIC
 PRIMARY ACCESS

FIGURE
 8



2121 KUHIO DEVELOPMENT

DISTRIBUTION OF SITE-GENERATED VEHICLES - P
KUHIO AVENUE PRIMARY AC



IO DEVELOPMENT

VEHICLES - PM PEAK HOUR OF TRAFFIC
E PRIMARY ACCESS

FIGURE
9

based upon the prevailing directional distribution of traffic along Kuhio Avenue. As such, 30.8% of the vehicles were assumed to be traveling westbound during the AM peak period while 69.2% were assumed to be traveling eastbound. During the PM peak period, 26.7% were assumed to be traveling westbound while 73.2% were assumed to be traveling eastbound. All eastbound vehicles were assumed to utilize Kuhio Avenue to access the project site as were entering westbound vehicles. Exiting westbound vehicles were assumed to utilize either Kuhio Avenue or Ala Wai Boulevard based upon the relative distribution of traffic along those roadways. As such, 8.3% of the exiting westbound vehicles were assumed utilize Kuhio Avenue during the AM peak period while 91.7% were assumed utilize Ala Wai Boulevard. During the PM peak period, 10.3% of the exiting westbound vehicles were assumed utilize Kuhio Avenue during the AM peak period while 89.7% were assumed utilize Ala Wai Boulevard.

Vehicles generated by the restaurant were assumed to either self-park via the primary access driveway or utilize the valet service at the existing drop off area along Kalaimoku Street. For the purpose of this report, 40% of the vehicles were assumed to self-park while 60% were assumed to utilize the valet service. The distribution of vehicles generated by the restaurant that self-park was similar to that for the timeshare/residential condominium/hotel units. Vehicles utilizing the valet service were routed to the drop off area along Kalaimoku based upon the prevailing directional distribution of traffic along Kuhio Avenue and then routed from the drop off area to the primary access driveway along Kuhio Avenue.

B. Through Traffic Forecasting Methodology

The travel forecast is based upon historical traffic count data obtained from the State DOT, Highways Division at a survey station located at the intersection of Kalakaua Avenue and Ala Moana Boulevard. The historical data were analyzed by linear regression techniques to obtain an annual traffic growth rate of approximately 6.6% along Kalakaua Avenue, using 2005 as the Base Year. For the purpose of this study, this annual traffic growth rate was conservatively assumed to apply to all traffic movements at the study intersections. As such, a growth rate factor of 1.38 was applied to the existing traffic demands at the study intersections along Kuhio Avenue, Kalakaua Avenue, and Ala Wai Boulevard to simulate projected Year 2010 traffic demands at those intersections.

C. Other Considerations

1. 2100 Kalakaua

The 2100 Kalakaua development has approximately 96,318 square feet of gross leasable retail space and is located at the corner of Kalakaua Avenue and Kalaimoku Street. Parking for this development is currently being accommodated in the King Kalakaua Phase I building located along the west side of Kalaimoku Street north of Kalakaua Avenue that houses Nike Town and Banana Republic. However, once the 2121 Kuhio development is constructed, the parking for the 2100 Kalakaua development may be relocated to the 2121 Kuhio project site which would provide approximately 92 parking stalls to accommodate vehicles generated by the 2100 Kalakaua development. As such, for the purpose of this report, all of the required parking stalls for the 2100 Kalakaua development were conservatively assumed to be relocated to the 2121 Kuhio project site. The trip generation characteristics for the 2100 Kalakaua development were derived utilizing generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in "Trip Generation, 7th Edition," 2003. Since the proposed development will be located in a neighborhood with high volumes of pedestrian traffic, many of the customers destined for the development may elect to walk rather than drive.

As such, only 20% of the total number of trips generated by the 2100 Kalakaua development were assumed to be vehicular trips. Table 4 summarizes the adjusted project site trip generation characteristics for the 2100 Kalakaua development.

Table 4: 2100 Kalakaua Peak Hour Trip Generation

SPECIALTY RETAIL CENTER		
INDEPENDENT VARIABLE: 1,000 sf of development = 96.318		
		PROJECTED TRIP ENDS
AM PEAK	ENTER	0
	EXIT	0
	TOTAL	0
PM PEAK	ENTER	22
	EXIT	29
	TOTAL	51

2. Royal Hawaiian Shopping Center

The Royal Hawaiian Shopping Center is currently undergoing renovations to revitalize the existing shopping center. The proposed renovations will entail extensive landscaping and walkway reconstruction, relocation of existing elevators, installation of new escalators, installation of new underground utilities, and other architecturally related modifications to the building structure. A conservative, universal growth factor was applied to all the traffic movements at the study intersections to simulate ambient growth in traffic in the project vicinity. This ambient growth may absorb any variations in the projected traffic patterns as a result of the proposed renovations.

3. Waikiki Beach Walk

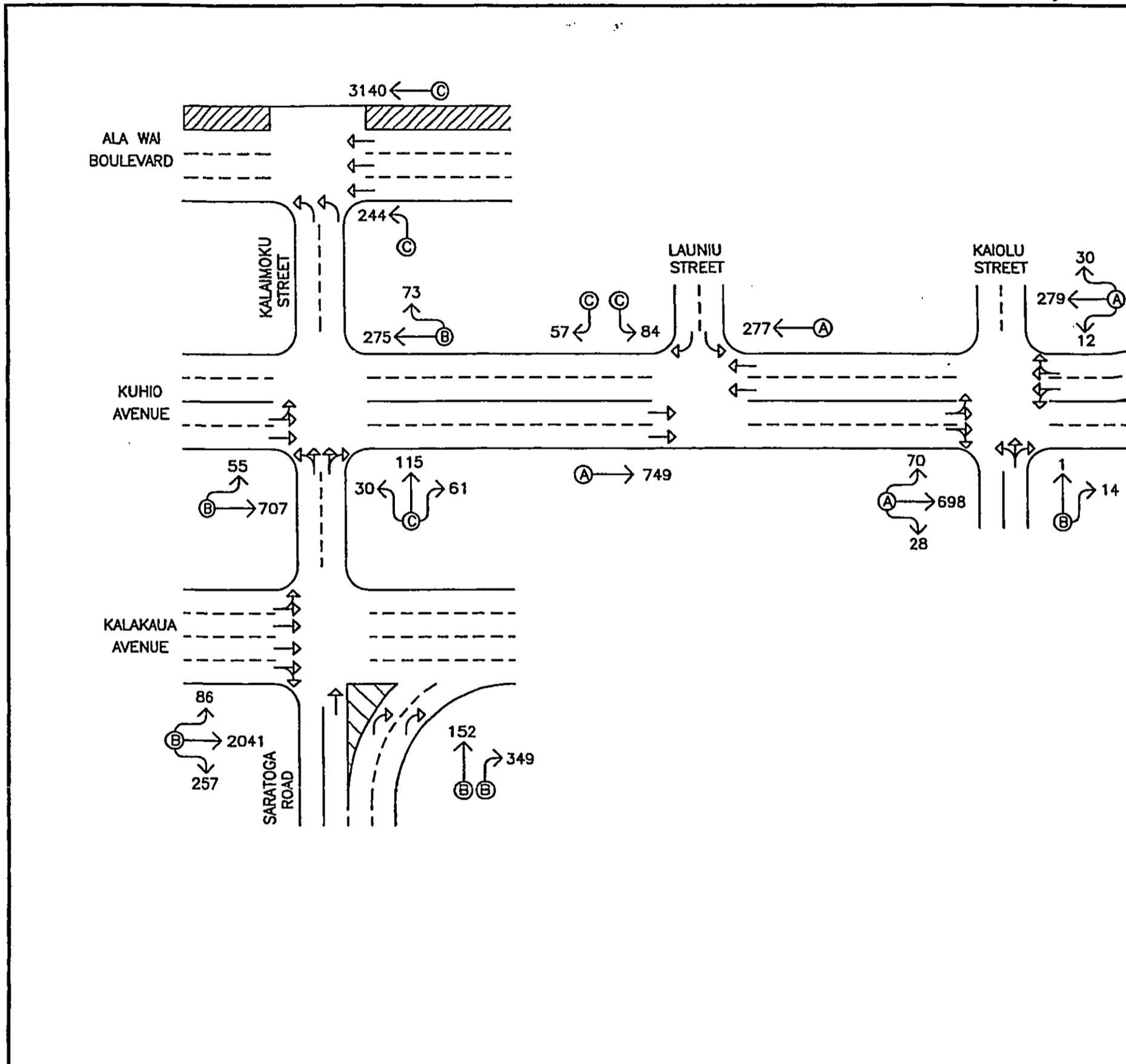
The Waikiki Beach Walk development is located south of Kalakaua Avenue between Saratoga Road and the Sheraton Waikiki east of Lewers Street. The proposed development entails a net reduction in hotel rooms and net increase in retail/restaurant space and meeting facilities. As detailed in the "Waikiki Beach Walk Traffic Impact Analysis Report" prepared by Wilbur

Smith Associates in October 2004 and the "Beach Walk Waikiki Traffic Impact Report" prepared by Wilson Okamoto Corporation in January 2006, the trip generation characteristics for the proposed development are conservatively assumed to remain similar to existing uses with some redistribution of traffic from Lewers Street to Beach Walk is anticipated due to the planned shifts in land uses and densities. However, for the purpose of this report, the traffic volumes at the intersection of Kalakaua Avenue and Lewers Street were not adjusted to reflect this shift to present a conservative assessment of that intersection.

With regards to the Kalakaua Avenue and Lewers Street intersection, both traffic impact reports contained assessments of the existing queuing along Kalakaua Avenue at this intersection due to heavy pedestrian traffic streams along Kalakaua Avenue and high volumes of right-turning traffic at the intersections along that roadway. These assessments indicated that improvements at this intersection could be implemented to alleviate the existing queuing which include modifications to the existing traffic signal phasing and timing. For the purpose of this report, the recommended improvements are assumed to be implemented by the Waikiki Beach Walk development.

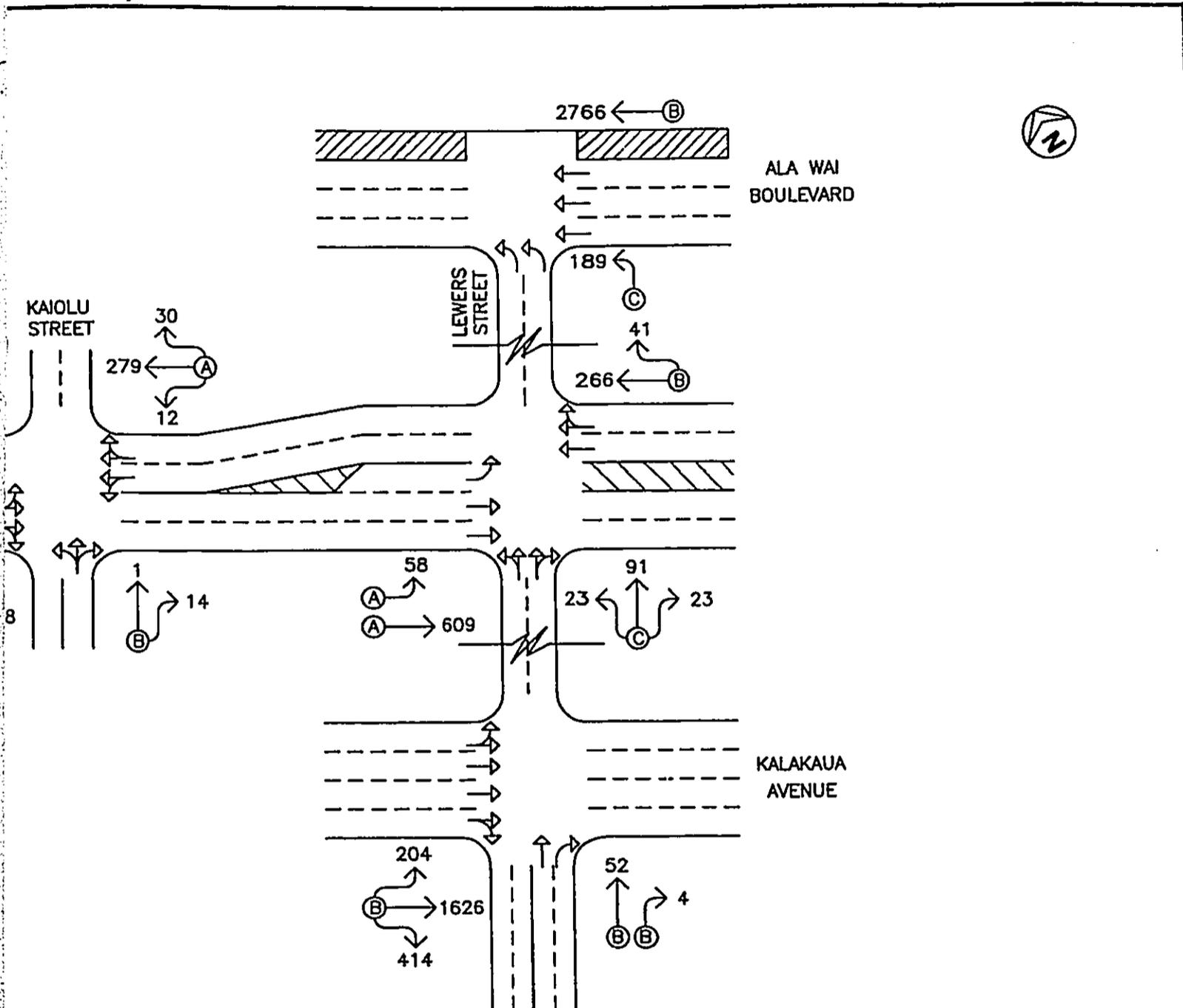
D. Total Traffic Volumes Without Project

The projected Year 2010 AM peak hour and PM peak hour traffic volumes and operating conditions in the project vicinity without the development of the proposed 2121 Kuhio development are shown on Figures 10 and 11 and summarized in Table 5. For the purpose of this study, the traffic signal timing at the intersections of Ala Wai Boulevard with Kalaimoku Street and Lewers, as well as, Kuhio Avenue with Launiu Street are assumed to have been modified to accommodate the anticipated increased in traffic along those roadways due to ambient growth in traffic. The existing and projected (without project) levels of service are included in Table 5 for comparison purposes. LOS calculations are included in Appendix D.



2121 KUHIO DEVELOPMENT

YEAR 2010 AM PEAK HOUR OF TRAFFIC WITH

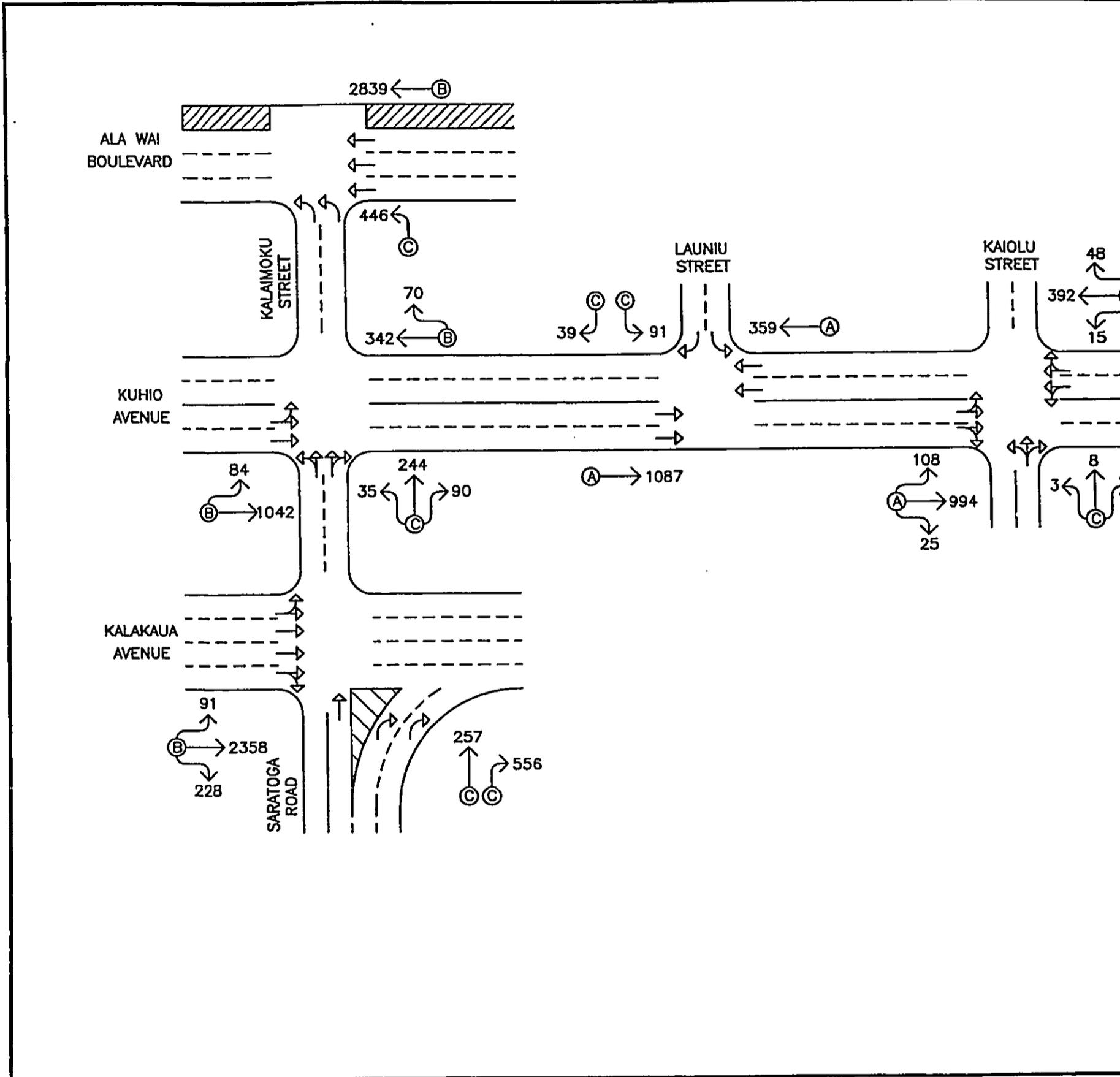


- LEGEND
- 90 ↗ TRAFFIC MOVEMENT VOLUME (VPH)
 - ↘ LANE USAGE
 - Ⓐ LANE GROUP LEVEL OF SERVICE
 - ▨ 24-HOUR PARKING

DEVELOPMENT

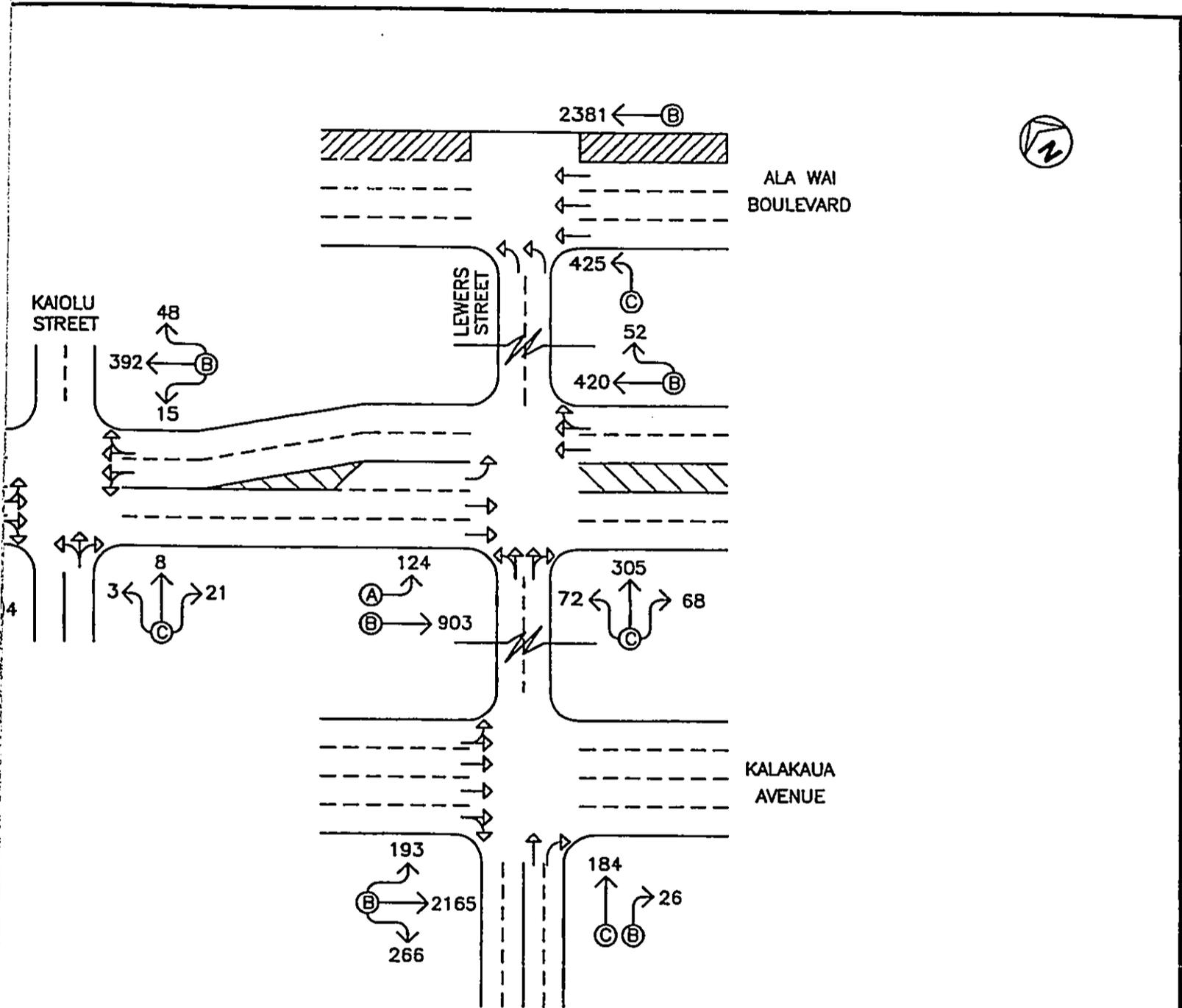
TRAFFIC WITHOUT PROJECT

FIGURE
10



2121 KUHIO DEVELOPMENT

YEAR 2010 PM PEAK HOUR OF TRAFFIC WITH



- LEGEND
- 90 TRAFFIC MOVEMENT VOLUME (VPH)
 - LANE USAGE
 - LANE GROUP LEVEL OF SERVICE
 - 24-HOUR PARKING

DEVELOPMENT

TRAFFIC WITHOUT PROJECT

FIGURE
11

Table 5: Existing and Projected (Without Project) Traffic Operating Conditions

Intersection	Critical Movement	AM		PM	
		Exist	Year 2010 w/out Proj	Exist	Year 2010 w/out Proj
Kuhio Ave/ Kalaimoku St	Eastbound (LT-TH)	B	B	B	B
	Northbound (LT-TH-RT)	C	C	C	C
Kuhio Ave/Launiu St	Southbound (LT)	D	C	C	C
Kuhio Ave/ Kaiolu St	Eastbound (LT-TH-RT)	A	A	A	A
	Westbound (LT-TH-RT)	A	A	A	B
Kuhio Ave/ Lewers St	Eastbound (LT)	A	A	A	A
	Northbound (LT-TH-RT)	B	C	C	C
Kalakaua Ave/ Kalaimoku St/ Saratoga Rd	Eastbound (LT-TH-RT)	B	B	B	B
	Northbound (RT)	B	B	C	C
Kalakaua Ave/ Lewers St	Eastbound (LT-TH-RT)	B	B	B	B
	Northbound (TH)	B	B	C	C
Ala Wai Blvd/ Kalaimoku St	Westbound (TH)	B	C	B	B
	Northbound (LT)	B	C	C	C
Ala Wai Blvd/ Lewers St	Westbound (TH)	B	B	B	B
	Northbound (LT)	B	C	C	C

Traffic operations under Year 2010 without project conditions are, in general, expected to deteriorate from existing conditions due to the anticipated increases in ambient traffic along the roadways within the project vicinity during the AM and PM peak periods. Along Kuhio Avenue, the westbound approach of the intersection with Kaiolu Street is anticipated to deteriorate from LOS "A" to LOS "B" during the PM peak period while the northbound approach of the intersection with Lewers Street is anticipated to deteriorate from LOS "B" to LOS "C" during the AM peak period. Similarly, along Ala Wai Boulevard, the westbound and northbound approaches of the intersection with Kalaimoku Street and the northbound approach of the intersection with Lewers Street are expected to deteriorate from LOS "B" to LOS "C"

during the AM peak period. At the intersection of Kuhio Avenue with Launiu Street, the southbound approach is expected to improve from LOS "D" to LOS "C" during the AM peak period due to modifications to the traffic signal timing at that intersection. The remaining critical movements at these intersections, as well as, the other study intersections are anticipated to continue operating at levels of service similar to existing conditions.

E. Total Traffic Volumes With Project

Figures 12 to 23 show the cumulative AM and PM peak hour traffic conditions resulting from the projected external traffic and the development of the proposed 2121 Kuhio development. The cumulative volumes consist of site-generated traffic superimposed over Year 2010 projected traffic demands. The traffic impacts resulting from the proposed project are addressed in the following section.

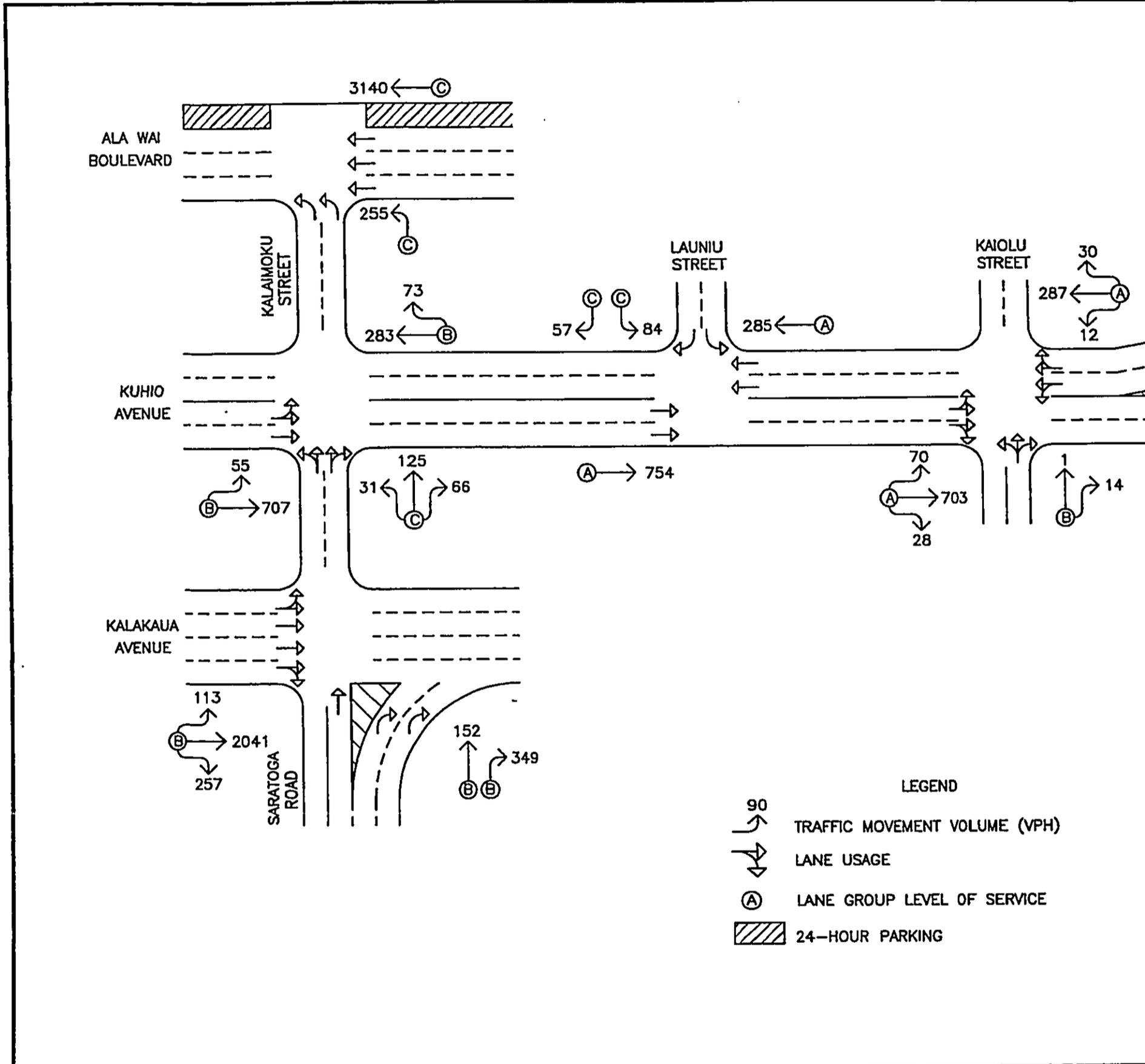
V. TRAFFIC IMPACT ANALYSIS

A. Alternative A

The Year 2010 cumulative AM and PM peak hour traffic conditions with the development of the 2121 Kuhio project as a timeshare development are summarized in Table 5. The table includes the levels of service resulting from the primary access being located adjacent to the existing drop off area along Kalaimoku Street (referred to in the table as the "KAA"), as well as, along Kuhio Avenue (referred to in the table as the "KUA"). The projected Year 2010 operating conditions without the proposed project are provided for comparison purposes. LOS calculations are included in Appendix E.

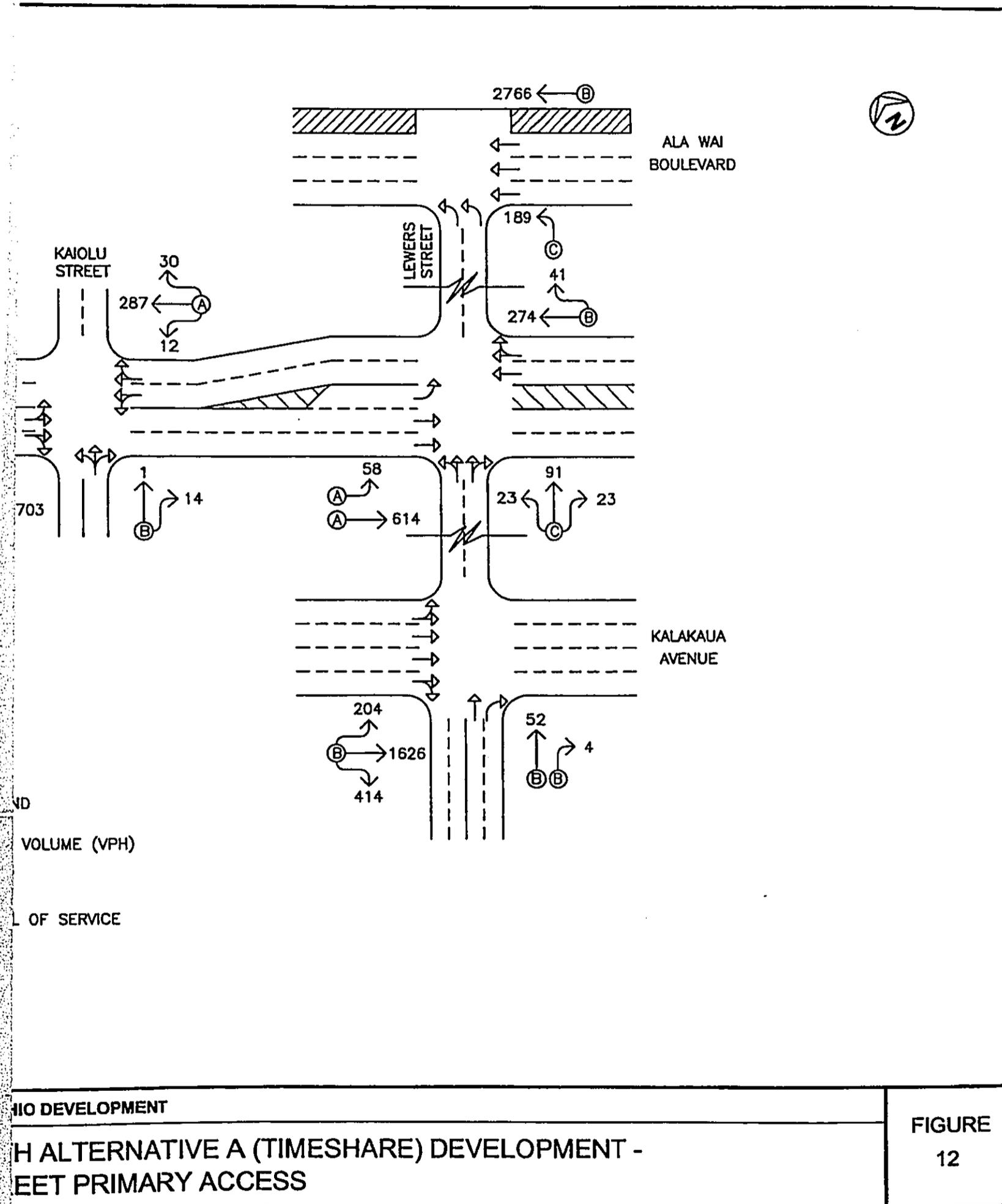
Table 5: Alternative A Projected Traffic Operating Conditions

Intersection	Critical Movement	AM			PM		
		w/out Proj	KAA	KUA	w/out Proj	KAA	KUA
Kuhio Ave/ Kalaimoku St	Eastbound (LT-TH)	B	B	B	B	B	B
	Northbound (LT-TH-RT)	C	C	C	C	C	C
Kuhio Ave/ Launiu St	Southbound (LT)	C	C	C	C	C	C



2121 KUHIO DEVELOPMENT

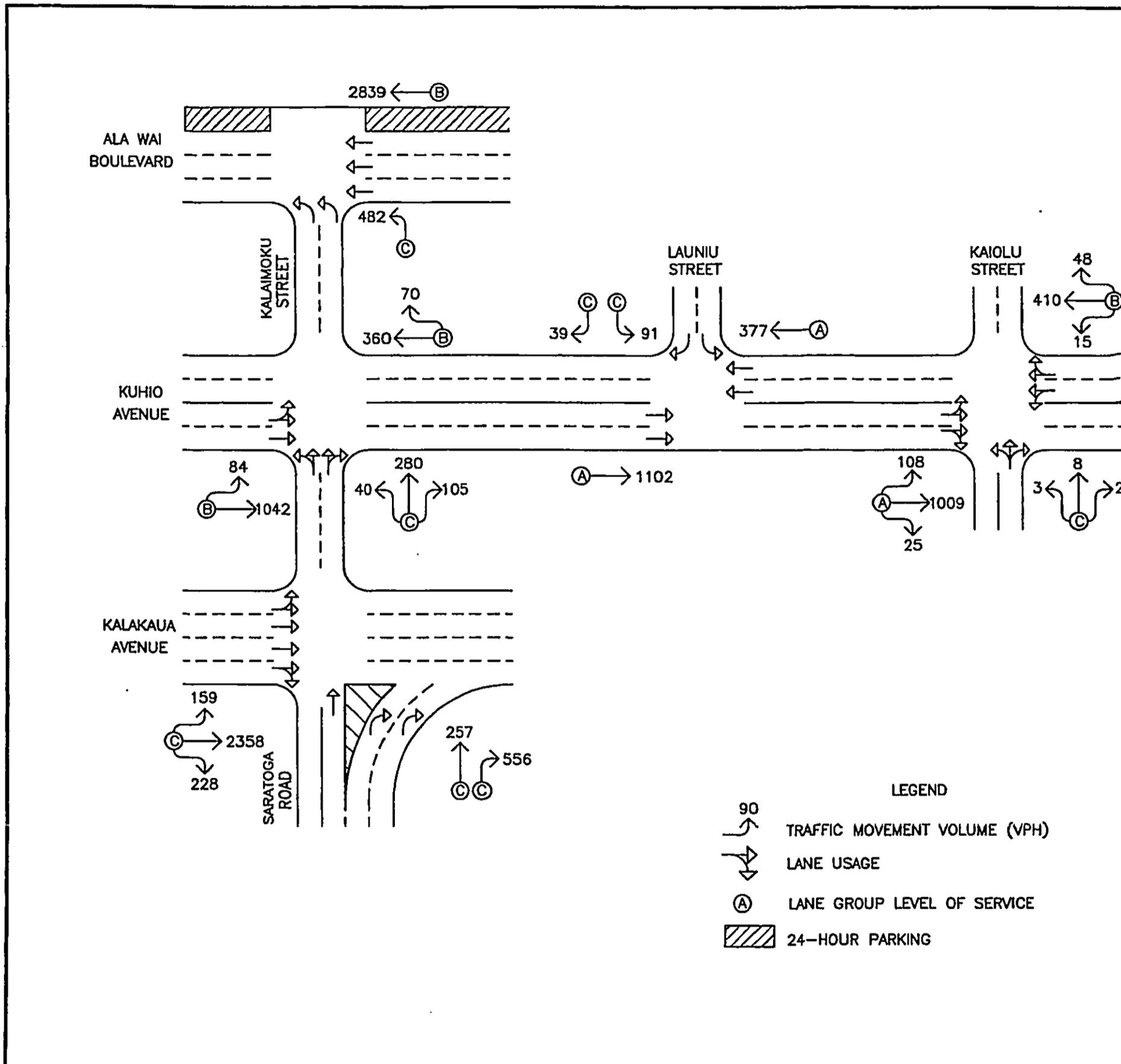
YEAR 2010 AM PEAK HOUR OF TRAFFIC WITH ALTERNATIVE
KALAIMOKU STREET PRIMARY A



PHIO DEVELOPMENT

TH ALTERNATIVE A (TIMESHARE) DEVELOPMENT -
EET PRIMARY ACCESS

FIGURE
12

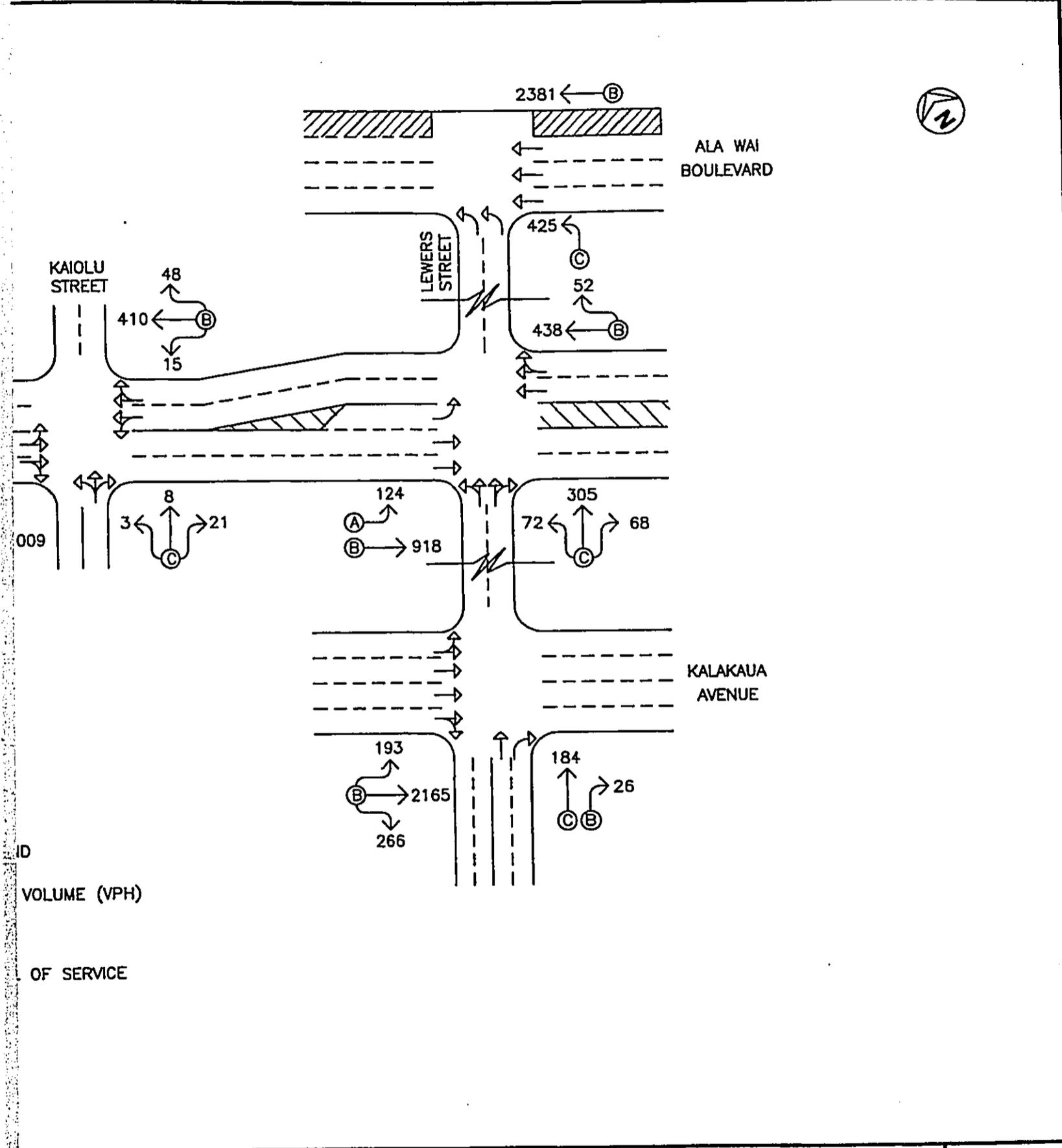


- LEGEND**
- 90 TRAFFIC MOVEMENT VOLUME (VPH)
 - LANE USAGE
 - (A) LANE GROUP LEVEL OF SERVICE
 - 24-HOUR PARKING



2121 KUHIO DEVELOPMENT

**YEAR 2010 PM PEAK HOUR OF TRAFFIC WITH ALTERNATIVE
KALAIMOKU STREET PRIMARY A**

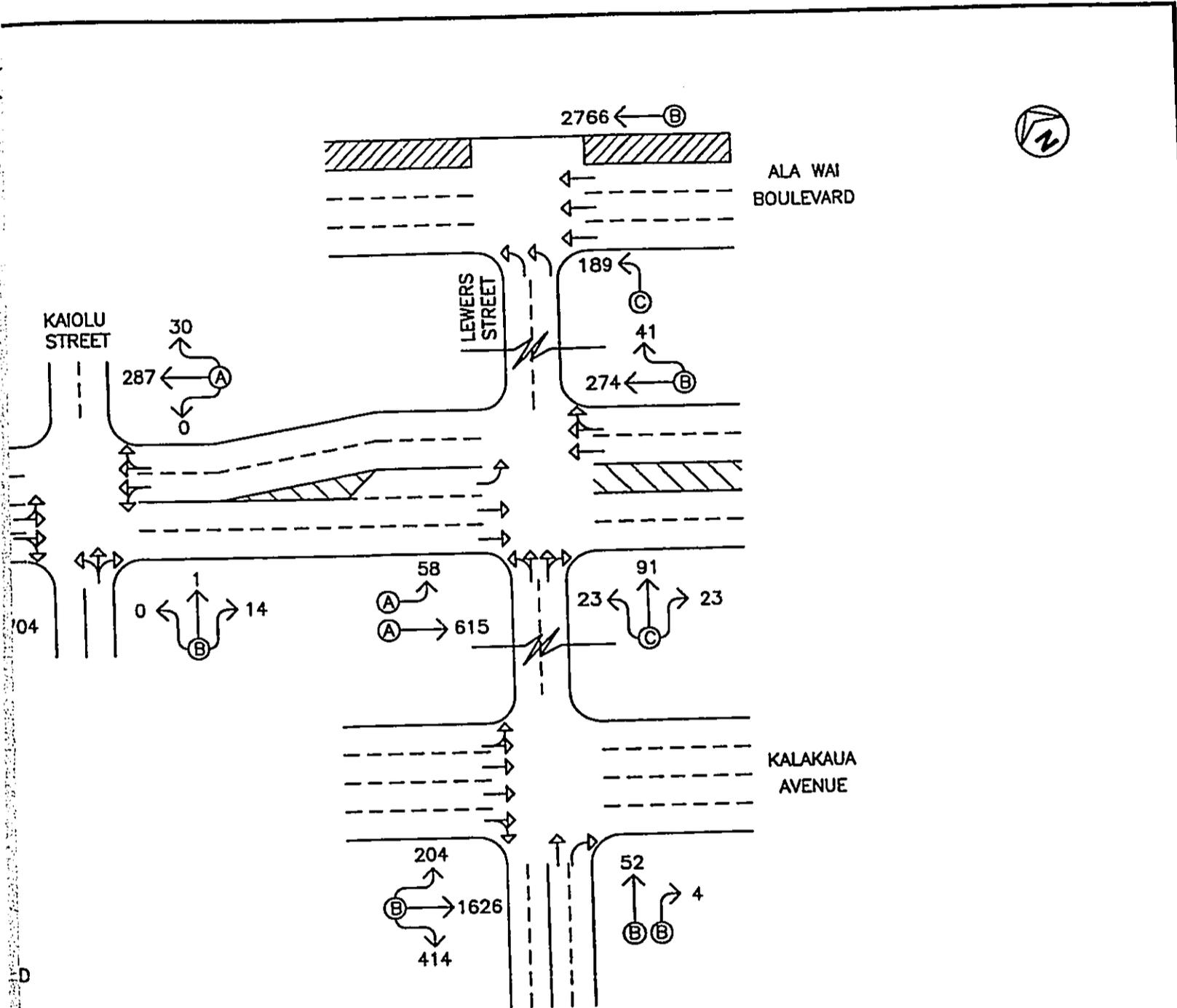


ID
 VOLUME (VPH)
 OF SERVICE

NO DEVELOPMENT

H ALTERNATIVE A (TIMESHARE) DEVELOPMENT -
 EET PRIMARY ACCESS

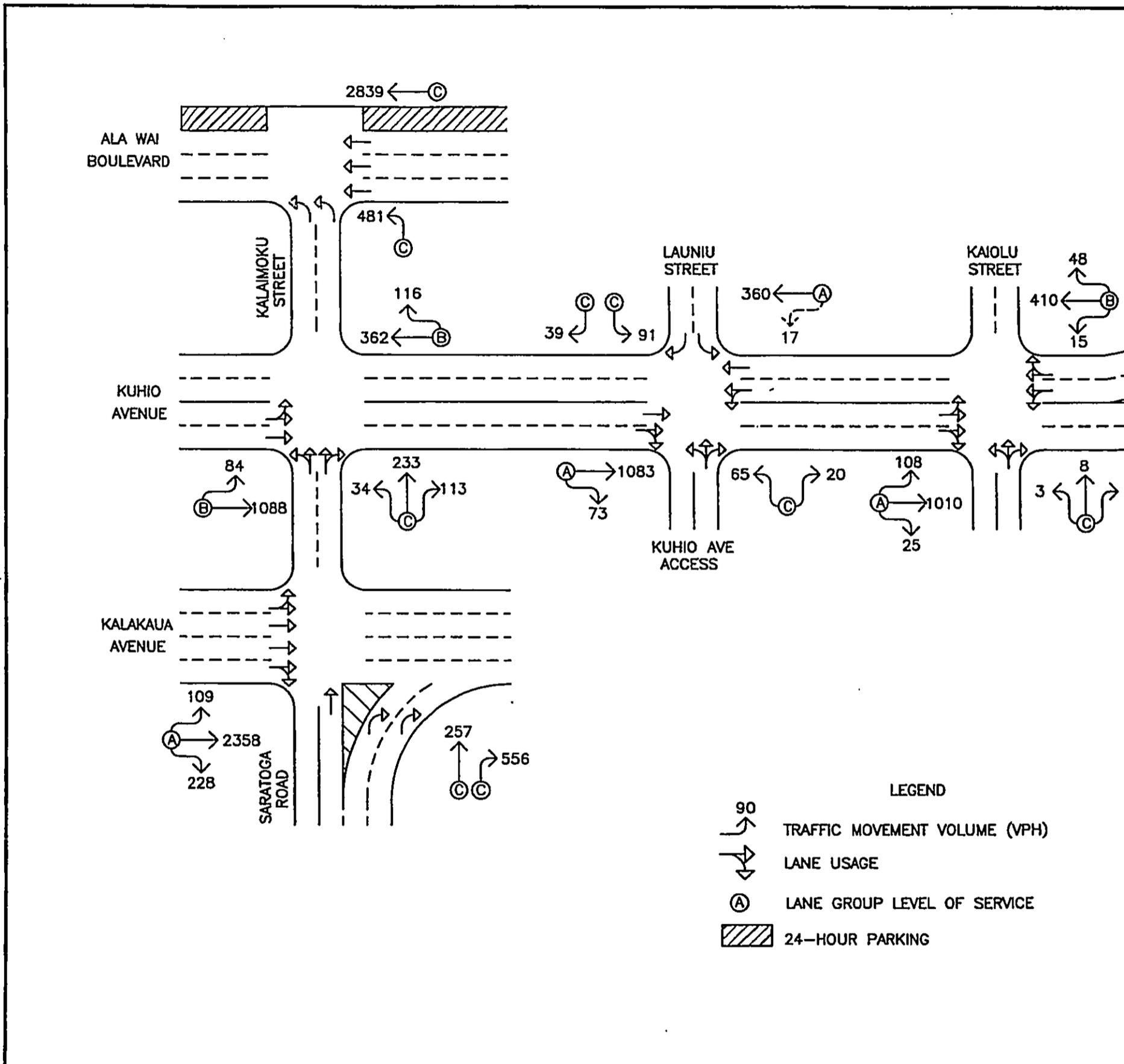
FIGURE
 13



VOLUME (VPH)
OF SERVICE

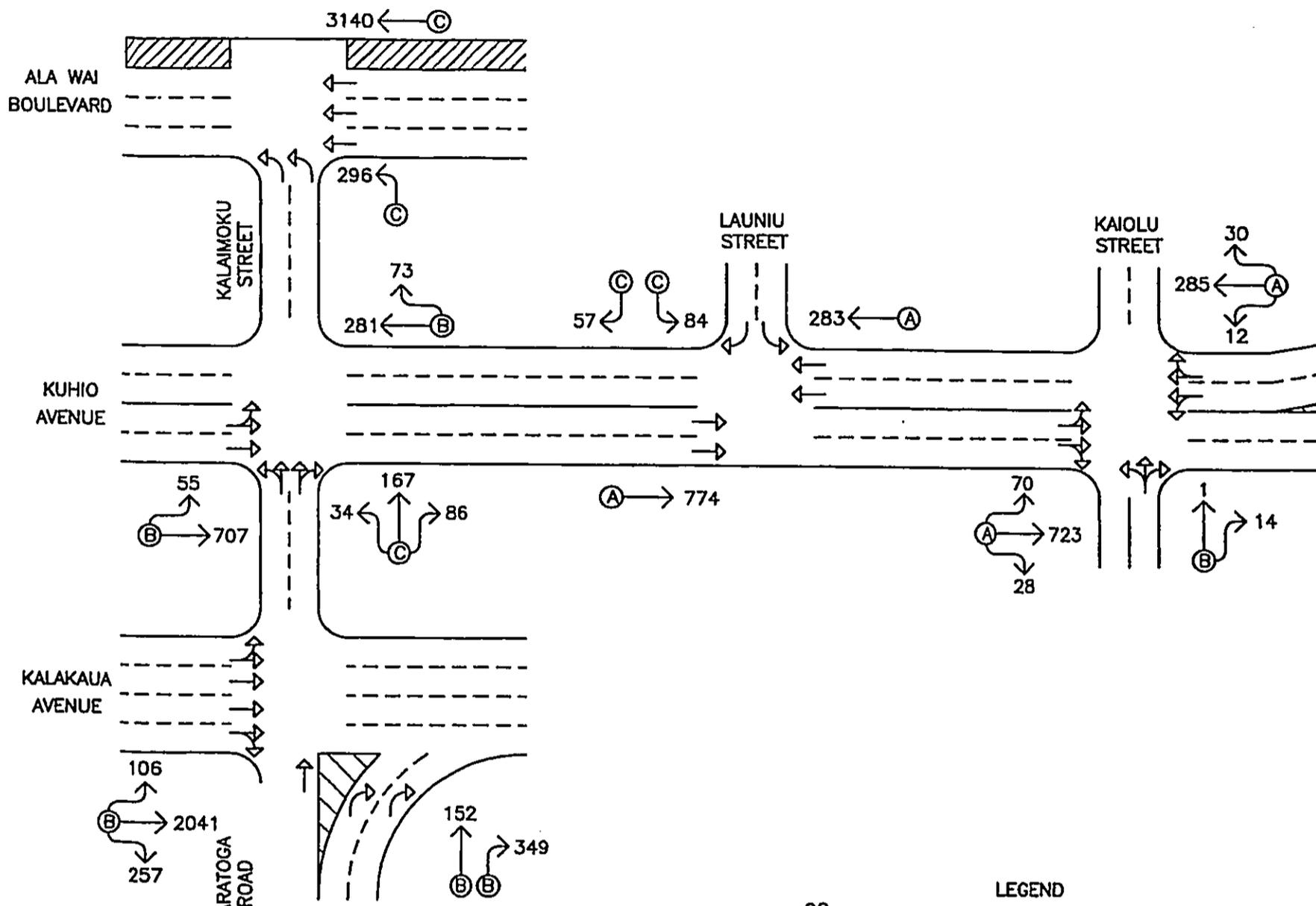
NO DEVELOPMENT
ALTERNATIVE A (TIMESHARE) DEVELOPMENT -
PRIMARY ACCESS

FIGURE
14



2121 KUHIO DEVELOPMENT

YEAR 2010 PM PEAK HOUR OF TRAFFIC WITH ALTERNATIVE
KUHIO AVENUE PRIMARY ACC



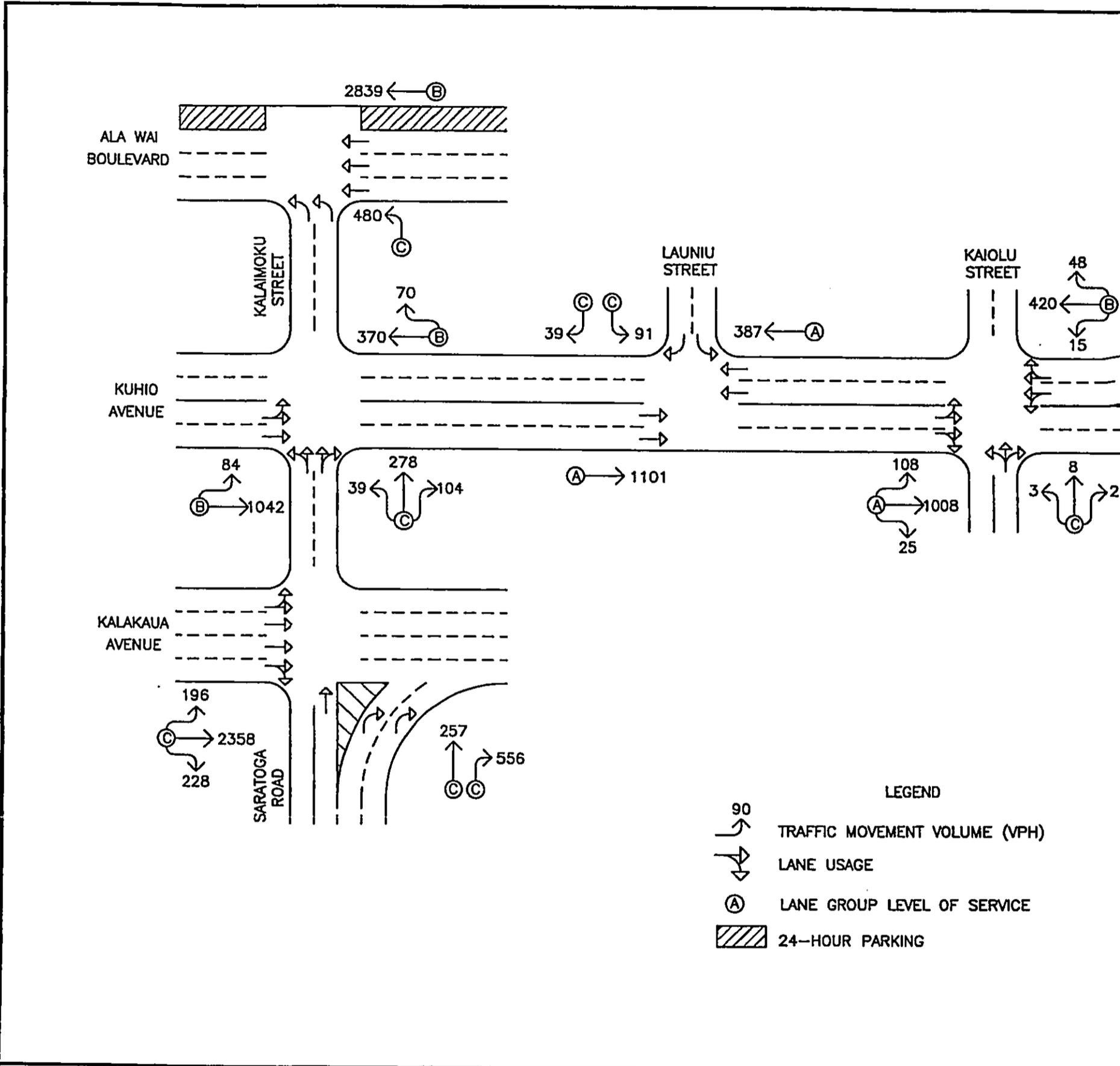
- LEGEND**
- 90 ↗ TRAFFIC MOVEMENT VOLUME (VPH)
 - ↔ LANE USAGE
 - Ⓐ LANE GROUP LEVEL OF SERVICE
 - ▨ 24-HOUR PARKING



2121 KUHIO DEVELOPMENT

YEAR 2010 AM PEAK HOUR OF TRAFFIC WITH ALTERNATIVE B (RESIDENTIAL DEVELOPMENT)

KALAIMOKU STREET PRIMARY ACCESS

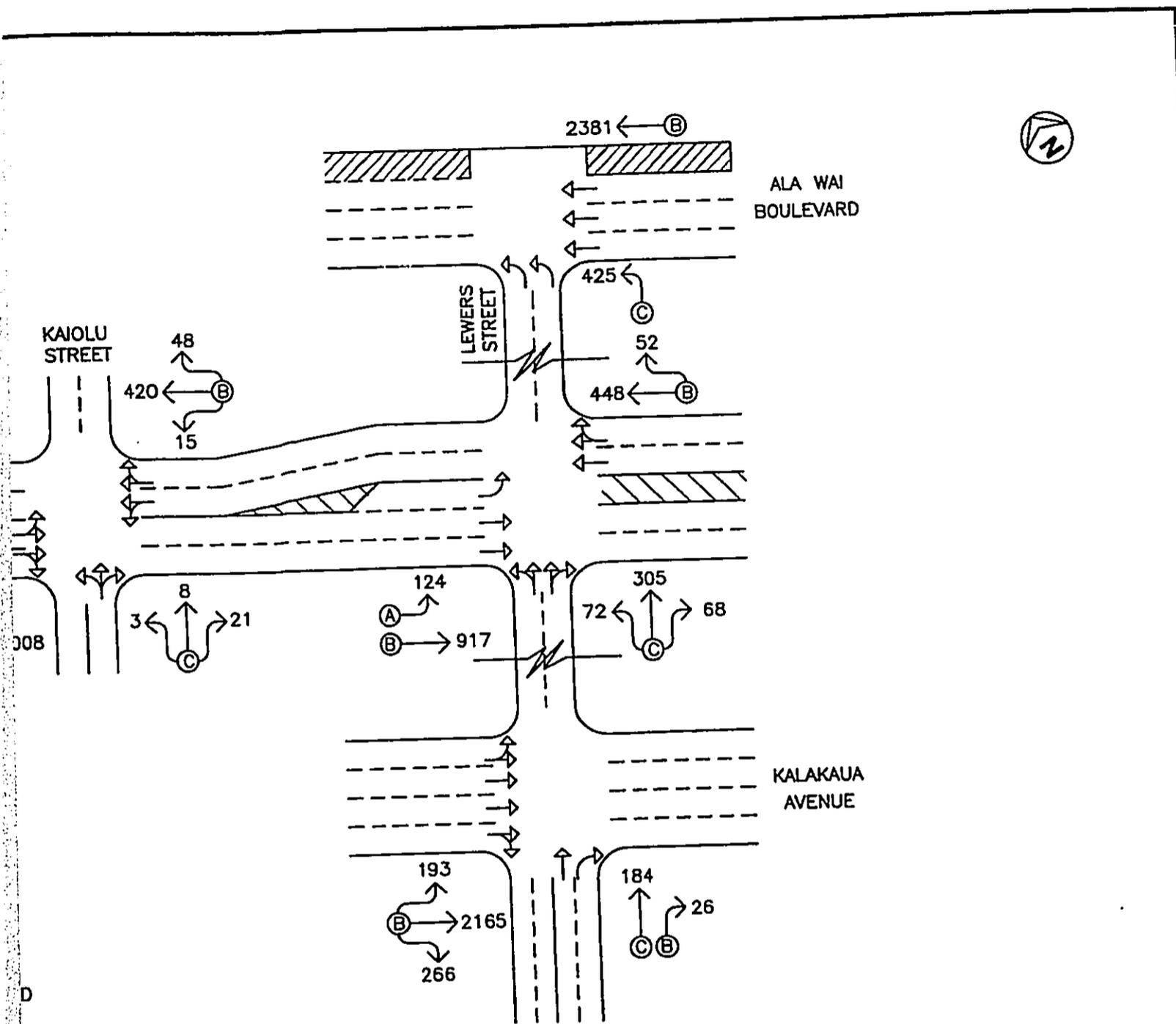


- LEGEND**
- 90 TRAFFIC MOVEMENT VOLUME (VPH)
 - LANE USAGE
 - (A) LANE GROUP LEVEL OF SERVICE
 - 24-HOUR PARKING



2121 KUHIO DEVELOPMENT

YEAR 2010 PM PEAK HOUR OF TRAFFIC WITH ALTERNATIVE B (RESI
KALAIMOKU STREET PRIMARY A

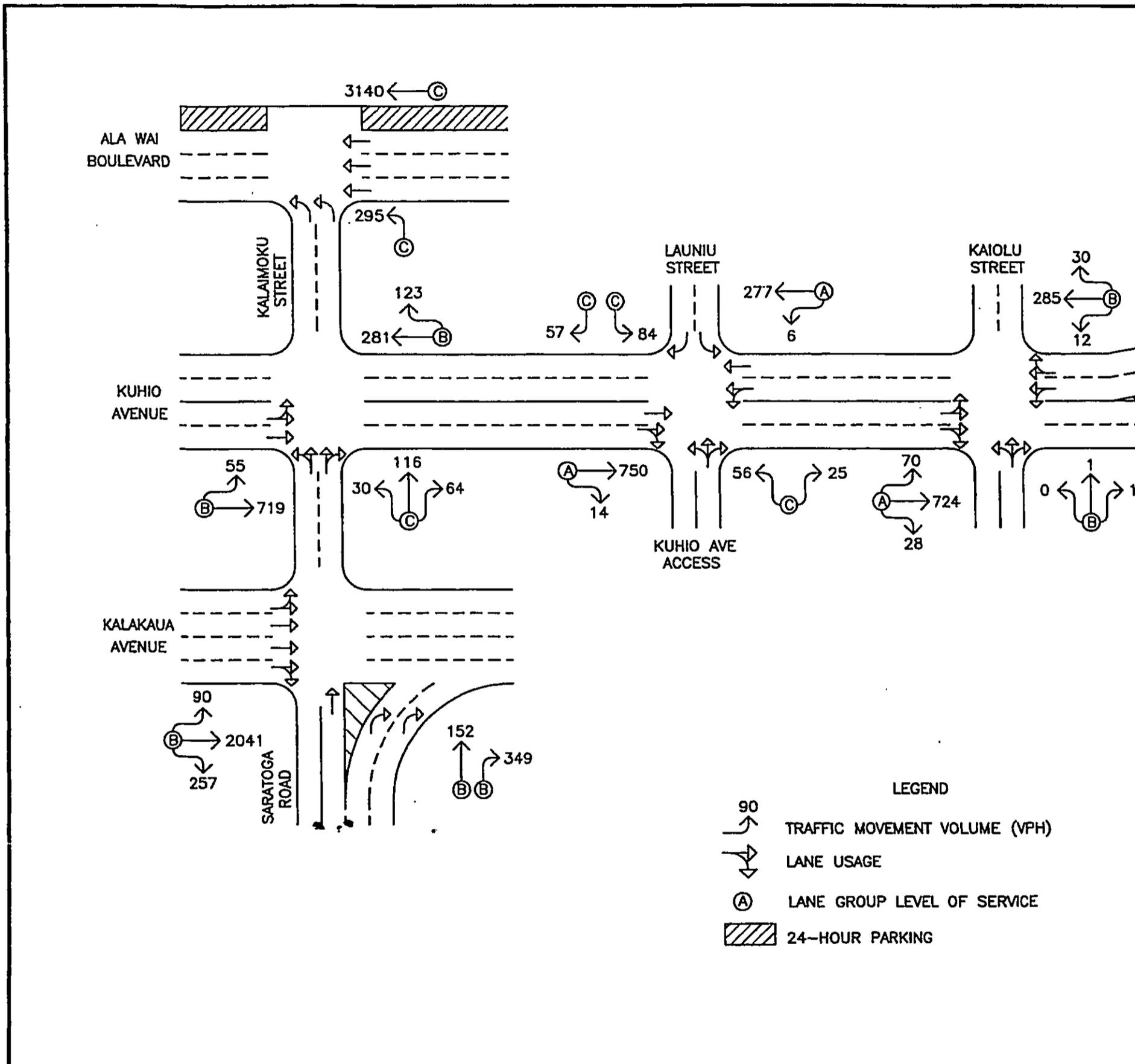


D
 VOLUME (VPH)
 OF SERVICE

NO DEVELOPMENT

ALTERNATIVE B (RESIDENTIAL CONDOMINIUM) DEVELOPMENT -
 STREET PRIMARY ACCESS

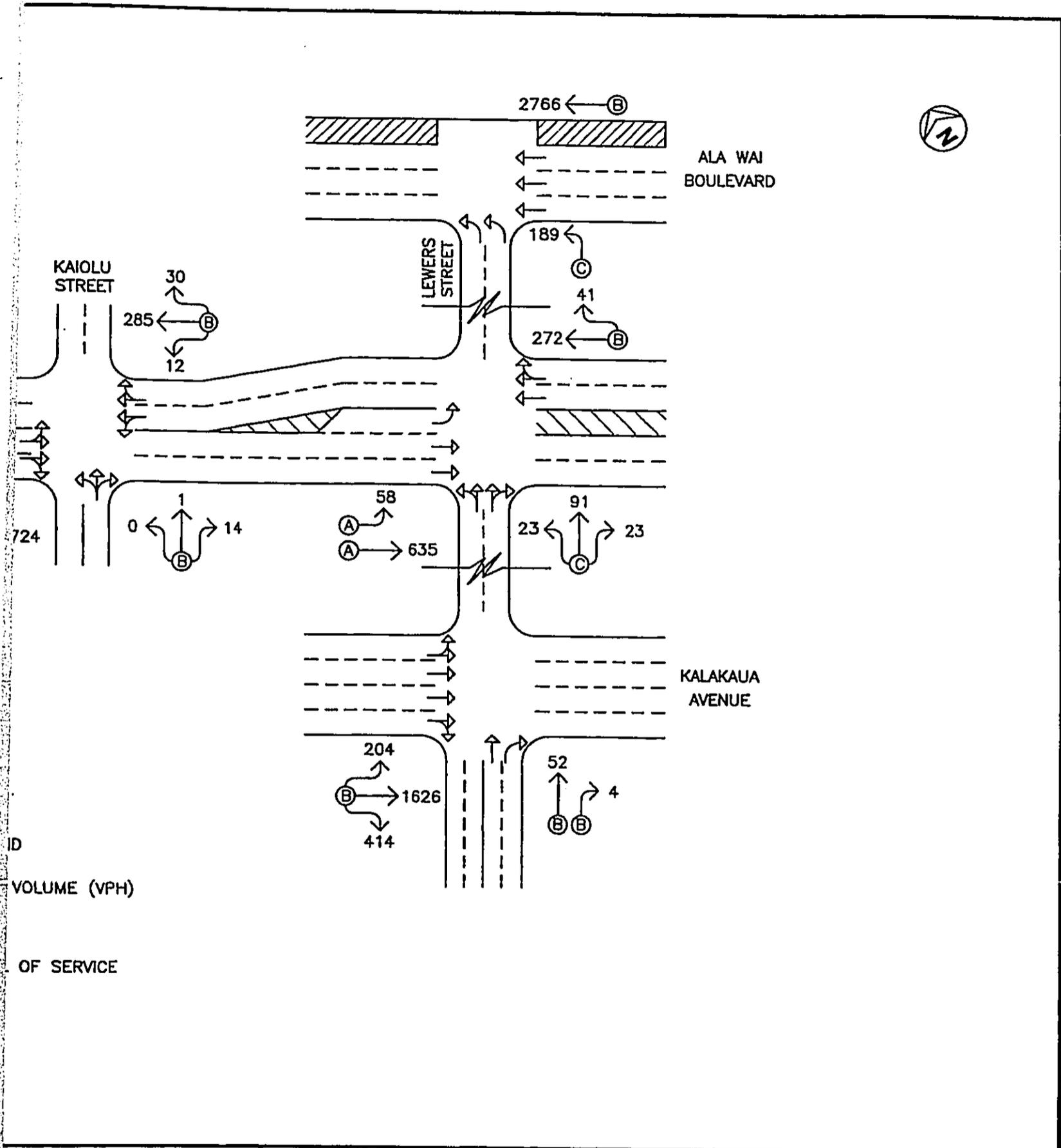
FIGURE
 17



2121 KUHIO DEVELOPMENT

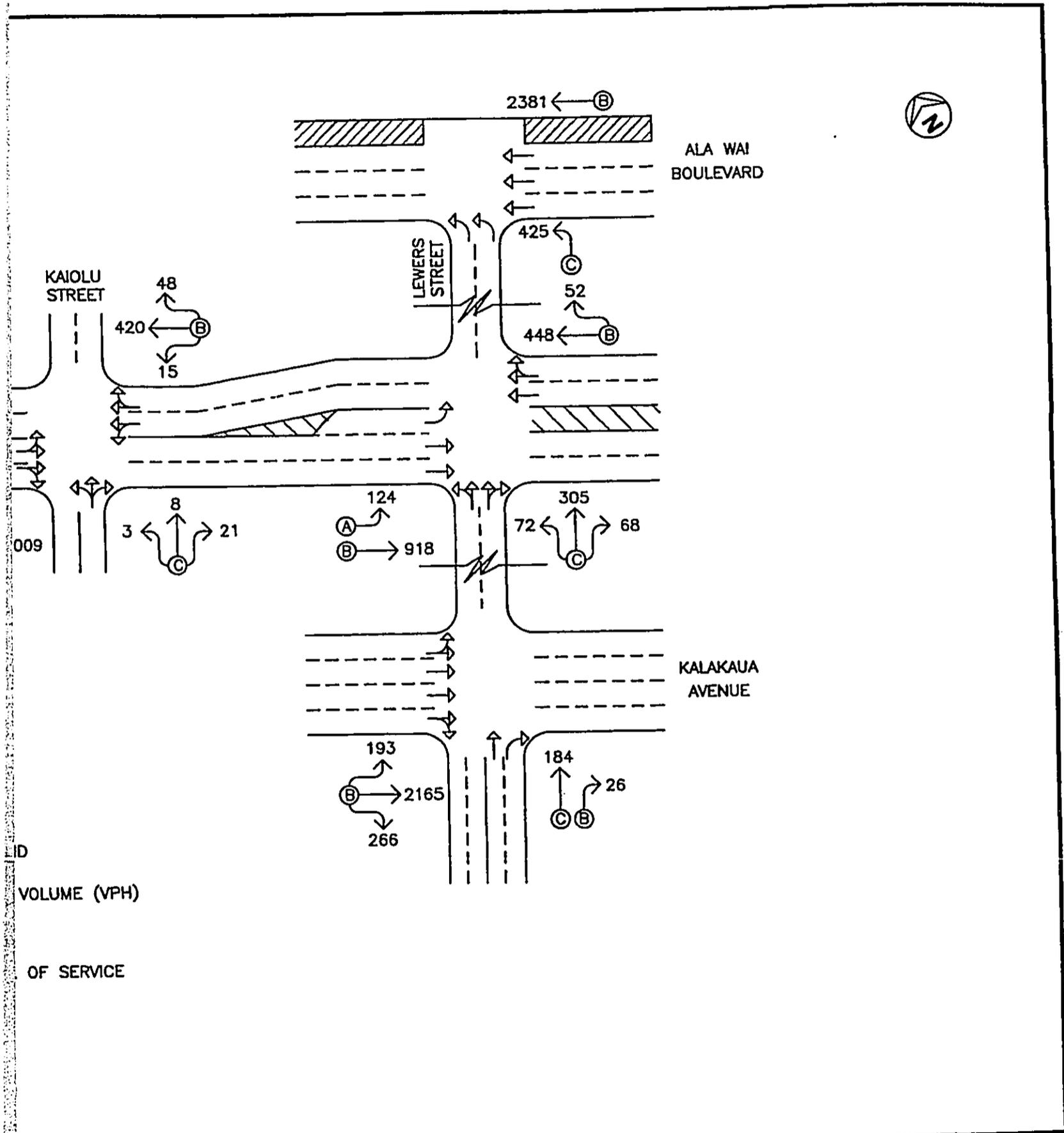
YEAR 2010 AM PEAK HOUR OF TRAFFIC WITH ALTERNATIVE B (RESIDENTIAL DEVELOPMENT)

KUHIO AVENUE PRIMARY ACCESS



ID
 VOLUME (VPH)
 OF SERVICE
 NO DEVELOPMENT
 NATIVE B (RESIDENTIAL CONDOMINIUM) DEVELOPMENT -
 E PRIMARY ACCESS

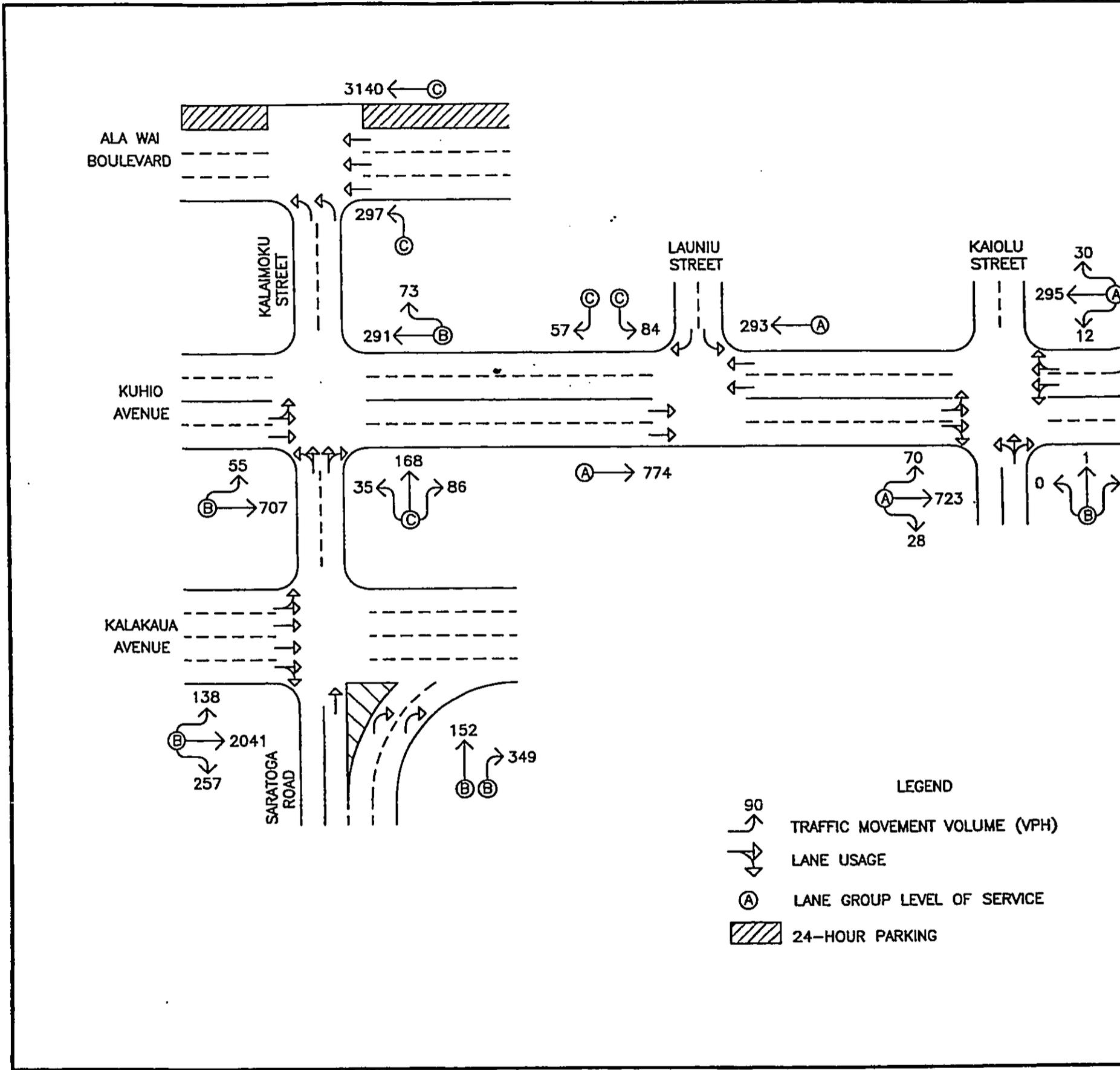
FIGURE
 18



NO DEVELOPMENT

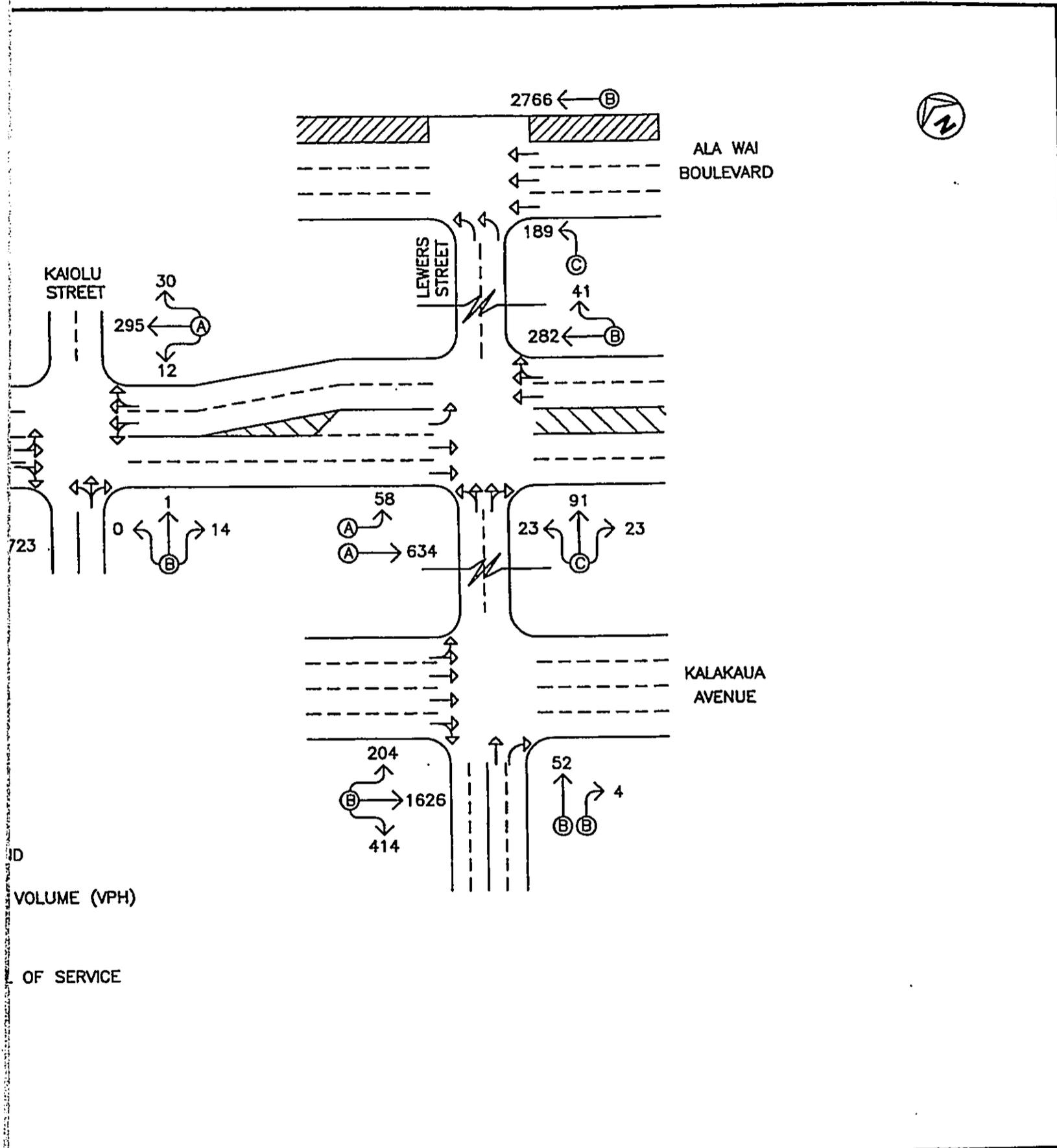
NATIVE B (RESIDENTIAL CONDOMINIUM) DEVELOPMENT -
 THE PRIMARY ACCESS

FIGURE
 19



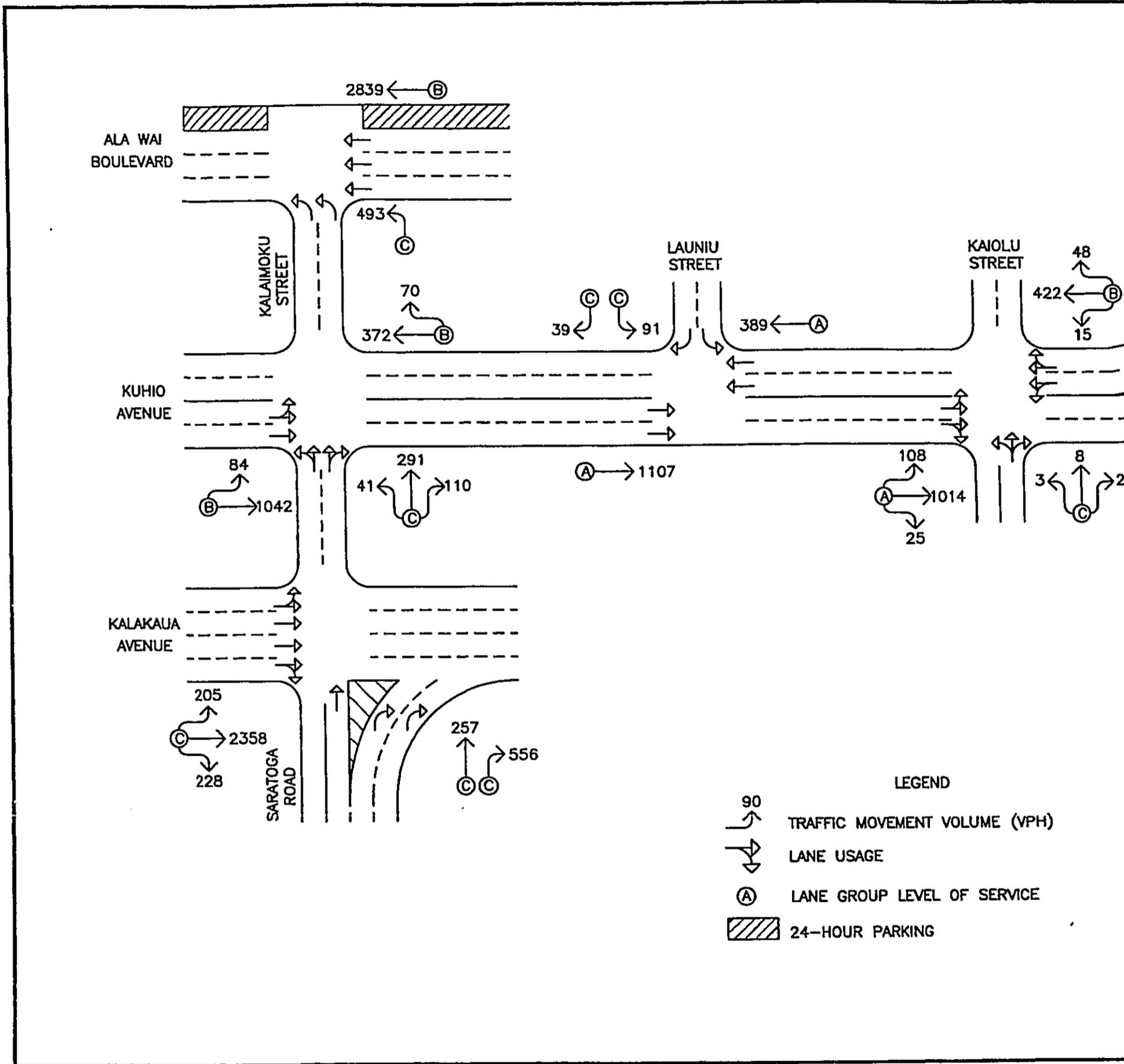
2121 KUHIO DEVELOPMENT

YEAR 2010 AM PEAK HOUR OF TRAFFIC WITH ALTERNATIVE C (C)
KALAIMOKU STREET PRIMARY



ALTERNATIVE C (CONDOMINIUM - HOTEL) DEVELOPMENT - STREET PRIMARY ACCESS

FIGURE 20

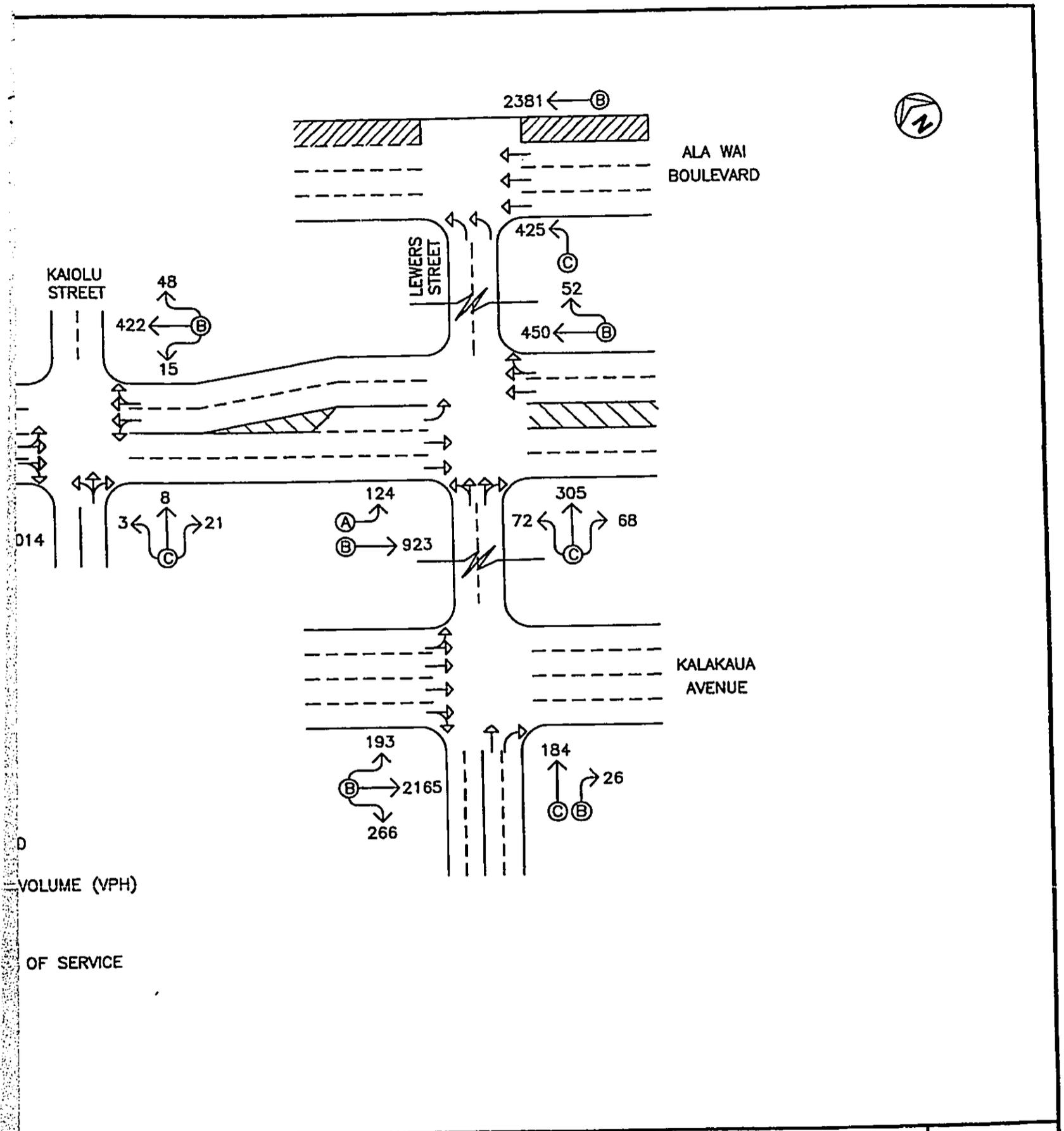


- LEGEND**
- 90 TRAFFIC MOVEMENT VOLUME (VPH)
 - LANE USAGE
 - (A) LANE GROUP LEVEL OF SERVICE
 - 24-HOUR PARKING



2121 KUHIO DEVELOPMENT

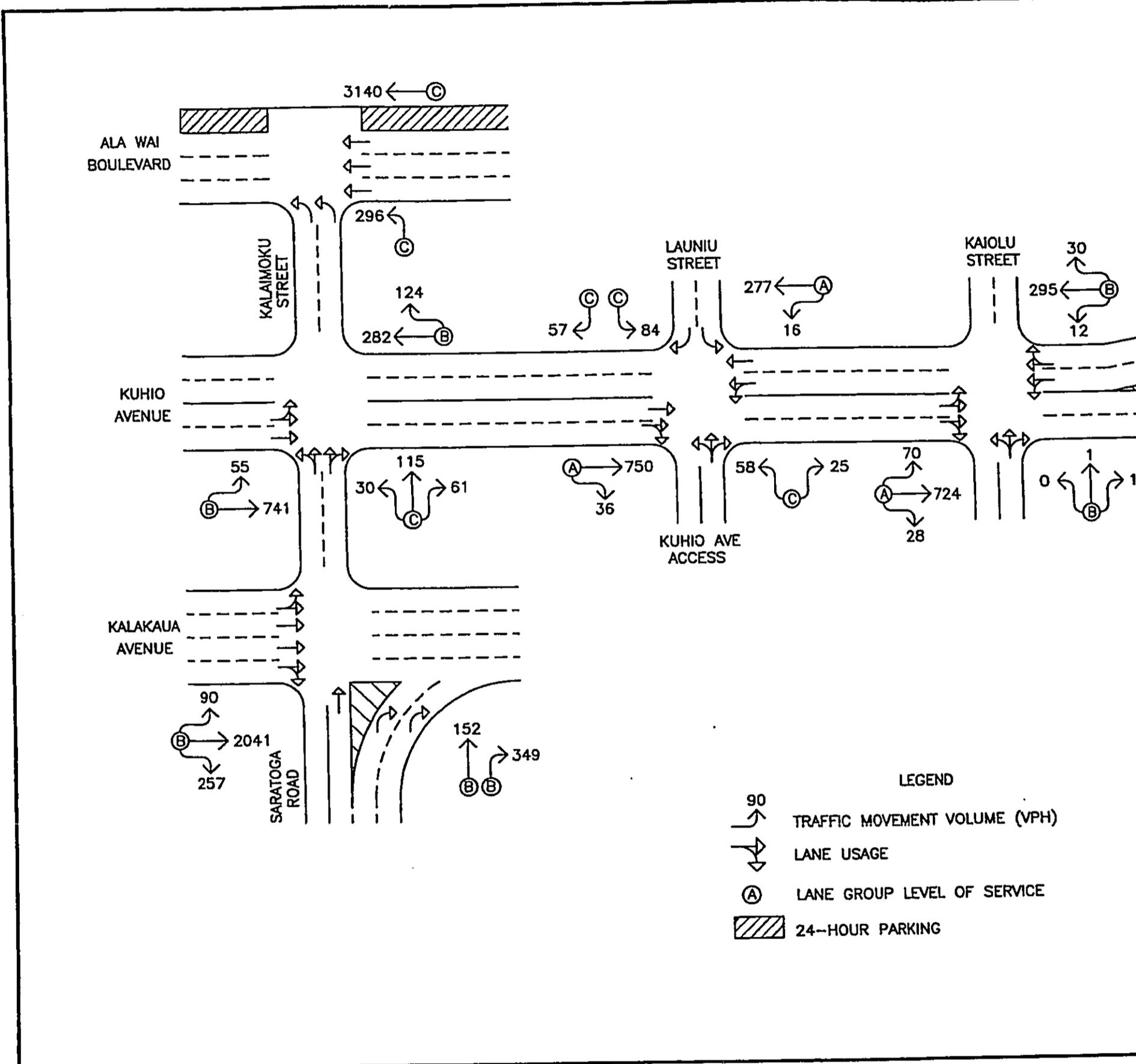
YEAR 2010 PM PEAK HOUR OF TRAFFIC WITH ALTERNATIVE C (C)
KALAIMOKU STREET PRIMARY



TO DEVELOPMENT

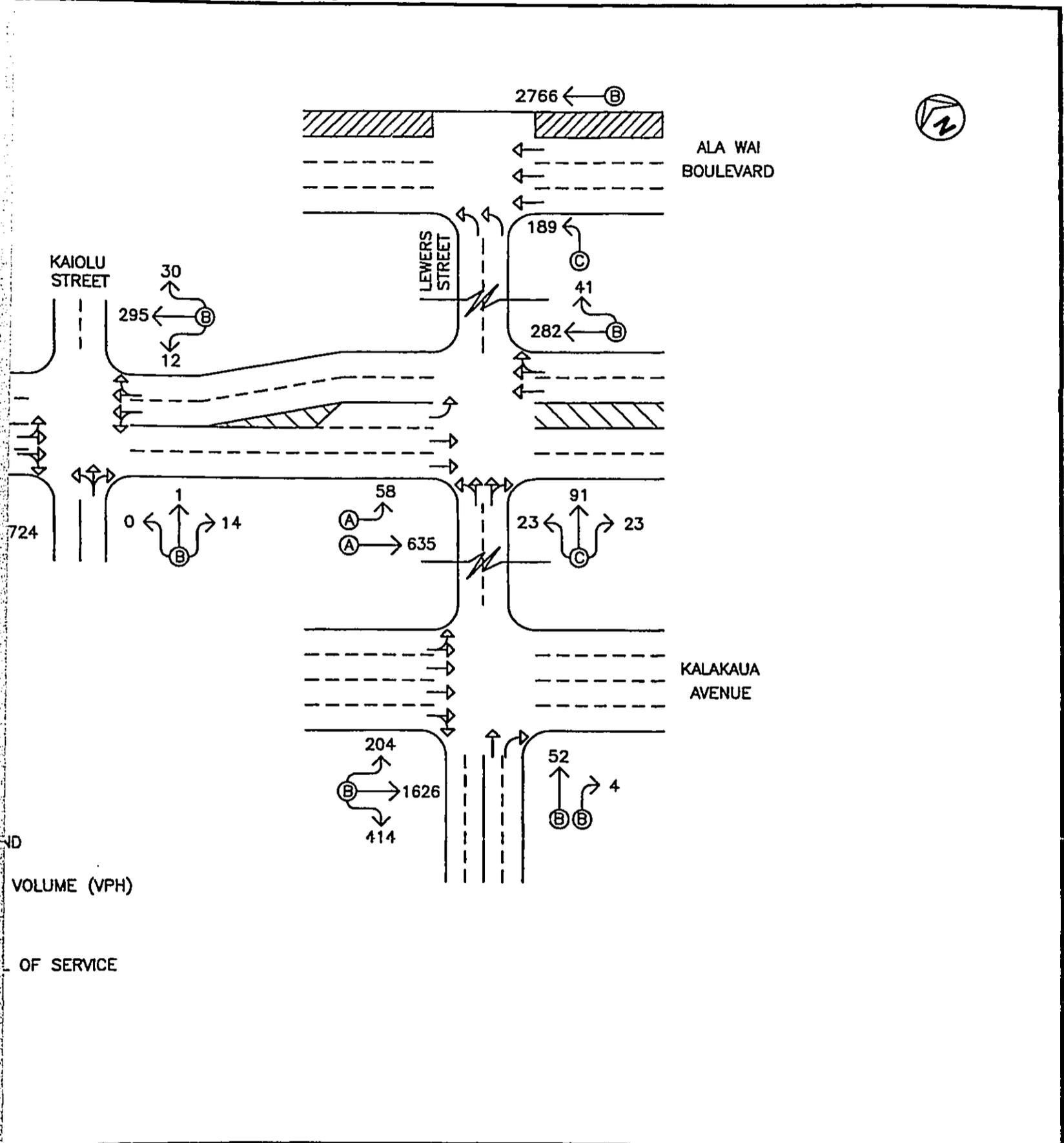
ALTERNATIVE C (CONDOMINIUM - HOTEL) DEVELOPMENT -
STREET PRIMARY ACCESS

FIGURE
21



2121 KUHIO DEVELOPMENT

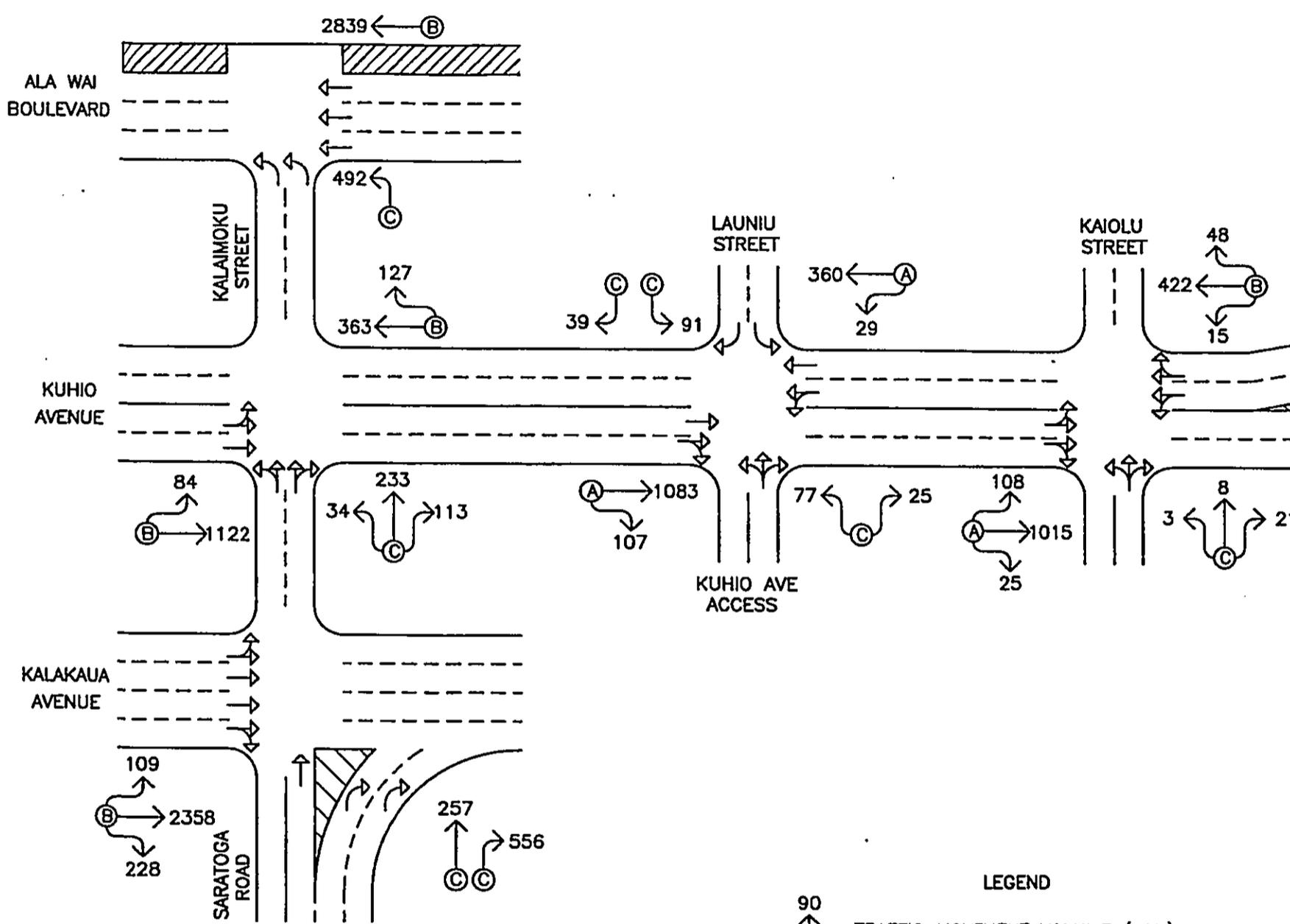
YEAR 2010 AM PEAK HOUR OF TRAFFIC WITH ALTERNATIVE C (C
KUHIO AVENUE PRIMARY AC



ND
VOLUME (VPH)
OF SERVICE

NO DEVELOPMENT
ALTERNATIVE C (CONDOMINIUM - HOTEL) DEVELOPMENT -
E PRIMARY ACCESS

FIGURE
22

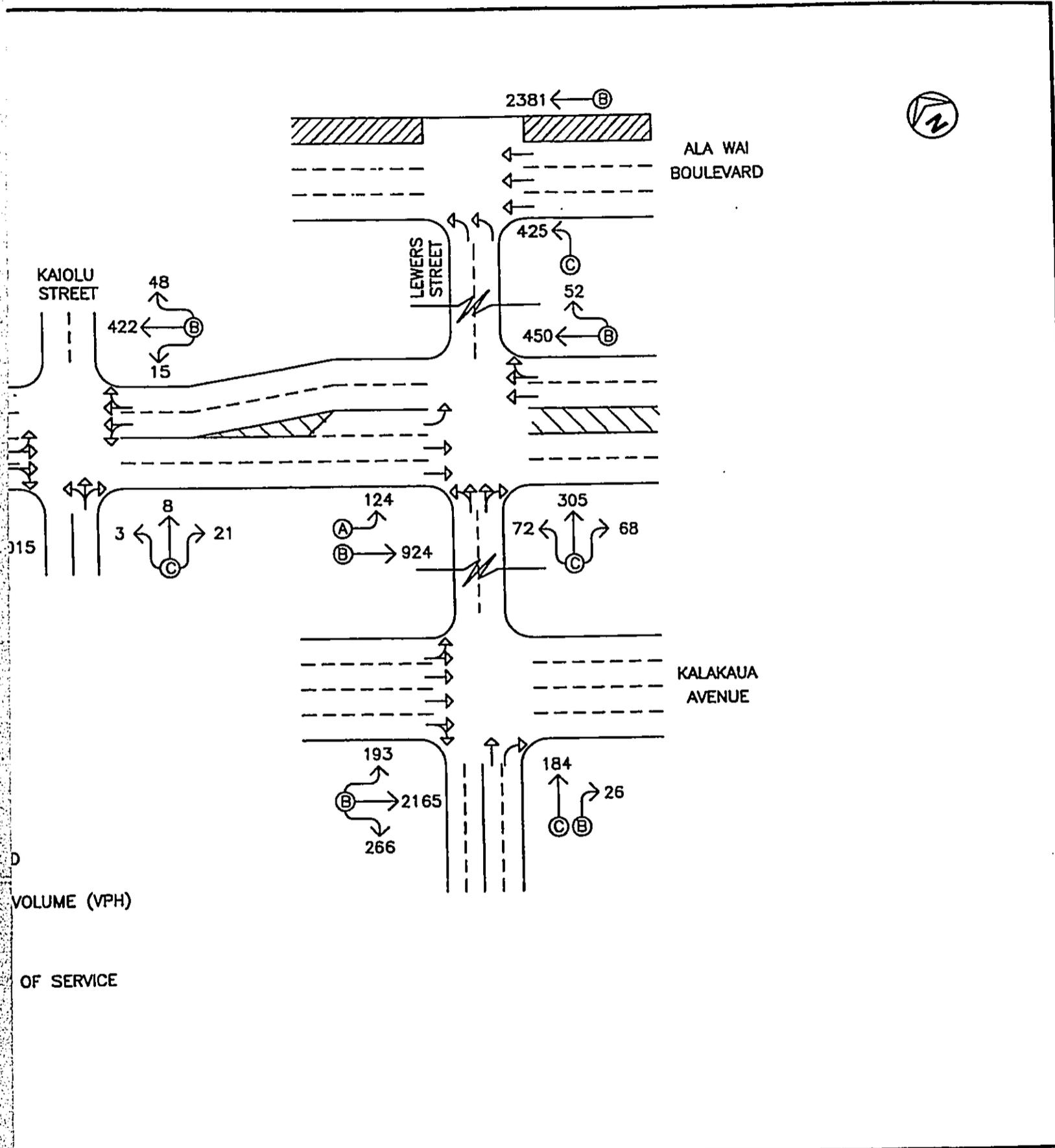


- LEGEND**
- 90 TRAFFIC MOVEMENT VOLUME (VPH)
 - LANE USAGE
 - (A) LANE GROUP LEVEL OF SERVICE
 - 24-HOUR PARKING



2121 KUHIO DEVELOPMENT

YEAR 2010 PM PEAK HOUR OF TRAFFIC WITH ALTERNATIVE C (CON)
KUHIO AVENUE PRIMARY ACCE



TO DEVELOPMENT

ALTERNATIVE C (CONDOMINIUM - HOTEL) DEVELOPMENT -
PRIMARY ACCESS

FIGURE
23

Table 5: Alternative A Projected Traffic Operating Conditions (Cont'd)

Intersection	Critical Movement	AM			PM		
		w/out Proj	KAA	KUA	w/out Proj	KAA	KUA
Kuhio Ave/ Kaiolu St	Eastbound (LT-TH-RT)	A	A	A	A	A	A
	Westbound (LT-TH-RT)	A	A	A	B	B	B
Kuhio Ave/ Lewers St	Eastbound (LT)	A	A	A	A	A	A
	Northbound (LT-TH-RT)	C	C	C	C	C	C
Kalakaua Ave/ Kalaimoku St/ Saratoga Rd	Eastbound (LT-TH-RT)	B	B	B	B	C	B
	Northbound (RT)	B	B	B	C	C	C
Kalakaua Ave/ Lewers St	Eastbound (LT-TH-RT)	B	B	B	B	B	B
	Northbound (TH)	B	B	B	C	C	C
Ala Wai Blvd/ Kalaimoku St	Westbound (TH)	C	C	C	B	B	B
	Northbound (LT)	C	C	C	C	C	C
Ala Wai Blvd/ Lewers St	Westbound (TH)	B	B	B	B	B	B
	Northbound (LT)	C	C	C	C	C	C

With the development of the 2121 Kuhio project as a timeshare development, traffic operations in the project vicinity are, in general, expected to remain similar to without project conditions during both peak periods whether the primary access is located adjacent to the existing drop off area along Kalaimoku Street or off Kuhio Avenue. If the primary access is located adjacent to the existing drop off area along Kalaimoku Street, the eastbound approach of the intersection with Kalakaua Avenue and Saratoga Road is anticipated to operate at a slightly lower, but still acceptable level of service due to the anticipated increase in turning vehicles at that intersection. The remaining critical movements at this intersection, as well as, the other study intersections are anticipated to continue operating at levels of service similar to without project conditions.

B. Alternative B

The Year 2010 cumulative AM and PM peak hour traffic conditions with the development of the 2121 Kuhio project as a residential condominium development are summarized in Table 6. The table includes the levels of service resulting from the primary access being located adjacent to the existing drop off area along Kalaimoku Street (referred to in the table as the "KAA"), as well as, along Kuhio Avenue (referred to in the table as the "KUA"). The projected Year 2010 operating conditions without the proposed project are provided for comparison purposes. LOS calculations are included in Appendix F.

Table 6: Alternative B Projected Traffic Operating Conditions

Intersection	Critical Movement	AM			PM		
		w/out Proj	KAA	KUA	w/out Proj	KAA	KUA
Kuhio Ave/ Kalaimoku St	Eastbound (LT-TH)	B	B	B	B	B	B
	Northbound (LT-TH-RT)	C	C	C	C	C	C
Kuhio Ave/ Launiu St	Southbound (LT)	C	C	C	C	C	C
Kuhio Ave/ Kaiolu St	Eastbound (LT-TH-RT)	A	A	A	A	A	A
	Westbound (LT-TH-RT)	A	A	B	B	B	B
Kuhio Ave/ Lewers St	Eastbound (LT)	A	A	A	A	A	A
	Northbound (LT-TH-RT)	C	C	C	C	C	C
Kalakaua Ave/ Kalaimoku St/ Saratoga Rd	Eastbound (LT-TH-RT)	B	B	B	B	C	B
	Northbound (RT)	B	B	B	C	C	C
Kalakaua Ave/ Lewers St	Eastbound (LT-TH-RT)	B	B	B	B	B	B
	Northbound (TH)	B	B	B	C	C	C
Ala Wai Blvd/ Kalaimoku St	Westbound (TH)	C	C	C	B	B	B
	Northbound (LT)	C	C	C	C	C	C

Table 6: Alternative B Projected Traffic Operating Conditions (Cont'd)

Intersection	Critical Movement	AM			PM		
		w/out Proj	KUA	KAA	w/out Proj	KUA	KAA
Ala Wai Blvd/ Lewers St	Westbound (TH)	B	B	B	B	B	B
	Northbound (LT)	C	C	C	C	C	C

With the development of the 2121 Kuhio project as a residential condominium development, traffic operations in the project vicinity are, in general, expected to remain similar to without project conditions during both peak periods whether the primary access is located adjacent to the existing drop off area along Kalaimoku Street or off Kuhio Avenue. If the primary access is located adjacent to the existing drop off area along Kalaimoku Street, the eastbound approach of the intersection with Kalakaua Avenue and Saratoga Road is anticipated to operate at a slightly lower, but still acceptable level of service due to the anticipated increase in turning vehicles at that intersection. Similarly, if the primary access is located off Kuhio Avenue, the westbound approach of the intersection of Kuhio Avenue with Kaiolu Street is anticipated to operate at a slightly lower, but still acceptable level of service due to the anticipated increase in vehicles along Kuhio Avenue. The remaining critical movements at this intersection, as well as, the other study intersections are anticipated to continue operating at levels of service similar to without project conditions.

C. Alternative C

The Year 2010 cumulative AM and PM peak hour traffic conditions with the development of the 2121 Kuhio project as a condominium-hotel development are summarized in Table 7. The table includes the levels of service resulting from the primary access being located adjacent to the existing drop off area along Kalaimoku Street (referred to in the table as the "KAA"), as well as, along Kuhio Avenue (referred to in the table as the "KUA"). The projected Year 2010 operating conditions without the proposed project are provided for comparison purposes. LOS calculations are included in Appendix G.

Table 7: Alternative C Projected Traffic Operating Conditions

Intersection	Critical Movement	AM			PM		
		w/out Proj	KAA	KUA	w/out Proj	KAA	KUA
Kuhio Ave/ Kalaimoku St	Eastbound (LT-TH)	B	B	B	B	B	B
	Northbound (LT-TH-RT)	C	C	C	C	C	C
Kuhio Ave/ Launiu St	Southbound (LT)	C	C	C	C	C	C
Kuhio Ave/ Kaiolu St	Eastbound (LT-TH-RT)	A	A	A	A	A	A
	Westbound (LT-TH-RT)	A	A	B	B	B	B
Kuhio Ave/ Lewers St	Eastbound (LT)	A	A	A	A	A	A
	Northbound (LT-TH-RT)	C	C	C	C	C	C
Kalakaua Ave/ Kalaimoku St/ Saratoga Rd	Eastbound (LT-TH-RT)	B	B	B	B	C	B
	Northbound (RT)	B	B	B	C	C	C
Kalakaua Ave/ Lewers St	Eastbound (LT-TH-RT)	B	B	B	B	B	B
	Northbound (TH)	B	B	B	C	C	C
Ala Wai Blvd/ Kalaimoku St	Westbound (TH)	C	C	C	B	B	B
	Northbound (LT)	C	C	C	C	C	C
Ala Wai Blvd/ Lewers St	Westbound (TH)	B	B	B	B	B	B
	Northbound (LT)	C	C	C	C	C	C

With the development of the 2121 Kuhio project as a condominium-hotel development, traffic operations in the project vicinity are, in general, expected to remain similar to without project conditions during both peak periods whether the primary access is located adjacent to the existing drop off area along Kalaimoku Street or off Kuhio Avenue. If the primary access is located adjacent to the existing drop off area along Kalaimoku Street, the eastbound approach of the intersection with Kalakaua Avenue and Saratoga Road is anticipated to operate at a slightly lower, but still acceptable level of service due to the anticipated increase in turning vehicles at

that intersection. Similarly, if the primary access is located off Kuhio Avenue, the westbound approach of the intersection of Kuhio Avenue with Kaiolu Street is anticipated to operate at a slightly lower, but still acceptable level of service due to the anticipated increase in vehicles along Kuhio Avenue. The remaining critical movements at this intersection, as well as, the other study intersections are anticipated to continue operating at levels of service similar to without project conditions.

VI. RECOMMENDATIONS

For the three land use alternatives and two primary access locations currently under consideration, the following are the recommendations of this study associated with the project implementation based on the analysis of the traffic data:

1. Provide sufficient driveway width to accommodate safe vehicle ingress and egress.
2. Provide adequate turning radii at all project driveways to avoid or minimize vehicle encroachments to oncoming traffic lanes.
3. Maintain adequate sight distances for motorists to safely enter and exit all project driveways.
4. Provide adequate on-site loading and off-loading service areas and prohibit off-site loading operations.
5. Modify the traffic signal timing at the intersection of Ala Wai Boulevard and Kalaimoku Street to accommodate anticipated increases in traffic along both those roadways.
6. Modify the traffic signal timing at the intersection of Ala Wai Boulevard and Lewers Street to accommodate anticipated increases in traffic along both those roadways.
7. Modify the traffic signal timing at the intersection of Kuhio Avenue and Launiu Street to accommodate anticipated increases in traffic along Kuhio Avenue.
8. Provide adequate valet staging and loading areas to ensure that vehicular queues do not extend onto the adjacent City and County of Honolulu streets.
9. Provide adequate staging and loading areas for trolleys and buses currently utilizing the drop off area along Kalaimoku Street to ensure that vehicular queues do not extend onto the adjacent City and County of Honolulu streets.

10. If the primary access is located off Kuhio Avenue, align the primary access driveway with Launiu Street, as well as, modify the traffic signal timing at that intersection to accommodate four-way traffic.

VII. CONCLUSION

The 2121 Kuhio development is currently in the preliminary planning stages and, as such, the ultimate land use and primary access location have still not been determined. The project will include timeshare, residential condominium, or condominium-hotel units with a restaurant and underground parking. Access to the development will either be provided via a new driveway adjacent to the existing drop off area along Kalaimoku Street or a new driveway off Kuhio Avenue. As such, this study assessed various combinations of these land use alternatives and primary access locations to ascertain the impact of this development on the surrounding roadway network. With the implementation of the recommended traffic signal timing modifications and the provision of adequate staging and loading areas within and near the project site, traffic operations in the vicinity are generally anticipated to continue operating at levels of service similar to without project conditions under all land use and primary access location combination scenarios. As such, the 2121 Kuhio development is not anticipated to have a significant impact on traffic operations in the project vicinity.

APPENDIX A
EXISTING TRAFFIC COUNT DATA

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter: D4-3889
 Counted By: TO
 Weather: Clear / Rainy

File Name : KaiAlaA
 Site Code : 00000008
 Start Date : 1/25/2006
 Page No : 1

Groups Printed- Unshifted

Start Time	Ala Wai Blvd Westbound				Kalaikomoku Street Northbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
07:45 AM	0	645	0	645	50	0	0	50
Total	0	645	0	645	50	0	0	50
08:00 AM	0	613	0	613	45	0	0	45
08:15 AM	0	558	0	558	36	0	0	36
08:30 AM	0	459	0	459	46	0	0	46
Grand Total	0	2275	0	2275	177	0	0	177
Apprch %	0.0	100.0	0.0	92.8	100.0	0.0	0.0	7.2
Total %	0.0	92.8	0.0	92.8	7.2	0.0	0.0	7.2

Start Time	Ala Wai Blvd Westbound				Kalaikomoku Street Northbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
07:45 AM	0	2275	0	2275	177	0	0	177
07:45 AM	0.0	100.0	0.0	645	100.0	0.0	0.0	50
07:45 AM	0	645	0	645	50	0	0	50
07:30:00 AM	0	645	0	645	50	0	0	50
07:45 AM	0	645	0	645	50	0	0	50
Peak Factor	0	0.882	0	0.882	0.882	0	0	0.882

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : KaiAlaP
 Site Code : 00000008
 Start Date : 1/25/2006
 Page No : 1

Counter: D4-3889
 Counted By: TO
 Weather: Clear / Rainy

Start Time	Ala Wai Blvd Westbound				Kalamoku Street Northbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
04:15 PM	0	554	0	554	105	0	0	105
04:30 PM	0	540	0	540	74	0	0	74
04:45 PM	0	456	0	456	68	0	0	68
Total	0	1550	0	1550	247	0	0	247
05:00 PM	0	507	0	507	76	0	0	76
Grand Total	0	2057	0	2057	323	0	0	323
Approch %	0.0	100.0	0.0	86.4	100.0	0.0	0.0	13.6
Total %	0.0	86.4	0.0	86.4	13.6	0.0	0.0	13.6

Start Time	Ala Wai Blvd Westbound				Kalamoku Street Northbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
04:15 PM	0	2057	0	2057	323	0	0	323
04:30 PM	0	100.0	0.0	100.0	100.0	0.0	0.0	105
04:45 PM	0	554	0	554	105	0	0	105
Total	0	554	0	554	105	0	0	105
05:00 PM	0	507	0	507	76	0	0	76
Grand Total	0	2057	0	2057	323	0	0	323
Approch %	0.0	100.0	0.0	86.4	100.0	0.0	0.0	13.6
Total %	0.0	86.4	0.0	86.4	13.6	0.0	0.0	13.6

Start Time	Ala Wai Blvd Westbound				Kalamoku Street Northbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
04:15 PM	0	2057	0	2057	323	0	0	323
04:30 PM	0	100.0	0.0	100.0	100.0	0.0	0.0	105
04:45 PM	0	554	0	554	105	0	0	105
Total	0	554	0	554	105	0	0	105
05:00 PM	0	507	0	507	76	0	0	76
Grand Total	0	2057	0	2057	323	0	0	323
Approch %	0.0	100.0	0.0	86.4	100.0	0.0	0.0	13.6
Total %	0.0	86.4	0.0	86.4	13.6	0.0	0.0	13.6

Peak Hour From 04:15 PM to 05:00 PM - Peak 1 of 1

Start Time	Ala Wai Blvd Westbound				Kalamoku Street Northbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
04:15 PM	0	2057	0	2057	323	0	0	323
04:30 PM	0	100.0	0.0	100.0	100.0	0.0	0.0	105
04:45 PM	0	554	0	554	105	0	0	105
Total	0	554	0	554	105	0	0	105
05:00 PM	0	507	0	507	76	0	0	76
Grand Total	0	2057	0	2057	323	0	0	323
Approch %	0.0	100.0	0.0	86.4	100.0	0.0	0.0	13.6
Total %	0.0	86.4	0.0	86.4	13.6	0.0	0.0	13.6

Intersection 04:15 PM
 Volume 2380
 Percent 0.903
 Peak Factor 0.903
 High Int. 4:00:00 PM
 Volume 105
 Peak Factor 0.769

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter: D4-3888
 Counted By: IW
 Weather: Clear / Rainy

File Name : LauKuhP
 Site Code : 00000003
 Start Date : 1/24/2006
 Page No : 1

Groups Printed - Unshifted

Start Time	Lauoliu Street Southbound			Kuhio Ave Westbound			Kuhio Ave Eastbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
04:15 PM	23	0	7	0	72	0	0	193	0
04:30 PM	16	0	7	0	57	0	0	199	0
04:45 PM	10	0	10	0	58	0	0	191	0
Total	49	0	24	0	187	0	0	583	0
05:00 PM	17	0	4	0	73	0	0	205	0
Grand Total	66	0	28	0	260	0	0	788	0
Approch %	70.2	0.0	29.8	0.0	100.0	0.0	0.0	100.0	0.0
Total %	5.8	0.0	2.5	0.0	22.8	0.0	0.0	69.0	0.0
App. Total									
Int. Total									

Start Time	Lauoliu Street Southbound			Kuhio Ave Westbound			Kuhio Ave Eastbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Peak Hour From 04:15 PM to 05:00 PM - Peak 1 of 1									
Intersection 04:15 PM									
Volume	66	0	28	0	260	0	0	788	0
Percent	70.2	0.0	29.8	0.0	100.0	0.0	0.0	100.0	0.0
Peak Factor	17	0	4	0	73	0	0	205	0
High Int. 04:15 PM									
Volume	23	0	7	0	73	0	0	205	0
Peak Factor									
App. Total									
Int. Total									

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

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : LewAlaA
 Site Code : 00000007
 Start Date : 1/25/2006
 Page No : 1

Counter: D4-3888
 Counted By: IW
 Weather: Clear / Rainy

Groups Printed- Unshifted

Start Time	Ala Wai Blvd Westbound			Lewers Street Northbound			App. Total	Int. Total
	Left	Thru	Right	Left	Thru	Right		
07:45 AM	0	540	0	34	0	0	574	574
Total	0	540	0	34	0	0	574	574
08:00 AM	0	570	0	30	0	0	600	600
08:15 AM	0	481	0	35	0	0	516	516
08:30 AM	0	413	0	38	0	0	451	451
Grand Total	0	2004	0	137	0	0	2141	2141
Apprch %	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0
Total %	0.0	93.6	0.0	6.4	0.0	0.0	6.4	0.0

Start Time	Ala Wai Blvd Westbound			Lewers Street Northbound			App. Total	Int. Total
	Left	Thru	Right	Left	Thru	Right		
08:00 Volume	0	2004	0	137	0	0	2141	2141
08:00 Percent	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0
08:00 Volume	0	570	0	30	0	0	600	600
Peak Factor	0	0.879	0	0.879	0	0	0.879	0.879
High Int. Volume	0	570	0	38	0	0	608	608
Peak Factor	0	0.879	0	0.879	0	0	0.879	0.879

Peak Hour From 07:45 AM to 08:30 AM - Peak 1 of 1

Start Time	Ala Wai Blvd Westbound			Lewers Street Northbound			App. Total	Int. Total
	Left	Thru	Right	Left	Thru	Right		
07:45 AM	0	540	0	34	0	0	574	574
08:00 AM	0	570	0	30	0	0	600	600
08:15 AM	0	481	0	35	0	0	516	516
08:30 AM	0	413	0	38	0	0	451	451
Grand Total	0	2004	0	137	0	0	2141	2141
Apprch %	0.0	100.0	0.0	100.0	0.0	0.0	0.0	0.0
Total %	0.0	93.6	0.0	6.4	0.0	0.0	6.4	0.0

Wilson Okamoto Corporation
1907 S. Beretania Street, Suite 400
Honolulu, HI 96826

File Name : LewAlaP
Site Code : 00000007
Start Date : 1/25/2006
Page No : 1

Counter: D4-3888
Counted By: IW
Weather: Clear / Rainy

Groups Printed- Unshifted

Start Time	Ala Wai Blvd Westbound			Lewers Street Northbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	
04:15 PM	0	455	0	85	0	0	540
04:30 PM	0	436	0	75	0	0	511
04:45 PM	0	390	0	58	0	0	448
Total	0	1281	0	218	0	0	1499
05:00 PM	0	444	0	90	0	0	534
Grand Total	0	1725	0	308	0	0	2033
Approch %	0.0	100.0	0.0	100.0	0.0	0.0	
Total %	0.0	84.8	0.0	15.2	0.0	0.0	0.0

Start Time	Ala Wai Blvd Westbound			Lewers Street Northbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	
04:15 PM	0	1725	0	308	0	0	2033
04:15 Volume	0	100.0	0.0	100.0	0.0	0.0	
04:15 Percent	0	455	0	85	0	0	540
04:15 Volume	0	455	0	85	0	0	0.941
Peak Factor	0	0.948	0	0.941	0	0	
High Int. 4:00:00 PM	0	455	0	90	0	0	540
Volume	0	455	0	90	0	0	0.856
Peak Factor	0	0.948	0	0.941	0	0	

1

File Name : LewKala
 Site Code : 00000005
 Start Date : 1/25/2006
 Page No : 1

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter: T -1841 / T-1839
 Counted By: GMT / ER
 Weather: Clear / Rainy

Groups Printed- 1 - Unshifted

Start Time	Lewers Street Northbound			Kalakaua Ave Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	
07:45 AM	0	9	1	32	340	88	460
Total	0	9	1	32	340	88	460
08:00 AM	0	13	0	29	270	72	371
08:15 AM	0	9	0	42	279	75	396
08:30 AM	0	7	2	45	289	65	399
Grand Total	0	38	3	148	1178	300	1626
Approch %	0.0	92.7	7.3	9.1	72.4	18.5	97.5
Total %	0.0	2.3	0.2	8.9	70.7	18.0	97.5

Start Time	Lewers Street Northbound			Kalakaua Ave Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	
07:45 AM to 08:30 AM - Peak 1 of 1	0	38	3	148	1178	300	1667
Intersection 07:45 AM	0.0	92.7	7.3	9.1	72.4	18.5	97.5
07:45 Volume	0	9	1	32	340	88	460
Peak Factor	0	0	0	0	0	0	0.887
High Int. 7:30:00 AM	0	13	0	32	340	88	460
Volume	0	13	0	32	340	88	460
Peak Factor	0	0.788	0	0.884	0.884	0.884	0.884

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : LewKalP
 Site Code : 00000005
 Start Date : 1/25/2006
 Page No : 1

Counter: T-1841 / T-1839
 Counted By: GMT / ER
 Weather: Clear / Rainy

Groups Printed- 1 - Unshifted

Start Time	Lewers Street Northbound				Kalakaua Ave Eastbound				
	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	Int. Total
04:15 PM	0	0	36	3	39	1.0	401	54	529
04:30 PM	0	0	28	8	36	1.0	381	50	501
04:45 PM	0	0	34	3	37	1.0	357	51	487
Total	0	0	98	14	112	1.0	1139	155	1405
05:00 PM	0	0	35	5	40	1.0	430	38	537
Grand Total	0	0	133	19	152	1.0	1569	193	2054
Approch %			87.5	12.5	7.4		82.5	10.1	
Total %	0.0	0.0	6.5	0.9	7.4		76.4	9.4	92.6

Start Time	Lewers Street Northbound				Kalakaua Ave Eastbound				
	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	Int. Total
Peak Hour From 04:15 PM to 05:00 PM - Peak 1 of 1	0	0	133	19	152	140	1569	193	2054
Intersection 04:15 PM	0	0	87.5	12.5	40	7.4	82.5	10.1	
Volume	0	0	35	5	40	29	430	38	537
Percent	0	0	05:00 PM	05:00 PM	05:00 PM	05:00 PM	05:00 PM	05:00 PM	0.956
05:00 Volume	0	0	35	5	40	29	430	38	
Peak Factor	0	0	0.950	0.950	0.950	0.950	0.950	0.950	
High Int. 4:00:00 PM	0	0	35	5	40	29	430	38	
Volume	0	0	35	5	40	29	430	38	
Peak Factor	0	0	0.950	0.950	0.950	0.950	0.950	0.950	

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

Counter: D4-3890 / D4-3891
 Counted By: KT / JG
 Weather: Clear / Rainy

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : LewKuhA
 Site Code : 00000006
 Start Date : 1/25/2006
 Page No : 1

Groups Printed- Unshifted

Start Time	Kuhio Ave Westbound			Lewers Street Northbound			Kuhio Ave Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:45 AM	0	56	4	4	11	7	7	123	0	212
Total	0	56	4	4	11	7	7	123	0	212
08:00 AM	0	45	11	4	22	1	9	100	0	192
08:15 AM	0	45	10	4	17	4	17	110	0	207
08:30 AM	0	47	5	5	16	5	9	108	0	195
Grand Total	0	193	30	17	66	17	42	441	0	806
Approch %	0.0	86.5	13.5	17.0	66.0	17.0	8.7	91.3	0.0	59.9
Total %	0.0	23.9	3.7	2.1	8.2	2.1	5.2	54.7	0.0	12.4

Start Time	Kuhio Ave Westbound			Lewers Street Northbound			Kuhio Ave Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:45 AM	0	193	30	17	66	17	42	441	0	806
08:00 AM	0	86.5	13.5	17.0	66.0	17.0	8.7	91.3	0.0	59.9
08:15 AM	0	47	5	5	16	5	9	108	0	195
08:30 AM	0	45	10	4	17	4	17	110	0	207
Grand Total	0	193	30	17	66	17	42	441	0	806
Approch %	0.0	86.5	13.5	17.0	66.0	17.0	8.7	91.3	0.0	59.9
Total %	0.0	23.9	3.7	2.1	8.2	2.1	5.2	54.7	0.0	12.4

Peak Hour From 07:45 AM to 08:30 AM - Peak 1 of 1

Start Time	Kuhio Ave Westbound			Lewers Street Northbound			Kuhio Ave Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:45 AM	0	193	30	17	66	17	42	441	0	806
08:00 AM	0	86.5	13.5	17.0	66.0	17.0	8.7	91.3	0.0	59.9
08:15 AM	0	47	5	5	16	5	9	108	0	195
08:30 AM	0	45	10	4	17	4	17	110	0	207
Grand Total	0	193	30	17	66	17	42	441	0	806
Approch %	0.0	86.5	13.5	17.0	66.0	17.0	8.7	91.3	0.0	59.9
Total %	0.0	23.9	3.7	2.1	8.2	2.1	5.2	54.7	0.0	12.4

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : LewKuhP
 Site Code : 00000006
 Start Date : 1/25/2006
 Page No : 1

Counter: D4-3890 / D4-3891
 Counted By: KT / JG
 Weather: Clear / Rainy

Start Time	Groups Printed- Unshifted											
	Kuhio Ave Westbound				Lewers Street Northbound				Kuhio Ave Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
04:15 PM	0	77	11	88	12	52	16	80	28	165	0	193
04:30 PM	0	85	13	98	8	52	9	69	23	160	0	183
04:45 PM	0	68	9	77	8	49	12	69	19	145	0	164
Total	0	230	33	263	28	153	37	218	70	470	0	540
05:00 PM	0	74	5	79	24	68	12	104	20	184	0	204
Grand Total	0	304	38	342	52	221	49	322	90	654	0	744
Approch %	0.0	88.9	11.1	24.3	16.1	68.6	15.2	22.9	12.1	87.9	0.0	52.8
Total %	0.0	21.6	2.7	24.3	3.7	15.7	3.5	22.9	6.4	46.4	0.0	52.8

Start Time	Groups Printed- Unshifted											
	Kuhio Ave Westbound				Lewers Street Northbound				Kuhio Ave Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
04:15 PM	0	304	38	342	52	221	49	322	90	654	0	744
04:30 PM	0	88.9	11.1	100	16.1	68.6	15.2	100	12.1	87.9	0.0	100
04:45 PM	0	74	5	79	24	68	12	104	20	184	0	204
Total	0	304	38	342	52	221	49	322	90	654	0	744
05:00 PM	0	85	13	98	24	68	12	104	20	184	0	204
Approch %	0.0	88.9	11.1	24.3	16.1	68.6	15.2	22.9	12.1	87.9	0.0	52.8
Total %	0.0	21.6	2.7	24.3	3.7	15.7	3.5	22.9	6.4	46.4	0.0	52.8

Start Time	Groups Printed- Unshifted											
	Kuhio Ave Westbound				Lewers Street Northbound				Kuhio Ave Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
04:15 PM	0	304	38	342	52	221	49	322	90	654	0	744
04:30 PM	0	88.9	11.1	100	16.1	68.6	15.2	104	12.1	87.9	0.0	100
04:45 PM	0	74	5	79	24	68	12	104	20	184	0	204
Total	0	304	38	342	52	221	49	322	90	654	0	744
05:00 PM	0	85	13	98	24	68	12	104	20	184	0	204
Approch %	0.0	88.9	11.1	24.3	16.1	68.6	15.2	22.9	12.1	87.9	0.0	52.8
Total %	0.0	21.6	2.7	24.3	3.7	15.7	3.5	22.9	6.4	46.4	0.0	52.8

Start Time	Groups Printed- Unshifted											
	Kuhio Ave Westbound				Lewers Street Northbound				Kuhio Ave Eastbound			
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total
04:15 PM	0	304	38	342	52	221	49	322	90	654	0	744
04:30 PM	0	88.9	11.1	100	16.1	68.6	15.2	104	12.1	87.9	0.0	100
04:45 PM	0	74	5	79	24	68	12	104	20	184	0	204
Total	0	304	38	342	52	221	49	322	90	654	0	744
05:00 PM	0	85	13	98	24	68	12	104	20	184	0	204
Approch %	0.0	88.9	11.1	24.3	16.1	68.6	15.2	22.9	12.1	87.9	0.0	52.8
Total %	0.0	21.6	2.7	24.3	3.7	15.7	3.5	22.9	6.4	46.4	0.0	52.8

Counter: T-1841 / T-1839
 Counted By: GMT / ER
 Weather: Rainy

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : SarKaIA
 Site Code : 00000001
 Start Date : 1/24/2006
 Page No : 1

Start Time	Saratoga Road Northbound						Kalakaua Ave Eastbound							
	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:45 AM	0	0	23	68	91	1.0	1.0	1.0	1.0	10	406	58	474	565
Total	0	0	23	68	91					10	406	58	474	565
08:00 AM	0	0	33	64	97					20	355	45	420	517
08:15 AM	0	0	27	64	91					15	360	44	419	510
08:30 AM	0	0	27	57	84					17	358	39	414	498
Grand Total	0	0	110	253	363					62	1479	186	1727	2090
Approch %	0.0	0.0	30.3	69.7	17.4					3.6	85.6	10.8	82.6	
Total %	0.0	0.0	5.3	12.1						3.0	70.8	8.9		

Start Time	Saratoga Road Northbound						Kalakaua Ave Eastbound							
	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:45 AM to 08:30 AM - Peak 1 of 1	0	0	110	253	363	0.0	0.0	0.0	0.0	62	1479	186	1727	2090
Intersection 07:45 AM	0	0	30.3	69.7	91					3.6	85.6	10.8		
Volume	0	0	23	68	91					10	406	58	474	565
Percent	0	0	7.30:00 AM	08:00 AM	07:45 AM					07:45 AM	07:45 AM	07:45 AM	07:45 AM	0.925
Peak Factor	0	0	0.936	0.936	0.936					0.936	0.936	0.936	0.936	
High Int. Volume	0	0	33	64	97					10	406	58	474	565
Peak Factor	0	0	0.936	0.936	0.936					0.936	0.936	0.936	0.936	

Counter: D4-3889
 Counted By: TO
 Weather: Clear / Rainy

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

File Name : KaiKuhA
 Site Code : 00000004
 Start Date : 1/24/2006
 Page No : 1

Groups Printed- Unshifted

Start Time	Kuhio Ave Westbound			Kaiolu Street Northbound			Kuhio Ave Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:45 AM	2	57	10	0	0	2	14	156	9	250
Total	2	57	10	0	0	2	14	156	9	250
08:00 AM	0	49	4	0	0	5	10	104	4	178
08:15 AM	0	45	3	0	0	0	14	112	6	182
08:30 AM	0	51	5	0	1	3	13	134	1	211
Grand Total	0	202	22	0	1	10	51	506	20	821
Apprch %	3.9	86.7	9.4	0.0	9.1	90.9	8.8	87.7	3.5	577
Total %	1.1	24.6	2.7	0.0	0.1	1.2	6.2	61.6	2.4	70.3

Start Time	Kuhio Ave Westbound			Kaiolu Street Northbound			Kuhio Ave Eastbound			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:45 AM to 08:30 AM - Peak 1 of 1	9	202	22	0	1	10	51	506	20	821
Intersection 07:45 AM	3.9	86.7	9.4	0.0	9.1	90.9	8.8	87.7	3.5	577
07:45 Volume	2	57	10	0	0	2	14	156	9	250
Peak Factor	0.745 AM			0.800 AM			0.745 AM			0.821
High Int. Volume	2	57	10	0	0	5	14	156	9	179
Peak Factor	0.844			0.550			0.806			

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Counter: D4-3889

Counted By: TO

Weather: Clear / Rainy

File Name : KaiKuhP
 Site Code : 00000004
 Start Date : 1/24/2006
 Page No : 1

Groups Printed- Unshifted

Start Time	Kuhio Ave Westbound			Kaliolu Street Northbound			Kuhio Ave Eastbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
04:15 PM	2	76	14	0	2	1	15	188	5
04:30 PM	2	69	7	0	3	5	17	182	4
04:45 PM	5	62	7	1	1	3	22	162	4
Total	9	207	28	1	6	9	54	532	13
05:00 PM	2	77	7	1	0	6	24	188	5
Grand Total	11	284	35	2	6	15	78	720	18
Approch %	3.3	86.1	10.6	8.7	26.1	65.2	9.6	88.2	2.2
Total %	0.9	24.3	3.0	0.2	0.5	1.3	6.7	61.6	1.5
App. Total	28.2			24.4			16		
Int. Total	303			289			267		
	859			599			217		
	1169			816			69.8		

Start Time	Kuhio Ave Westbound			Kaliolu Street Northbound			Kuhio Ave Eastbound		
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
04:15 PM	11	284	35	2	6	15	78	720	18
04:30 PM	3.3	86.1	10.6	8.7	26.1	65.2	9.6	88.2	2.2
04:45 PM	2	77	7	1	0	6	24	188	5
05:00 PM	2	76	14	0	3	5	24	188	5
High Int. Volume	92			8			24		
Peak Factor	0.897			0.719			0.943		

Wilson Okamoto Corporation
 1907 S. Beretania Street, Suite 400
 Honolulu, HI 96826

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

File Name : kailala
 Site Code : 00000001
 Start Date : 03/30/2004
 Page No : 1

Counter: T-1841/D1-0525
 Counted By: CL/IQ
 Weather: Clear

Start Time	Kalaimoku St Southbound						Saratoga Rd Northbound						Kalakaua Ave Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		
Factor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	17	17	0	0	37	61	35	133	13	11	325	40	13	389	539
07:15 AM	0	0	0	18	18	0	0	28	76	31	135	37	7	375	35	37	454	607
07:30 AM	0	0	0	26	26	0	0	26	76	33	135	10	12	422	54	10	498	659
07:45 AM	0	0	0	34	34	0	0	38	61	42	141	21	7	439	44	21	511	686
Total	0	0	0	95	95	0	0	129	274	141	544	81	37	1561	173	81	1852	2491
08:00 AM	0	0	0	11	11	0	0	36	86	29	151	5	12	397	50	5	464	626
08:15 AM	0	0	0	35	35	0	0	37	89	39	165	13	7	391	38	13	449	649
08:30 AM	0	0	0	48	48	0	0	40	90	59	189	12	10	459	31	12	512	749
08:45 AM	0	0	0	50	50	0	0	40	92	62	194	15	6	386	39	15	446	690
Total	0	0	0	144	144	0	0	153	357	189	699	45	35	1633	158	45	1871	2714
Grand Total	0	0	0	239	239	0	0	282	631	330	1243	126	72	3194	331	126	3723	5205
Approch %	0.0	0.0	0.0	100.0		0.0	0.0	22.7	50.8	26.5	23.9	3.4	1.9	85.8	8.9	3.4	71.5	
Total %	0.0	0.0	0.0	4.6		0.0	0.0	5.4	12.1	6.3	23.9	2.4	1.4	61.4	6.4	2.4		

Start Time	Kalaimoku St Southbound						Saratoga Rd Northbound						Kalakaua Ave Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		
Factor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approch %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Start Time	Kalaimoku St Southbound						Saratoga Rd Northbound						Kalakaua Ave Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		
Factor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approch %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Start Time	Kalaimoku St Southbound						Saratoga Rd Northbound						Kalakaua Ave Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		
Factor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approch %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Start Time	Kalaimoku St Southbound						Saratoga Rd Northbound						Kalakaua Ave Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		
Factor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Approch %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Start Time	Kalaimoku St Southbound						Saratoga Rd Northbound						Kalakaua Ave Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	
	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		
Factor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0									

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

File Name : kkalp
 Site Code : 00000001
 Start Date : 03/30/2004
 Page No : 1

Counter: T-1841/D1-0525
 Counted By: CL/IQ
 Weather: Clear

Start Time	Kalaikou St Southbound						Saratoga Rd Northbound						Kalaikou Ave Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Int. Total
	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		
03:30 PM	0	0	0	118	118	0	0	52	99	58	209	0	23	480	49	40	592	919
03:45 PM	0	0	0	110	110	0	0	57	136	66	259	0	13	517	48	38	616	985
Total	0	0	0	228	228	0	0	109	235	124	468	0	36	997	97	78	1208	1904
04:00 PM	0	0	0	99	99	0	0	82	127	85	294	0	11	475	54	37	577	970
04:15 PM	0	0	0	113	113	0	0	77	138	65	280	0	12	396	49	28	485	878
04:30 PM	0	0	0	73	73	0	0	65	140	82	287	0	20	456	41	33	550	910
04:45 PM	0	0	0	94	94	0	0	46	134	45	225	0	12	436	42	27	517	836
Total	0	0	0	379	379	0	0	270	539	277	1086	0	55	1783	186	125	2129	3594
05:00 PM	0	0	0	111	111	0	0	61	129	73	263	0	22	427	42	33	524	898
05:15 PM	0	0	0	116	116	0	0	60	125	91	276	0	14	450	24	52	540	932
05:30 PM	0	0	0	104	104	0	0	46	106	61	213	0	18	450	41	24	533	850
05:45 PM	0	0	0	139	139	0	0	33	119	76	228	0	12	424	36	31	503	870
Total	0	0	0	470	470	0	0	200	479	301	980	0	66	1751	143	140	2100	3550
06:00 PM	0	0	0	141	141	0	0	56	118	105	279	0	15	408	33	54	510	930
06:15 PM	0	0	0	130	130	0	0	42	104	101	247	0	18	338	28	62	446	823
Grand Total	0	0	0	1348	1348	0	0	677	1475	908	3060	0	190	5257	487	459	6393	10801
Approch %	0.0	0.0	0.0	100.0		0.0	0.0	22.1	48.2	29.7	28.3	0.0	3.0	82.2	7.6	7.2	59.2	
Total %	0.0	0.0	0.0	12.5	12.5	0.0	0.0	6.3	13.7	8.4	28.3	0.0	1.8	48.7	4.5	4.2	59.2	

Start Time	Kalaikou St Southbound						Saratoga Rd Northbound						Kalaikou Ave Eastbound					
	Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total		Left	Thru	Right	Peds	App. Total	Int. Total
	1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0			1.0	1.0	1.0	1.0		
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection Volume	0	0	0	0	0	0	0	281	541	541	822	0	56	1844	192	192	2092	2914
Percent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	34.2	65.8	65.8	193	0.0	2.7	88.1	9.2	9.2	578	771
03:45 Volume	0	0	0	0	0	0	0	57	136	136	193	0	13	517	48	48	578	771
Peak Factor																		0.945
High Int. Volume	0	0	0	0	0	0	0	77	138	138	215	0	13	517	48	48	578	771
Peak Factor											0.956						0.905	

Counter: D1-0526/D1-0528
 Counted By: GMT/GM
 Weather: Clear

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

File Name : kuhkala
 Site Code : 00000002
 Start Date : 03/30/2004
 Page No : 1

Start Time	Groups Printed - 1 - Unshifted																				
	Kalaaimoku Street Southbound				Kuhio Avenue Westbound				Kalaaimoku Street Northbound				Kuhio Avenue Eastbound								
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	0	0	0	3	3	0	44	9	2	55	2	36	9	11	58	7	114	0	5	126	242
07:15 AM	0	0	0	2	2	0	56	3	4	63	4	23	4	21	52	9	111	0	4	124	241
07:30 AM	0	0	0	7	7	0	43	12	5	60	7	18	8	18	51	8	141	0	4	153	271
07:45 AM	0	0	0	4	4	0	56	6	5	67	1	32	12	19	64	3	129	0	10	142	277
Total	0	0	0	16	16	0	199	30	16	245	14	109	33	69	225	27	495	0	23	545	1031
08:00 AM	0	0	0	2	2	0	58	3	1	62	3	30	9	21	63	8	123	0	5	136	263
08:15 AM	0	0	0	0	0	0	59	6	2	67	1	26	10	30	67	8	123	0	6	137	271
08:30 AM	0	0	0	0	0	0	64	3	1	68	10	18	17	29	74	6	124	0	5	135	277
08:45 AM	0	0	0	0	0	0	58	2	0	60	0	0	0	0	0	9	136	0	8	153	213
Total	0	0	0	2	2	0	239	14	4	257	14	74	36	80	204	31	506	0	24	561	1024
Grand Total	0	0	0	18	18	0	438	44	20	502	28	183	69	149	429	58	1001	0	47	1106	2055
Approch %	0.0	0.0	0.0	100.0		0.0	87.3	8.8	4.0		6.5	42.7	16.1	34.7		5.2	90.5	0.0	4.2		
Total %	0.0	0.0	0.0	0.9	0.9	0.0	21.3	2.1	1.0	24.4	1.4	8.9	3.4	7.3	20.9	2.8	48.7	0.0	2.3	53.8	

Start Time	Groups Printed - 1 - Unshifted																				
	Kalaaimoku Street Southbound				Kuhio Avenue Westbound				Kalaaimoku Street Northbound				Kuhio Avenue Eastbound								
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection 07:45 AM	0	0	0	0	0	0	237	18	3	255	15	106	48	169	25	499	0	0	0	524	948
Volume	0	0	0	0	0	0	92.9	7.1	3	67	8.9	62.7	28.4	45	4.8	95.2	0.0	0.0	0.0	130	242
Percent	0.0	0.0	0.0	0.0	0.0	0.0	64	3	0	0	10	18	17	0	6	124	0	0	0	0.979	
08:30 Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Factor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
High Int 6:45:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Volume	0	0	0	0	0	0	64	3	0	67	1	32	12	45	3	129	0	0	0	132	0.992
Peak Factor	0	0	0	0	0	0	0	0	0	0.951	0	0	0	0.939	0	0	0	0	0	0	0

Counter: D1-0768
 Counted By: TO
 Weather: Clear

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

File Name : alakala
 Site Code : 00000003
 Start Date : 03/30/2004
 Page No : 1

Start Time	Ala Wai Boulevard Westbound						Kalaimoku Street Northbound						
	Left		Thru		Right		Left		Thru		Right		
	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	0	0	500	0	0	0	55	0	0	0	0	0	555
07:15 AM	0	0	616	0	0	0	36	0	0	0	0	0	652
07:30 AM	0	0	639	0	0	0	35	0	0	0	0	0	674
07:45 AM	0	0	623	0	0	0	45	0	0	0	0	0	668
Total	0	0	2378	0	0	0	171	0	0	0	0	0	2549
08:00 AM	0	0	547	0	0	0	44	0	0	0	0	0	591
08:15 AM	0	0	483	0	0	0	45	0	0	0	0	0	528
08:30 AM	0	0	469	0	0	0	34	0	0	0	0	0	503
08:45 AM	0	0	452	0	0	0	37	0	0	0	0	0	489
Total	0	0	1951	0	0	0	160	0	0	0	0	0	2111
Grand Total	0	0	4329	0	0	0	331	0	0	0	0	0	4660
Approch %	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Total %	0.0	0.0	92.9	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	7.1

Start Time	Ala Wai Boulevard Westbound						Kalaimoku Street Northbound						
	Left		Thru		Right		Left		Thru		Right		
	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
07:00 AM	0	0	2425	0	0	0	160	0	0	0	0	0	2585
07:15 AM	0	0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	674
07:30 AM	0	0	639	0	0	0	35	0	0	0	0	0	0.959
07:45 AM	0	0	639	0	0	0	45	0	0	0	0	0	0.889
Total	0	0	3903	0	0	0	340	0	0	0	0	0	3368
08:00 AM	0	0	547	0	0	0	44	0	0	0	0	0	591
08:15 AM	0	0	483	0	0	0	45	0	0	0	0	0	528
08:30 AM	0	0	469	0	0	0	34	0	0	0	0	0	503
08:45 AM	0	0	452	0	0	0	37	0	0	0	0	0	489
Total	0	0	1951	0	0	0	160	0	0	0	0	0	2111
Grand Total	0	0	4329	0	0	0	331	0	0	0	0	0	4660
Approch %	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Total %	0.0	0.0	92.9	0.0	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	7.1

Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1

Intersection	Volume	Percent	Peak Factor	High Int. Volume	Peak Factor
07:15 AM	0	0	0	0	0
07:30 AM	0	0	0	0	0
07:45 AM	0	0	0	0	0
08:00 AM	0	0	0	0	0
08:15 AM	0	0	0	0	0
08:30 AM	0	0	0	0	0
08:45 AM	0	0	0	0	0
09:00 AM	0	0	0	0	0
09:15 AM	0	0	0	0	0
09:30 AM	0	0	0	0	0
09:45 AM	0	0	0	0	0
10:00 AM	0	0	0	0	0
10:15 AM	0	0	0	0	0
10:30 AM	0	0	0	0	0
10:45 AM	0	0	0	0	0
11:00 AM	0	0	0	0	0
11:15 AM	0	0	0	0	0
11:30 AM	0	0	0	0	0
11:45 AM	0	0	0	0	0
12:00 PM	0	0	0	0	0
12:15 PM	0	0	0	0	0
12:30 PM	0	0	0	0	0
12:45 PM	0	0	0	0	0
1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
6:00 PM	0	0	0	0	0
6:15 PM	0	0	0	0	0
6:30 PM	0	0	0	0	0
6:45 PM	0	0	0	0	0
7:00 PM	0	0	0	0	0
7:15 PM	0	0	0	0	0
7:30 PM	0	0	0	0	0
7:45 PM	0	0	0	0	0
8:00 PM	0	0	0	0	0
8:15 PM	0	0	0	0	0
8:30 PM	0	0	0	0	0
8:45 PM	0	0	0	0	0
9:00 PM	0	0	0	0	0
9:15 PM	0	0	0	0	0
9:30 PM	0	0	0	0	0
9:45 PM	0	0	0	0	0
10:00 PM	0	0	0	0	0
10:15 PM	0	0	0	0	0
10:30 PM	0	0	0	0	0
10:45 PM	0	0	0	0	0
11:00 PM	0	0	0	0	0
11:15 PM	0	0	0	0	0
11:30 PM	0	0	0	0	0
11:45 PM	0	0	0	0	0
12:00 AM	0	0	0	0	0
12:15 AM	0	0	0	0	0
12:30 AM	0	0	0	0	0
12:45 AM	0	0	0	0	0
1:00 AM	0	0	0	0	0
1:15 AM	0	0	0	0	0
1:30 AM	0	0	0	0	0
1:45 AM	0	0	0	0	0
2:00 AM	0	0	0	0	0
2:15 AM	0	0	0	0	0
2:30 AM	0	0	0	0	0
2:45 AM	0	0	0	0	0
3:00 AM	0	0	0	0	0
3:15 AM	0	0	0	0	0
3:30 AM	0	0	0	0	0
3:45 AM	0	0	0	0	0
4:00 AM	0	0	0	0	0
4:15 AM	0	0	0	0	0
4:30 AM	0	0	0	0	0
4:45 AM	0	0	0	0	0
5:00 AM	0	0	0	0	0
5:15 AM	0	0	0	0	0
5:30 AM	0	0	0	0	0
5:45 AM	0	0	0	0	0
6:00 AM	0	0	0	0	0
6:15 AM	0	0	0	0	0
6:30 AM	0	0	0	0	0
6:45 AM	0	0	0	0	0
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
10:00 AM	0	0	0	0	0
10:15 AM	0	0	0	0	0
10:30 AM	0	0	0	0	0
10:45 AM	0	0	0	0	0
11:00 AM	0	0	0	0	0
11:15 AM	0	0	0	0	0
11:30 AM	0	0	0	0	0
11:45 AM	0	0	0	0	0
12:00 AM	0	0	0	0	0
12:15 AM	0	0	0	0	0
12:30 AM	0	0	0	0	0
12:45 AM	0	0	0	0	0
1:00 AM	0	0	0	0	0
1:15 AM	0	0	0	0	0
1:30 AM	0	0	0	0	0
1:45 AM	0	0	0	0	0
2:00 AM	0	0	0	0	0
2:15 AM	0	0	0	0	0
2:30 AM	0	0	0	0	0
2:45 AM	0	0	0	0	0
3:00 AM	0	0	0	0	0
3:15 AM	0	0	0	0	0
3:30 AM	0	0	0	0	0
3:45 AM	0	0	0	0	0
4:00 AM	0	0	0	0	0
4:15 AM	0	0	0	0	0
4:30 AM	0	0	0	0	0
4:45 AM	0	0	0	0	0
5:00 AM	0	0	0	0	0
5:15 AM	0	0	0	0	0
5:30 AM	0	0	0	0	0
5:45 AM	0	0	0	0	0
6:00 AM	0	0	0	0	0
6:15 AM	0	0	0	0	0
6:30 AM	0	0	0	0	0
6:45 AM	0	0	0	0	0
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
9:00 AM	0	0	0	0	0
9:15 AM	0	0	0	0	0
9:30 AM	0	0	0	0	0
9:45 AM	0	0	0	0	0
10:00 AM	0	0	0	0	0
10:15 AM	0	0			

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

File Name : alakalp
 Site Code : 00000003
 Start Date : 03/30/2004
 Page No : 1

Counter: D1-0768
 Counted By: TO
 Weather: Clear

Groups Printed- Unshifted

Start Time	Ala Wai Boulevard Westbound				Kalaaimoku Street Northbound				App. Total	Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
03:30 PM	0	552	0	552	74	0	0	74	0	526
03:45 PM	0	578	0	578	60	0	0	60	0	638
Total	0	1130	0	1130	134	0	0	134	0	1264
04:00 PM	0	584	0	584	85	0	0	85	0	669
04:15 PM	0	603	0	603	83	0	0	83	0	686
04:30 PM	0	609	0	609	74	0	0	74	0	683
04:45 PM	0	595	0	595	59	0	0	59	0	654
Total	0	2391	0	2391	301	0	0	301	0	2692
05:00 PM	0	545	0	545	68	0	0	68	0	613
05:15 PM	0	559	0	559	68	0	0	68	0	627
05:30 PM	0	564	0	564	63	0	0	63	0	627
05:45 PM	0	511	0	511	49	0	0	49	0	560
Total	0	2179	0	2179	248	0	0	248	0	2427
06:00 PM	0	516	0	516	84	0	0	84	0	600
06:15 PM	0	537	0	537	58	0	0	58	0	595
Grand Total	0	6753	0	6753	825	0	0	825	0	7578
Approch %	0.0	100.0	0.0	89.1	100.0	0.0	0.0	10.9	0.0	0.0
Total %	0.0	89.1	0.0	89.1	10.9	0.0	0.0	10.9	0.0	0.0

Start Time	Ala Wai Boulevard Westbound				Kalaaimoku Street Northbound				App. Total	Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1	0	2391	0	2391	301	0	0	301	0	2692
Intersection Volume	0.0	100.0	0.0	603	100.0	0.0	0.0	83	0	686
Percent	0	603	0	603	83	0	0	83	0	0.981
04:15 Volume	0	609	0	609	85	0	0	85	0	0.981
Peak Factor	0	609	0	609	85	0	0	85	0	0.981
High Int. Volume	0	609	0	609	85	0	0	85	0	0.981
Peak Factor	0	609	0	609	85	0	0	85	0	0.981

03/30/2004 10:00 AM

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

File Name : kallewa
 Site Code : 00000004
 Start Date : 03/31/2004
 Page No : 1

Counter: T-1841/D1-0525
 Counted By: IQ/CL
 Weather: Clear

Groups Printed - Unshifted

Start Time	Lewers St Southbound				Kalakaua Ave Westbound				Lewers St Northbound				Kalakaua Ave Eastbound				Int. Total			
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left		Thru	Right	Peds
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	
07:00 AM	0	0	0	23	23	0	0	0	24	24	0	19	0	31	50	32	243	102	46	423
07:15 AM	0	0	0	35	35	0	0	0	36	36	0	10	0	43	53	30	276	86	29	421
07:30 AM	0	0	0	46	46	0	0	0	39	39	0	15	2	59	76	38	286	91	25	440
07:45 AM	0	0	0	42	42	0	0	0	39	39	0	8	1	44	53	40	321	67	30	458
Total	0	0	0	146	146	0	0	0	138	138	0	52	3	177	232	140	1126	346	130	1742
08:00 AM	0	0	0	46	46	0	0	0	48	48	0	14	3	95	112	28	341	76	36	481
08:15 AM	0	0	0	59	59	0	0	0	60	60	0	15	2	70	87	44	333	69	45	491
08:30 AM	0	0	0	76	76	0	0	0	82	82	0	15	1	86	102	45	332	61	48	486
08:45 AM	0	0	0	57	57	0	0	0	73	73	0	15	5	78	98	49	311	51	56	467
Total	0	0	0	238	238	0	0	0	263	263	0	59	11	329	399	166	1317	257	185	1925
Grand Total	0	0	0	384	384	0	0	0	401	401	0	111	14	506	631	306	2443	603	315	3667
Approch %	0.0	0.0	0.0	100.0	7.6	0.0	0.0	0.0	100.0	7.9	0.0	17.6	2.2	80.2	12.4	8.3	66.6	16.4	8.6	72.1
Total %	0.0	0.0	0.0	7.6	7.6	0.0	0.0	0.0	7.9	7.9	0.0	2.2	0.3	10.0	12.4	6.0	48.1	11.9	6.2	72.1

Start Time	Lewers St Southbound				Kalakaua Ave Westbound				Lewers St Northbound				Kalakaua Ave Eastbound				Int. Total			
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left		Thru	Right	Peds
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Intersection 07:45 AM	0	0	0	0	0	0	0	0	0	0	0	52	7	59	59	157	1327	273	1757	1816
Volume	0	0	0	0	0	0	0	0	0	0	0	88.1	11.9	17	17	8.9	75.5	15.5	463	463
Percent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15	2	17	17	44	333	69	446	463
08:15 Volume	0	0	0	0	0	0	0	0	0	0	0	15	2	17	17	44	333	69	446	463
Peak Factor	0	0	0	0	0	0	0	0	0	0	0	0.815	0.3	0.868	0.868	0.815	0.815	0.815	0.815	0.981
High Int. 6:45:00 AM	0	0	0	0	0	0	0	0	0	0	0	14	3	17	17	44	333	69	446	463
Volume	0	0	0	0	0	0	0	0	0	0	0	14	3	17	17	44	333	69	446	463
Peak Factor	0	0	0	0	0	0	0	0	0	0	0	0.815	0.3	0.868	0.868	0.815	0.815	0.815	0.815	0.981

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

Counter: D1-0768/D1-0528
 Counted By: MKO/GM
 Weather: Clear

File Name : kuhlewp
 Site Code : 00000005
 Start Date : 03/31/2004
 Page No : 1

Groups Printed - 1 - Unshifted

Start Time	Lewers Street Southbound				Kuhio Avenue Westbound				Lewers Street Northbound				Kuhio Avenue Eastbound									
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total	
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0			
03:30 PM	0	0	0	35	35	0	71	13	48	132	8	43	10	49	110	21	153	0	53	227	504	
03:45 PM	0	0	0	35	35	0	72	13	49	134	6	38	9	57	110	23	168	0	43	234	513	
Total	0	0	0	70	70	0	143	26	97	266	14	81	19	106	220	44	321	0	96	461	1017	
04:00 PM	0	0	0	24	24	0	79	11	79	169	12	61	13	69	155	21	151	0	55	227	575	
04:15 PM	0	0	0	18	18	0	82	11	52	145	12	50	18	81	161	22	180	0	41	243	567	
04:30 PM	0	0	0	20	20	0	60	13	38	111	12	36	11	44	103	23	163	0	38	224	458	
04:45 PM	0	0	0	41	41	0	76	9	46	131	7	45	10	38	101	21	176	0	54	251	524	
Total	0	0	0	103	103	0	297	44	215	556	43	193	52	232	520	87	670	0	188	945	2124	
05:00 PM	0	0	0	13	13	0	60	12	50	122	12	44	18	59	133	28	163	0	40	231	499	
05:15 PM	0	0	0	17	17	0	70	10	54	134	4	46	10	63	123	25	148	0	42	215	489	
05:30 PM	0	0	0	22	22	0	68	12	52	132	6	42	18	54	120	33	179	0	49	261	535	
05:45 PM	0	0	0	14	14	0	72	12	28	112	11	30	19	60	120	24	167	0	28	219	465	
Total	0	0	0	66	66	0	270	46	184	500	33	162	65	236	496	110	657	0	159	926	1988	
06:00 PM	0	0	0	19	19	0	65	13	41	119	10	46	12	65	133	24	173	0	49	246	517	
06:15 PM	0	0	0	3	3	0	58	9	43	110	17	43	9	41	110	21	147	0	38	206	429	
Grand Total	0	0	0	261	261	0	833	138	580	1551	117	525	157	680	1479	286	1968	0	530	2784	6075	
Apprch %	0.0	0.0	0.0	100.0		0.0	53.7	8.9	37.4		7.9	35.5	10.6	46.0		10.3	70.7	0.0	19.0			
Total %	0.0	0.0	0.0	4.3	4.3	0.0	13.7	2.3	9.5	25.5	1.9	8.6	2.6	11.2	24.3	4.7	32.4	0.0	8.7	45.8		

Start Time	Lewers Street Southbound				Kuhio Avenue Westbound				Lewers Street Northbound				Kuhio Avenue Eastbound									
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total	
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1																						
Intersection 04:00 PM	0	0	0	0	0	0	297	44	44	341	43	193	52	52	288	87	670	0	0	757	1386	
Volume	0	0	0	0	0	0	87.1	12.9	12.9	93	14.9	67.0	18.1	18.1	80	11.5	88.5	0.0	0.0	202	375	
Percent	0.0	0.0	0.0	0.0	0.0	0.0	82	11	11	93	12	50	18	18	80	22	180	0	0	202	375	
Peak Factor	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.924	
High Int. 3:15:00 PM						04:15 PM				04:00 PM					04:15 PM							
Volume	0	0	0	0	0	0	82	11	11	93	12	61	13	13	86	22	180	0	0	202	375	
Peak Factor	0	0	0	0	0	0	0	0	0	0.917	0	0	0	0	0.837	0	0	0	0	0.937		

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

Counter: D1-0768
 Counted By: TO
 Weather: Clear

File Name : alalewa
 Site Code : 00000006
 Start Date : 03/31/2004
 Page No : 1

Start Time Factor	Ala Wai Boulevard Westbound						Lewers Street Northbound						
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
07:00 AM	0	450	0	450	45	0	0	45	0	0	0	0	495
07:15 AM	0	529	0	529	29	0	0	29	0	0	0	0	558
07:30 AM	0	515	0	515	47	0	0	47	0	0	0	0	562
07:45 AM	0	603	0	603	37	0	0	37	0	0	0	0	640
Total	0	2097	0	2097	158	0	0	158	0	0	0	0	2255
08:00 AM	0	618	0	618	42	0	0	42	0	0	0	0	660
08:15 AM	0	455	0	455	43	0	0	43	0	0	0	0	498
08:30 AM	0	422	0	422	40	0	0	40	0	0	0	0	462
08:45 AM	0	408	0	408	49	0	0	49	0	0	0	0	457
Total	0	1903	0	1903	174	0	0	174	0	0	0	0	2077
Grand Total	0	4000	0	4000	332	0	0	332	0	0	0	0	4332
Approch %	0.0	100.0	0.0	100.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0
Total %	0.0	92.3	0.0	92.3	7.7	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0

Start Time	Ala Wai Boulevard Westbound						Lewers Street Northbound						
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1	0	2265	0	2265	155	0	0	155	0	0	0	0	2420
Intersection Volume	0	100.0	0.0	100.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	660
Percent	0	618	0	618	42	0	0	42	0	0	0	0	0.917
08:00 Volume	0	618	0	618	07:30 AM	47	0	47	0	0	0	0	660
Peak Factor	0	618	0	618	0.916	0	0	0.916	0	0	0	0	0.917
High Int. Volume	0	618	0	618	07:30 AM	47	0	47	0	0	0	0	660
Volume	0	618	0	618	0.916	0	0	0.916	0	0	0	0	660
Peak Factor	0	618	0	618	0.916	0	0	0.916	0	0	0	0	660

Wilson Okamoto Corporation
 1907 S. Beretania St., Suite 400
 Honolulu, HI 96826

File Name : alalewp
 Site Code : 00000006
 Start Date : 03/31/2004
 Page No : 1

Counter: D1-0768
 Counted By: TO
 Weather: Clear

Groups Printed - Unshifted

Start Time	Ala Wai Boulevard Westbound				Lewers Street Northbound				App. Total	Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Factor	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		
03:30 PM	0	473	0	473	71	0	0	71	0	544
03:45 PM	0	460	0	460	72	0	0	72	0	532
Total	0	933	0	933	143	0	0	143	0	1076
04:00 PM	0	499	0	499	97	0	0	97	0	596
04:15 PM	0	502	0	502	82	0	0	82	0	584
04:30 PM	0	543	0	543	70	0	0	70	0	613
04:45 PM	0	514	0	514	63	0	0	63	0	577
Total	0	2058	0	2058	312	0	0	312	0	2370
05:00 PM	0	522	0	522	64	0	0	64	0	586
05:15 PM	0	499	0	499	74	0	0	74	0	573
05:30 PM	0	470	0	470	67	0	0	67	0	537
05:45 PM	0	448	0	448	67	0	0	67	0	515
Total	0	1939	0	1939	272	0	0	272	0	2211
06:00 PM	0	436	0	436	85	0	0	85	0	521
06:15 PM	0	482	0	482	68	0	0	68	0	550
Grand Total	0	5848	0	5848	880	0	0	880	0	6728
Approch %	0.0	100.0	0.0	100.0	100.0	0.0	0.0	100.0	0.0	0.0
Total %	0.0	86.9	0.0	86.9	13.1	0.0	0.0	13.1	0.0	0.0

Start Time	Ala Wai Boulevard Westbound				Lewers Street Northbound				App. Total	Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total		
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1										
Intersection	0	2058	0	2058	312	0	0	312	0	2370
Volume	0	100.0	0.0	100.0	100.0	0.0	0.0	100.0	0	0
Percent	0	543	0	543	70	0	0	70	0	613
04:30 Volume										
Peak Factor										
High Int.	04:30 PM	0	0	0	04:00 PM	97	0	97	0	0.967
Volume	3:15:00 PM	0	543	543	0	0	0	0	0	0
Peak Factor				0.948				0.804		

APPENDIX B
LEVEL OF SERVICE DEFINITIONS

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

Level of Service (LOS) for signalized intersections is defined in terms of delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. Specifically, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle, typically a 15-min analysis period. The criteria are given in the following table.

Table 1: Level-of-Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec/veh)
A	≤ 10.0
B	>10.0 and ≤ 20.0
C	>20.0 and ≤ 35.0
D	>35.0 and ≤ 55.0
E	>55.0 and ≤ 80.0
F	>80.0

Delay is a complex measure and depends 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.

Level of Service A describes operations with low control delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Many vehicles do not stop at all. Short cycle lengths may tend to contribute to low delay values.

Level of Service B describes operations with control delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of delay.

Level of Service C describes operations with control delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from only fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. Cycle failure occurs when a given green phase does not serve queued vehicles and overflows occur. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

Level of Service D describes operations with control delay greater than 35 and up to 55 sec per vehicle. At level of service 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 operation with control delay greater than 55 and up to 80 sec per vehicle. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent.

Level of Service F describes operations with control delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity lane groups. It may also occur at high v/c ratios with many individual cycle failures. Poor progression and long cycle lengths may also contribute significantly to high delay levels.

LEVEL OF SERVICE DEFINITIONS

LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS

Level of Service (LOS) criteria are given in Table 1. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue to the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in the queue.

The average total delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. If the degree of saturation is greater than about 0.9, average control delay is significantly affected by the length of the analysis period.

Table 1: Level-of-Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (Sec/Veh)
A	≤ 10.0
B	> 10.0 and ≤ 15.0
C	> 15.0 and ≤ 25.0
D	> 25.0 and ≤ 35.0
E	> 35.0 and ≤ 50.0
F	> 50.0

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Kalaimoku St/Kuhio Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: AM Peak Period Year : Existing
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	40	512		199	53		22	83	44			
Lane Width	12.0			12.0			12.0					
RTOR Vol				5			4					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru			P		Thru			
Right			P		Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	35.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1818	3534	0.39	0.56	10.4	B	10.4	B
Westbound								
TR	1506	3443	0.18	0.44	14.0	B	14.0	B
Northbound								
LTR	1054	3374	0.16	0.31	20.2	C	20.2	C
Southbound								

Intersection Delay = 12.7 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Existing
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	61	755		248	51		25	177	65			
Lane Width	12.0			12.0			12.0					
RTOR Vol				5			7					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru				P	Thru			
Right				P	Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
	Capacity		v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1904	3533	0.46	0.61	10.3	B	10.3	B
Westbound								
TR	1732	3464	0.20	0.50	12.8	B	12.8	B
Northbound								
LTR	948	3412	0.32	0.28	26.6	C	26.6	C
Southbound								

Intersection Delay = 14.1 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Existing
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig		T			T					L		R
Volume		543			201					61		41
Lane Width		12.0			12.0					12.0		12.0
RTOR Vol												4

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	P		
Thru		P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		60.0				10.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
T	2660	3547	0.26	0.75	3.3	A	3.3	A
Westbound								
T	2660	3547	0.09	0.75	2.7	A	2.7	A
Northbound								
Southbound								
L	221	1770	0.33	0.13	35.8	D	35.2	D
R	198	1583	0.22	0.13	34.1	C		
Intersection Delay = 6.8 (sec/veh)					Intersection LOS = A			

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Existing
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig		T			T					L		R
Volume		788			260					66		28
Lane Width		12.0			12.0					12.0		12.0
RTOR Vol												3

Duration 1.00 Area Type: All other areas

		Signal Operations							
Phase Combination		1	2	3	4	5	6	7	8
EB	Left					NB	Left		
	Thru		P				Thru		
	Right						Right		
	Peds						Peds		
WB	Left					SB	Left	P	
	Thru		P				Thru		
	Right						Right	P	
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		60.0					20.0		
Yellow		4.0					4.0		
All Red		1.0					1.0		
		Cycle Length: 90.0 secs							

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
T	2365	3547	0.35	0.67	6.9	A	6.9	A
Westbound								
T	2365	3547	0.12	0.67	5.5	A	5.5	A
Northbound								
Southbound								
L	393	1770	0.22	0.22	29.9	C	29.4	C
R	352	1583	0.09	0.22	28.3	C		
Intersection Delay = 8.7			(sec/veh)		Intersection LOS = A			

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		51	506	20	9	202	22
Peak-Hour Factor, PHF		0.81	0.81	0.81	0.84	0.84	0.84
Hourly Flow Rate, HFR		62	624	24	10	240	26
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided /					
RT Channelized?							
Lanes		0	2	0	0	2	0
Configuration		LT		TR	LT		TR
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		0	1	10			
Peak Hour Factor, PHF		0.55	0.55	0.55			
Hourly Flow Rate, HFR		0	1	18			
Percent Heavy Vehicles		2	2	2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0			
Configuration		LTR					

Delay, Queue Length, and Level of Service

Approach Movement	EB 1	WB 4	Northbound			Southbound		
			7	8	9	10	11	12
Lane Config	LT	LT	LTR					
v (vph)	62	10	19					
C(m) (vph)	1295	934	604					
v/c	0.05	0.01	0.03					
95% queue length	0.15	0.03	0.10					
Control Delay	7.9	8.9	11.2					
LOS	A	A	B					
Approach Delay			11.2					
Approach LOS			B					

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: PM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Existing
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		78	720	18	11	284	35
Peak-Hour Factor, PHF		0.94	0.94	0.94	0.90	0.90	0.90
Hourly Flow Rate, HFR		82	765	19	12	315	38
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	2	0	0	2	0
Configuration		LT TR			LT TR		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		2	6	15			
Peak Hour Factor, PHF		0.72	0.72	0.72			
Hourly Flow Rate, HFR		2	8	20			
Percent Heavy Vehicles		2	2	2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0			
Configuration		LTR					

Delay, Queue Length, and Level of Service

Approach Movement	EB 1 LT	WB 4 LT	Northbound			Southbound		
			7	8 LTR	9	10	11	12
Lane Config								
v (vph)	82	12		30				
C(m) (vph)	1202	830		395				
v/c	0.07	0.01		0.08				
95% queue length	0.22	0.04		0.25				
Control Delay	8.2	9.4		14.9				
LOS	A	A		B				
Approach Delay				14.9				
Approach LOS				B				

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Existing
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	42	441		193	30		17	66	17			
Lane Width	12.0	12.0		12.0				12.0				
RTOR Vol					3			2				

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru				P	Thru			
Right				P	Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	35.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	667	1770	0.07	0.56	8.1	A		
T	1995	3547	0.24	0.56	9.1	A	9.0	A
Westbound								
TR	1523	3482	0.16	0.44	13.8	B	13.8	B
Northbound								
LTR	1068	3419	0.10	0.31	19.7	B	19.7	B
Southbound								

Intersection Delay = 11.6 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Existing
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	90	645		304	38		52	221	49			
Lane Width	12.0	12.0		12.0				12.0				
RTOR Vol					4				5			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	622	1770	0.16	0.61	8.0	A		
T	2168	3547	0.33	0.61	8.9	A	8.8	A
Westbound								
TR	1747	3493	0.22	0.50	12.9	B	12.9	B
Northbound								
LTR	952	3427	0.43	0.28	28.1	C	28.1	C
Southbound								

Intersection Delay = 14.7 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Saratoga Rd/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Existing
 N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR							T	R			
Volume	62	1479	186					110	253			
Lane Width	12.0							12.0	12.0			
RTOR Vol	19								0			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		40.0				30.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3327	6654	0.56	0.50	14.6	B	14.6	B
Westbound								
Northbound								
T	699	1863	0.17	0.38	17.2	B	17.7	B
R	1051	2803	0.26	0.38	17.9	B		
Southbound								

Intersection Delay = 15.1 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Saratoga Rd/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Existing
 N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	66	1709	165				186 403					
Lane Width	12.0						12.0 12.0					
RTOR Vol	17						0					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru	P				Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			
								Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3338	6676	0.60	0.50	15.1	B	15.1	B
Westbound								
Northbound								
T	699	1863	0.34	0.38	19.2	B	20.3	C
R	1051	2803	0.49	0.38	20.8	C		
Southbound								

Intersection Delay = 16.5 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Existing
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR						T R					
Volume	148	1178	300				38 3					
Lane Width	12.0						12.0 12.0					
RTOR Vol	0						0					

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				25.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			
								Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3683	6548	0.50	0.56	11.2	B	11.2	B
Westbound								
Northbound								
T	582	1863	0.08	0.31	19.7	B	19.6	B
R	495	1583	0.01	0.31	19.0	B		
Southbound								

Intersection Delay = 11.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Existing
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR						T R					
Volume	140	1569	193				133 19					
Lane Width	12.0						12.0 12.0					
RTOR Vol	0						0					

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				25.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			
								Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3734	6638	0.53	0.56	11.5	B	11.5	B
Westbound								
Northbound								
T	582	1863	0.24	0.31	21.4	C	21.2	C
R	495	1583	0.04	0.31	19.3	B		
Southbound								

Intersection Delay = 12.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Existing
 N/S St: Kalaimoku Street

	SIGNALIZED INTERSECTION SUMMARY											
	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2275		177					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left								
Thru								
Right								
Peds								
WB Left								
Thru		P						
Right								
Peds								
NB Right								
SB Right								
Green	40.0							
Yellow	4.0				20.0			
All Red	1.0				4.0			
					1.0			

Cycle Length: 70.0 secs

Intersection Performance Summary							
Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group	Approach	
			v/c	g/C		Delay LOS	Delay LOS

Eastbound

Westbound

T 2899 5074 0.89 0.57 18.1 B 18.1 B

Northbound

L 982 3437 0.21 0.29 19.5 B 19.5 B

Southbound

Intersection Delay = 18.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Existing
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2057		323					
Lane Width					12.0		12.0					
RTOR Vol												

Duration	1.00	Area Type: All other areas							
Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left					NB Left	P			
Thru					Thru				
Right					Right				
Peds					Peds				
WB Left					SB Left				
Thru		P			Thru				
Right					Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green		40.0				20.0			
Yellow		4.0				4.0			
All Red		1.0				1.0			
Cycle Length: 70.0 secs									

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	2899	5074	0.76	0.57	13.4	B	13.4	B
Northbound								
L	982	3437	0.43	0.29	21.7	C	21.7	C
Southbound								

Intersection Delay = 14.7 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Ala Wai Blvd/Lewers St
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: AM Peak Period Year : Existing
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2004		137					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		40.0				20.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	2899	5074	0.79	0.57	13.9	B	13.9	B
Northbound								
L	982	3437	0.15	0.29	19.0	B	19.0	B
Southbound								

Intersection Delay = 14.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Existing
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					1725		308					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left					NB Left	P			
Thru					Thru				
Right					Right				
Peds					Peds				
WB Left					SB Left				
Thru		P			Thru				
Right					Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green		40.0				20.0			
Yellow		4.0				4.0			
All Red		1.0				1.0			

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay LOS	Delay LOS		
Eastbound								
Westbound								
T	2899	5074	0.63	0.57	11.1	B	11.1	B
Northbound								
L	982	3437	0.36	0.29	21.0	C	21.0	C
Southbound								

Intersection Delay = 12.7 (sec/veh) Intersection LOS = B

APPENDIX D

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2010 PEAK HOUR TRAFFIC
ANALYSIS WITHOUT PROJECT**

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 Without Project
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	55	707		275	73		30	115	61			
Lane Width	12.0			12.0			12.0					
RTOR Vol				7			6					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
EB Thru		P			EB Thru	P		
EB Right					EB Right	P		
EB Peds					EB Peds			
WB Left					SB Left			
WB Thru				P	SB Thru			
WB Right				P	SB Right			
WB Peds					SB Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	35.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1685	3534	0.58	0.56	12.8	B	12.8	B
Westbound								
TR	1507	3444	0.25	0.44	14.6	B	14.6	B
Northbound								
LTR	1055	3375	0.22	0.31	20.8	C	20.8	C
Southbound								

Intersection Delay = 14.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: Inter.: Kalaimoku St/Kuhio Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: PM Peak Period Year : Year 2010 Without Project
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	84	1042		342	70		35	244	90			
Lane Width	12.0			12.0			12.0					
RTOR Vol				7			9					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru				P	Thru			
Right				P	Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1762	3534	0.69	0.61	14.0	B	14.0	B
Westbound								
TR	1732	3464	0.28	0.50	13.5	B	13.5	B
Northbound								
LTR	948	3411	0.44	0.28	28.3	C	28.3	C
Southbound								

Intersection Delay = 16.7 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 Without Project
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig		T			T					L		R
Volume		749			277					84		57
Lane Width		12.0			12.0					12.0		12.0
RTOR Vol												6

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	P		
Thru		P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		50.0				20.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		
Cycle Length: 80.0 secs								

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group Delay LOS	Approach Delay LOS		
			v/c	g/C				
Eastbound								
T	2217	3547	0.42	0.63	8.2	A	8.2	A
Westbound								
T	2217	3547	0.14	0.63	6.3	A	6.3	A
Northbound								
Southbound								
L	443	1770	0.22	0.25	25.0	C	24.7	C
R	396	1583	0.15	0.25	24.2	C		
Intersection Delay = 9.7			(sec/veh)		Intersection LOS = A			

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 Without Project
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig	T			T						L		R
Volume	1087			359						91		39
Lane Width	12.0			12.0						12.0		12.0
RTOR Vol												4

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	P		
Thru		P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	60.0				20.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			
								Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
T	2365	3547	0.48	0.67	8.0	A	8.0	A
Westbound								
T	2365	3547	0.17	0.67	5.8	A	5.8	A
Northbound								
Southbound								
L	393	1770	0.30	0.22	31.1	C	30.4	C
R	352	1583	0.13	0.22	28.8	C		
Intersection Delay = 9.6			(sec/veh)		Intersection LOS = A			

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst:
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 Without Project
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		70	698	28	12	279	30
Peak-Hour Factor, PHF		0.81	0.81	0.81	0.84	0.84	0.84
Hourly Flow Rate, HFR		86	861	34	14	332	35
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	2	0	0	2	0
Configuration		LT TR			LT TR		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		0	1	14			
Peak Hour Factor, PHF		0.55	0.55	0.55			
Hourly Flow Rate, HFR		0	1	25			
Percent Heavy Vehicles		2	2	2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0			
Configuration		LTR					

Delay, Queue Length, and Level of Service

Approach Movement	EB 1 LT	WB 4 LT	Northbound			Southbound		
			7	8 LTR	9	10	11	12
v (vph)	86	14		26				
C(m) (vph)	1188	754		489				
v/c	0.07	0.02		0.05				
95% queue length	0.23	0.06		0.17				
Control Delay	8.3	9.9		12.8				
LOS	A	A		B				
Approach Delay				12.8				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: PM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 Without Project
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound			Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume	108	994	25	15	392	48
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90
Hourly Flow Rate, HFR	114	1057	26	16	435	53
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	2	0	0	2	0
Configuration	LT TR			LT TR		
Upstream Signal?	No			No		

Minor Street: Approach Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	3	8	21			
Peak Hour Factor, PHF	0.72	0.72	0.72			
Hourly Flow Rate, HFR	4	11	29			
Percent Heavy Vehicles	2	2	2			
Percent Grade (%)	0			0		
Flared Approach: Exists?/Storage			No	/		/
Lanes	0	1	0			
Configuration	LTR					

Delay, Queue Length, and Level of Service

Approach Movement Lane Config	EB	WB	Northbound			Southbound		
	1 LT	4 LT	7	8 LTR	9	10	11	12
v (vph)	114	16		44				
C(m) (vph)	1071	640		247				
v/c	0.11	0.03		0.18				
95% queue length	0.36	0.08		0.65				
Control Delay	8.8	10.8		22.7				
LOS	A	B		C				
Approach Delay				22.7				
Approach LOS				C				

HCS+: Signalized Intersections Release 5.2

Analyst:
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 Without Project
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	58	609			266	41	23	91	23			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						4			2			

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	35.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	612	1770	0.10	0.56	8.4	A		
T	1995	3547	0.33	0.56	9.8	A	9.7	A
Westbound								
TR	1523	3481	0.21	0.44	14.3	B	14.3	B
Northbound								
LTR	1068	3416	0.14	0.31	20.0+	C	20.0+	C
Southbound								

Intersection Delay = 12.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: Inter.: Lewers St/Kuhio Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: PM Peak Period Year : Year 2010 Without Project
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTP				
Volume	124	903			420	52	72	305	68			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						5			7			

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru				P	Thru			
Right				P	Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		
						Cycle Length: 90.0 secs		

Intersection Performance Summary								
Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c g/C		Lane Group Delay LOS		Approach Delay LOS	
Eastbound								
L	540	1770	0.25	0.61	9.0	A		
T	2168	3547	0.46	0.61	10.1	B	10.0+	B
Westbound								
TR	1747	3493	0.31	0.50	13.8	B	13.8	B
Northbound								
LTR	952	3427	0.60	0.28	30.9	C	30.9	C
Southbound								

Intersection Delay = 16.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: Inter.: Saratoga Rd/Kalakaua Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: AM Peak Period Year : Year 2010 Without Project
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	86	2041	257				152 349					
Lane Width	12.0						12.0 12.0					
RTOR Vol	26						0					

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left	P				NB Left			
Thru	P				Thru	P		
Right	P				Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3327	6654	0.78	0.50	18.3	B	18.3	B
Westbound								
Northbound								
T	699	1863	0.23	0.38	17.9	B	18.6	B
R	1051	2803	0.35	0.38	18.9	B		
Southbound								

Intersection Delay = 18.3 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: Inter.: Saratoga Rd/Kalakaua Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: PM Peak Period Year : Year 2010 Without Project
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	91	2358	228				257 556					
Lane Width	12.0						12.0 12.0					
RTOR Vol	23						0					

Duration 1.00 Area Type: All other areas

Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3338	6675	0.83	0.50	19.7	B	19.7	B
Westbound								
Northbound								
T	699	1863	0.47	0.38	21.3	C	23.5	C
R	1051	2803	0.68	0.38	24.5	C		
Southbound								

Intersection Delay = 20.7 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue
 Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 Without Project
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR						T R					
Volume	204	1626	414				52 4					
Lane Width	12.0						12.0 12.0					
RTOR Vol	0						0					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				25.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3588	6378	0.71	0.56	14.0	B	14.0	B
Westbound								
Northbound								
T	582	1863	0.11	0.31	20.0-	B	19.9	B
R	355	1135	0.01	0.31	19.1	B		
Southbound								

Intersection Delay = 14.1 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: Inter.: Lewers St/Kalakaua Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: PM Peak Period Year : Year 2010 Without Project
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR						T R					
Volume	193	2165	266				184 26					
Lane Width	12.0						12.0 12.0					
RTOR Vol	0						0					

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				25.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3620	6436	0.75	0.56	14.8	B	14.8	B
Westbound								
Northbound								
T	582	1863	0.33	0.31	22.6	C	22.3	C
R	333	1067	0.08	0.31	19.9	B		
Southbound								

Intersection Delay = 15.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 Without Project
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					3140		244					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left								
Thru								
Right								
Peds								
WB Left								
Thru		P						
Right								
Peds								
NB Right								
SB Right								
Green		50.0						
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay LOS	Delay LOS		
Eastbound								
Westbound								
T	3624	5074	0.96	0.71	20.2	C	20.2	C
Northbound								
L	491	3437	0.55	0.14	32.4	C	32.4	C
Southbound								

Intersection Delay = 21.1 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 Without Project
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2839		446					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3262	5074	0.94	0.64	18.8	B	18.8	B
Northbound								
L	737	3437	0.79	0.21	34.7	C	34.7	C
Southbound								

Intersection Delay = 21.3 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 Without Project
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2766		189					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left								
Thru								
Right								
Peds								
WB Left								
Thru		P						
Right								
Peds								
NB Right								
SB Right								
Green	45.0				15.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3262	5074	0.94	0.64	19.6	B	19.6	B
Northbound								
L	737	3437	0.28	0.21	24.0	C	24.0	C
Southbound								

Intersection Delay = 19.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 Without Project
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2381		425					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

T 3262 5074 0.77 0.64 10.6 B 10.6 B

Northbound

L 737 3437 0.67 0.21 30.2 C 30.2 C

Southbound

Intersection Delay = 13.9 (sec/veh) Intersection LOS = B

APPENDIX E

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2010 PEAK HOUR TRAFFIC
ANALYSIS WITH ALTERNATIVE A DEVELOPMENT**

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - A-Kuhio
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	55	724		278	81		30	116	64			
Lane Width	12.0			12.0			12.0					
RTOR Vol				8			6					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru				P	Thru			
Right				P	Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	35.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1680	3534	0.59	0.56	13.1	B	13.1	B
Westbound								
TR	1503	3436	0.26	0.44	14.7	B	14.7	B
Northbound								
LTR	1053	3370	0.22	0.31	20.8	C	20.8	C
Southbound								

Intersection Delay = 14.6 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - A-Kuhio
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	84	1088		362	116		34	233	113			
Lane Width	12.0			12.0			12.0					
RTOR Vol				12			11					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1721	3534	0.73	0.61	15.2	B	15.2	B
Westbound								
TR	1714	3428	0.33	0.50	14.0	B	14.0	B
Northbound								
LTR	940	3384	0.46	0.28	28.5	C	28.5	C
Southbound								

Intersection Delay = 17.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - A-Kuhio
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig	TR			LT			LR			L		R
Volume	750	19		8	277		11		5	84		57
Lane Width	12.0			12.0			12.0			12.0		
RTOR Vol			2						1			6

Duration 1.00 Area Type: All other areas

Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left					NB Left	P			
Thru	P				Thru				
Right	P				Right	P			
Peds					Peds				
WB Left	P				SB Left	P			
Thru	P				Thru				
Right					Right	P			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	50.0				20.0				
Yellow	4.0				4.0				
All Red	1.0				1.0				

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2211	3537	0.43	0.63	8.3	A	8.3	A
Westbound								
LT	2064	3302	0.16	0.63	6.4	A	6.4	A
Northbound								
LR	443	1770	0.04	0.25	22.9	C	22.9	C
Southbound								
L	443	1770	0.22	0.25	25.0	C		
R	396	1583	0.15	0.25	24.2	C	24.7	C
Intersection Delay = 9.8			(sec/veh)		Intersection LOS = A			

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - A-Kuhio
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig	TR			LT			LR			L		R
Volume	1083	73		17	360		65		20	91		39
Lane Width	12.0			12.0			12.0			12.0		12.0
RTOR Vol	7						2					4

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru	P				Thru			
Right	P				Right	P		
Peds					Peds			
WB Left	P				SB Left	P		
Thru	P				Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	60.0				20.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2347	3520	0.51	0.67	8.4	A	8.4	A
Westbound								
LT	2091	3136	0.20	0.67	6.0	A	6.0	A
Northbound								
LR	394	1775	0.23	0.22	30.1	C	30.1	C
Southbound								
L	393	1770	0.30	0.22	31.1	C		
R	352	1583	0.13	0.22	28.8	C	30.4	C
Intersection Delay = 10.8 (sec/veh)					Intersection LOS = B			

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 With Proj - A-Kuhio
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		70	704	28	12	287	30
Peak-Hour Factor, PHF		0.81	0.81	0.81	0.84	0.84	0.84
Hourly Flow Rate, HFR		86	869	34	14	341	35
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	2	0	0	2	0
Configuration		LT TR			LT TR		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		0	1	14			
Peak Hour Factor, PHF		0.55	0.55	0.55			
Hourly Flow Rate, HFR		0	1	25			
Percent Heavy Vehicles		2	2	2			
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage		No			/		
Lanes		0	1	0			
Configuration		LTR					

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
			7	8	9	10	11	12
Lane Config	LT	LT	LTR					
v (vph)	86	14	26					
C(m) (vph)	1179	749	484					
v/c	0.07	0.02	0.05					
95% queue length	0.24	0.06	0.17					
Control Delay	8.3	9.9	12.9					
LOS	A	A	B					
Approach Delay			12.9					
Approach LOS			B					

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: PM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 With Proj - B-Kuhio
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments							
Major Street: Approach Movement	Eastbound			Westbound			
	1 L	2 T	3 R	4 L	5 T	6 R	
Volume	108	1010	25	15	410	48	
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90	
Hourly Flow Rate, HFR	114	1074	26	16	455	53	
Percent Heavy Vehicles	2	--	--	2	--	--	
Median Type/Storage	Undivided			/			
RT Channelized?							
Lanes	0	2	0	0	2	0	
Configuration	LT		TR	LT		TR	
Upstream Signal?	No			No			

Minor Street: Approach Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	3	8	21			
Peak Hour Factor, PHF	0.72	0.72	0.72			
Hourly Flow Rate, HFR	4	11	29			
Percent Heavy Vehicles	2	2	2		0	
Percent Grade (%)		0				
Flared Approach: Exists?/Storage			No	/		/
Lanes	0	1	0			
Configuration	LTR					

Approach Movement Lane Config	Delay, Queue Length, and Level of Service								
	EB 1 LT	WB 4 LT	Northbound			Southbound			
			7	8	9	10	11	12	
				LTR					
v (vph)	114	16		44					
C(m) (vph)	1053	630		238					
v/c	0.11	0.03		0.18					
95% queue length	0.36	0.08		0.68					
Control Delay	8.8	10.9		23.5					
LOS	A	B		C					
Approach Delay				23.5					
Approach LOS				C					

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - A-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	58	615			274	41	23	91	23			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						4			2			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru			P		Thru			
Right			P		Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	35.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	607	1770	0.10	0.56	8.4	A		
T	1995	3547	0.33	0.56	9.9	A	9.7	A
Westbound								
TR	1524	3483	0.22	0.44	14.3	B	14.3	B
Northbound								
LTR	1068	3416	0.14	0.31	20.0+	C	20.0+	C
Southbound								

Intersection Delay = 12.3 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - A-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	124	919			438	52	72	305	68			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						5			7			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	530	1770	0.26	0.61	9.1	A		
T	2168	3547	0.47	0.61	10.2	B	10.1	B
Westbound								
TR	1748	3495	0.32	0.50	13.9	B	13.9	B
Northbound								
LTR	952	3427	0.60	0.28	30.9	C	30.9	C
Southbound								

Intersection Delay = 16.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Saratoga Rd/Kalakaua Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: AM Peak Period Year : Year 2010 With Proj - A-Kuhio
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	90	2041	257				152 349					
Lane Width	12.0						12.0 12.0					
RTOR Vol	26						0					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3327	6654	0.78	0.50	18.3	B	18.3	B
Westbound								
Northbound								
T	699	1863	0.23	0.38	17.9	B	18.6	B
R	1051	2803	0.35	0.38	18.9	B		
Southbound								

Intersection Delay = 18.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Saratoga Rd/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - A-Kuhio
 N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	109	2358	228				257 556					
Lane Width	12.0						12.0 12.0					
RTOR Vol	23						0					

Duration 1.00 Area Type: All other areas

Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left					NB Left				
Thru	P				Thru	P			
Right	P				Right	P			
Peds					Peds				
WB Left					SB Left				
Thru					Thru				
Right					Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	40.0				30.0				
Yellow	4.0				4.0				
All Red	1.0				1.0				

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay LOS	Delay LOS		
Eastbound								
LTR	3337	6674	0.83	0.50	19.8 B	19.8 B		
Westbound								
Northbound								
T	699	1863	0.47	0.38	21.3 C	23.5 C		
R	1051	2803	0.68	0.38	24.5 C			
Southbound								

Intersection Delay = 20.8 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Lewers St/Kalakaua Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: AM Peak Period Year : Year 2010 With Proj - A-Kuhio
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR						T R					
Volume	204	1626	414				52	4				
Lane Width	12.0						12.0	12.0				
RTOR Vol	0						0					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				25.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3588	6378	0.71	0.56	14.0	B	14.0	B
Westbound								
Northbound								
T	582	1863	0.11	0.31	20.0-	B	19.9	B
R	355	1135	0.01	0.31	19.1	B		
Southbound								

Intersection Delay = 14.1 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - A-Kuhiot
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR						T R					
Volume	193	2165	266				184 26					
Lane Width	12.0						12.0 12.0					
RTOR Vol	0						0					

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				25.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3620	6436	0.75	0.56	14.8	B	14.8	B
Westbound								
Northbound								
T	582	1863	0.33	0.31	22.6	C	22.3	C
R	333	1067	0.08	0.31	19.9	B		
Southbound								

Intersection Delay = 15.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Kalaimoku St/Ala Wai Blvd
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: AM Peak Period Year : Year 2010 With Proj - A-Kuhio
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					3140		253					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		50.0				10.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3624	5074	0.96	0.71	20.2	C	20.2	C
Northbound								
L	491	3437	0.57	0.14	32.9	C	32.9	C
Southbound								

Intersection Delay = 21.1 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - A-Kuhio
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2839		481					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
	Capacity		v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3262	5074	0.94	0.64	18.8	B	18.8	B
Northbound								
L	737	3437	0.72	0.21	31.9	C	31.9	C
Southbound								

Intersection Delay = 20.7 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - A-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2766		189					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group	Approach	
			v/c	g/C	Delay LOS	Delay LOS	
Eastbound							
Westbound							
T	3262	5074	0.94	0.64	19.6 B	19.6 B	
Northbound							
L	737	3437	0.28	0.21	24.0 C	24.0 C	
Southbound							

Intersection Delay = 19.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - A-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2381		425					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3262	5074	0.77	0.64	10.6	B	10.6	B
Northbound								
L	737	3437	0.67	0.21	30.2	C	30.2	C
Southbound								

Intersection Delay = 13.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj-A-Kalaimoku
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	55	707		283	73		31	125	66			
Lane Width	12.0			12.0			12.0					
RTOR Vol				7			6					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru			P		Thru			
Right			P		Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	10.0	35.0			25.0			
Yellow	0.0	4.0			4.0			
All Red	0.0	1.0			1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1679	3534	0.58	0.56	12.9	B	12.9	B
Westbound								
TR	1508	3446	0.26	0.44	14.7	B	14.7	B
Northbound								
LTR	1055	3375	0.24	0.31	20.9	C	20.9	C
Southbound								

Intersection Delay = 14.6 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj-A-Kalaimoku
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	84	1042		360	70		40	280	105			
Lane Width	12.0			12.0			12.0					
RTOR Vol				7			11					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right		P			Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1748	3534	0.69	0.61	14.1	B	14.1	B
Westbound								
TR	1734	3467	0.29	0.50	13.6	B	13.6	B
Northbound								
LTR	947	3410	0.51	0.28	29.3	C	29.3	C
Southbound								

Intersection Delay = 17.3 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-A-Kalaimoku
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig		T			T					L		R
Volume		754			285					84		57
Lane Width		12.0			12.0					12.0		12.0
RTOR Vol												6

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru	P				Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	P		
Thru	P				Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	50.0				20.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
T	2217	3547	0.42	0.63	8.3	A	8.3	A
Westbound								
T	2217	3547	0.15	0.63	6.3	A	6.3	A
Northbound								
Southbound								
L	443	1770	0.22	0.25	25.0	C	24.7	C
R	396	1583	0.15	0.25	24.2	C		
Intersection Delay = 9.6			(sec/veh)		Intersection LOS = A			

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-A-Kalaimoku
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig		T			T					L		R
Volume		1102			377					91		39
Lane Width		12.0			12.0					12.0		12.0
RTOR Vol												4

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	P		
Thru		P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		60.0				20.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
T	2365	3547	0.49	0.67	8.1	A	8.1	A
Westbound								
T	2365	3547	0.18	0.67	5.8	A	5.8	A
Northbound								
Southbound								
L	393	1770	0.30	0.22	31.1	C	30.4	C
R	352	1583	0.13	0.22	28.8	C		
Intersection Delay = 9.6			(sec/veh)		Intersection LOS = A			

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 With Proj-B-Kalaimoku
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		70	723	28	12	285	30
Peak-Hour Factor, PHF		0.81	0.81	0.81	0.84	0.84	0.84
Hourly Flow Rate, HFR		86	892	34	14	339	35
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	2	0	0	2	0
Configuration		LT		TR	LT		TR
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		0	1	14			
Peak Hour Factor, PHF		0.55	0.55	0.55			
Hourly Flow Rate, HFR		0	1	25			
Percent Heavy Vehicles		2	2	2			
Percent Grade (%)		0			0		
Flared Approach: Exists?/Storage		No			/		
Lanes		0	1	0			
Configuration		LTR					

Delay, Queue Length, and Level of Service

Approach Movement	EB 1 LT	WB 4 LT	Northbound			Southbound			
			7	8 LTR	9	10	11	12	
v (vph)	86	14	26						
C(m) (vph)	1181	734	476						
v/c	0.07	0.02	0.05						
95% queue length	0.24	0.06	0.17						
Control Delay	8.3	10.0-	13.0						
LOS	A	A	B						
Approach Delay				13.0					
Approach LOS				B					

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: PM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 With Proj-A-Kalaimoku
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		108	1009	25	15	410	48
Peak-Hour Factor, PHF		0.94	0.94	0.94	0.90	0.90	0.90
Hourly Flow Rate, HFR		114	1073	26	16	455	53
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	2	0	0	2	0
Configuration		LT TR			LT TR		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		3	8	21			
Peak Hour Factor, PHF		0.72	0.72	0.72			
Hourly Flow Rate, HFR		4	11	29			
Percent Heavy Vehicles		2	2	2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0			
Configuration		LTR					

Delay, Queue Length, and Level of Service

Approach Movement Lane Config	EB	WB	Northbound			Southbound		
	1 LT	4 LT	7	8 LTR	9	10	11	12
v (vph)	114	16		44				
C(m) (vph)	1053	631		238				
v/c	0.11	0.03		0.18				
95% queue length	0.36	0.08		0.68				
Control Delay	8.8	10.9		23.5				
LOS	A	B		C				
Approach Delay				23.5				
Approach LOS				C				

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-A-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	58	614			274	41	23	91	23			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						4			2			

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru	P	P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	35.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Apprx/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	607	1770	0.10	0.56	8.4	A		
T	1995	3547	0.33	0.56	9.9	A	9.7	A
Westbound								
TR	1524	3483	0.22	0.44	14.3	B	14.3	B
Northbound								
LTR	1068	3416	0.14	0.31	20.0+	C	20.0+	C
Southbound								

Intersection Delay = 12.3 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-A-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	124	918			438	52	72	305	68			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						5			7			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru			P		Thru			
Right			P		Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	533	1770	0.26	0.61	9.0	A		
T	2168	3547	0.47	0.61	10.2	B	10.1	B
Westbound								
TR	1748	3495	0.32	0.50	13.8	B	13.8	B
Northbound								
LTR	952	3427	0.60	0.28	30.9	C	30.9	C
Southbound								

Intersection Delay = 16.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Saratoga Rd/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-A-Kalaimoku
 N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	113	2041	257				152 349					
Lane Width	12.0						12.0 12.0					
RTOR Vol	26						0					

Duration 1.00 Area Type: All other areas

		Signal Operations							
Phase Combination		1	2	3	4	5	6	7	8
EB	Left		P			NB	Left		
	Thru		P				Thru	P	
	Right		P				Right	P	
	Peds						Peds		
WB	Left					SB	Left		
	Thru						Thru		
	Right						Right		
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		40.0				30.0			
Yellow		4.0				4.0			
All Red		1.0				1.0			
		Cycle Length: 80.0 secs							

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3326	6651	0.79	0.50	18.5	B	18.5	B
Westbound								
Northbound								
T	699	1863	0.23	0.38	17.9	B	18.6	B
R	1051	2803	0.35	0.38	18.9	B		
Southbound								

Intersection Delay = 18.5 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Saratoga Rd/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-A-Kalaimoku
 N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	159	2358	228				257 556					
Lane Width	12.0						12.0 12.0					
RTOR Vol	23						0					

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			
								Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3335	6669	0.85	0.50	20.4	C	20.4	C
Westbound								
Northbound								
T	699	1863	0.47	0.38	21.3	C	23.5	C
R	1051	2803	0.68	0.38	24.5	C		
Southbound								

Intersection Delay = 21.3 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj-A-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR						T R					
Volume	204	1626	414				52 4					
Lane Width	12.0						12.0 12.0					
RTOR Vol	0						0					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				25.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3588	6378	0.71	0.56	14.0	B	14.0	B
Westbound								
Northbound								
T	582	1863	0.11	0.31	20.0-	B	19.9	B
R	355	1135	0.01	0.31	19.1	B		
Southbound								

Intersection Delay = 14.1 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-A-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR											
Volume	193	2165	266					184	26			
Lane Width		12.0						12.0	12.0			
RTOR Vol			0						0			

Duration 1.00 Area Type: All other areas

Signal Operations										
Phase Combination	1	2	3	4	5	6	7	8		
EB Left		P			NB Left					
Thru		P			Thru	P				
Right		P			Right	P				
Peds		X			Peds	X				
WB Left					SB Left					
Thru					Thru					
Right					Right					
Peds		X			Peds	X				
NB Right					EB Right					
SB Right					WB Right					
Green		45.0				25.0				
Yellow		4.0				4.0				
All Red		1.0				1.0				
Cycle Length: 80.0 secs										

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3620	6436	0.75	0.56	14.8	B	14.8	B
Westbound								
Northbound								
T	582	1863	0.33	0.31	22.6	C	22.3	C
R	333	1067	0.08	0.31	19.9	B		
Southbound								

Intersection Delay = 15.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj-A-Kalaimoku
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					3140		255					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		50.0				10.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3624	5074	0.96	0.71	20.2	C	20.2	C
Northbound								
L	491	3437	0.58	0.14	33.0	C	33.0	C
Southbound								

Intersection Delay = 21.1 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj-A-Kalaimoku
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2839		482					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations								
	1	2	3	4	5	6	7	8	
EB Left					NB Left	P			
EB Thru					Thru				
EB Right					Right				
EB Peds					Peds				
WB Left					SB Left				
WB Thru		P			Thru				
WB Right					Right				
WB Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green		45.0				15.0			
Yellow		4.0				4.0			
All Red		1.0				1.0			
								Cycle Length: 70.0	secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3262	5074	0.94	0.64	18.8	B	18.8	B
Northbound								
L	737	3437	0.73	0.21	32.0	C	32.0	C
Southbound								

Intersection Delay = 20.8 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj-A-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2766		189					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left								
Thru								
Right								
Peds								
WB Left								
Thru		P						
Right								
Peds								
NB Right								
SB Right								
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

T 3262 5074 0.94 0.64 19.6 B 19.6 B

Northbound

L 737 3437 0.28 0.21 24.0 C 24.0 C

Southbound

Intersection Delay = 19.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-A-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2381		425					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru	P				Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				15.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3262	5074	0.77	0.64	10.6	B	10.6	B
Northbound								
L	737	3437	0.67	0.21	30.2	C	30.2	C
Southbound								

Intersection Delay = 13.9 (sec/veh) Intersection LOS = B

APPENDIX F

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2010 PEAK HOUR TRAFFIC
ANALYSIS WITH ALTERNATIVE B DEVELOPMENT**

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	55	719		281	123		30	116	64			
Lane Width	12.0			12.0			12.0					
RTOR Vol				12			6					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right			P		Right			
Peds			P		Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	10.0	35.0			25.0			
Yellow	0.0	4.0			4.0			
All Red	0.0	1.0			1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1653	3534	0.60	0.56	13.2	B	13.2	B
Westbound								
TR	1486	3396	0.30	0.44	15.1	B	15.1	B
Northbound								
LTR	1053	3370	0.22	0.31	20.8	C	20.8	C
Southbound								

Intersection Delay = 14.8 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	84	1115			361	114	34	233	113			
Lane Width		12.0			12.0			12.0				
RTOR Vol						11			11			

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru			P		Thru			
Right			P		Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1726	3534	0.75	0.61	15.6	B	15.6	B
Westbound								
TR	1715	3429	0.33	0.50	13.9	B	13.9	B
Northbound								
LTR	940	3384	0.46	0.28	28.5	C	28.5	C
Southbound								

Intersection Delay = 17.6 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig	TR			LT			LR			L		R
Volume	750	14		6	277		56		25	84		57
Lane Width	12.0			12.0			12.0			12.0		
RTOR Vol	2						1			6		

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru	P				Thru			
Right	P				Right	P		
Peds					Peds			
WB Left	P				SB Left	P		
Thru	P				Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	50.0				20.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2212	3539	0.43	0.63	8.3	A	8.3	A
Westbound								
LT	2079	3327	0.16	0.63	6.4	A	6.4	A
Northbound								
LR	440	1761	0.20	0.25	24.7	C	24.7	C
Southbound								
L	443	1770	0.22	0.25	25.0	C		
R	396	1583	0.15	0.25	24.2	C	24.7	C
Intersection Delay = 10.6 (sec/veh)					Intersection LOS = B			

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig	TR			LT			LR			L		R
Volume	1083	100		27	360		62		19	91		39
Lane Width	12.0			12.0			12.0			12.0		
RTOR Vol	7						2			4		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru		P			Thru			
Right		P			Right	P		
Peds					Peds			
WB Left		P			SB Left	P		
Thru		P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	60.0				20.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2340	3510	0.52	0.67	8.5	A	8.5	A
Westbound								
LT	1966	2949	0.22	0.67	6.1	A	6.1	A
Northbound								
LR	394	1775	0.22	0.22	30.0	C	30.0	C
Southbound								
L	393	1770	0.30	0.22	31.1	C	30.4	C
R	352	1583	0.13	0.22	28.8	C		
Intersection Delay = 10.8 (sec/veh)					Intersection LOS = B			

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 With Proj - B-Kuhio
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Eastbound			Westbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		70	724	28	12	285	30
Peak-Hour Factor, PHF		0.81	0.81	0.81	0.84	0.84	0.84
Hourly Flow Rate, HFR		86	893	34	14	339	35
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	2	0	0	2	0
Configuration		LT		TR	LT		TR
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Northbound			Southbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		0	1	14			
Peak Hour Factor, PHF		0.55	0.55	0.55			
Hourly Flow Rate, HFR		0	1	25			
Percent Heavy Vehicles		2	2	2			
Percent Grade (%)			0			0	
Flared Approach: Exists?/Storage				No	/		/
Lanes		0	1	0			
Configuration		LTR					

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
			7	8	9	10	11	12
Lane Config	LT	LT	LTR					
v (vph)	86	14	26					
C(m) (vph)	1181	733	475					
v/c	0.07	0.02	0.05					
95% queue length	0.24	0.06	0.17					
Control Delay	8.3	10.0+	13.0					
LOS	A	B	B					
Approach Delay			13.0					
Approach LOS			B					

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: PM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 With Proj - B-Kuhio
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound			Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume	108	1009	25	15	420	48
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90
Hourly Flow Rate, HFR	114	1073	26	16	466	53
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	2	0	0	2	0
Configuration	LT		TR	LT		TR
Upstream Signal?	No			No		

Minor Street: Approach Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	3	8	21			
Peak Hour Factor, PHF	0.72	0.72	0.72			
Hourly Flow Rate, HFR	4	11	29			
Percent Heavy Vehicles	2	2	2			
Percent Grade (%)	0			0		
Flared Approach: Exists?/Storage	No			/		
Lanes	0	1	0			
Configuration	LTR					

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Lane Config	LT	LT	LTR					
v (vph)	114	16	44					
C(m) (vph)	1043	631	236					
v/c	0.11	0.03	0.19					
95% queue length	0.37	0.08	0.68					
Control Delay	8.9	10.9	23.7					
LOS	A	B	C					
Approach Delay				23.7				
Approach LOS				C				

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	58	635			272	41	23	91	23			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						4			2			

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru				P	Thru			
Right				P	Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	35.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	609	1770	0.10	0.56	8.4	A		
T	1995	3547	0.34	0.56	10.0-	A	9.8	A
Westbound								
TR	1524	3483	0.22	0.44	14.3	B	14.3	B
Northbound								
LTR	1068	3416	0.14	0.31	20.0+	C	20.0+	C
Southbound								

Intersection Delay = 12.3 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	124	918		448	52		72	305	68			
Lane Width	12.0	12.0		12.0				12.0				
RTOR Vol					5				7			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right		P			Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	524	1770	0.26	0.61	9.1	A	10.1	B
T	2168	3547	0.47	0.61	10.2	B		
Westbound								
TR	1748	3496	0.33	0.50	13.9	B	13.9	B
Northbound								
LTR	952	3427	0.60	0.28	30.9	C	30.9	C
Southbound								

Intersection Delay = 16.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Saratoga Rd/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	90	2041	257				152 349					
Lane Width	12.0						12.0 12.0					
RTOR Vol	26						0					

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left	P				NB Left			
EB Thru	P				EB Thru	P		
EB Right	P				EB Right	P		
EB Peds					EB Peds			
WB Left					SB Left			
WB Thru					SB Thru			
WB Right					SB Right			
WB Peds					SB Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3327	6654	0.78	0.50	18.3	B	18.3	B
Westbound								
Northbound								
T	699	1863	0.23	0.38	17.9	B	18.6	B
R	1051	2803	0.35	0.38	18.9	B		
Southbound								

Intersection Delay = 18.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Saratoga Rd/Kalakaua Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: PM Peak Period Year : Year 2010 With Proj - B-Kuhio
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR											
Volume	109	2358	228							257	556	
Lane Width	12.0									12.0	12.0	
RTOR Vol	23									0		

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c g/C		Lane Group Delay LOS		Approach Delay LOS	
Eastbound								
LTR	3337	6674	0.83	0.50	19.8	B	19.8	B
Westbound								
Northbound								
T	699	1863	0.47	0.38	21.3	C	23.5	C
R	1051	2803	0.68	0.38	24.5	C		
Southbound								

Intersection Delay = 20.8 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: .KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR											
Volume	204	1626	414									
Lane Width	12.0											
RTOR Vol	0											

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P						
Thru		P						
Right		P						
Peds		X						
WB Left								
Thru								
Right								
Peds		X						
NB Right								
SB Right								
Green	45.0				25.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3588	6378	0.71	0.56	14.0	B	14.0	B
Westbound								
Northbound								
T	582	1863	0.11	0.31	20.0-	B	19.9	B
R	355	1135	0.01	0.31	19.1	B		
Southbound								

Intersection Delay = 14.1 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR						T R					
Volume	193	2165	266				184 26					
Lane Width	12.0						12.0 12.0					
RTOR Vol	0						0					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				25.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3620	6436	0.75	0.56	14.8	B	14.8	B
Westbound								
Northbound								
T	582	1863	0.33	0.31	22.6	C	22.3	C
R	333	1067	0.08	0.31	19.9	B		
Southbound								

Intersection Delay = 15.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					3140		295					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		49.0				11.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

T 3552 5074 0.98 0.70 28.0 C 28.0 C

Northbound

L 540 3437 0.61 0.16 32.6 C 32.6 C

Southbound

Intersection Delay = 28.4 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2839			479				
Lane Width					12.0			12.0				
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left								
Thru								
Right								
Peds								
WB Left								
Thru		P						
Right								
Peds								
NB Right								
SB Right								
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3262	5074	0.94	0.64	18.8	B	18.8	B
Northbound								
L	737	3437	0.72	0.21	31.8	C	31.8	C
Southbound								

Intersection Delay = 20.7 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2766		189					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3262	5074	0.94	0.64	19.6	B	19.6	B
Northbound								
L	737	3437	0.28	0.21	24.0	C	24.0	C
Southbound								

Intersection Delay = 19.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - B-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2381		425					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		
Cycle Length: 70.0 secs								

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

T 3262 5074 0.77 0.64 10.6 B 10.6 B

Northbound

L 737 3437 0.67 0.21 30.2 C 30.2 C

Southbound

Intersection Delay = 13.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Kalaimoku St/Kuhio Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: AM Peak Period Year : Year 2010 With Proj-B-Kalaimoku
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	55	707		281	73		34	167	86			
Lane Width	12.0			12.0			12.0					
RTOR Vol				7			9					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru	P	P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	10.0	35.0			25.0			
Yellow	0.0	4.0			4.0			
All Red	0.0	1.0			1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1681	3534	0.58	0.56	12.9	B	12.9	B
Westbound								
TR	1508	3446	0.26	0.44	14.7	B	14.7	B
Northbound								
LTR	1056	3378	0.30	0.31	21.6	C	21.6	C
Southbound								

Intersection Delay = 14.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-B-Kalaimoku
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	84	1042		370	70		39	278	104			
Lane Width	12.0			12.0			12.0					
RTOR Vol				7			9					

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left		P	
Thru		P			Thru		P	
Right					Right		P	
Peds					Peds			
WB Left					SB Left			
Thru			P		Thru			
Right			P		Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		
Cycle Length: 90.0 secs								

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1740	3534	0.70	0.61	14.2	B	14.2	B
Westbound								
TR	1735	3469	0.30	0.50	13.7	B	13.7	B
Northbound								
LTR	947	3408	0.50	0.28	29.2	C	29.2	C
Southbound								

Intersection Delay = 17.3 (sec/veh) Intersection LOS = B

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-B-Kalaimoku
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	84	1042		370	70		39	278	104			
Lane Width	12.0			12.0			12.0					
RTOR Vol				7			9					

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left		P	
Thru		P			Thru		P	
Right					Right		P	
Peds					Peds			
WB Left					SB Left			
Thru				P	Thru			
Right				P	Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		
Cycle Length: 90.0 secs								

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1740	3534	0.70	0.61	14.2	B	14.2	B
Westbound								
TR	1735	3469	0.30	0.50	13.7	B	13.7	B
Northbound								
LTR	947	3408	0.50	0.28	29.2	C	29.2	C
Southbound								

Intersection Delay = 17.3 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-B-Kalaimoku
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig	T			T						L		R
Volume	774			283						84		57
Lane Width	12.0			12.0						12.0		12.0
RTOR Vol												6

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru	P				Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	P		
Thru	P				Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	50.0				20.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group	Approach	
			v/c	g/C	Delay	LOS	Delay LOS
Eastbound							
T	2217	3547	0.44	0.63	8.4	A	8.4 A
Westbound							
T	2217	3547	0.15	0.63	6.3	A	6.3 A
Northbound							
Southbound							
L	443	1770	0.22	0.25	25.0	C	24.7 C
R	396	1583	0.15	0.25	24.2	C	
Intersection Delay = 9.7				(sec/veh)		Intersection LOS = A	

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-B-Kalaimoku
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig	T			T						L		R
Volume	1101			387						91		39
Lane Width	12.0			12.0						12.0		12.0
RTOR Vol												4

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru	P				Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	P		
Thru	P				Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	60.0				20.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			
								Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
T	2365	3547	0.48	0.67	8.1	A	8.1	A
Westbound								
T	2365	3547	0.18	0.67	5.9	A	5.9	A
Northbound								
Southbound								
L	393	1770	0.30	0.22	31.1	C	30.4	C
R	352	1583	0.13	0.22	28.8	C		
Intersection Delay = 9.6 (sec/veh)					Intersection LOS = A			

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 With Proj-C-Kalaimoku
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound			Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume	70	723	28	12	295	30
Peak-Hour Factor, PHF	0.81	0.81	0.81	0.84	0.84	0.84
Hourly Flow Rate, HFR	86	892	34	14	351	35
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	2	0	0	2	0
Configuration	LT		TR	LT		TR
Upstream Signal?	No			No		

Minor Street: Approach Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	0	1	14			
Peak Hour Factor, PHF	0.55	0.55	0.55			
Hourly Flow Rate, HFR	0	1	25			
Percent Heavy Vehicles	2	2	2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0	1	0			
Configuration		LTR				

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Lane Config	LT	LT		LTR				
v (vph)	86	14		26				
C(m) (vph)	1169	734		474				
v/c	0.07	0.02		0.05				
95% queue length	0.24	0.06		0.17				
Control Delay	8.3	10.0-		13.0				
LOS	A	A		B				
Approach Delay				13.0				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: PM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 With Proj-B-Kalaimoku
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound			Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume	108	1008	25	15	420	48
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90
Hourly Flow Rate, HFR	114	1072	26	16	466	53
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	2	0	0	2	0
Configuration	LT		TR	LT		TR
Upstream Signal?	No			No		

Minor Street: Approach Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	3	8	21			
Peak Hour Factor, PHF	0.72	0.72	0.72			
Hourly Flow Rate, HFR	4	11	29			
Percent Heavy Vehicles	2	2	2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0	1	0			
Configuration	LTR					

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Lane Config	LT	LT	LTR					
v (vph)	114	16	44					
C(m) (vph)	1043	631	236					
v/c	0.11	0.03	0.19					
95% queue length	0.37	0.08	0.68					
Control Delay	8.9	10.9	23.7					
LOS	A	B	C					
Approach Delay			23.7					
Approach LOS			C					

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj-B-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	58	634			272	41	23	91	23			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						4			2			

Duration 1.00 Area Type: All other areas

Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left		P			NB Left	P			
Thru		P			Thru	P			
Right					Right	P			
Peds					Peds				
WB Left					SB Left				
Thru					Thru				
Right					Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green		10.0	35.0			25.0			
Yellow		0.0	4.0			4.0			
All Red		0.0	1.0			1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	609	1770	0.10	0.56	8.4	A		
T	1995	3547	0.34	0.56	9.9	A	9.8	A
Westbound								
TR	1524	3483	0.22	0.44	14.3	B	14.3	B
Northbound								
LTR	1068	3416	0.14	0.31	20.0+	C	20.0+	C
Southbound								

Intersection Delay = 12.3 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-B-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	124	917			448	52	72	305	68			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						5			7			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru			P		Thru			
Right			P		Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	528	1770	0.26	0.61	9.1	A		
T	2168	3547	0.46	0.61	10.2	B	10.1	B
Westbound								
TR	1748	3496	0.32	0.50	13.9	B	13.9	B
Northbound								
LTR	952	3427	0.60	0.28	30.9	C	30.9	C
Southbound								

Intersection Delay = 16.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Saratoga Rd/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj-B-Kalaimoku
 N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	106	2041	257				152 349					
Lane Width	12.0						12.0 12.0					
RTOR Vol	26						0					

Duration 1.00 Area Type: All other areas

		Signal Operations							
Phase Combination		1	2	3	4	5	6	7	8
EB	Left		P			NB	Left		
	Thru		P				Thru	P	
	Right		P				Right	P	
	Peds						Peds		
WB	Left					SB	Left		
	Thru						Thru		
	Right						Right		
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		40.0					30.0		
Yellow		4.0					4.0		
All Red		1.0					1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3326	6652	0.79	0.50	18.4	B	18.4	B
Westbound								
Northbound								
T	699	1863	0.23	0.38	17.9	B	18.6	B
R	1051	2803	0.35	0.38	18.9	B		
Southbound								

Intersection Delay = 18.5 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Saratoga Rd/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-B-Kalaimoku
 N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	196	2358	228				257 556					
Lane Width	12.0						12.0 12.0					
RTOR Vol	23						0					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3333	6666	0.86	0.50	20.9	C	20.9	C
Westbound								
Northbound								
T	699	1863	0.47	0.38	21.3	C	23.5	C
R	1051	2803	0.68	0.38	24.5	C		
Southbound								

Intersection Delay = 21.6 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Lewers St/Kalakaua Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: AM Peak Period Year : Year 2010 WithProj-B-Kalaimoku
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR						T R					
Volume	204	1626	414				52	4				
Lane Width	12.0						12.0	12.0				
RTOR Vol	0						0					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				25.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3588	6378	0.71	0.56	14.0	B	14.0	B
Westbound								
Northbound								
T	582	1863	0.11	0.31	20.0-	B	19.9	B
R	355	1135	0.01	0.31	19.1	B		
Southbound								

Intersection Delay = 14.1 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-B-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR						T R					
Volume	193	2165	266				184 26					
Lane Width	12.0						12.0 12.0					
RTOR Vol	0						0					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				25.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group	Approach	
			v/c	g/C		Delay LOS	Delay LOS
Eastbound							
LTR	3620	6436	0.75	0.56	14.8 B	14.8	B
Westbound							
Northbound							
T	582	1863	0.33	0.31	22.6 C	22.3	C
R	333	1067	0.08	0.31	19.9 B		
Southbound							

Intersection Delay = 15.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-B-Kalaimoku
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					3140		296					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		49.0				11.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3552	5074	0.98	0.70	28.0	C	28.0	C
Northbound								
L	540	3437	0.61	0.16	32.7	C	32.7	C
Southbound								

Intersection Delay = 28.4 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-B-Kalaimoku
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2839		480					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

T 3262 5074 0.92 0.64 16.7 B 16.7 B

Northbound

L 737 3437 0.72 0.21 31.9 C 31.9 C

Southbound

Intersection Delay = 19.0 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Ala Wai Blvd/Lewers St
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: AM Peak Period Year : Year 2010 WithProj-B-Kalaimoku
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2766		189					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c g/C		Lane Group Delay LOS	Approach Delay LOS	
Eastbound							
Westbound							
T	3262	5074	0.94	0.64	19.6 B	19.6	B
Northbound							
L	737	3437	0.28	0.21	24.0 C	24.0	C
Southbound							

Intersection Delay = 19.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-B-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2381			425				
Lane Width					12.0			12.0				
RTOR Vol												

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

T 3262 5074 0.77 0.64 10.6 B 10.6 B

Northbound

L 737 3437 0.67 0.21 30.2 C 30.2 C

Southbound

Intersection Delay = 13.9 (sec/veh) Intersection LOS = B

APPENDIX G

**CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2010 PEAK HOUR TRAFFIC
ANALYSIS WITH ALTERNATIVE C DEVELOPMENT**

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	55	741		282	124		30	115	61			
Lane Width	12.0			12.0			12.0					
RTOR Vol				12			6					

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru				P	Thru			
Right				P	Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	35.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1654	3534	0.62	0.56	13.5	B	13.5	B
Westbound								
TR	1485	3395	0.30	0.44	15.1	B	15.1	B
Northbound								
LTR	1055	3375	0.22	0.31	20.8	C	20.8	C
Southbound								

Intersection Delay = 14.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	84	1122		363	127		34	233	113			
Lane Width	12.0			12.0			12.0					
RTOR Vol				13			11					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right			P		Right			
Peds			P		Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	10.0	45.0			25.0			
Yellow	0.0	4.0			4.0			
All Red	0.0	1.0			1.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1717	3534	0.75	0.61	15.8	B	15.8	B
Westbound								
TR	1710	3420	0.34	0.50	14.1	B	14.1	B
Northbound								
LTR	940	3384	0.46	0.28	28.5	C	28.5	C
Southbound								

Intersection Delay = 17.8 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj -C-Kuhio
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY												
	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig	TR			LT			LR			L		R
Volume	750		36	16	277		58	25		84		57
Lane Width	12.0				12.0			12.0		12.0		12.0
RTOR Vol	4							3			6	

Duration	1.00	Area Type: All other areas							
Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left					NB Left	P			
Thru		P			Thru				
Right		P			Right	P			
Peds					Peds				
WB Left		P			SB Left	P			
Thru		P			Thru				
Right					Right	P			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	50.0				20.0				
Yellow	4.0				4.0				
All Red	1.0				1.0				
Cycle Length: 80.0 secs									

Intersection Performance Summary								
Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2205	3528	0.44	0.63	8.4	A	8.4	A
Westbound								
LT	1983	3173	0.17	0.63	6.5	A	6.5	A
Northbound								
LR	442	1766	0.20	0.25	24.7	C	24.7	C
Southbound								
L	443	1770	0.22	0.25	25.0	C	24.7	C
R	396	1583	0.15	0.25	24.2	C		
Intersection Delay = 10.6 (sec/veh)					Intersection LOS = B			

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig	TR			LT			LR			L		R
Volume	1083	107		29	360		77		25	91		39
Lane Width	12.0			12.0			12.0			12.0		12.0
RTOR Vol	11						3					4

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru	P				Thru			
Right	P				Right	P		
Peds					Peds			
WB Left		P			SB Left	P		
Thru		P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	60.0				20.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
TR	2339	3509	0.53	0.67	8.5	A	8.5	A
Westbound								
LT	1933	2900	0.23	0.67	6.2	A	6.2	A
Northbound								
LR	394	1775	0.28	0.22	30.8	C	30.8	C
Southbound								
L	393	1770	0.30	0.22	31.1	C		
R	352	1583	0.13	0.22	28.8	C	30.4	C
Intersection Delay = 11.1 (sec/veh)					Intersection LOS = B			

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 With Proj - C-Kuhio
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments						
Major Street: Approach Movement	Eastbound			Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume	70	724	28	12	295	30
Peak-Hour Factor, PHF	0.81	0.81	0.81	0.84	0.84	0.84
Hourly Flow Rate, HFR	86	893	34	14	351	35
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided /					
RT Channelized?						
Lanes	0	2	0	0	2	0
Configuration	LT TR			LT TR		
Upstream Signal?	No					

Minor Street: Approach Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	0	1	14			
Peak Hour Factor, PHF	0.55	0.55	0.55			
Hourly Flow Rate, HFR	0	1	25			
Percent Heavy Vehicles	2	2	2		0	
Percent Grade (%)	0					
Flared Approach: Exists?/Storage	0 1 0			No /		
Lanes	LTR					
Configuration	LTR					

Delay, Queue Length, and Level of Service							
Approach Movement Lane Config	EB	WB	Northbound			Southbound	
	1 LT	4 LT	7	8 LTR	9	10	11 12
v (vph)	86	14		26			
C(m) (vph)	1169	733		474			
v/c	0.07	0.02		0.05			
95% queue length	0.24	0.06		0.17			
Control Delay	8.3	10.0+		13.0			
LOS	A	B		B			
Approach Delay				13.0			
Approach LOS				B			

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: PM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 With Proj - C-Kuhio
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound			Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume	108	1015	25	15	422	48
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90
Hourly Flow Rate, HFR	114	1079	26	16	468	53
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	2	0	0	2	0
Configuration	LT		TR	LT		TR
Upstream Signal?	No			No		

Minor Street: Approach Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	3	8	21			
Peak Hour Factor, PHF	0.72	0.72	0.72			
Hourly Flow Rate, HFR	4	11	29			
Percent Heavy Vehicles	2	2	2			
Percent Grade (%)	0			0		
Flared Approach: Exists?/Storage			No	/		/
Lanes	0	1	0			
Configuration	LTR					

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound			
	1	4	7	8	9	10	11	12	
Lane Config	LT	LT	LTR						
v (vph)	114	16	44						
C(m) (vph)	1041	628	234						
v/c	0.11	0.03	0.19						
95% queue length	0.37	0.08	0.69						
Control Delay	8.9	10.9	23.9						
LOS	A	B	C						
Approach Delay				23.9					
Approach LOS				C					

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	58	635		282	41		23	91	23			
Lane Width	12.0	12.0		12.0				12.0				
RTOR Vol					4				2			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru				P	Thru			
Right			P		Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	35.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	603	1770	0.10	0.56	8.4	A		
T	1995	3547	0.34	0.56	10.0-	A	9.8	A
Westbound								
TR	1525	3485	0.22	0.44	14.4	B	14.4	B
Northbound								
LTR	1068	3416	0.14	0.31	20.0+	C	20.0+	C
Southbound								

Intersection Delay = 12.3 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	124	924		450	52		72	305	68			
Lane Width	12.0	12.0		12.0				12.0				
RTOR Vol					5				7			

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right		P			Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	10.0	45.0			25.0			
Yellow	0.0	4.0			4.0			
All Red	0.0	1.0			1.0			

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	524	1770	0.26	0.61	9.1	A		
T	2168	3547	0.46	0.61	10.2	B	10.1	B
Westbound								
TR	1748	3496	0.33	0.50	13.9	B	13.9	B
Northbound								
LTR	952	3427	0.60	0.28	30.9	C	30.9	C
Southbound								

Intersection Delay = 16.3 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Saratoga Rd/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	90	2041	257				152 349					
Lane Width	12.0						12.0 12.0					
RTOR Vol	26						0					

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		40.0				30.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		
				Cycle Length: 80.0				secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c g/C		Lane Group Delay LOS		Approach Delay LOS	
Eastbound								
LTR	3327	6654	0.78	0.50	18.3	B	18.3	B
Westbound								
Northbound								
T	699	1863	0.23	0.38	17.9	B	18.6	B
R	1051	2803	0.35	0.38	18.9	B		
Southbound								

Intersection Delay = 18.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Saratoga Rd/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR							T	R			
Volume	109	2358	228					257	556			
Lane Width		12.0						12.0	12.0			
RTOR Vol			23						0			

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru	P				Thru	P		
Right	P				Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3337	6674	0.83	0.50	19.8	B	19.8	B
Westbound								
Northbound								
T	699	1863	0.47	0.38	21.3	C	23.5	C
R	1051	2803	0.68	0.38	24.5	C		
Southbound								

Intersection Delay = 20.8 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR							T	R			
Volume	204	1626	414					52	4			
Lane Width		12.0						12.0	12.0			
RTOR Vol			0						0			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				25.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3588	6378	0.71	0.56	14.0	B	14.0	B
Westbound								
Northbound								
T	582	1863	0.11	0.31	20.0-	B	19.9	B
R	355	1135	0.01	0.31	19.1	B		
Southbound								

Intersection Delay = 14.1 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR						T R					
Volume	193	2165	266				184 26					
Lane Width	12.0						12.0 12.0					
RTOR Vol	0						0					

Duration 1.00 Area Type: All other areas

		Signal Operations							
Phase Combination		1	2	3	4	5	6	7	8
EB	Left					NB	Left		
	Thru	P					Thru	P	
	Right	P					Right	P	
	Peds	X					Peds	X	
WB	Left					SB	Left		
	Thru						Thru		
	Right						Right		
	Peds	X					Peds	X	
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		45.0					25.0		
Yellow		4.0					4.0		
All Red		1.0					1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat. Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3620	6436	0.75	0.56	14.8	B	14.8	B
Westbound								
Northbound								
T	582	1863	0.33	0.31	22.6	C	22.3	C
R	333	1067	0.08	0.31	19.9	B		
Southbound								

Intersection Delay = 15.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					3140		296					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		50.0				10.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group Delay LOS	Approach Delay LOS	
			v/c	g/C			
Eastbound							
Westbound							
T	3624	5074	0.96	0.71	20.2 C	20.2	C
Northbound							
L	491	3437	0.64	0.14	34.6 C	34.6	C
Southbound							

Intersection Delay = 21.4 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2839		492					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru	P				Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				15.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c g/C		Lane Group Delay LOS		Approach Delay LOS	
Eastbound								
Westbound								
T	3262	5074	0.94	0.64	18.8	B	18.8	B
Northbound								
L	737	3437	0.74	0.21	32.6	C	32.6	C
Southbound								

Intersection Delay = 20.9 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2766		189					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		
Cycle Length: 70.0 secs								

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3262	5074	0.94	0.64	19.6	B	19.6	B
Northbound								
L	737	3437	0.28	0.21	24.0	C	24.0	C
Southbound								

Intersection Delay = 19.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 With Proj - C-Kuhio
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2381		425					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations									
Phase Combination	1	2	3	4	5	6	7	8	
EB Left					NB Left	P			
Thru					Thru				
Right					Right				
Peds					Peds				
WB Left					SB Left				
Thru		P			Thru				
Right					Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green		45.0				15.0			
Yellow		4.0				4.0			
All Red		1.0				1.0			
Cycle Length: 70.0 secs									

Intersection Performance Summary

Appr/ Lane Grp	Lane Group	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
	Capacity		v/c	g/C	Delay	LOS	Delay	LOS

Eastbound

Westbound

T 3262 5074 0.77 0.64 10.6 B 10.6 B

Northbound

L 737 3437 0.67 0.21 30.2 C 30.2 C

Southbound

Intersection Delay = 13.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-C-Kalaimoku
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	55	707		291	73		35	168	86			
Lane Width	12.0			12.0			12.0					
RTOR Vol				7			9					

Duration	1.00	Area Type:	All other areas					
Signal Operations								
Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru			P		Thru			
Right			P		Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	35.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		
Cycle Length: 80.0 secs								

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1674	3534	0.58	0.56	12.9	B	12.9	B
Westbound								
TR	1509	3448	0.27	0.44	14.8	B	14.8	B
Northbound								
LTR	1056	3379	0.30	0.31	21.6	C	21.6	C
Southbound								

Intersection Delay = 15.0 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Kalaimoku St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-C-Kalaimoku
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	2	0	0	0	0
LGConfig	LT			TR			LTR					
Volume	84	1042		372	70		41	291	110			
Lane Width	12.0			12.0			12.0					
RTOR Vol				7			11					

Duration 1.00 Area Type: All other areas

Signal Operations										
Phase Combination	1	2	3	4	5	6	7	8		
EB Left		P			NB Left	P				
Thru		P			Thru	P				
Right					Right	P				
Peds					Peds					
WB Left					SB Left					
Thru				P	Thru					
Right				P	Right					
Peds					Peds					
NB Right					EB Right					
SB Right					WB Right					
Green	10.0	45.0			25.0					
Yellow	0.0	4.0			4.0					
All Red	0.0	1.0			1.0					

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LT	1739	3534	0.70	0.61	14.2	B	14.2	B
Westbound								
TR	1735	3470	0.30	0.50	13.7	B	13.7	B
Northbound								
LTR	947	3408	0.53	0.28	29.6	C	29.6	C
Southbound								

Intersection Delay = 17.5 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Launiu St/Kuhio Avenue
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: AM Peak Period Year : Year 2010 With Proj-C-Kalaimoku
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig		T			T					L		R
Volume		774			293					84		57
Lane Width		12.0			12.0					12.0		12.0
RTOR Vol												6

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left								
Thru		P						
Right								
Peds								
WB Left								
Thru		P						
Right								
Peds								
NB Right								
SB Right								
Green		50.0				20.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
T	2217	3547	0.44	0.63	8.4	A	8.4	A
Westbound								
T	2217	3547	0.15	0.63	6.4	A	6.4	A
Northbound								
Southbound								
L	443	1770	0.22	0.25	25.0	C	24.7	C
R	396	1583	0.15	0.25	24.2	C		
Intersection Delay = 9.7			(sec/veh)		Intersection LOS = A			

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Launiu St/Kuhio Avenue
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-C-Kalaimoku
 N/S St: Launiu Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	2	0	0	2	0	0	0	0	1	0	1
LGConfig		T			T					L		R
Volume		1107			389					91		39
Lane Width		12.0			12.0					12.0		12.0
RTOR Vol												4

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left	P		
Thru		P			Thru			
Right					Right	P		
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		60.0				20.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
T	2365	3547	0.49	0.67	8.1	A	8.1	A
Westbound								
T	2365	3547	0.18	0.67	5.9	A	5.9	A
Northbound								
Southbound								
L	393	1770	0.30	0.22	31.1	C	30.4	C
R	352	1583	0.13	0.22	28.8	C		
Intersection Delay = 9.6			(sec/veh)		Intersection LOS = A			

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: AM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 With Proj-C-Kalaimoku
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW
 Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound			Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume	70	724	28	12	295	30
Peak-Hour Factor, PHF	0.81	0.81	0.81	0.84	0.84	0.84
Hourly Flow Rate, HFR	86	893	34	14	351	35
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	2	0	0	2	0
Configuration	LT		TR	LT		TR
Upstream Signal?	No			No		

Minor Street: Approach Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	0	1	14			
Peak Hour Factor, PHF	0.55	0.55	0.55			
Hourly Flow Rate, HFR	0	1	25			
Percent Heavy Vehicles	2	2	2			
Percent Grade (%)	0			0		
Flared Approach: Exists?/Storage	No			/		
Lanes	0	1	0			
Configuration	LTR					

Delay, Queue Length, and Level of Service

Approach Movement Lane Config	EB	WB	Northbound			Southbound		
	1 LT	4 LT	7 	8 LTR	9 	10 	11 	12
v (vph)	86	14		26				
C(m) (vph)	1169	733		474				
v/c	0.07	0.02		0.05				
95% queue length	0.24	0.06		0.17				
Control Delay	8.3	10.0+		13.0				
LOS	A	B		B				
Approach Delay				13.0				
Approach LOS				B				

HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: KT
 Agency/Co.: WOC
 Date Performed: 3/1/2006
 Analysis Time Period: PM Peak Period
 Intersection: Kaiolu St/Kuhio Ave
 Jurisdiction: Honolulu
 Units: U. S. Customary
 Analysis Year: Year 2010 WithProj-C-Kalaimoku
 Project ID: 2121 Kuhio Development
 East/West Street: Kuhio Avenue
 North/South Street: Kaiolu Street
 Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach Movement	Eastbound			Westbound		
	1 L	2 T	3 R	4 L	5 T	6 R
Volume	108	1014	25	15	422	48
Peak-Hour Factor, PHF	0.94	0.94	0.94	0.90	0.90	0.90
Hourly Flow Rate, HFR	114	1078	26	16	468	53
Percent Heavy Vehicles	2	--	--	2	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes	0	2	0	0	2	0
Configuration	LT		TR	LT		TR
Upstream Signal?	No			No		

Minor Street: Approach Movement	Northbound			Southbound		
	7 L	8 T	9 R	10 L	11 T	12 R
Volume	3	8	21			
Peak Hour Factor, PHF	0.72	0.72	0.72			
Hourly Flow Rate, HFR	4	11	29			
Percent Heavy Vehicles	2	2	2			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0	1	0			
Configuration	LTR					

Delay, Queue Length, and Level of Service

Approach Movement	EB	WB	Northbound			Southbound		
	1	4	7	8	9	10	11	12
Lane Config	LT	LT	LTR					
v (vph)	114	16	44					
C(m) (vph)	1041	628	234					
v/c	0.11	0.03	0.19					
95% queue length	0.37	0.08	0.69					
Control Delay	8.9	10.9	23.9					
LOS	A	B	C					
Approach Delay			23.9					
Approach LOS			C					

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-C-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	58	634			282	41	23	91	23			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						4			2			

Duration 1.00 Area Type: All other areas

		Signal Operations							
Phase Combination		1	2	3	4	5	6	7	8
EB	Left		P			NB	Left	P	
	Thru		P				Thru	P	
	Right						Right	P	
	Peds						Peds		
WB	Left					SB	Left		
	Thru		P				Thru		
	Right		P				Right		
	Peds						Peds		
NB	Right					EB	Right		
SB	Right					WB	Right		
Green		10.0	35.0				25.0		
Yellow		0.0	4.0				4.0		
All Red		0.0	1.0				1.0		

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	603	1770	0.10	0.56	8.4	A		
T	1995	3547	0.34	0.56	9.9	A	9.8	A
Westbound								
TR	1525	3485	0.22	0.44	14.4	B	14.4	B
Northbound								
LTR	1068	3416	0.14	0.31	20.0+	C	20.0+	C
Southbound								

Intersection Delay = 12.3 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kuhio Avenue

Inter.: Lewers St/Kuhio Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-C-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	0	0	2	0	0	0	0
LGConfig	L	T			TR			LTR				
Volume	124	923			450	52	72	305	68			
Lane Width	12.0	12.0			12.0			12.0				
RTOR Vol						5			7			

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left	P		
Thru		P			Thru	P		
Right					Right	P		
Peds					Peds			
WB Left					SB Left			
Thru			P		Thru			
Right			P		Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		10.0	45.0			25.0		
Yellow		0.0	4.0			4.0		
All Red		0.0	1.0			1.0		

Cycle Length: 90.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
L	524	1770	0.26	0.61	9.1	A		
T	2168	3547	0.47	0.61	10.3	B	10.1	B
Westbound								
TR	1748	3496	0.33	0.50	13.9	B	13.9	B
Northbound								
LTR	952	3427	0.60	0.28	30.9	C	30.9	C
Southbound								

Intersection Delay = 16.2 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Saratoga Rd/Kalakaua Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: AM Peak Period Year : Year 2010 With Proj-C-Kalaimoku
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	138	2041	257				152 349					
Lane Width	12.0						12.0 12.0					
RTOR Vol	26						0					

Duration 1.00 Area Type: All other areas
 Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay LOS		Delay LOS	
Eastbound								
LTR	3325	6649	0.80	0.50	18.7 B		18.7 B	
Westbound								
Northbound								
T	699	1863	0.23	0.38	17.9 B		18.6 B	
R	1051	2803	0.35	0.38	18.9 B			
Southbound								

Intersection Delay = 18.7 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Saratoga Rd/Kalakaua Ave
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: PM Peak Period Year : Year 2010 WithProj-C-Kalaimoku
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue N/S St: Saratoga Road

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	2	0	0	0
LGConfig	LTR						T R					
Volume	205	2358	228				257 556					
Lane Width	12.0						12.0 12.0					
RTOR Vol	23						0					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds					Peds			
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	40.0				30.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c g/C		Lane Group Delay LOS		Approach Delay LOS	
Eastbound								
LTR	3333	6665	0.87	0.50	21.0	C	21.0	C
Westbound								
Northbound								
T	699	1863	0.47	0.38	21.3	C	23.5	C
R	1051	2803	0.68	0.38	24.5	C		
Southbound								

Intersection Delay = 21.7 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-C-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR											
Volume	204	1626	414					52	4			
Lane Width	12.0							12.0	12.0			
RTOR Vol	0								0			

Duration 1.00 Area Type: All other areas

		Signal Operations							
Phase Combination		1	2	3	4	5	6	7	8
EB	Left								
	Thru	P							
	Right	P							
	Peds	X							
WB	Left								
	Thru								
	Right								
	Peds	X							
NB	Right								
SB	Right								
	Green	45.0				25.0			
	Yellow	4.0				4.0			
	All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3588	6378	0.71	0.56	14.0	B	14.0	B
Westbound								
Northbound								
T	582	1863	0.11	0.31	20.0-	B	19.9	B
R	355	1135	0.01	0.31	19.1	B		
Southbound								

Intersection Delay = 14.1 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Kalakaua Avenue

Inter.: Lewers St/Kalakaua Ave
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-C-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	4	0	0	0	0	0	1	1	0	0	0
LGConfig	LTR						T R					
Volume	193	2165	266				184 26					
Lane Width	12.0						12.0 12.0					
RTOR Vol	0						0					

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left		P			NB Left			
Thru		P			Thru	P		
Right		P			Right	P		
Peds		X			Peds	X		
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds		X			Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				25.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 80.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
LTR	3620	6436	0.75	0.56	14.8	B	14.8	B
Westbound								
Northbound								
T	582	1863	0.33	0.31	22.6	C	22.3	C
R	333	1067	0.08	0.31	19.9	B		
Southbound								

Intersection Delay = 15.4 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: AM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Kalaimoku St/Ala Wai Blvd
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-C-Kalaimoku
 N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					3140		297					
Lane Width					12.0		12.0					
RTOR Vol					.							

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations								
	1	2	3	4	5	6	7	8	
EB Left					NB Left	P			
Thru					Thru				
Right					Right				
Peds					Peds				
WB Left					SB Left				
Thru	P				Thru				
Right					Right				
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	49.0					11.0			
Yellow	4.0					4.0			
All Red	1.0					1.0			
								Cycle Length: 70.0	secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3552	5074	0.98	0.70	28.0	C	28.0	C
Northbound								
L	540	3437	0.61	0.16	32.7	C	32.7	C
Southbound								

Intersection Delay = 28.4 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Kalaimoku St/Ala Wai Blvd
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: PM Peak Period Year : Year 2010 WithProj-C-Kalaimoku
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard N/S St: Kalaimoku Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2839		493					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		
Cycle Length: 70.0 secs								

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay	LOS	Delay	LOS
Eastbound								
Westbound								
T	3262	5074	0.94	0.64	18.8	B	18.8	B
Northbound								
L	737	3437	0.74	0.21	32.7	C	32.7	C
Southbound								

Intersection Delay = 20.9 (sec/veh) Intersection LOS = C

HCS+: Signalized Intersections Release 5.2

Analyst: KT Inter.: Ala Wai Blvd/Lewers St
 Agency: WOC Area Type: All other areas
 Date: 3/1/2006 Jurisd: Honolulu
 Period: AM Peak Period Year : Year 2010 WithProj-C-Kalaimoku
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2766		189					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Phase Combination	Signal Operations							
	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	45.0				15.0			
Yellow	4.0				4.0			
All Red	1.0				1.0			

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios		Lane Group		Approach	
			v/c	g/C	Delay LOS	Delay LOS		
Eastbound								
Westbound								
T	3262	5074	0.94	0.64	19.6	B	19.6	B
Northbound								
L	737	3437	0.28	0.21	24.0	C	24.0	C
Southbound								

Intersection Delay = 19.9 (sec/veh) Intersection LOS = B

HCS+: Signalized Intersections Release 5.2

Analyst: KT
 Agency: WOC
 Date: 3/1/2006
 Period: PM Peak Period
 Project ID: 2121 Kuhio Development
 E/W St: Ala Wai Boulevard

Inter.: Ala Wai Blvd/Lewers St
 Area Type: All other areas
 Jurisd: Honolulu
 Year : Year 2010 WithProj-C-Kalaimoku
 N/S St: Lewers Street

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	0	3	0	2	0	0	0	0	0
LGConfig					T		L					
Volume					2381		425					
Lane Width					12.0		12.0					
RTOR Vol												

Duration 1.00 Area Type: All other areas

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left	P		
Thru					Thru			
Right					Right			
Peds					Peds			
WB Left					SB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green		45.0				15.0		
Yellow		4.0				4.0		
All Red		1.0				1.0		

Cycle Length: 70.0 secs

Intersection Performance Summary

Appr/ Lane Grp	Lane Group Capacity	Adj Sat Flow Rate (s)	Ratios v/c g/C		Lane Group Delay LOS		Approach Delay LOS	
Eastbound								
Westbound								
T	3262	5074	0.77	0.64	10.6	B	10.6	B
Northbound								
L	737	3437	0.67	0.21	30.2	C	30.2	C
Southbound								

Intersection Delay = 13.9 (sec/veh) Intersection LOS = B

APPENDIX III

AGENCY COMMENTS

and

APPLICANT RESPONSES

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
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JEREMY HARRIS
MAYOR



ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

2004/ELOG-1887 (TH)

November 30, 2004

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

Preliminary Draft Environmental Assessment for
Condominium/Timeshare Development, 2121 Kuhio Avenue,
Waikiki, Oahu, Tax Map Key: 2-6-018: 010, 042 and 052

We have reviewed your preliminary Draft Environmental Assessment (DEA) for the above-mentioned project, and request more information on the project. More information is required to adequately assess the potential impacts of the proposed project. Please revise your DEA by addressing the comments below:

1. Section II – General Information – Provide a site plan showing the existing 2100 Kalakaua Avenue project and the proposed 2121 Kuhio Avenue project, including all property lines, driveways, pedestrian easements, building footprints, parking and loading areas.

Additionally, the correct project boundaries must be included as part of the project description. It should include all parcels of the 2100 Kalakaua Development as identified in the most recent conditional use permit for joint development and the special district permit.

The proposed new zoning district boundaries and more detailed project information (such as maximum density, required open space, parking and loading, setbacks, and park dedication) should be accurately described within this context.

2. Section III.A.1 – Existing Conditions – Provide site photos of the project site and surrounding areas. Displacement of existing trees should be discussed. Additionally, a detailed discussion on the displacement of required parking should be included. Please explain how the parking that is required on the site for 2100 Kalakaua would be met in the interim, and how the proposed new parking will be made available to 2100 Kalakaua.

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
Page 2
November 30, 2004

3. Section III.A.5.c. – Zoning – The DEA mentions that the applicant requests a zone change from Resort Commercial Precinct with a 300-foot height limit to Resort Mixed-Use Precinct with a 300-foot height limit. Please expand this section by explaining that the reason for this zone change is that condominiums and time share units are not permitted uses in the Resort Commercial Precinct in accordance with Table 21-9.6(A) of the Land Use Ordinance (LUO). Please include the justification for the zone change and an approximate processing timeframe for disclosure purposes.
4. Section III.B.2. – Physical Characteristics – Clarify whether the 183-unit condominium and 205-unit timeshare developments will have the same building heights. Discuss how much parking the existing 2100 Kalakaua Avenue complex would utilize and how shopping patrons would have access to the combined parking facilities. Discuss available parking at King Kalakaua Plaza. Describe and/or show how the existing porte cochere and drop-off area located along Kalaimoku Street would or would not be impacted by the proposed restaurant loading area.

The DEA should discuss the proximity of the proposed building to the 2100 Kalakaua buildings and the potential impacts and mitigating measures, including building setback, to be taken to mitigate any adverse impacts.

5. Section III.B.3 Construction Characteristics – Please disclose if construction of the project will require grading and trenching.
6. Section IV.D.4 Drainage – Please disclose if the project will connect to the city's drainage system to accommodate stormwater run off. A drain connection license will be needed if the project connects to the city drainage system.
7. Section IV.J. – Visual Impacts – Provide more discussion about alternative tower configurations that were investigated and their visual impacts to surrounding buildings. Discuss the rationale for turning the building orientation as proposed. Provide photo montages of visual impacts from surrounding streets – Kalakaua Avenue, Kuhio Avenue, Kalaimoku Street, and Launiu Street.
8. Section VII – Government Permits and Approvals – Please list “zone change” in the list of approvals. Also include special district permit and conditional use permit modification if required to these existing permits related to the joint development of 2100 Kalakaua. If grading and trenching is required, grading and trenching permits need to be listed.

We understand this project has been presented to the Waikiki Neighborhood Board No. 9. Please disclose the presentation, summarize substantive issues and explain whether a position was taken. Also, include a copy of the meeting minutes in the DEA.

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
Page 3
November 30, 2004

The DEA should discuss how the proposed project would relate to the objectives of the Waikiki Livable Communities project (December 2003). In particular, the project should discuss how it contributes to a "Pedestrian First" orientation, as well as the goal of transforming Kuhio Avenue into a "main street." In addition, a strong retail edge along Kuhio Avenue should be considered. Lastly, the visual, and pedestrian connection between 2121 Kuhio Avenue and 2100 Kalakaua should be discussed.

Additionally, the DEA should discuss the potential impact of additional residential units or transient vacation units on the long-term need for traditional visitor units in the Waikiki area.

9. Appendix II – Traffic Impact Report - The project's main entrance on Kuhio Avenue was originally aligned with Launiu Street. However, the main entrance is now aligned just east of Launiu Street. Please explain why the main entrance was realigned to its current location. We agree with recommendation #8 in the project's Traffic Impact Report to realign the main entrance with Launiu Street. Furthermore, the "Service Drive Utility Easement" should connect internally to the main entrance to minimize the number of driveways on Kuhio Avenue.

We will recommend that the pedestrian sidewalks fronting the project on Kuhio Avenue and Kalaimoku Street be designed and constructed so they "meander" in a similar fashion to be consistent with the pedestrian sidewalks fronting the existing 2100 Kalakaua project.

The project's loading area off Kalaimoku Street should be designed so that service vehicles have adequate room to maneuver so they may enter and exit front first.

We will recommend that the applicant coordinate traffic mitigation measures such as adjustments to traffic signal timing with the Departments of Planning and Permitting (DPP) and Transportation Services so that if necessary, may be implemented prior to the issuance of the building permit and can be constructed and be in place prior to issuance of the certificate of occupancy.

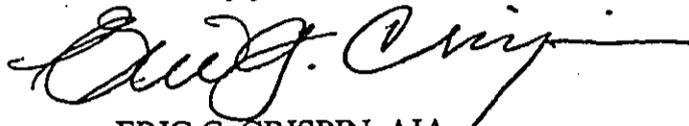
Construction plans for all work within or affecting city streets must be submitted for our review and comment. Traffic control plans for work during construction must be submitted to the DPP's Traffic Review Branch for review and approval.

10. Per previous conversations with the Department of Planning and Permitting, we will recommend that the project provide additional retail space at the ground level along Kuhio Avenue, and that any fence be located inboard of the retail space. The project should help energize Kuhio Avenue, providing points of interest for pedestrians along Kuhio Avenue, beyond just a single restaurant. The retail space should help break down the scale of the tower, providing a better transition to the street, and should incorporate wide overhangs, eaves, or trellises as part of the tropical street experience.

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
Page 4
November 30, 2004

We look forward to obtaining the revised draft environmental assessment. Should you have any questions, please contact Tim Hata of our staff at 527-6070.

Sincerely yours,



ERIC G. CRISPIN, AIA
Director of Planning and Permitting

EGC:js

p:/Div Function/ea-cis/2004/2100 Kuhio.doc

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.m.com

March 31, 2006

Henry Eng, FAICP, Director
Department of Planning and Permitting
City and County of Honolulu
650 So. King Street, 7th Floor
Honolulu, Hawaii 96813

Attention: Mr. Tim Hata, Staff Planner

**Subject: Preliminary Draft Environmental Assessment Comments on
2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

Dear Mr. Eng:

Thank you for preliminary comments, dated November 30, 2004, on the Preliminary Draft Environmental Assessment for 2121 Kuhio Avenue. The following information was included in the Draft Environmental Assessment (EA) and further clarification and review has been provided in the Final Environmental Assessment to address your concerns:

1. The site plan in the Draft EA shows the existing 2100 Kalakaua Avenue project and the proposed 2121 Kuhio Avenue project, including all property lines, vehicular easements, building footprints, parking and loading areas.

The Final EA will include a map showing pedestrian easements on the property as well.

The correct property boundaries have been included as part of the project description. As mentioned in the Draft EA:

"The three parcels are subject to a joint development agreement (2000-CUP-98) with a fourth parcel that has been approved by the Department of Planning and Permitting. The fourth parcel (Tax Map Key 2-6-18: 43) is under separate ownership and not ready to move forward with development. Therefore, it is not planned, at this time, to be a part of this retail commercial, restaurant and condominium or timeshare development."

The proposed new zoning district boundaries and more detailed information,

such as maximum density, required open space, parking and loading, setbacks, and park dedication have been included in the Draft EA.

2. Site photos of the project site and surrounding areas have been included in the Draft EA. The displacement of trees has been discussed in the Draft EA. The applicant has provided details on how parking that is required for 2100 Kalakaua would be met in the interim and how the proposed parking will be made available to 2100 Kalakaua in the Draft EA.
3. The reason for the zone change and the justification for the zone change have been included in the Draft EA. The zone change will take about one year to process, including review and recommendation from the Department of Planning and Permitting and the Planning Commission and decision by the City Council and Mayor.
4. The Draft EA has clarified that all of the development scenarios will include a tower with a 300 foot height. The Draft EA describes the 92 parking stalls to be provided for 2100 Kalakaua, interim parking for 92 parking stalls at King Kalakaua Plaza and the access to the parking area for shopping patrons of 2100 Kalakaua.

There are two site plans being considered. Under the preferred plan the existing porte cochere will be removed or relocated and a new port cochere for the project would be developed on the project site with it's own parking and loading. These will be described in the Final EA.

The Draft EA provides the following discussion on the proximity of the proposed building to the 2100 Kalakaua building:

"The proposed development will be situated immediately adjacent to the north side of 2100 Kalakaua and since this portion of the wall is the rear wall with no openings this location will not affect 2100 Kalakaua. The abutting wall of the proposed development will also be a rear wall and was not planned with openings and due to its proximity, the 2100 Kalakaua development will provide a base level of articulation for the taller proposed tower. In order to maintain a mauka-makai orientation for the longer axis of the proposed tower, and in order to meet yard and height setback requirements of the Waikiki Special District no setback between the existing 2100 Kalakaua and the new tower is planned."

The Final EA will include cross sections and a ground floor plan that will illustrate the relationship of the proposed structure to the existing 2100 Kalakaua buildings.

5. The Draft EA describes the excavation that will be required to develop the project, in particular to develop the underground parking garage.

6. The Draft EA discloses that the project will connect to the City's drainage system and will require a drain connection license.
7. The Draft EA discussed the alternative tower configurations considered, their visual impact to surrounding buildings, and the rationale for turning the building. In addition an axonometric plan that shows the visual impact of the project from surrounding area was provided in the Draft EA. Additional photographs illustrating potential visual impacts will be provided in the Final EA.
8. The Draft EA included zone change, special district permit and grading permit in the list of required permits. The Final EA will address the visual and pedestrian connection to 2100 Kalakaua and the potential impact of residential units or transient vacation units on the long term need for traditional visitor units in the Waikiki area. The Final EA will discuss the projects consistency with the Waikiki Livable Communities project.

The Draft EA includes the Waikiki Neighborhood minutes and a discussion on issues raised and the applicant's response to issues and concerns.

9. The Draft EA noted that the applicant would consider the relocation of the project's main entrance to align with Launiu Street and connecting the service drive with the main entrance. The preferred site plan shown in the Final EA shows the main access off of Kalaimoku Street. The alternate plan shows the main entry drive , off Kuhio Avenue, to be aligned with Launiu Street. This alternative layout is less desirable from an aesthetic perspective.

The Final EA will provide an alternative site plan that aligns the projects main entrance with Launiu Street.. The service drive has been modified at Kuhio Avenue to improve its operation by limiting turns to right turn movements. This improves pedestrian safety and provides an island that will restrict vehicles entering and exiting the property to ensure right turns in and out only. The elimination of left turns in and out is expected to improve vehicular and pedestrian safety.

The Draft EA notes the following:

"The pedestrian sidewalks fronting on Kuhio Avenue and Kalaimoku Street will be designed to meander similar to the sidewalk fronting 2100 Kalakaua."

"The project's loading area will be designed so that service vehicles have adequate room to maneuver so they may enter and exit front first."

The applicant understands that DPP may require implementation of traffic mitigation measures prior to issuance of occupancy and that all work within or affecting city streets must be submitted for DPP review and comment. The

applicant further understands that traffic control plans must be submitted to DPP for review and approval.

10. There currently are retail structures within the zoning lot located along Kalakaua and Kalaimoku. The proposal provides additional commercial space near the corner of Kuhio and Kalaimoku which will be an area for restaurant/retail spaces. It should be noted that both the preferred and the alternate plans provide some degree of open space at the ground level facing Kuhio. This will create a unique and enhanced visual and pedestrian experience. Many of the structures in Waikiki consist of a dense commercial platform at the base of a much taller tower. This proposal seeks to depart from this to some degree along the Kuhio frontage by carving out open space near the central part of the structure to add more open space.

Your letter and this response will be included in the Final EA.

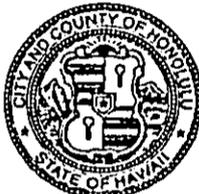
Very truly yours,

Ardis Shawler
Keith Kurahashi

cc: K3 Owners LLC

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR - HONOLULU, HAWAII 96813
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MUFI HANNEMANN
MAYOR

HENRY ENG. FAICI
DIRECTOR

DAVID K. TANQUE
DEPUTY DIRECTOR

2005/ED-24 (TH)

December 30, 2005

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

Re: Draft Environmental Assessment (DEA) for
Condominium/Timeshare Development, 2121 Kuhio Avenue,
Waikiki, Oahu, Tax Map Key: 2-6-018:010, 042, and 052

We have reviewed the subject DEA and offer the following comments.

1. **General Plan.** Page 16 of the DEA provides population statistics based on the Department of Planning and Permitting's (DPP) "Annual Report on the Status of Land Use on Oahu, Fiscal Year 2002." The DPP recently published its "Annual Report on the Status of Land Use on Oahu, Fiscal Year 2004." The Final EA (FEA) should be updated to reflect the population projections contained in the DPP's latest Annual Report.
2. **Primary Urban Center Development Plan (PUC DP).** Page 19 of the DEA should also discuss how the "Resort" land use policy (Page 3-29) supports the proposed project and is consistent with the land use map (A.6).

The DEA should discuss how the proposed project would be consistent with policies pertaining to neighborhood planning, specifically pertaining to promoting mixed land uses and making streets "pedestrian friendly" in Section 3.2.2.1 of the PUC DP.

Page 38 of the DEA only discusses vehicular access. The FEA should discuss how other modes of transportation such as public transportation, bicycle, and walking would serve the proposed project. Bicycle and pedestrian access is especially important toward achieving a more livable environment in Waikiki. The FEA should be revised by mentioning that Kalakaua Avenue is designated as being part of the regional pedestrian network as shown on Figure 3.14 and discussed in Section 3.5.1.4 of the PUC DP. The FEA should also discuss how the proposed project would be consistent with the policies and objectives in Sections 3.5.2 and 3.5.3 of the PUC DP, respectively.

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
December 30, 2005
Page 2

3. **Description of Proposed Action.** Section III.A.4. "Location" should be revised by stating that the project site is bounded by the existing 2100 Kalakaua development (south) instead of Kalakaua Avenue.

Section III.A.6. "Land Use Approvals" should be revised by reordering "Development Plan" as paragraph "c," "Zoning" as paragraph "d," and "Waikiki Livable Community Project" as paragraph "e," respectively.

Section III.B.3. "Construction Characteristics" should be expanded to disclose if construction of the project would require grading and trenching.

4. **Impacts.** Section IV.J. "Visual Impacts" should include more discussion regarding potential visual impacts from both the condominium and timeshare towers on the surrounding area such as:

- The 3-D visual analysis in Appendix I does not satisfactorily show how the proposed projects would look at street level from the surrounding area. Therefore, the 3-D visual analysis should be supplemented with additional views of the proposed high-rise towers superimposed on actual photographs taken from street level. The intent is to show how the proposed project would look in relation to existing buildings nearby. The photographs should show the project from various views taken from surrounding streets Waikiki Gateway (Kalakaua Avenue and Ala Moana Boulevard), Fort DeRussy, and Ala Wai Field, 2100 Kalakaua (Kuhio Avenue and Kalakaua Avenue).
- Compare the building heights and number of floors of surrounding buildings with the proposed high-rise towers.
- Show and discuss how the proposed building shadows will impact the surrounding areas.
- There should be more discussion on the amount of exterior glazing that is proposed by the project and the potential impacts it may have due to sun light reflectance. In addition, there should be an estimate on the overall amount of reflective material provided for each face of the building.

5. **Government Permits and Approval Required.** Section VII.C. "Waikiki Special District" should be expanded to show and discuss how the proposed development is connected to and related with the abutting 2100 Kalakaua Avenue project, i.e., function, parking, building design, pedestrian pathways, open space, and landscaping.

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
December 30, 2005
Page 3

If the proposed project will require grading and trenching, these permits need to be listed in Section VII of the FEA.

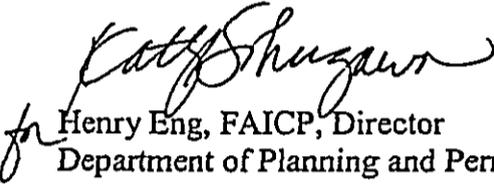
6. **Major Impacts and Alternatives Considered.** We recommend that the proposed project provide additional retail space at the ground level along Kuhio Avenue, and that any fence be located inboard of the retail space. The project should help energize Kuhio Avenue, providing points of interest for pedestrians along Kuhio Avenue, beyond just a single restaurant. The retail space should help break down the scale of the tower, providing a better transition to the street, and should incorporate wide overhangs, eaves, or trellises as part of the tropical street experience. As such, we recommend that Section V of the FEA be expanded to discuss this recommendation as a project alternative.
7. Please provide more discussion regarding the State DOE requirement for payment of Fair Share Education Contribution that the DOE requires as part of a zone change request.
8. **Appendix I-Plans.** Appendix I should be revised to provide site and building cross sections to show the proposed project's relationship with Kuhio Avenue, Kalaimoku Street, and Kalakaua Avenue.
9. **Appendix II- Traffic Impact Report.**
 - The Traffic Impact Report (TIR) should be updated to reflect current traffic operational characteristics along Kuhio Avenue. Construction work along this portion of Kuhio Avenue has been completed, thus traffic volumes should be adjusted accordingly.
 - Prior to approvals of subsequent permits for this development, the final intended use of the site should be specified and the traffic generation rates contained in the TIR should be revised accordingly.
 - The driveway along Kuhio Avenue should be aligned with Launiu Street. The common access driveway on the east side of the project site, which provides a connection to the loading area for the 2100 Kalakaua Avenue commercial center should be connected on-site to 2121 Kuhio's main driveway to create one driveway that will serve as the main entrance for the 2121 Kuhio Avenue project and the delivery and loading needs for the 2100 Kalakaua Avenue commercial center.

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
December 30, 2005
Page 4

- Prior to construction, the applicant will have to submit all necessary plans including, but not limited to traffic control, construction management, and construction plans for all work within or affecting public streets.

Should you have any questions, please contact Tim Hata of our staff at 527-6070.

Very truly yours,


Henry Eng, FAICP, Director
Department of Planning and Permitting

HE:js

p:/DivFunction/ea-cis/2005/2121 Kuhio Avenue/2005ed24-cmt

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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FAX. (808) 988-1140

E-Mail: kkurahashi@hawaii.nc.com

March 31, 2006

Henry Eng, FAICP, Director
Department of Planning and Permitting
City and County of Honolulu
650 So. King Street, 7th Floor
Honolulu, Hawaii 96813

Attention: Mr. Tim Hata, Staff Planner

**Subject: Draft Environmental Assessment Comments on
2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

Dear Mr. Eng:

Thank you for comments, dated December 30, 2005, on the Draft Environmental Assessment for 2121 Kuhio Avenue. The following information has been included in the Final Environmental Assessment (EA) to address your concerns:

1. General Plan

The Final EA will include population statistics based on the Department of Planning and Permitting's (DPP) "Annual Report on the Status of Land Use on Oahu, Fiscal Year 2004".

2. Primary Urban Center Development Plan (PUCDP)

The Final EA will discuss how the project is compatible with the "Resort" land use policy and Development Plan Land Use Map.

A new section has been added under III.A.6 to address consistency with the PUCDP.

3. Section III.A.4. has been revised to clarify that the development site is bounded by the existing 2100 Kalakaua development on the south and the zone change site includes the 2100 Kalakaua property that is bounded by Kalakaua Avenue.

The subsection in Section III.A.6 has been revised to follow in the correct sequence.

Section III.B.3, "Construction Characteristics", states that "In order to create the two levels of the underground parking garage, 43,000 cubic yards will be excavated." This will be reiterated in the Final EA with an explanation that additional excavation maybe needed if a third level of parking is added.

4. The Final EA will provide additional information requested regarding visual impacts. The Final EA will contain photo montages, renderings and 3-D computer model and massing model photographs demonstrate that the placement and configuration of the tower are aimed at minimizing visual impacts. By designing the tower in the city-preferred Mauka/Makai axis and aligning the building with the public roadway, Launiu Street, impacts to views from mauka buildings are minimized. Because the tower is generally located centrally on the property the tower mass will appear diminished and it will fit well within the context of the site.

The Final EA will include visual analysis that will depict the surrounding building heights relative to the proposed tower. Mauka of Kuhio the 23 story La Casa, 15 story Tropic Surf, 7 story Waikiki Cove and 25 story Four Paddles. Immediately Makai are the existing 3-story commercial shops at 2100 Kalakaua. The approximate heights for the surrounding buildings will be marked on the site plan.

The Final EA will include a shadow study that will illustrate no significant shadows will be cast on neighboring buildings for extended periods of time. The shadow study covers the full annual spectrum by including six "snapshots" from 9:00 AM, Noon and 3:00 PM on both the Summer and Winter Solstices, the time of the year when the shadows would be the greatest.

The tower's concept design is preliminary for the purposes of the EA and zoning change request. It is the applicant's intent to comply with the Waikiki Special District requirements for glazing reflectivity and the amount of reflective material that will be used.

5. Section VII.C. "Waikiki Special District", has been expanded to better illustrate the connection of the proposed project with the abutting Kalakaua Avenue project. Generally speaking the pedestrian easement and the existing retail porte cochere straddle the property line along the Kalaimoku Street side of the property.

Restaurant and retail parking may use a valet service or self park in the basement garage and then proceed to a public elevator lift to restaurant/retail building public lobby at street level. From here pedestrians can meander along sidewalks designed to follow the same concept as existing sidewalk.

A grading permit will be listed in Section VII as one of the required permits.

6. We have explored various schemes to bring additional retail space at the ground level along Kuhio Avenue to accomplish this objective. The preferred site plan results in a shift of the "restaurant" (now "restaurant/retail") closer to Kuhio Avenue. In the alternate scheme (the applicants second choice), the entry driveway is aligned with Launiu Street to address concerns raised related to transportation. To some degree the placement of the entry in the middle of our Kuhio Street frontage conflicts with developing a unified commercial area along this street frontage. The commercial spaces in the alternate plan remain relatively unchanged. The design of the building provides a significant amount of visual open space at grade, and is anticipated to create a pedestrian friendly environment.

7. Public Schools

We have updated the information on public schools to include the current student population and school capacity data. According to the staff at the State Department of Education, the fair-share monetary contribution that would be required is approximately \$247,600. A contribution to the development, funding, and/or construction of school facilities will not be required if the project is developed as a hotel or timeshare. This information has been incorporated into the Final EA.

8. The Final EA will include a cross section showing the proposed project's relationship to streets.

9. The Final EA will include updated traffic counts. The Final EA will provide traffic generation rates for the proposed uses and a traffic analysis of the impact of those uses

The Draft EA noted that the applicant would consider the relocation of the project's main entrance to align with Launiu Street and connecting the service drive with the main entrance. The main entrance for the preferred site plan is located off of Kalaimoku Street.

The Final EA includes an alternative site plan that provides for the relocation of the projects main entrance to align with Launiu Street.. The service drive has been modified at Kuhio Avenue to improve its operation and safety. This improves pedestrian safety and provides a configuration that will restrict vehicles entering and exiting the property to ensure right turns in and out only. The elimination of left turns in and out will improve vehicular and pedestrian safety.

Prior to construction the applicant will submit all necessary plans for all work within or affecting the public streets to DPP for review and approval.

Your letter and this response will be included in the Final EA.

Very truly yours,

Keith Kurahashi
Keith Kurahashi

cc: K3 Owners LLC

BOARD OF WATER SUPPLY

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



November 17, 2005

MUFI HANNEMANN, Mayor

RANDALL Y. S. CHUNG, Chairman
HERBERT S. K. KAOPUA, SR.
SAMUEL T. HATA
ALLY J. PARK

RODNEY K. HARAGA, Ex-Officio
LAVERNE HIGA, Ex-Officio

DONNA FAY K. KIYOSAKI
Deputy Manager and Chief Engineer

Mr. Keith Kurahashi
Kusao & Kurahashi, Incorporated
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

Subject: Your Letter of October 14, 2005 on the Draft Environmental Assessment for the Proposed 2121 Kuhio Avenue Development, TMK: 2-6-18:10,42,52

Thank you for the opportunity to comment on the subject document.

The existing water system is presently adequate to accommodate the proposed development. However, please be advised that this information is based upon current data and, therefore, the Board of Water Supply reserves the right to change any position or information stated herein up until the final approval of your building permit. The final decision on the availability of water will be confirmed when the building permit is submitted for approval.

When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

The proposed project is subject to Board of Water Supply Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the Building Permit Applications.

If you have any questions, please contact Joseph Kaakua a 748-5442.

Very truly yours,

KEITH S. SHIDA
Principal Executive
Customer Care Division

cc: Mr. Tim Hata, Department of Planning & Permitting
Office of Environmental Quality Control

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANOA MARKET PLACE
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FAX. (808) 988-1140

E-Mail: kkurahashi@hawaii.m.com

March 31, 2006

Mr. Keith S. Shida, Principal Executive
Customer Care Division
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96843

Attention: Mr. Joseph Kaakua

**Subject: Draft Environmental Assessment Comments on
2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

Dear Mr. Shida:

Thank you for your November 17, 2005 comments on the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development. The following responds to your comments:

1. We understand that the availability of water for the project will ultimately be confirmed at the time of building permit processing.
2. The Water System Facilities Charges will be paid when water is made available.
3. The applicant will satisfy the Board of Water Supply Cross-Connection Control and Backflow Prevention requirements prior to the issuance of the building permits.

Your letter and this response will be included in the Final EA.

Very truly yours,


Keith Kurahashi

cc: K3 Owners LLC

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

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

MUFI HANNEMANN
MAYOR



BOISSE P. CORREA
CHIEF

GLEN R. KAJIYAMA
PAUL D. PUTZULU
DEPUTY CHIEFS

OUR REFERENCE BS-KP

November 16, 2005

Mr. Keith Kurahashi, President
Kusao and Kurahashi, Incorporated
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development in Waikiki.

This project should have no significant impact on the facilities or operations of the Honolulu Police Department.

If there are any questions, please call Major Thomas Nitta of District 6 at 529-3796 or Mr. Brandon Stone of the Executive Bureau at 529-3644.

Sincerely,

BOISSE P. CORREA
Chief of Police

By 
KARL GODSEY
Assistant Chief of Police
Support Services Bureau

cc: Mr. Tim Hata
DPP
Ms. Genevieve Salmonson
OEQC

Serving and Protecting with Aloha

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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E-Mail: kkurahashi@hawaii.m.com

March 31, 2006

Mr. Boisse P. Correa, Chief of Police
Honolulu Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawaii 96813

Attention: Major Thomas Nitta (District 6) and Mr. Brandon Stone
(Executive Bureau)

Dear Chief Correa:

**Subject: Draft Environmental Assessment Comments
on 2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

Thank you for your November 16, 2005 comments on the Draft Environmental
Assessment for the proposed 2121 Kuhio Avenue development.

Your comment letter will be included in the Final Environmental Assessment.

Very truly yours,

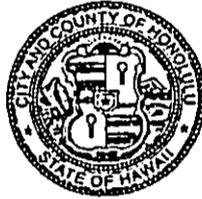
Keith Kurahashi
Keith Kurahashi

cc: K3 Owners LLC

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

KAPOLEI HALE • 1000 ULUOHIA STREET, SUITE 309 • KAPOLEI, HAWAII 96707
TELEPHONE: (808) 692-5561 • FAX: (808) 692-5131 • INTERNET: www.honolulu.gov

MUFI HANNEMANN
MAYOR



LESTER K.C. CHANG
DIRECTOR

DANA TAKAHARA-DIAS
DEPUTY DIRECTOR

October 26, 2005

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

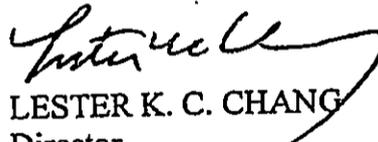
Subject: Draft Environmental Assessment for the Proposed 2121 Kuhio Avenue
Development in Waikiki - Tax Map Key 2-6-018: 10, 42 & 52

Thank you for the opportunity to review and comment on the Draft Environmental
Assessment relating to the proposed 2121 Kuhio Condominium/Time Share development.

The Department of Parks and Recreation is interested in discussing the developer's
specific plans for meeting the requirements of the Park Dedication Ordinance and have them to
call my office at 692-5585 to schedule a meeting to discuss the possible alternatives.

Should you have any questions, please contact Mr. John Reid, Planner, at 692-5454.

Sincerely,


LESTER K. C. CHANG
Director

LKCC:mk
(124720)

cc: Mr. Tim Hata, Department of Planning and Permitting
Office of Environmental Quality Control

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.m.com

March 31, 2006

Mr. Lester K.C. Chang, Director
Department of Parks and Recreation
City and County of Honolulu
1000 Uluohia Street, Suite 309
Kapolei, Hawaii 96707

Attention: Mr. John Reid

Dear Mr. Chang

**Subject: Draft Environmental Assessment Comments
on 2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

Thank you for your October 26, 2005 response to the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development. The following responds to your comments:

When it is determined that the project will consist of a condominium (multi-family) rather than a time share (resort) building, the applicant will consult with both the Department of Parks and Recreation and the Department of Planning and Permitting to discuss the alternatives for park dedication.

Your letter and this response will be included in the Final EA.

Very truly yours,


for Keith Kurahashi

cc: K3 Owners LLC

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813
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MUFI HANNEMANN
MAYOR



ALFRED A. TANAKA, P.E.
ACTING DIRECTOR

TP10/05-124351R

December 12, 2005

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

Subject: 2121 Kuhio Avenue Development in Waikiki

Thank you for your October 14, 2005 letter, requesting our review of and comments on the draft environmental assessment (EA) for the subject project. The following comments resulted from this review:

1. Traffic Impacts

- The EA should specify whether valet parking service for the proposed restaurant complex will be offered, utilizing the existing Kalaimoku Street porte cochere. If this service is planned, the proposed traffic circulation should be addressed. Effort should be made to minimize the possibility of traffic impact to Kalaimoku Street resulting from the valet operation.
- If left turns in/out of the project are prohibited, the EA should evaluate the impacts of aligning the proposed Kuhio Avenue driveway with a signalized Launiu Street.
- The traffic impacts of the proposed project on Kaiolu and Launiu Streets should be included in the EA.
- The impacts of removing the crosswalk on the south side of the Kalakaua Avenue/Lewers Street intersection should be disclosed.

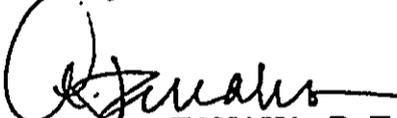
Mr. Keith Kurahashi
Page 2
December 12, 2005

2. Public Transit Service Impacts

- The project's long-term and short-term impacts to the public transit service and its facilities should be included in the EA.
 - TheHandi-Van drop offs/pickups will be limited to on-street, probably on Kalaimoku Street, and not utilizing the porte cocheres. Therefore, a possible waiting and drop-off area should be considered in the design.
3. Sidewalk and intersection improvements as described in the Waikiki Livable Community Project should be addressed.
 4. The spelling of "Ala Wai" should be corrected on Pages 38, 39, and 41 of the draft EA.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,


ALFRED A. TANAKA, P. E.
Acting Director

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

Mr. Tim Hata, Staff Planner
Department of Planning and Permitting

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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March 31, 2006

Mr. Alfred A Tanaka, P.E.
Department of Transportation Services
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Tanaka:

**Subject: Draft Environmental Assessment Comments
on 2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

Thank you for your November 17, 2005 response to the Draft Environmental Assessment (EA) for the proposed 2121 Kuhio Avenue development. The following responds to your comments:

1. Traffic Impacts

- As currently envisioned in the preferred plan, the valet service for the restaurant/retail is not anticipated to impact Kalaimoku Street. Cars would be dropped off near the restaurant and at the main entrance off of Kalaimoku Street and park in the proposed underground parking garage, accessed by the proposed ramp. If the alternative plan were to be developed cars delivering patrons to the restaurant/retail complex would be dropped off using the existing retail drop off area and park in the underground parking via an access off of Kuhio Avenue. These valet operations will be addressed in the traffic study included in the Final EA.
- The traffic study recommended that traffic movements at the project driveways be restricted to right-turn in and right-turn out. The project has been modified to restrict movement at the service drive to right turns. The Final EA includes an alternate plan that aligns the proposed Kuhio Avenue driveway with a signalized Launiu Street.
- The traffic impact of the proposed project on Kaiolu and Launiu Streets will be included in the Final EA.

- The applicant does not propose to remove the cross walk on the south side of the Kalakaua/Lewers Street. Provisions for this cross walk will be discussed in the traffic report that will be included in the Final EA.

2. Public Transit Service Impacts

- Under a previously conceived rapid transit plan, there was a bus stop planned across Kalaimoku Street from the project site. Although there are no plans to implement these improvements, it is likely that future transit plans will call for a transit stop in the same vicinity.
- The Traffic Impact Report for the project recommends restricting traffic movements at the project driveways to prohibit left turns into and out of the project. This is expected to minimize impact to the public transit service along Kuhio Avenue and Kalaimoku.

The designers of the project will consider a possible waiting and drop-off area for the Handivan with accessible access to that location. Some possible locations are along the service road on the east side of the property sidewalk and or intersection improvements along the Kalaimoku side of the property.

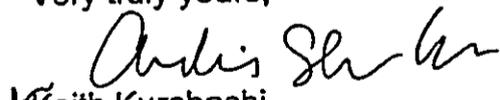
3. Waikiki Livable Community Project

- According to the Waikiki Livable Community Project Kuhio Avenue will be transformed into a pedestrian friendly "Main Street". The project calls for increased sidewalk widths and landscaping and replacing the existing concrete pavement with quartzite tiling. The existing sidewalks currently provide this. The applicant will work with the city to implement this vision for a livable Waikiki.

4. The spelling of Ala Wai will be corrected in the Final EA.

Your letter and this response will be included in the Final EA.

Very truly yours,


Keith Kurahashi

cc: K3 Owners LLC

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

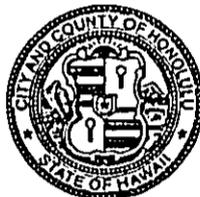
3375 KOAPAKA STREET, SUITE H425 • HONOLULU, HAWAII 96819-1869
TELEPHONE: (808) 831-7761 • FAX: (808) 831-7750 • INTERNET: www.honolulufire.org



ATTILIO K. LEONARD
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

MUFI HANNEMANN
MAYOR



November 16, 2005

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
Manoa Market Place
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

Subject: Draft Environmental Assessment
Proposed 2121 Kuhio Avenue Development
Tax Map Key: 2-6-018: 010, 042, and 052

We received your letter dated October 14, 2005, requesting our review and comments on the above-mentioned project.

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

1. Provide a fire apparatus access road for every facility, building, or portion of a building hereafter constructed or moved into or within the jurisdiction when any portion of the facility or any portion of an exterior wall of the first story of the building is located more than 150 feet (45 720 mm) from fire apparatus access as measured by an approved route around the exterior of the building or facility. (1997 Uniform Fire Code, Section 902.2.1)
2. Provide a water supply, approved by the county, capable of supplying the required fire flow for fire protection to all premises upon which facilities or buildings, or portions thereof, are hereafter constructed or moved into or within the county.

On-site fire hydrants and mains capable of supplying the required fire flow shall be provided when any portion of the facility or building is in excess of the 150 feet (45 720 mm) from a water supply on a fire apparatus access road, as measured by an approved route around the exterior of the facility or building. (1997 Uniform Fire Code, Section 903.2 as amended)

Mr. Keith Kurahashi
Page 2
November 16, 2005

3. Submit civil and construction drawings to the HFD for review and approval.

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



ATTILIO K. LEONARDI
Fire Chief

AKL/SK:jl

cc: Ms. Genevieve Salmonson, Director
State of Hawaii, Department of Health, Office of Environmental Quality Control
Mr. Timothy Hata, Staff Planner
City and County of Honolulu, Department of Planning and Permitting

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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E-Mail: kkurahashi@hawaii.m.com

March 31, 2006

Mr. Attilio K. Leonardi, Fire Chief
Fire Department
City and County of Honolulu
3375 Koapaka Street, Suite H425
Honolulu, Hawaii 96819

Attention: Battalion Chief Loyd Rogers

Dear Chief Attilio L Leonardi:

**Subject: Draft Environmental Assessment Comments on 2121 Kuhio Avenue
Development, Waikiki, Oahu, Tax Map Key: 2-6-18: 10, 42 and 52**

Thank you for your November 16, 2005 response to the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development. The following responds to your comments:

- 1) A fire apparatus access road, if needed, will be provided in accordance with City standards
- 2) A water supply system, approved by the county, capable of supplying the required fire flow for fire protection will be provided in accordance with City standards.
- 3) Civil and Construction drawings will be submitted to the Fire Department when the plans have been prepared.

Your letter and this response will be included in the Final EA for the project.

Very truly yours,


for Keith Kurahashi

cc: K3 Owners LLC

DEPARTMENT OF DESIGN AND CONSTRUCTION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
PHONE: (808) 523-4564, FAX: (808) 523-4567
WEB SITE ADDRESS: www.co.honolulu.hi.us

MUFI HANNEMANN
MAYOR



WAYNE M. HASHIRO, P.E.
DIRECTOR

EUGENE C. LEE, P.E.
DEPUTY DIRECTOR

CDP 05-128952

November 18, 2005

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
2572 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

Subject: Draft Environmental Assessment (EA) – Proposed 2121 Kuhio Avenue
Development, TMK: 2-6-18: 10, 42 and 52

We have reviewed the draft EA and have the following comments:

1. We note the reference on page 47 to the City's park dedication requirements. These may be met by paying a fee in lieu of providing public or private parks and recreational amenities.

If the property owner(s) plan to provide park land and amenities that they wish to receive credit for in compliance with Park Dedication Rules and Regulations, they are advised to meet with the City officials in the Department of Planning and Permitting at an early stage in the planning and design process to obtain their agreement or negotiate acceptable alternatives.

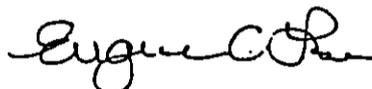
2. For the information of the EA report preparers, the statement on page 53 concerning the Coastal Zone Management Area is incorrect. The State's Coastal Zone Management Area guidelines apply to all lands in the State, regardless of location.

Mr. Keith Kurahashi
Page 2
November 18, 2005

Thank you for the opportunity to comment.

Should there be any questions, please contact Terry Hildebrand at 423-4696.

Very truly yours,


for Wayne M. Hashiro, P.E.
Director

GS:dk

c: Office of Environmental Quality Control
Department of Planning and Permitting - Tim Hata

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kkurashashi@hawaii.m.com

March 31, 2006

Mr. Wayne M. Hashiro, P.E., Director
Department of Design and Construction
650 South King Street
Honolulu, Hawaii 96813

Attention: Terry M. Hildebrand

Dear Mr. Hashiro:

**Subject: Draft Environmental Assessment Comments
on 2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

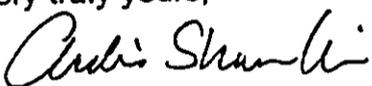
Thank you for your November 18, 2005 response to the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development.

If the developer chooses to develop the project as a residential condominium, they will meet with the City Officials in the Department of Planning and Permitting at an early stage in the planning and design process to obtain agreement on satisfying park dedication requirements.

The Final EA clarifies that the project site is within the Coastal Zone Management Area but not in the Special Management Area.

Your comment letter will be included in the Final Environmental Assessment.

Very truly yours,


Keith Kurahashi

cc: K3 Owners LLC

CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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E-Mail: kkurahashi@hawaii.m.com

March 31, 2006

Mr. Wayne M. Hashiro, P.E., Director
Department of Design and Construction
650 South King Street
Honolulu, Hawaii 96813

Attention: Terry M. Hildebrand

Dear Mr. Hashiro:

**Subject: Draft Environmental Assessment Comments
on 2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

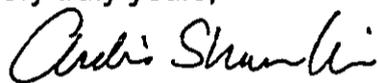
Thank you for your November 18, 2005 response to the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development.

If the developer chooses to develop the project as a residential condominium, they will meet with the City Officials in the Department of Planning and Permitting at an early stage in the planning and design process to obtain agreement on satisfying park dedication requirements.

The Final EA clarifies that the project site is within the Coastal Zone Management Area but not in the Special Management Area.

Your comment letter will be included in the Final Environmental Assessment.

Very truly yours,


Keith Kurahashi

cc: K3 Owners LLC

LINDA LINGLE
GOVERNOR

PATRICIA HAMAMC
SUPERINTENDENT



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P.O. BOX 2360
HONOLULU, HAWAII 96804

OFFICE OF THE SUPERINTENDENT

November 16, 2005

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

SUBJECT: Draft Environmental Assessment for the 2121 Kuhio Avenue Condominium Tower
TMK: 2-6-18: 10, 42, & 52

The Department of Education (DOE) requests a school fair-share condition on the proposed 2121 Kuhio Avenue condominium project when the project is rezoned with terms of the condition finalized before the project makes its application for a Waikiki Special Design District Permit (Permit). At the point of application for the Permit, the developers will know if the project is to become a residential condominium or a timeshare development.

Contrary to the statement made in the Draft Environmental Assessment on page 47, while Kaimuki High School and Jefferson Elementary appear to have adequate capacity to accommodate students living in 2121 Kuhio Avenue, there is insufficient capacity at Washington Middle School. Our most recent (2004-2005 school year) capacity figure for Washington Middle is 1,008 students. Washington Middle's current enrollment exceeds its facility capacity and is expected to continue to do so for the next several years.

The DOE requests that the City and County of Honolulu use the standard DOE fair-share language as a condition of development. The proposed wording is:

The Applicant shall contribute to the development, funding, and/or construction of school facilities, on a fair-share basis, as determined by and to the satisfaction of the Department of Education. Terms of the contribution shall be agreed upon in writing by the Applicant and the Department of Education prior to application for a Waikiki Special Design District Permit.

If you have any questions, please call Rae Loui, Assistant Superintendent of the Office of Business Services, at 586-3444 or Heidi Meeker of the Facilities Development Branch at 733-4862.

Very truly yours,


Patricia Hamamoto
Superintendent

PH:ly

c: Rae Loui, Asst. Supt., OBS
Estelle Wong, CAS, Kaimuki/Kalani Complex Area
Tim Hata, Department of Planning and Permitting
Genevieve Salmonson, Office of Environmental Quality Control

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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E-Mail: kkurahashi@hawaii.m.com

March 31 , 2006

Ms. Patricia Hamamoto, Superintendent
State Department of Education
P.O. Box 2360
Honolulu, Hawaii 96804

Attention: Heidi Meeker (Facilities Development Branch) and Rae Loui (Assistant Superintendent of the Office of Business Services)

Dear Superintendent Hamamoto:

**Subject: Draft Environmental Assessment Comments
on 2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

Thank you for your November 16, 2005 comments on the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development. The following responds to your comments:

The information regarding student capacity at the district schools will be updated in the Final Environmental Assessment.

If appropriate, the applicant will contribute to the development, funding, and /or construction of school facilities, on a fair-share basis.

Your comment letter will be included in the Final Environmental Assessment.

Very truly yours,

Keith Kurahashi
for
Keith Kurahashi

cc: K3 Owners LLC

LINDA LINGLE
GOVERNOR



RUSS K. SAITO
COMPTROLLER
KATHERINE H. THOMASON
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

(P)1262.5

NOV - 4 2005

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
2752 Woodland Drive, Suite 5-202
Honolulu, HI 96822

Dear Mr. Kurahashi:

Subject: Draft Environmental Assessment for
Proposed 2121 Kuhio Avenue, Development in Waikiki
Island of Oahu
TMK: 2-6-018: 10, 42 & 52

Thank you for the opportunity to review the information regarding the subject project. The project does not impact any of the Department of Accounting and General Services' projects or existing facilities and we have no comments to offer.

If you have any questions, please have your staff call Mr. David DePonte of the Planning Branch at 586-0492.

Sincerely,

A handwritten signature in black ink, appearing to read "Ernest Lau".

ERNEST LAU
Public Works Administrator

DD:mo

c: Ms. Genevieve Salmonson, OEQC
Mr. Tim Hata, Department of Planning and Permitting

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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E-Mail: kkurahashi@hawaii.m.com

March 31 , 2006

Mr. Ernest Lau, Public Works Administrator
State Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawaii 96810

Attention: David Deponte (Planning Branch)

Dear Mr. Lau:

**Subject: Draft Environmental Assessment Comments
on 2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

Thank you for your November 4, 2005 response to the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development.

Your comment letter will be included in the Final Environmental Assessment.

Very truly yours,


Keith Kurahashi

cc: K3 Owners LLC

LINDA LINGLE
GOVERNOR
STATE OF HAWAII



STATE OF HAWAII
DEPARTMENT OF HAWAIIAN HOME LANDS
P.O. BOX 1879
HONOLULU, HAWAII 96805

MICAH A. KANE
CHAIRMAN
HAWAIIAN HOMES COMMISSION

BEN HENDERSON
DEPUTY TO THE CHAIRMAN

KAULANA H. PARK
EXECUTIVE ASSISTANT

October 26, 2005

Mr. Keith Kurahashi
Kusao & Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

Thank you for the opportunity to review the draft environmental assessment report for the proposed 2121 Kuhio Avenue project in Waikiki, Oahu. The Department of Hawaiian Home Lands has no comments to offer.

Should you have any questions, please call the Planning Office at (808) 586-3836.

Aloha and mahalo,

Micah A. Kane
for Micah A. Kane, Chairman
Hawaiian Homes Commission

c: Department of Planning and Permitting
OEQC

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

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FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.m.com

March 31, 2006

Mr. Micah A. Kane, Chairman
Hawaiian Homes Commission
P.O. Box 1879
Honolulu, Hawaii

Dear Mr. Kane:

**Subject: Draft Environmental Assessment Comments
on 2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

Thank you for your October 26, 2005 response to the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development.

Your letter essentially states that you have no comments to offer regarding the proposed Waikiki development..

Your response letter will be included in the Final Environmental Assessment.

Very truly yours,


for Keith Kurahashi

cc: K3 Owners LLC

LINDA LINGLE
GOVERNOR OF HAWAII



CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EPO-05-102

November 18, 2005

Mr. Keith Kurahashi
Kusao and Kurahashi, Inc.
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

Dear Mr. Kurahashi:

SUBJECT: Draft Environmental Assessment for the Proposed 2121 Kuhio Avenue
Development in Waikiki, Honolulu, Hawaii
TMK: 2-6-018: 10, 42 & 52

Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have the following Environmental Planning Office comments.

Environmental Planning Office

Please note that some of the following issues may not apply to your particular proposed project or requested action. Should you have any questions about the applicability of the listed concerns or the particular environmental programs administered by our office, please feel free to contact us.

To facilitate TMDL development and implementation, and to assist with our assessment of the potential impact of proposed actions upon water quality, pollutant loading, and biological resources in receiving waters, we suggest that environmental review documents, permit applications, and related submittals include the following standard information and analyses.

Please note that these comments are also listed on our website:

www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. We suggest that you also review other Standard Comments on this website.

Waterbody type and class

1. Identify the waterbody type and class, as defined in Hawaii Administrative Rules Chapter 11-54 (<http://www.state.hi.us/health/about/rules/11-54.pdf>), of all potentially affected water bodies. Potentially affected water bodies means those in which proposed project activity would take place and any others that could receive water discharged by the

Mr. Kurahashi
November 18, 2005
Page 2

proposed project activity or water flowing down from the proposed site. These waterbodies can be presented as a chain of receiving waters whose top link is the project site upslope and whose bottom link is in Pacific Ocean "oceanic waters," with all receiving waters named according to conventions established by Chapter 11-54 and the *List of Impaired Waters in Hawaii Prepared under Clean Water Act § 303(d)*. For example, a recent project proposed for Nuhelewai Stream, Oahu (a tributary of Kapalama Canal) might potentially affect Nuhelewai Stream, Kapalama Canal, Honolulu Harbor and Shore Areas, and the Pacific Ocean.

Existing water quality management actions

2. Identify any existing National Pollutant Discharge Elimination System (NPDES) permits and related connection permits (issued by permittees) that will govern the management of water that runs off or is discharged from the proposed project site or facility. Please include NPDES and other permit numbers; names of permittees, permitted facilities, and receiving waters (including waterbody type and class as in 1. above); diagrams showing drainage/discharge pathways and outfall locations; and note any permit conditions that may specifically apply to the proposed project.
3. Identify any planning documents, groups, and projects that include specific prescriptions for water quality management at the proposed project site and in the potentially affected waterbodies. Please note those prescriptions that may specifically apply to the proposed project.

Pending water quality management actions

4. Identify all potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)* including the listed waterbody, geographic scope of listing, and pollutant(s) (See Table 5 at <http://www.hawaii.gov/health/environmental/env-planning/wqm/303dpcfinal.pdf>).
5. If the proposed project involves potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)*, identify and quantify expected changes in the following site and watershed conditions and characteristics
 - surface permeability
 - hydrologic response of surface (timing, magnitude, and pathways)
 - receiving water hydrology
 - runoff and discharge constituents
 - pollutant concentrations and loads in receiving waters
 - aquatic habitat quality and the integrity of aquatic biota

Mr. Kurahashi
November 18, 2005
Page 3

Where TMDLs are already established they include pollutant load allocations for the surrounding lands and point source discharges. In these cases, we suggest that the submittal specify how the proposed project would contribute to achieving the applicable load reductions.

Where TMDLs are yet to be established and implemented, a first step in achieving TMDL objectives is to prevent any project-related increases in pollutant loads. This is generally accomplished through the proper application of suitable best management practices in all phases of the project and adherence to any applicable ordinances, standards, and permit conditions. In these cases we suggest that the submittal specify how the proposed project would contribute to reducing the polluted discharge and runoff entering the receiving waters, including plans for additional pollutant load reduction practices in future management of the surrounding lands and drainage/discharge systems.

Proposed Action and Alternatives Considered

We suggest that each submittal identify and analyze potential project impacts at a watershed scale by considering the potential contribution of the proposed project to cumulative, multi-project watershed effects on hydrology, water quality, and aquatic and riparian ecosystems.

We also suggest that each submittal broadly evaluate project alternatives by identifying more than one engineering solution for proposed projects. In particular, we suggest the consideration of "alternative," "soft," and "green" engineering solutions for channel modifications that would provide a more environmentally friendly and aesthetically pleasing channel environment and minimize the destruction of natural landscapes.

If there are any questions about these comments please contact Jiakai Liu with the Environmental Planning Office at 586-4346.

Sincerely,



HAROLD LAO, ACTING MANAGER
Environmental Planning Office

c: EPO

KUSAO & KURAHASHI, INC.
Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.m.com

March 31, 2006

Mr. Harold Lao, Acting Manager
Environmental Planning Office
State Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Dear Mr. Lao:

**Subject: Draft Environmental Assessment Comments on 2121 Kuhio Avenue
Development, Waikiki, Oahu, Tax Map Key: 2-6-18: 10, 42 and 52**

Thank you for your November 18, 2005 response to the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development. The following responds to your comments:

Environmental Planning Office

This section states that "the following issues may not apply to your particular proposed project." When we contacted the Environmental Planning Office by telephone we were told that the comments of the November 18, 2005 letter were general comments that were not specific to the project.

Waterbodies Type and Class

The project will not affect water bodies as defined in Hawaii Administrative Rules Chapter 11-54.

Existing Water Quality Management Actions

The applicant will obtain an National Pollutant Discharge Elimination System (NPDES) permit for construction activities because the project area exceeds one acre. A dewatering permit will be needed for construction dewatering of material excavated below the water table.

Your letter and this response will be included in the Final EA.

Very truly yours,


Keith Kurahashi

cc: K3 Owners LLC

PHONE (808) 594-1888

FAX (808) 594-1865



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAII 96813

HRD05/1963B

November 17, 2005

Keith Kurahashi
Kusao & Kurahashi, Inc.
Mānoa Market Place
2752 Woodlawn Drive, Suite 5-202
Honolulu, HI 96822

**RE: Draft Environmental Assessment for the Proposed 2121 Kuhio Avenue Development,
Waikiki, O'ahu, TMK 2-6-018: 10, 42 & 52.**

Dear Mr. Kurahashi,

The Office of Hawaiian Affairs (OHA) is in receipt of your October 14, 2005 request for comment on the above listed proposed project, TMK 2-6-018: 10, 42 & 52. OHA offers the following comments:

Our office recommends that an Archaeological Monitoring Plan be drafted in support of the proposed project. All ground altering activities should be monitored by a professional archaeologist. Thank you for your continued correspondence, our staff looks forward to reviewing the Final Environmental Assessment.

OHA further requests your assurances that if the project goes forward, should iwi or Native Hawaiian cultural or traditional deposits be found during ground disturbance, work will cease, and the appropriate agencies will be contacted pursuant to applicable law.

Thank you for the opportunity to comment. If you have further questions or concerns, please contact Jesse Yorck at (808) 594-0239 or jessey@oha.org.

'O wau iho nō,

A handwritten signature in black ink, appearing to read "Clyde W. Nāmu'o".

Clyde W. Nāmu'o
Administrator

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

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FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.m.com

March 31, 2006

Mr. Clyde W. Namu'o, Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Ste. 500
Honolulu, Hawaii 96813

Attention: Mr. Jesse Yorck

Dear Mr. Namu'o:

**Subject: Draft Environmental Assessment Comments on 2121 Kuhio Avenue
Development, Waikiki, Oahu, Tax Map Key: 2-6-18: 10, 42 and 52**

Thank you for your November 17, 2005 response to the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development. The following responds to your comments:

An Archaeological Monitoring Plan will be prepared prior to ground altering activities. An archaeologist will be present as specified in the Archaeological Monitoring plan.

Your letter and this response will be included in the Final EA.

Very truly yours,


Keith Kurahashi

cc: K3 Owners LLC

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAMOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

March 10, 2006

Keith Kurahashi
Kusao & Kurahashi Inc.
2757 Woodlawn Drive, Suite 5-202
Honolulu, Hawai'i 96822

LOG NO: 2006.0595
DOC NO: 0603AJ02
Archaeology

Dear Mr. Kurahashi:

**SUBJECT: Chapter 6E-8 Historic Preservation Review [Private] –
Draft EA Review of the 2121 Kuhio Development
Waikiki Ahupua'a, Kona District, Island of O'ahu, Hawai'i
TMK: (1) 2-6-018:010, 042 & 052**

Thank you for the opportunity to review the aforementioned project. We received a copy of the Draft Environmental Assessment (EA) and a brief cover letter on October 18, 2005. We apologize for the long delay. The Draft EA is for the proposed development of an approximately 115,716 square foot parcel as either a condominium or timeshare complex.

We are concerned that portions of State Sites -5796 and -4970, a pre-historic cultural layer and a portion of the 'Auwai o Pau, respectively, identified during the archaeological inventory survey of the subject parcel (*LeSuer et. al. 2000, An Archaeological Inventory Survey of King Kalākaua Plaza Phase II, SHPD Rpt No: 0-1838*), as well as other historically-significant sites or features, may still be present in the proposed project area. Additionally, we are concerned that unidentified human remains may also be present within the current project area. The areas adjacent to, and surrounding, the current project location have been shown to have a high potential for containing unidentified human remains (see, e.g., *LeSuer et. al. 2000*).

Ground-altering activities associated with the proposed undertaking may have an effect on historic sites which may be present. We believe that any adverse affects may be mitigated through archaeological monitoring and that the following conditions should be carried out.

- 1) A qualified archaeological monitor shall be present during all ground-altering activities conducted in the project area in order to document any historic properties which may be encountered during the proposed undertaking and to provide mitigation measures as necessary. An acceptable archaeological monitoring plan will need to be submitted to the State Historic Preservation Division for review, prior to the commencement of any ground-altering activities. An archaeological monitoring plan must contain the following nine specifications: (1) The kinds of remains that are anticipated and where in the construction area the remains are likely to be found; (2) How the remains and deposits will be documented; (3) How the expected types of remains will be treated; (4) The archaeologist conducting the monitoring has the authority to halt the construction in the immediate area of the find in order to carry out the plan; (5) A coordination meeting

Mr. Kurahashi
Page. 2

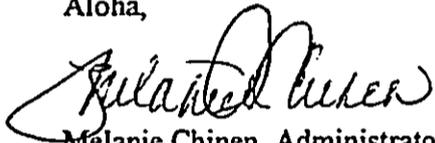
between the archaeologist and construction crew is scheduled, so that the construction team is aware of the plan; (6) What laboratory work will be done on remains that are collected; (7) A schedule of report preparation; (8) Details concerning the archiving of any collections that are made; and (9) An acceptable report documenting the findings of the monitoring activities shall be submitted to the State Historic Preservation Division for review following completion of the proposed undertaking.

2) The State Historic Preservation Division (O'ahu office) shall be notified via facsimile upon the on-set and completion of the proposed undertaking.

Should initial excavation reveal that all of the new digging is in previously-disturbed sediments, the monitoring program may be suspended through consultation with SHPD.

If you have any questions, please call the SHPD Office at 808-692-8015.

Aloha,



Melanie Chinen, Administrator
State Historic Preservation Division

AJ:cmm

KUSAO & KURAHASHI, INC.

Planning and Zoning Consultants

MANOA MARKET PLACE
2752 WOODLAWN DRIVE, SUITE 5-202
HONOLULU, HAWAII 96822

BUS. (808) 988-2231
FAX. (808) 988-1140
E-Mail: kkurahashi@hawaii.m.com

March 31 , 2006

Mr. Melanie Chinen, Administrator
State Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Attention: Mr. Jesse Yorck

Ms. Chinen:

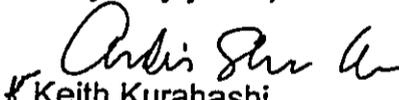
**Subject: Draft Environmental Assessment Comments on
2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

Thank you for your March 10, 2005 response to the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development. The following responds to your comments:

An Archaeological Monitoring Plan will be prepared prior to ground altering activities. An archaeologist will be present as specified in the Archaeological Monitoring plan.

Your letter and this response will be included in the Final EA.

Very truly yours,


Keith Kurahashi

cc: K3 Owners LLC



HOUSE OF REPRESENTATIVES

STATE OF HAWAII
STATE CAPITOL
HONOLULU, HAWAII 96813

October 27, 2005

Jim Kehoe
K3 Owners, LLC
921 Front St., Lower Level
San Francisco, CA 94111

Re: 2121 Kuhio Avenue Condominium/Timeshare Development

Dear Jim:

As Representative of the Waikiki area and on behalf of my constituents who live on Kuhio Avenue, I oppose the zoning change that would enable the 2121 Kuhio Avenue project to move forward.

The residents I represent are upset because K3 had originally promised that the Hula's space at 2121 Kuhio with its two banyan trees would be devoid of tall, high-rise structures. Instead, as I understood, K3 (the Honu Group) planned for open areas and low-level commercial/restaurant development, complementing the high-end resort retail outlets on the property's front side. Residents on Kuhio Avenue complain saying they bought their properties because they were assured that the space would be a low-rise development.

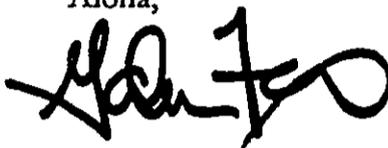
K3 has also raised Waikiki residents' ire by destroying the award-winning, Wimberly-designed Canlis restaurant (http://www.cocktailpiano.com/rooms_honolulu.html), expelling Hula's from their property in conjunction with destroying one of the banyan trees on the site, and building Niketown—an architectural eyesore.

Building this high rise at 2121 Kuhio for time-share residential use will yield an increase in traffic, less sun, more visual blight. Other common complaints from individuals and community groups like P.O.W.E.R. (Protection of Waikiki Environmental Rights) include the loss of tradewinds, inadequate sewage capacity, and increasing air pollution.

GALEN FOX, WAIKIKI/KAKA'AKO/ALA MOANA
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I urge you to reject all steps that would result in development of a time-share condominium, and instead help preserve the quality of life for existing Waikiki residents. If you have any questions or need further information, please contact me.

Aloha,



Galen Fox
Representative, Waikiki/Ala Moana/Kakaako

cc: DPP
Kusao & Kurahashi
OEQC

GF:ay

GALEN FOX, WAIKIKI/KAKAAKO/ALA MOANA
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E-Mail: kkurahashi@hawaii.m.com

March 31 , 2006

Honorable Galen Fox, State House of Representatives
411 Hobron Lane, #3911
Honolulu, Hawaii 96815

Dear Representative Fox:

**Subject: Draft Environmental Assessment Comments
on 2121 Kuhio Avenue Development, Waikiki, Oahu
Tax Map Key: 2-6-18: 10, 42 and 52**

Thank you for your October 27, 2005 comments on the Draft Environmental Assessment for the proposed 2121 Kuhio Avenue development. The following responds to your comments:

2100 Kalakaua Development

The Draft Environmental Assessment states that residents repeatedly stated that they were promised at neighborhood Board Meeting that a low-rise commercial development by the previous developer, the Honu Group. The minutes of the Neighborhood Board meeting do not reflect this.

City records show that there were two Neighborhood Board meetings held on the 2100 Kalakaua Development (May 9, 2000 and June 13, 2000). The minutes noted that, although concerns were raised, there was no commitment to limit development on the property to a low-rise commercial development. In response to an inquiry from the audience at the decision meeting on June 13, 2000, the architect for the project "assured the community that any future development on the mauka portion of the site will require the developer, at that time the Honu Group, Inc. , to go through the same public input and permitting process as the current proposal"

Traffic

Based on Trip Generation, 7th Edition," 2003, the trip generation for the previously considered retail development would generate more trips than the proposed condominium or timeshare development.

Sunlight

The proposed tower will not be higher than what is currently allowed given the 300 foot height limit. The mauka/makai building orientation is consistent with the Waikiki Special District Design Guidelines. The building is sited on the property to minimize impacts to makai and Diamond Head views from surrounding buildings namely the Four Paddles and La Casa condominium towers located mauka of Kuhio Avenue.

The Final EA contains a shadow study to indicate the most extreme conditions for the shadows that will be cast by the proposed tower.

Visual Blight

The design and visual elements of the project will be fully examined and modified as needed during the processing a Waikiki Special District Permit.

Tradewinds

The overall weather patterns including the tradewinds will not be impacted by the proposed project.

Sewer Capacity

On May 11, 2004 the Department of Planning and Permitting approved a Sewer Connection application for the project indicating that the existing wastewater facilities are adequate. (Sewer connection applications are valid for a period of two years.)

Air Quality

The project will comply with applicable State Department of Health regulations related to air quality.

Your comment letter will be included in the Final Environmental Assessment.

Very truly yours,

Keith Kurahashi
Keith Kurahashi

cc: K3 Owners LLC

APPENDIX IV

ARCHAEOLOGICAL ASSESSMENT

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

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

TIMOTHY E. JOHNS, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES
JANET E. KAWALO

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

July 18, 2000

Mr. Matt McDermott
Cultural Surveys Hawaii, Inc.
733 N. Kalaheo Avenue
Kailua, Hawaii 96734

LOG NO: 25813 ✓
DOC NO: 0007SC06

Dear Mr. McDermott:

SUBJECT: Chapter 6E-42 Historic Preservation Review of Requested Revisions to a Report for the Waikiki Kalakaua Plaza Phase II Inventory Survey Waikiki, Kona, O'ahu
TMK: 2-6-018: 010, 036, 042, 052, 055, 062-064, 073 & 074

Thank you for the prompt submission of the requested revisions to your archaeological inventory survey report (An Archaeological Inventory Survey of King Kalakaua Plaza Phase II, Waikiki, Waikiki Ahupua'a, Kona District, Island of O'ahu, Hawai'i. [TMK: 2-6-18:10,, 36, 42, 52, 55, 62, 63, 64, 73 & 74. 2000. LeSuer et al.]).

The revisions are acceptable, and we now accept the report as final. We can conclude that the archaeological inventory survey has been successfully executed, and that no further archaeological work is required.

As noted previously, your client still needs to complete a required mitigation action with regard to preparation of a photographic essay on small, single-story structures built in Waikiki circa 1950. Tonia Moy of our Architectural Branch may be contacted at 692-8030 for further information or assistance in this matter.

Should you have any questions about archaeology, please feel free to contact Sara Collins at 692-8026.

Aloha,

A handwritten signature in black ink, appearing to read "Don Hibbard".

DON HIBBARD, Administrator
State Historic Preservation Division

SC:dnm

c: Kalakaua South Seas Owners, LLC
Randall Fujiki, Director, Dept. of Planning and Permitting, City & County of Honolulu

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
Kakuhikawa Building, Room 555
801 Kamehaha Boulevard
Honolulu, Hawaii 96707

TIMOTHY E. JOHNS, CHAIRPERSON
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FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS
WATER RESOURCE MANAGEMENT

June 29, 2000

Mr. Matt McDermott
Cultural Surveys Hawaii, Inc.
733 N. Kalaheo Avenue
Kailua, Hawaii 96734

LOG NO: 25634 ✓
DOC NO: 0006SC09

Dear Mr. McDermott:

**SUBJECT: Chapter 6E-42 Historic Preservation Review of a Report Documenting the Results of an Archaeological Inventory Survey of the Waikiki Plaza Phase II Project Area
Waikiki, Honolulu, O`ahu
TMK: 2-6-018: 010, 036, 042, 052, 055, 062, 063, 064, 073 & 074**

Thank you for the opportunity to comment on the report documenting the results of an archaeological inventory survey at the project site of the Waikiki Plaza Phase II (An Archaeological Inventory Survey of King Kalakaua Plaza Phase II, Waikiki, Waikiki Ahupua`a, Kona District, Island of O`ahu, Hawai`i. [TMK: 2-6-18:10, 36, 42, 52, 55, 62, 63, 64, 73 & 74]. 2000. LeSuer et al.). Our review is based on historic records, maps, aerial photographs, and reports maintained at the State Historic Preservation Division; in addition, Sara Collins and Elaine Jourdane of our staff made a brief site inspection during the inventory survey in January 2000. We provide the following comments.

The survey covered about 2.5 acres of land in Waikiki; subsurface testing was accomplished through the excavation of 13 backhoe trenches. Subsurface investigations indicated that the subject area was extensively modified through successive filling and grading actions. Two historic sites were located: (1) SIHP No. 50-80-14-4970, a portion of the `Auwai O Pau, which was previously identified through archaeological work in the Fort DeRussy area (Davis 1989); and (2) SIHP No. 5796, a subsurface cultural layer dating from pre-Contact times through the early 20th century. Although SIHP No. 5796 was identified in a number of the test excavations, prior land alteration activities on the subject parcels had adversely affected the site's integrity, leaving only limited stratigraphic and artifactual evidence. As noted, Site -4970 was previously identified and deemed significant under Criterion D. Since, judging from your descriptions, SITE No. 5796 lacks integrity, we therefore believe that it is not significant. Thus, while we concur with the recommendation that no further archaeological work is warranted, we do not concur with the significance assessments as presented on page 81. We request that a revised

Mr. Matt McDermott
Page Two

assessment be made for SIHP no. 5796. When we receive the revised assessment, and it may be submitted on a separate page for inclusion with the report on file at our office, we anticipate accepting the report as final, and concluding that the survey was successfully concluded.

There is, however, an additional mitigation requirement. To our knowledge, the photographic essay on small scale single story structures built in Waikiki circa 1950 has not been completed. The Architectural Branch of our office will gladly assist with the project and looks forward to working on this and the other mitigation measures as noted in the attached correspondence.

Should you have any questions about archaeology, please feel free to contact Sara Collins at 692-8026. Should you have any questions about architecture, please feel free to contact Tonia Moy at 692-8030.

Aloha,



DON HIBBARD, Administrator
State Historic Preservation Division

SC:jk

c: Kalakaua South Seas Owners, LLC
Randall Fujiki, Dept. of Planning & Permitting, City & County of Honolulu

**AN ARCHAEOLOGICAL INVENTORY SURVEY
OF KING KALĀKAUA PLAZA PHASE II,
WAIKĪKĪ, WAIKĪKĪ AHUPUA'A, KONA DISTRICT,
ISLAND OF O'AHU, HAWAII
(TMK 2-6-18:10, 36, 42, 52, 55, 62, 63, 64, 73 & 74)**

by

C. Celeste LeSuer, B.A.
and
Matt McDermott, B.A.
Rodney Chiogioji, B.A.
Hallett H. Hammatt, Ph.D.

Prepared for

Kalakaua South Seas Owners, LLC

Cultural Surveys Hawai'i
April 2000

ABSTRACT

Construction Management & Development, Inc., on behalf of the property owners, Kalakaua Southseas Owners, LLC, hired Cultural Surveys Hawaii, Inc., to conduct an archaeological inventory survey consisting of archival research and sub-surface investigations. The subject parcel (TMK 2-6-18:10, 36, 42, 52, 55, 62, 64, 73, & 74) is located in Waikīkī, Waikīkī *Ahupua`a*, Kona District, O'ahu Island, Hawai'i. The project parcel is located on the *`Ewa* (NW) end of a block bounded by Kalaimoku, Kalākaua, Kuhio, and Lewers. Field investigations were conducted between January 26 and February 2, 2000.

Historical background research identifies the pre-contact to early 20th century (1920s) Waikīkī area as a lagoonal basin. Native Hawaiians had modified this wetland area into a major irrigation system, supporting an agriculture and aquaculture resource basin, possibly as early as the 1300's. During the current investigations attention was given to locating the upper northeastern reaches of a cultural irrigation ditch—the *`Auwai O Pau* (assigned state site 50-80-14-4970 in 1989)—and identifying possible adjacent *lo i* (irrigated ponds). Consideration was also given to the possibility of locating an associated pond, which was identified within the project area on a portion of a 1909-1913 U.S. Army Engineers map.

Sub-surface testing located the *`Auwai O Pau*, and areas of possible fishpond and agricultural cultivation praxis. No habitation areas or human burials were identified

The prehistoric to early 20th century wetland ground surface, which runs throughout the project parcel, was assigned as state Site 50-80-14-5796. Research documents the project area from ancient times to the present, and reveals the historic significance for the parcel.

Based on findings, no further historic preservation work is recommended.

ACKNOWLEDGMENTS

Cultural Surveys Hawai'i would like to thank archaeologists Elaine Jourdane and Sara Collins from the State Historic Preservation Division for their helpful comments during their visit to the project site. Dr. Susan Lebo of the University of Hawai'i, Manoa and the Bishop Museum is thanked for her continual support with research materials and with the identification of historic ceramics. Kalākaua Southseas Owners, LLC. and Construction Management & Development are thanked for their support of the archaeological investigations. Cultural Surveys Hawai'i would also like to thank Mr. Mike Matsutani, of Mike's Backhoe Service, for his skillful work with the backhoe.

TABLE OF CONTENTS

ABSTRACT	i
ACKNOWLEDGMENTS	ii
LIST OF MAPS	v
LIST OF FIGURES	vi
LIST OF PHOTOGRAPHS	viii
I. INTRODUCTION	1
A. Project Background	1
B. Project Area Description	4
C. Scope of Work	6
D. Methodology	7
II. WAIKIKI AHUPUA`A AND THE PRESENT PROJECT AREA: CULTURAL AND HISTORICAL DOCUMENTATION	8
A. Pre-contact to 1800s	8
B. 1900 to 1920s	11
C. Late 1920s to Present - Historic Building Review	22
III. PREVIOUS ARCHAEOLOGICAL RESEARCH	27
IV. PREDICTIVE MODEL	35
V. RESULTS FROM SUB-SURFACE TESTING	38
A. Summary of Trenches	38
B. Stratigraphy Overview	38
C. Trench Descriptions and Profiles	43
Trench 1: Northeast and Southwest Walls	43
Trench 2: Southwest Wall	49
Trench 3: Southwest Wall	52
Trench 4: Southwest Wall	54
Trench 5: Northeast Wall	56
Trench 6: Northeast Wall	56
Trench 7: Northeast Wall	58
Trench 8: Southwest Wall	60
Trench 9: Southeast Wall	64
Trench 10: Northeast Wall	66
Trench 11: Northwest Wall	68
Trench 12: Southeast Wall	73
Trench 13: Northwest Wall	75
Trench 13: North Wall	77

VI. SUMMARY	79
VII. SIGNIFICANCE	82
VIII. RECOMMENDATIONS	83
IX. REFERENCES CITED	84
APPENDIX A	88

LIST OF MAPS

Map 1 USGS 7.5 Minute Series Topographical Map, Honolulu Quadrangle,
showing project area with state/island inset 2

Map 2 Tax map showing project area
(TMK 2-16-18:10, 36, 42, 52, 55, 62, 63, 64, 73 & 74) 3

Map 3 Portion of 1881 map by S.E. Bishop,
with location of present project area 12

Map 4 Portion of 1901 map by M.D. Monsarrat,
with location of present project area indicated 13

Map 5 Portion of U.S. Army Engineers Map,
based on military surveys from 1909 to 1913,
and showing Fort DeRussy and present project area 16

Map 6 1927 Sanborn Fire Insurance map,
showing newly-created block bounded by Kalākaua and Kuhio Avenues
and Kalaimoku and Lewers Streets 23

Map 7 1951 Sanborn Fire Insurance map,
showing project area block with construction
dates of buildings previously in project area 25

Map 8 1987 Hawaiian Studies Institute map of O'ahu,
pre-*Māhele Moku* and *Ahupua`a* boundaries, showing *Waikīkī Ahupua`a* . 36

LIST OF FIGURES

Figure 1	Previous Archaeology Studies in the Waikīkī area	28
Figure 2	Previous Archaeology Table	34
Figure 3	Location of Trenches	39
Figure 4	Trench 1 Profile of NE wall, photograph, and sediment description	47
Figure 5	Trench 1 Profile of SW wall, photograph, and sediment description	48
Figure 6	Trench 2 Profile of SW wall, photograph, and sediment description	51
Figure 7	Trench 3 Profile of SW wall, photograph, and sediment description	53
Figure 8	Trench 4 Profile of NE wall, photograph, and sediment description	55
Figure 9	Trench 5 Profile of NE wall, photograph, and sediment description	57
Figure 10	Trench 6 Profile of NE wall, photograph, and sediment description	59
Figure 11	Trench 7 Profile of SW wall, photograph, and sediment description	63
Figure 12	Trench 8 Profile of SE wall, photograph, and sediment description	65
Figure 13	Trench 9 Profile of NE wall, photograph, and sediment description	67
Figure 14	Trench 10 Profile of NW wall, photograph, and sediment description	72
Figure 15	Trench 11 Profile of SE wall, photograph, and sediment description	74
Figure 16	Trench 12 Profile of NW wall, photograph, and sediment description	76
Figure 17	Trench 13 Profile of North wall, photograph, and sediment description . . .	78

LIST OF PHOTOGRAPHS

Photo 1	1897-1901 Photograph taken from Waikīkī Road, showing coconut palms and banana cultivation (Davey, Bishop Museum negative CP 85939)	14
Photo 2	1910 Photograph, banana cultivation from Kalākaua Avenue (Waikīkī Road) between "Olohana and Lewers Street. Photo by Ray Jerome Baker (Bishop Museum Archives negative CP 114,153)	17
Photo 3	Dredging the Ala Wai Canal at Kalākaua Avenue, ca. 1924 (Bishop Museum Archives negative CP 104,362)	19
Photo 4	Floating dredge line in the Ala Wai Canal ca. 1924	20
Photo 5	Enlarged portion of aerial photograph, ca. late 1920s, indicating location of the project area and possible remnant of the <i>Auwai O Pau</i> (Bishop Museum Archives)	21
Photo 6	Corner of Kalākaua Avenue and Kalaimoku Street, ca. 1945, (Bishop Museum Archives negative CP 85935)	24
Photo 7	Gray/Black Silty Clay Microstratigraphy found above the prehistoric/historic ground surface	42
Photo 8	Man's Black Leather Shoe 1840-1880	45
Photo 9	Milled Wood	45
Photo 10	Fragment of Milled Wooden Plank found lodged between Strata IX and X in Trench 2	50
Photo 11	American Salt-Glazed Stoneware, pre-1875 (a) Chinese Hand-Painted Stoneware, 3-Circles & Dragonfly Motif (b)	62
Photo 12	Chinese <i>Kitchen Ch`ing</i> Porcellaneous Stoneware, Cavello Motif, 1800s	62
Photo 13	Machine Made Soda Bottle, post-1904	70

I. INTRODUCTION

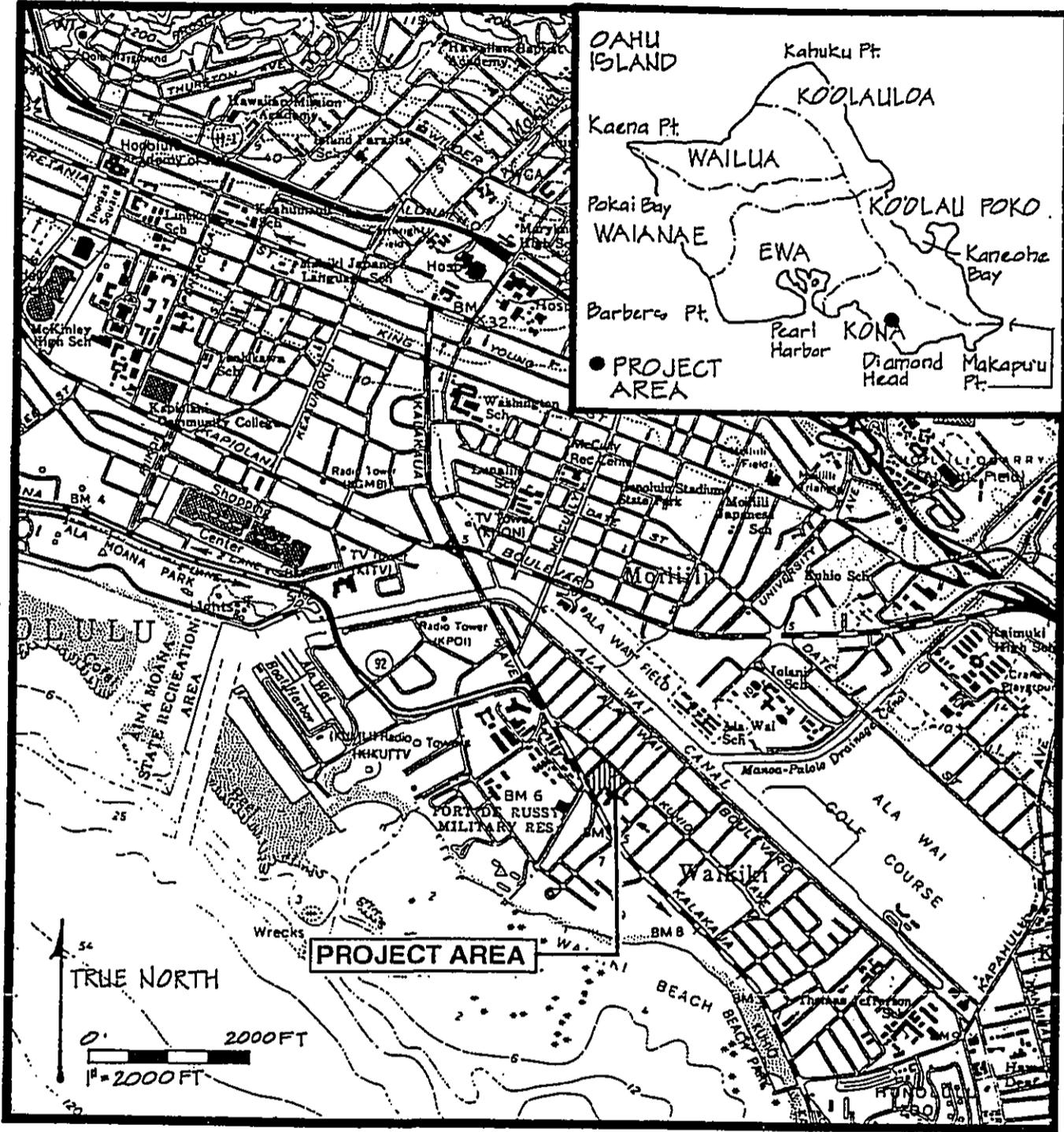
Cultural Surveys Hawai'i has completed an archaeological inventory survey contracted through Construction Management & Development (CM&D). The project area is comprised of a 109,747 square foot parcel (TMK 2-6-18:10, 36, 42, 52, 55, 62, 63, 64, 73 & 74) in Waikiki Ahupua`a, Kona District, O'ahu Island, Hawai'i (Map 1).

A. Project Background

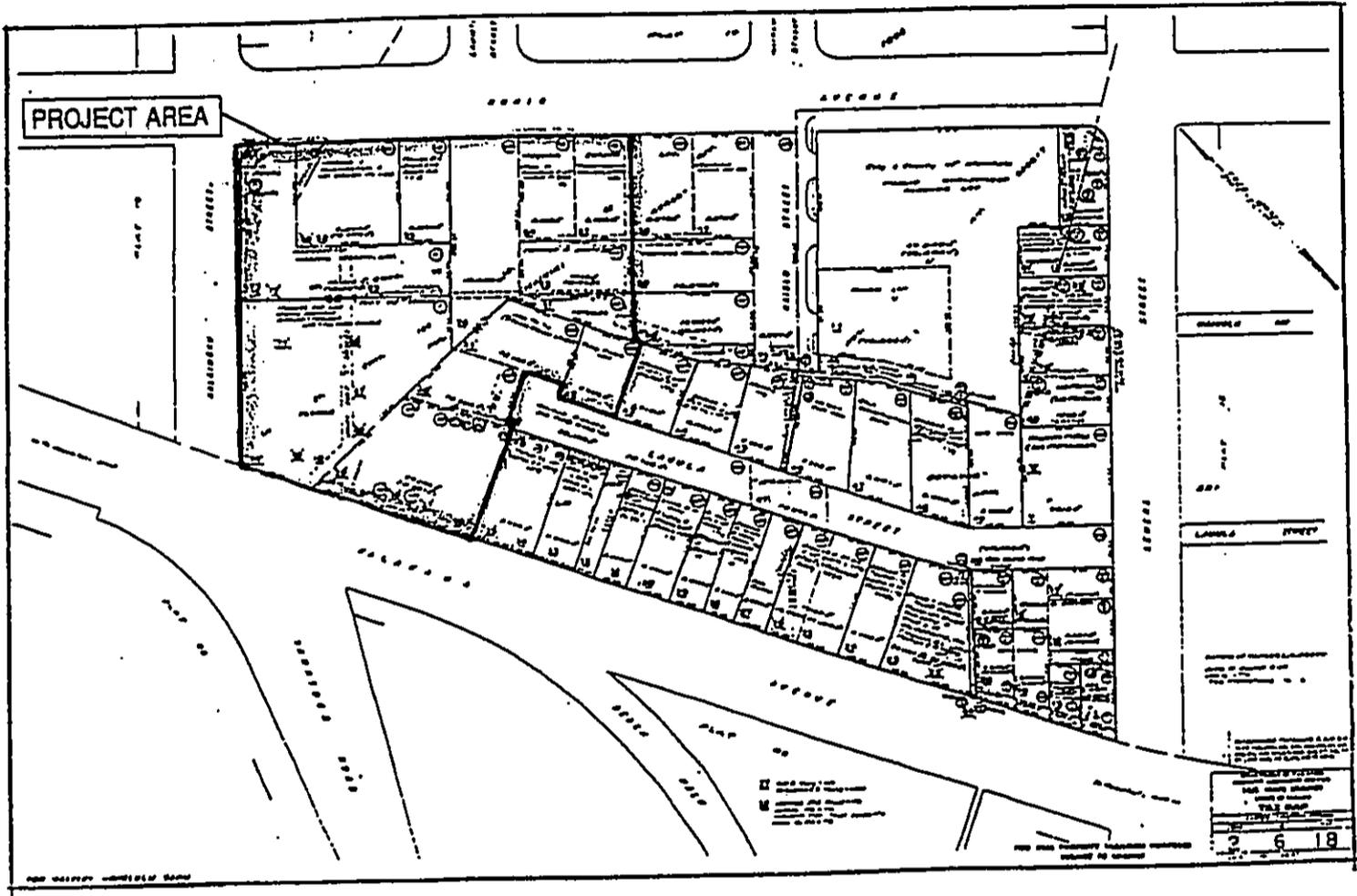
The archaeological inventory survey resulted from an applicant action filed by Kalākaua Southseas Owners, LLC., after they acquired the property in 1998. Kalākaua Southseas Owners, LLC. proposed to demolish existing structures, remove existing landscaping, and develop a commercial/retail mixed-use complex—*The King Kalākaua Plaza Phase II*—on the parcel. This complex is proposed as a structure of 3 to 5 stories with an additional single-story structure. Features of the complex will include extensive ground level landscaping, underground parking, and a police "Koban" service housed in the single-story structure. This single story structure is planned to typify and reflect the period structural qualities of the former Canlis Charcoal Broiler Restaurant building.

Cultural Surveys Hawai'i, at the request of Wilson Okamoto & Associates, Inc., conducted an archaeological assessment of the project parcel in August of 1998. The assessment report by Hammatt and Chiogioji (1998) was submitted the same month for inclusion in the Final Environmental Assessment prepared by Wilson Okamoto & Associates, Inc. (1998), for Kalākaua Southseas Owners, LLC. The findings and recommendations of the archaeological assessment state that structures in the project area over fifty years old had not retained their historical integrity. SHPD had, however, expressed concern in a letter dated August 3, 1998 (Okamoto 1998:Appendix) regarding the Canlis Charcoal Broiler building citing "its exceptional significance as one of the few intact examples left in Hawai'i of the once popular restaurant trend and unique building type." This concern has been addressed in the EA project plans. The police "Koban" structure is to typify the same architectural trends as the former Canlis building. Additional SHPD concerns included the possible presence of human burials.

The archaeological assessment also reported that intact Native Hawaiian pre-contact and early contact historic cultural deposits are likely to be lying undisturbed beneath modern fill layers within the project area. Several studies have recorded the presence of intact cultural deposits within the Waikiki area despite years of massive land alteration and construction activity (Hammatt and Chiogioji 1998:25-26). Historic documents, maps, and previous archaeological evidence show the prior existence of a major `auwai (water ditch) which drained through the `Ewa side of the current project area. This `auwai fed the adjacent lo'i, and fishponds in the present Fort DeRussy area. Archaeological documentation of this `auwai had it registered in the State Inventory of Historic Places as Site 50-80-14-4970, during an archaeological study on the Fort DeRussy grounds (Davis 1989:28).



Map 1 USGS 7.5 Minute Series Topographical Map, Honolulu Quadrangle, showing project area with state/island inset



Map 2 Tax map showing project area
(TMK 2-16-18:10, 36, 42, 52, 55, 62, 63, 64, 73 & 74)

The current project area, prior to land-reclamation projects in the early 20th century, is identified as a wetland lagoonal environment. It is located *mauka* of an extensive network of fishponds that once covered the present Fort DeRussy grounds (Hammatt and Chiogioji 1998:25-26). An historic map—a portion of U.S. Army Engineers map, based on military surveys from 1909 to 1913—identifies an associated pond within the project area.

The archaeological assessment recommended an inventory survey comprised of additional archival research and sub-surface testing of the entire project parcel. The resulting inventory survey design focused on locating sub-surface features related to the pre and post-contact Native Hawaiian cultivation activities mentioned above, and historic activity in the area.

B. Project Area Description and Environment

The project area encompasses a 109,747 square foot parcel in the contemporary environs of Waikīkī (Map 2). The parcel is situated on the *'Ewa* portion of the block bounded by Kalaimoku Street, Kalākaua Avenue, Kuhio Avenue, and Lewers Street. Two additional streets access the internal portion of this block: Kai'olu Street runs northeast to southwest off of Kuhio Avenue, and Lau'ula Street accesses the block from Lewers Street in a northwest direction and ending at the southeast boundary of the study area. The project parcel is irregularly shaped with the southeast boundary shifting along the boundary of the buildings that remain standing on the block. All of the standing buildings are outside the project parcel on the *Diamond Head* (SE) end of the block. The project area—which is now cleared of all structures and debris—was recently occupied by a parking lot, the Kuhio Outdoor Flea Market, and several commercial buildings. Well-known community businesses included those which formerly housed the Canlis Charcoal Broiler Restaurant, Hernando's Hideaway Restaurant and Bar, and Hula's Bar and Lei Stand.

The current project parcel is located in an area of Waikīkī that is well documented as a wetland environment, which was culturally modified for agricultural and fishpond cultivation in prehistoric times by Native Hawaiians. These subsistence cultivation continued in the post-contact years, evolving in nature and declining as Hawai'i changed. In the early decades of the 20th century, a massive land-reclamation plan altered the natural environment of Waikīkī.

In the late Pleistocene/early Holocene, the Waikīkī area was characterized by an expansive delta drainage system which flowed from the Ko'olau Mountains to the sea (Ferrall 1976:plate II). Ferrall identifies an ancient stream—the *ancient* Manoa Stream channel—as draining through an adjoining channel which flowed through the east and southeast side of the project area. He postulates that this major channel flow was filled and cut-off by the Sugarloaf eruptions during the interglacial advance to the present sea-level; at which time the Manoa Stream was rerouted to the east, joining the Palolo Stream and draining through a channel further to the southeast. Following this event, the modern reef formed a barrier off-shore creating a lagoon behind it. When the ocean reached the

present sea-level the area filled with both marine and terrigenous sediment deposits, and the area became a lagoonal marshy wetland.

This marshy wetland area provided prehistoric Hawaiians with the environment needed for the cultivation of subsistence crops such as taro and banana, etc. The extensive Hawaiian engineered irrigation system, which was viewed and documented by Westerners during early contact years, continued being utilized into the early 20th century. Following the initial post-contact years, Westerners engaged in new massive economic agricultural ventures. Immigrant workers from Asia were brought to Hawai'i as laborers for these ventures, and as a result *rice* became a major crop in many areas of Hawai'i. The wetlands of Waikiki offered an ideal environment for the cultivation of rice, and the area yielded much of its traditional taro cultivation land to rice production.

The plain of Waikiki is flat and, generally, less than 4.5 m (15 feet) above sea level (Davis 1989:5). Soils in the area are composed solely of Jacus Sand with 0-15% slopes (JaC) (Foote et al.1972:Map 63). Rainfall averages less than 30 inches of rain per year (Armstrong 1983:62); however, the area receives additional water from the Kalia and Palolo Streams, as well as rain showers that drift into the area from the mountains and inland valleys (Cleghorn 1996:3). Northeasterly tradewinds prevail throughout the year, although their frequency varies from more than 90% during the summer months to 50% in January; the average annual wind velocity is approximately 10 miles per hour (Okamoto 1998:2-1). Currently, vegetation in the area of the project parcel includes: Banyan, MacArthur Palm, Brassia, Coconut, Plumeria, Money, Alexander Palm, Manila Palm, Date Palm, Fern, Monkey Pod, Tulip Wood, and Opiuma trees and a variety of grasses.

C. Scope of Work

The scope of work for the archaeological inventory survey:

1. Historic background research included early accounts of Western visitors, Native Hawaiian historians, historic maps, written records, Land Commission Award documents, photographs, and other pertinent documents. Research focused on the specific project area with general background on the *ahupua`a* (Waikīkī) and district (Kona). Traditional Hawaiian pre-contact and post-contact land-use patterns for Waikīkī and the environs of the study area were summarized.
2. The area of study was identified on maps and in photographs predating the extensive twentieth century environmental land alterations in the Waikīkī area, including the off-shore and Ala Wai Canal Land-reclamation projects in the 2nd and 3rd decades of the 20th century. These maps and photographs also depict both prehistoric and historic land-use within the study area.
3. Previous archaeological investigation in the *ahupua`a* of Waikīkī were reviewed, and studies documenting archaeological features and human burials near the current project parcel were identified.
4. Sub-surface excavations were conducted to test for the presence of significant archaeological cultural deposits and features. The provenience and quantity of cultural materials encountered were recorded and discussed. Datable sediment samples for chronological and environmental information were collected.
5. The possibility of human burials or archaeologically significant sub-surface deposits in the project area is discussed based on the above research.
6. This survey report includes: a topographic map identifying the current survey area and previous archaeological study areas; historical and archaeological background sections summarizing pre-contact and post-contact land-use as it relates to the project areas sub-surface features; a predictive model; description of archaeological sites encountered with selected photographs, and discussions of function; emphasis on trench profiles and collection of representative samples of materials present; and a summary of site categories and their archaeological and historic significance.
7. Recommendations based on all information specify what steps should be taken to mitigate impact of development on archaeological resources.

D. Methodology

Field inspection of the project area was accomplished in January 2000.

Background research included a review of previous archaeological studies on file at the State Historic Preservation Division of the Department of Land and Natural Resources; a review of geology and cultural history documents at Hamilton Library of the University of Hawai'i, the Hawai'i State Archives, the Mission Houses Museum Library, the Hawai'i Public Library, and the Archives of the Bishop Museum; study of historic photographs at the Hawai'i State Archives and the Archives of the Bishop Museum; and a study of historic maps at the Survey Office of the Department of Land and Natural Resources.

This research provided the environmental, cultural, historic, and archaeological background for the project area. The sources studied were used to formulate a predictive model regarding the expected type and location of sub-surface pre and post-contact historic properties in the project areas.

Sub-surface testing consisted of the excavation of 13 backhoe trenches. These trenches were excavated below the water table to the lower natural sand deposits (the gray coarse marine sand stratum) and/or the lower coral stratum. A 70 cm wide bucket was used on the backhoe, and one bucket width trenches were dug. Trench depth varied between 2-2.55 m, unless the lower coral stratum was encountered at a higher depth. Trenches were placed to test specific questions identified in the background research, as well as provide adequate coverage of all portions of the project parcel.

Four archaeologists were on site to conduct sub-surface investigations. Documentation included scale section profiles, sediment descriptions, and photographs of exposed trench sections. Sediment descriptions included Munsell color designations, texture and sediment size, compactness, structure, inclusions and cultural material present, and lower boundary attributes. Sediment samples and portable cultural materials were collected, inventoried, and catalogued. Artifacts included historic ceramic fragments, a man's shoe, a glass bottle, and two wood fragments. These were identified with historical artifact reference materials (Greer 1981; Lister 1989; Richie 1986; Willetts and Poh 1981; Anderson 1968; Munsey 1970). The ceramics were identified with the assistance of Susan Lebo, Phd., from the Bishop Museum.

II. WAIKĪKĪ AHUPUA`A AND THE PRESENT PROJECT AREA: CULTURAL AND HISTORICAL DOCUMENTATION

This section begins with a review of the available documentary evidence for the general character of the area presently identified as Waikīkī. How this area evolved in the years before Western contact, the later 18th century, is established by traditional cultural sources, early post-contact, and recent historic documentation. Subsequent alteration of Waikīkī lands adjacent to and including the present project area—during the 19th century and into the early 20th century—has been recorded in increasingly detailed documentation. This documentation includes cultural sources, government records, maps, and photographs. Finally, the increasing documentation of Waikīkī allows a more precise focus on development of the project area itself.

A. Pre-contact to 1800s

By the time of the arrival of Europeans in the Hawaiian Islands, during the late eighteenth century, Waikīkī had long been a center of political power with a large population. Martha Beckwith (1940:383), writes that by the end of the fourteenth century Waikīkī had become "the ruling seat of the chiefs of O'ahu." The preeminence of Waikīkī continued into the eighteenth century. Kamehameha decided to reside there after wresting control of O'ahu by defeating the island's chief, Kalanikupule. John Papa Āi (1959:17)—a nineteenth century Hawaiian historian and a member of the *ali`i*—described the king's Waikīkī residence:

Kamehameha's houses were at Puaaliili, *makai* of the old road, and extended as far as the west side of the sands of Apuakehau. Within it was Helumoa where Kaahumanu *ma* went to while away the time. The king built a stone house there, enclosed by a fence.

Āi further noted that the "place had long been a residence of chiefs. It is said that it had been Kekuapoi's home, through her husband Kahahana, since the time of Kahekili." (Āi 1959:17).

Chiefly residences, however, were only one element of land-use that characterized Waikīkī up to the contact era. Beginning in the fifteenth century, a vast system of irrigated taro fields were constructed, extending across the littoral plain from Waikīkī to lower Manoa and Palolo valleys. This field system—an impressive feat of engineering that is traditionally attributed to the chief Kalamakua (Handy and Handy 1972:481)—took advantage of streams descending from Makiki, Manoa and Palolo valleys. These streams provided ample fresh water for the Hawaiians living in the *ahupua`a* of Waikīkī. Water was also available from springs in nearby Mō`ili`ili and Punahou. Closer to the Waikīkī shoreline, coconut groves, banana cultivation, and fishponds dotted the landscape. A sizeable population developed amidst this Hawaiian-engineered resource abundance.

Captain George Vancouver, arriving at "Whyteete" in 1792, captured something of this profusion in his journals:

On shores, the villages appeared numerous, large, and in good repair; and the surrounding country pleasingly interspersed with deep, though not extensive valleys; which, with the plains near the sea-side, presented a high degree of cultivation and fertility.

[Our] guides led us to the northward through the village, to an exceedingly well-made causeway, about twelve feet broad, with a ditch on each side.

This opened our view to a spacious plain, which, in the immediate vicinity of the village, had the appearance of the open common fields in England; but, on advancing, the major part appeared to be divided into fields of irregular shape and figure, which were separated from each other by low stone walls, and were in a very high state of cultivation. These several portions of land were planted with the eddo or *taro* root, in different stages of inundation; none being perfectly dry, and some from three to six or seven inches under water. The causeway led us near a mile from the beach, at the end of which was the water we were in quest of. It was a rivulet five or six feet wide, and about two or three feet deep, well banked up, and nearly motionless; some small rills only, finding a passage through the dams that checked the sluggish stream, by which a constant supply was afforded to the *taro* plantations.

[We] found the plain in a high state of cultivation, mostly under immediate crops of *taro*; and abounding with a variety of wild fowl, chiefly of the duck kind...The sides of the hills, which were at some distance, seemed rocky and barren; the intermediate vallies, which were all inhabited, produced some large trees, and made a pleasing appearance. The plain, however, if we may judge from the labour bestowed on their cultivation, seemed to afford the principal proportion of the different vegetable productions on which the inhabitants depend for their subsistence (Vancouver 1798:I,161-164).

Further details of the exuberant life that must have characterized the Hawaiian's use of the land in the *ahupua`a* of Waikiki are given by Archibald Menzies, a naturalist accompanying Vancouver's expedition:

The verge of the shore was planted with a large grove of cocoanut palms, affording a delightful shade to the scattered habitations of the natives. Some of those near the beach were raised a few feet from the ground upon a kind of stage, so as to admit the surf to wash underneath them. We pursued a pleasing path back to the plantation, which was nearly level and very extensive, and laid out with great neatness into little fields planted with taro, yams, sweet potatoes and the cloth plant. These, in many cases, were divided by little banks on which grew the sugar cane and a species of *Draecena* without the aid of much cultivation, and the whole was watered in a most ingenious manner by dividing the general stream into little aqueducts leading in various directions so as to be able to supply the most distant fields at pleasure, and the soil seemed to repay the labour and industry of these people by the luxuriancy of its productions. Here and there we met with ponds of considerable size, and besides being well stocked with fish, they swarmed with water fowl of various kinds such as ducks, coots, water hens, bitterns, plovers and curlews. (Menzies 1920:2324)

The traditional Hawaiian focus on Waikīkī as a center of chiefly and agricultural activities was soon to change, disrupted by the same Euro-American contact which produced the first documentation of that traditional life. The *ahupua`a* of Honolulu had the only sheltered harbor on O`ahu, and it became the center for trade with visiting foreign vessels. Numbers of Hawaiians were drawn away from their traditional environments, into the activities of the growing town and Honolulu Harbor. This shift in pre-eminence, from Waikīkī to Honolulu, is evident by the fact that Kamehameha moved his residence from Waikīkī to Honolulu. Indeed, by 1828, Levi Chamberlain describing a journey into Waikīkī would note:

Our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now overgrown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the natives respecting this present neglected state. They ascribed it to the decrease of population (Chamberlain 1957:26).

The depopulation of Waikīkī was, in a small way a result of the attractions of Honolulu, but more accurately a result of the devastating effects of European diseases upon the Hawaiian populace. The depopulation of Waikīkī, however, was not complete and

the *ahupuaʻa* continued to sustain Hawaiians living traditionally into the nineteenth century. Land Commission Award records from the 1850s document awardees continuing to maintain fishponds and irrigated and dry-land agricultural plots, though on a greatly reduced scale than had been possible with adequate manpower, previously.

A 1881 map of Waikīkī shows a network of fishponds *makai* of the government road (route of the old Waikīkī Road and the present Kalākaua Avenue) in the present Ft. DeRussy area (Map 3). The map indicates that a stream or *ʻauwai* (ditch)—which fed the fishponds—coursed within the *ʻEwa* side of the project area. This *ʻauwai* was entered on the State Inventory of Historic Places as Site 50-80-14-4970 during archaeological study at Ft. DeRussy; see Section III below. The map also indicates that, at the Māhele, portions of the present project area were awarded to William C. Lunalilo (LCA 8559B:29) and to Kauhao (LCA 6386:7). Documents associated with these awards do not reveal what specific activities or land usages were occurring on these parcels at mid-19th century.

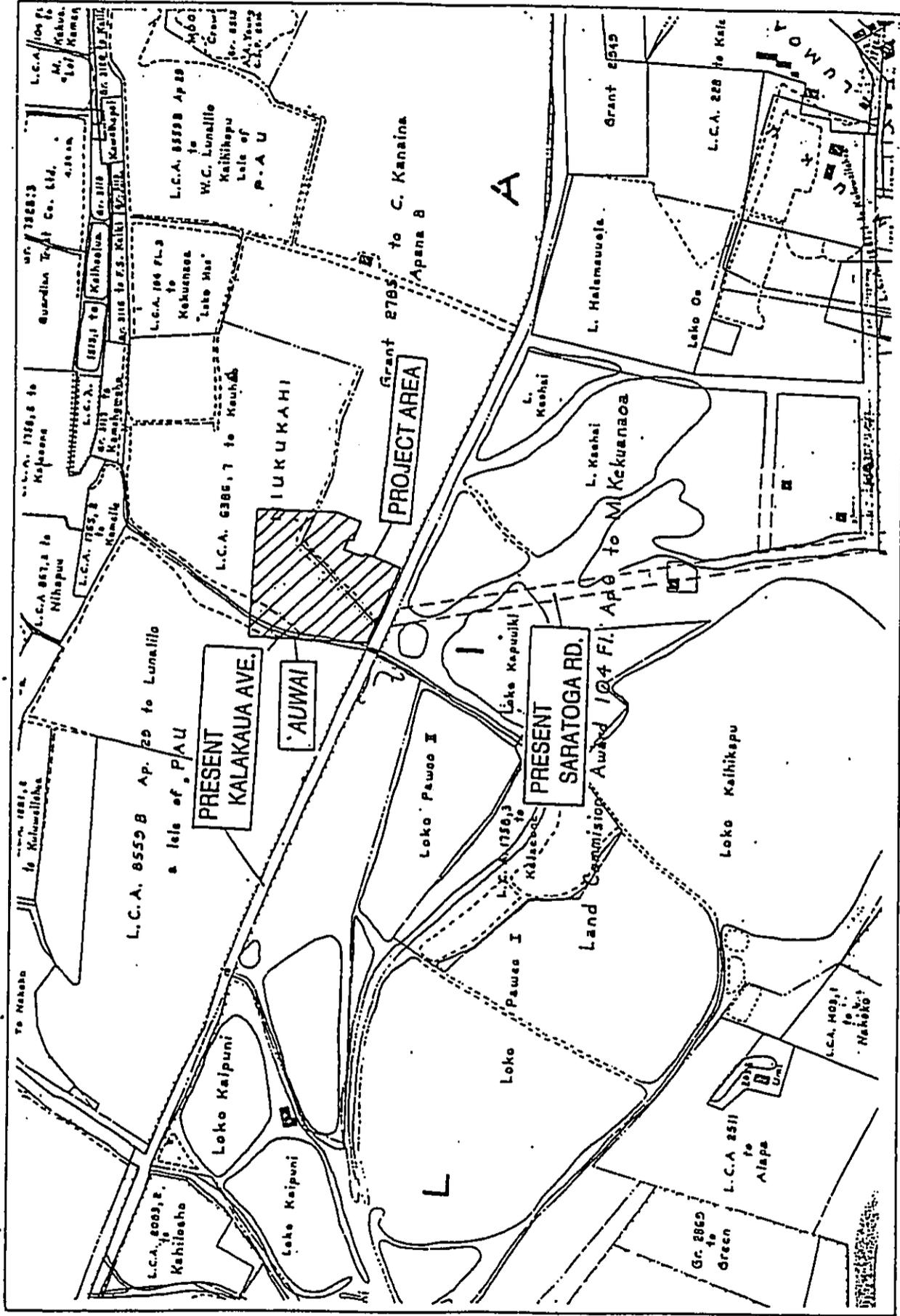
Waikīkī was becoming a popular site among foreigners—mostly American—who had settled on Oʻahu; an 1865 article in the Pacific Commercial Advertiser mentioned a small community that had developed along the beach. The area continued to be popular with the *aliʻi*—the Hawaiian royalty—and several notables had residences there. Other developments during the second half of the nineteenth century—prefiguring the changes that would alter the landscape of Waikīkī during this century—include the improvement of the road connecting Waikīkī to Honolulu (the route of the present Kalākaua Avenue), the building of a tram line between the two areas, and the construction of Kapiʻolani Park.

By the end of the nineteenth century most of the abundant fish ponds had been neglected—as a result of the decrease in population due to disease—and allowed to deteriorate. The remaining taro fields were planted in rice to supply the growing numbers of immigrant laborers imported from China and Japan, and for shipment to the west coast of the United States. An 1901 map of Honolulu shows rice fields extending across the plain of Waikīkī, and a banana plantation extending over the current project parcel; the *ʻAuwai O Pau* and its *mauka* path is also depicted, along with the expanding grid of streets surrounding Waikīkī (Map 4). A photograph taken between 1897 and 1901—looking *mauka* from the *makai* side of Waikīkī Road (Kalākaua Avenue)—depicts the area as active with banana agriculture, and characterized with palm trees and property fencing (Photo 1).

B. 1900 to 1920s

During the first decade of the 20th century, the U.S. War Department acquired more than 70 acres in the Kālia portion of Waikīkī for the establishment of a military reservation called Ft. DeRussy, named in honor of Brig. Gen. R.E. DeRussy of the Army Corps of Engineers.

On 12 November 1908, a detachment of the 1st Battalion of Engineers from Fort Mason, California, occupied the new post...



Map 3 Portion of 1881 map by S.E. Bishop, with location of present project area

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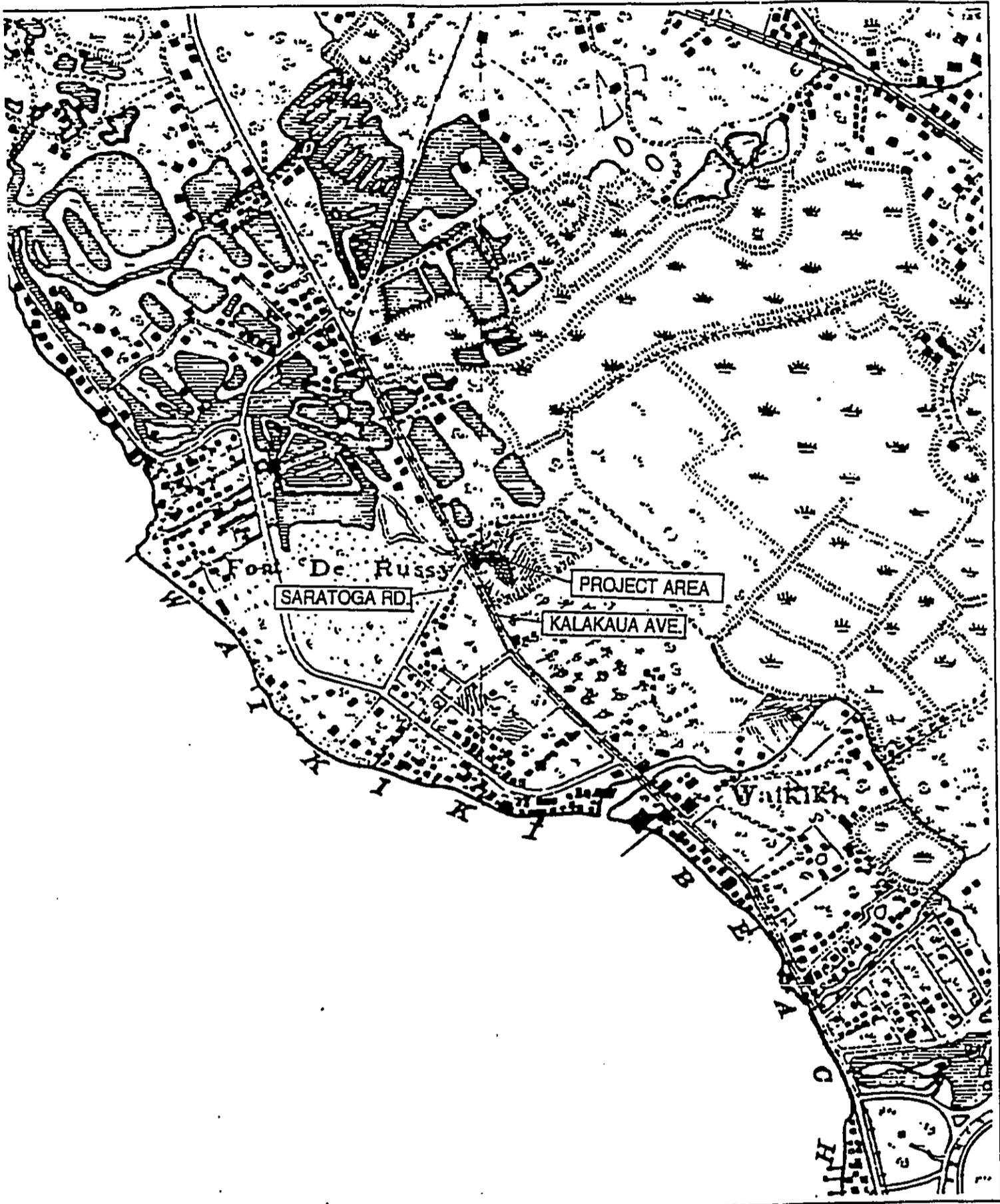
Between 1909 and 1911 the engineers were primarily occupied with mapping the island of O'ahu. At DeRussy other activities also had to be attended to—especially the filling of a portion of the fish ponds which covered most of the Fort. This task fell to the Quartermaster Corps, and they accomplished it through the use of an hydraulic dredger which pumped fill from the ocean continuously for nearly a year in order to build up an area on which permanent structures could be built. Thus the Army began the transformation of Waikīkī from wetlands to solid ground. (Hibbard and Franzen 1986:79)

A map of O'ahu based on military surveys between 1909 and 1913 shows that much of the Kālia land now identified as Ft. DeRussy had been filled-in, and many structures covered the Waikīkī landscape *makai* of Kalākaua Ave (Map 5). The map also presents a more detailed picture of the present project area than that recorded in the earlier maps discussed above. It suggests that, in addition to the *auwai* (ditch) there was a pond and marshy fields located within the project area. This is confirmed with a 1910 photograph taken of a stream or pond and banana cultivation, which according to the photographer was taken in the area between today's 'Olohana and Lewers Streets—the photograph was taken looking *mauka* from Kalākaua Avenue (old Waikīkī Road) (Photo 2). This information places the photographer, almost unmistakably, looking into the project area.

During the 1920s the project area would be transformed. The construction of the Ala Wai Drainage Canal—began in 1921 and completed nine years later—resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī. The canal was one element of a plan to urbanize Waikīkī and the surrounding districts:

The [Honolulu city] planning commission began by submitting street layout plans for a Waikīkī reclamation district. In January 1922 a Waikīkī improvement commission resubmitted these plans to the board of supervisors, which, in turn, approved them a year later. From this grew a wider plan that eventually reached the Kapahulu, Mo'ili'ili, and McCully districts, as well as lower Makiki and Manoa...

The standard plan for new neighborhoods, with allowances for local terrain, was to be that of a grid, with 80-foot-wide streets crossing 70-foot-wide avenues at right angles so as to leave blocks of house lots about 260 by 620 feet. Allowing for a 10-foot-wide sidewalk and a 10-foot right-of-way [alley] down the center of each block, there would be twenty house lots, each about 60 by 120 feet, in each block. (Johnson 1991:311)



Map 5 Portion of U.S. Army Engineers Map, based on military surveys from 1909 to 1913, and showing Fort DeRussey and present project area

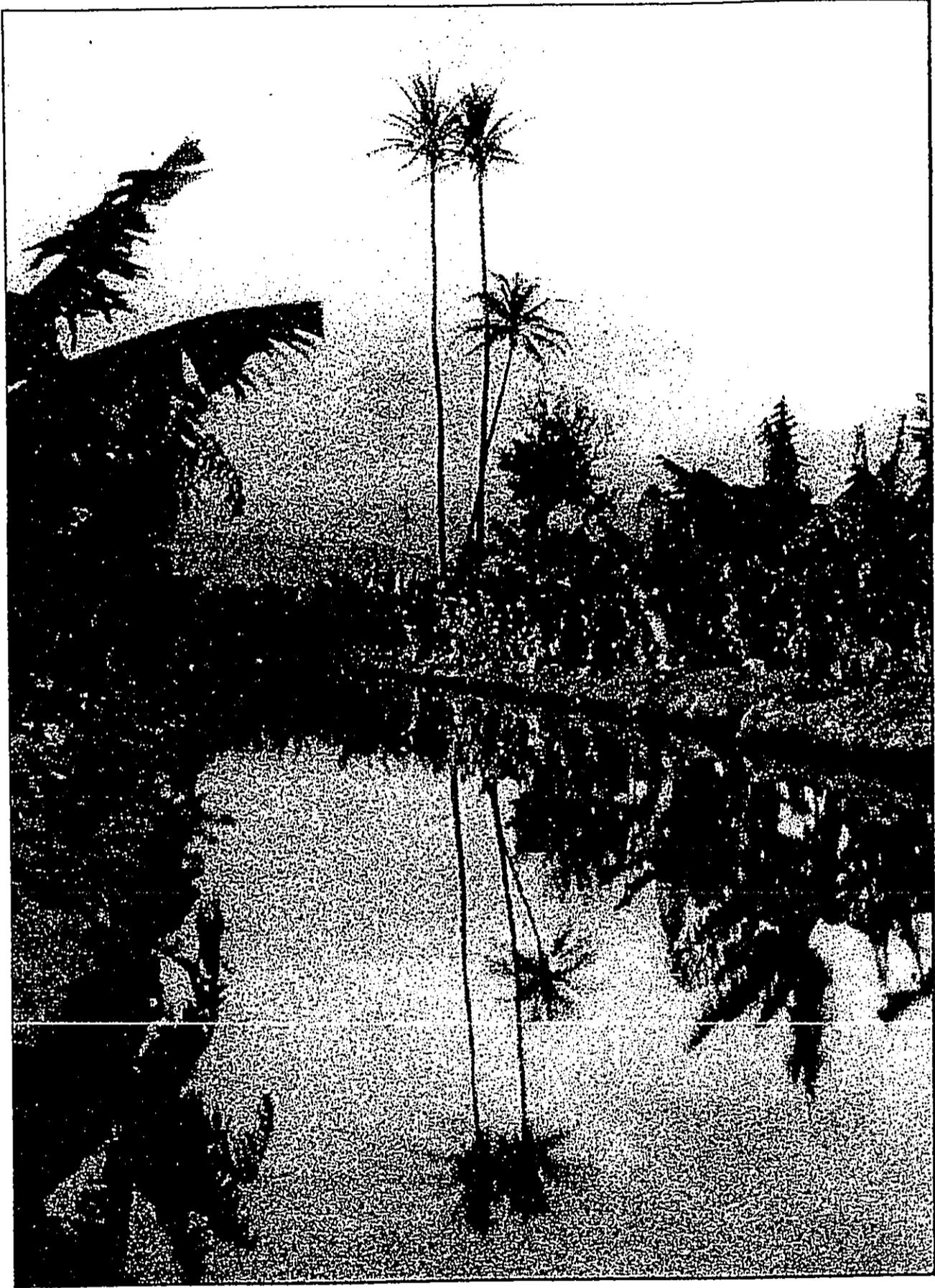


Photo 2 1910 Photograph, banana field and stream from Kalakaua Avenue (Waikiki Road) between 'Olohana and Lewers Streets. Photo by Ray Jerome Baker (Bishop Museum CP 114,153)

Nakamura (1979:85) writes that the government of the Territory of Hawai'i solicited bids, in 1920, for the dredge and fill project planned for the environs of Waikiki. The plan was to create hundreds of acres of urban land—at the expense of wetland agriculture and aquaculture in the area. The advertisement soliciting bids for the project, put forward by Lyman H. Bigelow, masked the significance of the project by stating that “for Dredging a Drainage Canal and Filling and Reclaiming Certain Unsanitary Lands at Waikiki” (Nakamura 1979:85). He further writes that State laws were passed requiring property owners to pay for the filling in of their lands, which apparently was going to be done whether they wanted it or not. A lien would be fixed against their property and if all payment was not made on time, land would be foreclosed on. Nakamura points out that the cost was so high for some of the property owners, that the bank lien could extend into a fifteen year mortgage (Nakamura 1979:89).

Once land that the Territory of Hawai'i government wanted filled in (for state buildings) was complete, any further dredged materials became the property of the dredging company—the Hawaiian Dredging Company—and they in turn could sell the materials to the property owners, who in turn were forced to buy the product. Walter F Dillingham, of the Hawaiian Dredging Company died in 1963. *Time* magazine, in their article about him and his involvement in the project stated that “...Walter Dillingham used the muck dragged up from the sea to fill in low, marshy areas around Honolulu, over the years created 5,000 acres of solid ground that now holds a full third of the city's population,” (cited in Nakamura 1979:112).

The land surface of modern Waikiki is situated on the result of this decade long dredging and fill project of which the creation of the Ala Wai Canal was included. In Nakamura's (1979:113) “The Story of Waikiki and the “Reclamation” Project” he writes that this land “reclamation” program changed the ecology of Waikiki from a once viable and important agriculture and aquaculture center...destroyed by profit-seeking capitalist entrepreneurs...under the subterfuge of “drainage” and “sanitation.”. Many of the original property owners lost their land or had serious damage to their property as a result of the reclamation activities and/or the costly expense for the mandatory filling in of their properties.

Information about the actual dredging and fill process, and the materials dredged-up and used for fill is minimal. Statements and pictures regarding the event suggest that dredging was done both off-shore, on the ocean bed, and in the area slated for the canal (Photos 3 and 4). As yet, information regarding the filling process of personal properties—with the excess dredge that became the property of the Hawaiian Dredging Company—is unclear. Numerous phases seem to have taken place. In the case of the current project area, its location adjacent to Ft. DeRussy may be relevant to the earlier fill projects in that area; considering that the Army's own off-shore hydraulic dredge and fill of the Ft. DeRussy and adjacent areas took place between 1909 and 1915.

An aerial photograph of the late 1920s shows the new canal and the filled in lands of Waikiki, including the present project area, overlaid with the new gridwork of streets (Photo 5). The photograph indicates that there were no structures on the project area in

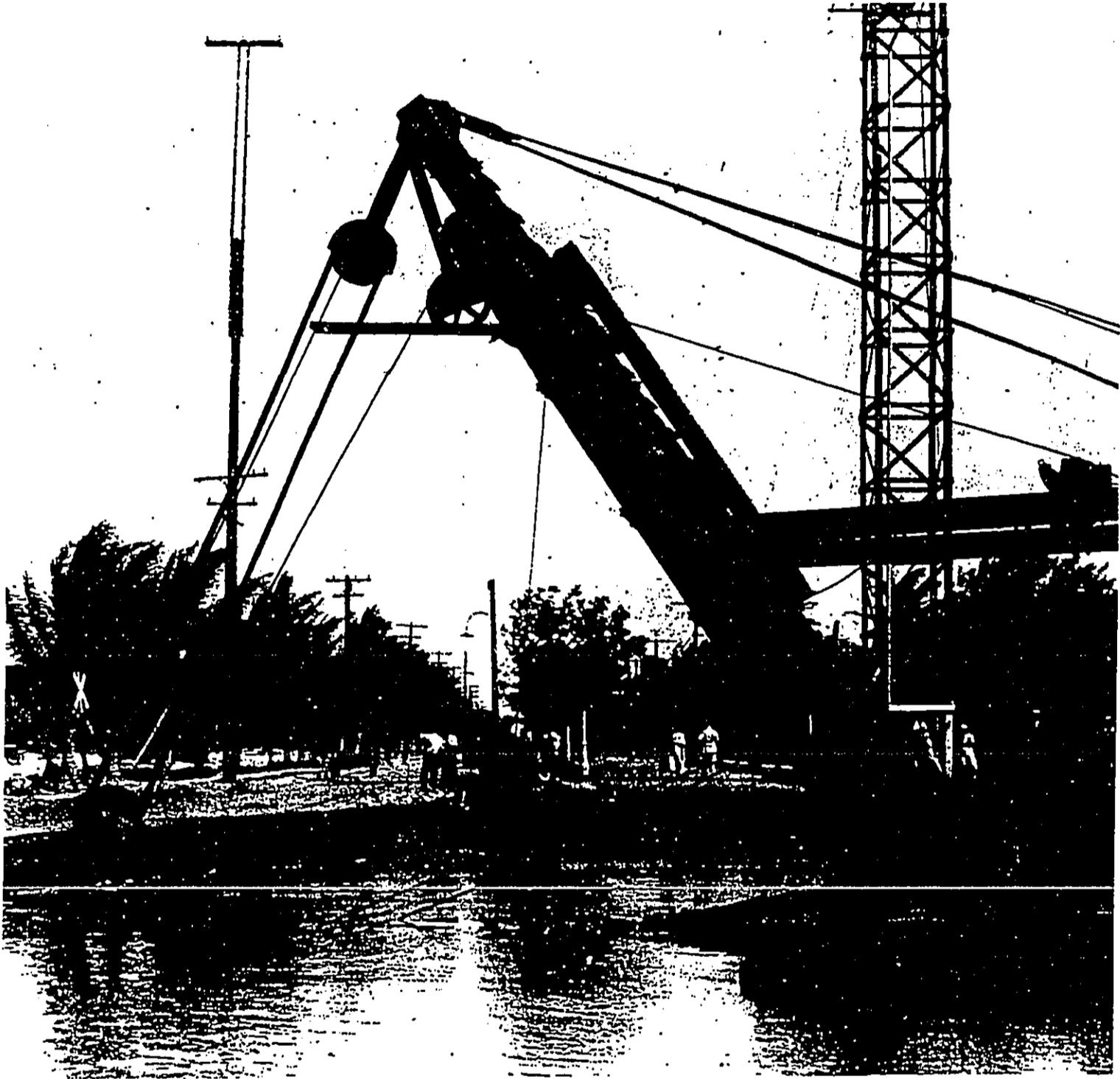


Photo 3 Dredging the Ala Wai Canal at Kalākaua Avenue, ca. 1924
(Bishop Museum Archives negative CP 104,362)

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Photo 4 Floating dredge line in the Ala Wai Canal ca. 1924
(Bishop Museum Archives negative CP 73903)



Photo 5 Enlarged portion of aerial photograph, ca. late 1920s, showing location of the project area and possible remnant of the *Auwai O Pau*
(Bishop Museum Archives)

the late 1920s. A line of vegetation shown cutting across the project area is likely a remnant marking the route of the *auwai* (ditch) that formerly drained into the fishponds at Ft. DeRussy.

A 1927 Sanborn Fire Insurance map shows the new block defined by Kalākaua and Kuhio avenues and Kalaimoku and Lewers streets (Map 6). The map confirms that no buildings had yet been constructed within the present project area. The only structure located on the block is a "sewerage pump" located outside the project area.

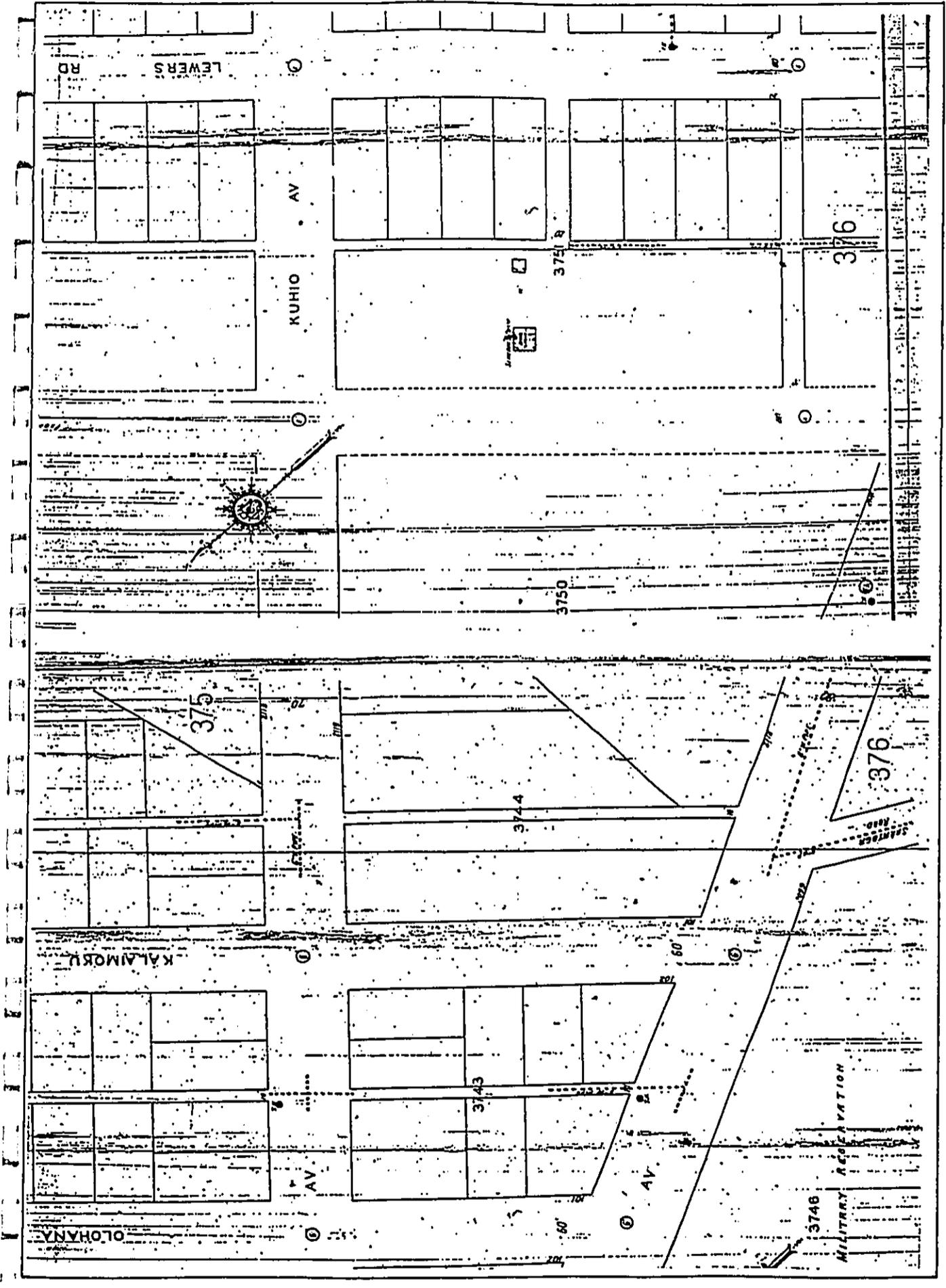
C. Late 1920s to Present - Historic Building Review

By the latter 1940s, following World War II, the portion of Waikīkī which includes the present project area was covered by a mix of commercial and residential buildings. A ca. 1945 photograph shows the southwest corner of the project area at Kalaimoku Street and Kalākaua Avenue (Photo 6). This portion of the project area contained, in the 1940s, a parking lot and a taxi stand shelter (shown in the right foreground). Also within the project area are one-story wooden buildings whose roofs are just visible above the fence behind the parking lot. Outside the project area, on the *ʻEwa* side of Kalaimoku Street, is the Kuhio Theater which was constructed in 1942 (*Art-Deco* style building). This theater and the other structures on the property in 1999, were demolished to construct the Kalākaua Plaza. This new shopping plaza now houses Niketown, Banana Republic, and the All Star Cafe.

A 1951 Sanborn Fire Insurance map identifies the buildings and features present on the project area at mid-century (Map 7). The map shows the parking lot and taxi stand, as seen in the previous ca. 1945 photograph, on the site of the later Canlis Charcoal Broiler restaurant (no longer extant). Along the portion of the project area fronting Kuhio Avenue are one-story wooden buildings identified as store and dwelling units (at TMK 2-6-18:73, 52 & 55). None of these structures remain.

Two well-known structures and business establishments were added to the project area since the early 1950s when the fire insurance map was drawn. In 1946 the restaurateur Peter Canlis opened the first Canlis Charcoal Broiler in Waikīkī at the Kuhio Beach end of Kalākaua Avenue, on what would later become the site of the Waikīkī Biltmore Hotel (demolished in 1974). Canlis relocated his restaurant to 2100 Kalākaua Avenue—within the present project area—in 1954. The new restaurant was designed by the firm of Wimberley and Cook, at a cost of \$250,000. The restaurant continued in operation until 1989. The Canlis building subsequently served as a Honolulu Police Department sub-station, until the demolition of all the structures on the property (1999).

In 1974, Hula's Bar & Lei Stand opened at the *makai*-Diamond Head corner of Kuhio Avenue and Kalaimoku Street (at TMK 2-6-18:73). It replaced a laundromat and food stand which were then operating on the parcel. It remained in operation until its closing in 1998.



Map 6 1927 Sanborn Fire Insurance map showing newly-created block bounded by Kalakaua and Kuhl avenues and Kalaimoku and Lewers streets

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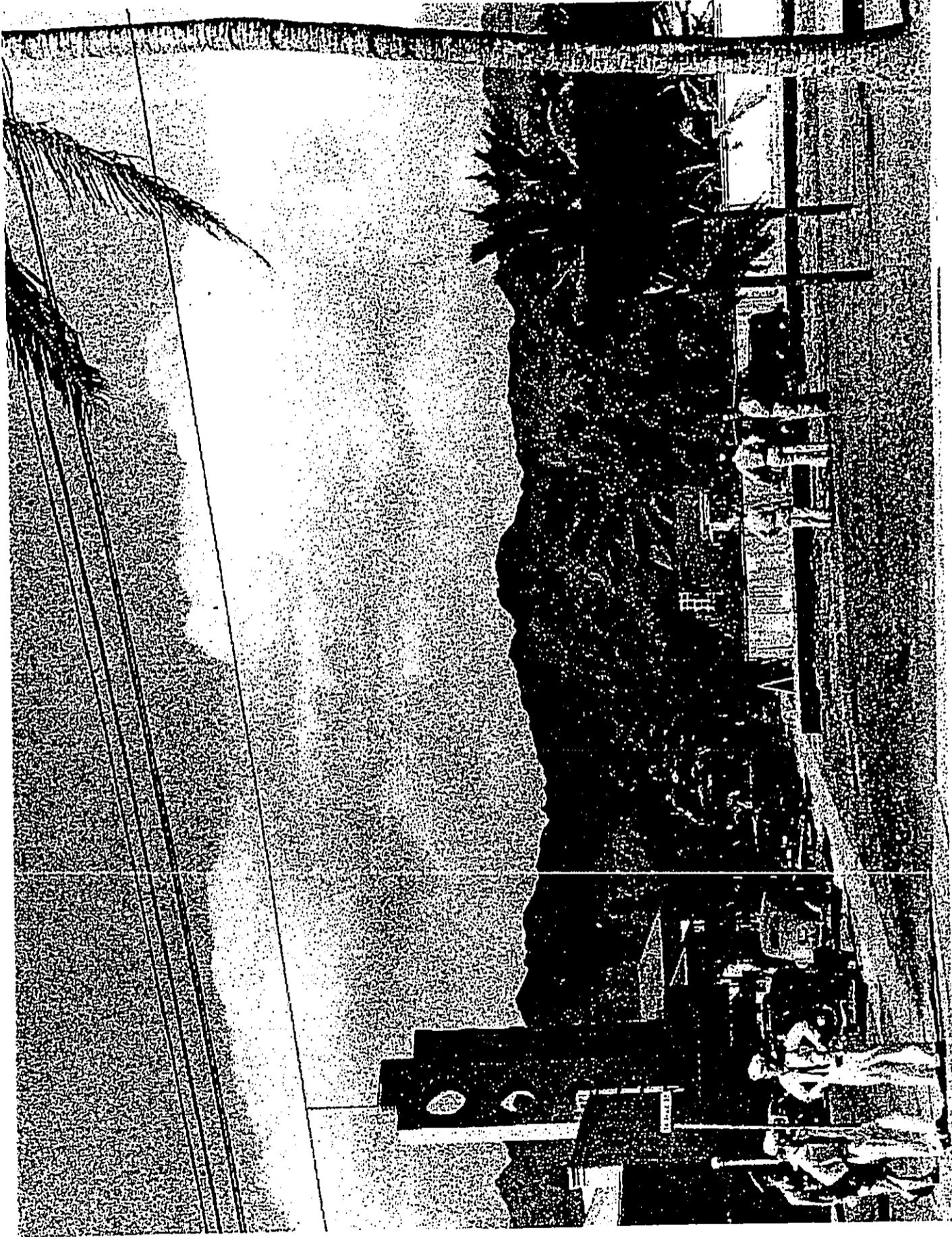
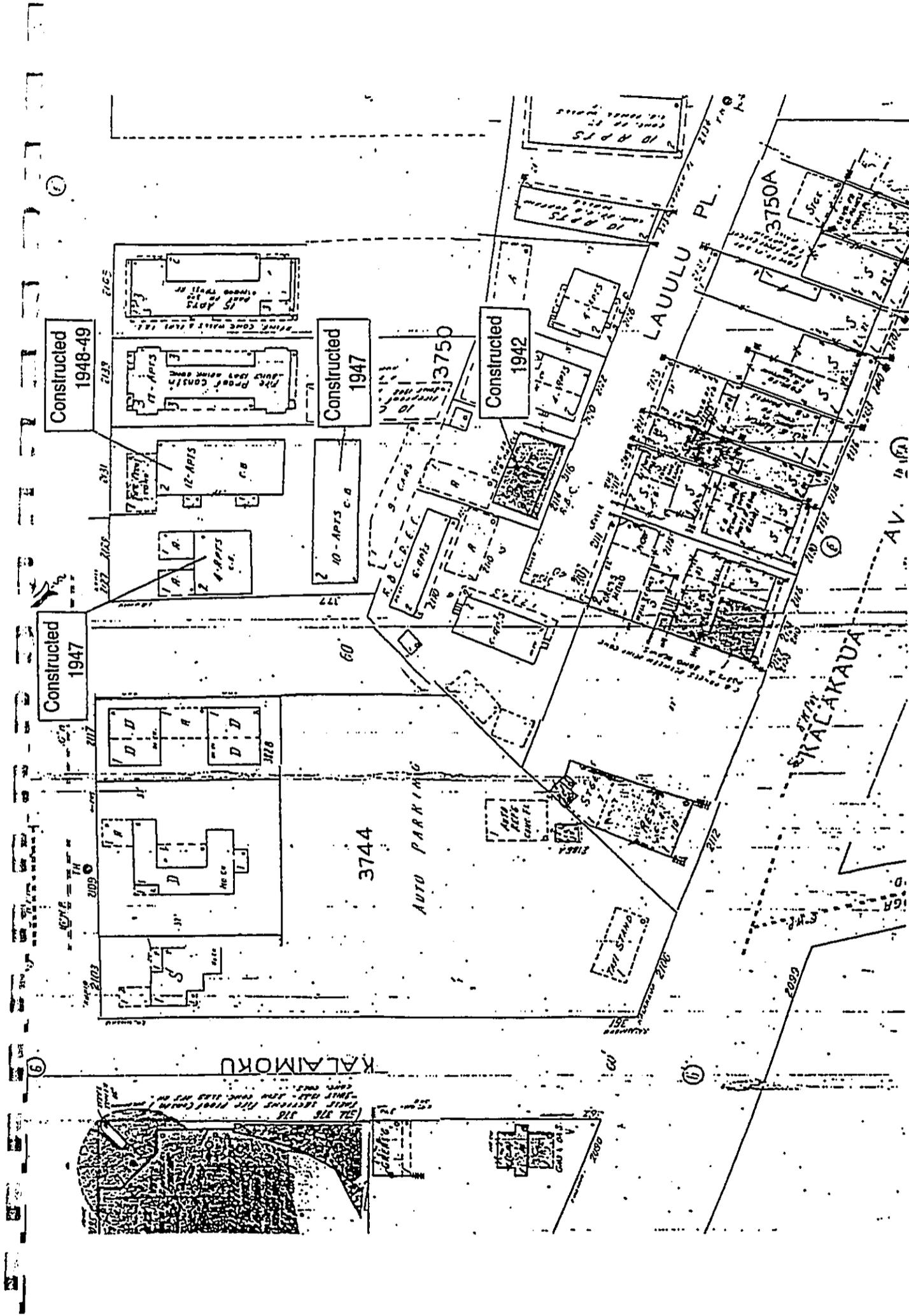


Photo 6 Corner of Kalakaua Avenue and Kalaimoku Streets, ca. 1945, (Bishop Museum Archives Negative CP 85935)



Map 7 1951 Sanborn Fire Insurance map showing block bounded by Kalakaua and Kuhio avenues, and Kalaimoku and Lewers streets with construction dates of buildings currently in project area

As stated in the project background, the concern regarding the demolition of the Canlis Restaurant building was addressed through the redesign of the "koban" police station structure now planned for the property. This structure will typify the same architectural trends of the Canlis building it replaces.

At the present time (April 2000) the project parcel remains fenced. Large trees remain on the property—including an historic Banyan in the NE corner—and are being cared for by the property caretaker. The site is presently being rented out for private functions and use such as preparation grounds for parade organization.

III. PREVIOUS ARCHAEOLOGICAL RESEARCH

Prior to the 1980s, the majority of the information concerning Waikīkī—from archaeological sources—center around the inadvertent excavations of human burials during construction activities. The previous archaeology discussed below—also summarized in the following table and map (Figures 1 and 2)—testifies to the rich cultural resource information which lies beneath Waikīkī, below the land-reclamation fill sediments which preserved them in the archaeological record.

In 1901, while digging a sewer line at the James B. Castle property near Diamond Head (the area of the present Elks Club) the remains of at least four adult Hawaiians were unearthed along with "a number of conical teeth of whale teeth, a number of round glass beads of large size, and a small sized niho-palaoa, such as was generally appropriated to the use of the chiefs" (Emerson 1902:19).

Thrum, in 1916, compiled descriptions of heiau on O'ahu. Information on previously destroyed heiau was gathered from local informants. The study was not systematic, and Thrum did not visit all the heiau he wrote about, however, it is an informative source.

In the 1930's, the first systematic archaeological survey of O'ahu was conducted by J.C. McAllister (1933). He recorded five *heiau* in the vicinity of Waikīkī, four of which were located at the *mauka* reaches of Waikīkī *Ahupua'a* in lower Manoa Valley including Kukaoo *Heiau*, Kawapopo *Heiau*, Hakika/Paliluahine *Heiau*, and Mauoki *Heiau*. The fifth *heiau*—Papaenaena—was located at the foot of Diamond Head crater in the environs of the present Hawai'i School for Girls. Papaenaena *Heiau* is traditionally associated with Kamehameha I who was said to have visited the *Heiau* before setting off to battle for Niihau and Kauai in 1804. Five years later, according to John Papa ʻŪi, Kamehameha placed at Papaenaena the remains of an adulterer—"all prepared in the customary manner of that time" (ʻŪi 1959:50-51).

During the 1960s through the 1970s inadvertent burial finds were reported at construction sites stretching from the Fort DeRussy area to the foot of Diamond Head crater. In 1961 a human burial and a nineteenth century trash pit were unearthed during construction on Saratoga Road adjacent to Fort DeRussy. In 1963 human burials were discovered during construction activities at 2431 Prince Edward Street and at the site of the present Outrigger Canoe Club across from Kapi'olani Park. Twenty-five burials were excavated by the Bishop Museum, several of which were interred in flexed (with knees drawn up to the chin) or semi-flexed positions—traditional Hawaiian burial postures.

Sand dune burials—another traditional Hawaiian mortuary practice—were revealed in 1964 as beach sand fronting the Surfrider Hotel shifted and eroded.

The remains of six burials—five of apparent prehistoric or early historic age and one of more recent date—were unearthed in 1976 during construction of the Hale Koa Hotel adjacent to the Hilton Hawaiian Village Hotel.

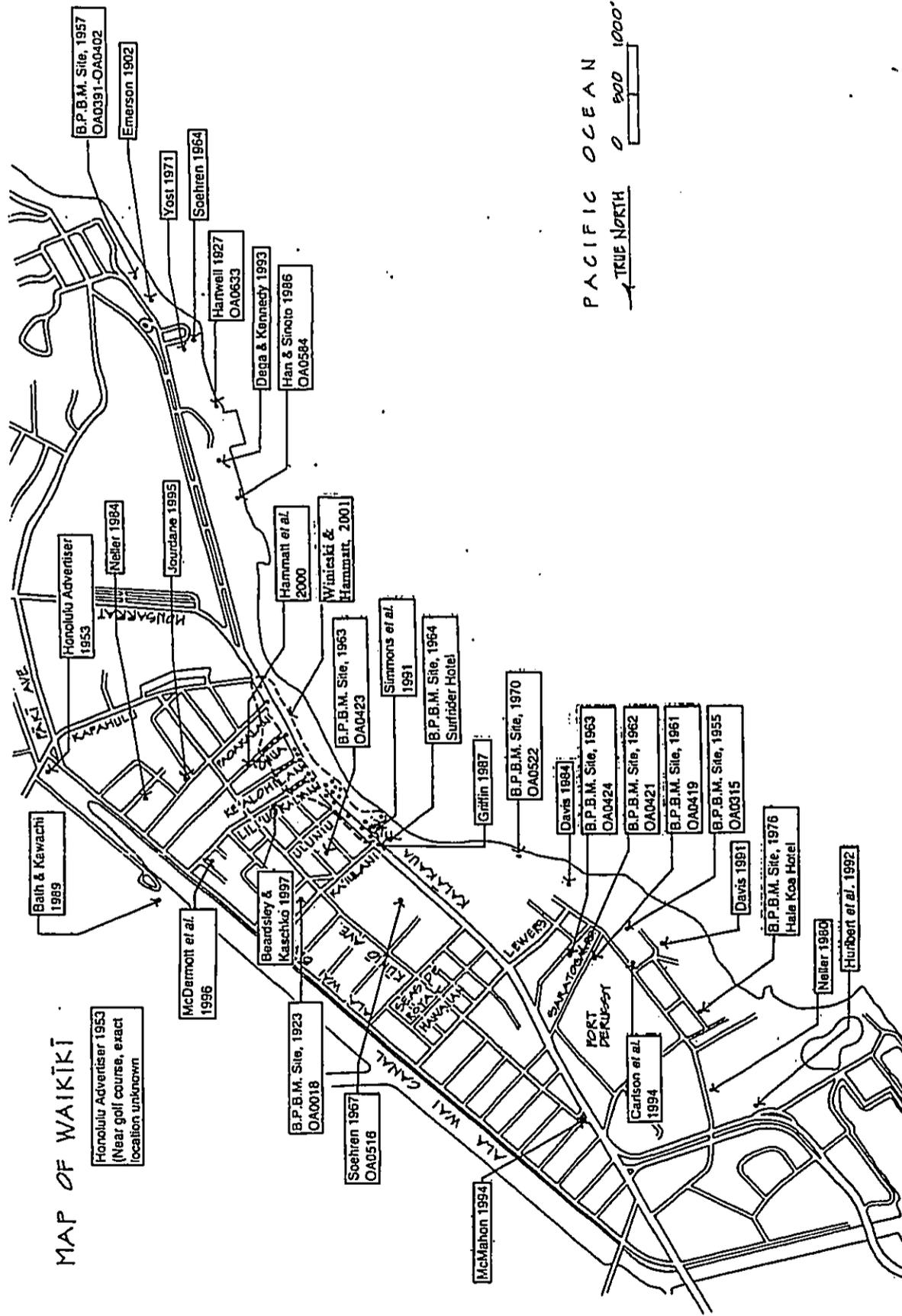


Figure 1 Previous Archaeology Studies in the Waikiki area

In 1980, three burials were exposed at the Hilton Hawaiian Village, during construction of the hotel's Tapa Tower. Earl Neller of the State Historic Preservation Program was called in upon discovery of the burials and conducted fieldwork limited to three brief inspections of the project area. Neller's (1980) report noted:

The bones from three Hawaiian burials were partially recovered; one belonged to a young adult male, one a young adult female, and one was represented by a single bone. An old map showed that rapid shoreline accretion had occurred in the area during the 1800s, and that the beach in the construction area was not very old. It is possible the burials date back to the smallpox epidemic of 1853. It is likely that burials will continue to be found in the area. It is also possible that early Hawaiian sites exist farther inland, beneath Mo`ili`ili, adjacent to where the shoreline would have been 1000 years ago. (Neller 1980:5)

Neller also documented the presence of trash pits, including one from the 1890s which contained "a large percentage of luxury items, including porcelain tablewares imported from China, Japan, the United States, and Europe" (*ibid*:5). He further notes:

It is suspected that other important historic archaeological sites exist in the highly developed concrete jungle of Waikiki, with discrete, dateable trash deposits related to the different ethnic and social groups that occupied Waikiki over the last 200 years. (*ibid*:5)

Between December 1981 and February 1982, archaeologists from the Bishop Museum, led by Bertell Davis, conducted a program of excavations and monitoring during construction of the new Halekulani Hotel. Six human burials were recovered along with "animal burials [and] cultural refuse from prehistoric Hawaiian firepits, and a large collection of bottles, ceramics, and other materials from trash pits and privies dating to the late 19th century" (Davis 1984:i). Age analysis of volcanic glass recovered from the site led Davis to conclude: "For the first time we can now empirically date...settlement in Waikiki to no later than the mid-1600s" (*ibid*:i). Just as significant to Davis was the collection of historic era material at the Halekulani site; he states:

[The] Halekulani excavations clearly demonstrate...that there is a definite need to consider historic-period archaeology as a legitimate avenue of inquiry in Hawaiian research. Furthermore, archaeology in the urban context can yield results every bit as significant as in less developed areas. Development in the 19th and early 20th centuries clearly has not destroyed all archaeological resources in Waikiki, Honolulu, or in any of the other urbanized areas of Hawai'i. (*ibid*:i)

From January through December of 1983, Earl Neller of the State Historic Preservation Office conducted archaeological fieldwork during construction of the Lili'uokalani Gardens condominium on Paoakalani Street. The bones of seven

individuals— all from prehistoric Hawaiian graves—were recovered at the site. Neller's (1984) report noted:

Queen Lili'uokalani had a bungalow at the project site, and broken glass and ceramic were collected that once was used by the Queen and her guests. There is a deeply buried cultural layer at the site that is older than the graves. (Neller 1984:i)

Neller recommended further work to develop a full-scale study of the material collected at the site; unfortunately, no such study was ever produced.

During 1985 and 1986, archaeologists from Paul H. Rosendahl, Ph. D. Inc. conducted archaeological monitoring for the Mechanical Loop Project located at the Hilton Hawaiian Village property in Waikiki. This project area had been subject to both historic and modern construction and modification disturbance. In 1980, Neller, as mentioned above, had responded to inadvertent burials during one of these construction disturbances; however, no additional burials were unearthed during the latter project. Although, fifteen sub-surface historic trash pit or trench features were documented during archaeological monitoring. The dating analysis of cultural material within these features established feature chronology; all 15 features were reported as post-dating 1881.

Griffin (1987) documented human burials in front of the Moana Hotel at Helumoa, fronting Kalākaua Avenue. In the following year, during additional renovations at the Moana (Simons 1988), human burials were again encountered. In addition, prehistoric and historic site deposits were also recorded.

During 1988 the Moana Hotel Historical Rehabilitation Project (Simmons et. al. 1991) encountered human remains that amounted to at least 17 individuals. Based on stratigraphic association these burials were interred over time as the land form at the site changed. The sediment surrounding these burials yielded traditional midden and artifact assemblages. The burials and human remains were found in the Banyan Court and beneath the hotel itself.

In 1989, Bath and Kawachi reported skeletal remains unearthed during the digging of an electrical line trench, for a new sprinkler system, on the grounds of the Ala Wai Golf Course. The trench had exposed a pit containing two burials, the report suggested that one of the burials may have been previously disturbed during grading for the Territorial Fair Grounds. The osteological analysis included in the report concludes that both sets of remains "appear ancient." (Bath and Kawachi 1989).

Davis' (1989) sub-surface investigations and monitoring work at Fort DeRussy documented substantial sub-surface archaeological deposits—prehistoric, historic, and modern. These recorded deposits included: early historic era fishponds from which buried fishpond sediments were sampled, *auwai* sediments sampling, midden and artifact enriched sediments, habitation deposits with structural remains such as post holes and fire pits, historic trash pits, and a human burial. The fishponds and habitation deposits were

recorded and assigned both state and Bishop Museum site numbers. Davis' (1991) report documents similar findings, and testing dating human activity in the Fort DeRussy beach front area from no later than the mid-16th century to the present.

The work at Fort DeRussy continued in 1992 when BioSystems researchers built upon Davis' work for a data recovery project designed to mitigate adverse effects of the impending construction of a new recreational facility (Simons, et.al. 1995). BioSystems' research further documents the development and expansion of the fishpond and *'auwai* (ditch) system in this area. The *'auwai* system was added to the State Inventory of Historic Places (SHPD) as Site 50-80-14-4970. As indicated on the 1881 map by S.E. Bishop (see Map 3), this *'auwai* enters the Ft. DeRussy grounds through the present project area. Remains of the fishpond and *'auwai* deposits, as well as habitation deposits were documented below modern fill deposits. This research, along with that of Davis (1991), clearly demonstrates that historical document research can be an effective guide to locating late prehistoric/early historic sub-surface deposits, even amidst the development of Waikīkī.

The realignment of Kālia Road at Fort DeRussy in 1993 uncovered approximately 40 human burials. A large majority of these remains were recovered in a large communal burial feature (Carlson *et. al.* 1994). The monitoring and excavations associated with this realignment also uncovered a cultural enriched layer which contained post holes.

On April 28, 1994 an inadvertent burial discovery was made during excavation for a water line at the intersection of Kalākaua Avenue and Kuamo'o Street (just *mauka* of Ft. DeRussy and two blocks northwest of the present project area). These remains represented a single individual (McMahon 1994).

Another inadvertent discovery of human remains occurred in April of 1995 at the site of the Waikīkī Sunset Hotel (Jourdane 1995). The remains appeared to be a single individual.

Hammatt and Shideler (1996) reported radiocarbon dates, prepared by Beta Analytic Inc., for strata from data recovery at the Hawai'i Convention Center Site in Waikīkī. Carbon isotope dating and OXCAL calibrations to correct for the marine carbon reservoir established that the top of a dark greenish gray clay stratum (IV) dated at a conventional radiocarbon age of 570 ± 50 BP and a Marine Reservoir corrected date (95% confidence) of 1715-1950 AD, while the bottom of the same clay layer respectively dated at 810 ± 50 BP and 1520-1950 AD. The overlaid lower layer of Stratum III, described as a fine gray loamy sand registered a conventional radiocarbon age of 2900 ± 100 BP and a Marine Reservoir corrected date of 800 BC-150 BC, and the upper layer dated at 2430 ± 100 BP and 250 BC-400 AD. This stratigraphic sequence denotes a cultural deviation from superposition, and is interpreted by Hammatt and Shideler (1996) as the result of a series of historic land-reclamation fills. It was also reported that no clear evidence of pre-Contact occupation was observed (Hammatt and Shideler 1996).

In 1996 Pacific Legacy, Inc. conducted an archaeological inventory survey of the

block bounded by Kalākaua Avenue, Kuhio Avenue, 'Olohana Street, and Kalaimoku Street. This parcel is located immediately adjacent to, and on the 'Ewa side of, the present project area. The survey included excavation of seven backhoe trenches. The sub-surface testing results reported (Cleghorn 1996:15) inferred that:

...this area was extremely wet and probably marshy. This type of environment was not conducive for traditional economic practices...The current project area appears to have been unused because it was too wet and marshy.

Several peat deposits containing the preserved remains of organic plant materials were discovered and sampled. These deposits have the potential to add paleoenvironmental information to our knowledge of the area.

The report concluded that no further archaeological investigations of the parcel were warranted since "no potentially significant traditional sites or deposits were found" but cautioned of the "possibility, however remote in this instance, that human burials may be encountered during large scale excavations" (Cleghorn 1996:15).

In 1996, a traditional Hawaiian burial was discovered and left in place during test excavations on two lots at Lili'uokalani Avenue and Tusitala Street (McDermott *et al.* 1996). Indigenous Hawaiian artifacts and historic artifacts were also found within the project area.

Beardsley and Kaschko (1997) report findings from a monitoring and data/burial recovery project in 1985 which was conducted concurrently with the construction of a new structure on a corner of the Pacific Beach Hotel Office Annex in Waikīkī. A traditional pre-Contact habitation layer complete with pits, firepits, post molds, artifacts, food debris, and two human burials was documented; this traditional habitation layer was assigned state site number 50-80-14-4224 in 1990. A nineteenth century trash dump feature was also recorded, and it was inferred that it, possibly, associated with the Kapi'olani house which was located in the vicinity. Beardsley and Kaschko reported that radiocarbon dates and dating of volcanic glass established a period of occupation near the end of the pre-Contact period. It was further stated that "the presence of isolated remnants of traditional Hawaiian cultural deposits in the project area demonstrates the potential for discovering similar deposits at other locations in Waikīkī."

In 1997, during archaeological monitoring by Cultural Surveys Hawai'i, for the ongoing Waikīkī Force Main Replacement Project, scattered human bones were encountered on 'Ōhua Street (Wineski and Hammatt 2000 [in prep]). These included the proximal end and mid-shaft of a human tibia, a patella, and the distal end and mid-shaft of a femur. These remains occurred within a coralline sand matrix which had been heavily disturbed by previous construction, and by the on-going construction project. No precise location for the original burial site was identified.

Cultural Surveys Hawai'i, in 1998, completed an archaeological assessment of the

project parcel reported on herein—the inventory survey—and recommended that “It is likely that intact prehistoric and early contact cultural deposits are lying undisturbed beneath modern fill layers within the project area. Also, there is historic evidence indicating the existence of a major *auwai* and possible adjacent *lo i*...Particular attention... (should be given in an inventory survey) to locating the *auwai* (state Site 50-80-14-4970) along the west side of the project area.”(Hammatt and Chiogioji 1998:26).

In April 1999, two human burials were inadvertently encountered near the intersection of Ena Road and Kalākaua Avenue during excavation activities for the Waikīkī Anti-Crime Lighting Improvements Project, Phase I (Perzinski et. al. 1999).

By April of 2000, at least forty human burials with associated cultural deposits have been exposed during excavation for the 16-inch Watermain Installation Project and the related Kuhio Beach Improvements Project, on Kalākaua Avenue along Kuhio Beach between the Moana Hotel and Ōhūa Avenue. This project is ongoing at the present time (April 2000) and a full report by Cultural Surveys Hawai‘i is pending after the project’s completion.

In March 2000, Cultural Surveys Hawai‘i recorded two historical trash pits during the Waikīkī Anti-Crime Lighting Improvements Project. One trash pit was located at the *makai*-Diamond Head corner of Kalākaua Avenue and Ala Moana Boulevard, the NW corner of the current Ft. DeRussy property. The second was located at the *makai*-Diamond Head (SW) corner of Kalākaua Avenue and Saratoga Road. Ceramic fragments, metals, and glass items were recovered from both pits, and a general overview—before lab analysis—dates several of the artifacts to the first half of the 19th century. This report is pending completion of the project.

In summary, past archaeological research has produced evidence that traditional Hawaiian cultural deposits, historic trash deposits, and most notably human burials, do exist throughout the breath of the Waikīkī area.

FIGURE 2 PREVIOUS ARCHAEOLOGY TABLE

Year	Emerson	Excavation	Waikiki	Site	Description	Date	Findings	Reference
1902		Salvage Excavation	Waikiki	Elks Club area off Kalaheua	Remains of at least 4 adult Hawaiians were encountered. A number of conical whale teeth, large round glass beads, and 1 small rib-ro-palms (generally for Chiody use) were also recorded.			
1916	Thrum	Heiau Sites recorded		Island of Oahu	Recording of 3 Waikiki Ahupua'a Heiau in lower Manoa Valley: Hipawai (makai of Manoa Church) partially destroyed by 1907, Kawapopo (lower Manoa) destroyed before 1850, and Hakiki (or Palihuhina) destroyed before 1850.			
1933	McAllister	Reconnaissance Survey (limited)		Island of Oahu	Recording of 5 Waikiki Ahupua'a Heiau: 4 in the makai reaches of Waikiki are Kawapopo, Kukaoo, Mauaki, and Hakiki/Paliuhine Heiau, and 1 Papeaena Heiau is at the foot of Diamond Head	50-80-14-3986	Kawapopo Heiau	Oa-A4-1, Oa-A4-2, Oa-A4-5
1961	Bishop Museum	Salvage Excavation	Waikiki	331 Saratoga Road	One human burial with associated mandible were encountered. Also recorded were 2 glass bottles, and two nut shell fragments in a layer of charcoal & refuse - 0.6 m deep, a 19th c. trash pit.	50-80-14-3706	Human Burial	Oa-A4-19
1963	Bishop Museum	Salvage Excavation	Waikiki	2431 Prince Edward St and site of present Outrigger Canoe Club	Twenty-five human burials were encountered. 1 with a fish skeleton beside it. Burial positions included extended, flexed and semi-flexed. Other items: charcoal, rusted iron bits, broken bottles, Chinese dishes, cut pig bones, and 1 whole fruit jar (1898).	50-80-14-3707	Human Burial	Oa-A4-23
1964	Bishop Museum	Salvage Excavation	Waikiki	old Outrigger Canoe Club site (current Surf Rider Hotel site)	Sand dune human burials were encountered prepared with traditional Hawaiian mortuary practice.	50-80-14-3705	Human Burial	Oa-A4-24
1976	Bishop Museum	Salvage Excavation	Waikiki	Hale Kon Hotel	Six human burials were encountered (5 apparent prehistoric or early historic, 1 more recent).	50-80-14-9500	Human Burial	Oa-A4-25
1980	Neller	Salvage Excavation	Waikiki	Hilton Hawaiian Village Hotel	Three human burials, interpreted as Hawaiian, were encountered: 1 male young adult, 1 female young adult, and 1 single bone.	50-80-14-2870	Human Burial	
1984	Neller	Salvage Excavation	Waikiki	Queen Liliuokalani Gardens Hotel and Condominiums	Seven prehistoric Hawaiian human burials were encountered. Broken glass, ceramics, and a deeply buried cultural layer were also recorded.			
1984	Davis	Salvage Excavation	Waikiki	Halekulani Hotel	Six human burials were encountered. Animal burials, Hawaiian firepits, trash pits, and privies with many bottles, ceramics & other materials dating to late 19th c. were also recorded. Age Analysis of volcanic glass (no later than mid-1600s)	50-80-14-9967	Human Burial	Oa-A4-26
1985	Kaschko	Salvage Excavation / Data Recovery	Waikiki	Pacific Beach Hotel	Human burials were encountered. Prehistoric and historic site deposits were also recorded.			
1987	Griffin	Salvage Excavation / Data Recovery	Waikiki	Kalakaau Avenue (near Moana Hotel)	One human burial was encountered.	50-80-14-3745	Human Burial	
1989	Davis	Subsurface Excavation	Waikiki	Fort DeRussy	One human burial was recorded; And, substantial subsurface prehistoric, historic, and modern deposits e.g. fishpond and 'auwai sediments, midden/artifacts, and structural remains e.g. post holes, fire pits, and historic trash pits. Human activity: 1500s-on.			
1989	Rath and Kawachi	Archaeological Monitoring	Waikiki	Ala Wai Golf Course grounds	Two pit human burials were encountered (ancient/osteology analysis)			
1991	Simmons, et al.	Monitoring / Salvage Excavation / Data Recovery	Waikiki	Moana Hotel	At least 17 human burials interred over time (based on stratigraphy) were found in the Banyan Court and beneath the hotel.	50-80-14-9901	Human Burials	Oa-A4-27
1991	Davis	Archaeological Monitoring and Excavations	Waikiki	Fort DeRussy, LCA 1515 Apana 2	Two occupation layers (prehistoric/early historic). Other finds: 20 hearths, 15 pits of unknown function, 3 postholes, a burial pit, 15 artifacts (traditional Hawaiian pumice fragment, polished basalt adz fragment, 3 basalt flakes and historic exotic items)			
1992	Hurlbert, Carter, and Goodfellow	Archaeological Monitoring	Waikiki	Hilton Hawaiian Village (Mechanical Loop Project)	15 historic trash pits or trenches (all post-dating 1881).			
1994	Carlson, et al.	Archaeological Monitoring / Excavation	Waikiki	Kalia Road at Fort DeRussy	About 40 human burials (many in 1 lg. communal burial feature), were encountered. A cultural enriched layer with post holes was also recorded.			
1994	McMahon, Nancy	Archaeological Monitoring	Waikiki	Kalakaau Ave and Kusumoto Street intersection	One human burial was encountered.			
1995	Simmons	Data Recovery	Waikiki	Fort DeRussy (work in 1992)	Documentation of the development and expansion of the fishpond and 'auwai (ditch) system, and habitation deposits below modern fill.	50-80-14-4970	'Auwai system	
1995	Jourdane	Archaeological Monitoring	Waikiki	Waikiki Sunset Hotel	One human burial was encountered.			
1996	Cleghorn	Inventory Survey	Waikiki	block bounded by Kalakaau Ave, Kuhio Ave, Olohaia St., and Kalaheua St.	Peat deposits with preserved remains of organic plant material recorded with paleoenvironmental findings.			
1997	Beardley and Kaschko	Monitoring and Data/Burial Recovery	Waikiki	Pacific Beach Hotel Office Annex Building Area	Two human burials were encountered. A pre-Contact habitation layer with pits, firepits, post molds, artifacts, and food debris. A 19 th century trash dump feature was found. Radiocarbon dates to late pre-Contact years.	40-80-14-4224	Traditional habitation layer	

IV. PREDICTIVE MODEL

The formulation of the following predictive model is based on previous archaeological findings and traditional Hawaiian historical sources, which provided evidence for prehistoric land-use and settlement pattern for the Waikīkī *Ahupua`a* region. This information is combined with recorded historic and modern development events for the project area and its environs. The predictive model establishes how the archaeological record might reflect the cultural praxis documented for this area, based on the above research.

The prehistoric Hawaiian settlement pattern was based on the system of *ahupua`a* land division. Prior to the *Māhele* of 1848 O'ahu was divided into six *moku* or *kalana* (districts): Ko'olaupoko, Ko'olauloa, Waialua, Wai'anae, 'Ewa, and Kona; these are said to be the same divisions established by the *ali'i Ma`ilikukahi* around 1500 A.D. Contained within these six districts were 86 (known) prehistoric *ahupua`a* land divisions (Map 8). The *ahupua`a*, as described by Kirch (1985:2, Chapter 11), ideally, is represented by a pie-shaped slice of an island or region, usually running from the mountains to the sea. Each *ahupua`a*, ideally, contained adequate amounts of all the natural resources a Hawaiian island could provide.

The current project area lies within the *ahupua`a* of Waikīkī in the *moku* (district) of Kona (see Map 8). Waikīkī *Ahupua`a* deviates somewhat from the usual pie-shape land division in that its sides, the northwest to southeast breath, are wider. It does, however, fit all the other traditional criteria for an ideal *ahupua`a*, as described above both environmentally and in the archaeological record. Within the Waikīkī *Ahupua`a*, the *mauka to makai* region relative to the current project area extends from the Ko'olau Mountain range to the lower valleys of Manoa and Palolo, to the dry lowland of Mō'ili'ili and extending on through the inland wetlands (before late historic modifications), and the coastal zone to the sea.

The project area is located in what was the wetland plains of Waikīkī. This area provided ancient Hawaiians with the environment needed for the cultivation of fishponds and subsistence crops such as taro and banana. The features expected from these cultural activities include berms, *lo'i* (pond fields), stream beds, pond banks, and *auwai* levee remnants. Following the initial years of European contact, Westerners engaged in new massive agricultural ventures. Immigrant workers from Asia were brought to Hawai'i to labor in these new agricultural ventures, and as a result *rice* also became a major crop in many areas. The wetlands of Waikīkī was an ideal environment for the cultivation of rice, and the area yielded much of its traditional taro cultivation land to rice production. This is evident on the 1901 Monsarrat Map (4). The same area, in the early 20th century, was altered more intensely for land-reclamation plans; the resulting dredge and fill projects obliterated what remained of traditional Hawaiian cultivation processes, in the wetlands of Waikīkī.

Ideas of land-reclamation, for the wetlands of Waikīkī, surfaced in the early decades of the 20th century. The most extensive reclamation project took place in the 1920s, with the off-shore and inland dredging for the creation of the Ala Wai Canal. The wetland plains of Waikīkī were filled-in with materials dredged from the sea-floor and the area of the present Ala Wai Canal. The current project area was directly affected by the Ala Wai Canal dredging and land-reclamation program. Drainage from the Ko'olau Mountains was diverted through the new Ala Wai Canal, leaving the rich agricultural land buried below layers of sediment and coral fill.

It appears that the project parcel sat dormant for a period of time with major building beginning in the late 1930s. Various episodes of demolition and rebuilding took place in the final years of the 20th century (see Historical section), until the final demolition and clearing of the project parcel in 1999.

In considering the above discussion, this predictive model anticipates remnants of: the original ground surface for the Native Hawaiian agricultural wetland environment, archaeological evidence confirming historical sources documenting the *'Auwai O Pau*, cultural agricultural features, and possibly a pond. Above this original ground the model expects to find evidence of fill episodes from the land-reclamation programs, which include the Ala Wai Canal and off-shore dredging projects. Evidence of late historic construction, demolition, and landscaping activities are expected to overlay the dredged strata.

V. RESULTS FROM SUB-SURFACE TESTING

A. Summary of Trenches

Thirteen backhoe trenches were excavated on the current project parcel. Figure 3 shows the location of these trenches. A combined length of 95.16 meters were excavated with a 70 cm wide backhoe bucket. Based on the predictive model, trench excavations were placed to expose remnants of the ground features expected: an *auwai*, wetland agricultural areas, and a potential pond. The sediments and sub-surface features found are similar to the expectations of the predictive model. The *Auwai O Pau* was located in the cross-section of Trenches 1, 7 and 8, underlying historic fill layers. Numerous prehistoric/historic agricultural berms—such as those used to form banks and planting surfaces for taro or other wetland crops—were evident in many of the profiles. Evidence for the pond is marginal, no distinct boundary was found. No human burials were encountered.

B. Stratigraphy Overview

Evident in the exposed stratigraphy were three major stratigraphic components: the uppermost, usually layers of Strata I and II, are recent land fill sediments which date to post 1930; the middle stratigraphic components are comprised of various episodes of land-reclamation fill sediments, which took place between 1910 and 1930 (the first decade being military fill projects on and around Ft. DeRussy); the third and final exposed stratigraphic component is the original prehistoric/historic ground surface—an organic stratum now recorded as historic Site 50-80-14-5796—representative of the former Native Hawaiian prehistoric to early 20th century agricultural land surface. The only cultural materials found, other than the debris in the upper recent fills, were a few ceramics, a shoe, and two pieces of wood. These were found in this prehistoric/historic wetland layer. An organic peat layer was also evident at the lower boundary of this stratum, in certain areas. Directly below this prehistoric/historic ground surface is a stratum of gleyed gray calcareous coarse sand. Below this is a layer of coral, which was usually the base of excavation.

The recent fill layers, those in the uppermost strata, vary in texture and color. The deeper land-reclamation fills—those most likely related to the Ala Wai Canal and off-shore dredging projects—were more consistent in texture, color and the amount and size of coral inclusions. However, the lowest of these dredged strata is distinct as a gleyed gray silty clay. Generally, stratigraphy was fairly consistent throughout the project area.

Following is a more in-depth description of the major stratigraphic components.

The uppermost sediments, as mentioned above, are generally comprised of recent fills that include: recent landscape fill, recent construction fill, and re-worked refill materials. These materials are representative of construction, remodeling, and

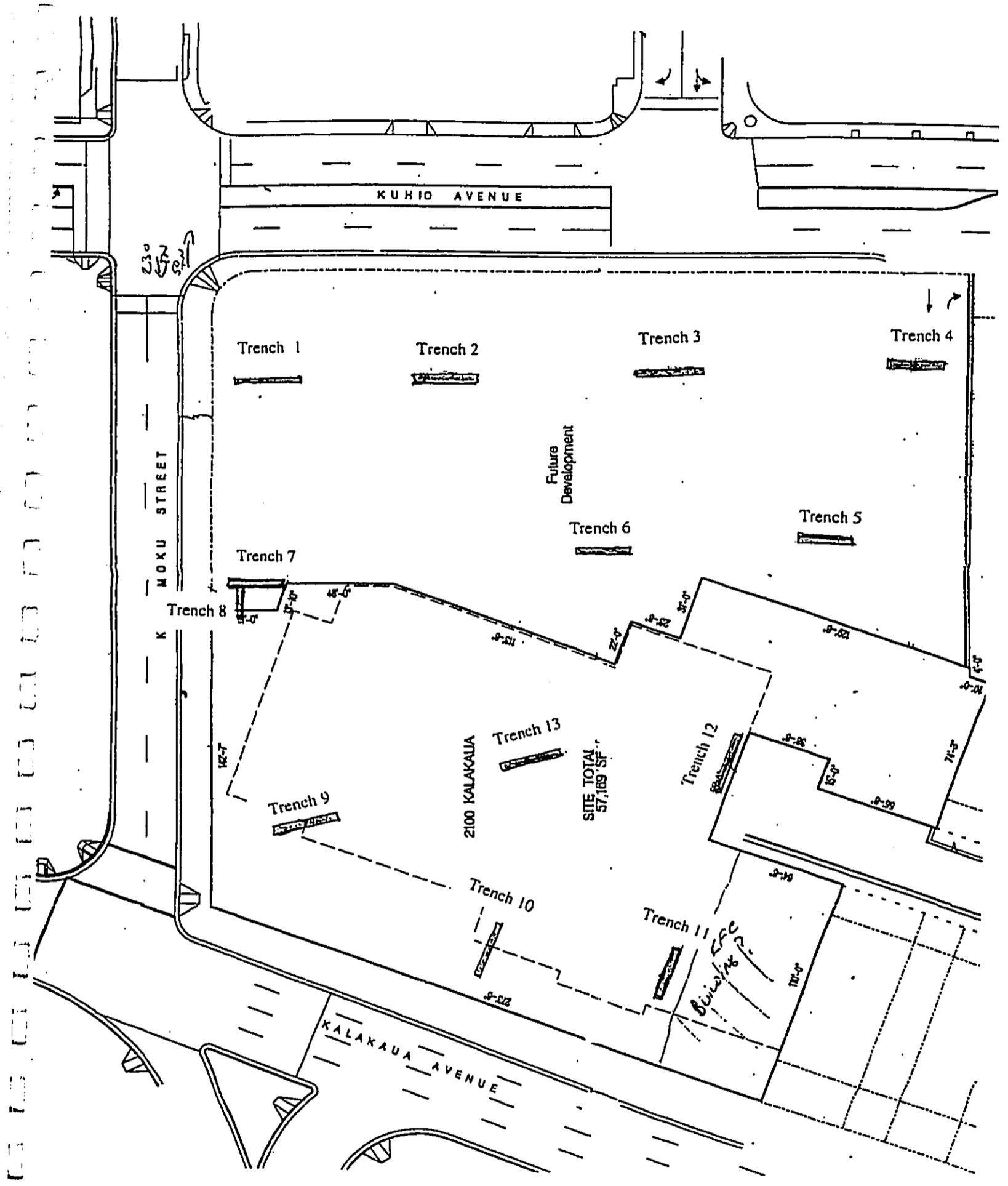


Figure 3 Location of Trenches

development in the project area from the late 1930s to the recent demolition and removal of all structures within the parcel. Landscaping fills, and possibly some of the more recent construction fills, were brought in to the project area for particular building events, accounting for part of the diversity in these upper sediments. It is also evident that previously on site materials disturbed during historic construction or demolition events were re-worked and used to refill the disturbed areas.

These recent fills include sediments of fine to coarse sand or loam that vary in Munsell color from very pale brown to very dark brown. Inclusions recorded include roots and rootlets, charcoal flecking, a black tar like substance, and gravel to cobble size rubble comprised of coral, shell, and basalt. Historic infrastructure debris includes asphalt fragments and layers, cement fragments, metal pipes, PVC pipe, and plastic fragments. Architectural rubbish such as glass, tile, brick fragments were sometimes mixed within the refill materials.

The middle land-reclamation sediments are related to the fill projects that took place in the Waikiki area between 1910 and 1930. Fill from the Ala Wai Canal and off-shore dredging lies beneath the more recent fills described above. These land-reclamation materials were dredged from the ocean floor (directly off-shore) and from the area of the present route of the Ala Wai Canal. A path moving north and east from the beach at Ala Moana (where the mouth of the canal is located) to just before Kapahulu Avenue was excavated and dredged to a depth of at least twenty feet and a width of two hundred and fifty feet, to construct the Ala Wai Canal. The filling in of the surrounding area was achieved through a combination of hydraulic pumping and truck dumping of materials (see Photos 3 and 4). Occasionally, time lapses occurred between the different episodes of filling a particular property, which may explain the variation in the sediment.

These fill sediments consists of very fine to medium-coarse sands, loamy sands, sandy clay loams, and silty clays. Fine clay lenses are present in some of the predominately sand strata. Some of these sediments contain gravelly to stony coral inclusions from dredging activity. Shell is found from very fine crushed to gravel size fragments, and some small (<1 inch) whole shells. The lower of these land-reclamation fill layers contain clays—initially in sporadic deposits then in layered bands intermixed with sands—and finally in distinct and clear silty clays just above the water table.

Munsell colors for these dredged land-reclamation fills vary from yellowish brown to various shades of browns and grays. In general, the top layers consists primarily of light brown to gray sand. The mid-layers are yellowish to brown sands, loams, and clays; and the lowest layers are a variation of medium to dark gray silty clay. This gleyed gray clay is generally found at or near the water table, sometimes extending below, and in a few cases contains a bluish hue in certain areas (also near the water table). The tan colored silty clay is found above the gray, however, its presence is not consistent throughout the project area. These silty clays are structureless and exhibits moist, sticky, and plastic properties.

The most interesting aspect of these dredged fill sediments is that they often feature microstratigraphy—fine layered bands from 1 mm to 3 cm thick. Generally, the

microstratigraphy occurs in very fine sand sediment in bands of 1 mm to 1 cm thick, in fine sand from 1 mm to 3 mm thick, and in silty clay from 1 to 2 mm thick. In the following photograph (Photo 7), this microstratigraphic layering (banding) is evident in the gleyed gray silty clay. The hue of the gray clay varies slightly from trench to trench, and is interbedded with bands of the relative hue's darker Munsell values and chromas (such as dark grays to black). The tan clay (which is usually above the gray) is a brown (10 YR 5/3), and its bands vary through lighter and darker shades of this color value and chroma. These microstratigraphic lenses of silty clay and fine sands are the result hydraulic dredging episodes during the land-reclamation projects. Photograph 4 shows the pipe lines used in this dredging procedure.

General inclusions for these land-reclamation fills can include charcoal flecking, charcoal lenses, organic materials, landsnails, sporadic deposits of clay, basalt rocks, and rocks. Historic inclusions consists of rusted metals, glass fragments, and one Kukui nut (Trench 3). Also found in these middle sediments are very few to abundant roots and rootlets from very fine (0.075 to 1 mm) to coarse (> 5 mm) diameters. These fill sediments vary from a homogenous composition to various combinations of the inclusions mentioned above. The silty clays are usually homogenous, except for roots and rootlets in particular trenches.

Below the land-reclamation strata is the original ground surface—the prehistoric to early 20th century wetlands (SIHP Site 50-80-14-5796)—which follows the contours of the former land surface, prior to the dredged fills. The sediments that comprise these strata vary between moist sandy loamy clays, sandy clay loams, and clay loams. The compositions are generally consistent, and include organic materials, roots and rootlets, charcoal flecking, and historic artifacts and midden.

The only cultural materials encountered—except for recent historic construction and demolition debris in the upper strata (usually I and II)—were found in this original prehistoric to early 20th century ground strata, mostly in relation to the *'auwai* floor. In Trench 1 (Stratum VII), one ceramic fragment, one black shoe, and one piece of milled wood were recorded. One wooden plank fragment was recorded in Trench 2, lodged into Strata IX and X at the NW levee. This wooden fragment is shown in Photograph 10 (50). Five ceramic fragments representing three artifacts were recorded in Trench 7 (Stratum VII). This trench has remnants of the *'Auwai O Pau*. One light green glass soda bottle was found in Trench 10 (Stratum II). These items are described in greater detail, with accompanying photographs, within the trench discussions that follow.

This original land surface was culturally modified by Native Hawaiians, as early as the 1300s (Beckwith 1940), into an irrigation system for agricultural and fishpond activities (see historical section). The topography exposed, revealed remnants of the Native Hawaiian irrigation system in the *'auwai* and agricultural features (*lo'i*) observed. The overall topography of this original prehistoric/historic ground surface is characterized throughout the project area by a series of berms, levees, and pond banks.



Photo 7 Gray/Black Silty Clay Microstratigraphy found above the prehistoric/historic ground surface

A very distinct submerged organic peat stratum was recorded at the base the original ground surface, described above, in Trench 11 Stratum VII (the SW corner of the parcel). It is a clay loam containing a mass of fine rootlets with landsnails. Adjacent trenches did not contain this pronounced peat stratum, however, landsnails were evident in the original ground strata in three adjacent trenches (10,12 &13), the highest concentration in Trench 10. This section of the project area is depicted as a banana plantation on Monsarrat's 1901 Honolulu map (Map 4). The profile of Trench 11 depicts the original ground surface, as defined above, overlying the peat stratum. It is possible that the profile depicts prehistoric land alteration (creating berms for wetland agricultural boundaries), which covered an organic layer of undermined age.

Beneath the original agricultural ground surface—or the peat layer mentioned above—is a gleyed calcareous coarse sand. This gray sand represents the natural sand deposits occurring during the formation of Waikiki. Gleying is due to its location at or below the water table. This submerged gray sand has a consistent composition with no inclusions other than basalt cobbles in particular areas. However, the wood plank found in Trench 2 was partially entrenched in this stratum (see profile for Trench 2). Compact coral lies at the base of excavation in most of the trenches.

C. Trench Descriptions and Profiles:

Location, dimensions, and general trench observations are described below, followed by a general strata interpretation, and particular observations. Trench profiles, sediment descriptions, and profile photographs end each trench section.

Trench 1: Northeast and Southwest Walls (See Figures 4 and 5)

Both the north-northeast wall and the south-southwest wall of this trench were profiled, for thorough documentation of the *Auwai O Pau*. Description of the northeast wall, the Kuhio Avenue side of the project area, follows. The water table was encountered at 160 cmbs.

Stratigraphy:

Stratum Ia	Recent construction fill.
Stratum Ib	Construction fill.
Stratum Ic	Agricultural modification fill.
Stratum II	Construction or land-reclamation fill.
Stratum III	1920-1930 Ala Wai land-reclamation fill event
Stratum IV	1920-1930 Ala Wai land-reclamation fill event
Stratum V	1920-1930 Ala Wai land-reclamation fill event
Stratum VIa	1920-1930 Ala Wai land-reclamation fill event.
Stratum VIb	1920-1930 Ala Wai land-reclamation fill event.
Stratum VII	Prehistoric-historic agricultural wetlands (pre 1920s land-reclamation).
Stratum VIII	Natural sand deposits, during the formation of Waikiki.

Strata Ia, Ib, and II are recent construction or land-reclamation fills consistent in composition with natural fill materials, no cultural items were found in these sediments. The loamy coarse sand of Stratum Ic appears to be a disturbed area, with a few small deposits of the original ground surface mottled in the overall sediment type.

Strata III to V, and VI a and b, are land reclamation fill episodes related to the construction of the Ala Wai Canal. Combined, these fill strata measure to 140 cm below today's ground surface. All of these strata, except Stratum III, exhibit microstratigraphic layers. These finely bedded layers are found in the fine sand, fine loamy sand, and the silty clays of Strata VIa and VIb. The fine sand microstratigraphy of Stratum IV varies from 1 to 3 mm thick. The fine loamy sand microstratigraphy of Stratum V measures from 1 to 2.5 cm thick, with several shades of light brown sediments. The silty clays of Strata VIa and VIb have banding as thin as 1 mm and vary to 3 mm in thickness. The southeast end appears to have lifted as a result of the alteration of Stratum Ic. In the trench's southeast end, in the northeast wall profile, Stratum VIa was lifted as a result of the disturbance that created Stratum Ic. The lowest boundary of the gleyed gray silty clay layer (Stratum VIb), which is generally near the water table throughout the project area, was recorded at 150 cmbs. Thickness for this layer varies between 10-18 cm.

Stratum VII, the lowest surface of the underlying prehistoric/historic wetland stratum—the floor of the *'Auwai O Pau* (state Site 50-80-14-4970)—is located at the same 150 cmbs point. The top of the berm or levee on the NW side measures to 90 cmbs. The levee on the SE side, as explained above for Stratum Ic, has been disturbed (see profile). This prehistoric/historical wetland stratum is a clay loam. The shape revealed in cross-section for Stratum VII is the *'Auwai O Pau*. Sediment samples were collected for each stratum in this trench, and two charcoal samples.

Historic cultural material collected in Stratum VII include a ceramic fragment, a black shoe, and a piece of milled wood—all found in the *'auwai* floor layer. The ceramic fragment is an edge-decorated rim sherd from a pearlwort or early Whitebark British ceramic flatware. It is probably a platter, and dates between 1810 and the 1840s (Hunter and Miller 1994:432-443). The edge of the rim is scalloped, and the top edge surface is cobalt blue with grooves resembling a left parenthetical stroke. The black shoe is a man's left shoe with a nailed sole (round nail). No heel is present and no evidence of having had a heel. The upper and outer sole is intact, and two upper instep style flaps are present (Photo 8). This shoe dates, generally, to post 1860, according to Adrienne Anderson (1968:59) who writes that "As late as 1860 most shoes were formed on "straight" lasts. This meant that the shape of the instep was not considered and no distinction was made between right and left feet." As stated, this is a general rule. The stylistic attributes of the split back of the heel seam (on the outer leather flaps) and the flaps and styling of the upper outer instep flaps, however, suggest an earlier 19th century style. Without a more detailed analysis it is suggested that the shoe dates between 1840 to 1880.



Photo 8 Man's Black Leather Shoe 1840-1880

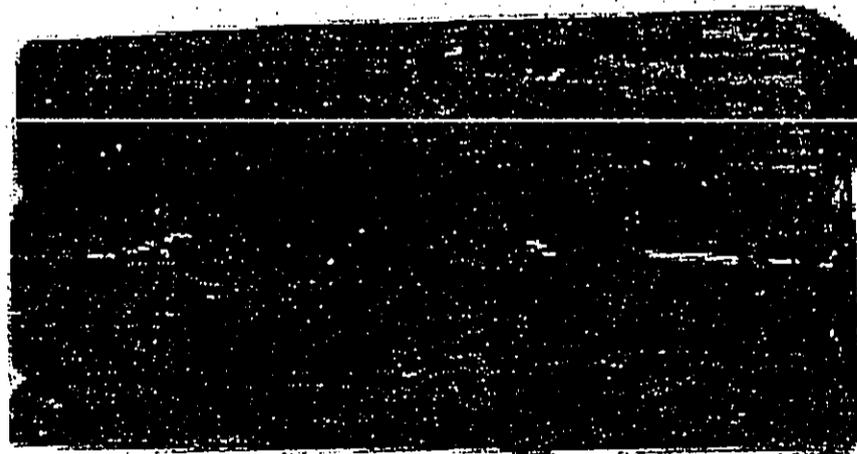


Photo 9 Milled Wood

The milled wood measures 5 7/10ths x 2 8/10ths x 9/10ths inches (14.4 x 7.4 x 2.4 cm)(Photo 9). The artifacts described here are of Western provenance and date to years between 1810 and 1920, and they represent items used and/or available in Hawai'i during those years. The *in situ* provenience—within the prehistoric/historic ground surface (state Site 50-80-14-4970)—of these artifacts demonstrate the continued use of these potentially prehistoric features into the historic period.

The surface of the coarse gray natural sand deposits of Stratum VIII, varies between 110-170 cmbs, with the higher elevation on the SE end; this elevation is similar to a sand berm, however, given the disturbance and the fairly consistent plane of this stratum in the rest of the project area, it is possible that the wet submerged coarse sand raised as a result of the disturbance. The base of the trench is a compact layer of coral.

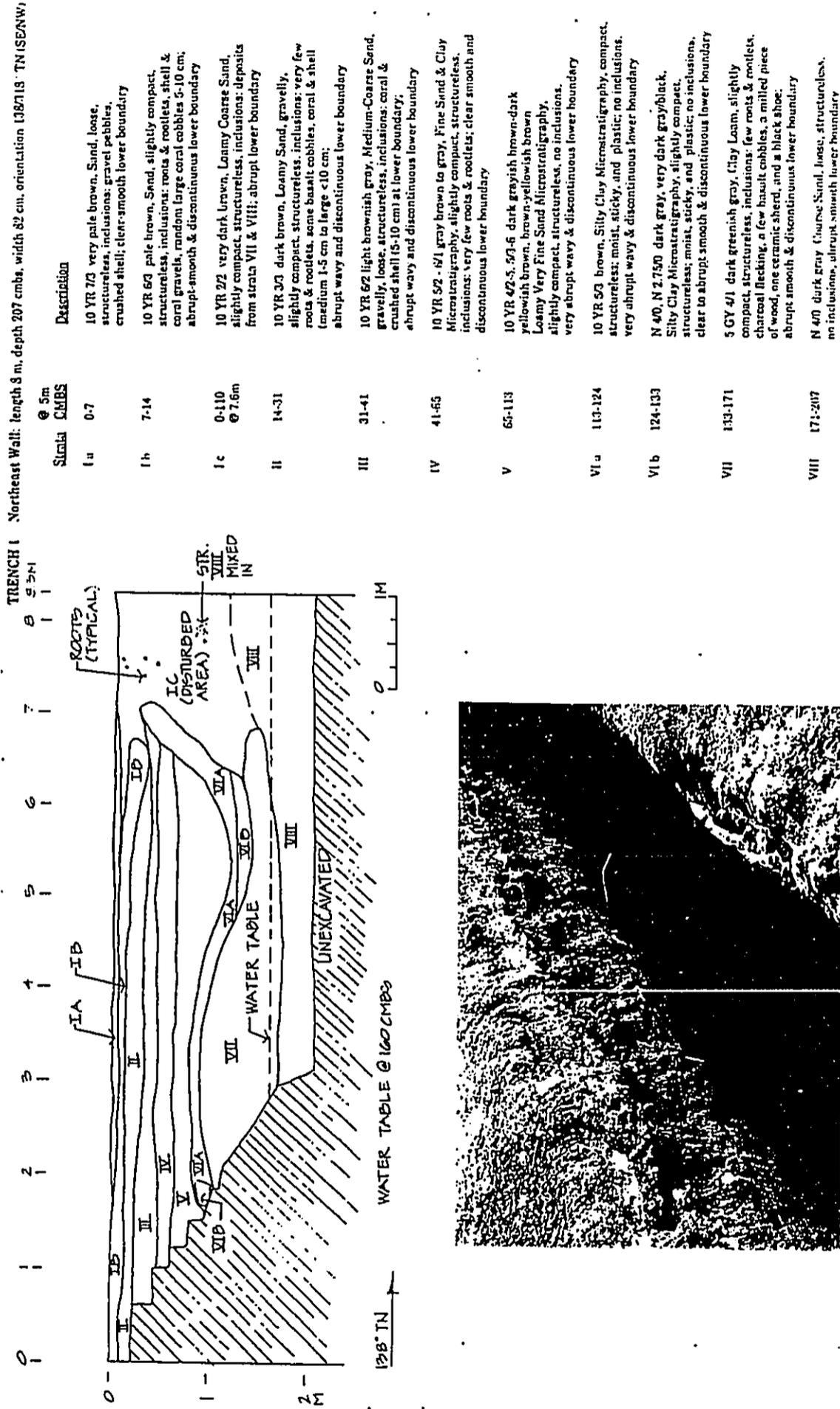


Figure 4 Trench 1 Profile of NE wall, photograph, and sediment description

TRENCH 1 Southwest Wall: length 8 m, depth 2.07 cms, width 92 cm, orientation 133°18' TN (SE/NW)

Strata	5m CMRS	Description
I a	0-12	10 YR 7/3 very pale brown, Sand, looser, structureless, inclusions: gravel pebbles, crushed shell; clear smooth lower boundary
I b	12-19	10 YR 6/3 pale brown, Sand, slightly compact, structureless, inclusions: roots & rootlets, shell & coral gravels, random large coral cobbles 5-10 cm; abrupt smooth & discontinuous lower boundary
I c	13-110 (p 7m)	10 YR 2/2 very dark brown, Loamy Coarse Sand, slightly compact, structureless, inclusions: deposits from strata VII & VIII; abrupt lower boundary
II	19-43	10 YR 3/3 dark brown, Loamy Sand, gravelly, slightly compact, structureless, inclusions: very few roots & rootlets, some basalt cobbles, coral & shell (medium 1-5 cm to large <10 cm); abrupt wavy and discontinuous lower boundary
III	40-55	10 YR 6/2 light brownish gray, Medium-Coarse Sand, gravelly, loose, structureless, inclusions: coral & crushed shell (5-10 cm) at lower boundary; abrupt wavy and discontinuous lower boundary
IV	58-85	10 YR 5/2 - 6/1 gray brown to gray, Fine Sand & Clay Microstratigraphy, slightly compact, structureless, inclusions: very few roots & rootlets; clear smooth and discontinuous lower boundary
V	85-108	10 YR 4/2-5, 6/3-6 dark grayish brown-dark yellowish brown, brown-yellowish brown Loamy Very Fine Sand Microstratigraphy, slightly compact, structureless, no inclusions, very abrupt wavy & discontinuous lower boundary
VI a	108-129	10 YR 5/3 brown, Silty Clay Microstratigraphy, compact, structureless, moist, sticky, and plastic; no inclusions, very abrupt wavy & discontinuous lower boundary
VI h	129-158	N 4/0, N 2.75/0 dark gray, very dark gray/black, Silty Clay Microstratigraphy, slightly compact, structureless, moist, sticky, and plastic; no inclusions, clear to abrupt smooth & discontinuous lower boundary
VII	158-167	5GY 4/1 dark greenish gray, Clay Loam, slightly compact, structureless, inclusions: few roots & rootlets, charcoal flecking, a few basalt cobbles, a milled piece of wood, one ceramic sherd, and a black shoe; abrupt smooth & discontinuous lower boundary
VIII	167-207	N 4/0 dark gray Coarse Sand, loose, structureless, no inclusions, abrupt smooth lower boundary

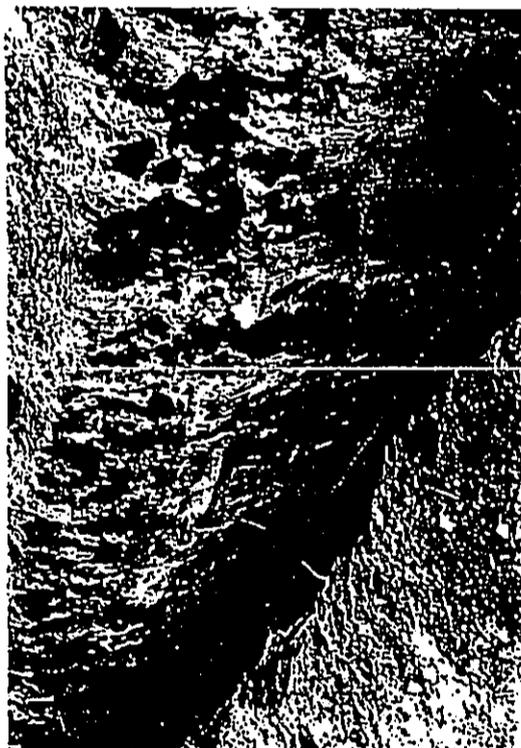
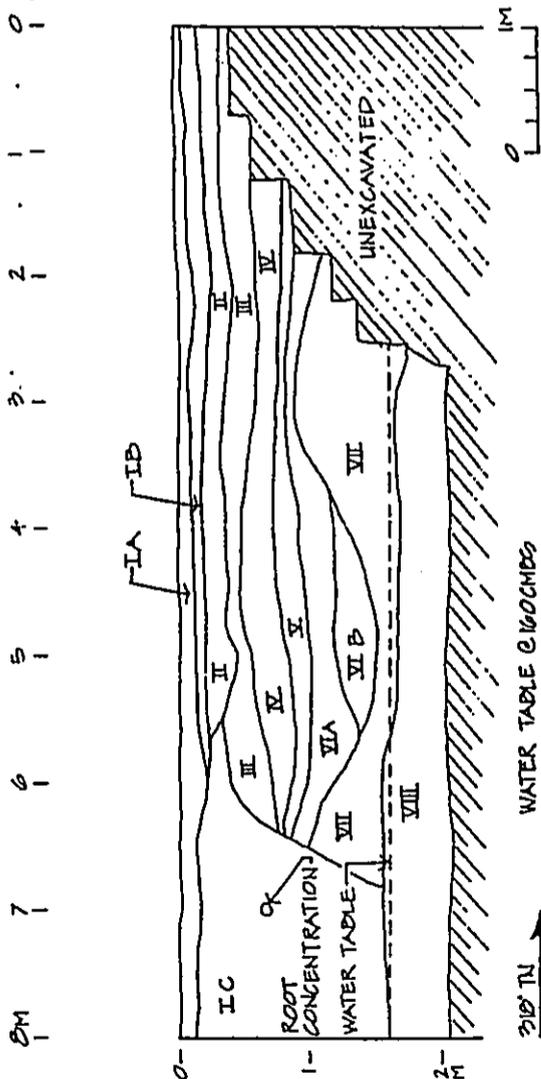


Figure 5 Trench 1 Profile of SW wall, photograph, and sediment description

Trench 2: Southwest Wall (Figure 6)

The south-southwest wall was profiled (the Kalākaua Avenue side of the project area). The water table was encountered at 157 cmbs.

Stratigraphy:

Stratum I	Recent landscape fill.
Stratum II	1920-1930 Ala Wai land-reclamation fill event.
Stratum III	1920-1930 Ala Wai land-reclamation fill event
Stratum IV	1920-1930 Ala Wai land-reclamation fill event
Stratum V	1920-1930 Ala Wai land-reclamation fill event
Stratum VI	1920-1930 Ala Wai land-reclamation fill event.
Stratum VII	1920-1930 Ala Wai land-reclamation fill event
Stratum VIII	Prehistoric-historic agricultural wetlands (pre land-reclamation).
Stratum IX	Prehistoric-historic agricultural wetlands (pre land-reclamation).
Stratum X	Natural sand deposits, during the formation of Waikikī.

Stratum I is a sandy loam landscape fill. There is a thin layer of beach sand below this layer. Stratum II is a brown loamy sand mottled with gray brown, and contains medium size coral gravels. Strata II through VII are fill sediments from the land-reclamation dredge and fill projects. These sediments vary in texture and color. Sediments in Strata III to VI also vary in microstratigraphy size, as defined in the stratigraphic overview section. Stratum III has very fine sand microstratigraphy 1 mm to 1 cm thick, Stratum IV consists of fine sand with 1 to 3 mm thick banding and 1 or 2 very fine lenses of clay (1 to 2 cm thick) that are visible between the sand layers. Stratum V and VII are silty clays and Stratum VI is a very fine sandy clay loam, each has banding 1 mm to 3 mm thick. Combined, these fill strata measure to a depth of 159 cm below today's ground surface.

There are two strata interpreted as components of the prehistoric/historic wetland surface in Trench 2, Strata VII and IX. Stratum IX is a clay loam. This stratum is concentrated in a berm/levee feature located at the NW end of the trench, recorded at 115 cmbs. It represents a levee or *lo'i* bank. Charcoal flecking and a single *Pipipi* shell was found in this stratum. No sediment samples were collected for this trench. A milled wood plank was found lodged at the levee or *lo'i* bank, mentioned above, extending perpendicular to the orientation of the trench. This wood is the only cultural material recorded that penetrates the lower coarse calcareous sand layer. It extends from Stratum IX, the original ground surface, to the natural coarse gray sand deposits of Stratum X (see Figure 6). This clearly historic plank is proof that this pond or *lo'i* feature, although possibly constructed prehistorically, continued to be used in the historic period. Stratum VIII is an organically enriched silty clay sediment, without microstratigraphic banding, within the *lo'i* or pond. The Stratum VIII silty clay organic layer and the lower gray coarse sand of Stratum X have level surfaces at, respectively, 159 and 179 cmbs. The base of the trench is a compact layer of coral. The berm/levee feature of Stratum IX may correlate with the same type feature in Trench 3, which lies directly SE of Trench 2 (see Figures 6 and 7).

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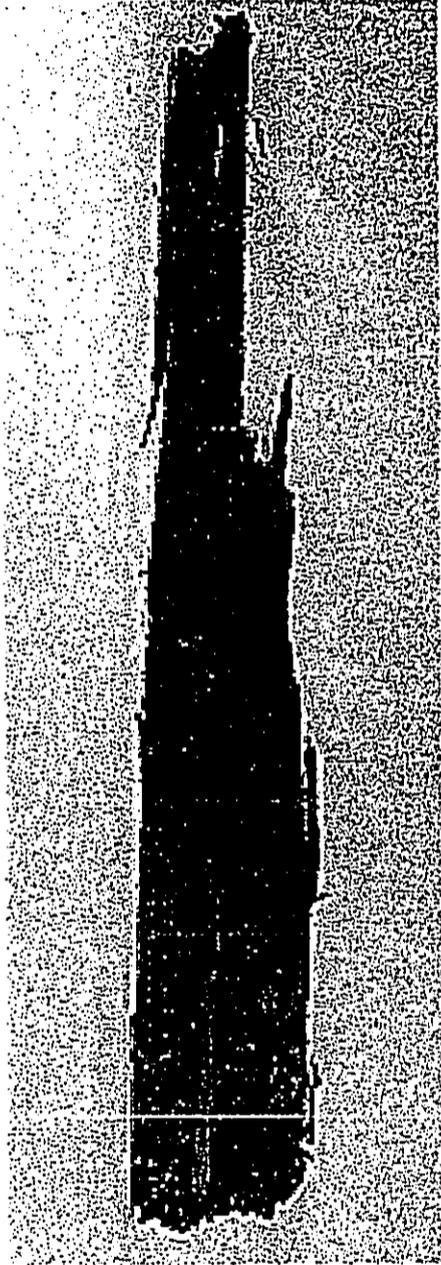
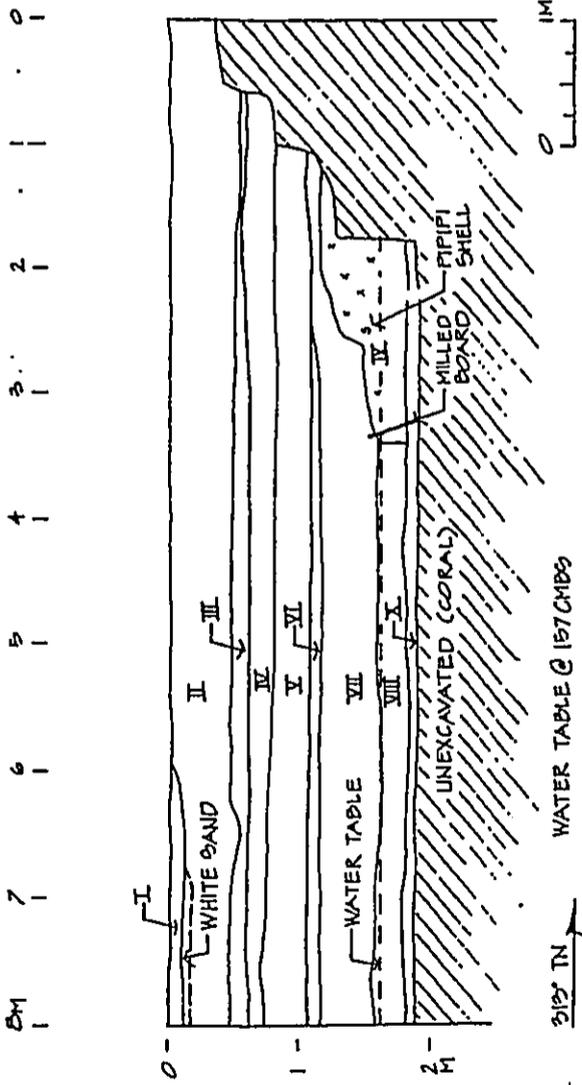


Photo 10 Wood Stake found lodged between Strata IX and X in Trench 2

TRENCH 2 Southwest Wall: length 8 m, depth 187 cmbs, width 85 cm, orientation 133/313° TN (SE/NW)



Strata	CMBS	Description
I	0-10	10 YR 2/2 very dark brown, Sandy Loam, gravelly, slightly compact, structureless, inclusions: coral pebbles & cobbles; abrupt wavy lower boundary
II	10-46	10 YR 5/4, 5/2 light yellowish brown mottled with gray brown, Loamy Sand, gravelly (mostly medium size), slightly compact, structureless, inclusions: few roots & rootlets, abundant coral pebbles & cobbles; abrupt wavy lower boundary
III	46-58	10 YR 5/2, 6/4, 4/4 gray brown, light yellowish brown, dark yellowish brown, Very Fine Sand Microstratigraphy, loose, structureless, inclusions: few roots & rootlets; very abrupt-smooth discontinuous lower boundary
IV	58-73	10 YR 6/4 light yellowish brown, Fine Sand & Clay Microstratigraphy, slightly compact, structureless, inclusions: few roots & rootlets; very abrupt smooth lower boundary
V	73-104	10 YR 5/3 brown, Silty Clay Microstratigraphy, compact, structureless, inclusions: very few roots & rootlets; very abrupt smooth lower boundary
VI	104-112	10 YR 4/4-5/2 dark yellowish brown to grayish brown Sandy Clay Loam Very Fine Microstratigraphy, loose-slightly compact, structureless, inclusions: very few roots & rootlets, 2 small charcoal deposits; very abrupt-smooth & discontinuous lower boundary
VII	112-159	N 4/0, N 2.75 dark gray, very dark gray/black Silty Clay Microstratigraphy, slightly compact, structureless inclusions: very few roots & rootlet; very abrupt smooth lower boundary
VIII	159-179	10 YR 3/1 very dark gray, Silty Clay, slightly compact, structureless inclusions: organic material (possibly leaves); very abrupt smooth lower boundary
IX	115-180 @ 2m	5 GY 4/1 dark greenish gray, Clay Loam, slightly compact, structureless inclusions: roots & rootlets, a few basalt cobbles, charcoal flecks, Pipipi shells, and a wood plank; abrupt smooth lower boundary
X	179-187	N 5/0 gray, Coarse Sand, loose, structureless, no inclusions, abrupt smooth lower boundary

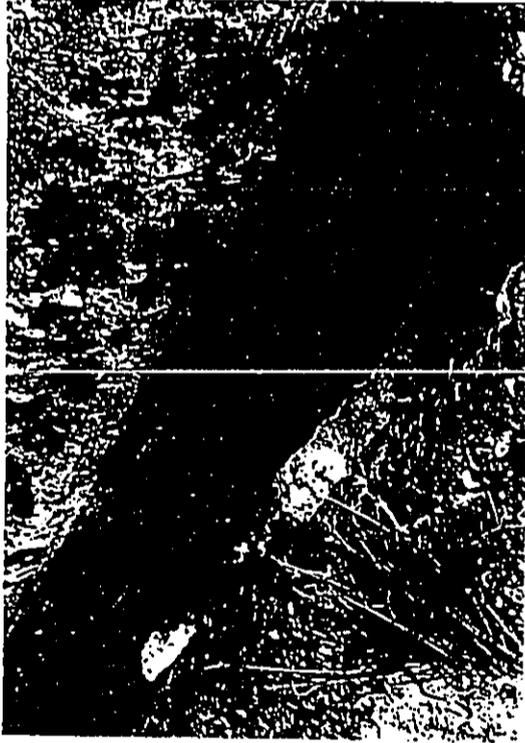


Figure 2 Trench 2 Profile of SW wall, photograph, and sediment description

Trench 3: Southwest Wall (Figure 7)

The south-southwest wall was profiled (Kalākaua Avenue side of the project area). The water table of this trench was encountered at 154 cmbs .

Stratigraphy:

Stratum I	Recent construction or demolition refill.
Stratum II	1920-1930 Ala Wai land-reclamation fill event
Stratum III	1920-1930 Ala Wai land-reclamation fill event
Stratum IV	1920-1930 Ala Wai land-reclamation fill event
Stratum V	1920-1930 Ala Wai land-reclamation fill event
Stratum VI	1920-1930 Ala Wai land-reclamation fill event
Stratum VII	1920-1930 Ala Wai land-reclamation fill event
Stratum VIII	1920-1930 Ala Wai land-reclamation fill event
Stratum IX	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum X	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum XI	Natural sand deposits, during the formation of Waikīkī.

Stratum I is a gravelly sandy clay loam remix that includes asphalt and bottle glass fragments. It is the result of the recent demolition, refill, and leveling of the property. Strata II through VIII are land-fills. No historic cultural materials were found in these fill strata. The uppermost of the fill strata (II) is the only fill without microstratigraphy. It is consistent as a loamy sand with abundant coral gravels and cobbles. Fill strata III through VIII vary in texture and follow the microstratigraphy thickness as explained above. All of these strata contained roots and rootlets, and Stratum VII—a very fine sandy loam with clay bands—also contained a Kukui nut (see profile) and a few small charcoal flecks.

Strata IX and X represent the prehistoric/historic ground surface. Stratum IX is a silty clay with preserved organic material. Its surface is fairly planar and may indicate a prior pond or *lo'i* bed. There is a berm to the SE of this bed, consisting of Stratum X, which may have served as an additional agricultural cultivation surface banking the pond or *lo'i*. This stratum (X) contains charcoal flecking and one large coral cobble. Figures 6 and 7, profiles for Trenches 2 and 3, align in a NW to SE orientation and show a NW bank (berm) and a SE bank bordering a wide planar surface (e.g. that for wetland *lo'i* cultivation). Approximately twenty feet of unexcavated ground lay between these two trenches, and it is probable that this area exhibits a planar surface consistent with that of the interior ends of Trenches 2 and 3. This may be a *lo'i* area or the part of the pond shown in historic maps of the project area and vicinity.

The surface of the lower gray coarse sand stratum is consistent at 160 cmbs, and the base of the trench is a compact layer of coral. Two sediment samples were collected for this trench, one contains the Kukui nut found in Stratum VII, and one contains charcoal from Stratum X.

TRENCH 3 Southwest Wall: length 8 m, depth 185 cm, width 85 cm, orientation 133/13° TN (SE/NW)

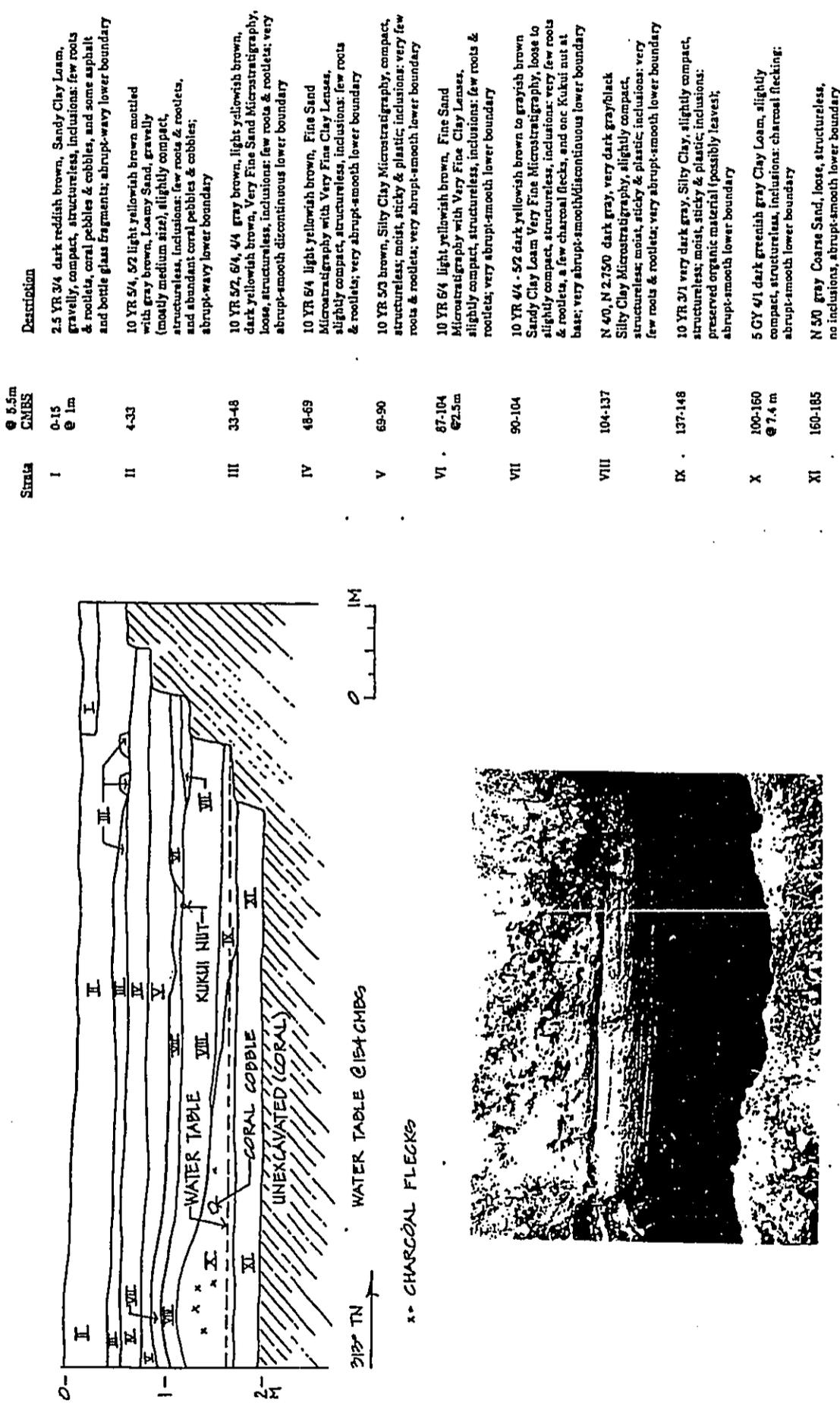


Figure 7 Trench 3 Profile of SW wall, photograph, and sediment description

Trench 4: Northeast Wall (Figure 8)

The northeast wall was profiled, the Kuhio Avenue side of the project area. The water table of this trench was encountered at 204 cmbs.

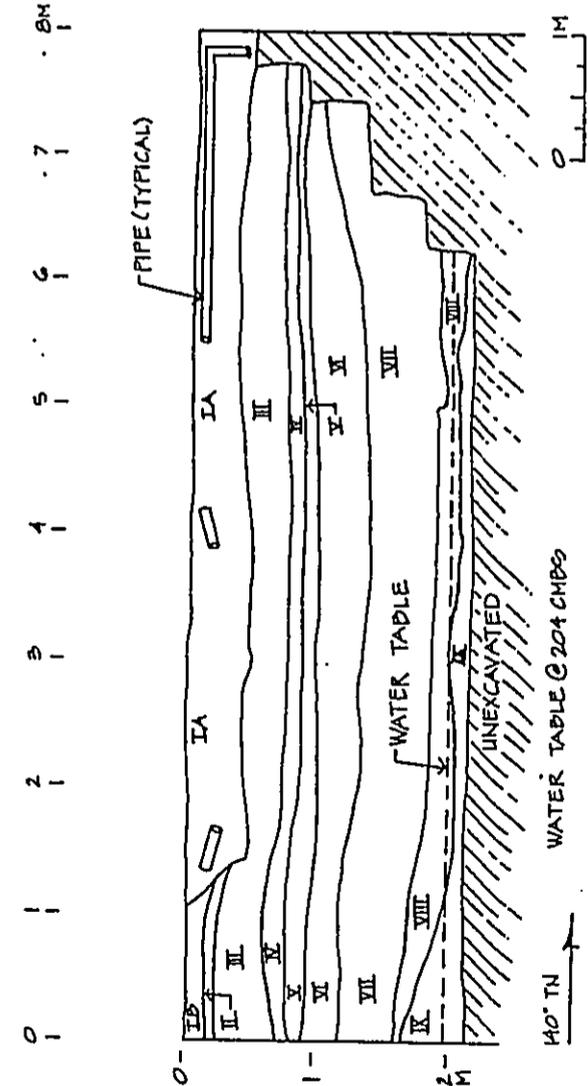
Stratigraphy:

Stratum Ia	Recent construction surface fill.
Stratum Ib	Recent construction/demolition fill.
Stratum II	Construction remix / or Land-reclamation fill
Stratum III	1920-1930 Ala Wai land-reclamation fill event.
Stratum IV	1920-1930 Ala Wai land-reclamation fill event
Stratum V	1920-1930 Ala Wai land-reclamation fill event.
Stratum VI	1920-1930 Ala Wai land-reclamation fill event.
Stratum VII	1920-1930 Ala Wai land-reclamation fill event.
Stratum VIII	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum IX	Natural sand deposits, during the formation of Waikiki.

Stratum I represents two recent fill events. The absence of historic debris in layer Ia suggest that this layer may represent the end of a fill for a recent modification. Adjacent layer Ib, which contains historic architectural debris, represents refill from grading of the prior construction surface or the recent demolition of structures on the property. Stratum II contains a heavy amount of charcoal flecking; it also contains glass fragments, like Stratum Ib. These fragments may be the result of construction remix, or Stratum II may be the remaining part of an earlier stratum that ran across the recent construction disturbance of Stratum Ib; in which case, there is potential for Stratum II to be a land-reclamation fill surface with prior cultural activity. Strata III through VII are interpreted as land fill events. Combined, these strata measure to a depth of 190 cm below today's ground surface, and exhibit fairly consistent abrupt and smooth lower boundaries. Microstratigraphy is evident in Strata V through VII, and follow the established thickness size for the corresponding sediment texture. The lowest boundary of the gleyed gray clay stratum (VII) is recorded at 190 cmbs.

The most common plane of the prehistoric to historic organic Stratum VIII (Site 50-80-14-5796) is approximately 185 cmbs; there is a small raised area at the NW end of the trench, which may be the beginning of a berm. The lower gray coarse sand stratum (IX) in this trench, varies from previous trenches in that basalt cobbles are intermixed with the sand and the surface of the stratum varies between 155 and 207 cmbs. This naturally deposited sand is elevated at the NW end from the 2 to the 0 meter points. Two sediment samples were collected for this trench, one from Stratum VIII, which possibly contain charcoal and a leaf remnant.

TRENCH 4 Northeast Wall: length 7 m, depth 202 cms, width 110 cm, orientation 140°320° TN (SE/NW)



Strata	0.1m CMBS	Description
Ia	0-19 30 m	10 YR 4/3 dark brown, Loamy Sand, gravelly, slightly compact, structureless, inclusions: some roots & rootlets, historic architectural rubbish (glass, tile, and metal pipe); abrupt wavy lower boundary
Ib	0-19	10 YR 7/3 very pale brown, Sandy Loam, loose, structureless, inclusions: gravel pebbles; clear wavy lower boundary
II	19-28	10 YR 6/2 light brownish gray, Loamy Sand, slightly compact, structureless, inclusions: gravel & coral, charcoal flecking, some roots & rootlets, glass fragments; abrupt wavy lower boundary
III	28-60	10 YR 6/2 light brownish gray, Sand, gravelly, loose, structureless, inclusions: coral cobbles (5-10 cm), and 1 inch of finer crushed sand & coral; abrupt-wavy lower boundary
IV	60-78	10 YR 6/1 gray, Very Fine Sand, slightly compact, structureless, inclusions: roots & rootlets, coral & shell fragments, some basalt rock cobbles; very abrupt to clear lower boundary
V	78-95	10 YR 7/1-8/4 light gray to very pale brown Fine Sand Microstratigraphy, slightly compact, structureless, contains roots & rootlets, abrupt-wavy lower boundary
VI	95-120	10 YR 8/4, 8/6 very pale brown with yellow Very Fine Sand Microstratigraphy, loose, structureless, inclusions of sporadic deposits of clay (10 YR 5/2 grayish brown), very abrupt-smooth to wavy lower boundary
VII	120-170	N 4/0, N 3/0 dark gray, very dark gray, Silty Clay Microstratigraphy, slightly compact, structureless, moist, sticky and plastic, inclusions: very fine rootlets; very abrupt-smooth lower boundary
VIII	170-196	7.5 YR 3/1 very dark gray, Sandy Loamy Clay, slightly compact, structureless, inclusions: a few very fine rootlets, shell; irregular to discontinuous lower boundary
IX	196-207	N 5/0 gray, Coarse Sand and basalt gravels and cobbles, loose, structureless, no inclusions, irregular lower boundary

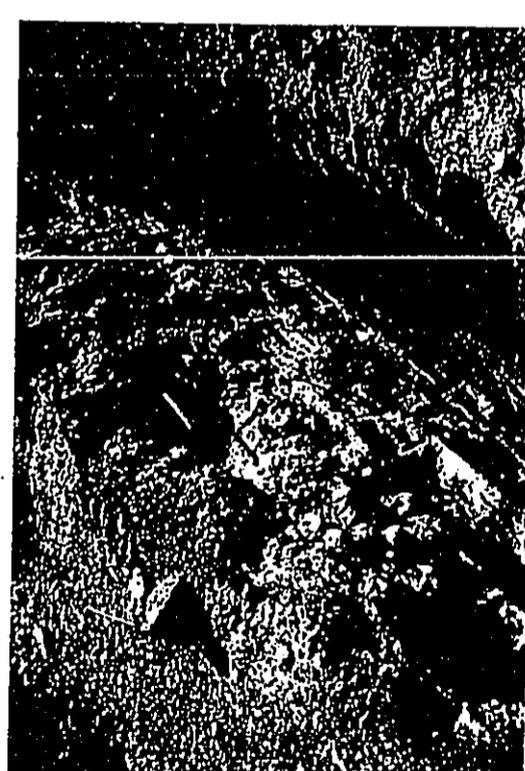


Figure 8 Trench 4 Profile of NE wall, photograph, and sediment description

Trench 5: Northeast Wall (Figure 9)

The northeast wall was profiled, the Kuhio Avenue side of the project area. The water table of this trench was encountered at 160 cmbs.

Stratigraphy:

Stratum Ia	Recent landscape or construction fill
Stratum Ib	Recent landscape or construction fill
Stratum II	1920-1930 Ala Wai land-reclamation fill event
Stratum III	1920-1930 Ala Wai land-reclamation fill event
Stratum IV	1920-1930 Ala Wai land-reclamation fill event
Stratum V	1920-1930 Ala Wai land-reclamation fill event
Stratum VIa	1920-1930 Ala Wai land-reclamation fill event
Stratum VIb	1920-1930 Ala Wai land-reclamation fill event
Stratum VII	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum VIII	Natural sand deposits, during the formation of Waikiki.

The layers of Stratum I contain chunks of cement, suggesting both are recent fill layers. The texture and color connote soils which were brought into the site for landscaping purposes. Strata II through VIb are considered land-reclamation fill events, and they contain no cultural materials. Stratum IV exhibits some clay bands interbedded within the compact fine sands. Sporadic clay deposits within the very fine sandy clay loam of Stratum V are recorded as Munsell color 10 YR 5/3 brown. Strata VI a & b are silty clays with microstratigraphy, in the usual position of brown (VIa) over gleyed gray (VIb). The lowest boundary of the later gleyed gray clay stratum is recorded at 175 cmbs and the thickness of this layer is fairly consistent at 17 cm, fairly consistent with the water table. Both layers of Stratum VI are discontinuous, penetrated by sandy loamy clay from the lower Stratum VII.

Trench 5 lays parallel and *makai* (SW) of Trench 4 (see Figure 3). Stratum VII in Trench 5, the original prehistoric/historic ground surface (50-80-14-5796), exhibits a berm feature at the 2.5 meter mark. The berm appears to be a small bank for a *lo i* or possibly a pond, and may be related with features documented in Trenches 3 and 4. The most common plane of this stratum is at approximately 170 cmbs, and the berm is recorded at 118 cmbs.

The surface of the older lower gray coarse sand is consistent at 210 cmbs, and contains various size waterworn cobbles of basalt. Six sediment samples were collected for this trench, including a sample from the berm.

TRENCH 5 Northeast Wall: length 7 m, depth 210 cm, width 71 cm, orientation 136°316° TN (SEANW)

0 1 2 3 4 5 6 7 M

Strata	@ 1.5m CMBS	Description
I a	0-22	2.5 YR 4/6 red, Loamy Sand, slightly compact, structureless, inclusions: mixed with coral and gravel pebbles & cobbles, and cement chunks; clear lower boundary
I b	22-53	5 YR 3/2 dark reddish brown, Loamy Sand, slightly compact, structureless, inclusions: mixed with coral and gravel pebbles & cobbles, and cement chunks; clear lower boundary
II	53-65	10 YR 6/2 light brownish gray, Loamy Sand, loose-slightly compact, structureless, inclusions: coral pebbles & cobbles; abrupt-wavy lower boundary
III	65-70	10 YR 6/1 gray, Fine Sand, slightly compact, structureless, inclusions: roots & rootlets, coral & shell fragments, some basalt rock cobbles; very abrupt-clear lower boundary
IV	70-75	10 YR 4/2 dark grayish brown, Fine Sand with some banding, slightly compact, structureless, no inclusions, abrupt lower boundary
V	75-126	10 YR 5/3, 2, 1 brown, grayish brown, gray Very Fine Sandy Clay Loam with Clay Deposits, slightly compact, structureless, inclusions: sporadic deposits of clay, roots; abrupt-wavy lower boundary
VI a	126-150	10 YR 5/3 brown, Silty Clay Microstratigraphy, slightly compact, structureless; moist, sticky and plastic; no inclusions, very abrupt-wavy lower boundary
VI b	150-170	N 4/0, N 3/0 dark gray, very dark gray, Silty Clay Microstratigraphy, slightly compact, structureless; moist, sticky and plastic; no inclusions, abrupt-smooth and discontinuous lower boundary
VII	170-215 @ 2.5m	GY 4/1 dark greenish gray, Sandy Loamy Clay, slightly compact, structureless; no inclusions, very abrupt-wavy lower boundary
VIII	210-255	N 5/0 gray, Coarse Sand and Basalt Cobbles, loose, structureless, inclusions: basalt gravels and cobbles, very abrupt-smooth lower boundary

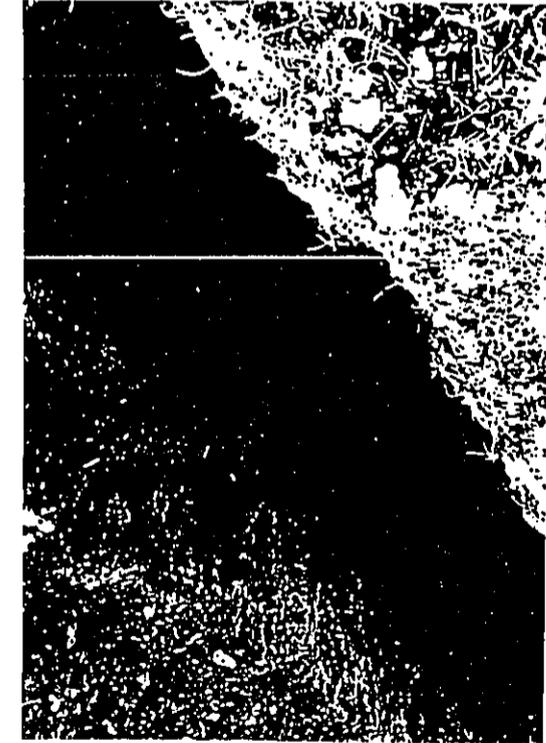
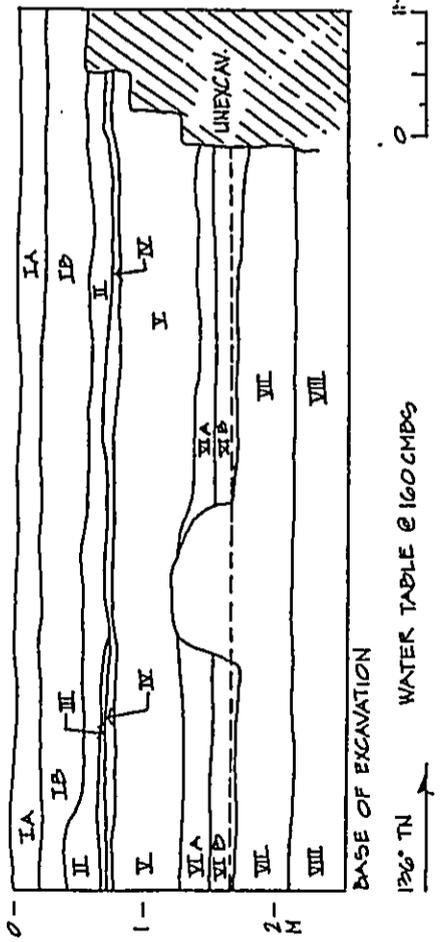


Figure 9 Trench 5 Profile of NE wall, photograph, and sediment description

Trench 6: Northeast Wall (Figure 10)

The northeast wall was profiled (the Kuhio Avenue side of the project area). The water table was encountered at 153 cmbs.

Stratigraphy:

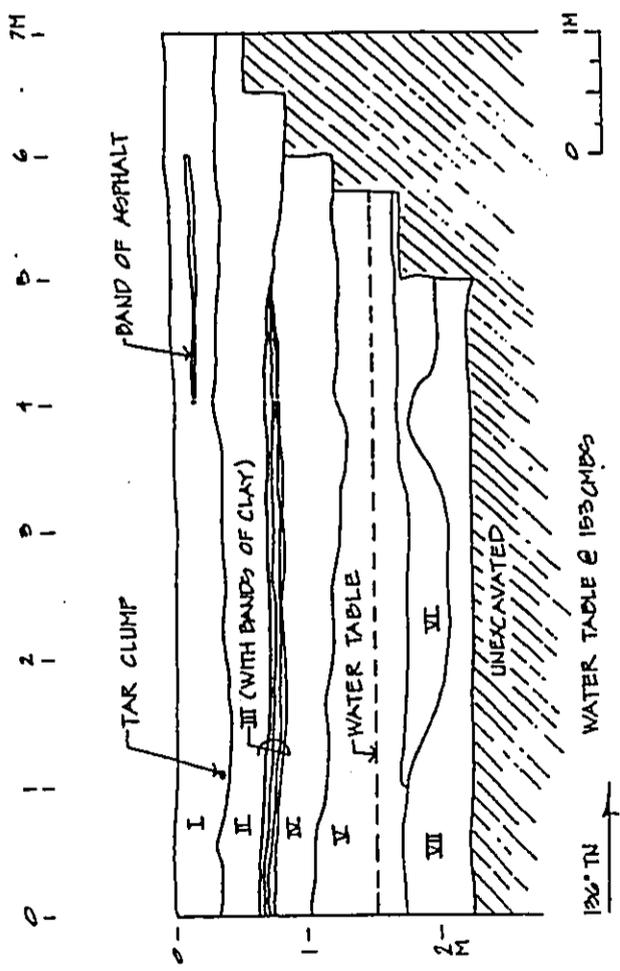
Stratum I	Recent construction/demolition refill.
Stratum II	Recent construction/demolition fill and refill.
Stratum III	1920-1930 Ala Wai land-reclamation fill event
Stratum IV	1920-1930 Ala Wai land-reclamation fill event
Stratum V	1920-1930 Ala Wai land-reclamation fill event
Stratum VI	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum VII	Natural sand deposits, during the formation of Waikiki.

Strata I and II contain fragments of historic construction/demolition materials. These materials result from the grading of fill sediments after demolition for new construction, remodeling projects, or after the recent property demolition project.

Strata III through V are land-reclamation fills, which contain no historic materials. Stratum III is a very fine sandy clay loam with light gray to very dark brown banding, and a clay band deposit that runs through to meter 5. Stratum IV has the same texture, with mottled colors; it has no definite banding, but exhibits sporadic clay deposits of grayish brown to meter 5. It is evident that these two land-reclamation fill strata (III & IV) have been disturbed by more recent construction activities starting at the 5 meter point and moving southeast. Stratum V, a gray silty clay with black microstratigraphy, extends fairly even over the original ground surface (Stratum VI) and a raised portion of the natural sand deposits (Stratum VII).

Stratum VI—the prehistoric to historic ground surface (Site 50-80-14-5796)—lays in a relatively planar surface over all but the northwest end of the trench (see Figure 10), and appears to suggest a *lo i* feature. The underlying calcareous sand deposit stratum (VII) has one small and one larger natural sand berms, the larger at the northwest end meets the lower boundary of the gray silty clay (Stratum V). This is the only area where the older underlying natural sand deposits meet the land-reclamation fill layers, without the original wetland surface. No coral base layer was encountered.

TRENCH 6 Northeast Wall, length 7 m, depth 225 cm, width 72 cm, orientation 136/316° TN (SE/NW)



Strata	2m CMBS	Description
I	0-37	10 YR 4/3 dark brown, Sand, gravelly, slightly compact, structureless, inclusions: historic fragments of glass, tile, metal pipe, asphalt chunks, a black tar like substance, no roots; abrupt-wavy lower boundary
II	37-72	10 YR 7/3 very pale brown, Loamy Sand, gravelly, slightly compact, structureless, inclusions: large coral cobbles & shell, metal pipe, a black tar like substance, and no roots; smooth lower boundary
III	72-85	10 YR 7/1-8/4 light gray to very pale brown, Very Fine Sandy Clay Loam with Clay Deposits, slightly compact, structureless, inclusions: very few rootlets (mostly at the north end), deposits of gray clay banding to meter 5; abrupt-wavy lower boundary
IV	85-120	10 YR 8/4, 8/6 very pale brown with yellow, mottled colors, Very Fine Sandy Clay Loam with Clay Deposits, slightly compact, structureless, inclusions: some roots & rootlets, sporadic deposits of clay; abrupt smooth to wavy lower boundary
V	120-177	5 Y 4/1, N 2.75 dark gray, very dark gray/black, Silty Clay Microstratigraphy, slightly compact, structureless; moist, sticky, and plastic; inclusions: no roots or rootlets; abrupt wavy lower boundary
VI	177-208	7.5 YR 3/1 very dark gray, Clay Loam with some sand, slightly compact, structureless, no inclusions, irregular lower boundary
VII	208-227	N 5/0 gray fume bluish lining, Medium-Coarse Sand, loose, structureless, no inclusions, no lower boundary visible

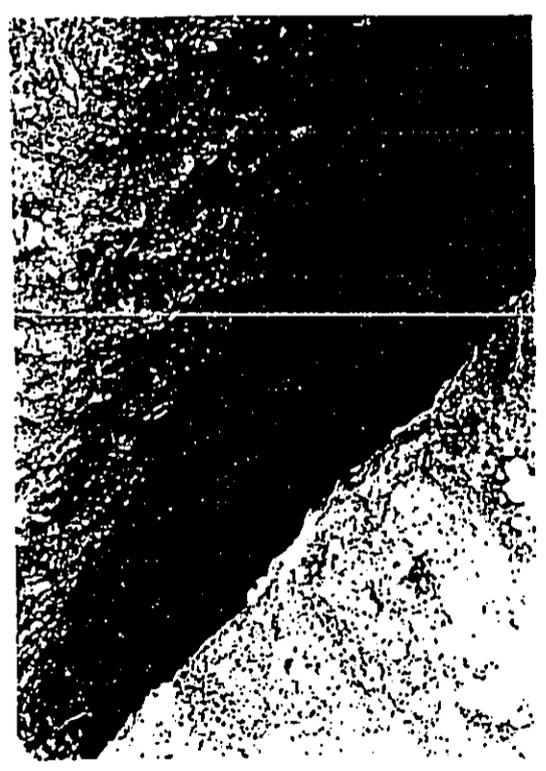


Figure 10 Trench 6 Profile of NE wall, photograph, and sediment description

Trench 7: Southwest Wall (Figure 11)

The south-southwest wall was profiled, the Kalākaua Avenue side of the project area. The water table of this trench was encountered at 130 cmbs.

Stratigraphy:

Stratum I	Recent construction/demolition refill.
Stratum II	1920-1930 Ala Wai land-reclamation fill event. .
Stratum IIIa	1920-1930 Ala Wai land-reclamation fill event
Stratum IIIb	1920-1930 Ala Wai land-reclamation fill event
Stratum IV	1920-1930 Ala Wai land-reclamation fill event.
Stratum V	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum VI	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum VII	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum VIII	Natural sand deposits, during the formation of Waikiki.

Stratum I contains historic construction debris, and appears to be a recent fill. It is a loam sediment with an asphalt overlay at the northwest end of the trench. The asphalt likely dates to the 1945 photograph (6), which shows an entry roadway into the project parcel in the area of Trench 7. Strata II through IV are fill events related to land-reclamation. They contain no historic materials. Strata IIIb contains landsnails. Strata IIIa and IV are adjacent except for the northwest intrusion of fill Stratum IIIb, and both exhibit microstratigraphy. Stratum IV is a brown to gray silty clay with sand lenses of the same colors. The lower boundary grades into the gray clay, with a bluish tint just above the water table.

This trench has three prehistoric to historic wetland strata; one is characterized as a clay loam (V) and two are sandy clay loams (VI & VII). The trench is cut perpendicular to Trench 8 at the 1 to 1.8 m points (Figure 12). Strata V and VI form a berm at the SE end of the trench, and overlay agricultural Stratum VII. Stratum V contains charcoal flecking, a charcoal lens (sample taken), and a few basalt cobbles. Stratum VI also contains charcoal flecking. Stratum VII exhibits the same bluish tint recorded for Stratum IV, at the water table boundary at the NW half of the trench profile. Three charcoal samples were collected, one from Stratum V and two from Stratum VI. Ceramic fragments were collected from Stratum VII, at the Strata IV and VII boundary (the area with the bluish tint). Butchered pig bones were also collected from this same boundary area. This portion of the trench is immediately below Stratum IV and has a concentration of faunal refuse, like a butchery trash deposit. The surface of Stratum VII is the floor of the *'auwai* recorded in Trench 1, which is parallel and to the NE of Trench 7 (see Figure 11)

Ceramic fragments representing 3 vessels were recorded in Stratum VII. The first is a single body fragment of an American salt-glazed stoneware dating to pre-1875. This specimen has a gray salt exterior and a brown natural clay slip interior that exhibits horizontal striations characteristic of items made on a potters wheel (Photo 11); the specimen is most likely from a cylindrical holloware jug or jar, made in the northern U.S.,

or possibly the eastern U.S. (Greer 1981). The second item consists of two mendable bowl body and rim sherds of Chinese provenance (Photo 11). It is a porcellaneous stoneware hand painted with a cobalt blue *3-Circles and Dragonfly* (or *Bamboo*) motif (Lister and Lister 1989; Ritche 1986; Willetts and Poh 1981). This item dates, in Hawai'i, from 1850 to the turn of the century. The third specimen consists of two mendable sherds from a Chinese porcellaneous stoneware *Kitchen Ch'ing* plate or dish. *Kitchen Ch'ing* dates to the 1800s, and it was very common in Hawai'i, however, this particular motif has not been previously recorded in Hawai'i (Photo 12). It has a blue, green, and white hand-painted and block-printed *Cavello* motif with a cobalt blue center medallion—the 6 Crowns pattern in the center design is called *Fu* (happiness) (Willetts and Poh 1981:89, vessel 106). The *Kitchen Ch'ing* vessels are not recorded as being on missionary sites, but the type is common on Native Hawaiian sites. This may be due to the size of this line of large plate and dish vessels, which were useful for sauce based foods or foods served communal style. Combined these items date between 1800 and 1875, and signify the availability of both Western and Eastern made product. Together these ceramic items represent a vessel for liquid, a multiple serving size bowl, and a single-serving bowl.

Stratum VIII, the natural coarse calcareous sand, contains an increased density of basalt and coral cobbles and boulders at the northwest end of the trench. These boulders and cobbles, observed at the intersection of Trenches 7 and 8, were below the water table and difficult to see. They are thought to be part of the NW bank of the *'Auwai O Pau* feature (state Site 50-80-14-4970).

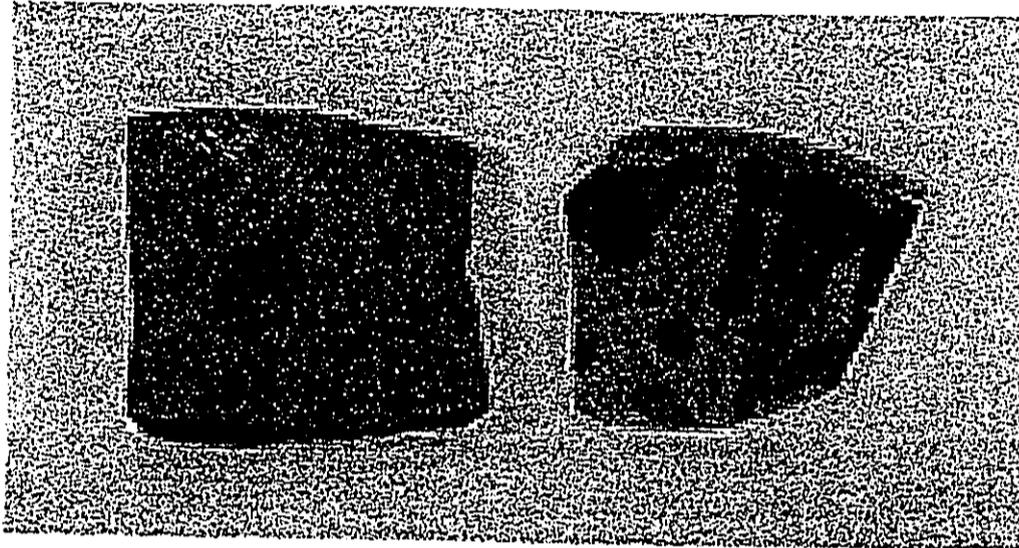


Photo 11 American Salt-Glazed Stoneware, made on a potter's wheel, pre-1875 (a)
Chinese Hand-Painted Stoneware, 3-Circles & Dragonfly (or Bamboo) Motif (b)

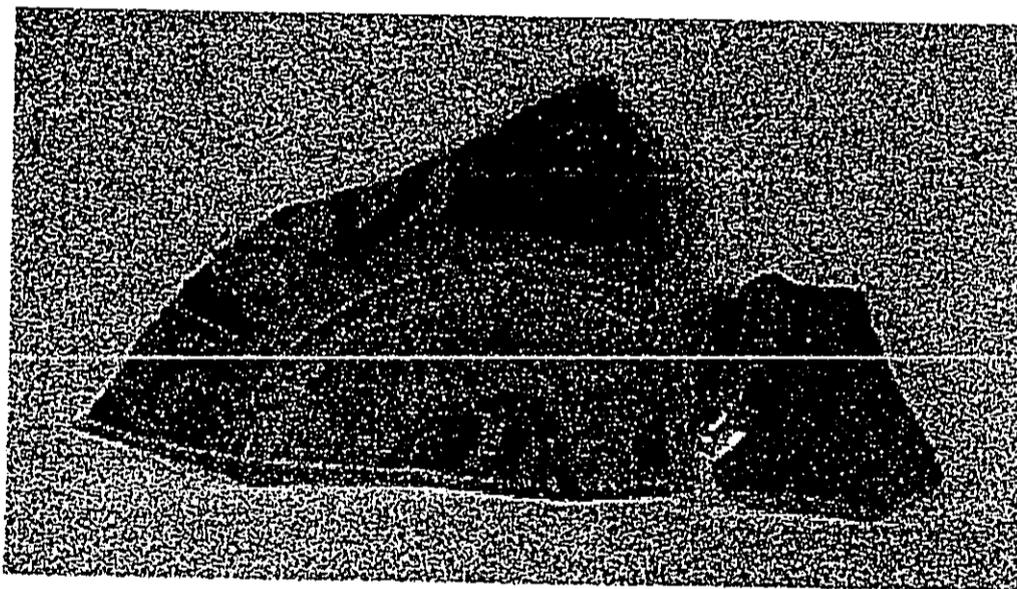


Photo 12 Chinese *Kitchen Ch'ing* Porcellaneous Stoneware, Cavello Motif, 1800s

TRENCH 7 Southwest Wall: length 7 m, depth 179 cm, width 71 cm, orientation 135°15' TN (SE/NW)

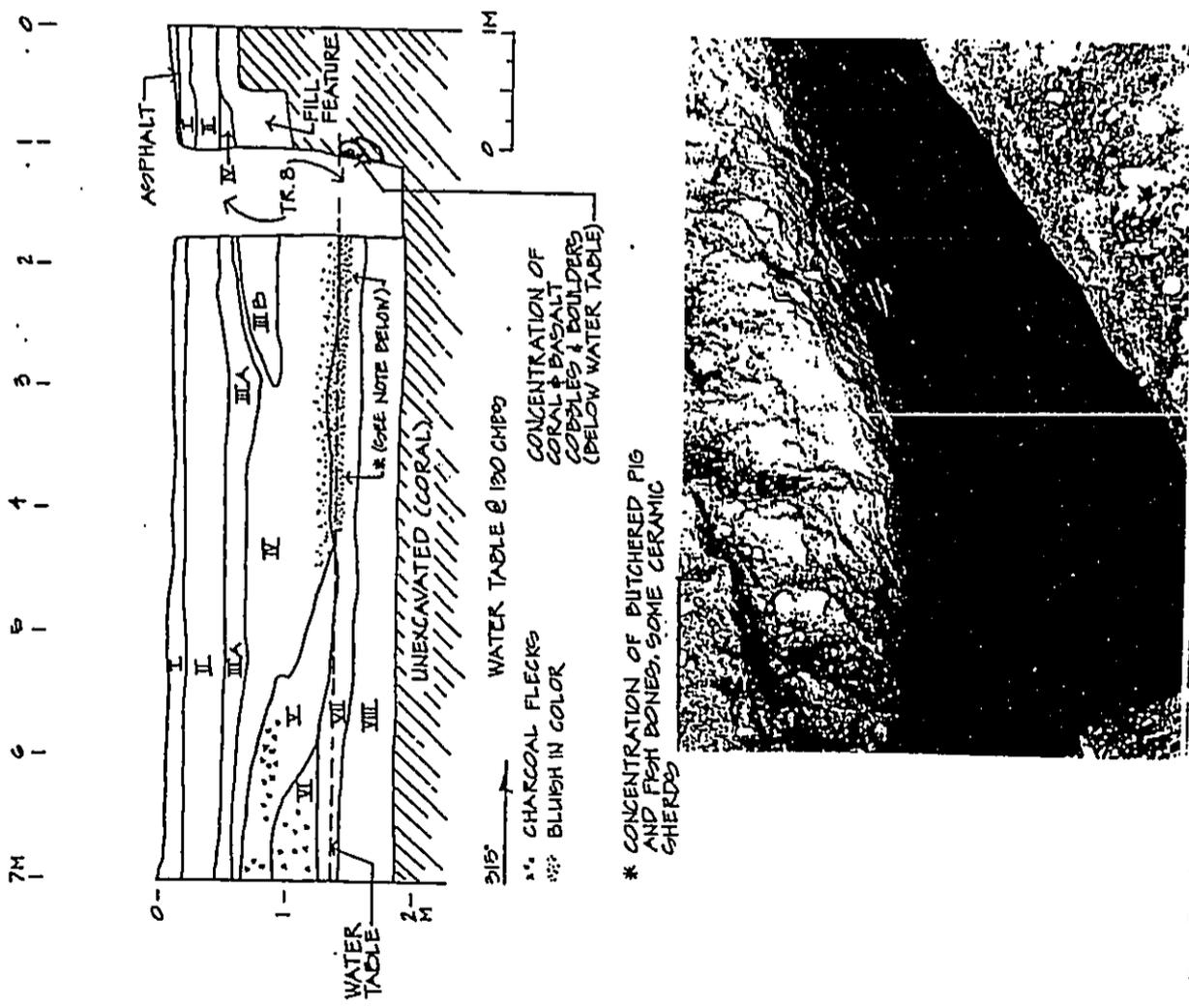


Figure 11 Trench 7 Profile of SW wall, photograph, and sediment description

Trench 8: Southeast Wall (Figure 12)

The southeast wall was profiled, the Lewers Street side of the project area. The water table of this trench was encountered at 130 cmbs.

Stratigraphy:

Stratum I	Recent construction/demolition refill
Stratum II	1920-1930 Ala Wai land-reclamation fill event
Stratum IIIa	1920-1930 Ala Wai land-reclamation fill event
Stratum IIIb	1920-1930 Ala Wai land-reclamation fill event
Stratum IV	1920-1930 Ala Wai land-reclamation fill event
Stratum VII	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum VIII	Natural sand deposits, during the formation of Waikiki.

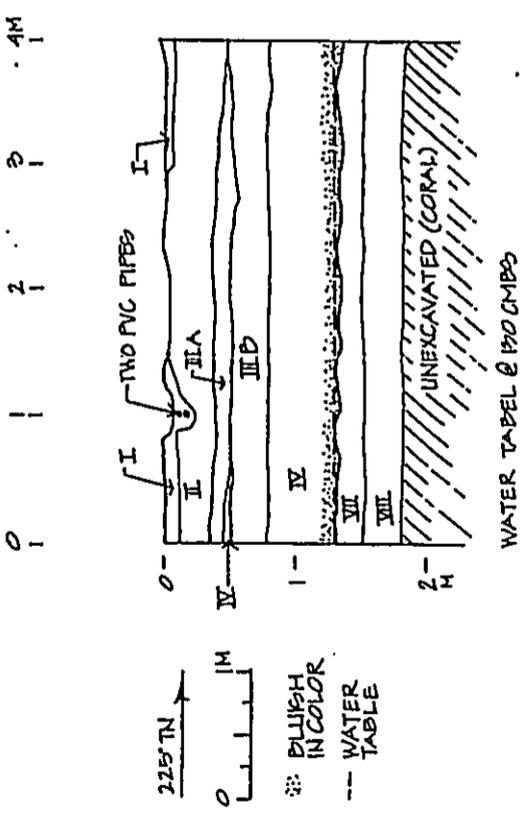
Stratum I contains historic construction debris, and appears to be a recent fill. It is a loam sediment with two PVC pipes near the northeast end of the trench. Strata II through IV are fill events related to land-reclamation. They contain no historic materials. Strata IIIb contains landsnails. Stratum IV is a brown to gray silty clay with sand lenses of the same colors. The lower boundary grades into the gray clay, with a bluish tint just above the water table.

This trench (8) has the lower of the three prehistoric to historic wetland strata observed in Trench 7, Strata VII, a sandy clay loam. The trench is cut perpendicular to Trench 7 at the 0 m point (Figure 12). Strata V and VI, which together form the berm at the SE end of Trench 7, were not observed in Trench 8. Stratum VII exhibits the same bluish tint recorded for Stratum IV, at the water table boundary. Stratum IV, a gray silty clay, is the only sediment that exhibits microstratigraphy.

The *mauka to makai* (NE to SW) orientation of this trench reveals a continuous planar surface at -130 cmbs, for the prehistoric to historic original ground surface (state Site 50-80-14-5796), designating the floor of the *'Auwai O Pau* (state Site 50-80-14-4970).

Stratum VIII, the naturally deposited medium to coarse sand is consistent at 150 cmbs, and is underlaid with compact coral, recorded at 179 cmbs.

TRENCH 8 Northwest Wall: length 4 m, depth 180 cmbs, width 100 cm, orientation 45/225 TN (SWNE)



Symbol	CMBS	Description
I	0-10	10 YR 3/4 dark yellowish brown. Loam, loose, structureless, inclusions: two PVC pipes, big concrete chunks, and brick, tile and some plastic fragments; abrupt-smooth lower boundary
II	10-38	10 YR 5/4, 5/2 light yellowish brown mottled with gray brown, Loamy Sand, gravelly (mostly medium size), slightly compact, structureless, inclusions: a few roots & rootlets, and abundant coral pebbles & cobble inclusions; abrupt-wavy lower boundary
III a	35-49	10 YR 5/2, 6/4, 4/4 gray brown, light yellowish brown, dark yellowish brown, Loamy Sand, gravelly (mostly medium size), slightly compact, structureless, inclusions: few roots & rootlets; abrupt-smooth discontinuous lower boundary
III b	52-78	10 YR 4/1 dark gray, Sandy Clay Loam, slightly compact, structureless, inclusions: many roots & rootlets, and land snails; abrupt lower boundary
IV	49-52 78-130	10 YR 4/1 dark gray, Fine Sand Microstratigraphy, slightly compact, structureless, inclusions: many roots & rootlets, land snails; abrupt lower boundary
VII	130-150	N 4/0 dark gray, Sandy Clay Loam, slightly compact, structureless, inclusions: many rootlets, and charcoal; smooth abrupt lower boundary
VIII	150-180	N 4/0 dark gray, Medium Coarse Sand, loose, structureless, no inclusions; abrupt-smooth-lower boundary

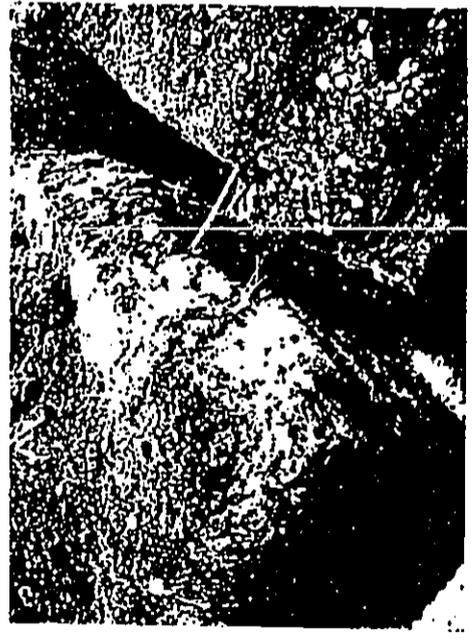


Figure 12 Trench 8 Profile of SE wall, photograph, and sediment description

Trench 9: Northeast Wall (Figure 13)

The north-northeast wall was profiled, the Kuhio Avenue side of the project area. The water table of this trench was encountered at 190 cmbs.

Stratigraphy:

Stratum Ia	Recent construction/demolition refill.
Stratum Ib	A portion of an old road or parking lot layer.
Stratum Ic	A portion of the old road or parking lot base bed fill.
Stratum II	1920-1930 Ala Wai land-reclamation fill event.
Stratum III	1920-1930 Ala Wai land-reclamation fill event
Stratum IV	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum V	Natural sand deposits, during the formation of Waikīkī.

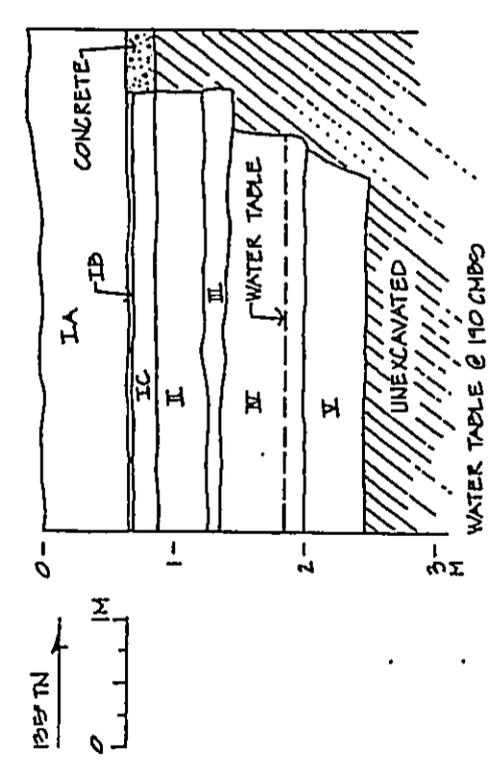
Stratum Ia is a modern landscaping soil fill, which contains recent construction demolition debris. This stratum overlays an old asphalt surface (Stratum Ib) that is underlaid with a compacted sandy loam surface bed. These layers are adjacent to a concrete building foundation with rebar, at meters 0-2.5. From the 6 to 8 meter marks the concrete feature is overlaid with the asphalt and the recent landscaping soil fill (not profiled). It appears that a WWII era parking lot, part of the old taxi stand area in the foreground of Photograph 6, was filled over with landscaping soils. The concrete foundation at the SE end of the trench cuts through the old parking lot surface.

Strata II and III are interpreted as dredged land-reclamation fill. Combined, these strata measure to 150 cm below today's ground surface. Stratum III is the only sediment in this trench that exhibits microstratigraphic banding.

The most common plane of the wetland organic Stratum IV (Site 50-80-14-5796) is at 145 cmbs, and there are no berm features evident.

TRENCH 9 North Wall: length 8 m, depth 250 cm, width 100 cm, orientation 135/15° TN (SE/NW)

6M 5 4 3 2 1



Stratum	6m CMBS	Description
Ia	8-70	10 YR 3/4 dark yellowish brown, Loam, loose, structureless, inclusions: demolition material (bricks, concrete, & tile fragments); abrupt-smooth lower boundary
Ib	70-75	7.5 YR 6/0, 2.5/0 gray and black, Asphalt, no inclusions, abrupt-smooth lower boundary
Ic	75-94	10 YR 5/1 gray, Sandy Loam, compacted, structureless, no inclusions, abrupt-smooth lower boundary
II	94-130	10 YR 5/4, 5/2 light yellowish brown mottled with gray brown, Loamy with some sand, gravelly (mostly medium size), slightly compact, structureless, inclusions: few roots & rootlets, abundant coral gravels & cobbles; abrupt-smooth lower boundary
III	130-141	10 YR 5/3 brown, Silty Clay Micrstratigraphy, compact, structureless; moist, sticky, and plastic inclusions: very few roots & rootlets; abrupt-smooth lower boundary
IV	141-206	5 GY 4/1 dark greenish gray, Clay Loam, slightly compact, structureless, inclusions: few roots & rootlets, organics, charcoal flecking & lens (sample); abrupt-wavy lower boundary
V	206-250	N 4/0 dark gray, Coarse Sand, loose, structureless, no inclusions, smooth abrupt lower boundary

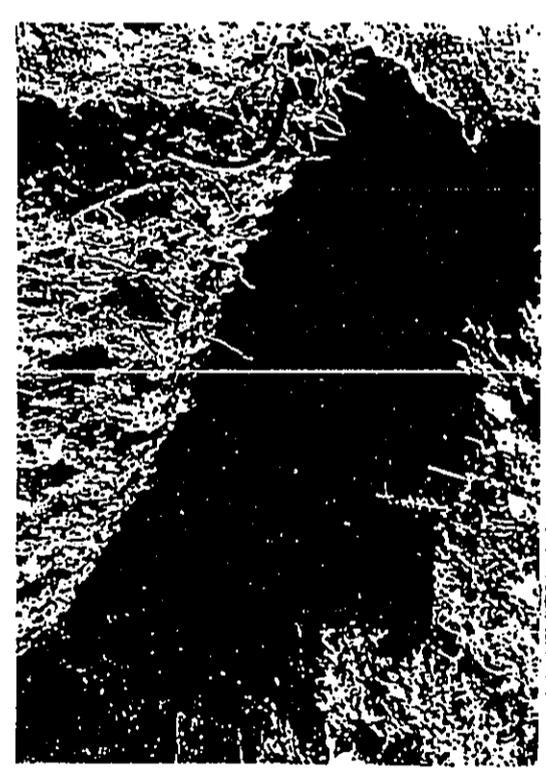


Figure 13 Trench 9 Profile of NE wall, photograph, and sediment description

Trench 10: Northwest Wall (Figure 14)

The northwest-north wall was profiled (the Kalaimoku Street side of the project area). The water table of this trench was encountered at 140 cmbs.

Stratigraphy:

Stratum Ia	Recent landscape fill.
Stratum Ib	Recent reworked fill.
Stratum II	1920-1930 Ala Wai land-reclamation fill event
Stratum III	1920-1930 Ala Wai land-reclamation fill event.
Stratum IV	1920-1930 Ala Wai land-reclamation fill event
Stratum V	1920-1930 Ala Wai land-reclamation fill event
Stratum VI	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum VII	Natural sand deposits, during the formation of Waikiki.

Stratum Ia is a recent landscape fill that contains historic construction debris and a feature that was probably a hole for a palm tree root ball. This root ball hole feature intrudes into Stratum Ib. Stratum Ib is a reworked fill that contains plastic coated wire at the 3.5 meter point, and abundant rootlets at the lower boundary between the 3.5 and the 4.8 meter points. The dip in this area likely represents an additional hole for a tree later removed.

Strata II through V are interpreted as dredged land-reclamation fill layers. Combined, these strata measure to 155 cm below today's ground surface. Stratum II contained a light green historic glass bottle, found near the upper boundary of the stratum. This is a machine-made bottle dating to post-1904, as indicated by the full-body side seams that continue over the finish lip, and the side ghost seam (Photo 13). Embossed text includes "Sunrise" in script and placed diagonally on the shoulder. "Registered" is printed on the string-rim area, and "REGISTERED NET CONTENTS 6 1/2 FLUID OUNCES PAT./10F" is around the low-body heel area. Centered in large letters on the basal surface is the word "SUN".

On the NE end of the trench part of Stratum III is flanked by a portion of Stratum IV, which also contains a deposit of the sediments from Stratum III. Strata III, IV, and V exhibit microstratigraphic banding that corresponds to the texture and thickness pattern described earlier. Stratum V is a gray silty clay that is continuous through the trench, however, it overlays a cultural berm between meters 1 and 3.

This berm is part of the original ground sediment, and consists of a clay loam with a very high organic content. It is dense with landsnails—exhibiting a possible deathbed assemblage at the initial fill boundary. The berm, located near the 2.4 m point, is substantial and exhibits large mottles and marbling. This berm is between 250 and 260 cm wide, 77 cm thick (in height), and its summit is recorded at 87 cmbs. The sediment in this area are also lighter in color than the rest of the stratum. The substantial height of the berm suggests a possible pond bank, and its location could correspond to the pond

identified on historic Map 5, as a SW bank; however, no corresponding bank was found to the NE.

The surface of the lower gray coarse sand stratum is consistent at 165 cmbs, and is underlaid with a compact coral. One sediment sample and one post-1904 bottle, mentioned above, were collected from this trench (Photo 13).

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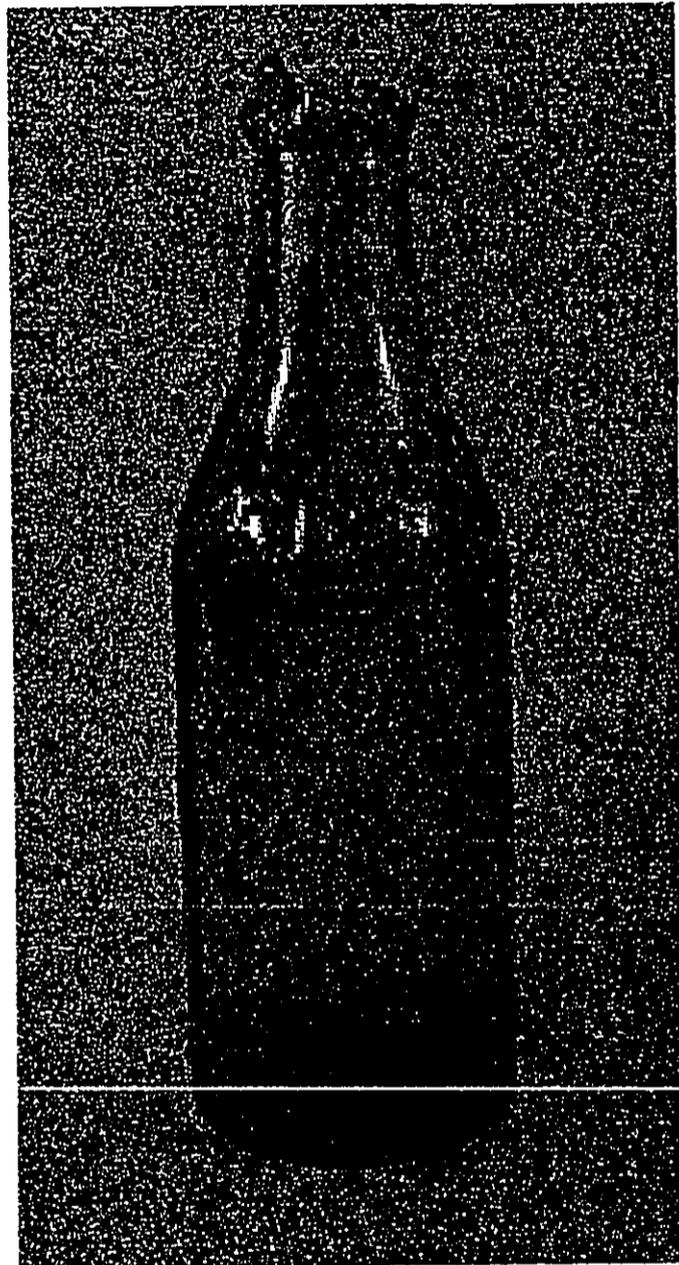
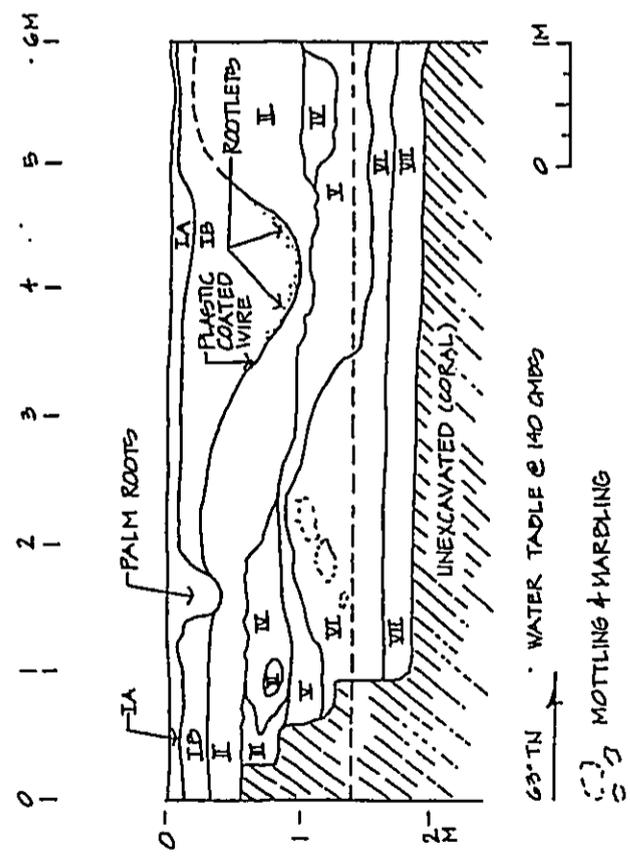


Photo 13 Machine Made Soda Bottle, post-1904

TRENCH 10 Northwest Wall: length 6 m, depth 190 cmbs, width 100 cm, orientation 63/243° TN (SW/W-NE/E)



Strata	1.0 m CMBS	Description
Ia	3-15	10 YR 3/4 dark yellowish brown, Loam, loose, structureless, inclusions: brick, concrete, and tile fragments; abrupt smooth lower boundary
Ib	15-34	10 YR 5/4, 5/2 light yellowish brown mottled with gray brown, Loamy Sand, gravelly, slightly compact, structureless, inclusions: plastic covered wire, roots, and abundant coral pebbles & cobbles (slightly darker); very wavy lower boundary
II	34-57	10 YR 5/4, 5/2 light yellowish brown mottled with gray brown, Loamy Sand, gravelly (mostly medium size), slightly compact, structureless, inclusions: no roots, and abundant coral pebbles & cobbles; wavy-irregular lower boundary
III	58-87 0.5m	10 YR 5/2, 6/4, 4/4 gray brown, light yellowish brown, dark yellowish brown, Fine Sand Microstratigraphy, slightly compact, structureless, inclusions: few roots & rootlets; abrupt-smooth discontinuous lower boundary
IV	57-93	10 YR 5/3 brown, Silty Clay Microstratigraphy, compact, structureless; moist, sticky, and plastic; inclusions: very few roots & rootlets, and coral chunks at upper boundary close to 2 m; very abrupt smooth lower boundary
V	96-114	N 4/0, N 2.75/0 dark gray, very dark gray/black, Silty Clay Microstratigraphy, slightly compact, structureless; moist, sticky, and plastic; inclusions: very few roots & rootlets; very abrupt smooth lower boundary
VI	114-165	10 YR 2/1, 4/2, 3 very dark brown, dark grayish brown, brown, Clay Loam, slightly compact, structureless, inclusions: roots & rootlets, abundant landshells; abrupt-smooth lower boundary
VII	165-187	N 5/0 gray, Coarse Sand, loose, structureless, no inclusions, abrupt-smooth lower boundary

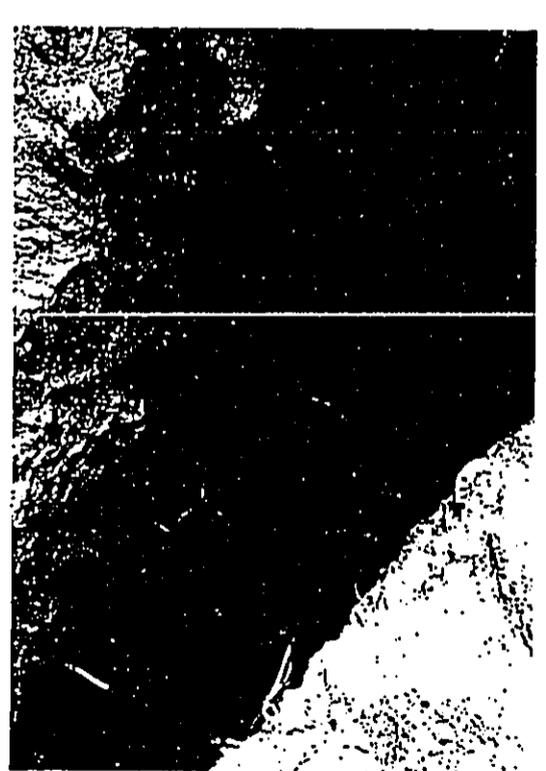


Figure 14 Trench 10 Profile of NW wall, photograph, and sediment description

Trench 11: Southeast Wall (Figure 15)

The southeast-south wall was profiled (the Lewers Street side of the project area). The water table of this trench was encountered at 120 cmbs.

Stratigraphy:

Stratum Ia	Recent construction/demolition refill.
Stratum Ib	Recent reworked fill.
Stratum II	1920-1930 Ala Wai land-reclamation fill event
Stratum III	1920-1930 Ala Wai land-reclamation fill event
Stratum IV	1920-1930 Ala Wai land-reclamation fill event
Stratum V	1920-1930 Ala Wai land-reclamation fill event
Stratum VI	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum VII	Prehistoric submerged agricultural layer.
Stratum VIII	Natural sand deposits, during the formation of Waikiki

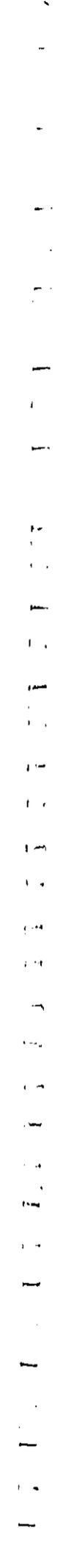
Stratum Ia appears to have been a recent fill material with an asphalt inclusion. Stratum Ib also contains historic construction debris, very large concrete chunks, and may be related to the recent demolition activity.

Strata II through V are land-reclamation fills that have also been disturbed. Microstratigraphy is evident in Strata III to V, all of which have roots and rootlets. Stratum V has a bluish tint to the gray silty clay. The base of the gleyed gray clay stratum is recorded at 135 cmbs.

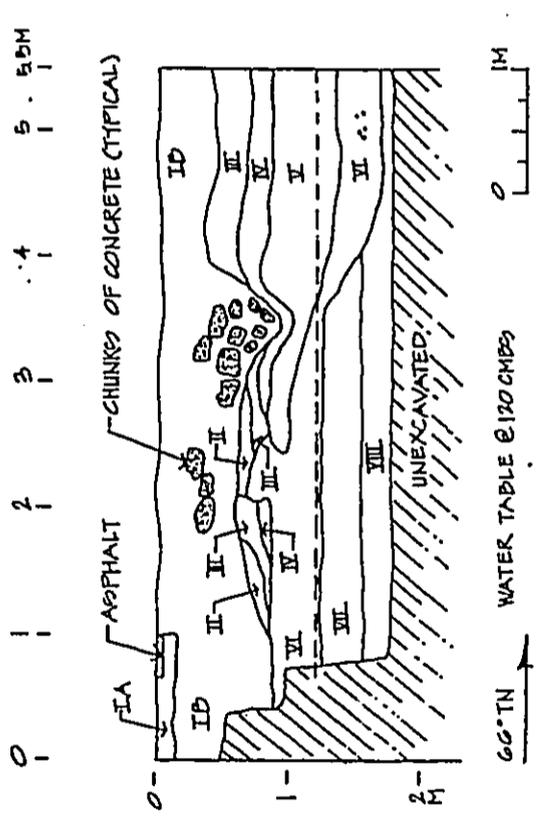
The organic original ground stratum (VI) in this trench (11) is a clay loam, and forms the remnants of a large berm. This berm appears to correspond to the berm in Trench 10, which may have banked the large pond previously discussed, and depicted on Map 5. Stratum VI also contains charcoal flecks, and a high landsnail content (sample taken).

An organic agricultural peat stratum (VII) lays at the lower boundary of the previous organic stratum (VI), in the area beneath the berm. This clay loam consists of a mass of fine rootlets, with tiny shells and snails. The age of this layer is undetermined, but from its position beneath at the lower boundary of the prehistoric/historic berm clearly pre-dates the land fills of the 20th century.

Stratum VIII, the natural coarse sand deposit, is below Strata VI and VII. Compact coral was recorded at the base of excavation. Six charcoal or peat layer sediment samples were collected from this trench.



TRENCH 11 Northwest Wall: length 5.5 m, depth 175 cm, width 100 cm, orientation 66° TN (SW/W-NE/E)



① CHUNKS OF CONCRETE
 --- WATER TABLE
 .. LAND SNAILS

Strata	②.5 CMBS	Description
Ia	2-14 @ 5m	10 YR 3/3 dark brown, Loam, loose, structureless, inclusions: asphalt; abrupt-smooth lower boundary
Ib	14-61 @ 5m	10 YR 6/2 light brownish gray, Loamy Sand, slightly compact, structureless, inclusions: abundant coral pebbles & cobbles inclusions, big concrete chunks mixed in, and some plastic fragments; very wavy lower boundary
II	61-70	10 YR 6/2 light brownish gray, Loamy Sand, gravelly (mostly medium size), slightly compact, structureless, inclusions: roots, and abundant coral pebbles & cobbles inclusions (slightly darker); very wavy lower boundary
III	70-78	10 YR 5/2, 6/4, 4/4 gray brown, light yellowish brown, dark yellowish brown, Fine Sand Microstratigraphy, slightly compact, structureless, inclusions: few roots & rootlets; very abrupt-smooth discontinuous lower boundary
IV	74-81 @ 3m	10 YR 5/3 brown, Silty Clay Microstratigraphy, compact, structureless; moist, sticky, and plastic; inclusions: very few roots & rootlets; very abrupt smooth lower boundary
V	85-97	N 4/0, N 2.75/0 dark gray, very dark gray/black, Silty Clay Microstratigraphy, slightly compact, structureless; moist, sticky, and plastic; inclusions: very few roots & rootlets; very abrupt discontinuous lower boundary
VI	78-85 97-123	10 YR 2/1 very dark brown, Clay Loam, slightly compact, weak, structureless, inclusions: roots & rootlets, a few basalt cobbles, charcoal flecks, and high land snail content (sample); abrupt-smooth lower boundary
VII	123-153	5 YR 3/2, 3 dark reddish brown, Clay Loam Organic Peat, slightly compact, moderate, inclusions: mass of fine rootlets, and a few tiny shells & snails; abrupt-smooth discontinuous lower boundary
VIII	153-175	N 5/0 gray, Coarse Sand, loose, structureless, no inclusions, abrupt-smooth lower boundary

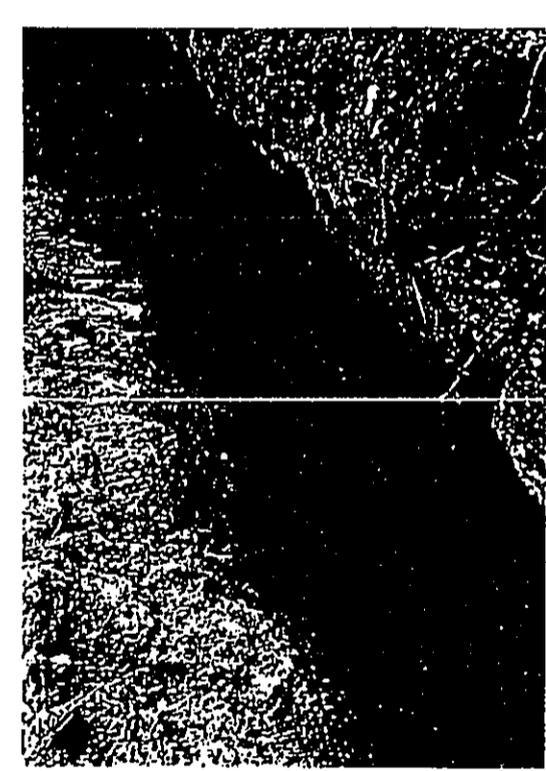


Figure 15 Trench 11 Profile of SE wall, photograph, and sediment description

Trench 12: Northwest Wall (Figure 16)

The northwest-north wall was profiled, the Kalaimoku Street side of the project area. The water table of this trench was encountered at 145 cmbs.

Stratigraphy:

Stratum Ia	Recent reworked refill
Stratum Ib	Recent reworked refill
Stratum II	1920-1930 Ala Wai land-reclamation fill event
Stratum III	1920-1930 Ala Wai land-reclamation fill event
Stratum IV	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum V	Natural sand deposits, during the formation of Waikiki.

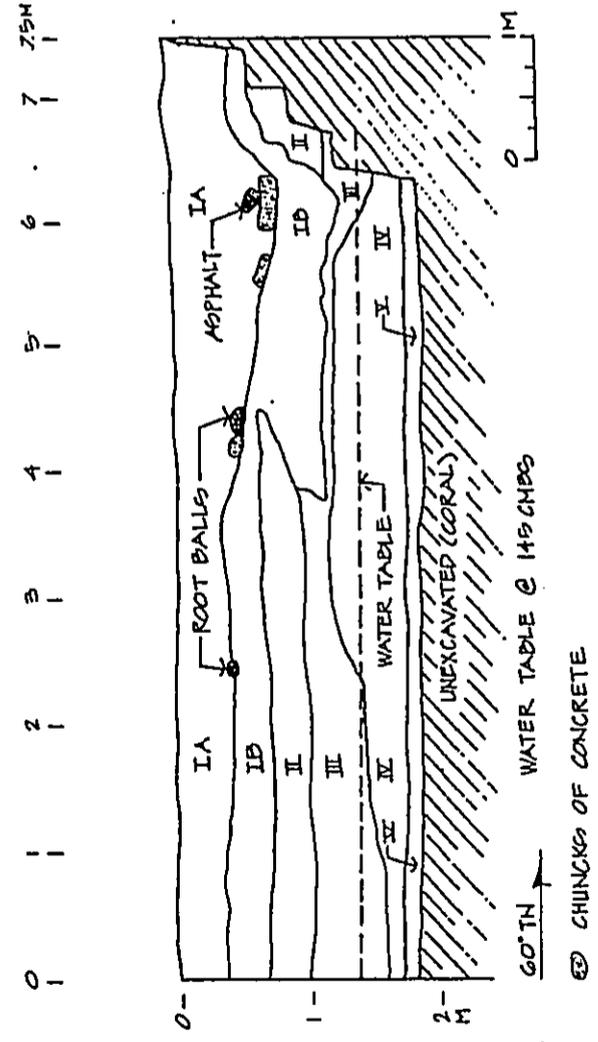
This trench is one of the most disturbed. Stratum Ia and Ib, exhibit modern reworked crushed coral fill related to recent demolition. Inclusions include concrete and asphalt chunks, two root concentrations, and a yellow construction tape found at the base of Stratum Ib. Portions of Stratum II are mixed into areas of Stratum Ib.

Strata II and III are dredged land-reclamation fill layers. Combined, these strata measure to 167 cm below today's ground surface. Stratum II is a sand sediment with microstratigraphy. The top portion of this layer has brown to pale brown bands, and the lower portion grades to grayish banding. The grayish banding is most evident at east *mauka* end. The silty clay microstratigraphy of Stratum III exhibits some bluish hues. The disturbance of Stratum Ib reaches to Stratum III in the NE half of the trench, but it is evident that the previous plain of Stratum III (the gray silty clay) aligns with the gray silty clay (Stratum V) of Trench 11, which is located *makai* to the SW. There is a low and wide berm feature below, in Stratum IV of this trench (12).

The prehistoric to historic wetland stratum (IV) is a clay loam. This stratum forms a berm approximately 55 cm thick, and may be the boundary of a *lo i* or pond. The stratum contains landsnails, but not as high a concentration as in Trenches 10 and 11. The lower rich peat layer in Trench 11 was not observed in this trench.

The surface of the lower naturally deposited gray calcareous coarse sand is consistent at 178 cmbs, and is underlaid with compact coral.

TRENCH 12 Northwest Wall: length 7.5 m, depth 190 cmbs, width 100 cm, orientation 60/240° TN (SW/W.NE/E)



Strata	3m CMBS	Description
Ia	5-45	10 YR 3/3 dark brown, Loamy Sand, slightly compact, structureless, inclusions: coral cobbles; wavy clear lower boundary
Ib	45-70	10 YR 3/3, 5/2, 6/4, 4/4 dark brown, gray brown, light yellowish brown, dark yellowish brown, Loamy Sand with sand from STR. II, slightly compact, structureless, inclusions: coral cobbles; clear-smooth and irregular lower boundary
II	70-102	10 YR 5/2, 6/4, 4/4 gray brown, light yellowish brown, dark yellowish brown, Sand Microstratigraphy, slightly compact, structureless, no inclusions, clear-discontinuous lower boundary
III	102-123	N 4/0, N 2.75/0 dark gray, very dark gray/black, Silty Clay Microstratigraphy, slightly compact, structureless; moist, sticky, and plastic; inclusions: very few roots & rootlets; abrupt-smooth lower boundary
IV	123-178	10 YR 3/2 very dark grayish brown Clay Loam, slightly compact, structureless, inclusions: land snails; abrupt-smooth lower boundary.
V	178-190	N 5/0 gray Coarse Sand, loose, structureless, no inclusions, abrupt-smooth lower boundary

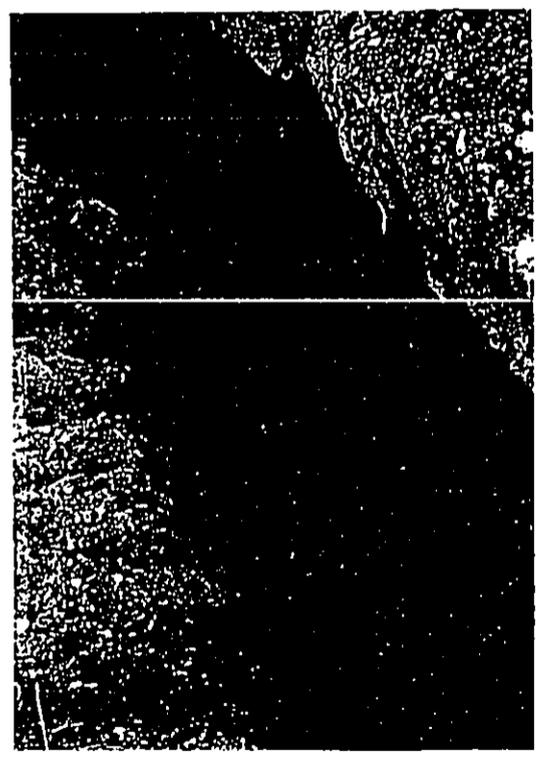


Figure 16 Trench 12 Profile of NW wall, photograph, and sediment description

Trench 13: North Wall (Figure 17)

The north-northeast wall was profiled, which is on the Kalaimoku and Kuhio Streets side of the project area. The water table of this trench was encountered at 145 cmbs.

Stratigraphy:

Stratum Ia	Recent post-demolition fill.
Stratum Ib	Recent base for the former asphalt layer.
Stratum Ic	Late fill over an older asphalt surface.
Stratum II	1920-1930 Ala Wai land-reclamation fill event
Stratum III	1920-1930 Ala Wai land-reclamation fill event
Stratum IV	1920-1930 Ala Wai land-reclamation fill event
Stratum V	1920-1930 Ala Wai land-reclamation fill event.
Stratum VI	1920-1930 Ala Wai land-reclamation fill event
Stratum VII	1920-1930 Ala Wai land-reclamation fill event.
Stratum VIII	Prehistoric-historic agricultural wetlands (pre land-reclamation)
Stratum IX	Natural sand deposits, during the formation of Waikiki.

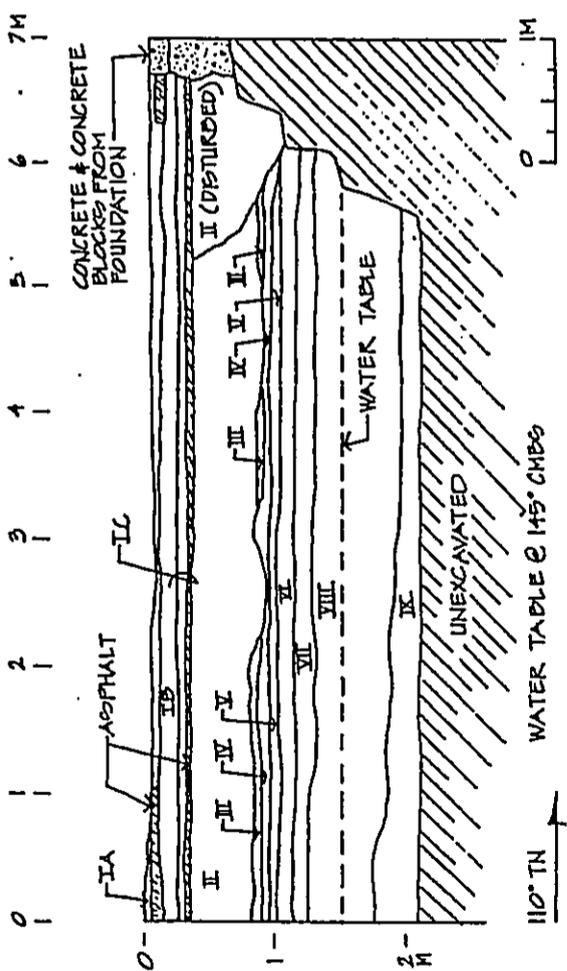
Stratum Ia contains historic reworked materials and represents grading activity following the recent demolition on the property. This layer contains a remnant of a recent asphalt surface. Stratum Ib is a white crushed coral used for the base of the overlying asphalt. Stratum Ic is a compacted sandy loam fill over an older asphalt surface.

Strata II through VII are interpreted as land-reclamation fills. Stratum II is disturbed between meters 5 and 7, which appears related to the concrete blocks and footing foundation just before the 7 meter mark. Strata III through VII, except for Stratum V, exhibit microstratigraphic banding. Stratum V is a loose fine sand that is not finely bedded. These layers are consistent across the trench.

Stratum VIII is the prehistoric to historic wetland surface (Site 50-80-14-5796). This stratum is a clay loam, and contains organics, landsnails, and dispersed charcoal. The upper boundary of this stratum is at 125 cmbs, and it continues to a depth of 180 cmbs. This stratum has the thickest and most consistent planar surface recorded for the original ground surface. It may be a remnant of a taro *lo i*.

The surface of the lower gray coarse sand stratum varies between 172-192 cmbs, raising slightly on the west end. The base of excavation consists of compact coral.

TRENCH 13 North Wall: length 6.8 m, depth 205 cm, width 100 cm, orientation 110/290° TN (W/NW-E/SE)



Strata	@ 2 m CMBS	Description
Ia	0-5	2.5 YR 4/6, 3/2 red, dark reddish brown, Silt Loam, slightly compact, structureless, inclusions: asphalt; clear smooth lower boundary
Ib	5-20	5 YR 8/1 white, Silt Loam, gravelly, slightly compact, structureless, inclusions: crushed coral; very abrupt-smooth lower boundary
Ic	20-30	5 Y 3/1 very dark gray, Sandy Loam, compact, structureless; over a lower asphalt bed; very abrupt-smooth lower boundary
II	30-75	10 YR 5/4, 5/2 light yellowish brown mottled with gray brown, Loamy Sand, gravelly (mostly medium size), slightly compact, structureless, inclusions: few roots & rootlets, and abundant coral pebbles & cobbles; wavy-irregular lower boundary
III	75-84	10 YR 5/2, 6/4, 4/4 gray brown, light yellowish brown, dark yellowish brown, Fine Sand Microstratigraphy, slightly compact, structureless, inclusions: few roots & rootlets; abrupt-smooth discontinuous lower boundary
IV	84-90	10 YR 5/3 brown, Silty Clay Microstratigraphy, compact, structureless; moist, sticky, and plastic; inclusions: very few roots & rootlets; very abrupt smooth lower boundary
V	90-97	10 YR 7/2 light gray, Sand, loose, structureless, no inclusions, abrupt-smooth lower boundary
VI	97-110	10 YR 6/4 light yellowish brown, Fine Sand and Clay Microstratigraphy, slightly compact, structureless, inclusions: few roots & rootlets; very abrupt-smooth lower boundary
VII	110-125	10 YR 6/4 - 4/4 light yellowish brown, dark yellowish brown, Silty Clay Microstratigraphy, compact, structureless; moist, sticky, and plastic; no inclusions, abrupt-smooth lower boundary
VIII	125-160	10 YR 4/1 - 3/2 dark gray, very dark gray, Clay Loam, slightly compact, structureless, no inclusions, very abrupt-smooth lower boundary
IX	160-205	N 5/0 gray, Coarse Sand, loose, structureless, no inclusions, abrupt-smooth lower boundary



Figure 17 Trench 13 Profile of North wall, photograph, and sediment description

VI. SUMMARY

Cultural Surveys Hawai'i has completed an archaeological inventory survey for a parcel in Waikīkī Ahupua`a, designated as TMK 2-6-18:10, 36, 42, 52, 55, 62, 63, 64, 73 & 74. Extensive archival and historical research was followed by the excavation of 13 back hoe trenches. This work was contracted through Construction Management & Development for Kalākaua Southseas Owners, LLC.

The *ahupua`a* of Waikīkī in the centuries before the arrival of Europeans was a well used locale with abundant natural and cultivated resources. The area featured an expansive system of irrigated taro fields, supporting a large population that included the highest ranking *ali`i*. In the nineteenth century, after a period of depopulation and desuetude, Waikīkī was reanimated. The new Waikīkī community included Hawaiian *ali`i*, some foreigners, and farmers continuing to work the irrigated field system. Farming continued until the deposition of dredge sediments from the Ala Wai Canal, completed in the late 1920s, drained the remaining ponds and irrigated fields.

Archaeological reports have documented human burials—both pre-contact Hawaiian and historic—throughout the breadth of Waikīkī. Especially relevant to the present project area are several burials encountered within the grounds of Ft. DeRussy and adjacent hotels. A burial encountered at the intersection of Kuamo'o Street and Kuhio Avenue, just two blocks `Ewa of the project area, was also recorded during a water-line excavation.

Numerous studies have recorded the presence within Waikīkī of sub-surface cultural deposits of both pre-contact Hawaiian and historic provenance. These deposits had remained intact despite the years of construction activity that have altered the surface of the entire area. The authors of these studies emphasize that the potential for discovering similar intact deposits elsewhere in Waikīkī cannot be discounted.

The results of the current sub-surface investigations were consistent with the expectations formulated in the predictive model, which was based on archival and historical research. The current land surface of the project parcel consists of landscape, construction, and/or coral and sand fill sediments over clay sediments. Coral, sand, and silty clay fill layers correspond to the land-reclamation dredging and fill projects that took place in Waikīkī during the early decades of the 20th century. These fill episodes preserved the earlier ground surface features as they were at the time of the fill episodes, roughly 1910 to 1930. These fill sediments overlay the original prehistoric to early 20th century ground surface.

Historic maps and photographs included in this report document cultural praxis in the project area. They show that the former prehistoric/historic land surface should contain remnants of agricultural features related to banana cultivation, ponds, *lo`i* and *`auwai*. The *`auwai O Pau*, which was previously documented in the Ft. DeRussy area and recorded as state Site 50-80-14-4970 (Davis 1989), was located in Trenches 1, 7, and 8. The *`auwai* remnant is visible in cross-section in the profiles for these trenches (see Figures 4, 5

& 11). Evident in the cross-sections of Trenches 7 and 8, are the SE levee and the floor of the 'auwai. 'Auwai, such as the 'Auwai O Pau, were constructed in prehistoric times (documented as early as the 1300s) by Native Hawaiians for the irrigation of agricultural areas, fishponds, and other land-use and cultural needs. In historic times new 'auwai were constructed and prehistoric 'auwai continued to be used and modified.

There is a pond depicted in the project area on the 1909-1913 U.S. Army Engineers map (Map 5), which may relate to the two berm features in Trenches 10 and 11; these two berms correlate geographically to each other and to the *makai* (SW) pond boundary depicted on this map. The two berms also correlate in size (height). Berm and levee features in other excavated trenches may also relate to this large pond. Trenches 2 and 3 show berm and/or levee features for *lo i* or pond boundaries (see Figure 6 and 7). Trench 13 is distinct in that it contains the thickest and most consistent level surface of the original prehistoric/historic stratum. This planar surface may indicate a pond or taro *lo i*, the construction of which is described by Handy and Handy (1972:92):

"The new piece of land selected for making a terrace was flooded for several days,...The dimensions, shape, and required degree of terracing were determined by the contour of the land. As described by Kamakau...the men with their *óó* (digging sticks) lined up inside the limits of the banks of the projected terrace. Throwing up the earth along the line of the proposed embankment, they dug down until they struck firm subsoil. Sometimes little stakes (*la bla ó la áu*) were put down to hold the bank. After the soil had thus been piled on the banks to the required level, the sides of the embankment facing the water were stamped down with the feet, and edges and lines were straightened. Sugar-cane leaves were then beaten into the surface of these inner faces of the banks with logs (*la áu*) or the butts of coconut leaves (*ku áu*). Coconut leaves were then laid on the surface and pounded in with large flat stones. On this, moist earth was laid and pounded until the surface was smooth; finally the bank was covered with fine soil, on top of which were put trash and leaves to prevent the new bank from drying and cracking in the sun. This completed the making of the earth bank...Some earth banks were reinforced inside by veneering with stones."

These processes correlate with sub-surface features of the prehistoric/historic surface stratum, as described and depicted within the project area.

A few historic artifacts dating between 1800 and 1920 were found in or on the 'auwai floor, signifying historic lifeways in Hawai'i that include the availability and use of cultural products from the West and East. Provenance for ceramic fragments associated with this surface site includes England, China, and the United States. The large, milled,

wooden plank found imbedded in the two lowest strata of Trench 2, the original prehistoric/historic land surface (IX) and the underlying coarse gray calcareous sand (X), was wedged in at the bank of the berm. The location of this wooden plank indicates that Western materials were put to use as part of what was presumably a largely indigenous Hawaiian agricultural technology. The man's shoe found in the prehistoric/ historic stratum (VII) of Trench 1 is nearly complete, and the black leather is well preserved, having been buried in this extremely moist environment.

Based on sub-surface observations, the former original prehistoric to historic land surface (state Site 50-80-14-5796) is a thin sediment layer. The thickest (vertical) area recorded measures 78 cm, this is a berm feature in Trench 10; many areas are less than 20 cm thick. Historic and cultural background information, and the *in situ* location of recorded artifacts further suggest the thinness of this land surface. Cultivation and irrigation features were continually formed and reformed, as the wetland ground was lifted to build up berms and levee for irrigation—as explained above by Handy and Handy (1972). It is clear that this surface contains remains of prehistoric and historic land-use, however we have no clearly prehistoric features. The continued reworking of this thin original land surface in the historic period prior to the construction of the Ala Wai Canal had a major impact on the archaeological record. Sediments were displaced and historic cultural materials were introduced. The numerous samples collected from the state Site 50-80-14-5796 land surface, because of this disturbance, will not be particularly informative regarding prehistoric land use and paleoenvironmental reconstruction. These samples were not sent off for palynological or radiocarbon dating analysis.

A single site—assigned state Site 50-80-14-5796—represents the prehistoric to historic (late 1920s) land surface, for the current project parcel. Cultural materials such as architectural construction debris were found in the top two recent fill strata in several of the 13 trenches. The inclusion of these materials are a result of the continual construction, remodeling, and demolition on the property. Mid-fills—those related to the Ala Wai and off-shore land-reclamation projects—contained no historic items or debris, this was as expected and aligns with the findings of the historic research.

VII. SIGNIFICANCE

One new site has been designated as a result of the archaeological inventory survey of the current project area. The following significance evaluation is based on the criteria of the Hawai'i State and National Registers of Historic places (HRS 6E-10 and 6E-5.5), which defines five broad criteria for defining a cultural site as significant:

- A. Site reflects major trends or events in the prehistory or history of the state or nation.
- B. Site is associated with the lives of persons significant in our past.
- C. Site is an excellent example of a site type.
- D. Site has yielded or is likely to yield information important to prehistory or history.
- E. Site has traditional cultural significance to an ethnic group.

State Site #50-80-14-5796 (Prehistoric to historic original agricultural wetlands surface)

This site consists of the original prehistoric to early 20th century land surface, that underlays the dredged fill materials from the Ala Wai Canal and off-shore land-reclamation projects, which took place between 1910 and 1930. Prior land alteration within the project area has adversely affected the historic and cultural integrity of the site. Only limited stratigraphic and artifactual evidence of past land use remain. Accordingly this site is not significant under any of the above criteria.

This former ground surface reveals a portion of the *'Auwai O Pau* (state Site 50-80-14-4970), which was previously evaluated as significant under Criterion D (Davis 1989).

No clearly prehistoric features were identified in the project area, but it is likely that many of the sub-surface features recorded were constructed by Hawaiians in prehistoric times and continued to be used and modified into the early years of the 20th century.

VIII. RECOMMENDATIONS

Based on the results of the archaeological inventory survey, no further archaeological work is recommended.

State Site 50-80-14-5796—the prehistoric to historic original wetland ground surface—has been adversely affected by land alteration of the project area. The site is not deemed significant under the criteria of the State and National Registers of Historic Places. The single significant historic property in the project area, State Site 50-80-14-4970—a portion of the 'Auwai O Pau, has been adequately documented.

There is always the possibility of encountering human burials in major excavation projects. Within the current project area the possibility is very low. No beach sand deposits such as those where burials are commonly found were encountered in the project area. If burials are encountered during construction excavations all work in the vicinity must halt and SHPD should be contacted.

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APPENDIX A

SEDIMENT AND ARTIFACT SAMPLE CATALOG

KALAKAUA PLAZA II INVENTORY SURVEY

ARTIFACT & SEDIMENT SAMPLES

Bag #	Trench #	Stratum / Layer	Munsell alpha-numeric	Munsell Color	BAG CONTENTS	Weight in grams
1	1	I	10 YR 6/3	Pale brown	Sand Sediments	58.6
2	1	II	10 YR 3/3	Dark brown	Loamy Sand Sediments	112.7
3	1	III	10 YR 6/2	Light brownish gray	Medium Coarse Sand Sediments	158.8
4	1	IV	10 YR 6/1	Gray	Fine Sand and Clay Sediments	136.1
5	1	V	10 YR 4/2	Dark grayish brown	Loamy Very Fine Sand Sediments	62.1
6	1	VI a	10 YR 5/3	Brown	Silty Clay Sediments	90.7
7	1	VII	5 GY 4/1	Dark greenish gray	Original Ground Clay Loam Sediments	108.1
8	1	VIII	5 Y 5/1	Gray	Coarse Calcareous Sand Sediments	150.9
9	1	VII	5 GY 4/1	Dark greenish gray	Clay Loam Charcoal Lens Sample	30.5
10	1	VII	5 GY 4/1	Dark greenish gray	Clay Loam Charcoal Lens Sample	18.2
11	1	VI b	5 Y 4/1	Dark gray	Silty Clay Sediments	1332.05
12	1	VI a	10 YR 5/3	Brown	Silty Clay Sediments (bulk sample)	1943.75
13	1	VII	5 GY 4/1	Dark greenish gray	Original Ground Clay Loam Sediments with Charcoal Flecking (bulk sample). From culturally disturbed area.	2580.
14	1	VII	5 GY 4/1	Dark greenish gray	Original Ground Clay Loam Sediments	659.05

15	1	VII	5 GY 4/1	Dark greenish gray	Men's Shoe /Original Ground Clay Loam Stratum	285.
16	1	VII	5 GY 4/1	Dark greenish gray	Ceramic Fragment /Original Ground Clay Loam Stratum	4.6
17	1	V	10 YR 4/2	Dark grayish brown	Loamy Very Fine Sand Sediments (colors from banded layer)	400.
18	1	VII	5 GY 4/1	Dark greenish gray	Milled piece of wood /Original Ground Clay Loam Stratum	259.6
19	3	VII	10 YR 4/4 to 10 YR 5/2	Dark yellowish-Grayish brown	Kukui Nut (105 cmb) in Very Fine Sandy Clay Loam	287.4
20	3	X	5 GY 4/1	Dark greenish gray	Clay Loam Sediments with Charcoal (190 cmb)	875.
21	4	VII	5 Y 4/1	Dark gray	Silty Clay Sediments	645.
22	4	VIII	2.5 YR 3/1	Very dark gray	Sandy Loamy Clay with possible leaf material and charcoal	760.
23	5	I a	2.5 YR 4/6	Red	Loamy Sand Sediments	135.6
23	5	I b	5 Y 3/2	Dark reddish brown	Loamy Sand Sediments (combined with Bag 23)	
24	5	III	10 YR 6/1	Gray	Fine Sand Sediments from along the NW third of the trench	158.2
25	5	IV	10 YR 4/2	Dark grayish brown	Fine Sand Sediments	222.4
26	5	V	10 YR 5/3	Brown	Very Fine Sandy Clay Loam and Clay Deposits	635.
27	5	VII	5 GY 4/1	Dark greenish gray	Sandy Loamy Clay Sediments from raised area of stratum	440.
28	5	VIII	10 YR 3/2	Very dark grayish brown	Coarse Sand and Basalt Cobble Sediments	281.2
29	9	IV	5 GY 4/1	Dark greenish gray	Clay Loam Sediments with Landsnails and Organic Materials	698.1
30	7	V	5 GY 4/1	Dark greenish gray	Charcoal Sample from Clay Loam Sediments of Original Ground	490.

15 16 17 18 19 20 21 22 23 23 24 25 26 27 28 29 30

31-1	7	VI	10 YR 5/3	Brown	Charcoal Flecking from Sandy Clay Loam Sediments of Original Ground	870.
31-2	7	VI	10 YR 5/3	Brown	Charcoal Flecking from Sandy Clay Loam Sediments of Original Ground	645.
32 a	7	VII	10 YR 4/1	Dark gray	2 Ceramic fragments from Trash Pit (dish/plate, mendable), from Sandy Clay Loam Sediments of Original Ground	295.
32 b	7	VII	10 YR 4/1	Dark gray	2 Ceramic fragments from Trash Pit (dish/plate, mendable), of Original Ground	15.
32 c	7	VII	10 YR 4/1	Dark gray	1 Ceramic Stoneware fragment from Trash Pit (dish/plate, mendable), from Sandy Clay Loam Sediments of Original Ground	50.
33	7	VII	10 YR 4/1	Dark gray	Pig Bones from Sandy Clay Loam Sediments of Original Ground	326.
34	10	VII	N 5	Gray	Coarse Calcareous Sand Sediments	3.6
35	10	II		Light green	Soda Bottle: machine made Post-1904; embossed "Sunrise" on shoulder and "SUN" on base, other embossments (regular)	390.
36	11	VI	10 YR 2/2 dry	Very dark brown	Original Ground Clay Loam and Charcoal Sample (120 + cmbs)	981.
37	11	VI	10 YR 2/2 dry	Very dark brown	Original Ground Clay Loam and Charcoal Sample (120 + cmbs)	720.
38	11	VII	2.5 Y 3/1	Very Dark gray	Prehistoric Sub-merged Agricultural Peat Layer with Charcoal from dark stained area about 130 CMBS	77.9
39	11	VII	2.5 Y 3/1	Very Dark gray	Prehistoric Sub-merged Agricultural Peat Layer with Charcoal from dark stained area about 130 CMBS, in SE corner near water table	130.7
40	11	VII	2.5 Y 3/1	Very Dark gray	Clay Loam Organic Peat (bulk sample) from 135 CMBS	941.
41	11	VIII	5 Y 3/1	Very Dark gray	Coarse Calcareous Sand, bottom sample at 160 CMBS, might contain charcoal	895.
42	2	IX & X	5 GY 4/1 & 5 Y 5/1	Dark greenish gray & Gray	Wood Plank: Clay Loam to Coarse Calcareous Sand Sediments, positioned in 2 bottom stratum 150 - 185 CMBS	245.

**ARCHAEOLOGICAL ASSESSMENT
OF KING KALAKAUA PLAZA PHASE II,
WAIKIKI, ISLAND OF O`AHU,
(TMK 2-6-18:10, 36, 42, 52, 55, 62, 63, 64, 73 & 74)**

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Prepared for

WILSON OKAMOTO & ASSOCIATES, INC.

Cultural Surveys Hawaii
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TABLE OF CONTENTS

LIST OF FIGURES	ii
I. INTRODUCTION	1
A. Project Description	1
B. Scope of Work	1
C. Work Accomplished	1
II. WAIKIKI AND THE PRESENT PROJECT AREA: CULTURAL AND HISTORICAL DOCUMENTATION	3
A. Pre-contact to 1800s	3
B. 1900 to 1920s	7
C. Late 1920s to Present - Historic Building Review	10
III. PREVIOUS ARCHAEOLOGICAL RESEARCH	17
IV. FIELD INSPECTION RESULTS	21
A. Archaeological Sites	21
B. Building Assessment	21
V. SUMMARY AND RECOMMENDATIONS	25
A. Summary	25
Archaeological Concerns	25
Historic Building Concerns	25
B. Recommendations	26
VI. REFERENCES	27
APPENDIX: State Historic Preservation Division letter of August 3, 1998	30

LIST OF FIGURES

Figure 1	Tax map showing project area (TMK 2-16-18:10, 36, 42, 52, 55, 62, 63, 64, 73 & 74)	2
Figure 2	Portion of 1881 map by S.E. Bishop with location of present project area and <i>'auwai</i> (State site 50-80-14-4970) indicated	6
Figure 3	Portion of 1897 map by M.D. Monsarrat with location of present project area indicated	8
Figure 4	Portion of U.S. Army Engineers map, based on military surveys from 1909 to 1913, showing Fort DeRussy with location of present project area indicated	9
Figure 5	Aerial photograph - <i>ca.</i> late 1920s - showing the newly-constructed Ala Wai Drainage Canal (Bishop Museum Archives)	11
Figure 6	Enlarged portion of aerial photograph - <i>ca.</i> late 1920s - indicating location of the project area and possible remnant of the <i>'auwai</i> that formerly flowed into the present Ft. DeRussy grounds (Bishop Museum Archives)	12
Figure 7	1927 Sanborn Fire Insurance map showing newly-created block bounded by Kalakaua and Kuhio avenues and Kalaimoku and Lewers streets	13
Figure 8	Corner of Kalaimoku St. and Kalakaua Ave., <i>ca.</i> 1945 (Bishop Museum Archives)	14
Figure 9	1951 Sanborn Fire Insurance map showing block bounded by Kalakaua and Kuhio avenues, and Kalaimoku and Lewers streets with construction dates of buildings currently in project area	15
Figure 10	East portion of project area along Kuhio Ave. showing two-story concrete buildings; view west	22
Figure 11	Concrete buildings on Kuhio Ave.; view southeast	22
Figure 12	Concrete buildings in east portion of project area; view east	23
Figure 13	Project area at corner of Kuhio Ave. and Kalaimoku St.; view southeast	23
Figure 14	Empty lot (TMK 2-6-18:36) at south corner of project area; view south	24
Figure 15	Canlis Charcoal Broiler building at west corner of project area; view east	24

I. INTRODUCTION

A. Project Description

At the request of Wilson Okamoto & Associates, Inc., Cultural Surveys Hawaii has conducted an archaeological assessment of a 109,747 sq. foot parcel (TMK 2-6-18:10, 36, 42, 52, 55, 62, 63, 64, 73 & 74) in Waikīkī, on the island of O`ahu (Figure 1). The parcel is irregularly shaped and comprises the `ewa portion of the block bounded by Kalaimoku Street, Kuhio Avenue, Lewers Street and Kalakaua Avenue. The parcel was formerly occupied by a parking lot, an apartment building, and several commercial buildings - including those which formerly housed the Canlis Charcoal Broiler restaurant and Hula's Bar and Lei Stand.

B. Scope of Work

The scope of the work for the archaeological assessment comprised:

1. Historic background research including study of historic maps, archival documents, previous archaeological and historical studies, Land Commission Award records and other sources for the purpose of identifying existing and potential archaeological and historic sites. Particular emphasis was placed on identifying areas in which archaeological materials could be encountered during future development.
2. Assessment of possible historic buildings on the parcel.
3. Field inspection to document current conditions and existing structures.
4. Preparation of a report which details the results of the historic background research, the building assessment, and fieldwork; and which presents recommendations on archaeological mitigation measures appropriate to future development of the parcel.

C. Work Accomplished

Field inspection of the project area was accomplished on August 23, 1998.

Background research included: a review of previous archaeological studies on file at the State Historic Preservation Division of the Department of Land and Natural Resources; review of documents at Hamilton Library of the University of Hawai`i, the Hawai`i State Archives, the Mission Houses Museum Library, the Hawai`i Public Library, and the Archives of the Bishop Museum; study of historic photographs at the Hawai`i State Archives and the Archives of the Bishop Museum; and study of historic maps at the Survey Office of the Department of Land and Natural Resources.

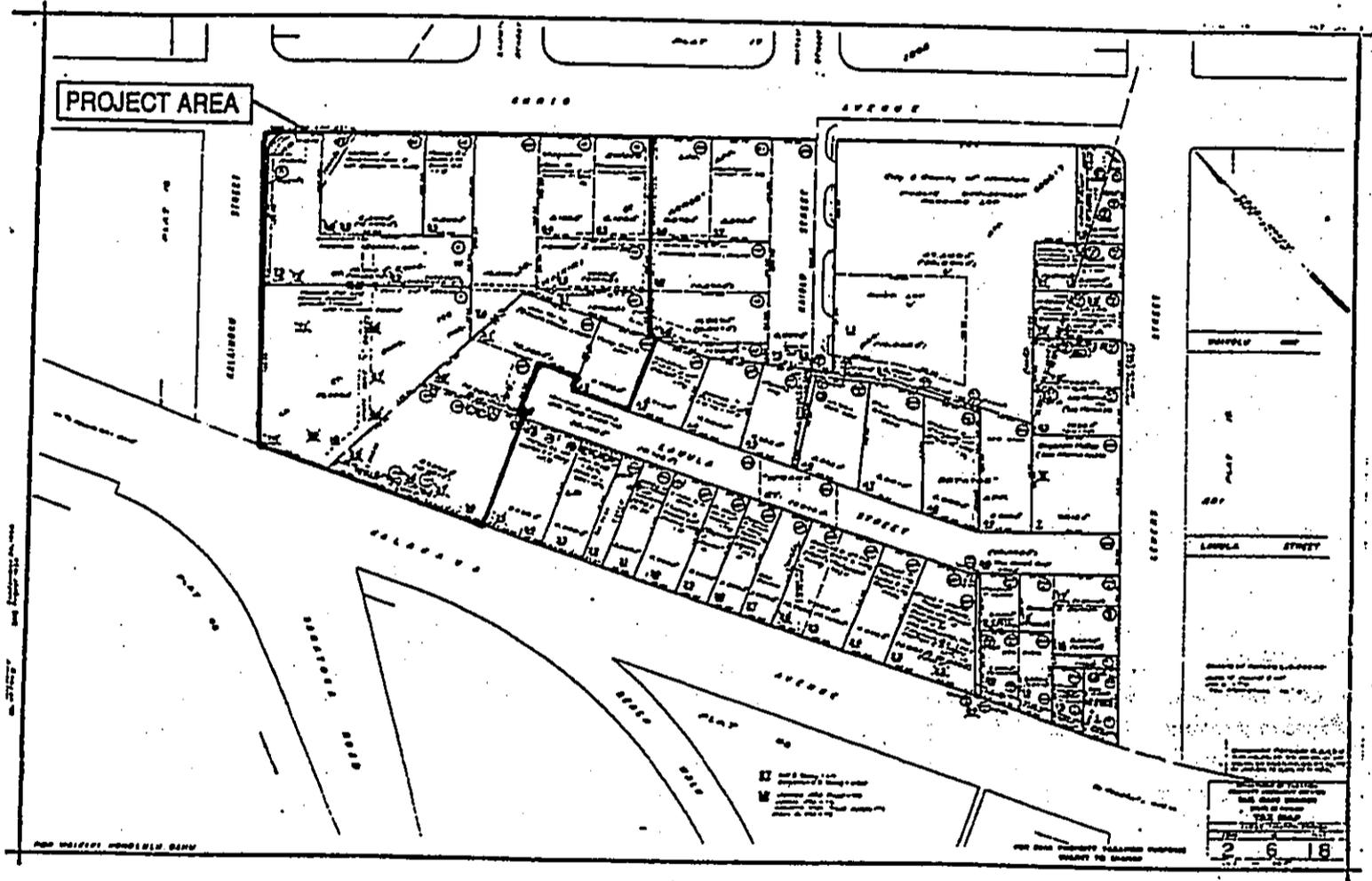


Figure 1 Tax map showing project area (TMK 2-16-18:10, 36, 42, 52, 55, 62, 63, 64, 73 & 74)

II. WAIKĪKĪ AND THE PRESENT PROJECT AREA: CULTURAL AND HISTORICAL DOCUMENTATION

This section begins with a review of the available documentary evidence for the general character of the area presently identified as Waikīkī as it had evolved in the years before western contact in the later 18th century. The development of Waikīkī lands adjacent to and including the present project area during the 19th century and into the early 20th century was recorded in increasingly detailed documentation - including government records and maps. Finally, during subsequent decades of the 20th century, abundant documentation of Waikīkī allows a more precise focus on development of the project area itself.

A. Pre-contact to 1800s

Waikīkī, by the time of the arrival of Europeans in the Hawaiian Islands during the late eighteenth century, had long been a center of population and political power on O`ahu. According to Martha Beckwith (1940), by the end of the fourteenth century Waikīkī had become "the ruling seat of the chiefs of Oahu." The preeminence of Waikīkī continued into the eighteenth century and is betokened by Kamehameha's decision to reside there upon wresting control of O`ahu by defeating the island's chief, Kalanikupule. The nineteenth century Hawaiian historian John Papa Ii (1959), himself a member of the *ali`i*, described the king's Waikīkī residence:

Kamehameha's houses were at Puaaliili, makai of the old road, and extended as far as the west side of the sands of Apuakehau. Within it was Helumoa where Kaahumanu *ma* went to while away the time. The king built a stone house there, enclosed by a fence.

Ii further noted that the "place had long been a residence of chiefs. It is said that it had been Kekuapoi's home, through her husband Kahahana, since the time of Kahekili."

Chiefly residences, however, were only one element of a complex of features - sustaining a large population - that characterized Waikīkī up to pre-contact times. Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Manoa and Palolo valleys. This field system - an impressive feat of engineering the design of which is traditionally attributed to the chief Kalamiakua - took advantage of streams descending from Makiki, Manoa and Palolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua`a*. Water was also available from springs in nearby Mo`ili`ili and Punahou. Closer to the Waikīkī shoreline, coconut groves and fishponds dotted the landscape. A sizeable population developed amidst this Hawaiian-engineered abundance. Captain George Vancouver, arriving at "Whyteete" in 1792, captured something of this profusion in his journals:

On shores, the villages appeared numerous, large, and in good repair; and the surrounding country pleasingly interspersed with deep, though not extensive valleys; which, with the plains near the sea-side, presented a high degree of cultivation and fertility.

[Our] guides led us to the northward through the village, to an exceedingly well-made causeway, about twelve feet broad, with a ditch on each side.

This opened our view to a spacious plain, which, in the immediate vicinity of the village, had the appearance of the open common fields in England; but, on advancing, the major part appeared to be divided into fields of irregular shape and figure, which were separated from each other by low stone walls, and were in a very high state of cultivation. These several portions of land were planted with the eddo or *taro* root, in different stages of inundation; none being perfectly dry, and some from three to six or seven inches under water. The causeway led us near a mile from the beach, at the end of which was the water we were in quest of. It was a rivulet five or six feet wide, and about two or three feet deep, well banked up, and nearly motionless; some small rills only, finding a passage through the dams that checked the sluggish stream, by which a constant supply was afforded to the *taro* plantations.

[We] found the plain in a high state of cultivation, mostly under immediate crops of *taro*; and abounding with a variety of wild fowl, chiefly of the duck kind...The sides of the hills, which were at some distance, seemed rocky and barren; the intermediate vallies, which were all inhabited, produced some large trees, and made a pleasing appearance. The plain, however, if we may judge from the labour bestowed on their cultivation, seemed to afford the principal proportion of the different vegetable productions on which the inhabitants depend for their subsistence (Vancouver, 1798: I, 161-164).

Further details of the exuberant life that must have characterized the Hawaiians use of the lands that included the *ahupua'a* of Waikiki are given by Archibald Menzies, a naturalist accompanying Vancouver's expedition:

The verge of the shore was planted with a large grove of cocoanut palms, affording a delightful shade to the scattered habitations of the natives. Some of those near the beach were raised a few feet from the ground upon a kind of stage, so as to admit the surf to wash underneath them. We pursued a pleasing path back to the plantation, which was nearly level and very extensive, and laid out with great neatness into little fields planted with *taro*, yams, sweet potatoes and the cloth plant. These, in many cases, were divided by little banks on which grew the sugar cane and a species of *Draecena* without the aid of much cultivation, and the whole was watered in a most ingenious manner by dividing the general stream into little aqueducts leading in various directions so as to be able to supply the most distant fields at pleasure, and the soil seemed to repay the labour and industry of these people by the luxuriancy of its productions. Here and there we met with ponds of considerable size, and besides being well stocked with fish, they swarmed with water fowl of various kinds such as ducks, coots, water hens, bitterns, plovers and curlews. (Menzies 1920:23-24)

However, the traditional Hawaiian focus on Waikīkī as a center of chiefly and agricultural activities on southeastern O`ahu was soon to change - disrupted by the same Euro-American contact which produced the first documentation (including the records cited above) of that traditional life. The *ahupua`a* of Honolulu - with the only sheltered harbor on O`ahu - became the center for trade with visiting foreign vessels, drawing increasing numbers of Hawaiians away from their traditional environments. The shift in pre-eminence is illustrated by the fact that Kamehameha moved his residence from Waikīkī to Honolulu. Indeed, by 1828, Levi Chamberlain describing a journey into Waikīkī would note:

Our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now overgrown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the natives respecting this present neglected state. They ascribed it to the decrease of population (Chamberlain 1957:26).

Tragically, the depopulation of Waikīkī was not simply a result of the attractions of Honolulu (where, by the 1820s, the population was estimated at 6,000 to 7,000) but also of the European diseases that had devastating effects upon the Hawaiian populace.

The depopulation of Waikiki, however, was not total and the *ahupua`a* continued to sustain Hawaiians living traditionally into the nineteenth century. Land Commission Award records from the 1850s document awardees continuing to maintain fishponds and irrigated and dry-land agricultural plots though on a greatly reduced scale than had been possible previously with adequate manpower.

An 1881 map of Waikīkī shows a network of fishponds *makai* of the government road (route of the present Kalakaua Ave.) in the present Ft. DeRussy area (Figure 2). The map indicates that a stream or *auwai* (ditch)- which fed the fishponds - coursed within the *ewa* side of the project area. (This *auwai* was entered on the State Inventory of Historic Places as site 50-80-14-4970 during archaeological study at Ft. DeRussy; see Section III below.) The map also indicates that, at the Mabele, portions of the present project area were awarded to William C. Lunalilo (LCA 8559B:29) and to Kauhao (LCA 6386:7). Documents associated with these awards do not reveal what specific activities or land usages were occurring on these parcels at mid-19th century.

Waikīkī was becoming a popular site among foreigners - mostly American - who had settled on O`ahu; an 1865 article in the Pacific Commercial Advertiser mentioned a small community that had developed along the beach. The area continued to be popular with the ali`i - the Hawaiian royalty - and several notables had residences there. Other developments during the second half of the nineteenth century - prefiguring the changes that would alter the landscape of Waikīkī during this century - include the improvement of the road connecting Waikīkī to Honolulu (the route of the present Kalakaua Ave.), the building of a tram line between the two areas, and the construction of Kapiolani Park.

Traditional land-uses were abandoned or modified. By the end of the nineteenth century most of the fish ponds that had previously proliferated had been neglected and allowed to deteriorate. The remaining taro fields were planted in rice to supply the growing numbers of

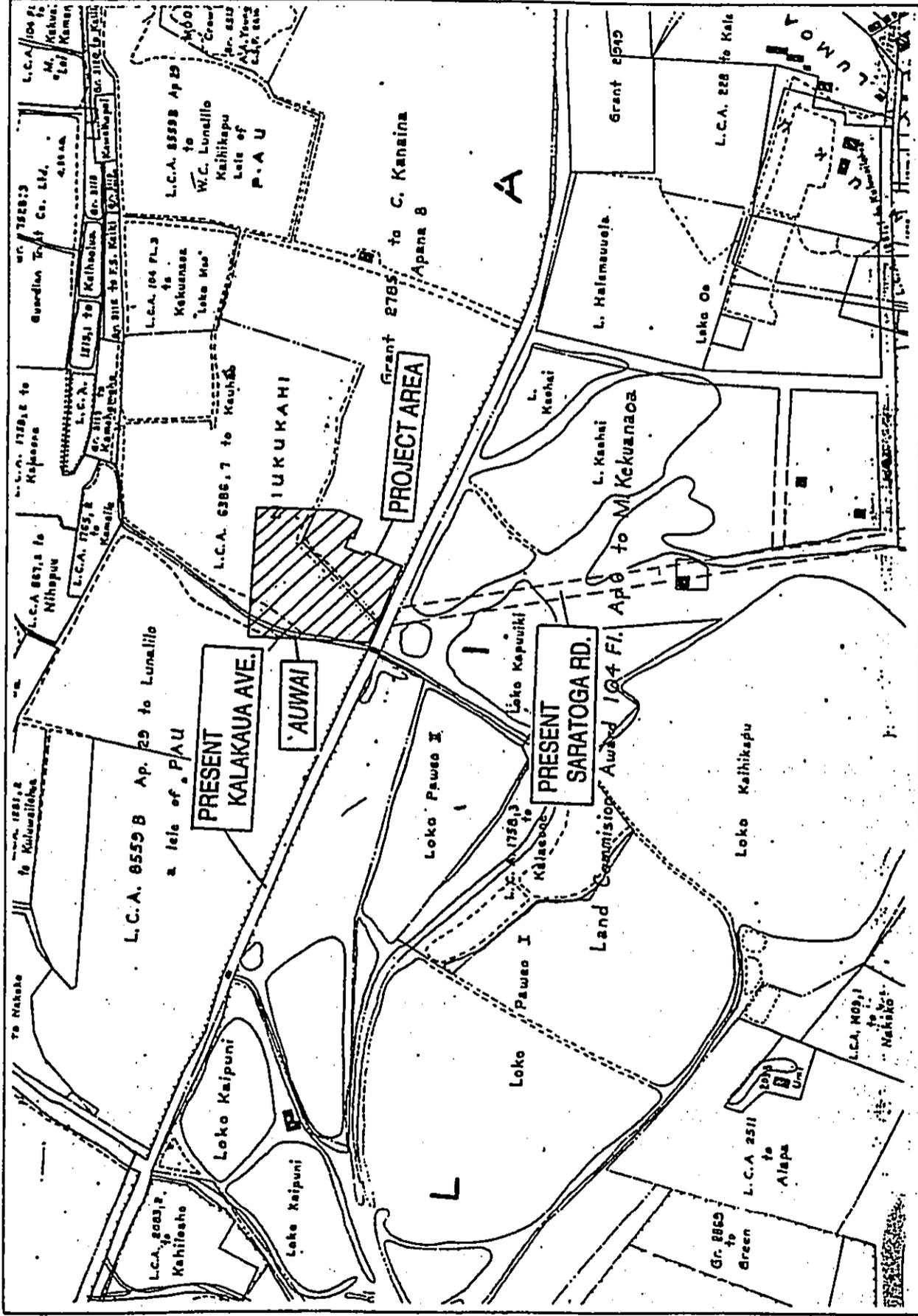


Figure 2 Portion of 1881 map by S.E. Bishop with location of present project area and 'auwai (State site 50-80-14-4970) indicated

immigrant laborers imported from China and Japan, and for shipment to the west coast of the United States. An 1897 map of Honolulu shows rice fields extending across the plain of Honolulu, and the expanding grid of streets surrounding Waikīkī (Figure 3). The map also indicates that the present project area and the lands immediately surrounding - including the adjacent fishponds - remained undeveloped near the end of the 19th century.

B. 1900 to 1920s

During the first decade of the 20th century, the U.S. War Department acquired more than 70 acres in the Kālia portion of Waikīkī for the establishment of a military reservation called Ft. DeRussy, named in honor of Brig. Gen. R.E. DeRussy of the Army Corps of Engineers.

On 12 November 1908, a detachment of the 1st Battalion of Engineers from Fort Mason, California, occupied the new post...

Between 1909 and 1911 the engineers were primarily occupied with mapping the island of O`ahu. At DeRussy other activities also had to be attended to - especially the filling of a portion of the fish ponds which covered most of the Fort. This task fell to the Quartermaster Corps, and they accomplished it through the use of an hydraulic dredger which pumped fill from the ocean continuously for nearly a year in order to build up an area on which permanent structures could be built. Thus the Army began the transformation of Waikīkī from wetlands to solid ground. (Hibbard and Franzen 1986:79)

A map of O`ahu based on military surveys between 1909 and 1913 shows that much of the Kālia land, now identified as Ft. DeRussy has been filled, and many structures now cover the Waikīkī landscape *makai* of Kalakaua Ave (Figure 4). The map also presents a more detailed picture of the present project area than that recorded in the earlier maps discussed above. It suggests that, in addition to the *`auwai* (ditch) there was a pond and marshy fields located within the project area. These features appeared to have remained intact into the second decade of the 20th century.

However, during the 1920s the project area would be transformed when the construction of the Ala Wai Drainage Canal - begun in 1921 and completed eight years later - resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī. The canal was one element of a plan to urbanize Waikīkī and the surrounding districts:

The [Honolulu city] planning commission began by submitting street layout plans for a Waikiki reclamation district. In January 1922 a Waikiki improvement commission resubmitted these plans to the board of supervisors, which, in turn, approved them a year later. From this grew a wider plan that eventually reached the Kapahulu, Moiliili, and McCully districts, as well as lower Makiki and Manoa...

The standard plan for new neighborhoods, with allowances for local terrain, was to be that of a grid, with 80-foot-wide streets crossing 70-foot-wide avenues at right angles so as to leave blocks of house lots about 260 by 620 feet. Allowing for a 10-foot-wide sidewalk and a 10-foot right-of-way [alley] down the center of each block, there would be twenty house lots, each about 60 by 120 feet, in each block. (Johnson 1991:311)

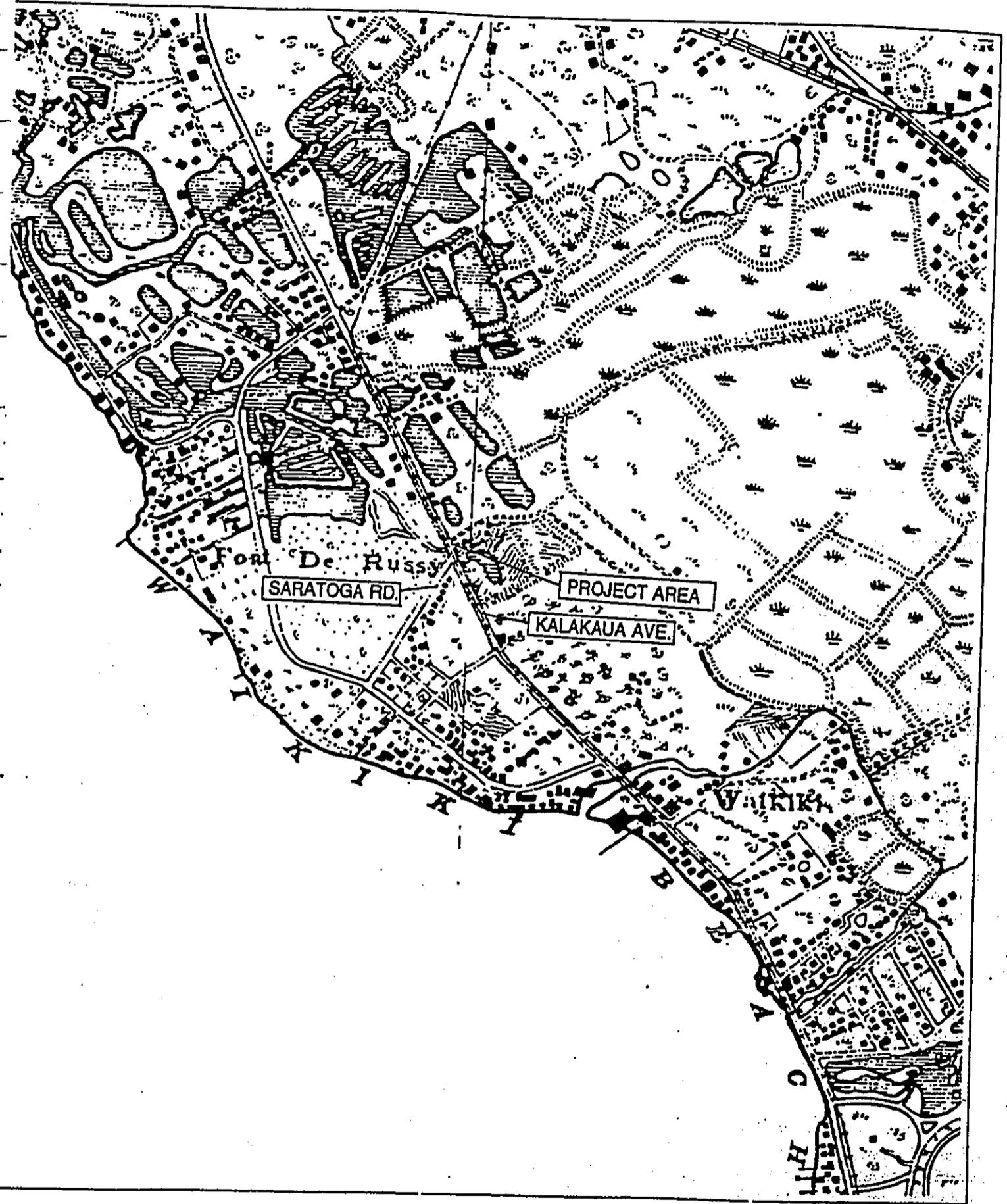


Figure 4 Portion of U.S. Army Engineers map, based on military surveys from 1909 to 1913, showing Fort DeRussy with location of present project area indicated

An aerial photograph of the late 1920s shows the new canal and the filled-in lands of Waikīkī, including the present project area, overlaid with the new gridwork of streets (Figures 5 & 6). The photograph indicates that there were no structures on the project area in the late 1920s. A line of vegetation shown cutting across the project area is likely a remnant marking the route of the *'auwai* (ditch) that formerly drained into the fishponds at Ft. DeRussy.

A 1927 Sanborn Fire Insurance map shows the new block defined by Kalakaua and Kuhio avenues and Kalaimoku and Lewers streets (Figure 7). The map confirms that no buildings had yet been constructed within the present project area. The only structure located on the block is a "sewerage pump" located outside the project area.

C. Late 1920s to Present - Historic Building Review

By the latter 1940s, following World War II, the portion of Waikīkī which includes the present project area was covered by a mix of commercial and residential buildings. A *ca.* 1945 photograph shows the southwest corner of the project area at Kalaimoku St. and Kalakaua Ave. (Figure 8). This portion of the project area contained, in the 1940s, a parking lot and a taxi stand shelter (shown in the right foreground). Also within the project area are one-story wooden buildings whose roofs are just visible above the fence behind the parking lot. Outside the project area, on the *'ewa* side of Kalaimoku St., is the Kuhio Theater which was constructed in 1942.

A 1951 Sanborn Fire Insurance map identifies the buildings and features present on the project area at mid-century (Figure 9). The map shows the parking lot and taxi stand (on the present site of the former Canlis Charcoal Broiler restaurant) seen in the *ca.* 1945 photograph. The map indicates a restaurant on Kalakaua Ave. (at TMK 2-6-18:36) which is no longer extant. Along the portion of the project area fronting Kuhio Ave. are one-story wooden buildings identified as a store and dwelling units (at TMK 2-6-18:73, 52 & 55). None of these structures remain.

Further along Kuhio Ave., in the east portion of the project area are three two-story concrete apartment buildings (at TMK 2-6-18:62, 63 & 64). A fourth two-story concrete apartment building is shown in the project area (at TMK 2-6-18:42), fronting the present Lauulu St. (which is identified on the map as Lauulu Place). These four concrete buildings remain standing in the project area. A review of city and county records indicates that the building on Lauulu St. (TMK 2-6-18:42) was constructed in 1942 and that additions were made in the 1960s. The building fronting Kuhio Ave. (at TMK 2-6-18:64) - identified on the fire insurance map as containing four apartments - was constructed in 1947; additions and renovations were made in 1967 and 1987 when the building was converted to commercial use. The adjacent building on Kuhio Ave. (at TMK 2-6-18:63) - identified on the map as containing 12 apartments - was constructed between 1948 and 1949; additions and renovations were made in 1958, 1962 and 1982 when the building was converted to commercial use. The building between Kuhio Ave. and Lauulu St. (at TMK 2-6-18:62) - identified as containing ten apartments - was constructed in 1947; additions were made in 1983 when the building was converted to commercial use.

Two well-known structures and business establishments were added to the project area since the early 1950s when the fire insurance map was drawn. In 1946 the restaurateur Peter Canlis opened the first Canlis Charcoal Broiler in Waikīkī at the Kuhio Beach end of Kalakaua Avenue, on what would later become the site of the Waikiki Biltmore Hotel (which was demolished in 1974). Canlis relocated his restaurant to 2100 Kalakaua Ave. - within the present project area - in 1954. The new restaurant was designed by the firm of Wimberley and Cook, at

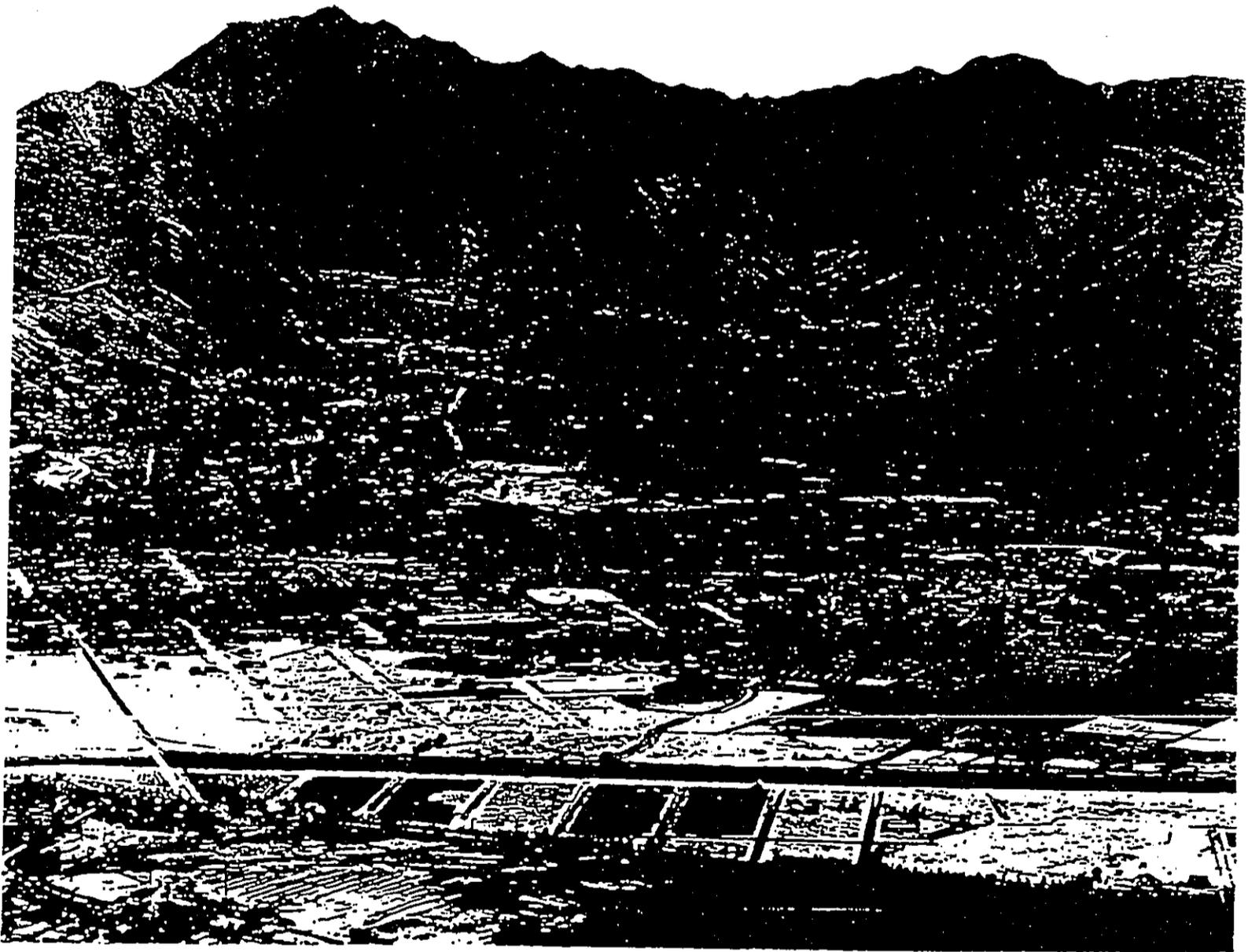


Figure 5 Aerial photograph - ca. late 1920s - showing the newly-constructed Ala Wai Drainage Canal (Bishop Museum Archives)



Figure 6 Enlarged portion of aerial photograph - ca. late 1920s - indicating location of the project area and possible remnant of the 'auwai that formerly flowed into the present Ft. DeRussy grounds (Bishop Museum Archives)

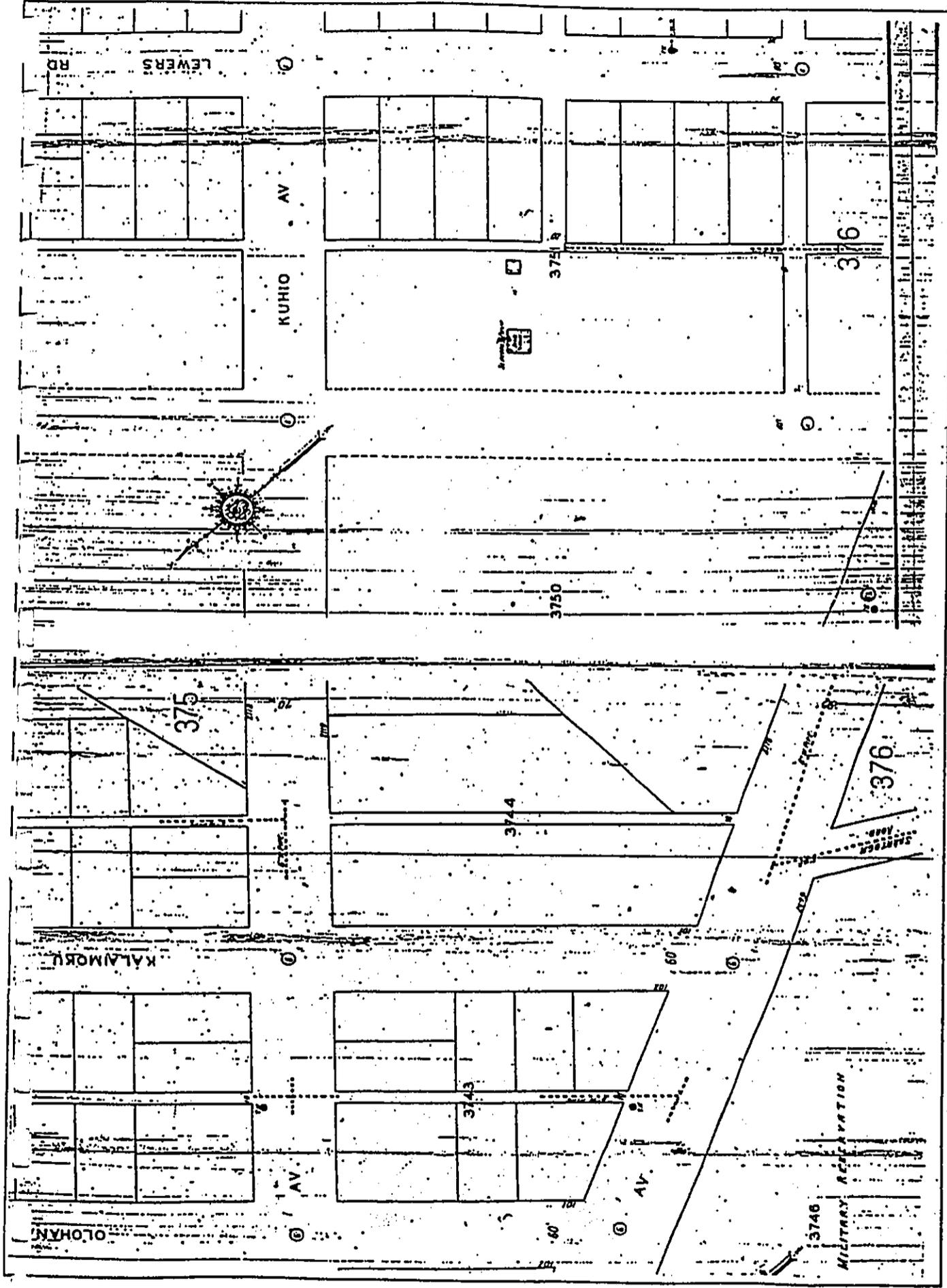


Figure 7 1927 Sanborn Fire Insurance map showing newly-created block bounded by Kalakaua and Kuhio avenues and Kalamoku and Lewers streets

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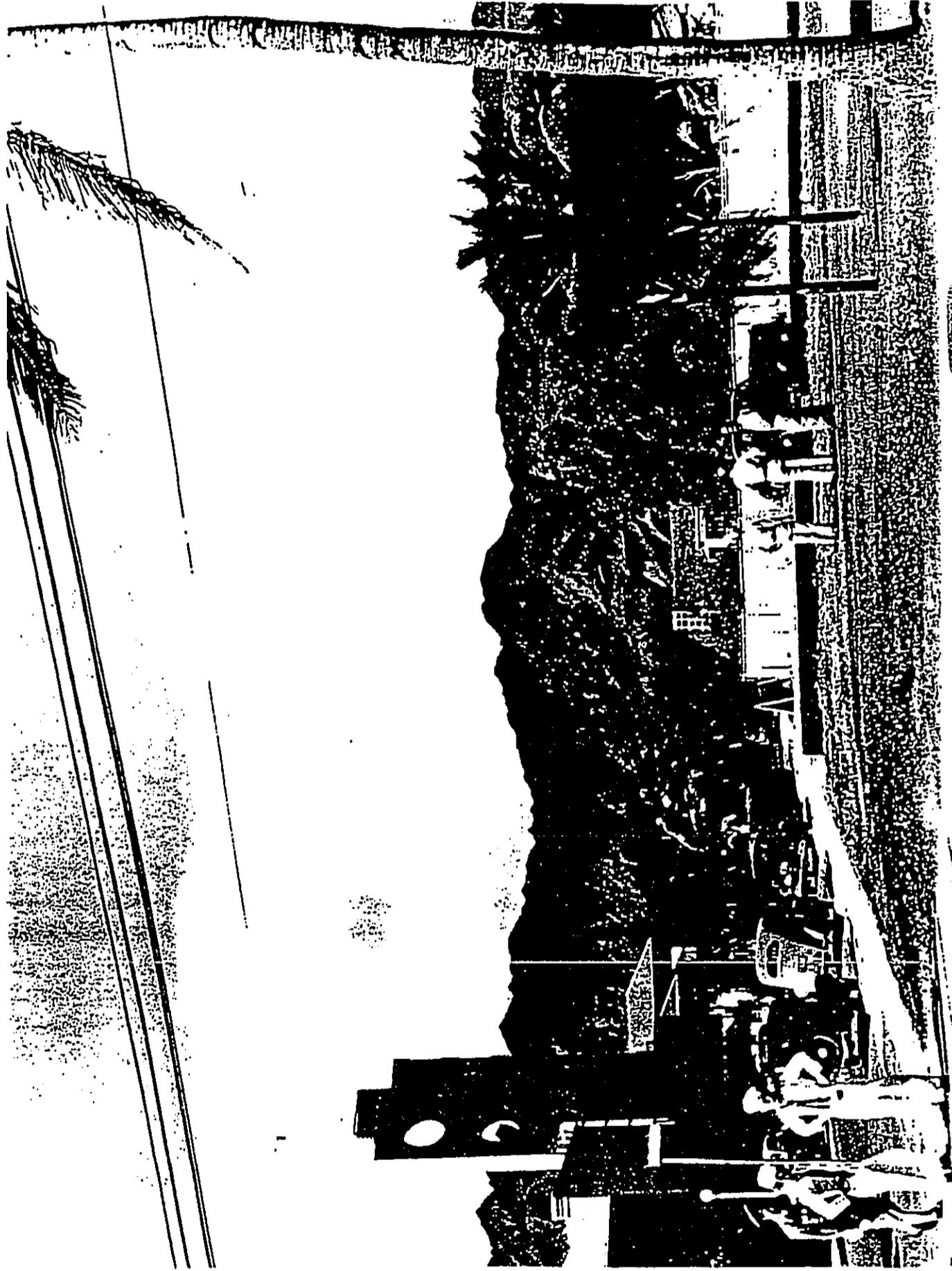


Figure 8 Corner of Kalaimoku St. and Kalakaua Ave., ca. 1945 (Bishop Museum Archives)

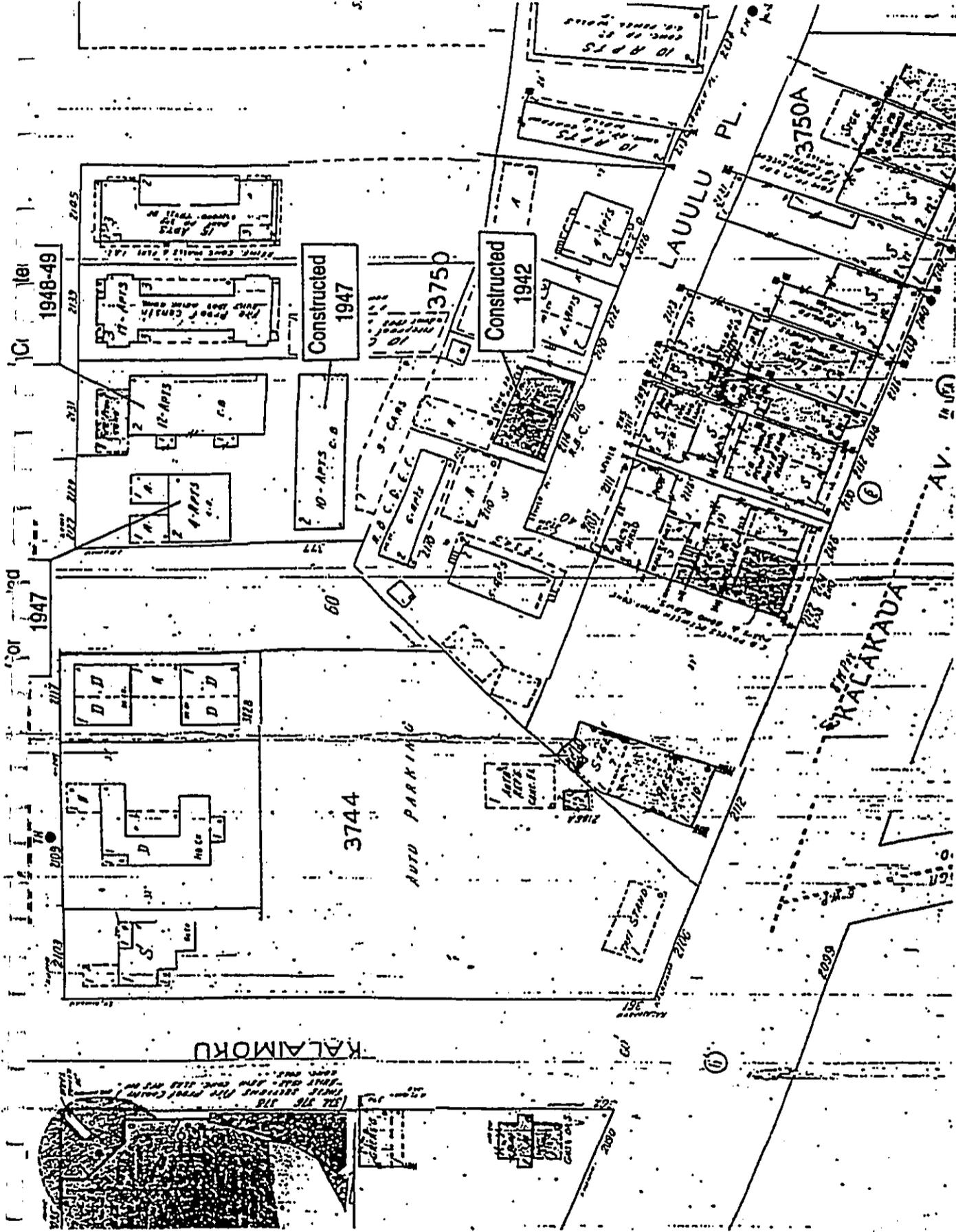


Figure 9 1951 Sanborn Fire Insurance map showing block bounded by Kalakaua and Kuhio avenues, and Lauulu and Kalaimoku streets with construction dates of buildings currently in project area

a cost of \$250,000. The restaurant continued in operation until 1989. The building subsequently served as a Honolulu Police Department sub-station.

In 1974, Hula's Bar & Lei Stand opened at the *makai*-Diamond Head corner of Kuhio Ave. and Kalaimoku St. (at TMK 2-6-18:73). It replaced a laundromat and food stand which were then operating on the parcel. It remained in operation until its closing this year.

The only structures within the project area that are older than fifty years - and may thus be of historic concern - are the four concrete, former apartment buildings constructed in the 1940s. However, the subsequent additions and renovations to these buildings since their construction may have lessened their historic value.

An additional concern has been raised over the historic status of the Canlis Charcoal Broiler building, though the building itself is less than fifty years old. This concern has been expressed in an August 3, 1998 letter from Don Hibbard, Administrator of the State Historic Preservation Division, to the Department of Planning and Permitting, City and County of Honolulu (see Appendix). The letter notes that the "majority of the structures over 50 years [within the present project area] do not appear to have retained their historic integrity." However, the

Canlis Restaurant Building, while not quite 50 years old, has exceptional significance as one of the few intact examples left in Hawaii of the once popular restaurant trend and unique building type...

According to the Land Use Ordinance 7.80-3(c) "Development should preserve, maintain and enhance historic properties whenever possible." Therefore, we request that the demolition of the Canlis building be deferred until the entire development project is submitted so that we can better ascertain the potential of retaining Canlis.

The letter concludes with the suggestion that "there are other design possibilities where Canlis, with its strong sense of place, can be utilized in the development."

III. PREVIOUS ARCHAEOLOGICAL RESEARCH

Before the 1980s the majority of the information concerning Waikiki from previous archaeological sources centered on human burials inadvertently excavated during construction activities. In 1901, while digging a sewer line at the James B. Castle property near Diamond Head (in the environs of the present Elks Club), the remains of at least four adult Hawaiians were unearthed along with "a number of conical teeth of whale teeth, a number of round glass beads of large size, and a small sized niho-palaoa, such as was generally appropriated to the use of the chiefs" (Emerson 1902:19).

In the 1920s and 30s the first systematic archaeological survey of O`ahu was conducted by J.C. McAllister (1930). He recorded four heiau, three of which were located at the mauka reaches of Waikiki *ahupua`a* in lower Manoa Valley. The fourth heiau - Papaenaena - was located at the foot of Diamond Head crater in the environs of the present Hawaii School for Girls. Papaenaena heiau is traditionally associated with Kamehameha I who was said to have visited the heiau before setting off to battle for Niihau and Kauai in 1804. Five years later, according to John Papa Ii, Kamehameha placed at Papaenaena the remains of an adulterer - "all prepared in the customary manner of that time" (Ii 1959:50-51).

During the 1960s through the 1970s inadvertent burial finds were reported at construction sites stretching from the Fort DeRussy area to the foot of Diamond Head crater. In 1961 a human burial and a nineteenth century trash pit were unearthed during construction on Saratoga Road adjacent to Fort DeRussy. In 1963 human burials were discovered during construction activities at 2431 Prince Edward Street and at the site of the present Outrigger Canoe Club across from Kapiolani Park. Among the twenty-five burials - excavated by the Bishop Museum - were several discovered in flexed (with knees drawn up to the chin) or semi-flexed positions, traditional Hawaiian burial postures.

Sand dune burials - another traditional Hawaiian mortuary practice - were revealed in 1964 as beach sand fronting the Surfrider Hotel shifted and eroded.

The remains of six burials - five of apparent prehistoric or early historic age and one of more recent date - were unearthed in 1976 during construction of the Hale Koa Hotel adjacent to the Hilton Hawaiian Village Hotel.

In 1980, three burials were exposed at the Hilton Hawaiian Village itself during construction of the hotel's Tapa Tower. Earl Neller of the (then named) State Historic Preservation Program was called in upon discovery of the burials and conducted fieldwork limited to three brief inspections of the project area. Neller's (1980) report noted:

The bones from three Hawaiian burials were partially recovered; one belonged to a young adult male, one a young adult female, and one was represented by a single bone. An old map showed that rapid shoreline accretion had occurred in the area during the 1800s, and that the beach in the construction area was not very old. It is possible the burials date back to the smallpox epidemic of 1853. It is likely that burials will continue to be found in the area. It is also possible that early Hawaiian sites exist farther inland, beneath Moiliili, adjacent to where the shoreline would have been 1000 years ago. (Neller 1980:5)

Neller also documented the presence of trash pits, including one from the 1890s which contained "a large percentage of luxury items, including porcelain tablewares imported from China, Japan, the United States, and Europe" (*ibid*:5). He further notes:

It is suspected that other important historic archaeological sites exist in the highly developed concrete jungle of Waikiki, with discrete, dateable trash deposits related to the different ethnic and social groups that occupied Waikiki over the last 200 years. (*ibid*:5)

Between December 1981 and February 1982, archaeologists from the Bishop Museum led by Bertell Davis conducted a program of excavations and monitoring during construction of the new Halekulani Hotel (Davis 1984). Six human burials were recovered along with "animal burials [and] cultural refuse from prehistoric Hawaiian firepits, and a large collection of bottles, ceramics, and other materials from trash pits and privies dating to the late 19th century" (*ibid*:i). Age analysis of volcanic glass recovered from the site led Davis to conclude: "For the first time we can now empirically date...settlement in Waikiki to no later than the mid-1600s" (*ibid*:i). Just as significant to Davis was the collection of historic era material at the Halekulani site; he states:

[The] Halekulani excavations clearly demonstrate...that there is a definite need to consider historic-period archaeology as a legitimate avenue of inquiry in Hawaiian research. Furthermore, archaeology in the urban context can yield results every bit as significant as in less developed areas. Development in the 19th and early 20th centuries clearly has not destroyed all archaeological resources in Waikiki, Honolulu, or in any of the other urbanized areas of Hawai'i. (*ibid*:i)

From January through December of 1983, Earl Neller of the State Historic Preservation Office conducted archaeological fieldwork during construction of the Lili'uokalani Gardens condominium on Paokalani Street. The bones of seven individuals - all from prehistoric Hawaiian graves - were recovered at the site. Neller's report noted:

Queen Lili'uokalani had a bungalow at the project site, and broken glass and ceramic were collected that once was used by the Queen and her guests. There is a deeply buried cultural layer at the site that is older than the graves. (Neller 1984:i)

Neller recommended further work to develop a full-scale study of the material collected at the site; unfortunately, no such study was ever produced.

During 1985 and 1986 archaeologists from Paul H. Rosendahl, Ph. D. Inc. conducted archaeological monitoring at the site of the Mechanical Loop Project at the Hilton Hawaiian Village, Waikiki. Much of this project area was disturbed by historic and modern construction and modification. Fifteen subsurface features were uncovered during the monitoring all of which were determined to be historic trash pits or trenches. The dating of these features was based on dating the artifactual material they contained. All 15 features are thought to post-date 1881 based on this artifact analysis. The 3 partial burials reported by Neller (1980) were found within this project area (see above). No further burials were encountered during the PHRI field work (Hurlbert, et. al. 1992).

In 1987 State Historic Preservation Office archaeologists recovered a human burial at Kalakaua Avenue during renovation work on the Moana Hotel.

During 1988 the Moana Hotel Historical Rehabilitation Project (Simmons et. al. 1991) encountered human remains that amounted to at least 17 individuals. Based on stratigraphic association these burials were interred over time as the land form at the site changed. The sediment surrounding these burials yielded traditional midden and artifact assemblages. The burials and human remains were found in the Banyan Court and beneath the hotel itself.

In 1989 skeletal remains were unearthed on the grounds of the Ala Wai Golf Course during digging of an electrical line trench for a new sprinkler system. The trench had exposed a pit containing two burials (Bath and Kawachi 1989: 2). The report suggests that one of the burials may have been disturbed earlier during grading for the Territorial Fair Grounds. The osteological analysis included in the report concludes that both sets of remains "appear ancient." (*Ibid.*:2)

Davis' (1989, 1991) excavation and monitoring work at Fort DeRussy documented substantial subsurface archaeological deposits--prehistoric, historic, and modern. These deposits included buried fishpond sediments, `auwai sediments, midden and artifact enriched sediments, structural remains such as post holes and fire pits, historic trash pits, and a human burial. Davis' (1991) report documents human activity in the Fort DeRussy beach front area from the 16th century to the present.

The work at Fort DeRussy continued in 1992 when BioSystems researchers built upon Davis' work (Simmons 1995). BioSystems research documents the development and expansion of the fishpond and `auwai (ditch) system in this area. (The `auwai system was entered on the State Inventory of Historic Places (SIHP) as State Site 50-80-14-4970. As indicated on the 1881 map by S.E. Bishop discussed above (see Figure 2), this `auwai enters the Ft. DeRussy grounds through the present project area.) Remains of the fishpond and `auwai deposits, as well as habitation deposits were documented below modern fill deposits. This research, along with that of Davis (1991) clearly demonstrates that historical document research can be an effective guide to locating late prehistoric/early historic subsurface deposits, even amidst the development of Waikiki.

The realignment of Kalia Road at Fort DeRussy in 1993 uncovered approximately 40 human burials. A large majority of these remains were recovered in a large communal burial feature (Carlson et. al. 1994). The monitoring and excavations associated with this realignment uncovered a cultural enriched layer which contained post holes.

On April 28, 1994 an inadvertent burial discovery was made during excavation for a water line at the intersection of Kalakaua Ave. and Kuamo'o St. (just *mauka* of Ft. DeRussy and two blocks northwest of the present project area). These remains represented a single individual (McMahon 1994).

Another inadvertent discovery of human remains occurred in April of 1995 at the site of the Waikiki Sunset Hotel (Jourdane 1995). The remains appeared to be a single individual.

In 1996 Pacific Legacy, Inc. conducted an archaeological inventory survey of the block bounded by Kalakau Ave., Kuhio Ave., Olohana St., and Kalaimoku St. (Cleghorn 1996). This parcel is located immediately adjacent to (on the `ewa side of) the present project area. The survey

included excavation of seven backhoe trenches. The subsurface testing indicated that

...this area was extremely wet and probably marshy. This type of environment was not conducive for traditional economic practices...The current project area appears to have been unused because it was too wet and marshy.

Several peat deposits, containing the preserved remains of organic plant materials were discovered and sampled. These deposits have the potential to add to our knowledge of the paleoenvironment of the area. (Cleghorn 1996:15)

The report concluded that no further archaeological investigations of the parcel were warranted since "no potentially significant traditional sites or deposits were found" but cautioned of the "possibility, however remote in this instance, that human burials may be encountered during large scale excavations" (*Ibid.*:15).

IV. FIELD INSPECTION RESULTS

Field inspection of the project area was accomplished on August 23, 1998. The entire project area was accessible to investigation as all commercial activities have been terminated. Current conditions were documented by field notes and photographs (Figures 10-15).

A. Archaeological Sites

No surface archaeological sites or features were evident within the project area which, as has been documented in this report, comprises entirely landfill material imported during the 1920s. No surface evidence of the *'auwai* (ditch) which, as was also documented in this report, formerly coursed through the *'ewa* side of the project area, and which was recorded as State Site 50-80-14-4970 during archaeological study within the Ft. DeRussy grounds.

B. Building Assessment

The only structures observed within the project which appear on the 1951 Sanborn Fire Insurance map (see Figure 9 above) were four concrete, two-story, former apartment buildings located between Kuhio Ave. and Lauulu St. (TMK 2-6-18:42, 62, 63, & 64). These buildings were constructed between 1942 and 1948 but have all since been added to and renovated for commercial usage (Figures 14 & 15). These additions and renovations have compromised their historical integrity.

The Canlis Charcoal Broiler building, constructed in 1954, continues to occupy the west corner of the project area at the intersection of Kalaimoku St. and Kalakaua Ave. (Figure 12). As was noted above, the restaurant closed in 1989. Though it subsequently served for a period as a police substation, the building was observed to be little changed from its appearance in photographs taken at the height of the restaurant's popularity.



Figure 10 East portion of project area along Kuhio Ave. showing two-story concrete buildings; view west



Figure 11 Concrete buildings on Kuhio Ave.; view southeast



Figure 12 Concrete buildings in east portion of project area; view east

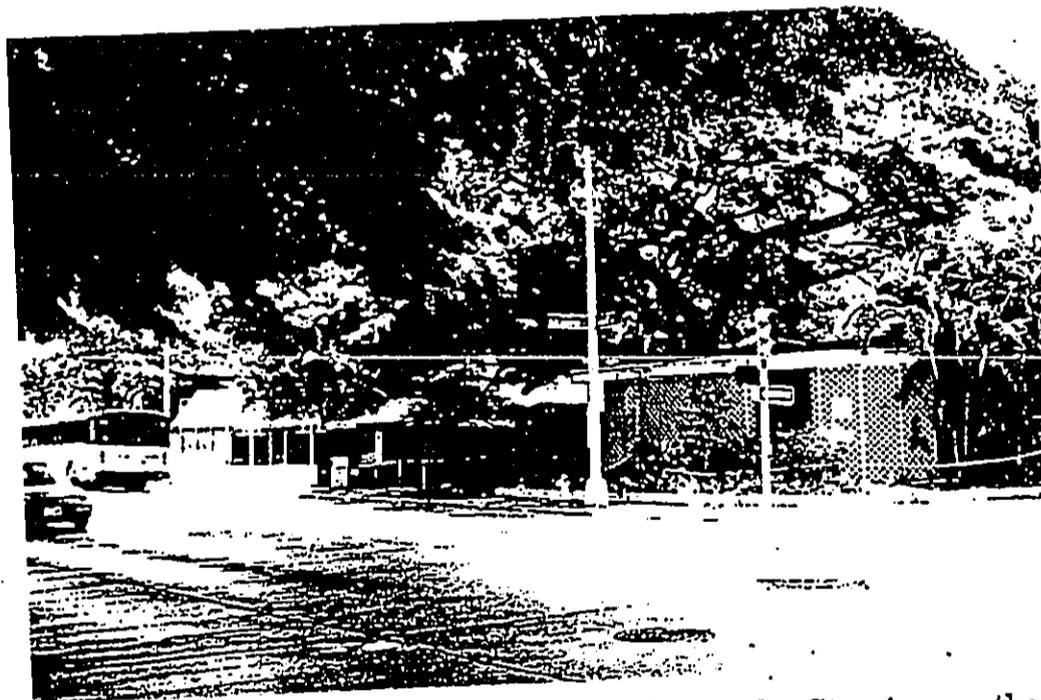


Figure 13 Project area at corner of Kuhio Ave. and Kalaimoku St.; view southeast

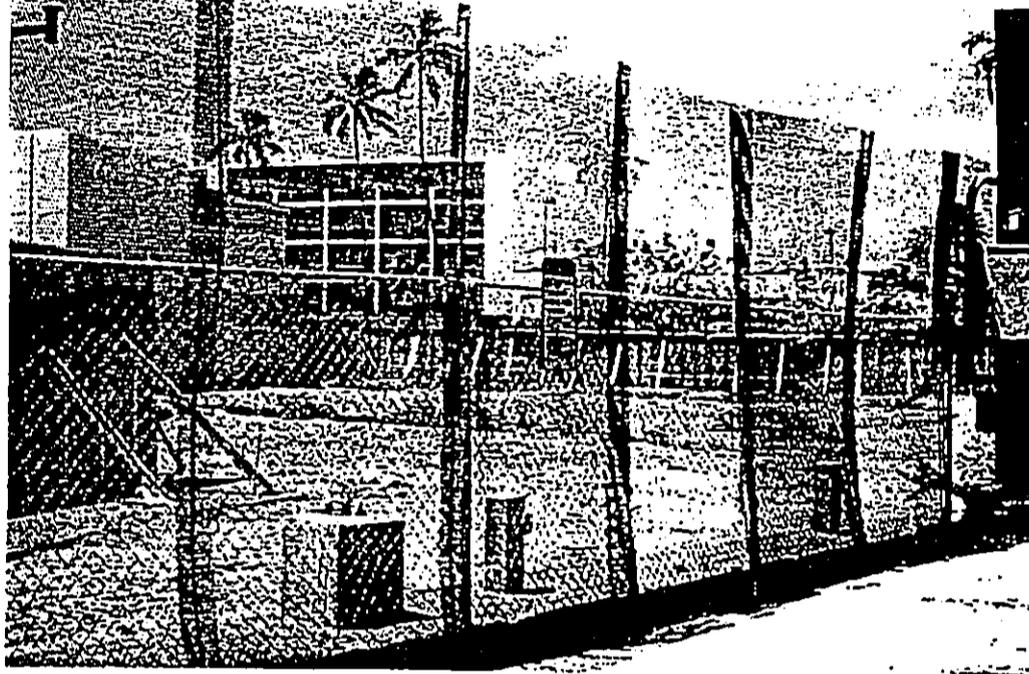


Figure 14 Empty lot (TMK 2-6-18:36) at south corner of project area; view south



Figure 15 Canlis Charcoal Broiler building at west corner of project area; view east

V. SUMMARY AND RECOMMENDATIONS

A. Summary

Archaeological Concerns

The *ahupua`a* of Waikiki in the centuries before the arrival of Europeans was a well-used locale with abundant natural and cultivated resources - including an expansive system of irrigated taro fields - supporting a large population that included the highest-ranking ali`i. In the nineteenth century, after a period of depopulation and desuetude, Waikiki was reanimated by the Hawaiian *ali`i* and the foreigners residing there and by the farmers continuing to work the irrigated field system which had been converted from taro to rice. This farming continued up to the first decades of this century until the Ala Wai Canal drained the remaining ponds and irrigated fields.

The present project area comprises land created and filled during the 1920s in conjunction with the construction of the Ala Wai Canal. The land fill operations have obscured all traces of any archaeological features within the project area predating the 1920s. However, historic documents and maps, and previous archaeological research, indicate that the project area was most likely a marshy field (with perhaps an associated pond) located just *mauka* of an extensive network of fishponds that covered the present Ft. DeRussy grounds. An *`auwai* (ditch) that fed the Ft. DeRussy fishponds ran through the *`ewa* side of the project area. (This *`auwai* was entered on the State Inventory of Historic Places as site no. 50-80-14-4970 during archaeological study within the Ft. DeRussy grounds.)

Archaeological reports have documented human burials - both pre-contact Hawaiian and historic - throughout the breadth of Waikiki--as far *mauka* as the Ala Wai Golf Course. Especially relevant to the present project area are several burials that have been encountered within the grounds of Ft. DeRussy and of adjacent hotels. A burial, encountered during excavation for a water line, has also been documented at the intersection of Kuamoo St. and Kuhio Ave., two blocks *`ewa* of the project area.

Several studies have recorded the presence within Waikiki of subsurface cultural deposits of both pre-contact Hawaiian and historic provenance. These deposits had remained intact despite the years of construction activity that have altered the surface of the entire area. The authors of these studies emphasize that the potential for discovering similar intact deposits elsewhere in Waikiki cannot be discounted.

Historic Building Concerns

Only four structures older than fifty years are presently standing within the project area. These four are two-story concrete buildings located between Kuhio Ave. and Lauulu Pl. (TMK 2-6-18:42, 62, 63, & 64). They were formerly apartments constructed between 1942 and 1948 but have all since been added to and renovated for commercial usage. It is suggested that these additions and renovations have compromised the buildings' historical integrity.

Preservation concerns have been expressed over the Canlis Charcoal Broiler building, which was constructed in 1954. The building is discussed in the Recommendations section below.

B. Recommendations

The following recommendations are appropriate to the present project area in Waikīkī:

- 1) It is likely that intact prehistoric and early contact cultural deposits are lying undisturbed beneath modern fill layers within the project area (as has been documented in adjacent areas of Waikīkī). Also, there is historic evidence indicating the prior existence of a major *'auwai* and possible adjacent *lo'i* (irrigated terraces) in the project area. Therefore, an archaeological inventory survey is recommended. This survey would comprise subsurface testing of the entire project area consisting of a series of backhoe trenches. Particular attention would be given to locating the *'auwai* (State site 50-80-14-4970) along the west side of the project area.
- 2) If major findings are encountered during subsurface testing, preparation of a mitigation plan would be appropriate. This plan would be reviewed and approved by the State Historic Preservation Division (SHPD).
- 3) An additional concern is the possible presence of burials. If burials are encountered during the subsurface testing, the Burials Program of the SHPD should be notified to determine appropriate treatment. Provision should also be made for treatment of unanticipated finds during construction excavation.
- 4) Structures in the project area over fifty years old do not appear to have retained their historical integrity, as noted in the SHPD letter of August 3, 1998 (see Appendix) discussed in this report. However, the letter also notes the department's concern with the Canlis Charcoal Broiler building, citing "its exceptional significance as one of the few intact examples left in Hawaii of the once popular restaurant trend and unique building type." Because of this concern, it is recommended that further consultation with the SHPD be pursued before development plans are finalized.

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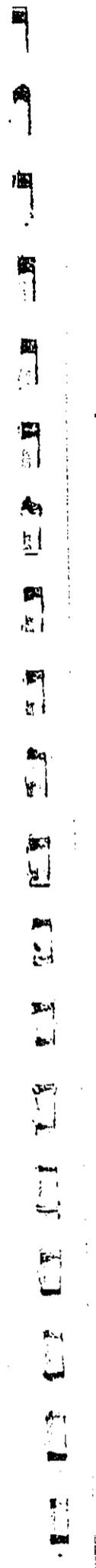
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APPENDIX



DOCUMENT CAPTURED AS RECEIVED

BENJAMIN J. CAYetano
GOVERNOR OF HAWAII



MICHAEL D. WILSON, CHAIRMAN
BOARD OF LAND AND NATURAL RESOURCES

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
33 SOUTH KING STREET, 6TH FLOOR
HONOLULU, HAWAII 96813

DEPUTY
GREAT COLOMA-AGAAMA

AQUACULTURE DEVELOPMENT
PROGRAM

AQUATIC RESOURCES
CONSERVATION AND

ENVIRONMENTAL AFFAIRS
CONSERVATION AND

RESOURCES ENFORCEMENT
CONVEYANCES

FORESTRY AND WILDLIFE
HISTORIC PRESERVATION

DIVISION
LAND MANAGEMENT

STATE PARKS
WATER AND LAND DEVELOPMENT

August 3, 1998

Ms. Jan Naoe Sullivan
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

LOG NO: 22008
DOC NO: 9808tm01
Architecture

Dear Ms. Sullivan:

SUBJECT: Special District Permit Application
File Number: 98/WSD-21
Demolition of Buildings at 2100 Kalakaua Ave.
Including Former Canlis Restaurant Building
TMK: 2-6-18:10, 42, 52, 53, 62, 63, 64, 73 & 74,
Waikiki, Honolulu, Oahu

Thank you for transmitting the above permit application. While the majority of the structures over 50 years do not appear to have retained their historic integrity, we believe the Canlis Restaurant Building, while not quite 50 years old, has exceptional significance as one of the few intact examples left in Hawaii of the once popular restaurant trend and unique building type. The building was included in the Whitney Museum traveling exhibit to Russia as an exemplary example of American architecture and is a rare example of architecture that displays a sense of place in Hawaii.

According to the Land Use Ordinance 7.80-3(c) "Development should preserve, maintain and enhance historic properties whenever possible." Therefore, we request that the demolition of the Canlis building be deferred until the entire development project is submitted so that we can better ascertain the potential of retaining Canlis. We believe there are other design possibilities where Canlis, with its strong sense of place, can be utilized in the development.

Thank you for the opportunity to comment. Should you have further questions, please feel free to call Tonia Moy at 587-0005.

Aloha


DON HIBBARD, Administrator
State Historic Preservation Division

TM:je

AUG 3 - 1998

SCS Project Number 606-CIA-1

**A CULTURAL IMPACT ASSESSMENT
ON THREE LAND PARCELS
LOCATED IN WAIKĪKĪ AHUPUA`A,
KONA DISTRICT, O`AHU ISLAND, HAWAII
TMK: 2-06-018:10, 42, AND 52]**

Prepared by:
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and
Robert L. Spear, Ph.D.
August 2005

Prepared for:
Belrad Group
C/O CMD – Hawaii LLC
239 Merchant Street, Suite 100
Honolulu, Hawaii`i 96813

TABLE OF CONTENTS

TABLE OF CONTENTS.....II

LIST OF FIGURESII

INTRODUCTION 1

METHODOLOGY 3

 ARCHIVAL RESEARCH..... 5

 INTERVIEW METHODOLOGY 5

 PROJECT AREA AND VICINITY 6

CULTURAL HISTORICAL CONTEXT..... 6

 PAST POLITICAL BOUNDARIES 6

 TRADITIONAL SETTLEMENT PATTERNS 8

 WAHI PANI (Legendary Places)..... 8

 SETTLEMENT PATTERNS..... 10

 WESTERN CONTACT..... 13

 THE GREAT MĀHELE..... 15

 HISTORIC LAND USE 15

SUMMARY AND CULTURAL ASSESSMEMNT..... 19

REFERENCES CITED..... 21

LIST OF FIGURES

Figure 1: Honolulu Quad Showing Project Area..... 2

Figure 2: Tax Map Key [TMK 2-06-018 por.10, 42, and 52] Showing Project Area. 7

Figure 3: Portion Of 1881 Map By S.E. Bishop With Location of the Project Area and *Auwai*
(From Lesuer *et.al.* 2000). 12

Figure 4: Portion of 1901 Map by M.D. Monsarrat with Location of the Project Area and
Encroaching Development (From LeSuer *et.al.* 2000)..... 16

INTRODUCTION

Scientific Consultant Services (SCS), Inc. has been contracted by CMD-Hawaii, LLC to conduct a Cultural Impact Assessment on three land parcels located in Waikīkī Ahupua`a, Kona District, O`ahu Island, Hawai`i [TMK: 2-06-018:10, 42, and 52] (Figure 1). Documents provided by the developer propose Commercial Mixed Use and Residential/Time Share for these lots.

The Constitution of the State of Hawai`i clearly states the duty of the State and its agencies is to preserve, protect, and prevent interference with the traditional and customary rights of native Hawaiians. Article XII, Section 7 requires the State to “protect all rights, customarily and traditionally exercised for subsistence, cultural and religious purposes and possessed by ahupua`a tenants who are descendants of native Hawaiians who inhabited the Hawaiian Islands prior to 1778” (2000). Beginning in 1850 with establishment of Hawai`i Revised Statutes (HRS) 7-1, native Hawaiians were given access rights to undeveloped private property and waterways in order to gather specific natural resources for customary uses. In 1992, the State of Hawai`i Supreme Court, reaffirmed HRS 7-1 and expanded it to include, “native Hawaiian rights...may extend beyond the ahupua`a in which a native Hawaiian resides where such rights have been customarily and traditionally exercised in this manner” (Pele Defense Fund v. Paty, 73 Haw.578, 1992).

Act 50, enacted by the Legislature of the State of Hawaii (2000) with House Bill 2895, relating to Environmental Impact Statements, proposes that:

...there is a need to clarify that the preparation of environmental assessments or environmental impact statements should identify and address effects on Hawaii’s culture, and traditional and customary rights...[H.B. No. 2895].

Act 50 requires state agencies and other developers to assess the effects of proposed land use or shoreline developments on the “cultural practices of the community and State” as part of the HRS Chapter 343 environmental review process (2001). Its purpose has broadened, “to promote and protect cultural beliefs, practices and resources of native Hawaiians [and] other ethnic groups, and it also amends the definition of ‘significant effect’ to be re-defined as “the sum of effects on the quality of the environment including actions that are...contrary to the State’s environmental policies...or adversely affect the economic welfare, social welfare, or

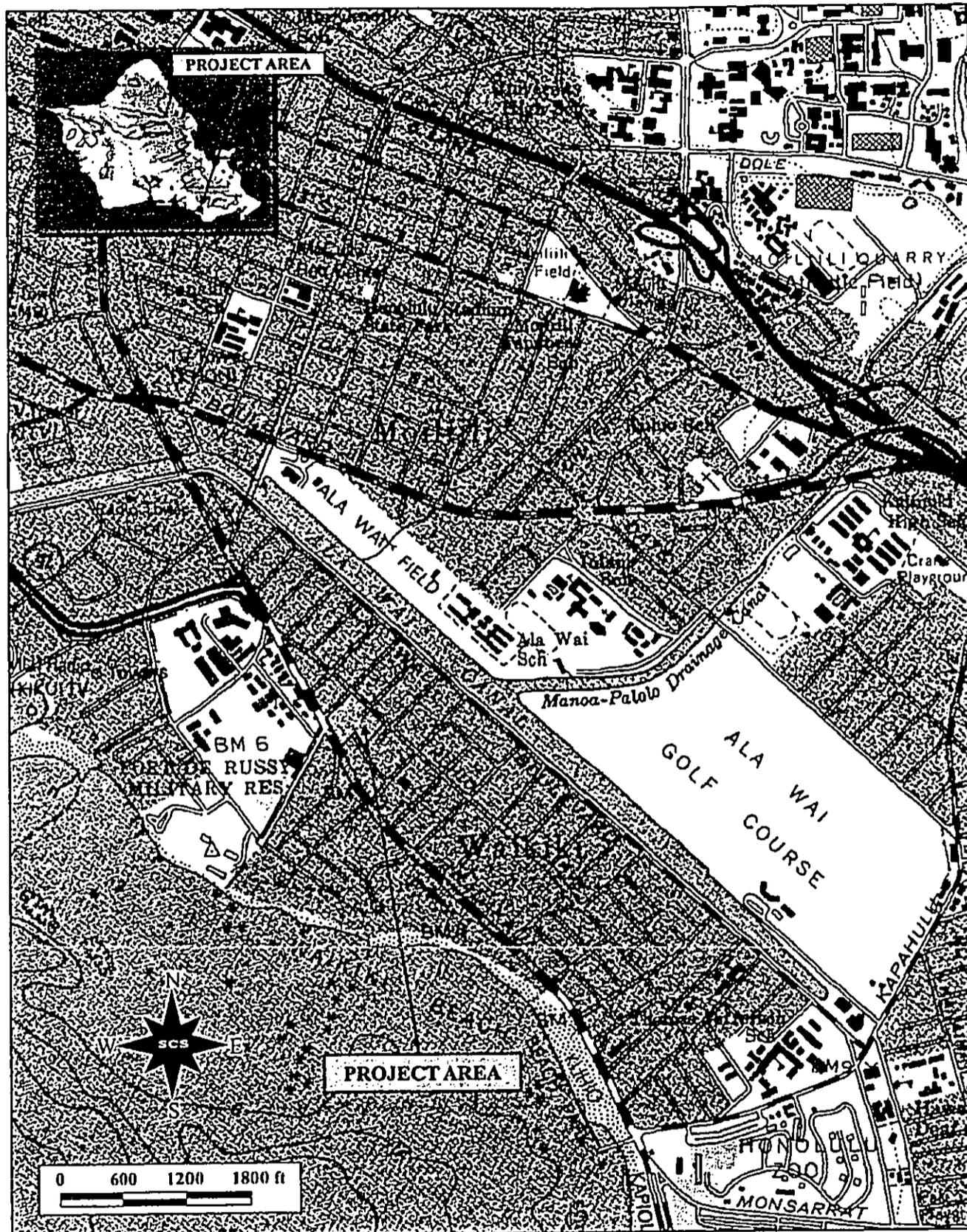


Figure 1: Honolulu Quad Showing Project Area.

cultural practices of the community and State” (H.B. 2895, Act 50, 2000). Thus, not only are properties evaluated for impact to Native Hawaiians, but also for other ethnic groups as well.

Act 50 requires an assessment of cultural practices to be included in the Environmental Assessments and the Environmental Impact Statements, and to be taken into consideration during the planning process. The concept of geographical expansion is recognized by using, as an example, “the broad geographical area, e.g. district or *ahupua`a*” (OEQC 1997). It was decided that the process should identify ‘anthropological’ cultural practices, rather than ‘social’ cultural practices. For example, *limu* (edible seaweed) gathering would be considered an anthropological cultural practice, while a modern-day marathon would be considered a social cultural practice.

According to the Guidelines for Assessing Cultural Impacts established by the Hawaii State Office of Environmental Quality Control (OEQC 1997):

The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religions and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both manmade and natural which support such cultural beliefs.

This Cultural Impact Assessment involves evaluating the probability of impacts on cultural values and rights within the project area and its vicinity.

METHODOLOGY

This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). In outlining the “Cultural Impact Assessment Methodology”, the OEQC state:

...information may be obtained through scooping, community meetings, ethnographic interviews and oral histories...[1997].

This report contains archival and documentary research, as well as communication with organizations having knowledge of the project area, its cultural resources, and its practices and beliefs. This Cultural Impact Assessment was prepared in accordance with the methodology and content protocol provided in the Guidelines for Assessing Cultural Impacts (OEQC 1997). The

assessment concerning cultural impacts should address, but not be limited to, the following matters:

- (1) a discussion of the methods applied and results of consultation with individuals and organizations identified by the preparer as being familiar with cultural practices and features associated with the project area, including any constraints or limitations which might have affected the quality of the information obtained;
- (2) a description of methods adopted by the preparer to identify, locate, and select the persons interviewed, including a discussion of the level of effort undertaken;
- (3) ethnographic and oral history interview procedures, including the circumstances under which the interviews were conducted, and any constraints or limitations which might have affected the quality of the information obtained;
- (4) biographical information concerning the individuals and organizations consulted, their particular expertise, and their historical and genealogical relationship to the project area, as well as information concerning the persons submitting information or interviewed, their particular knowledge and cultural expertise, if any, and their historical and genealogical relationship to the project area;
- (5) a discussion concerning historical and cultural source materials consulted, the institutions and repositories searched, and the level of effort undertaken, as well as the particular perspective of the authors, if appropriate, any opposing views, and any other relevant constraints, limitations or biases;
- (6) a discussion concerning the cultural resources, practices and beliefs identified, and for the resources and practices, their location within the broad geographical area in which the proposed action is located, as well as their direct or indirect significance or connection to the project site;
- (7) a discussion concerning the nature of the cultural practices and beliefs, and the significance of the cultural resources within the project area, affected directly or indirectly by the proposed project;
- (8) an explanation of confidential information that has been withheld from public disclosure in the assessment;
- (9) a discussion concerning any conflicting information in regard to identified cultural resources, practices and beliefs;
- (10) an analysis of the potential effect of any proposed physical alteration on cultural resources, practices or beliefs; the potential of the proposed action to isolate cultural resources, practices or beliefs from their setting; and the potential of the proposed action to introduce elements which may alter the setting in which cultural practices take place, and;

- (11) the inclusion of bibliography of references, and attached records of interviews which were allowed to be disclosed.

Based on the inclusion of the above information, assessments of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

ARCHIVAL RESEARCH

Archival research focused on a historical documentary study involving both published and unpublished sources. These included legendary accounts of native and early foreign writers; early historical journals and narratives; historic maps and land records such as Land Commission Awards, Royal Patent Grants, and Boundary Commission records; historic accounts, and previous archaeological project reports.

INTERVIEW METHODOLOGY

When appropriate, interviews are conducted in accordance with Federal and State laws and guidelines. Individuals and/or groups who have knowledge of traditional practices and beliefs associated with a project area or who know of historical properties within a project area are sought for consultation. Individuals who have particular knowledge of traditions passed down from preceding generations and a personal familiarity with the project area are invited to share their relevant information. Often people are recommended for their expertise or can be located by visiting the area. Organizations, such as Hawaiian Civic Clubs, the Island Branch of Office of Hawaiian Affairs, historical societies, Island Trail clubs, and Planning Commissions are invited to contribute their input and suggest further avenues of inquiry, as well as specific individuals to interview.

When interviewees are identified, a standard procedure follows. Personal interviews are taped and then transcribed. These draft transcripts are returned to each of the participants for their review and comments. After corrections are made, each individual signs a release form, making the information available for this study. Key topics discussed with the interviewees vary from project to project, but usually include: personal association to the *ahupua`a*, land use in the project's vicinity; knowledge of traditional trails, gathering areas, water sources, religious sites; place names and their meanings; stories that were handed down concerning special places or events in the vicinity of the project area; evidence of previous activities identified while in the project vicinity.

In this case, the project area had been a lagoonal basin until the early 20th century when it was used for banana cultivation into the 1940s. Commercial activities were housed along Kalākaua, Kalanimoku, and Kūhi`ō Avenues until 1999. Letters, briefly outlining the development plans along with maps of the project area, were sent to organizations whose jurisdiction includes knowledge of the area with an invitation for consultation. Consultation was sought from Lance Foster, the Director of Native Rights, Land and Culture, at the Office of Hawaiian Affairs and the State Historic Preservation Division. Based on this research, an assessment of the potential effects on cultural resources in the project area and recommendations for mitigation of these effects can be proposed.

PROJECT AREA AND VICINITY

The parcels are located on the `ewa to middle portion of the block bounded by Kalaimoku Street, Kalākaua Avenue and Kūhi`ō Avenue, and Lewers (Figure 2). In 1999, all structures were removed from the parcels and it presently stands vacant. Previous commercial activities in the vicinity, or on the parcels included a parking lot, Kuhio Outdoor Flea Market, Canlis Charcoal Broiler Restaurant, Hernando's Hideaway Restaurant and Bar, and Hula's Bar and Lei Stand.

CULTURAL HISTORICAL CONTEXT

The island of O`ahu ranks third in size of the eight main islands in the Hawaiian Archipelago. The Wai`anae and Ko`olau mountain ranges were formed by two volcanoes. Through the millennia the constant force of water carved fertile amphitheater-headed valleys and rugged passes eroded at lower elevations providing access from one side of the island to another (Macdonald and Abbott 1970). The region where the project area is located was created by delta drainage from the Ko`olau Mountains. As the modern reef formed offshore, a barrier was created leaving the drainage from the mountains to form a lagoon behind it.

PAST POLITICAL BOUNDARIES

Traditionally, the division of Oahu's land into districts (*moku*) and sub-districts was said to be performed by a *Mā`ilikukahi* who was chosen by the chiefs to be the *mō`īho`oponopono o ke aupuni* (administrator of the government; Kamakau 1991:53-55). Cordy places *Mā`ilikukahi* at the beginning of the 16th century (2002). *Mā`ilikukahi* created six districts and six district chiefs (*Ali`i`ai moku*). Land was considered the property of the king or *Ali`i`ai moku* (the *Ali`i`ai moku* who eats the island/district), which he held in trust for the gods. The title of *Ali`i`ai moku* ensured rights and responsibilities to the land, but did not confer absolute ownership. The king kept the parcels he wanted; his higher chiefs received large parcels from him and, in turn,

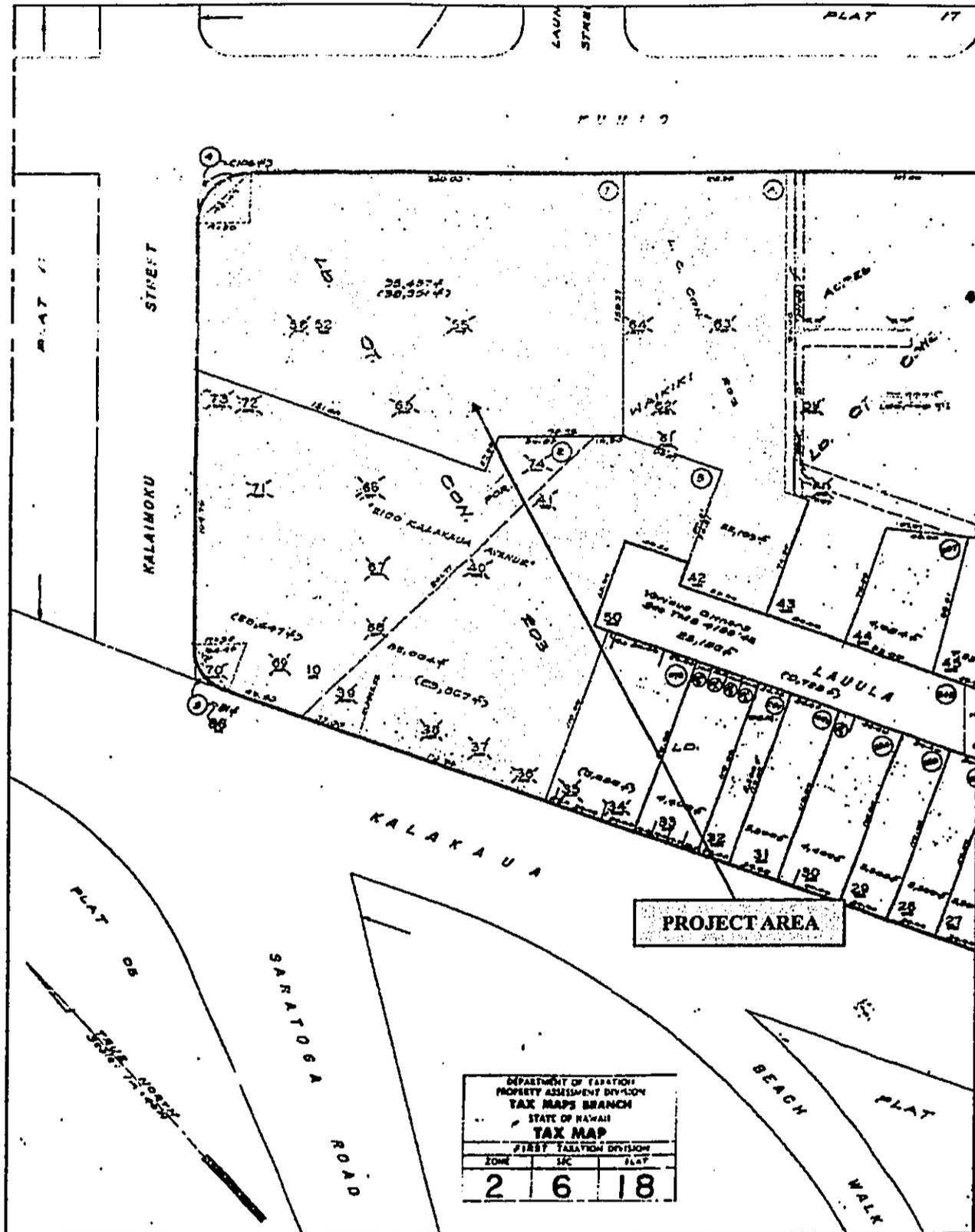


Figure 1: Tax Map Key [TMK 2-06-018 por. 10, 42, and 52] Showing Project Area.

distributed smaller parcels to lesser chiefs. The *maka`āinana* (commoners) worked the individual plots of land. It is said that Mā`ilikukahi gave land to *maka`āinana* (commoners) all over the island of O`ahu (*ibid*).

In general, several terms, such as *moku*, *ahupua`a*, *`ili* or *`ili`āina* were used to delineate various land sections. A district (*moku*) contained smaller land divisions (*ahupua`a*) that customarily continued inland from the ocean and upland into the mountains. Extended household groups living within the *ahupua`a* were therefore able to harvest from both the land and the sea. Ideally, this situation allowed each *ahupua`a* to be self-sufficient by supplying needed resources from different environmental zones (Lyons 1875:111). The *`ili`āina* or *`ili* were smaller land divisions next in importance to the *ahupua`a* and were administered by the chief who controlled the *ahupua`a* in which it was located (Lyons 1875:33; Lucas 1995:40). The *mo`o`āina* were narrow strips of land within an *`ili*. The land holding of a tenant or *hoa`āina* residing in a *ahupua`a* was called a *kuleana* (Lucas 1995:61). The project area is located in the Waikīkī Ahupua`a. Waikīkī means literally "spouting water" and is said to be named for the swamps (Pukui *et al.* 1974:223).

TRADITIONAL SETTLEMENT PATTERNS

The Hawaiian economy was based on agricultural production and marine exploitation, as well as raising livestock and collecting wild plants and birds. Extended household groups settled in various *ahupua`a*. During pre-Contact times, there were primarily two types of agriculture, wetland and dry land, both of which were dependent upon geography and physiography. River valleys provided ideal conditions for wetland *kalo* (*Colocasia esculenta*) agriculture that incorporated pond fields and irrigation canals. Other cultigens, such as *kō* (sugar cane, *Saccharum officinarum*) and *mai`a* (banana, *Musa* sp.), were also grown and, where appropriate, such crops as *`uala* (sweet potato, *Ipomoea batatas*) were produced. This was the typical agricultural pattern seen during traditional times on all the Hawaiian Islands (Kirch and Sahlins 1992, Vol. 1:5, 119; Kirch 1985). Agricultural development on the windward side of O`ahu was likely to have begun early (AD 1100–1300) during what is known as the Expansion Period (Kirch 1985). Fisheries were included in Waikīkī Ahupua`a, supplementing the productive agricultural plots.

WAHI PANI (LEGENDARY PLACES)

Waikīkī's abundance of water and inland ponds associated it closely to stories of the *mo`o* god, Kamō`ili`ili. Sterling and Summers have related the legend of Hi`iaka, Pele's sister, her companion, Wahineomao, and Lohiau as they traveled back to Hawai`i Island from Kaua`i

(1978). They left their canoe at Waikīkī and walked inland towards Mo`ili`ili. When they got close to that place, a strong gust of wind blew and Wahineomao and Lohiau felt invisible hands pulling their ears back. When they called to Hi`iaka for help, she realized it was the *mo`o* god Kamō`ili`ili. Hi`iaka knew he wanted to fight, so she told her companions to stay behind her.

A short distance away, they met Kamoilili...She removed her outside skirt, which held forks of lightning and smote him with it. His body was cut to pieces and the pieces turned into a low hill in the neighborhood of the old Hawaiian Church. The place is still call Kamoilili [Mo`ili`ili] to this day. The long, low hill (across from Kuhio School is said to be the body of this lizard god. [1978:281]

Kumulae Spring (Willows Restaurant) is the only remnant of the fresh water ponds to survive until today and is the subject of an old legend (Kanahele 1995; Sterling and Summers 1978).

The area of the springs was considered sacred by the Hawaiians as it had been the bathing place of a prince of such a high rank that "...it was evil for men's eyes to gaze [upon her]" (Sterling and Summers 1978:282). Because of her importance, she had a retinue of beautiful maidens to guard her.

The princess loved the waters of Kumalae spring. From time to time she would go to the spring by night and there bathe in the water, while her maidens chanted songs of love to the pulsating rhythm of gourds. [*ibid.*]

The cool, clean water in the otherwise arid plain was said to have healing properties and was full of fish, making it inviting to others not of such a high rank. Artifacts recovered from the region included stone lamps, possibly used during night bathing, *`ulu maika* stones used for recreation along its banks, and small stone anchors used to set bait.

Another pond, Kānewai, with similar healing powers was located underground along what is now called King Street. Hawaiians believed:

...wise fish from the sea used to swim up to this pool, overhear the plans of the native fishermen who frequented the vicinity and then float back to the ocean to warn their finny friends" in Waikīkī. [Sterling and Summers 1978:285]

Kamakau relates that:

“Waikīkī sits proudly in the calm of the Ka`ao breeze... Waikīkī was a land beloved of the chiefs and there many of them lived from remote times to the time of Kalaikūpule. Board surfing could be indulged in there, and for this reason the chiefs liked the place very much. At Waikīkī are the surfs of Ka-lehua-wehe, `Aiwōhi, Maihiwa, and Kapuna. [1991:44]

Places of importance to the *kama`āina* of this place were many. Religious structures, included Mau`oki Heiau, reportedly built by *menehune* and dedicated to the worship of Lono the god of harvest, Papa`ena Heiau, a *luakini* (human sacrifice) where in 1809 Kamehameha sacrificed his foster son for breaking a *kapu* with Ka`ahumanu, Kamehameha's favorite wife, Āpuakēhau, Hale Kumukalaha, Kupalaha, Kapua (*luakini*), Kulanihakoi, and Makahuna dedicated to Kanaloa the god of the sea (Kanahele 1995). The number of *heiau* attests to the importance of Waikīkī.

An ancient story speaks of four visitors who arrived from Tahiti before the 12th century (Kanahele 1995). Their names were Kapaemahu, who was the leader, Kahaloa, Kapuni, and Kinohi. They were soothsayers from the Tahitian court and were powerful healers. They settled in Waikīkī and became famous throughout the land. When it was time for them to return to Tahiti, they asked the people to erect four monuments of stone so that they would be remembered and future generations could see the gratitude of those they had helped. Stone was brought from a bell rock in Kaimukī to their residence at Ulukou where their favorite bathing spots were. It is said that the rocks were so heavy it took thousands of people to transport the rocks to their resting place. The dedication ceremony lasted a month and included a human sacrifice whose body was placed beneath one of the stones. With this ceremony, the healers had transferred their names and *mana* to the stones before they disappeared, never to be seen again. These stones still stand at Kūhō`o Beach to this day (*ibid.*).

SETTLEMENT PATTERNS

In Hawai`i, much of the coastal lands were preferred for chiefly residence. Easily accessible resources such as offshore and onshore fish ponds, the sea with its fishing and surfing—known as the sports of kings, and some of the most extensive and fertile wet taro lands were located in the area (Kirch and Sahlins, 1992 Vol. 1:19). Inland resources necessary for subsistence, could easily be brought to the *Ali`i* residences on the coast from nearby inland plantations. The majority of farming was situated in the lower portions of stream valleys where there were broader alluvial flat lands or on bends in the streams where alluvial terraces could be

modified to take advantage of the stream flow. Dry land cultivation occurred in colluvial areas at the base of gulch walls or on flat slopes (Kirch 1985; Kirch and Sahlins 1992, Vol. 2:59).

One of the most extensive terrace areas for taro was the level land between what is now Kalākaua Avenue, Kapi`olani Park and Mo`ili`ili (Handy 1940). They were watered by Palolo and Mānoa Stream and fresh water ponds (*loko wai*) were formed as the water meandered to the sea. Tradition says this vast garden was developed by Chief Kalamakua –a-Kaipūhōlua (16th century Fornander 1969).

Farming was one of the principal duties of the chiefs, and the land [in Waikiki] was rich under cultivation. It was planted from the upper part to its entering the coconut grove [along the shore]... Water courses were made throughout the land, thereby feeding the taro patches and fishponds. A good chief was Kalamakua, who was well known for his farming. He constructed the large taro *lo`i* of Keokea. Kalamanamana, Kualualu and others at Waikiki. [*Ka Nupepa Kuokoa*, Aug 12, 1865]

Most of the ponds in Waikīkī were *loko pu`uone*, those isolated inshore ponds formed by the development of a barrier beach that created a single, elongated sand dune parallel to the coast. These were modified for agricultural use by the occupants who deepened them, built up the banks and constructed *`auwai* (canals) to allow water and small fish to flow in and out. The majority of *pu`uone* were located in the *`ili* of Kālia near the Pi`inaio Stream and its estuary. A portion of an *`auwai* connecting to Pi`inaio Stream runs through the present project area and was identified during archaeological work conducted in 2000 (Figure 3; LeSuer *et al.* 2000). Fish commonly raised in the ponds included *`ama`ama* (mullet) and *awa* (milkfish; Kanahale 1995). Trails extended from the coast to the mountains, through the taro ponds, linking them for economic and social reasons.

Because of its fine beach and rich agricultural lands, the ruling chiefs of Hawai`i chose this area for the seat of government in very early times (Handy and Handy 1972). The *Ali`i Nui*, Mā`ilikukahi, transferred the government from Waialua to Waikīkī in the 1400s, thus making it one of the main political and economic centers of O`ahu for the next 400 years (Kamakau 1991; Kanahale 1995). Chiefs of O`ahu, including Kuamanuia, Ka`ihikapuamanuia whose large fishpond is under Fort DeRussy, Kakuhihewa and Ka`ihikapuakakuhihewa his son, chose to live in Waikīkī, at least part of the time (Kanahale 1995).

In 1783, Kahekili, a Maui chief, invaded O`ahu landing in Waikīkī. It was said his fleet of war canoes extended from Ka`alawai, near Leahi (Diamond Head) to Kawehewehe, the location of the Halekūlani Hotel. The struggle to arrest O`ahu from his nephew Kahahana took a total of five years, but resulted in Kahekili's brief rule over Moloka`i, Maui, and O`ahu. Kahekili died in Waikīkī in Ulukou (near the Moana Hotel) in 1794 leaving his kingdom to his son, Kalanikupule (*ibid.*). Kamehameha was to be Kalanikupule's downfall, when in 1795 he decisively won O`ahu in the Battle of Nu`uanu.

WESTERN CONTACT

Early records, such as journals kept by explorers, travelers and missionaries, Hawaiian traditions that survived long enough to be written down, and archaeological investigations have assisted in the understand of past cultural activities. In 1792, Vancouver visited Waikīkī and recorded:

On the shores [of the bay] the villages appeared numerous and in good repair; and the surrounding country pleasingly interspersed with deep, though not extensive valleys; which with the plains near the seaside, presented a high degree of cultivation and fertility...To the northward through the village...an exceedingly well made causeway, bout twelve feet broad, with a ditch on either side. This opened to our view a spacious plain, which ...had the appearance of the open common fields of England; but on advancing, the major part appeared divided into fields of irregular shape and figure, which were separated from each other by low stone walls, and were in a very high state of cultivation. These several portions of land were planted with the eddo or taro root, in different stages of inundation; none being perfectly dry, and some from three to six or seven inches under water ... Near a mile from the beach ... was a rivulet five or six feet wide, and about two or three feet deep, well banked up and nearly motionless; some small rills only, finding a passage through the dams that checked the sluggish stream, by which a constant supply was afforded to the taro plantations ... At the termination of the causeway the paths of communication with the different fields or plantations were on these narrow stone walls; very rugged and where one person only could pass at a time ... The sides of the hills, which were at some distance, seemed rocky and barren; the intermediate valleys, which were all inhabited, produced some large trees, and made a pleasing appearance. The plains, however, if we may judge for the labor bestowed on their cultivation, seem to afford the principal proportion of the different vegetable productions on which the inhabitants depend for their subsistence... [1984:455-456]

The ship's naturalist and surgeon, Menzies, was with Vancouver and added his description:

...The verge of the shore was planted with a large grove of cocoanut palms, affording a delightful shade to the scattered habitations of the natives ... We

pursued a pleasing path back into the plantation, which was nearly level and very extensive, and laid out with great neatness into little fields planted with taro, yams, sweet potatoes, and the cloth plant. These, in many cases, were divided by little banks on which grew the sugar cane and species of *Draccena* without the aid of much cultivation, and the whole was watered in a most ingenious manner by dividing the general stream into little aqueducts leading in various directions so as to supply the most distant fields at pleasure, and the soil seems to repay the labor and industry of these people by the luxuriance of its production. [Menzies 1920:23-24]

After the conquest of O`ahu by Kamehameha I in 1795, Waikīkī became the capitol of the Hawaiian Kingdom until it moved to Honolulu in 1809. His residence was called Kūihelani and was situated in the area of what is the Moana Hotel, known as Āpuakēhau and the present Royal Hawaiian Hotel, or Helumoa. This coastal section was called Pua`ali`ili`i and had been long known to be a favorite swelling site for the chiefs (Kanahele 1995). The access trails passed *makai* of the project area and is described by John I`i:

The trail . . . which led to lower Waikīkī went along Kaananiau, into the coconut grove at Pawa`a, the coconut grove of Kuakuaka, then down to Pi`inaio [stream]; along the upper side of Kahanaumaikai's coconut grove, along the border of Ka`ihikapu pond, into Kawehewehe; then through the center of Helumoa of Pua`ali`ili`i, down to the mouth of the Āpuakēhau stream; along the sandy beach of Ulukou to Kapuni, where the surfs roll in; thence to the stream of Kuekaunahi; to Waialua and to Pali`iki, Kamanawa's house site. [1973: 92]

Kamehameha built a stone house and enclosed it with a fence. He also constructed a shrine (a *puaniu* house) to receive offerings for the *mo`o* goddess Kihawahine, as he had promised her before the war with Kalanikupule. At first, western ships anchored at Waikīkī, but with the discovery of Honolulu Harbor (then known as Kou), the only sheltered harbor on O`ahu and as western visits became more frequent Waikīkī was favored less and less. The lure of exotic goods and lifestyles encouraged a shift in residence from Waikīkī to Honolulu, the new center of activities. Eventually, even Kamehameha moved his entourage from Waikīkī to the vicinity of the harbor where he could control activities. This shift in residence coupled with the depopulation due to introduced diseases, took its toll on the vast agricultural fields of Waikīkī (Chamberlain 1957).

THE GREAT MĀHELE

In the 1840s, traditional land tenure shifted drastically with the introduction of private land ownership based on western law. While it is a complex issue, many scholars believe that in order to protect Hawaiian sovereignty from foreign powers, Kamehameha III was forced to establish laws changing the traditional Hawaiian economy to that of a market economy (Kame'eleihiwa 1992:169-70, 176; Kelly 1983:45, 1998:4; Daws 1962:111; Kuykendall 1938 Vol. I: 145). The Great Māhele of 1848 divided Hawaiian lands between the king, the chiefs, the government, and began the process of private ownership of lands. The subsequently awarded parcels were called Land Commission Awards (LCAs). Once lands were thus made available and private ownership was instituted, the *maka`āinana* (commoners), if they had been made aware of the procedures, were able to claim the plots on which they had been cultivating and living. These claims did not include any previously cultivated but presently fallow land, *`ōkipū* (on O`ahu), stream fisheries, or many other resources necessary for traditional survival (Kelly 1983; Kame'eleihiwa 1992:295; Kirch and Sahlins 1992). If occupation could be established through the testimony of two witnesses, the petitioners were awarded the claimed LCA and issued a Royal Patent after which they could take possession of the property (Chinen 1961:16). There were about 250 claims for land in Waikīkī Ahupua`a. The present project area was awarded to William C. Lunalilo (LCA 8559B:29) and to Kauhao (LCA 6386:7).

HISTORIC LAND USE

In spite of being primarily agricultural, there was a small community of foreigners who began to build new homes along the beach in the 1860s. Also, Waikīkī continued to be popular with the *Ali`i*. Coconut groves once sheltering the chiefs of old Hawai`i, now shaded western homes built mainly by foreigners. Honolulu merchants realized the potential for land speculation early on and clamored to have the road to Waikīkī widened and improved (Nakamura 1979). With easier access came more building along the beach providing an ideal bedroom suburb for Honolulu town. In 1876, the Kapi`olani Park Association was formed, resulting in a park, a race track and landscaped drives next to which more large homes were built (Figure 4). An Omnibus ran from Honolulu to Waikīkī until 1889 when a tramcar line extended its service to the area (*ibid.*). The development of roads as well as the many houses would prove to be obstacles to the drainage of fresh water flowing through the agricultural plots to the sea. Labeled "unsanitary" because of the damned waters, these changes would lead to the complete destruction of agriculture and aquaculture in Waikīkī in the early 20th century (*ibid.*).

The lack of tenants in the taro field, the neglected fishponds, alterations to the main road and Kapi`olani Park, and construction of a tramline seriously impacted the agricultural

environment. An effort was made by King Kamehameha IV in 1863 to renew the agricultural fields:

Our King's project at Keokea, in Waikiki, is successful. The work in his taro parch, Keokea, was commenced the first of June, last, and finished on the 22nd of October, just passed. The taros are thriving from up at Keokea down to the shore, a pleasing sight to the eyes. The leaves are green and much admired by every one here in Waikiki. Our King had cultivated these huge taro patches before in years past. Many commoners and chiefs worked in them. All of this patch has not been worked in because of the great size and the toughness of the bulrushes...[*Ku`oko`a* in Handy and Handy 1972:481]

A massive amount of labor was needed in order for the burgeoning sugar industry to thrive in Hawai'i in the mid to late 1800s. The paucity of Hawaiians due to disease and other factors gave way to the importation of immigrants from other lands to labor in the fields. Most came from China and Japan and rice became more and more important as a food supply. The abandoned taro patches in Waikiki and elsewhere were easily converted to rice cultivation (Nakamura 1979). By 1892, about 542 acres of pond fields previously producing taro, were producing rice and Waikiki had become one of the most important rice growing districts on O'ahu (*ibid*).

There were still 15 ponds in use in Kalia and Waikiki even as late as 1901 but early in the 20th century, the U. S. War Department obtained a large section of Waikiki *makai* of the project area which required the filling of a portion of the fish ponds with fill from the ocean (Handy and Handy 1972). This took a year to complete and began the transformation of Waikiki from wetlands to solid ground (LeSuer 2000). The project area remained in agriculture, as it supported banana cultivation at this time.

It became obvious that urbanization of Waikiki was increasing, causing a conflict with agriculture and aquaculture. Development was continuing and had begun to adversely affect the natural drainage of surface water flowing to the sea. Nakamura suggests that after the annexation of Hawai'i in 1898, those in power manipulated land use to maintain and expand their control in Hawai'i (1979). Agriculture and aquaculture were still viable and successful activities at the beginning of the 20th century. In 1896, Act 61 of the Session Laws laid the basis for filling in of low-lying lands and owners of wet lands had to create dry, fastland, if the Board of Health judged their lands to be injurious to the public, or unsanitary. If a landowner did not want to fill in his lands or could not afford to do so, the government would do the filling at the

expense of the owner. If the owner failed to repay the costs, a lien was attached to the land and the government proceeded to auction it off and they would lose their land.

Eugene Pinkham, President of the Board of Health from 1904 to 1906 stated that Waikīkī was indeed unsanitary and deleterious to the public health and with reclamation could be turned into an attractive urban environment (*ibid.*). Nakamura states: “. . . sanitation was merely a cover for “reclamation” and take-over of land from people who could not afford the costs of “improvement”. . . “ (1979:68). In his 1906 report, Pinkham stated:

. . . Waikiki, to the extent of the beach front will permit, is the choice part of the city of Honolulu, for it offers the close attraction of the sea. The land bordering on the sea commands high prices and little can be secured. Other than a few lots on Kalakaua Avenue there are in the Waikiki district hundreds of acres that could be made, at comparatively small cost, exceedingly attractive and desirable by a comprehensive plan under governmental control . . . [In Nakamura 1979:54]

Pinkham went on to state that the land in Waikīkī would “otherwise remain of only agricultural value for rice and banana culture or valueless . . .” (*ibid.*:53).

Already individual entrepreneurs were buying and filling pond fields and fishponds in Waikīkī and selling the land at large profits. But by mid-1920, the Hawaiian government had acquired the acreage necessary to dredge a drainage canal. In turn, the dirt from the dredged canal was sold to the landowners to fill in the remaining productive pond fields and fishponds as required by the government. Thus, Hawaiian Dredging Company owned by Walter Dillingham, who was awarded the contract, had it both ways, adding to the Dillingham fortune (*ibid.*). During the years it took to dredge the Ala Wai Canal, viable fish ponds and agricultural plots were irreparably impacted by its construction, releasing more land to be developed and sold by “entrepreneurial capitalists” (*ibid.*:99).

The completion of the Ala Wai Drainage Canal in 1928, finished the draining and filling in of the remaining ponds and irrigated fields in Waikīkī opening the way to commercial enterprises (*ibid.*). The project area was used for banana cultivation until the 1940s when various commercial activities were housed along Kalākaua, Kalaimoku, and Kūhi`ō Avenues. In 1999, all structures were removed from the parcels that presently stand vacant.

SUMMARY AND CULTURAL ASSESSMENT

As suggested in the "Guidelines for Assessing Cultural Impacts" (OEQC 1997), CIAs incorporating personal interviews should include ethnographic and oral history interview procedures, circumstances attending the interviews, as well as the results of this consultation. It is also permissible to include organizations with individuals familiar with cultural practices and features associated with the project area.

The "level of effort undertaken" (OEQC 1997) has not been officially defined and is left up to the investigator. To SCS, a good faith effort means contacting agencies by letter, interviewing people who may be affected by the project or who know its history, researching sensitive areas and previous land use, holding meetings in which the public is invited to testify, notifying the community through the media, and other appropriate strategies based on the type of project being proposed and its impact potential. In the case of the present parcel that has been under development for 40 years and was traditionally a pond field, letters of inquiry were sent to organizations whose expertise would include the project area. Consultation was sought from Lance Foster, the Director of Native Rights, Land and Culture, at the Office of Hawaiian Affairs and the State Historic Preservation Division.

Additionally, historical and cultural source materials were also consulted, extensively used, and can be found listed in the References Cited portion of the report. Such scholars as Thrum (1908, 1916 1917), Fornander (1919, 1969), Walker (1930), Kuykendall (1938), Beckwith (1940), Chinen (1961), Handy and Handy (1972), Puku'i *et al.* (1974), Kelly (1983, 1998), and Kame'eleihiwa (1992) have contributed, and continue to contribute, to our knowledge and understanding of Hawai'i, past and present. The works of these and other authors were consulted and incorporated in the report where appropriate. Land use document research was supplied by the Waihona `Aina Data base (2005).

Analysis of the potential effect of the project on cultural resources, practices or beliefs, the potential to isolate cultural resources, maintain practices or beliefs in their original setting, and the potential of the project to introduce elements that may alter the setting in which cultural practices take place is a requirement of the OEQC (No. 10, 1997). The project area has not been used for traditional cultural purposes within recent times. The parcels were originally part of a lagoon/fish pond environment that shifted to banana cultivation and then commercial use in the 1940s. Based on historical research and response from those organizations contacted, it is reasonable to conclude that Hawaiian rights related to gathering, access or other customary

activities within the project area will not be affected and there will be no adverse effect upon cultural practices or beliefs. Because there were no activities identified on Parcels 10, 42, and 52 there are no adverse effects.

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Waihona 'Aina Corporation

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APPENDIX VI

COMMUNITY CONCERNS

[Government](#) | [Kama'aina](#) | [Business](#) | [Visitors](#) | [Kids World](#) | [Seniors World](#) | [On-Line Services](#) | [Economic Development](#)

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WAIKIKI NEIGHBORHOOD BOARD

MINUTES OF REGULAR MEETING
TUESDAY, MARCH 9, 2004
WAIKIKI COMMUNITY CENTER

CALL TO ORDER: Chair Robert Finley called the meeting to order at 7:00 p.m. with a quorum present.

MEMBERS PRESENT: Leslie Among, Jeffrey Apaka, Tom Brower, Dolores Cook, Norman Duncan, Louis Erteschik, Robert Finley, Walt Flood, Raymond Gruntz, John Kaimi, David McCulloch, Mike Peters, Jim Poole, Rachel Simmons, Mary Simpson.

MEMBERS ABSENT: Neil Carmody.

GUESTS: Director Eric Crispin (Mayor's Representative – Department of Planning and Permitting), Kate Diggle and Chris Jared (Department of Transportation Services), Deputy Director Dr. Jane Kadohiro (Governor's Representative – Department of Health), Curtis Thatcher (Department of Health), Daniel Morin (Councilmember Charles Djou's Office staff), Councilmember Charles Djou, Puna Chai (Representative Scott Nishimoto's Office staff), Linda and Frank Vargo (Senator Gordan Trimble's Office staff), Lieutenant Tim Boswell (Honolulu Police Department – Waikiki Station); Captain Paul Nishihara (Honolulu Fire Department – Waikiki Station), Scot Muraoka (Board of Water Supply), Rick Egged (Waikiki Improvement Association), Roger Takabayashi (Hawaii State Teachers Association), Keith Kurahashi (Kusao & Kurahashi), Joan Nagua (Waikiki Community Center), Reggie DeSilva, Sweetheart Brown and Garry Navarro (Polynesian Adventures and Maui Divers), Bobby Brooks (Consulate of Peru), Michael Belatti and Elena Morgan (University of Hawaii), Sharon and Patrick Chun, Brenda and Rex Powell, Bill and Helen Sweat, Mr. and Mrs. William Uhrig, Mr. and Mrs. L. Brodersan, Brian McBride, Floyd Wilcox, Minoru Ozawa, B. Hudman, Rosalie Melenka, Mia Ban, Marion Glatiotis, Homer Kalita, Richard Larson, Steven Fuertes, Louis Xigogiaus, John Souza, Maxine LaFlamme, Mary Cowing, Barbara Selchow, Corey Dillman, Jan Bappe, Brian Hann, Kealoha Aiu, Beth Harman, Bob Farrell (Olelo), Mahealani Hanohano (Neighborhood Commission Office staff).

ESTABLISH A QUORUM: A quorum was determined to be present.

Chair Finley announced with regret the passing of Board member David Oshiro. A moment of silence was observed.

APPROVAL OF FEBRUARY 10, 2004 REGULAR MEETING MINUTES: McCulloch moved and Duncan seconded to approve the February 10, 2004 Regular Meeting minutes as circulated. The motion carried unanimously, 11-0-0.

UNFINISHED BUSINESS: There was no Unfinished Business.

TREASURER'S REPORT: Peters reported the following for the month ending February 29, 2004: There is a balance of \$805.17 in the Operating Account; \$1,909.76 in the Publicity Account and \$120 in Refreshment Account.

The Treasurer's Report was filed subject to audit.

CHAIR ANNOUNCEMENTS: Chair Finley reviewed the following:

- 1) A Special Board meeting will be held on Thursday, March 11, 2004, 7:00 p.m. at the Waikiki Community Center to discuss upcoming legislation.
- 2) There was an incorrect report that a petition was being supported by the Board opposing the Kuhio Avenue Improvement Project, which is a part of the Bus Rapid Transit (BRT) and Livable Waikiki Project. The State Sunshine Law prohibits us from voting on items not on the agenda, however, citizens may voice their concerns tonight. The City has sent representatives to discuss the matter.

CITIZEN'S PROPOSAL FOR WAIKIKI THEATRE III – Kealoha Aiu reported the following: He proposes to restore the Waikiki Theatre III to its original appearance for educational programs that would aid in the war against prostitution and drugs through "aloha" and "hooponopono". A full presentation will be made at next month's Regular Board meeting.

HONOLULU FIRE DEPARTMENT (HFD): Captain Paul Nishihara, of the Waikiki Station, reported the following for the month of February 2004: 1) There were 14 structure, 1 rubbish and 1 vehicle related fires; and 119 medical, 5 search/rescue and 13 miscellaneous emergency calls for response. 2) Fire Safety Tip: "Cooking fires are the leading cause of home fires and the second major cause of death among older adults. If you are cooking and must leave the kitchen, even for only a few minutes, turn off the stove. Keep a fire extinguisher (with a maximum rating of 2A10BC) in or near your kitchen and learn how to use it. Inspect the fire extinguisher regularly to ensure that it has not expired." 3) Suggestion of the Month: "Keep fire hydrants in your neighborhood clear of obstructions, including parked cars, debris and weeds." 4) HFD is concerned about the width of the currently coned lanes on Kuhio Avenue due to the construction. They feel that the roadway is becoming too narrow.

Among arrived at 7:15 p.m. (12 members present).

HONOLULU POLICE DEPARTMENT (HPD): Lieutenant Tim Boswell distributed police statistics totals for the months of February 2004 and reported that a large fight ensued during the Cure for Cerebral Palsy Block Party during the Mardi Gras events. There were about 5,000 in attendance and it is suspected that fights broke out due to the large crowd and inebriation. HPD is recommending that no events be held on the streets of Waikiki that involve the sale of liquor.

Discussion followed: 1) Among expressed concern regarding vehicles racing in the parking lot located at 352 Hobron Lane during the evening hours. 2) A resident requested statistics on pedestrian and vehicle accidents and where they occurred. Lieutenant Boswell will look into the traffic accident that occurred on Hobron Lane two weeks ago. 3) Lieutenant Boswell stated that HPD issued over 700 noise violation citations last year and 81 so far this year. 4) A resident expressed concern regarding HPD's mobility around the Kuhio Avenue roadway improvements during responses.

Flood and Simpson arrived at 7:20 p.m. (14 members present).

BOARD OF WATER SUPPLY (BWS) – Scot Muraoka reported the following for March 2004: 1) There was one main break at 2357 Kuhio Avenue on February 2, 2004. 2) There are no new BWS projects scheduled for April 2004. 3) BWS is hosting a workshop for all Neighborhood Board members on Saturday, April 17, 2004, 9:00 a.m. at Honolulu Hale Courtyard. Registration begins at 8:30 a.m. BWS officials will lead discussions on a variety of topics ranging from current projects to new initiatives to day-to-day operations. All Board members will receive invitations from BWS Manager and Chief Engineer Clifford Jamile. Those interested are asked to fill out the registration form and return it by April 7, 2004. 4) This week is Detect a Leak Week. Leak dye tablets will be available from March 7 to 13, 2004 at all Satellite City Halls and at the BWS building on South Beretania Street. Dye tablets are to be placed in toilet tanks and colored dye in the toilet bowl indicates a leak and the gasket needs to be replaced. Sheraton Hotels, the Chamber of Commerce of Hawaii, the Sierra Club and BWS jointly sponsor this program. 5) Entry deadline for BWS' entries for the 2004 Water Conservation Poster Contest, themed "Conserving Water for Life" is March 10, 2004. Oahu school children from kindergarten to 6th grade are eligible. Winning posters will be displayed at City Hall in May 2004. For more information call 748-5041.

Discussion followed: Muraoka indicated that the current heavy rains are increasing Oahu's water tables because residents tend to use less water for their lawns and washing vehicles. Although the rains have been heavy it takes years for the water to percolate into the BWS water systems.

CITIZENS' CONCERNS:

KUHIO AVENUE IMPROVEMENT PROJECT – Kate Diggle, Public Coordinator and Chris Jared, Project Manager reported the following: The Kuhio Avenue Improvement Project is a coordination between Waikiki Vision Group and Livable Waikiki Program. A notice of public information meeting was mailed to all businesses with a Kuhio Avenue address and all residents in the Kuhio Avenue corridor on November 13, 2003. Pat Lee, of Pat Lee and Associates, was available at the November 18, 2003 Regular Board meeting to answer questions about the project and announced the informational meeting for a noise variance for the project on November 20, 2003 at Jefferson Elementary School. At the November 20, 2003 public meeting a power point presentation was made and most of the attendees were in support of the improvements. Various fliers and newspaper announcements notified the public of construction. Further information can be found at www.oahutrans2k.com or by calling the hotline at 864-1914.

Board members and residents made the following complaints regarding the current construction on Kuhio Avenue: 1) The newly painted lines on Kuhio Avenue indicate that there may be no left turns from Royal Hawaiian Drive onto Kuhio Avenue but the signs indicating that a left turn may be made is still present. Jared will look into the matter. 2) When the construction is over the lighting synchronization will be changed to reflect the changes in vehicular circulation, which will be an improvement to traffic flow. 3) Discussion ensued regarding the width of the roadway after the construction is completed. The makai lanes will be about 12 feet wide, including the curbs and gutters. 4) It was suggested that Waikiki residents use Kalakaua Avenue to bypass the construction on Kuhio Avenue. It was noted that although traffic will be difficult during the duration of the project the results will be an overall improvement to traffic flow. 5) A full presentation on the Kuhio Improvement Project was requested. 6) Trees and other landscaping will be done in the medians that are currently being constructed. 7) The improvements do not take away lanes of traffic but some, not all of the dedicated turn lanes will be eliminated. 8) The Bus Rapid Transit (BRT) System vehicles will travel on both sides of Kuhio Avenue. Dedicated bus lanes will only be on Kuhio Avenue from Kalaimoku Street to Launiu Street (one block). 9) The areas that are currently coned off at the intersection of Kuhio Avenue and Kaiolu Street are to prohibit vehicles from entering the area near sidewalks to make travel safer for pedestrians. 10) Residents expressed concern regarding the changes to the circulation in and out of their condominiums. 11) Residents spoke in opposition to the City spending taxpayer dollars to worsen the traffic in Waikiki. 12) It was mentioned that transportation is part of the service industry and should be handled by the private sector and not government ran and that government should handle health and safety. 13) A resident noted that area residents are abusing the free parking on Ala Wai Boulevard and renting their condominium parking stalls. 14) Concern was expressed regarding congestion, safety and maintenance caused by the new medians. 15) It was suggested that police officers be used to direct traffic during the construction period. 16) A resident noted that Hawaii is ranked number four in pedestrian deaths in the nation and that bringing the sidewalks closer together makes it safer for pedestrians to cross Kuhio Avenue. 17) A resident expressed concern regarding the gridlock that would be caused during an evacuation situation.

ELECTED OFFICIALS:

SENATOR GORDON TRIMBLE – Linda Vargo distributed Senator Gordon Trimble's report and announced that the following meetings will be held to discuss Global Positioning System (GPS) technology, cost to customers and businesses due to the lack of competition to Matson and wasted monies and dangers of rushed decision making by government: 1) March 16, 2004, 6:00 p.m. at Jefferson Elementary School; 2) March 17, 2004, 5:30 p.m. at McKinley High School; 3) and March 18, 2004, 6:00 p.m. at Kaiulani Elementary School. The guest speaker will be Charles Trimble, who is currently the Chairman of the US GPS Industry Council and head of Trimble Navigation Limited.

Vargo will look into what bills Senator Trimble supports or opposes.

REPRESENTATIVE GALEN FOX – There was no representative present.

REPRESENTATIVE SCOTT NISHIMOTO – Puna Chai, distributed Representative Scott Nishimoto's report and highlighted the following: 1) A Town Hall meeting will be held on March 17, 2004, 6:00 p.m. at Washington Intermediate School Cafeteria sponsored by Councilmember Ann Kobayashi, Senator Brian Taniguchi and Representatives Scott Nishimoto, Scott Saiki and Kirk Caldwell. 2) A Prescription Drug Forum will be held on Wednesday, March 17, 2004, 5:30 p.m. at Hilton Hawaiian Village to address affordability of prescription drugs

and engage the public in dialog about policy solutions, including Hawaii Rx Plus. 3) Classes from Liliuokalani and Waikiki Elementary Schools visited the State Capitol in February 2004. 4) HB 1770 relating to motor vehicle alarm systems, seeks to increase fines for repeatedly allowing car alarms to sound for longer than five minutes.

The matter passed the House Standing Committees on Transportation and Judiciary and will crossover to the Senate.

COUNCILMEMBER CHARLES DJOU – Councilmember Charles Djou distributed his report and highlighted the following: 1) He opposes the BRT System and a resolution requesting the Mayor to halt the City's plans to move forward with the project will be heard tomorrow. 2) The Mayor released his fiscal year 2005 budget. The Mayor proposes to increase the commercial property tax rate by 7%, which comes on top of a 15% increase last year. Anyone that goes to a supermarket, shopping mall, restaurant will ultimately pay for the tax increase. 3) Resolution 03-240 gives the Ethics Commission the power to impose fines on ethics violators.

Discussion followed: Peters noted that at a recent budget meeting held by the Neighborhood Commission concern was expressed regarding the possibility of the City Council cutting the NCO budget so that it would be inoperable. He noted that the Neighborhood Boards play a useful role in the governmental decision making process. Councilmember Djou stated that due to the current budget deficit all department budgets need to be cut. He feels that the Boards do play an important role but should not take precedent over emergency services.

MAYOR'S REPRESENTATIVE – Director Eric Crispin reported the following: The Mayor has submitted a balanced budget without significant tax rate and fee increases: 1) There is no increase in residential real property rates or sewer fee increases. 2) There is a moderate increase in commercial property tax rates, which is still less than it was 10 years ago. 3) The islandwide recycle pilot program will begin in July 2004 (two weekly pickups, at no charge). 4) Rent-to-Own Program, offered to current residents of City owned low-income housing participants, where City-owned property is sold at no interest and no down payment. Money raised from the sale of property will eliminate a \$117 million debt and a projected \$30 million will be placed into the City's Rainy Day Fund. 5) There has been an average annual increase of 1.86% in the Executive Operating Budget from 1994 to 2005, with an increase of 60,000 people. 6) There are 8.7% fewer employees than there were in 1994. 7) The \$47.5 million increase (4.1% since last year) in the City's budget is mostly due to escalated fixed costs such as collective bargaining pay raises, State retirement system, State health fund and workers compensation. 8) There are 757 less City employees in 2005 than there were in 1994 but there has been an increase in police, firefighters and lifeguards. 9) The proposed 2005 Capital Improvement Program (CIP) Budget is \$286.5 million. 10) Schofield Sunset at the Park will be held on March 20 and 21, 2004 to extend aloha and mahalo to the 4,500 soldiers that will be deployed to Iraq and Afghanistan. Movies to be shown: Saturday – "Pirates of the Caribbean" and Sunday – "Seabiscuit". Identification cards are required for entry onto the base. 11) Crispin is trying to expedite the application in DPP to prepare evidence to redevelop Waikiki Theater III for a cultural interpretive center. He stated that photo documentation may be needed. He has requested that the Department of Land and Natural Resources (DLNR) look into the historical significance of the site. 12) Deputy Director Barbara Kim Stanton is recovering from her accident and is in much better health. 13) The City's Rent-to-Own Program includes fee-simple condominiums and maintenance fees are factored into their rent. Buyers will need to go through the loan process.

Discussion followed: 1) Discussion ensued regarding the City's pilot Recycling Program and the fact that the City does not pick up trash at condominiums. Crispin stated that the pilot program is only geared for single-family residences. Simmons stated that her condominium recycle their trash and saves money in the process. 2) The Rent-to-Own Program properties are sold in blocks to developers at market rates and reduces the City's debt burden.

GOVERNOR'S REPRESENTATIVE – Director Dr. Jane Kadohiro, of the Department of Health (DOH) reported the following: 1) The Governor has established initiatives to fix flaws in Hawaii's Rx Law to improve discounts on prescription drugs. 2) The U.S. Secretary of Homeland Security Tom Ridge praised security in Hawaii for how it has handled its safety issues. 3) Residents were encouraged to support the Governor's Citizens Achieving Reform in Education (CARE) initiatives and the option to allow voters to decide on the matter.

Chair Finley requested that Dr. Kadohiro attend the Board's Special Meeting to be held on March 11, 2004.

OTHERS:

HALE O HONOLULU – Curtis Thatcher, of DOH – Adult Mental Health Division, reported the following: Hale O Honolulu is a psychotherapy and social rehabilitation facility located in Waikiki. He noted the need for volunteers and donations.

HAWAII STATE TEACHERS ASSOCIATION (HSTA) – President Roger Takabayashi, of HSTA, distributed copies of HSTA's "Six Steps to Better Schools" and reported the following: HSTA is opposed to decentralization of school boards and supports elected Board of Education (BOE) as opposed to the Governor's appointed Board of Standards Commission. HSTA is also in support of many of the Governor's proposed CARE measures such as a weighted student formula. HSTA has no standing position regarding the Governor's proposal to take principals out of the union. There is currently a principal shortage in Hawaii.

PRESENTATIONS:

SPAM JAM – Rick Egged, of the Waikiki Improvement Association (WIA), reported the following: The 2nd Annual Spam Jam will be held on April 23 and 24, 2004. The event offers entertainment, street vendors and menu choices.

McCulloch moved and Among seconded to support the 2nd Annual Spam Jam. The motion carried unanimously, 14-0-0.

TUSITALA VISTA AFFORDABLE ELDERLY RENTAL APARTMENT DEVELOPMENT – Keith Kurahashi, of Kusao and Kurahashi, reported the following: The Hawaii Housing Development Corporation, proposes to develop a nine-story, approximately 77 feet high affordable elderly rental apartment building at 2423 and 2429 Ala Wai Boulevard. The building will provide a total of 107 rental units, 29 at-grade parking stalls (including five handicapped). A loading stall will be available with ingress and egress via Tusitala Street. The developer will be providing 36 additional parking stalls for public use with ingress and egress via Ala Wai Boulevard. There will be eight, two-bedroom units and 99, one-bedroom units. Five of the apartment rentals will be accessible to persons with disabilities and all other units will be adaptable. Amenities will include the availability of a multi-purpose room, laundry facilities and approximately 9,780 square feet of open space, including a victory garden for the residents. A limited component will be offered on an as needed basis to minimize the cost of these services to individual residents. Elderly residents of 62 years of age or older who earn at or below 50% of the area median income (AMI) qualify.

Gruntz arrived at 8:45 p.m. (15 members present).

McCulloch moved and Among seconded that the Board support the concept of Tusitala Vista, an affordable elderly rental apartment.

Discussion followed: 1) Cook expressed concern regarding traffic increase on Tusitala Street and requested that access be at Ala Wai Boulevard. Kurahashi indicated that he has worked on many elderly housing developments and that in other facilities of this type most parking stalls are unused. He also stated that it might be possible to widen the area fronting Tusitala Street. 2) The project will be within the allowable height requirement. 3) Because the project is partially federal funded, its use, as an affordable elderly housing facility cannot be changed for 65 years. 4) Rent will range from

\$600-700. 5) Property owners within 300 feet of the proposed project were notified and will also be notified of the construction start date. 6) A resident spoke in opposition to the concept of government funded projects such as these and stated that it removes accountability. It was also mentioned that subsidized housing would not aid tourism. 7) Apaka spoke in support of the project and stated that there is a need for affordable elderly housing and the construction would create jobs.

The motion carried unanimously, 15-0-0.

PROPOSED REZONING AT 2121 KUHIO AVENUE – Kurahashi had artist renderings available and reported the following: The applicant, Belrad Group LLC, requests the rezoning of three parcels of land from Resort Commercial Precinct to Resort Mixed Use Precinct which is consistent with the existing Primary Urban Center Development Plan Land Use Map Resort Mixed Use designation for the parcels. The proposed rezoning is also consistent with the proposed Primary Urban Center Development Plan Land Use Map Resort designation, which is under review by the City Council. The project site is bounded by Kalakaua Avenue, Kalaimoku Street, and Kuhio Avenue. The construction duration is one year.

The lot has an existing commercial retail development, 2100 Kalakaua, consisting of a four story, 110,000 square foot structure located along Kalakaua Avenue. The applicant plans to develop the vacant portion of the lot with an apartment, condominium or timeshare development and a low-rise restaurant complex depending on the market at time of sale.

The apartment/condominium development would have 27 levels of apartments over two levels of underground parking, with a total height of 300 feet. The timeshare development would have two levels of underground parking and 31 levels of timeshare units.

The site was formerly known as the Old Waikiki Market and before that the Kuhio District. Two of the better-known establishments in the Old Waikiki Market were the Canlis Restaurant and Hula's Bar and Grill.

One benefit of the proposed rezoning will be a requirement for greater open space depending on the amount of proposed floor area. Under the existing Resort Commercial Precinct, the only required open space is the 20-foot yard on Kuhio Avenue and 15-foot yard on Kalaimoku Street. Under the proposed Resort Mixed Use Precinct, the open space requirement with our proposed development will be 50 percent.

Discussion followed: 1) Property owners within 300 feet of the proposed project were notified and will also be notified of the construction start date. 2) A resident expressed concern regarding noise and vibration from construction affecting surrounding residents. Kurahashi stated that they are looking into ways of minimizing impacts. 3) A business owner requested that the applicant relocate him for the duration of the project. 4) It was noted that construction would be more difficult with the ongoing construction of the Kuhio Avenue Improvement Project. 5) Flood spoke in support of the project but noted that timeshare properties do not benefit the community. Egged noted that timeshare properties are economical because it brings outside money into the community and the market does not fluctuate like hotel rentals. Discussion ensued regarding other timeshare properties in the area. 6) There will be 325 parking stalls. 7) There are a total of three entrances. The residence entrance to the parking area is below the Porte Chere on Kuhio Avenue and it will be gated. The Kalaimoku Street entrance to the parking area is open to the public for visitors on the on site restaurant. 8) Apaka expressed concern regarding vehicles driving through the project to access the DFS Galleria. 9) Kurahashi will look into the possibility of having an entrance at Launiu Street and Kuhio Avenue. He will also look into concerns regarding curbing, etc. 10) Each one or two bedroom units will range from 800-1,500 square feet.

Chair Finley deferred a vote on the 2121 Kuhio project until more inputs could be made.

COMMITTEE REPORTS: Deferred.

ADJOURNMENT: The meeting was adjourned at 9:50 p.m.

Submitted by: Mahealani Hanohano, Neighborhood Assistant

Wednesday, April 07, 2004

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**RESPONSES TO NEIGHBORHOOD BOARD COMMENTS
MEETING ON MARCH 9, 2004**

The Zone Change proposal for the 2121 Kuhio Development was presented to the Waikiki Neighborhood Board at their regularly scheduled meeting on March 9, 2004, by the applicant's Planning and Zoning Consultant, Mr. Keith Kurahashi. The following summarizes the concerns raised and our responses:

- a. Property owners within 300 feet of the proposed project were notified and will also be notified of the construction start date.
- b. A resident expressed concern regarding noise and vibration from construction affecting surrounding residents. Mr. Kurahashi stated that they are looking into ways of minimizing impacts.
- c. A business owner requested that the applicant relocate him for the duration of the project. Mr. Kurahashi noted that relocation of surrounding businesses affected by construction noise and vibrations would not be possible.
- d. It was noted that construction would be more difficult with the ongoing construction of the Kuhio Avenue Improvement Project. Although not presented at the meeting, since the 2121 Kuhio Development is not expected to begin construction for at least a year and a half, the Kuhio Avenue Improvement Project should be completed.
- e. Mr. Walt Flood spoke in support of the project but noted that timeshare properties do not benefit the community. Mr. Rick Egged noted that timeshare properties are economical because it brings outside money into the community and the market does not fluctuate like hotel rentals. Discussion ensued regarding other timeshare properties in the area.
- f. There will be 325 parking stalls.
- g. There are a total of three entrances. The residence entrance to the parking area is below the Porte Chere on Kuhio Avenue and it will be gated. The Kalaimoku Street entrance to the parking area is open to the public for visitors of the on-site restaurant.
- h. Mr. Jeff Apaka expressed concern regarding vehicles driving through the project to access the DFS Galleria.
- i. Mr. Kurahashi will look into the possibility of having an entrance at Launiu Street and Kuhio Avenue. He will also look into concerns

regarding curbing, etc.

- j. Each one or two bedroom units will range from 800-1,500 square feet.

Chair Robert Finley deferred a vote on the 2121 Kuhio project until more input could be made.

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WAIKIKI NEIGHBORHOOD BOARD

MINUTES OF REGULAR MEETING
TUESDAY, MAY 11, 2004
WAIKIKI COMMUNITY CENTER

CALL TO ORDER: Chair Robert Finley called the meeting to order at 7:00 p.m. with a quorum present.

MEMBERS PRESENT: Tom Brower, Norman Duncan, Louis Erteschik, Robert Finley, Walt Flood, Raymond Gruntz, Brian Hann, John Kaimi, Mike Peters, Jim Poole, Rachel Simmons, Mary Simpson.

MEMBERS ABSENT: Leslie Among, Jeffrey Apaka, Dolores Cook, Neil Carmody, David McCulloch.

GUESTS: Director Eric Crispin (Mayor's Representative – Department of Planning and Permitting), Kate Diggle (Department of Transportation Services), Deputy Director Dr. Linda Rosen (Governor's Representative – Department of Health), Lori Gorospe Wingard (Councilmember Charles Djou's Office staff), Councilmember Charles Djou, Puna Chai (Representative Scott Nishimoto's Office staff), Representative Scott Nishimoto, Representative Galen Fox, Senator Gordan Trimble, Lieutenant Tim Boswell (Honolulu Police Department – Waikiki Station); Captain Paul Nishihara (Honolulu Fire Department – Waikiki Station), Scot Muraoka (Board of Water Supply), Joan Nagua (Waikiki Community Center), Keith Kurahashi (Kusao & Kurahashi), Pat Lee (Pat Lee & Associates), Kealoha Aiu (Voice of the Lord), Cindy McMillan (Communications Pacific), Andy and Rose Mabanag, J. Merill, Perry White, Nina Pfaffenbach, Amy Yip, Brian Kluess, Sharon and Patrick Chun, Erv Smrz, Betty Reeter, Daisy Murai, Barbara Selchow, Mary Cowing, Corey Dillman, Barbara Hancock, Bob Farrell and Ivonne Cardones (Olelo); Mahealani Hanohano (Neighborhood Commission Office staff).

ESTABLISH A QUORUM: A quorum was determined to be present.

APPROVAL OF APRIL 13, 2004 REGULAR MEETING MINUTES: Gruntz moved and Duncan seconded to approve the April 13, 2004 Regular Meeting minutes as circulated. The motion carried unanimously, 10-0-0.

UNFINISHED BUSINESS: None.

TREASURER'S REPORT: Peters reported the following: 1) The Board's mailer system is currently being updated to minimize the cost for postage of minutes and agendas, which is the most costly item in the Operating Account. Residents were encouraged to sign up to have the minutes and agendas electronically sent to them through email to further save on postage cost. 2) Olelo Producers, Bob Farrell and Ivonne Cardones have lowered their rates for video-taping, making a savings to the Board's Publicity Account. 3) The Board could return the funding in the Refreshment Account.

Hann arrived at 7:07 p.m. (11 members present).

CHAIR ANNOUNCEMENTS: Chair Finley reviewed the following:

- 1) The Liquor Commission will hold a meeting on a request by KKM, LLC to dispense

beverages at 2345 Kuhio Avenue on June 3, 2004.

- 2) Neighborhood Assistant Hanohano will be on vacation during next week.
- 3) May events at the Hawaii Convention Center include the following: May 15th two events, May 21st Student Watershed Symposium; May 22 Amway Japan, Large event May 23-25, three events; May 30 two large events; Parades and Street Events; May 15 (Saturday 6:00 a.m.) Visitor Industry Charity Walk; May 16th (Sunday, 9:00 a.m. - 1:30 p.m.) Brunch on the Beach; June 11 (Friday night 6:00 p.m. - 12 midnight) Pan Pacific Matsuri Hoolaulea; June 12th (Saturday, 9:30 a.m. to 12 noon) King Kamehameha Day Parade; June 13th (Sunday 5:00 - 8:00 a.m.) Hawaiian Half Marathon; June 19th (10:00 - 11:30 a.m.) Pride Parade; and June 20 (9:00 a.m.-1:30 p.m.) Brunch on the Beach.

HONOLULU FIRE DEPARTMENT (HFD): Captain Paul Nishihara, of the Waikiki Station, reported the following for the month of April 2004: 1) There were 6 structure, 3 rubbish and 1 vehicle fire related calls; and 122 medical, 4 search/rescue and 9 miscellaneous emergency calls for response. 2) Fire Safety Tip: "Set your water heater at 120° Fahrenheit, or call an electrician or plumber to set it for you. Temperatures higher than 120° Fahrenheit may cause scalding." 3) Currently HFD is not using Kuhio Avenue as a route for response due to the construction. The planned monkey pod trees in the medians will need to be trimmed for emergency vehicle access. The medians will obstruct accessibility to the fire hydrants. The medians also prevent the response vehicles from driving on the opposite side of the street that traffic is flowing in and different routes will need to be used. 4) The medical calls HFD responds to are screened by HFD's medical branch.

A resident thanked HFD for their efficient expertise that saved her husbands life in August 2003.

Simpson arrived at 7:15 p.m. (12 members present).

HONOLULU POLICE DEPARTMENT (HPD): Lieutenant Tim Boswell reported the following: 1) He will submit the April 2004 statistics to be distributed with the minutes and agendas. 2) HPD is working with the Department of Health (DOH), the Board, Liquor Commission and managers of the Royal Garden Hotel regarding the complaints from residents of Namahana Street regarding noise from Royal Garden Hotel, which holds a nightclub on the weekends until 4:00 a.m.

Discussion followed: 1) Flood expressed concern regarding masseuses on the streets of Kalakaua Avenue that are operating without a business license. Lieutenant Boswell stated that many of these operators have signed with religious organizations that are saying that they are exempt due to the Fifth Amendment and currently have an injunction with the City. Flood noted that a South American singing group has been using amplifiers that are generator operated. Lieutenant Boswell stated that he would look into the matter further but amps are not allowed in parks. He noted that if there are complaints HPD could make them cease due to noise pollution. HPD have been giving more citations for solicitors that violate Hawaii Revised Statutes' (HRS) relating to the area in which solicitation is allowed. 2) Flood noted that with the increase of Japanese visitors prostitution has increased. Lieutenant Boswell stated that HPD is working on identifying the new prostitutes and make arrests so that geographical restrictions can be placed on them. Chair Finley referred the matter relating to a Pacific Business News reporter that was threatened by a pimp to Major Thomas Nitta. 3) Lieutenant Boswell stated that HPD's Special Weapons and Tactics (SWAT) team responded to a shooting incident at Ala Wai Boulevard and Kalakaua Avenue, near the Wave Waikiki, because the suspect was known and was seen entering an abandoned building.

BOARD OF WATER SUPPLY (BWS) – Scot Muraoka reported the following for April 2004: 1) There were no main breaks during April 2004. 2) There are no new BWS projects scheduled for April 2004. 3) About 2,700 Oahu students from kindergarten to the sixth grade entered the BWS 26th Annual Water Conservation poster contest, with the theme "Conserving Water for Life." Harry Jang of Jefferson Elementary School won 1st place in the grade 1 and 2 category. 4) About 50 Neighborhood Board members on Oahu attended a BWS workshop on April 17, 2004. Participants heard presentations on the history of water on Oahu, water quality, water main construction, customer service and water use and conservation. These presentations are available by request. 5) Water use on Oahu has increased slightly. Oahu residents consumed an average of 147.94 million gallons per day (mgd)

during the week ending April 28, 2004; a 3.14 mgd decrease over the previous week. However, compared to the same time last year, water use is down about 11.52 mgd. 6) The Environmental Protection Agency (EPA) sets the pH requirement levels between 6.5 and 8.5. The pH levels in Waikiki are between 7.5 and 7.8 range.

Discussion followed: 1) Gruntz noted that Director Cliff Jamile, of BWS, indicated that the pH levels are about 7.5 at the BWS plant. Gruntz noted that by the time water gets to homes the pH level has decreased. 2) Poole thanked BWS for the workshop and helpful information and answers to questions.

ELECTED OFFICIALS:

SENATOR GORDON TRIMBLE – Senator Gordon Trimble distributed his report and highlighted the following: 1) A Tsunami Awareness Center will hold a briefing on June 1, 2004, 7:00 p.m. at the Waikiki Community Center. 2) \$0.04 from every gallon of gasoline purchased last year was transferred out of the State Highway Fund to the General Fund. \$10 million from business licensing fees were transferred to the General Fund as well. 3) HB 1800 was rushed in the process and had many problems. There was no fiscal responsibility in this session.

REPRESENTATIVE GALEN FOX – Representative Galen Fox distributed his report and reported the following: 1) HB 1817 repeals condominium property regimes law; re-codifies condominium law; and makes conforming amendments to existing HRS sections. 2) The Governor took the initiative to come up with legislation to make education reform. SB 3238 fails to replace the current "nobody-responsible" system with the one that holds principals accountable for student achievement and puts principals in control of 90% of education funding so that principals can do their job. He noted that the measure has worked in Houston, Texas and Seattle, Washington. He noted failing statistics of Hawaii's public school system. 3) SB 3193 passed that postpones imposition of the cap of gasoline prices until after the next election. Under the Majority Party's current gas cap law based on west Coast prices, if the cap were in effect today, gasoline would be \$2.35 a gallon on Oahu and \$2.69 on Maui. The gas cap leads to shortages, higher prices, gas stations going out of business and great inconvenience. 4) The Majority Party killed the Law Enforcement Coalition's three key bills to help police fight "Ice" as follows: a) a workable wiretap law like the federal government uses (SB 2447); b) a Constitutional Amendment allowing local authorities to search for "Ice" using "walk and talk" (voluntary searches the federal government uses) (SB 2851); and c) making sure repeat criminals do hard time "three strikes and out" policy (SB 2436).

Discussion followed: 1) Representative Fox did not agree with Chair Finley's comment that the Legislative Session be longer, instead he indicated that the Legislature needs to work together more. 2) Gruntz reiterated his suggestion to get a law, similar to the New York State Loitering Law, passed. He noted that this would help with the drug dealing, prostitution and homeless issues. He expressed the need for legislation that will help HPD fight crime. Representative Fox stated that legislation will start by HPD suggesting legislation that will help them control crime. 3) Erteschik noted that under the current laws public school principals control 15% of their operating budget and the new law gives them 70% control. Representative Fox indicated that there is a need for principals to control 90% of the budget and that 70% only accounts for schools fixed costs (salaries, employee benefits, etc.). He noted that if principals have more control over the schools money they would focus more on savings. Poole noted that after the Governor's veto of the Democrat's "Reinventing Education Act of 2004" was overridden, HB 2002, CD2 was drafted that may allow principals more control over budgets in the future. 4) A resident noted that it is currently \$3.11 per gallon in San Diego, California. Peters noted that if the taxes on gasoline were taken away, it would only cost \$1.44 per gallon in Hawaii. Representative Fox noted that the amount that is taxed is about 6% more than the mainland average gasoline taxes.

REPRESENTATIVE SCOTT NISHIMOTO – Puna Chai distributed Representative Scott Nishimoto's report and the Representative highlighted the following: 1) HB 1770, SD2 that increases fines for repeatedly allowing a car alarm to sound for longer than five minutes and allows court to revoke driver's license for speeding more than 90 mph, passed the Legislature. 2) HB 2796 that was enacted includes funding for the following: a) \$25,000 for improvements to the Waikiki Community Center; b) \$3 million for the Canon Club site development (culinary arts department) on the slopes of Diamond Head; and c) \$700,000 for the Honolulu Zoo Society (new veterinary clinic and children's interactive display).

COUNCILMEMBER CHARLES DJOU – Councilmember Charles Djou highlighted the following: 1) The City Council will meet tomorrow to vote on the budget bills. 2) He is against the measure relating to taxing military housing especially during the ongoing war. 3) Regarding the residents concern about refuse collectors picking up rubbish at 5:00 a.m., it was indicated that the collectors make earlier pickups during the Kuhio Avenue Improvement Project to avoid traffic congestion during the peak morning hours. He requested that Board take action on the matter. 4) The Department of Transportation Services (DTS) has been posting parade event notifications on the City's website.

Discussion followed: 1) Peters expressed concern regarding HB 2003 that was passed by the State Legislature regarding enabling the State Department of Health (DOH) to place halfway houses wherever without approval from the City Department of Design and Construction (DDC) or the City Council, which has been given zoning authority. Councilmember Djou agreed that the State should stay out of land use positions. Erteschik stated that the bill in question states that the zoning laws could not discriminate against halfway houses and requires public hearings. 2) Councilmember Djou will look into a resident's complaint regarding noise complaints of construction on Sundays. 3) Gruntz suggested that the City form their own traffic regulation code so that the City can receive revenue for HPD enforced traffic violations. Councilmember Djou stated that the City currently has a traffic code but the criminal code (law enforcement) is written in the State Statues but in most states the traffic code portion is placed in the jurisdiction of the municipal government. Bill 70 is up for discussion tomorrow relating to the City obtaining the revenue from uncontested traffic fines that are currently collected and funneled into the State. Currently a City HPD Officer issues a citation for a violation of a City parking meter on a City road and the revenues collected go to the State.

MAYOR'S REPRESENTATIVE – Director Eric Crispin, of the Department of Planning and Permitting (DPP), distributed copies of the Mayor's Neighbor to Neighbor Newsletter and reported the following: 1) Brunch on the Beach will be held on Sunday, May 16, 2004 on Kalakaua Avenue. 2) Memorial Day Services will be held on Monday, May 31, 2004, 8:30 a.m. at the Punchbowl National Memorial Cemetery of the Pacific. 3) Residents are urged to contact City Councilmembers to accept a \$250,000 gift from the Orangutan Foundation International (OFI) to build "Rusty the Orangutan" a new habitat at the Honolulu Zoo. OFI currently pays for food and a caretaker for Rusty. 4) HB 2003 was vetoed by the Governor and overridden by the Legislature. DPP testified against this bill and the Governor disagreed with the bills position to override the City & County of Honolulu zoning measures. One City provision indicates that a clean and sober home cannot be located within 1,000-foot radius of another. HB 2003 does not require DPP permits or conditions.

Discussion followed: 1) Chair Finley referred the issues relating to street vendors use of amplifiers on Kalakaua Avenue and the increase in prostitution. Crispin stated that with the current injunction with the City relating to Fifth Amendment rights, HPD would need to receive backing by the Corporation Counsel before enforcing any laws. 2) Gruntz inquired about the past 350-foot height variance that was attained by Outrigger three years ago for two large parcels on Hobron Lane. He inquired whether the variance will run out in two years or if it was it a done deal. Crispin will look into the matter. 3) Discussion ensued regarding the understanding of HB 2003. He noted that DPP balances community input with the need for clean and sober homes in neighborhoods. 4) Discussion ensued regarding the design of the new City buses. Crispin stated that Director Cheryl Soon, of the City Department of Transportation Services (DTS) is aware of the problems. 5) Peters noted that those concerned with the budget bills should get involved with the process.

GOVERNOR'S REPRESENTATIVE – Deputy Director Dr. Linda Rosen, of the Department of Health (DOH) – Health Resource Administration distributed the Governor's Newsletter and was available for questions.

Erteschik stated that clean and sober homes are run by community-based agencies that are licensed by DOH and inquired what their criteria were. Dr. Rosen was unsure of the criteria and stated that she would advocate these types of services because a possible family member may need it someday.

PRESENTATIONS:

CITIZEN'S PROPOSAL FOR WAIKIKI THEATRE III – Kealoha Aiu, of The Voice of the Lord Ministry, distributed a folder that included ideas for the former Waikiki Theater III and reported the following: He proposes to restore the Waikiki Theatre III to its original appearance for educational programs that

would aid in the war against prostitution and drugs through "aloha" and "hooponopono".

The Waikiki Theaters I and II would serve as a home for The Tree of Life Performing Arts Center. He noted that he had received a vision for a musical drama called "Nou Ke Koho", "The Choice is Yours, You Choose. More information can be found at www.diamondheadstudios.com.

Discussion followed: 1) Peters stated that many residents agree that the Waikiki Theaters should remain but people have, over the years, stopped going there. The owners of the Waikiki Theaters properties are not making money from the facility. Aiu discussed the spiritual aspects that his proposal can address. 2) Aiu requested support requesting that the property owners donate the theater properties. 3) Brower suggested that the Board look into making requests to the Department of Land and Natural Resources (DLNR) relating to the historic value of the property. Aiu stated that there are already requests for DLNR to look into the matter but that it was

indicated that the employment position that does this research is currently vacant. Hahn stated that the Office of Environment and Quality Control (OEQC) has already received the Environmental Impact Statement (EIS) from the property owners for the demolition of the theaters and development of a retail facility.

PROJECT UPDATES:

2121 KUHIO PROJECT – Chair Finley noted that the applicant has hired Cindy McMillan, with Communications Pacific, as a consultant and comments can be made after the Board meeting or by contacting her at 521-5391.

Keith Kurahashi, of Kusao & Kurahashi, showed conceptual plans and reported the following: K3 Owners, LLC is requesting that three adjacent parcels of land in Waikiki be rezoned from Resort Commercial to Resort Mixed Use to allow condominium and/or timeshare development on the property. The parcels are bounded by Kuhio Avenue, Kalaimoku Street and Kalakaua Avenue. An Environmental Assessment (EA), Waikiki Special District (WSD) Permit and building permits will need to be obtained for the proposed project. The EA should be completed within the next few months.

The property is currently zoned Resort Commercial with a 300-foot height limit and permitted uses include theaters, entertainment establishments, retail businesses, restaurants, parking and office space, etc.

K3 Owners, LLC plans to develop the vacant lot with a condominium or timeshare development and a low-rise restaurant complex, depending on the market at the time of sale. The condominium development would have 27 levels of units (183) or the timeshare development would have 27 levels of timeshare units (205) over a lobby and two levels of underground parking, with a total height of 300 feet. Two levels of retail on the lower floors, a multiplex theater and minimum office spaces are proposed with the requested zone change. The older theaters cannot compete with a multiplex theater.

Community benefits from zoning change include the following: Greater open space requirements would apply to the development if the zoning request were granted. Any development built under the existing Resort Commercial zoning would require a 20-foot yard on Kuhio Avenue and a 15-foot yard on Kalaimoku Street (23%). However, under the proposed Resort Mixed Use zoning, the open space requirement would be 50% and the tower will have a much narrower profile than a commercial tower. The proposed condominium or timeshare use combined with the proposed restaurant use will generate 40% fewer trips during the morning peak hour and 78% fewer trips during the evening peak hours than the previously proposed commercial development for this site. The proposed use will reduce the potential traffic that the existing zoning would generate.

The past-proposed developer, the developer of the 2100 Kalakaua Avenue (Honu Group), did not go through with their plans and the owner wants to do something with the 2121 Kuhio Avenue property. The past developer is no longer involved with the development that is currently being proposed.

Kurahashi reported the following in response to questions asked by Board members and guests: 1) Preliminary checks indicate that there is adequate water and sewage capacity for the property. 2) The zone change process will take about one-year to process and public hearings will need to be

conducted before the Planning Commission and the City Council. 3) He showed photos that indicated the areas that view planes would be affected from The Lacasa and Four Paddle Condominiums. If the developer decides to keep the Resort Commercial zoning a larger structure is allowed that could block more view planes.

Discussion followed: 1) Representative Fox expressed concern regarding the former developer's, Honu Group, 2100 Kalakaua Avenue Project. Honu Group constructed Nike Town, which is very unattractive and takes up an entire block. They also tore down a well-known architecturally pleasing restaurant and the large banyan trees that were located at the former Hula's Restaurant. At that time they promised that although the Kalakaua Avenue frontage would cater to tourist the Kuhio Avenue side of the project would be open space with a resident serving plaza. Instead an office tower was erected. Kurahashi stated that the changes to the proposals were made due to the change in market and therefore they were not able to deliver what was promised. 2) Gruntz noted that there is no way to stop view plane blocking in Waikiki. A resident commented that Waikiki is beginning to look like Hong Kong. 3) Peters argued that the current lot is vacant and unattractive and noted that the construction will positively effect the economy. It was also noted that the current zoning would allow a structure on the property to be built up to 300 feet in height. Other residents argued that a large condominium building would not be a benefit

to the community. 4) Kurahashi stated that the curb cuts near the Porte Cochere and is looking into the removal of one driveway to combine both. Hann noted the need for fewer driveways in Waikiki for pedestrian safety. 5) Flood noted that if the City Council does not approve the rezoning application the project would be killed and that the La Casa Board of Directors voted unanimously to oppose this project. It was noted that the threat to construct a 300-foot retail tower would be unlikely. Kurahashi stated that the possible office space, theater and parking lot floors, which are higher than residential units, would increase the height of the floors. Erteschik opposed the project and pointed out that the landowner does not care about the community and simply wants to make the most money. Kurahashi noted that they presented two alternatives and that development will depend on the market at the time. 6) Kurahashi stated that one-bedroom units would be about 1,100 square feet and two-bedroom units about 1,500-1,700 square feet. 7) Kurahashi stated that the landowner was working with the Honu Group to develop the 2100 Kalakaua Project but the Honu Group is not actively involved in the project but may be on title. Kurahashi will look into whether K3 Owners, LLC is involved with other projects in Waikiki. He stated that the purchaser would accept the liability of anything reported against the deed during exchange of the property. Discussion ensued regarding the lies that the Honu Group made during the development of the 2100 Kalakaua Project, and residents voiced their objections. Kurahashi stated that the development plan for the Primary Urban Center describes this site for Resort Mixed-Use. 8) Noise, traffic, air quality studies were done as a part of an EA that was formerly conducted. 9) Kurahashi indicated that the property owner would most likely not purchase the abutting property currently owned by the Food Pantry because the lot is small and narrow. 10) Residents complained that traffic would increase in the area much like it did at the Ward area after the Dave-N-Busters and Ward Theaters was built. 11) Chair Finley requested that Kurahashi inform the Board of any changes to the proposed project.

KUHIO AVENUE IMPROVEMENT PROJECT – Kate Diggle, Public Coordinator, distributed copies of the Kuhio Avenue Courier Project update and reported the following: 1) Construction Package B1 (Ewa end of Kuhio from Kalakaua Avenue to Royal Hawaiian Avenue) is approximately 10% complete. 2) Package B2 (from Royal Hawaiian Avenue to Kaiulani Avenue) is approximately 30% complete. 3) Package B3 (Diamond Head end of Kuhio Avenue from Kaiulani Avenue to Kapahulu Avenue) is approximately 15% complete. 4) Package B4 (Diamond Head side medians from Kealohilani Street to Kapahulu Street) is approximately 80% complete.

COMMITTEE REPORTS:

EDUCATION COMMITTEE – Committee Chair Poole distributed his report earlier in the meeting.

ADJOURNMENT: The meeting was adjourned at 9:35 p.m.

Submitted by: Mahealani Hanohano, Neighborhood Assistant

Thursday, June 03, 2004

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RESPONSES TO NEIGHBORHOOD BOARD COMMENTS
MEETING ON MAY 11, 2004

The Zone Change proposal for the 2121 Kuhio Development was presented to the Waikiki Neighborhood Board at their regularly scheduled meeting on May 11, 2004, by the applicant's Planning and Zoning Consultant, Mr. Keith Kurahashi. The following summarizes the concerns raised and our responses:

- a. Representative Galen Fox expressed concern regarding the former developers, Honu Group, 2100 Kalakaua Avenue Project. Honu Group constructed Nike Town, which is very unattractive and takes up an entire block. They also tore down a well-known architecturally pleasing restaurant and the large banyan trees that were located at the former Hula's Restaurant. At that time they promised that although the Kalakaua Avenue frontage would cater to tourist the Kuhio Avenue side of the project would be open space with a resident serving plaza. Instead an office tower was erected. Kurahashi stated that the changes to the proposals were made due to the change in market.
- b. Mr. Raymond Gruntz noted that there is no way to stop view plane blocking in Waikiki. A resident commented that Waikiki is beginning to look like Hong Kong.
- c. Mr. Michael Peters argued that the current lot is vacant and unattractive and noted that the construction will positively effect the economy. It was also noted that the current zoning would allow a structure on the property to be built up to 300 feet in height. Other residents argued that a large condominium building would not be a benefit to the community.

- d. Mr. Kurahashi stated that the curb cuts near the porte cochere and is looking into the removal of one driveway to combine both. Mr. Brian Hann noted the need for fewer driveways in Waikiki for pedestrian safety.
- e. Mr. Walt Flood noted that if the City Council does not approve the rezoning application the project would be killed and that the La Casa Board of Directors voted unanimously to oppose this project. It was noted that the threat to construct a 300-foot retail tower would be unlikely. Mr. Kurahashi stated that the possible office space, theater and parking lot floors, which are higher than residential units, would increase the height of the floors.
- f. Mr. Louis Erteschik opposed the project and pointed out that the landowner does not care about the community and simply wants to make the most money. Mr. Kurahashi noted that they presented two alternatives and that development will depend on the market at the time.
- g. Mr. Kurahashi stated that one-bedroom units would be about 1,100 square feet and two-bedroom units about 1,500-1,700 square feet.
- h. Mr. Kurahashi stated that the landowner was working with the Honu Group to develop the 2100 Kalakaua Project but the Honu Group is not actively involved in the project but may be on title. Mr. Kurahashi will look into whether K3 Owners, LLC is involved with other projects in Waikiki. He stated that the purchaser would accept the liability of anything reported against the deed during exchange of the property.
- i. Discussion ensued regarding the misrepresentations that the Honu Group made during the development of the 2100 Kalakaua Project, and residents voiced their objections. Mr. Kurahashi stated that the

development plan for the Primary Urban Center describes this site for Resort Mixed-Use.

- j. Noise, traffic, air quality studies were done as a part of an EA that was formerly conducted.
- k. Mr. Kurahashi indicated that the property owner would most likely not purchase the abutting property currently owned by the Food Pantry because the lot is small and narrow.
- l. Residents complained that traffic would increase in the area much like it did at the Ward area after the Dave-N-Busters and Ward Theaters was built.

Chair Robert Finley requested that Mr. Kurahashi inform the Board of any changes to the proposed project.

**FOUR PADDLES AND LA CASA CONDOMINIUMS
SPECIAL MEETING ON MARCH 27, 2004**

The Zone Change proposal for the 2121 Kuhio Development was presented to the residents from the Four Paddles and La Casa condominiums at a special meeting on March 27, 2004, by the applicant's Planning and Zoning Consultant, Mr. Keith Kurahashi. The following summarizes the concerns raised and our responses:

1. Residents were concerned about the 300-foot tower and its impact on views from both the Four Paddles and La Casa. Mr. Kurahashi explained that while public views may be protected by the City, private views are not. That being said, Mr. Kurahashi explained that the applicant was sensitive to private as well as public views and the building on the site was oriented in a mauka-makai direction to minimize views toward the ocean. And finally, Mr. Kurahashi pointed out that the existing height limit for the property is 300 feet and the height limit under the proposed zone change would also be 300 feet.
2. Residents pointed out that the community was promised, in a Waikiki Neighborhood Board Meeting, a low-rise commercial development by the previous developer, the Honu Group. Mr. Kurahashi noted that he believes that the Honu Group had earlier planned a low-rise commercial development and at that time fully intended to proceed with that development, but due to a change in the market, that project did not go forward.

After the meeting, the applicant researched the Waikiki Neighborhood Board Minutes and found two meetings held on the 2100 Kalakaua Development (May 9, 2000 and June 13, 2000). The minutes (Appendix VIII) noted that, although concerns were raised, there was no commitment to limit development on the property to a low-rise commercial development. In response to an inquiry from the audience at the decision meeting on June 13, 2000, the architect for the project "assured the community that any future development on the mauka portion of the site will require the developer, at that time the Honu Group, Inc. To go through the same public input and permitting process as the current proposal.

3. There was a concern raised about traffic impacts from the proposed development. Mr. Kurahashi noted that, based on trip generation tables, the previously planned retail development would generate more trips than the proposed condominium or timeshare development.

4. The residents asked what could be developed on the property if the condominium or timeshare development were not approved. Mr. Kurahashi noted that retail and office development would be permitted uses on the site.

**COMMUNITY PRESENTATION
SEPTEMBER 19, 2004**

On September 19, 2004, as part of the continuing community outreach effort for the 2121 Kuhio Avenue project, an on-site community talk-story on the proposed 2121 Kuhio development was held.

In order to reach as many community members as possible, letters of invitation were sent to all neighborhood board members and those business and government officials that had met with the applicant. Fliers were walked to all condos, hotels and retail establishments in the area bounded by Namahana Street, Ala Wai Boulevard, Lewers Street and Kuhio Avenue. Managers were asked to post the fliers in their elevators or mail rooms. Finally, phone calls were made to community members who had contacted the applicants community relations firm about the project.

A total of 32 community members signed in and participated in the talk-story.

A number of tools were used to help communicate information about the proposed plans to the community members and obtain their thoughts about the project:

- The outline of the building was painted on the grass to help community members visualize the scope of the proposed project. A number of participants found this helpful.
- The following materials were on display:
 - 3-D model
 - Board showing the view plane analysis
 - Boards with project renderings
 - Boards showing the proposed site plan
- A TV monitor ran the video about the project and the DVD was distributed to the attendees.
- Comment forms were provided on a table (none were turned in).

Questions and Answers

- Q. Is the outline of the building that's painted on the grass the actual size of the building that is being proposed?
- A. Yes.
- Q. When you put in the underground parking will you run into a problem with the water table like Duty Free Shoppers did?
- A. No, our construction management team worked on the Nike Town Center underground parking garage that has a lower basement floor than the proposed 2121 Kuhio development and through proper construction techniques, no problems were encountered.
- Q. How long will we have to listen to jack hammers?
- A. Construction will last approximately two years, but the pile driving, if necessary will be for a shorter period.
- Q. How important is the zone change to building this project?
- A. Very important. It's needed to allow the timeshare or condominium development that we are proposing.
- Q. If you don't get the new zoning, what will you do? What is the alternate plan for commercial? It should be more in keeping with Hawaii. Kalakaua Avenue is nothing but high-rises and looks like Miami.
- A. We have looked at other alternatives but are focused on this timeshare or condominium development. This project will have 50 percent open space and the landscaping will help soften the look of Kuhio Avenue.
- Q. How high will the building be – how many stories?
- A. The building will be about 300 feet.
- Q. Will it be residential/condo or timeshare/condo?
- A. That hasn't been decided yet. Do you have a preference?
- Comment: Prefer residential because those living in the building would be more a part of the community. In addition, timeshare would bring in more people throughout the year.
- Q. When will the City Council hold meetings to determine if the rezoning will be granted?
- A. Probably late March or early April – about five months after the application is submitted.
- Q. Would the city give a set-back variance so the building could be moved more toward Kalaimoku Street? That way it wouldn't block the Four Paddle so much.
- A. We looked at that, but owners in La Casa would then be unhappy.
- Q. This is a marvelous, beautiful project – the best design I've seen so far.

But what is the ownership structure? Is it the same as 2100 Kalakaua? At the board meeting the owners of 2100 Kalakaua said that this lot would have a 4-story commercial project. Now the plans have changed. Is there a covenant?

- A. Belrad Group was retained by the owners, K3 Owners – a group of investors – to manage and build 2121 Kuhio. Honu Group is part of K3 Owners but has nothing to do with this development.

Comment: A low-rise shopping mall would be more in touch with Waikiki.

Comment: This was not a nice place before. There were bars, loud music, police raids. We're happy those businesses are gone.

Discussion: There was discussion among the community members regarding the former tenants of the property.

- Q. What will the environmental impact be? Have you taken into account the Lanikea development? What about the other new developments on Kuhio and Kalakaua? I have a problem with consultants who do the studies. They are paid by the developer and there is a conflict of interest. Traffic in the morning and afternoon is terrible. It's also bad on the weekends when there is an event. This project will bring in a lot of people and their cars. I worry about the numbers being given.

- A. The trip generation numbers are based on national standards that have been accepted by the Institute of Transportation Engineers (ITE) and are accepted and used by both the Department of Transportation and Department of Transportation Services. The Board of Water Supply establishes the water use standards and the Department of Environmental Services establishes the wastewater use standards.

- Q. Regardless, this project is adding traffic. Have you looked at something that won't add a lot of traffic? What are Lanikea and this project going to do about traffic?

- A. The traffic study will make recommendations for mitigating traffic. Sometimes the engineers will recommend adequate turning radius, lanes for stacking, traffic signals, or adjusting the timing of traffic lights.

- Q. Were the Kuhio Avenue project and the Ala Wai Boulevard project taken into account by the traffic study?

- A. The Kuhio Avenue project was, but the Ala Wai Boulevard project came up rather suddenly and may not have been included.

- Q. People know what the Honu Group promised. Now they've rescinded their promise. We're hesitant to trust you. What happens if you get the zone change? What can we expect?

- A. We apologize for any misunderstanding, but we believe this project will be a good one for the community. The building envelope will be smaller than currently allowed, the parking will be underground, and there will be more open space than is currently required.

Comment: This was supposed to be a park.

Grass is not a reality in this location.

The applicant researched the Waikiki Neighborhood Board Minutes and found two meetings held on the 2100 Kalakaua Development (May 9, 2000 and June 13, 2000). The minutes (Appendix VIII) noted that, although concerns were raised, there was no commitment to limit development on the property to a low-rise commercial development. In response to an inquiry from the audience at the decision meeting on June 13, 2000, the architect for the project "assured the community that any future development on the mauka portion of the site will require the developer, at that time the Honu Group, Inc. To go through the same public input and permitting process as the current proposal.

- Q. If we have to look at a building here, this is a nice one. People are concerned about the history – what was promised before. Why not do an EIS? I still think that's a really good idea. That would allow for a full discussion of the alternatives and the pros and cons. Regarding the trip generator, we need specific numbers for this project – both for condo and timeshare.
- A. A Draft Environmental Assessment (EA) was filed with the city on August 18, 2004. We're waiting to hear from the city. We hope to have the EA completed before the City Council takes action on the rezoning request.
- Q. Can we get copies of the EA?
- A. You can contact the Department of Planning and Permitting after the city has accepted the document. We can also make it available.
- Q. The neighborhood board minutes and a letter from then chair Sam Bren indicate that a promise was made that no high-rise building would go up on this site. Look into it.
- A. We asked the Neighborhood Commission for all neighborhood board documents related to this project. The minutes do not indicate that such a promise was made.

Comment: Even if it were true that such a promise was made, it is not enforceable. It would only be enforceable if there were a covenant recorded on the land. In the absence of that, we can't enforce whatever promise was made.

Comment: It doesn't matter what we think, we're going to get this and the

traffic that goes with it. If the EA can't see that, I don't care where the numbers come from. I'm just giving up.

- Q. What is the parking capacity of the proposed parking garage?
- A. A little more than 300 stalls.



COMMUNICATIONS PACIFIC

To: Jim Kehoe
Keith Anderson

From: Christina Kemmer
Cindy McMillan
Andrew Garrett

Subject: **MARCH 4, 2006, TALK-STORY SUMMARY**

Date: March 8, 2006

Copy: Greg Rapp
Jim Freeman
Keith Kurahashi

As part of the continuing community outreach effort for the 2121 Kūhiō Avenue project, Communications Pacific (CommPac) arranged and facilitated a Saturday, March 4, 2006, on-site community talk-story session for Jim Kehoe and Keith Anderson of the Belrad Group. The objective was to share information about the project's latest developments and to listen to the community's thoughts about those plans. Additionally, these meetings were meant to reintroduce Belrad Group principals, along with the rest of the project team, to the Waikīkī community.

In order to reach as many community members as possible, CommPac sent invitation letters to all neighborhood board members and to those business and government officials Jim and Keith had already met with. Fliers were walked to all condominiums, low-rise apartments, hotels and retail establishments in the area bounded by Olohana Street, Ala Wai Boulevard, Lewers Street and Kūhiō Avenue. Resident managers of area condominiums were asked to post the fliers in their elevators or on bulletin boards. Finally, phone calls were made to community members who had contacted CommPac about the project.

Although 50 community members actually signed in, CommPac estimates the number of attendees was closer to 60, because many people walked in after the event started and didn't sign in.

The open-house format of the event began at 10 a.m. and allowed community members to meet Jim, Keith and other project team members, browse through the information packet, view the latest project renderings, ask questions, and voice any concerns.

At roughly 10:30 a.m., Christina Kemmer invited participants to be seated and formally introduced Jim, Keith and the project team members. Jim spoke about the vision for the property and described the latest developments of the proposed plans. The brief presentation was followed by a question-and-answer period summarized below:

TOPA FINANCIAL CENTER
WEST TOWER, PENTHOUSE
745 FORT STREET, HONOLULU, HI 96813

TEL 808.521.5391
FAX 808.537.6836
www.commpac.com

QUESTION-AND-ANSWER / DISCUSSION

Q: Why does this property need to be rezoned?

A: (Kehoe) The current resort-commercial zoning does not permit hotel, timeshare, or residential uses on the property. Those uses are only permitted under the resort-mixed use designation, which is what we are seeking.

Q: Are you still planning underground parking? It scares me. When DFS Galleria was being constructed, it felt like an earthquake through the area when they were building the underground parking.

A: (Kehoe) We still plan on providing two levels of underground parking. CM&D oversaw the construction of nearby Niketown, which also has underground parking. We're very comfortable with their track record and expertise.

Q: The previous plans we heard called for low-rise developments on this property. Do you need any variances for your proposed project?

A: (Kehoe) Our most recent plans do not require any variances.

Q: I like the practical nature of shifting the entrance and exit over to Kalaimoku Street, away from Kūhiō Avenue. However, I'm concerned that a bottleneck situation will be created by those exiting the property, and wanting to make a left turn on Kūhiō Avenue.

A: (Kehoe) We're currently updating our traffic plans to assess the impacts that both ingress/egress (at Kalaimoku Street and Kūhiō Avenue) points might have on the community. Those plans will also include projections to factor in the use of the property, whether it's condominium, timeshare, or condominium-hotel. Without jumping ahead of ourselves, however, we feel that moving the entrance and exit to Kalaimoku will lessen congestion on Kūhiō Avenue.

Q: Part of the problem in Waikīkī is that there is not enough public parking. Will you provide that at your underground facility?

A: (Kehoe) We're not sure. As managers of King Kalakaua Plaza, about half of our parking goes unutilized. We'll make sure that there are enough parking stalls for residents of the property.



Q: I understand what is allowed under the current zoning, but have you performed a market analysis study to see if a commercial development would be viable on this site? Some of us get offended when you say that if this rezoning request isn't granted, that you'll proceed with a huge commercial project. Frankly, a large commercial project should be left out of this discussion.

A: (Kehoe) As we've stated, the proposed plan before you is our preferred plan. We believe it to be the highest and best use, not only for us, but also for the community. If the rezoning is denied, we'll assess our options at that time. We don't mean to threaten the community, but we're trying to lay out possible scenarios the community should be aware of.

Q: When will you exactly know what type of development this will be?

A: (Kehoe) We'll probably know about 18 months from now. Considering how markets fluctuate, it's hard for us to make a commitment at this time with groundbreaking being so far away. If we were to break ground tomorrow, however, this project would be a residential condominium. But, again, we can't say for sure at this time.

Q: As a member of the Waikiki Neighborhood Board, I was there in 2004 when this project was presented to us. However, we haven't seen you since. I'd like to invite you back to the board, so we can take a formal position on this project.

A: (Kehoe) Through Communications Pacific, we've been trying to reach as many people as we can to raise awareness of this project. We appreciate the invitation.

Q: I'm also a board member, and I believe it's essential that the board take a position on this project, with or without your presence. We need to be in a position to reflect the sentiment of the community.

A: (Kehoe) Thank you for the invitation.

Q: You say there is all this "open space" for the community, but one of the renderings shows a wall blocking off a portion of the property. Why is that there?

A: (Freeman) We're required legally to fence off that section because it has a private pool for the residents and guests of the property. The other side of the property, on the corner of Kalaimoku Street and Kūhiō Avenue, will feature a gathering place that will be completely open to the public.



Q: Sorry if I offend you, but this building looks like it belongs in New York, not Hawaii. Does this have to be the final design?

A: (Kehoe) Through our architects (Wimberly Allison Tong and Goo), we tried to emulate the Hilton Hawaiian Village as a model. We focused not only on the building design, but more so on the pedestrian experience. If we are given the green light to proceed, final design elements would be vetted out during the Waikiki Special District process.

Q: Who exactly owns this piece of property?

A: (Kehoe) It's owned by a New York investment firm.

Q: What were some of the findings of the Environmental Assessment?

A: (Kurahashi) Basically, it confirmed that there is adequate infrastructure in place to handle increased water and sewage requirements from the project. The main issue, from the city's point of view, is traffic. As Jim stated, we're working closely with the city to ensure that we minimize traffic impact to the surrounding community.

Q: Many years ago, representatives of the Honu Group promised that a high-rise would not go on this site. We have the minutes to prove it.

A: (Kehoe) We've looked into this "promise" as well, and we couldn't find any record of it. (At this point, an attendee noted that he was also present at that meeting, and stated that he never heard any promise being made.) Regardless of whether a promise was made or not, we feel that this project has numerous community benefits.

Q: Why can't you move the building more toward Kalaimoku Street? That way you won't block the views of those of us who live at Four Paddle.

A: (Kehoe) We've done our best to minimize view plane blockages, as evidenced by the mauka-makai orientation of the building. The problem with shifting the footprint of the building is that we may have difficulty meeting the fifty-percent open-space requirement if we were to do so.

Following the question and answer period, Jim announced the phone number for the community information hotline. Attendees were then invited to speak individually with team members and review the project materials. The event ended at approximately 11:45 a.m.

NEXT STEPS

- CommPac to send thank-you letters to meeting attendees.
- CommPac to prepare meeting summary, and forward to project team.



March 8, 2006
March 4, 2006 Talk-Story Summary
Page 5

If you have any questions about this summary, please contact Andrew Garrett at (808) 543-3513 or agarrett@commpac.com.

AE:kn



APPENDIX VII

PHOTOGRAPHS

PHOTO LEGEND

City & County of Honolulu





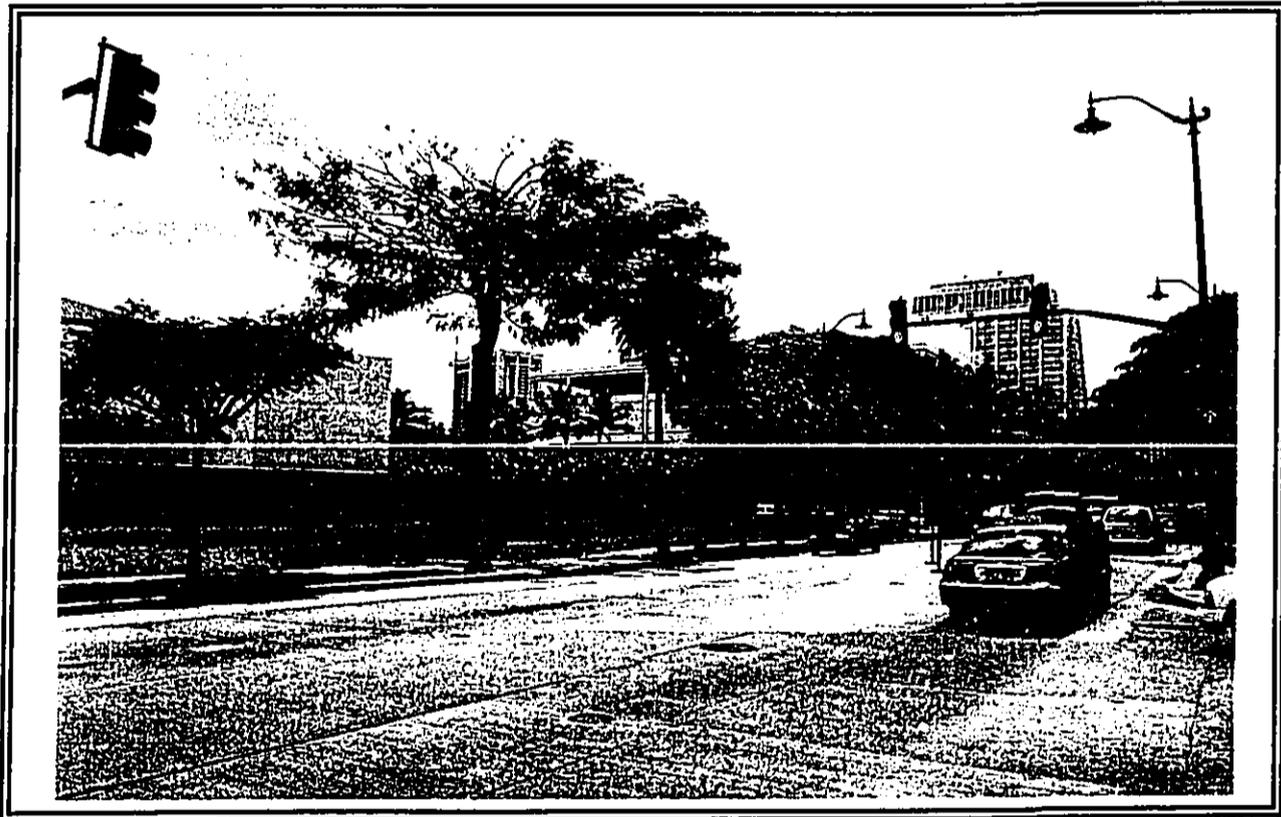
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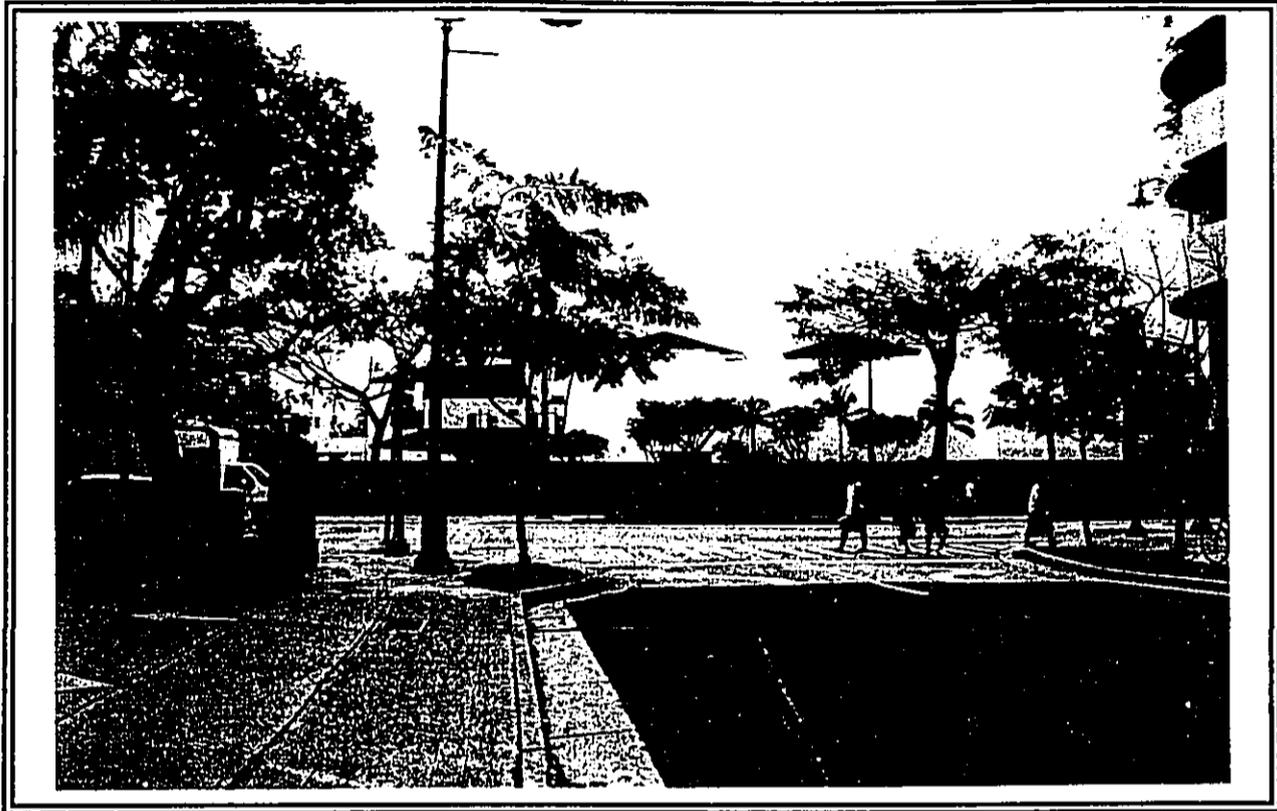
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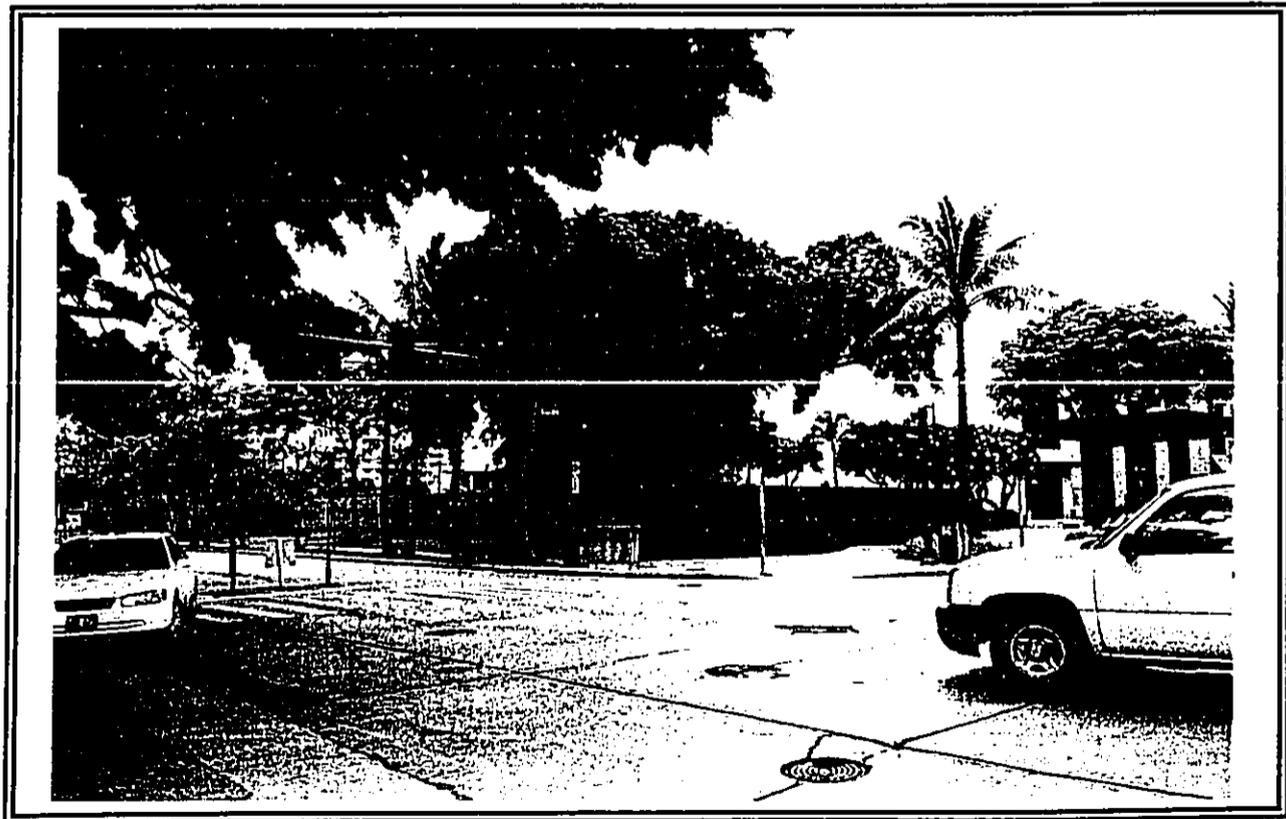
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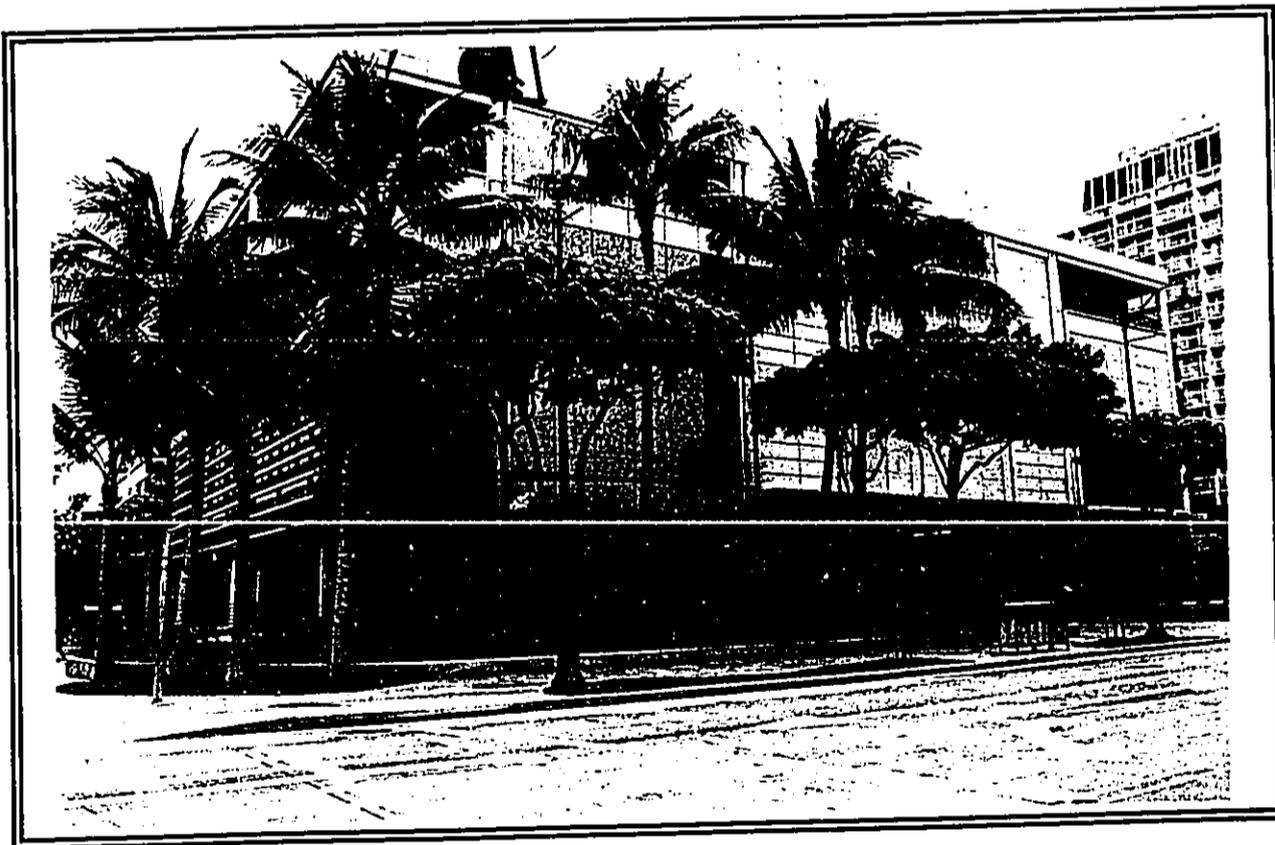
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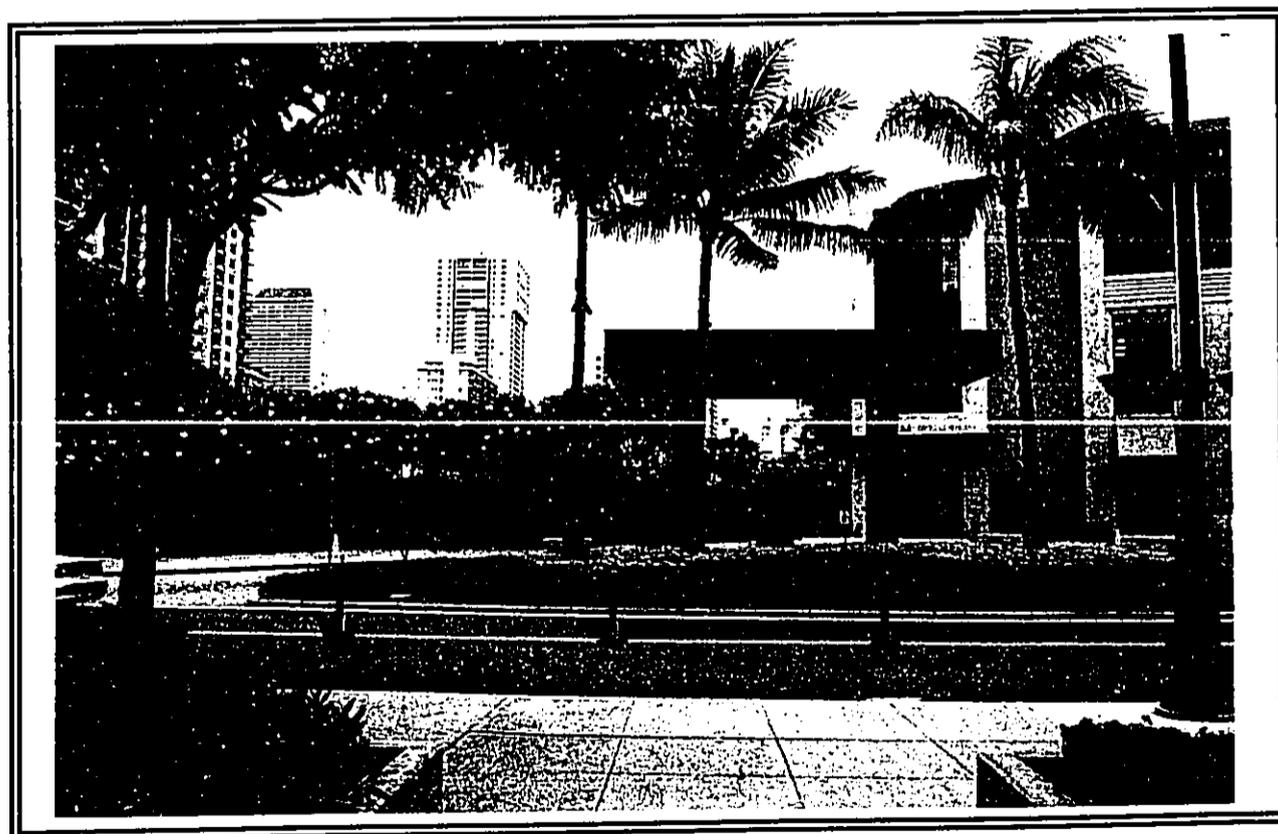
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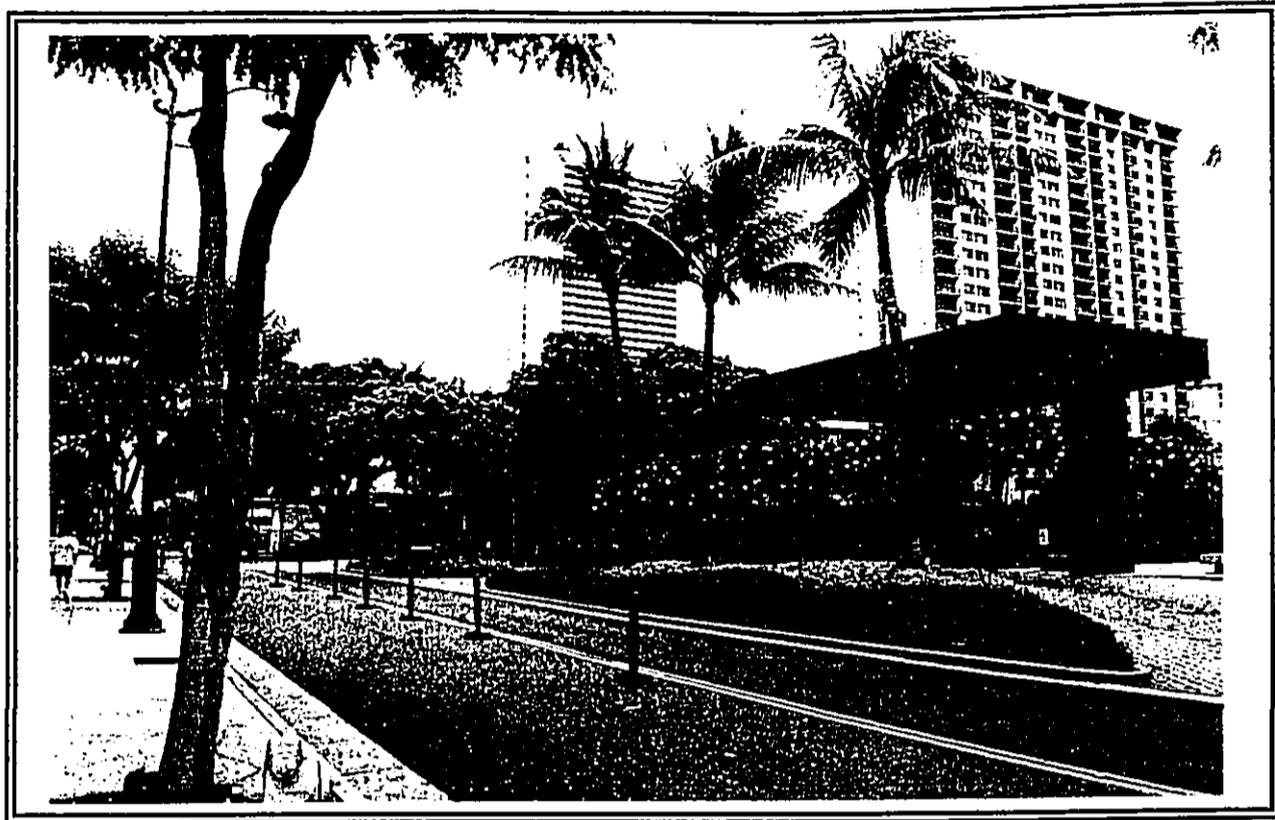
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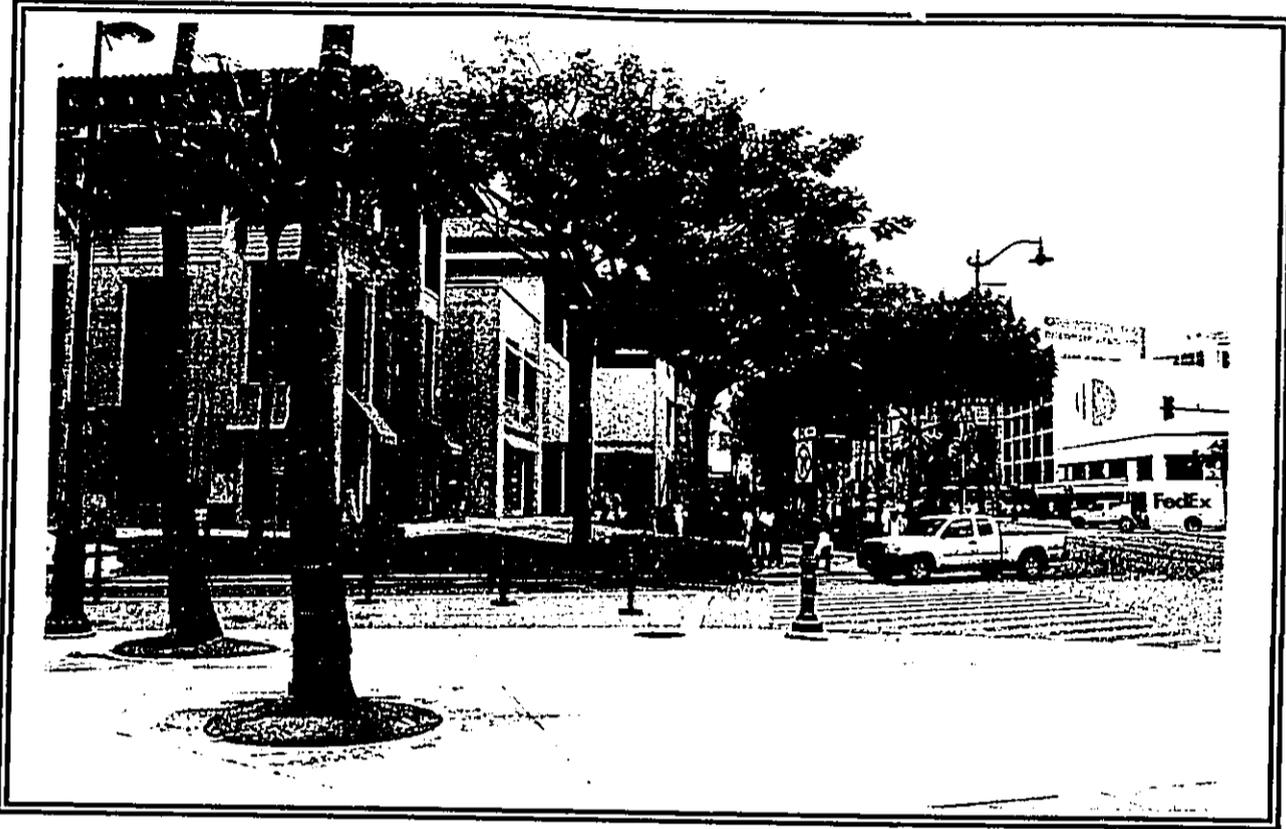
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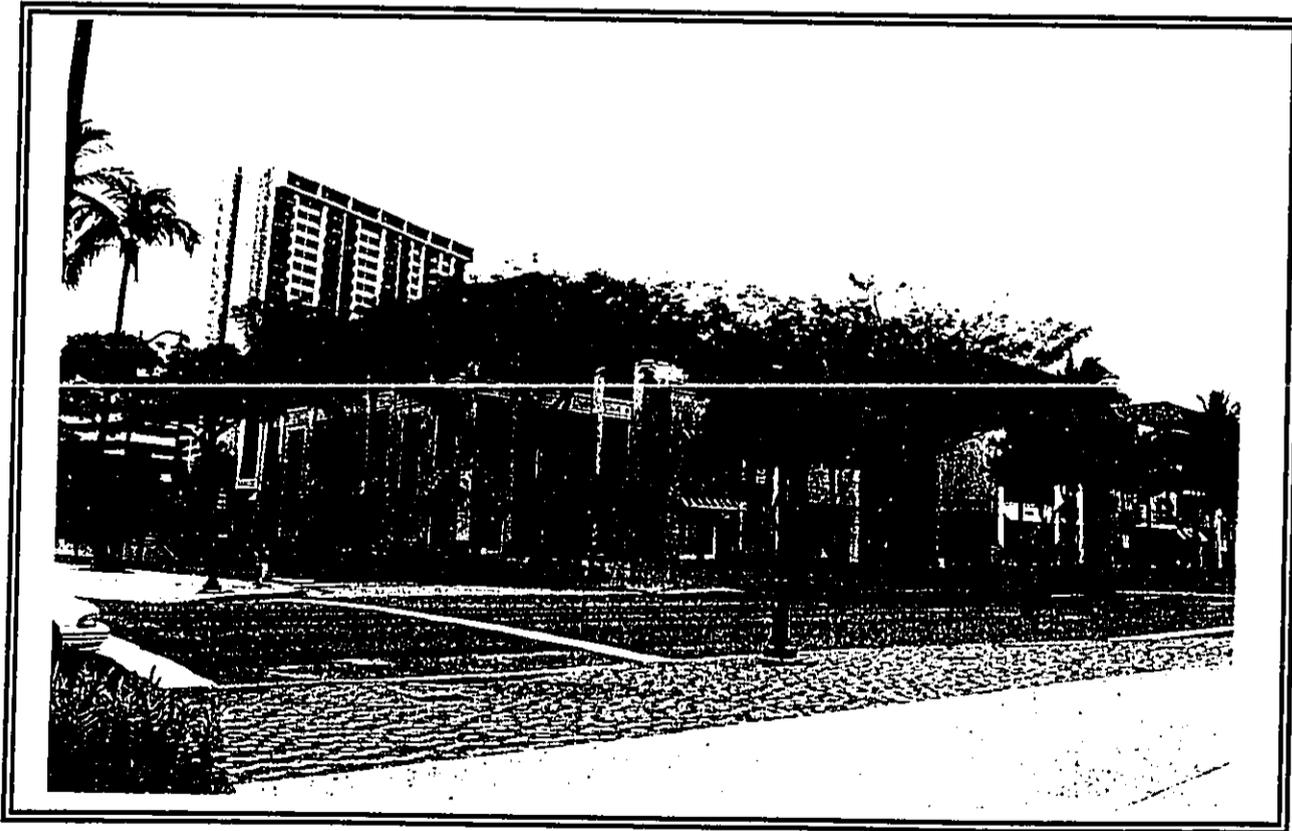
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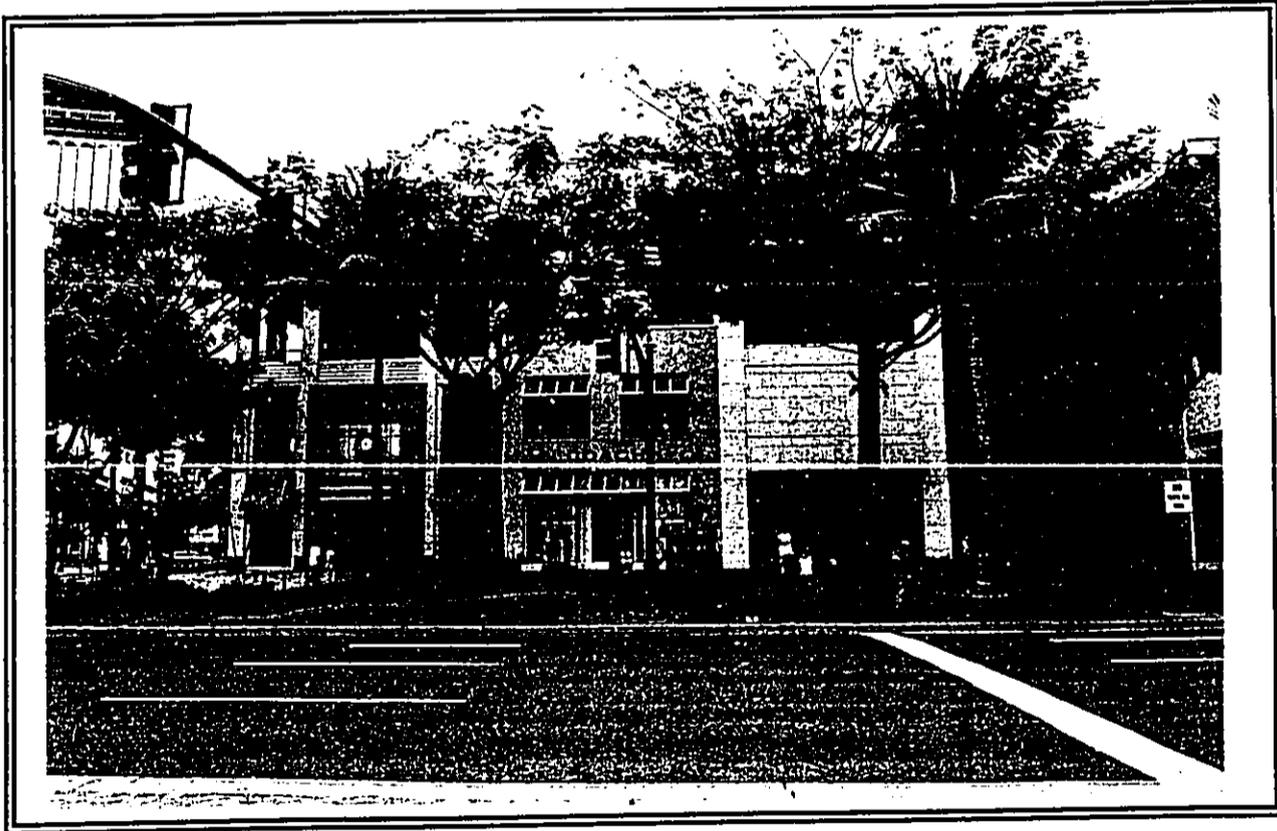
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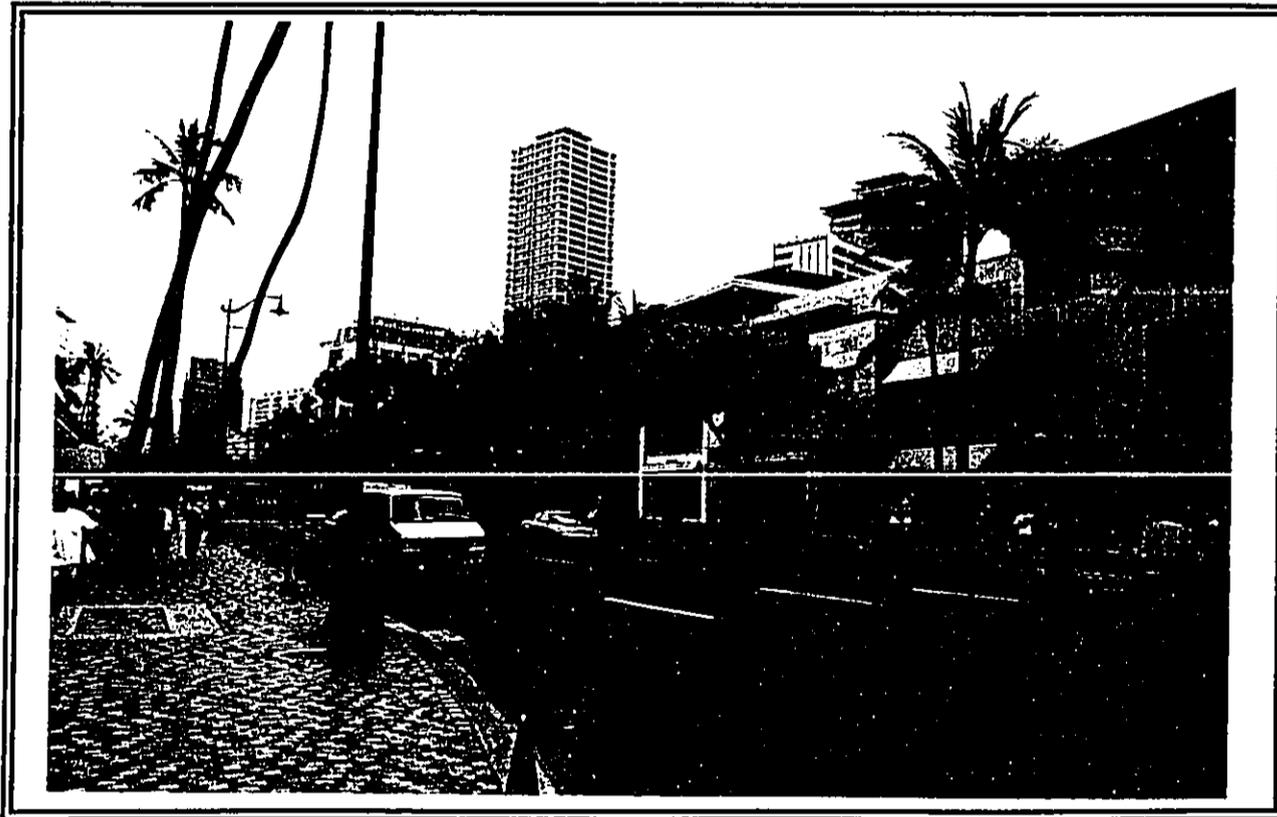
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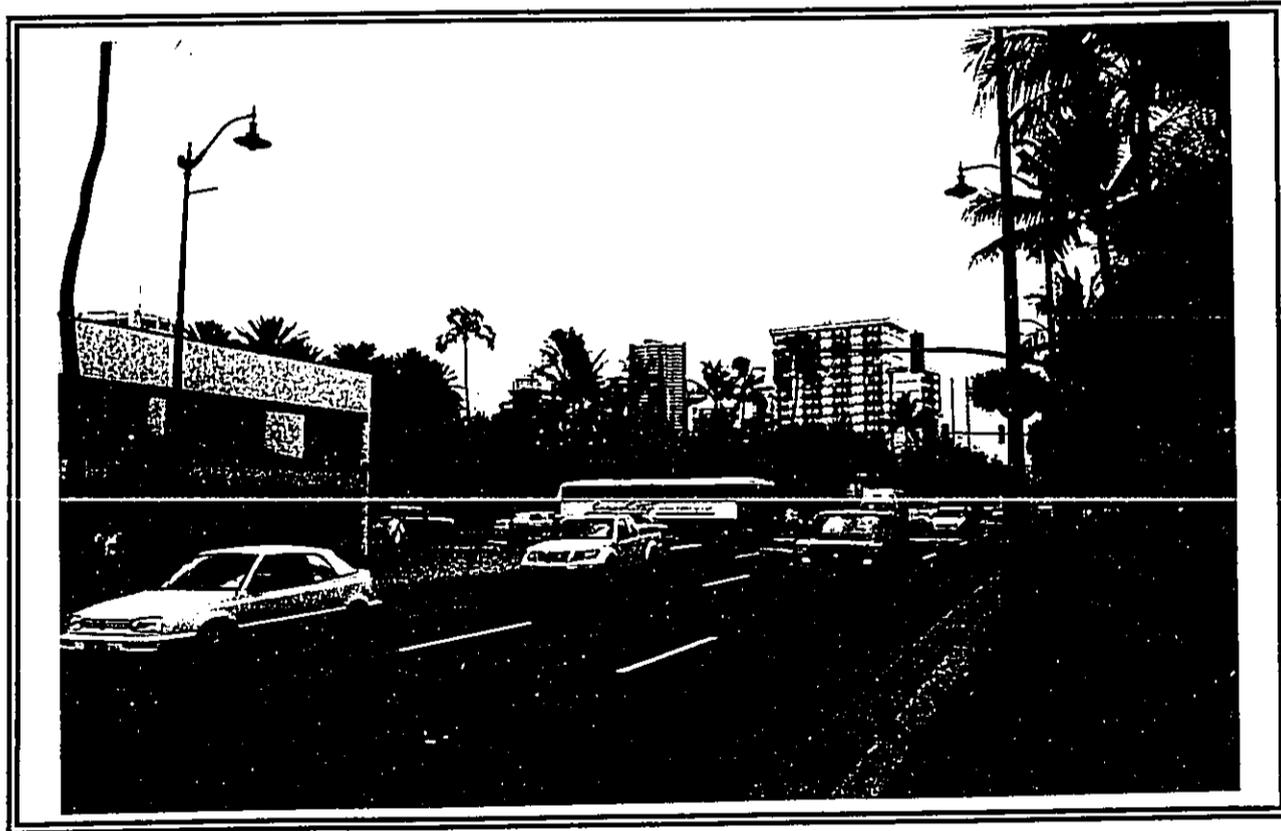
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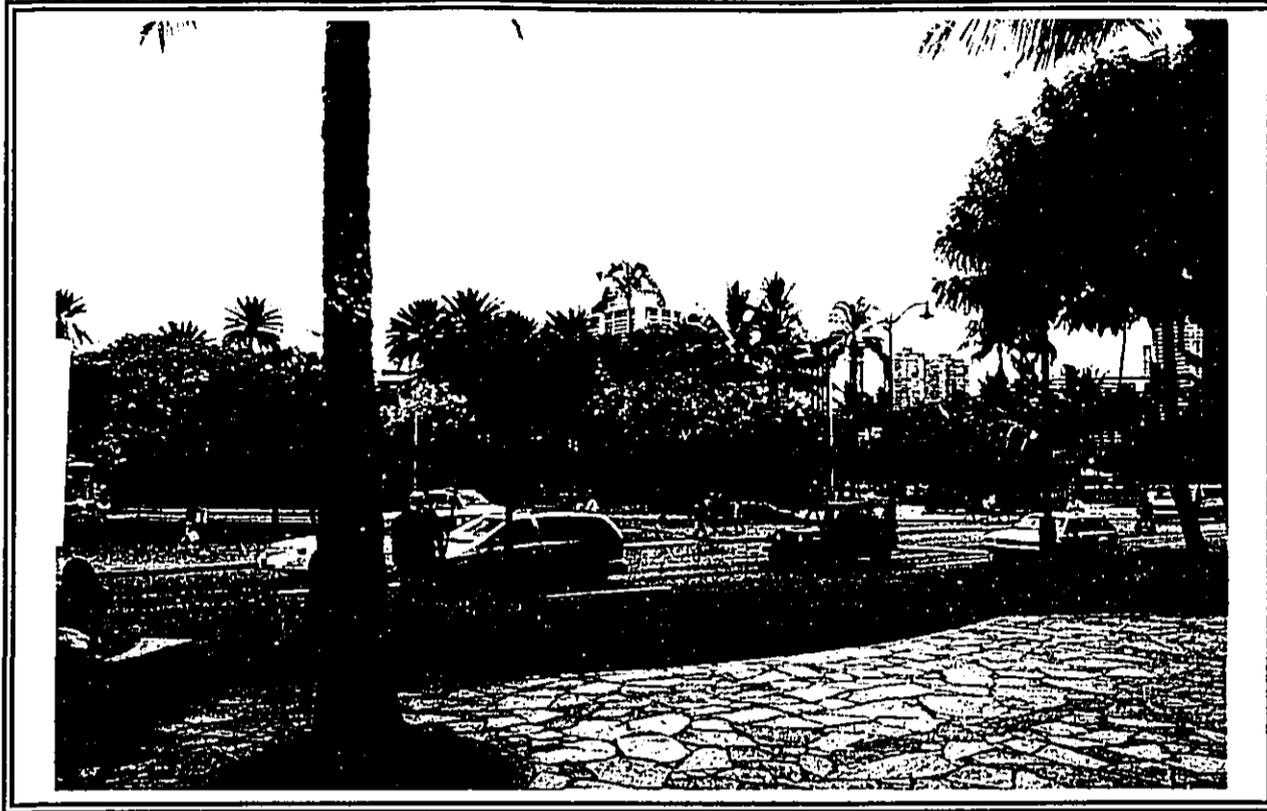
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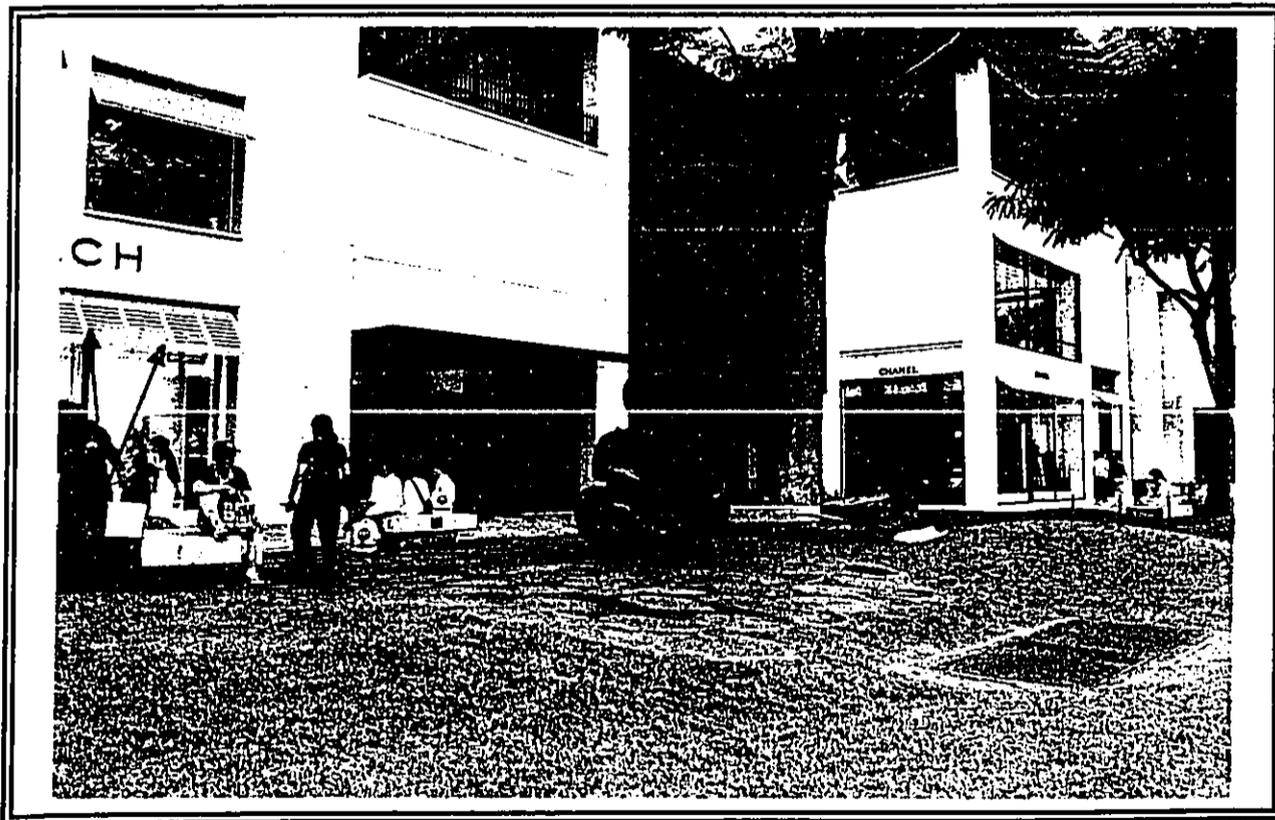
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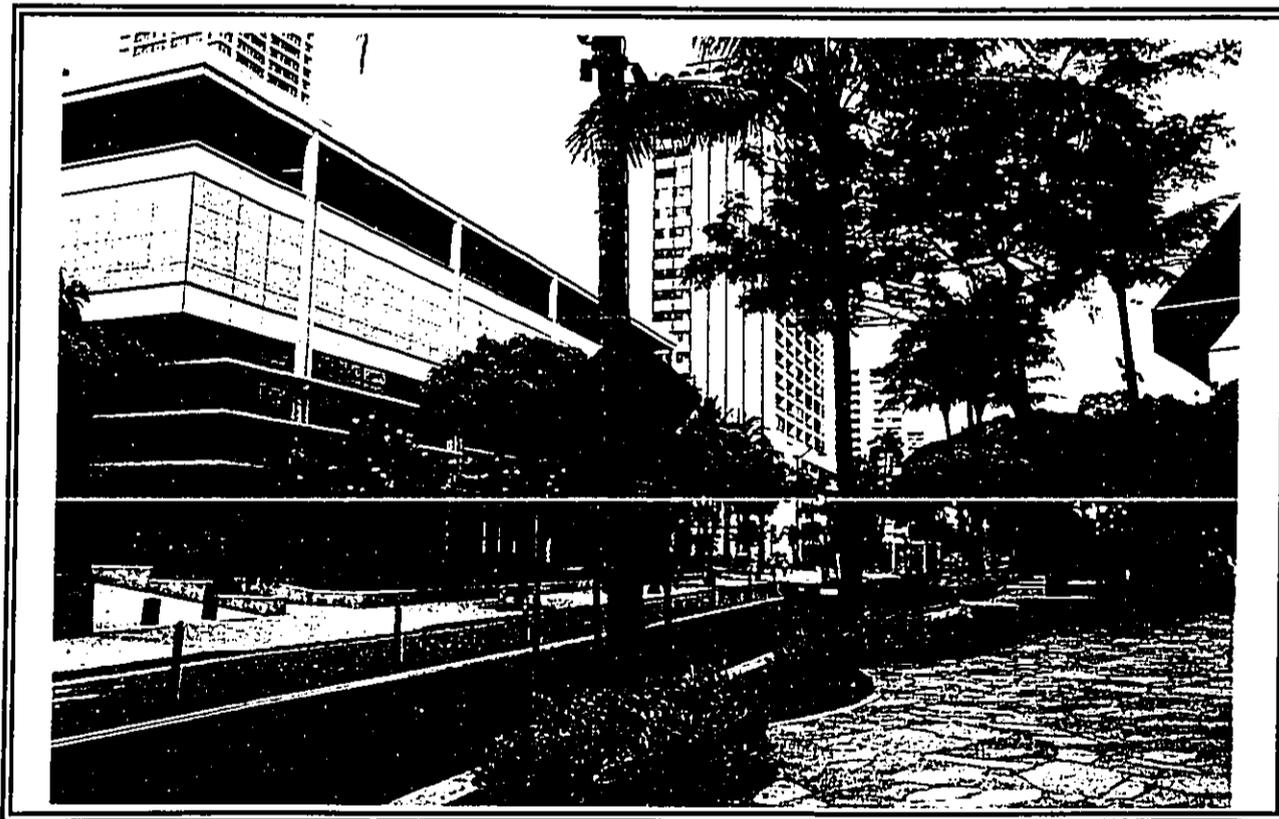
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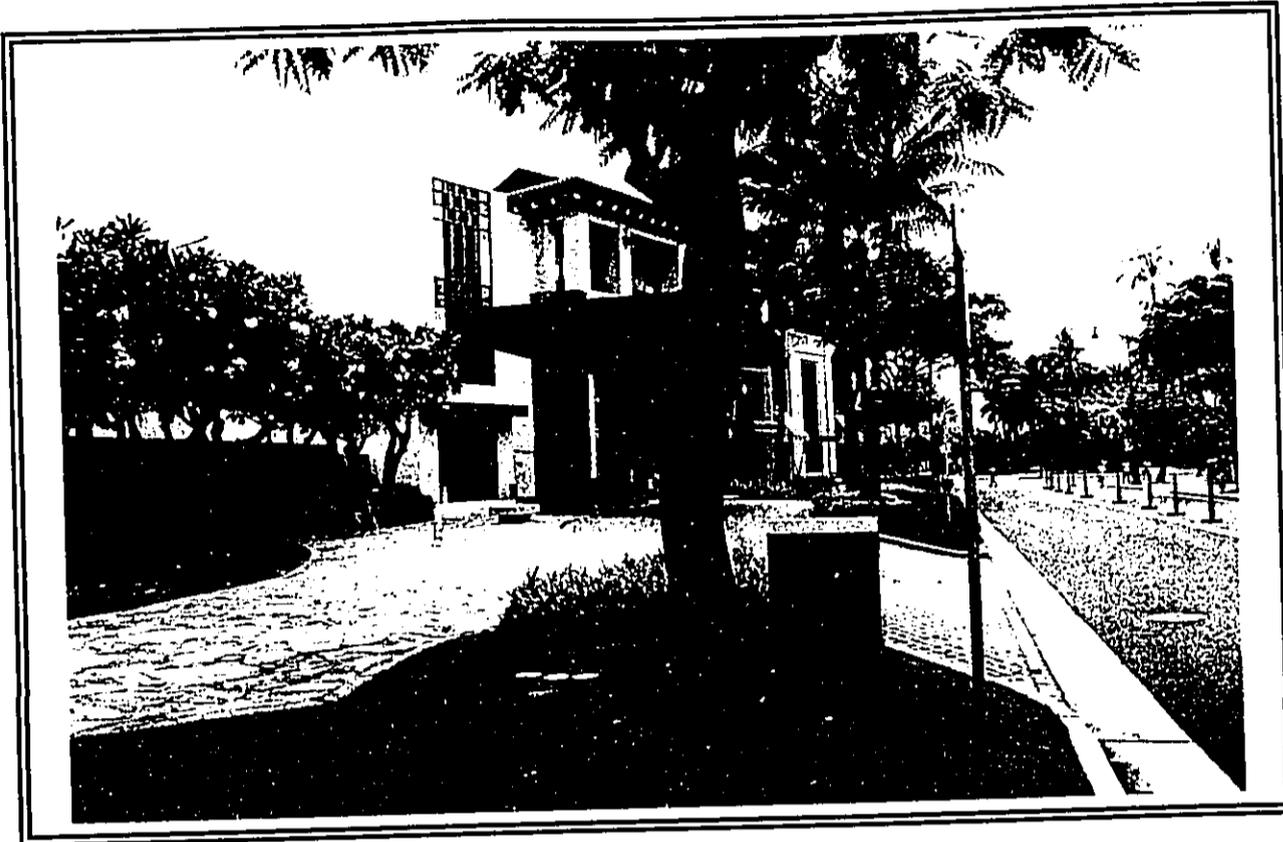
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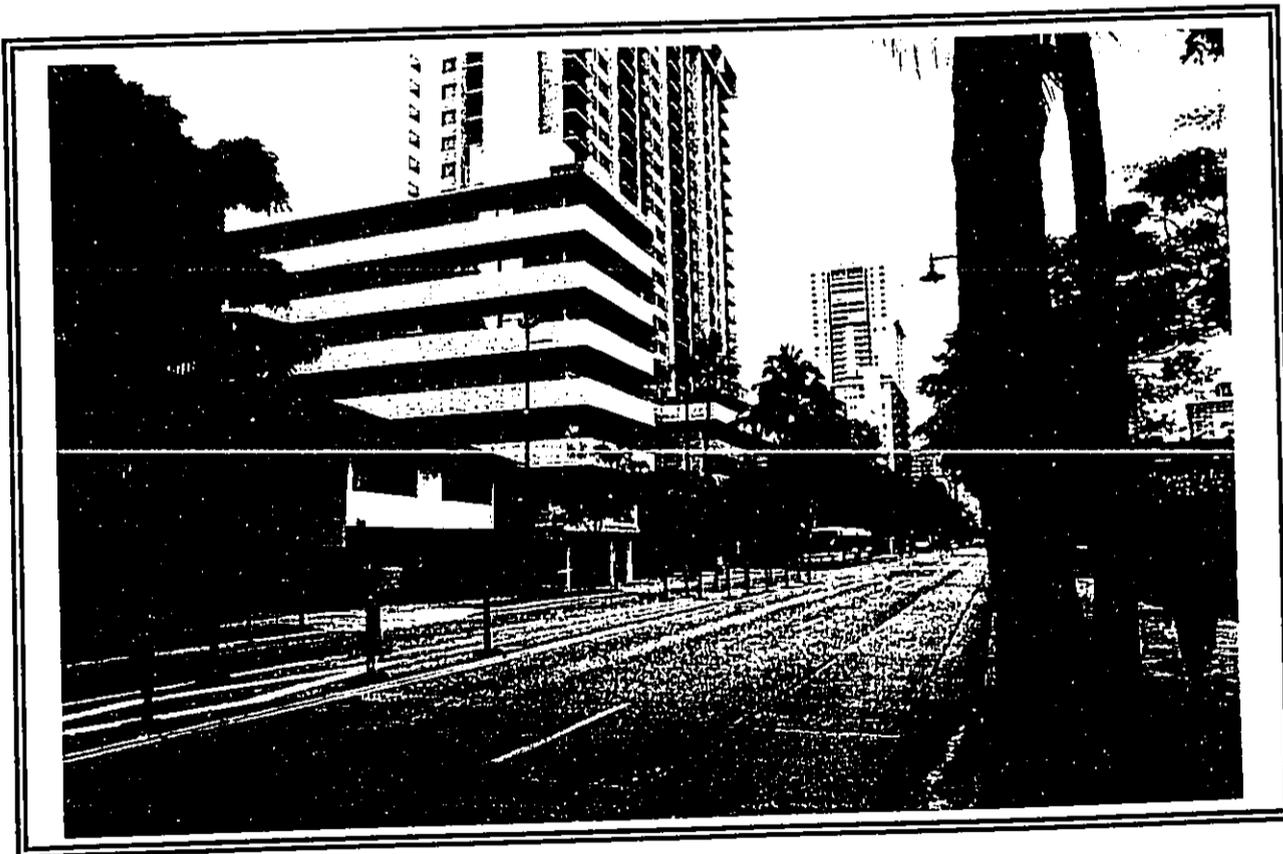
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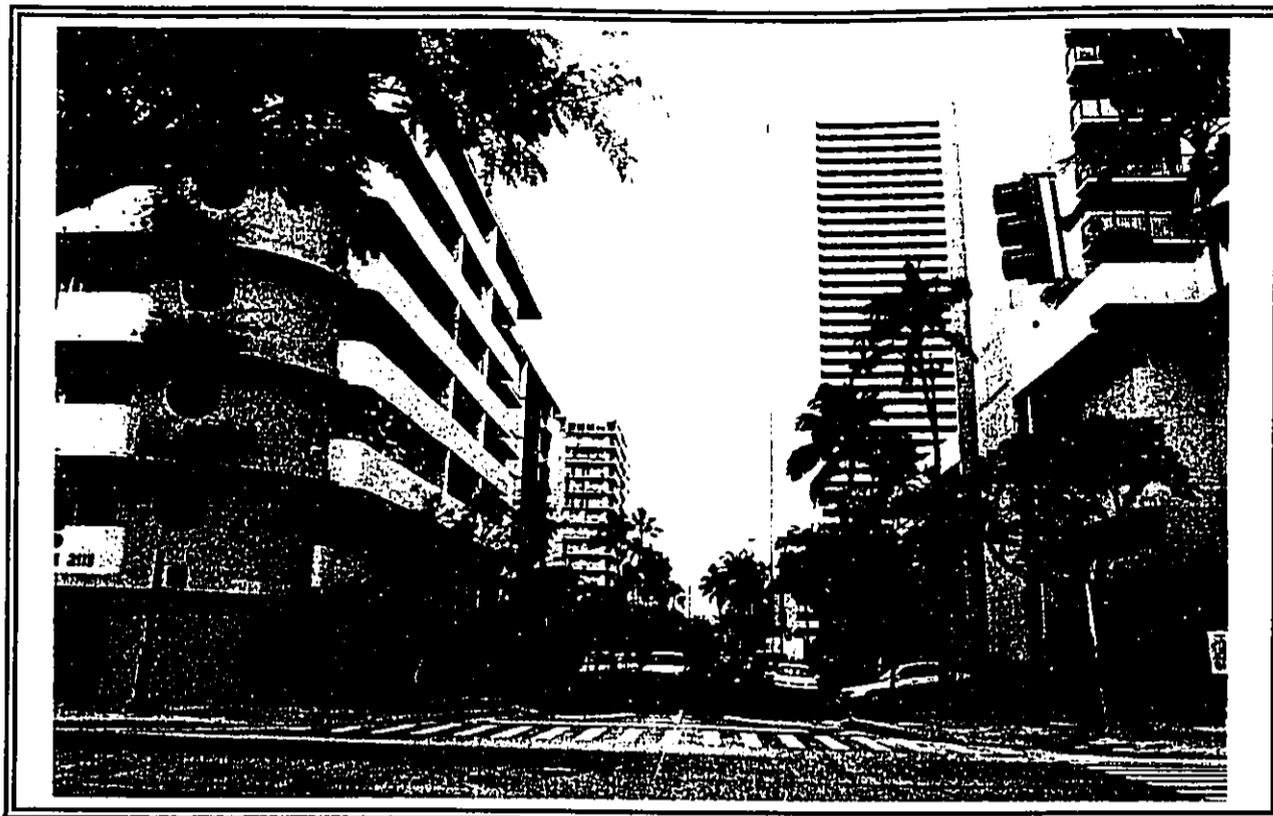
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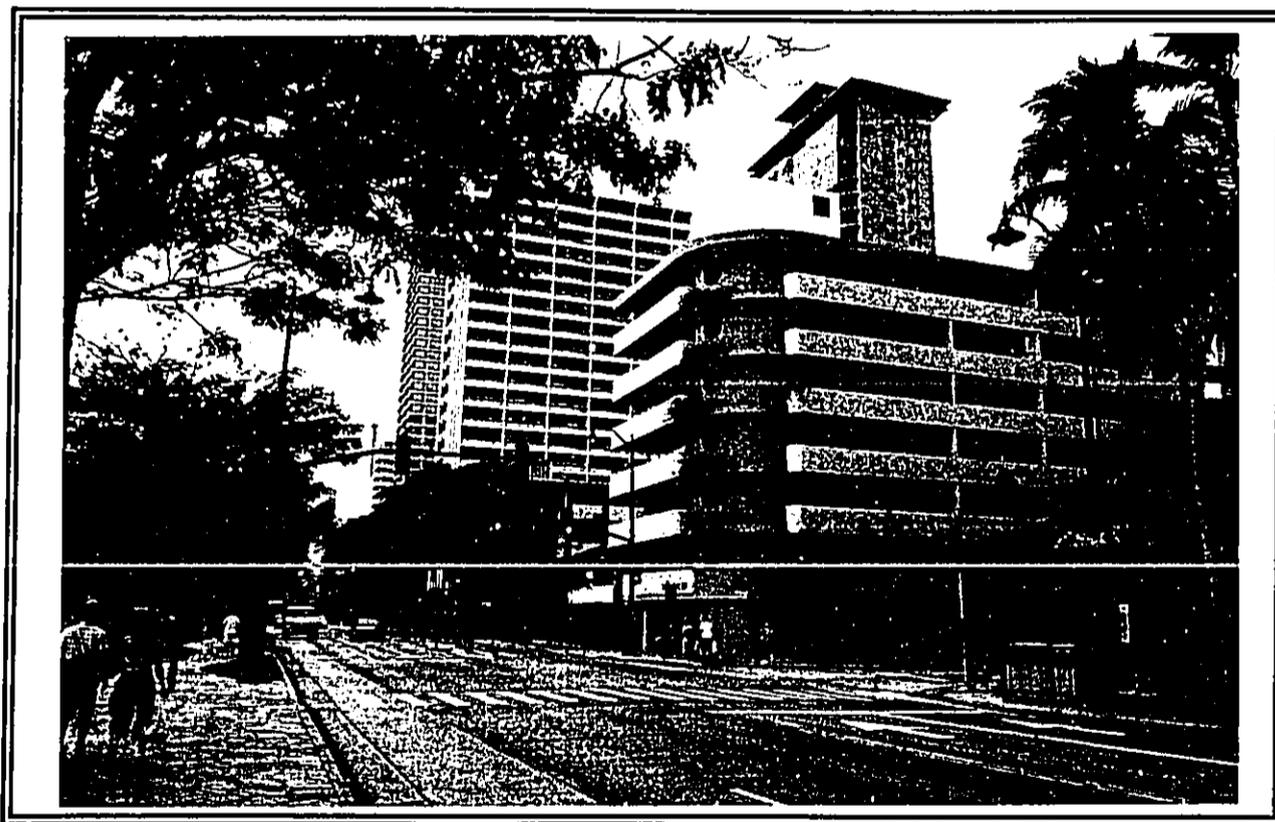
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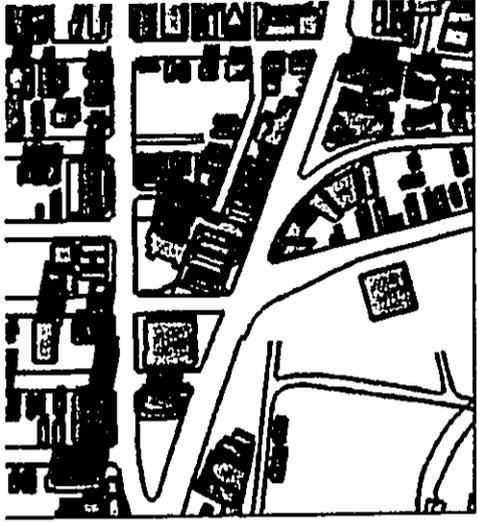
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Photograph No. 28

APPENDIX VIII

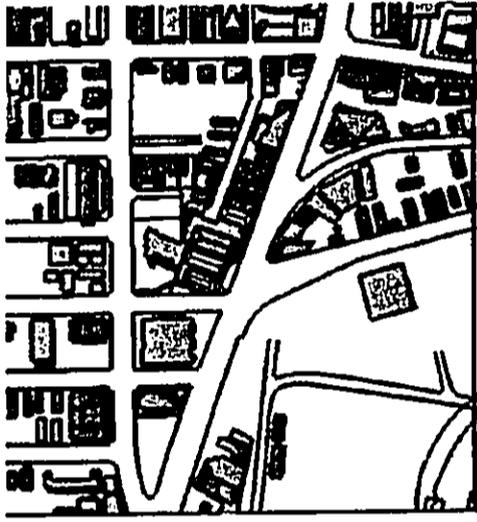
SHADOW STUDY



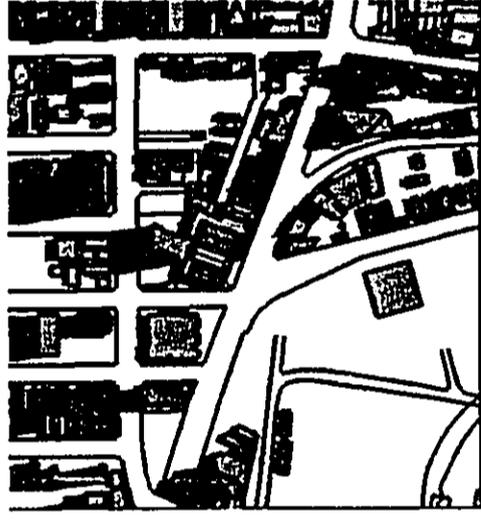
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WINTER SOLSTICE 12/21 3PM



SUMMER SOLSTICE 6/21 12PM



WINTER SOLSTICE 12/21 12PM



SUMMER SOLSTICE 6/21 9AM



WINTER SOLSTICE 12/21 9AM

SHADOW STUDY

2121 KUHIO AVENUE DEVELOPMENT
Concept • Waikiki, Hawaii • 06 March 2006

A.7.1



Wimberly Allison Tong & Goo
Architects, Design, Planning and Consulting

K3 Owner, LLC.

APPENDIX IX

STATE HISTORIC PRESERVATION DIVISION LETTER

LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BOULEVARD, ROOM 555
KAPOLEI, HAWAII 96707

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA
DEPUTY DIRECTOR - LAND

DEAN NAKANO
ACTING DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND COASTAL LANDS
CONSERVATION AND RESOURCES ENFORCEMENT
ENGINEERING
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAIKOLAHI ISLAND RESERVE COMMISSION
LAND
STATE PARKS

March 3, 2006

Mr. Ardis Shaw-Kim
Kusao & Kurahashi, Inc.
Manoa Market Place
2752 Woodlawn Drive, Suite 5-202
Honolulu, Hawaii 96822

LOG NO: 2006.00503
DOC NO: 0603ST06
Architecture

Dear Mr. Shaw-Kim:

SUBJECT: Chapter 6E-42 (HRS) Review
2100 Kalakaua Avenue and 2121 Kuhio Avenue Development, fka
Waikiki Kalakaua Plaza, Phase II, Inventory Survey
Waikiki, Kona, Oahu, Hawaii
TMK: (1) 2-6-018:010, :036, :042, :052, :055, :062-064, :073, & :074

In response to your letter received February 23, 2006, this is a written confirmation that the required mitigation measure to prepare a photographic essay on small, single-story structures in Waikiki circa 1950 has been satisfied for the above-named site.

Should you have any questions regarding architectural concerns please call Susan Tasaki in our Oahu office at (808) 692-8032.

Aloha,

A handwritten signature in cursive script, appearing to read "Melanie A. Chinen".

Melanie A. Chinen, Administrator
State Historic Preservation Division

ST:jen