DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET, 7TH FLOOR • HONOLULU, HAWAII 96813
PHONE: (808) 523-4414 • FAX: (808) 527-6743
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JEREMY HARRIS
MAYOR

ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

2004/ED-17(TC)

November 4, 2004

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

Dear Ms. Salmonson:

Chapter 343, HRS
Environmental Assessment (EA)/Determination
Finding of No Significant Impact (FONSI)
Royal Hawaiian Shopping Center Revitalization

Applicant	:	Kamehameha Schools and The Festival Companies
Landowner	:	Kamehameha Schools
Agent	:	Wilson Okamoto Corporation
Location	:	2201 Kalakaua Avenue - Waikiki
Tax Map Key	:	2-6-002: 018
Request	:	Waikiki Special District Permit (Minor)
Proposal	:	Revitalization of an existing retail complex
Determination	:	A Finding of No Significant Impact is Issued

Attached and incorporated by reference is the Final EA prepared by the applicant for the project. Based on the significance criteria outlined in Title 11, Chapter 200, Hawaii Administrative Rules, we have determined that preparation of an Environmental Impact Statement is not required.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the Final EA.

If you have any questions, please contact Anthony Ching of our Urban Design Branch at 527-5833.

Sincerely yours,

ERIC G. CRISPIN, AIA
for Director of Planning
and Permitting

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Enclosures

cc: Wilson Okamoto Corporation

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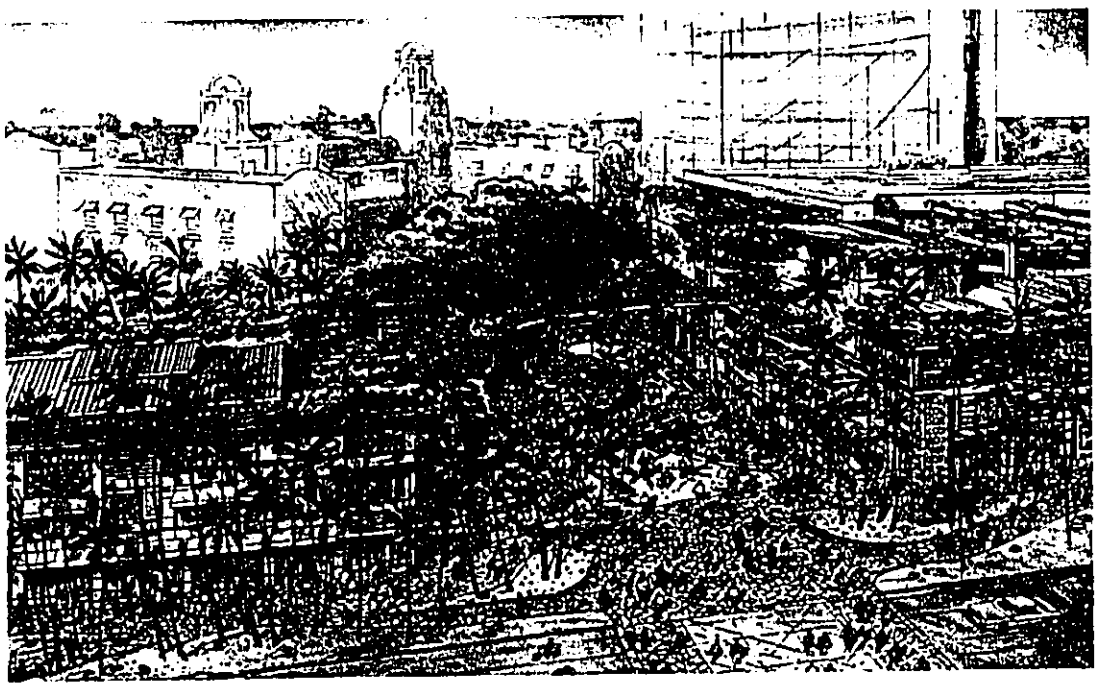
2004-11-23 FONSI
ROYAL HAWAIIAN SHOPPING
CENTER REVITALIZATION

Final Environmental Assessment /
Finding of No Significant Impact

Royal Hawaiian Shopping Center Revitalization



Prepared for:

October 2004

Kamehameha Schools
567 South King Street, Suite 200
Honolulu, Hawai'i 96813

The Festival Companies
9841 Airport Boulevard, Suite 700
Los Angeles, California 90045

WILSON OKAMOTO CORPORATION

Final Environmental Assessment

Royal Hawaiian Shopping Center Revitalization
Waikiki, Oahu, Hawaii

Prepared for:
Kamehameha Schools
567 South King Street, Suite 200
Honolulu, Hawaii 96813
&
The Festival Companies
9841 Airport Boulevard, Suite 700
Los Angeles, California 90045

Prepared by:
Wilson Okamoto Corporation
Engineers and Planners
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

October 2004

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PREFACE

This Final Environmental Assessment (EA) / Finding of Significant Impact (FONSI) has been prepared pursuant to Chapter 343, Hawaii Revised Statutes (HRS), and Title 11, Chapter 200, Hawaii Administrative Rules (HAR), Department of Health, State of Hawaii. Proposed is an applicant action by Kamehameha Schools and The Festival Companies to renovate the existing Royal Hawaiian Shopping Center in Waikiki, Oahu. Compliance with the provisions of Chapter 343, HRS is required because of the project's location within the "Waikiki Special District." The accepting agency is the City and County of Honolulu Department of Planning and Permitting, in conjunction with the processing of a Waikiki Special District Minor permits required for the proposed action.

SUMMARY

Applicant:	Kamehameha Schools and The Festival Companies
Approving Agency:	City and County of Honolulu, Department of Planning and Permitting
Project Location:	Waikiki, Oahu, Hawaii
Tax Map Key:	2-6-2:18
Area:	Approximately 6.3 acres
Recorded Fee Owner:	Kamehameha Schools
Existing Use:	Royal Hawaiian Shopping Center
State Land Use Classification:	Urban
Development Plan Designation:	Resort
County Zoning Designation:	Waikiki Special District Resort/Commercial Precinct
Proposed Action:	Revitalization of an existing retail complex by incorporating features that will convey a Hawaiian sense of place consistent with the City's Waikiki Special District design guidelines; incorporating historical, cultural and educational features consistent with the goal of Kamehameha Schools to perpetuate all things Hawaiian; and, improving visual and pedestrian linkages with adjoining resort properties. Major improvements include renovating the streetscape frontage along Kalakaua Avenue with a focal point at a recreated "Royal Grove" courtyard opposite Seaside Avenue; demolition and relocation of elevators, stairs and pedestrian bridges to create view corridors and enhance pedestrian access into and through the retail complex; exterior and interior building renovations; utility improvements; landscaping; and, tenant improvements.

Impacts: No significant impacts are anticipated during the construction and subsequent occupation/operation of the proposed project. Construction activities are anticipated to have short-term noise, traffic and air-quality impacts in the surrounding area. Construction noise and air quality impacts will be minimized by compliance with applicable State Department of Health rules. No significant long-term traffic impact in the vicinity of the project site is anticipated. The project will comply with all applicable Waikiki Special District development standards, including those for building height, density, open space, and setbacks.

Determination: Finding of No Significant Impact

Parties Consulted During Pre-Assessment:

City and County of Honolulu
Department of Planning and Permitting
Department of Transportation Services

Elected Officials
Councilmember Charles Djou (4th District)

Organizations
Waikiki Neighborhood Board (No. 9)
Waikiki Improvement Association

Parties Consulted During The Draft EA Public Review:

State of Hawaii
Department of Health (DOH)
- Environmental Health Administration
  - Noise, Radiation and Indoor Air Quality Branch
- Environmental Management Division
  - Clean Air Branch
  - Clean Water Branch

Office of Environmental Quality Control
Department of Business, Economic Development and Tourism (DBEDT)
- Office of Planning
- Energy, Resources & Technology Division

Department of Hawaiian Homelands

State of Hawaii (continued)
Department of Land and Natural Resources (DLNR)
- State Historic Preservation Division
- Land Division
- Division of State Parks
- Division of Forestry and Wildlife
- Engineering Division

Department of Transportation
Office of Hawaiian Affairs
U.H. Environmental Center
Hawaii State Library (Waikiki-Kapahulu Branch)

City and County of Honolulu
Department of Parks and Recreation
Board of Water Supply
Fire Department
Police Department
Department of Planning and Permitting
Building Division
Site Development Division
Planning Division
Department of Design and Construction
Office of Waikiki Development
Department of Transportation Services
Department of Environmental Services
Department of Facilities Maintenance
Municipal Reference and Records Center
Office of Economic Development - Waikiki
Ala Moana Satellite City Hall
Waikiki Neighborhood Board (No. 9)

Elected Officials
Senator Gordon Trimble (12th District)
Representative Galen Fox (23rd District)
Representative Scott Nishimoto (21st District)
Councilmember Charles Djou (4th District)

Organizations
Outdoor Circle
Historic Hawaii Foundation
Construction Industry Legislative Organization
Legislative Information Service of Hawaii
Sierra Club
League of Women Voters of Honolulu
Waikiki Improvement Association

Organizations (continued)
Waikiki Residence Association
Waikiki Community Center

Surrounding Property Owners
Kyo-Ya Corporation
Outrigger - LAX, L.P.
Queen Emma Foundation
2181 Kalakaua
Outrigger Hotels Hawaii
Ala Wai Gateway, LP
AG Waikiki Galleria, LLC
Comete Realty, Ltd.
Waikiki Shopping Plaza
Waikiki Business Plaza, Inc.
CP Properties, Inc.

1. SETTING AND PROJECT DESCRIPTION

1.1 Project Background and Location

Kamehemeha Schools and The Festival Companies are proposing to renovate the existing Royal Hawaiian Shopping Center (RHSC) in Waikiki (see Figure 1). Located on the makai side of Kalakaua Avenue, the RHSC is bounded by Lewers Street on the west (Ewa), the Outrigger Waikiki On the Beach hotel to the east (Diamond Head) and the Royal Hawaiian and Sheraton Waikiki hotels to the south (makai). Royal Hawaiian Avenue crosses through the RHSC beneath three levels of pedestrian bridges between RHSC's retail Building "B" and retail Building "A"/parking structure. Don Ho Lane, a private driveway from Lewers Street passes under RHSC's elevated parking structure to the Sheraton Waikiki and Royal Hawaiian hotels. The project site encompasses 274,876 square feet (6.3 acres) of land area and is identified as TMK 2-6-2:18 (see Figure 2).

1.2 Existing and Surrounding Uses

The existing RHSC consists of three main buildings providing approximately 293,000 square feet of gross leasable floor area and a ten-story parking structure (see Figure 3 and Photographs 1 through 10).

Building "A" is located at the Ewa end of the Center and fronts Kalakaua Avenue at the corner of Lewers Street. It has six floors with the first four floors containing retail and dining establishments and the upper two floors, which are set further back from Kalakaua Avenue, housing the Center's administration offices. Eight off-street loading spaces are provided on the makai side of the building along Don Ho Lane.

Building "B" is located opposite Royal Hawaiian Avenue from Building "A", and fronts Kalakaua Avenue between Royal Hawaiian Avenue and Seaside Avenue. It has four floors of retail, dining and entertainment establishments.

Building "C" is located at the Diamond Head end of the Center and fronts Kalakaua Avenue. It also has four floors of retail, dining and entertainment establishments. A service driveway from Kalakaua Avenue on the Diamond Head-side of the building provides six off-street loading spaces.

The parking structure is adjacent to the makai side of Building "A", straddling Don Ho Lane and abutting the Sheraton Waikiki Hotel parking structure. The ten-story structure, which rises from the second floor, provides 611 parking stalls. The entry driveway is located off of Royal Hawaiian Avenue behind Building "A" while the egress driveway exits onto Don Ho Lane near Lewers Street.

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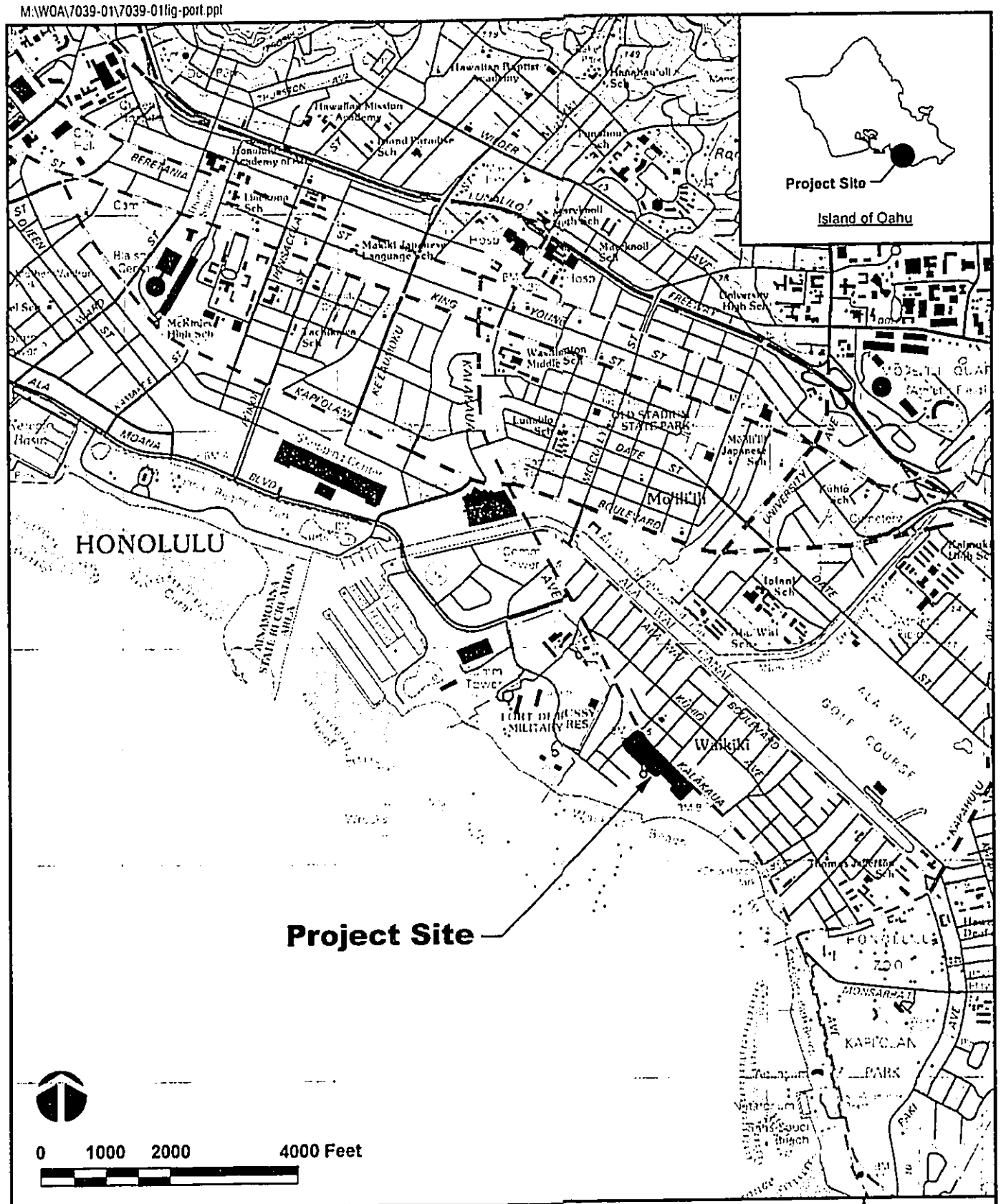

WILSON OKAMOTO CORPORATION ENGINEERS - PLANNERS	ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION Location Map	FIGURE 1

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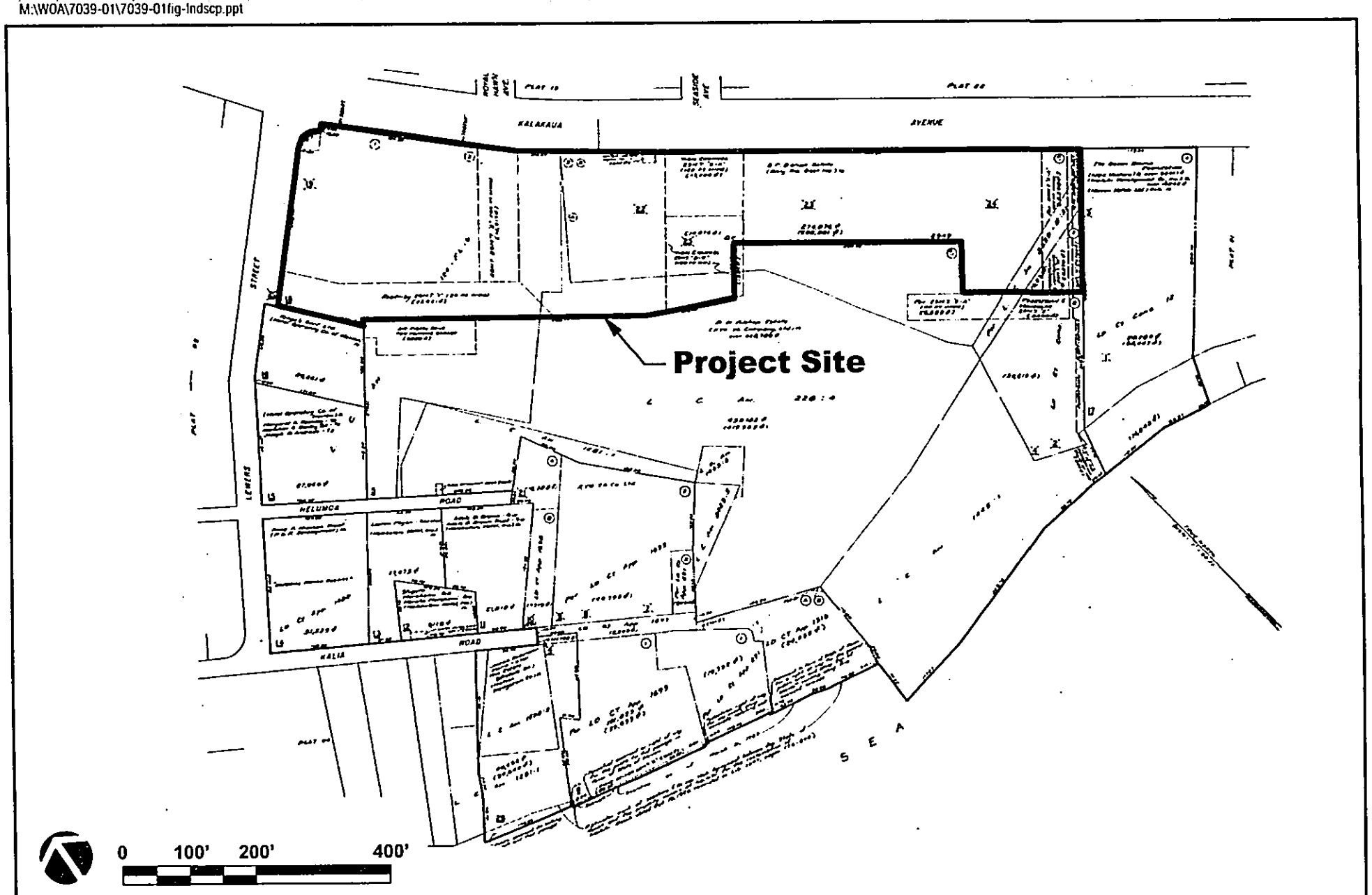

WILSON OKAMOTO CORPORATION ENGINEERS - PLANNERS	ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION Tax Map Key 2-6-2:18	FIGURE 2

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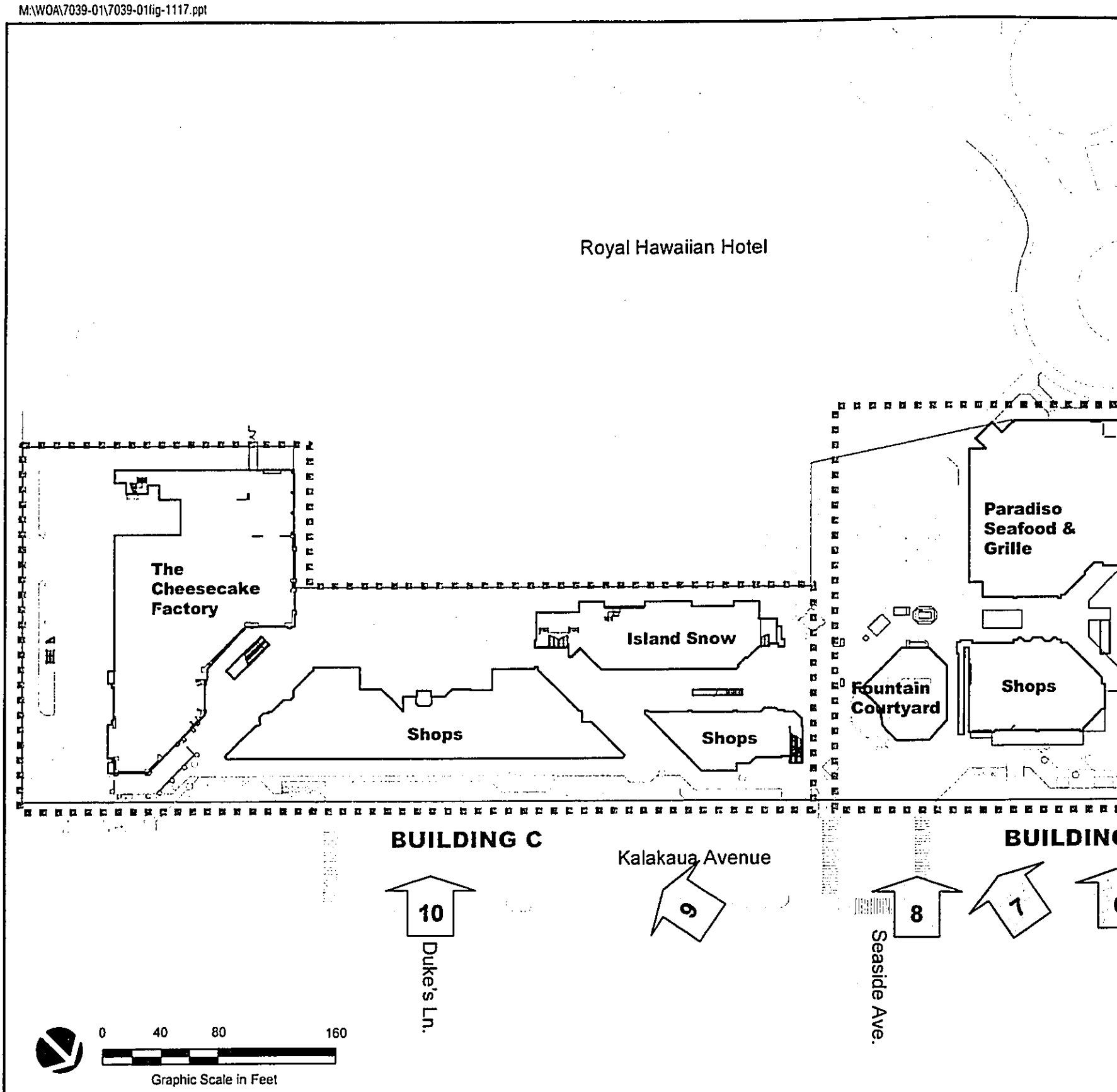

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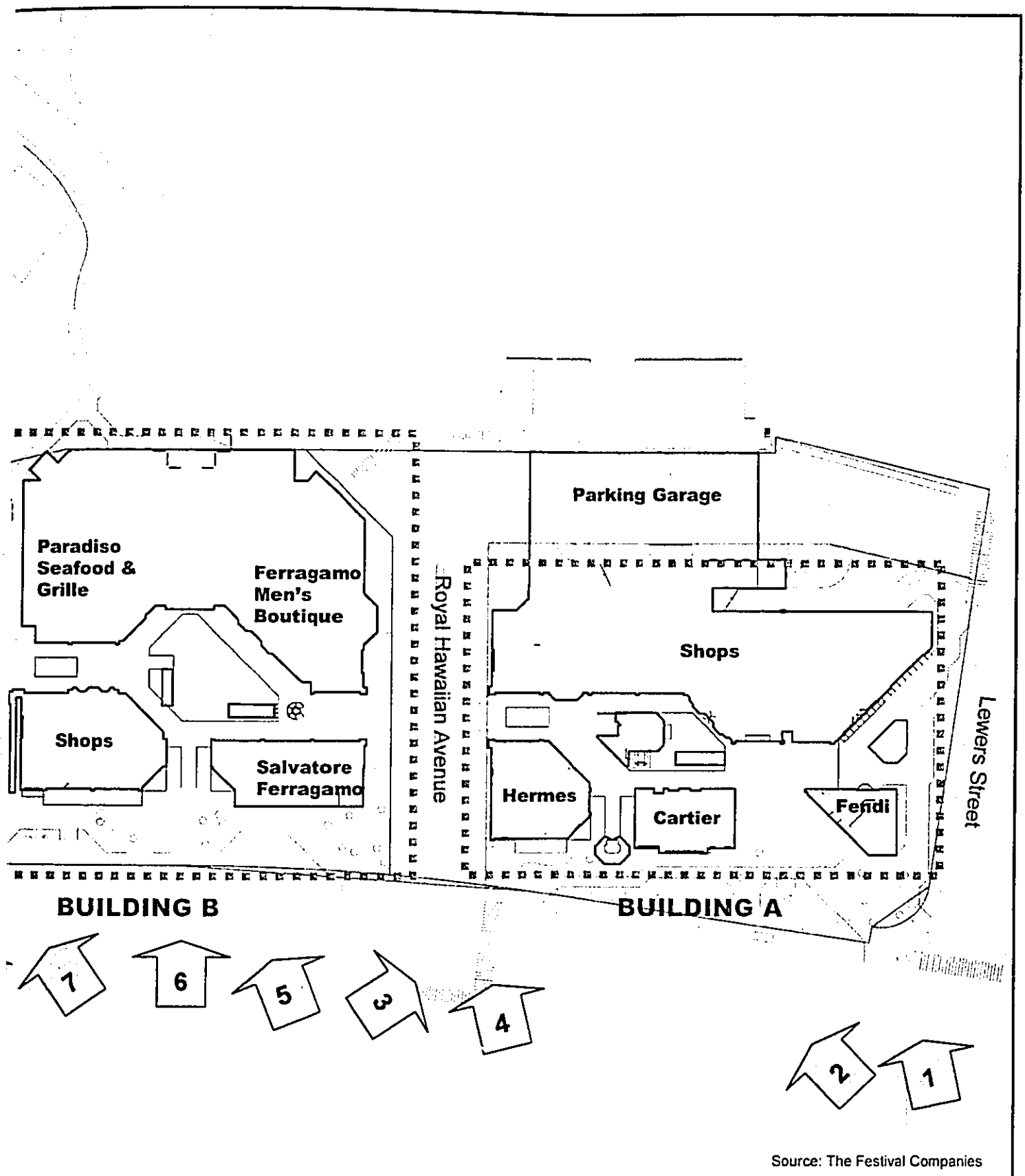
ROYAL HAWAIIAN SHOPPING CENTER REVI

Photo Reference Map



Source: The Festival Companies

NG CENTER REVITALIZATION	
ference Map	FIGURE 3

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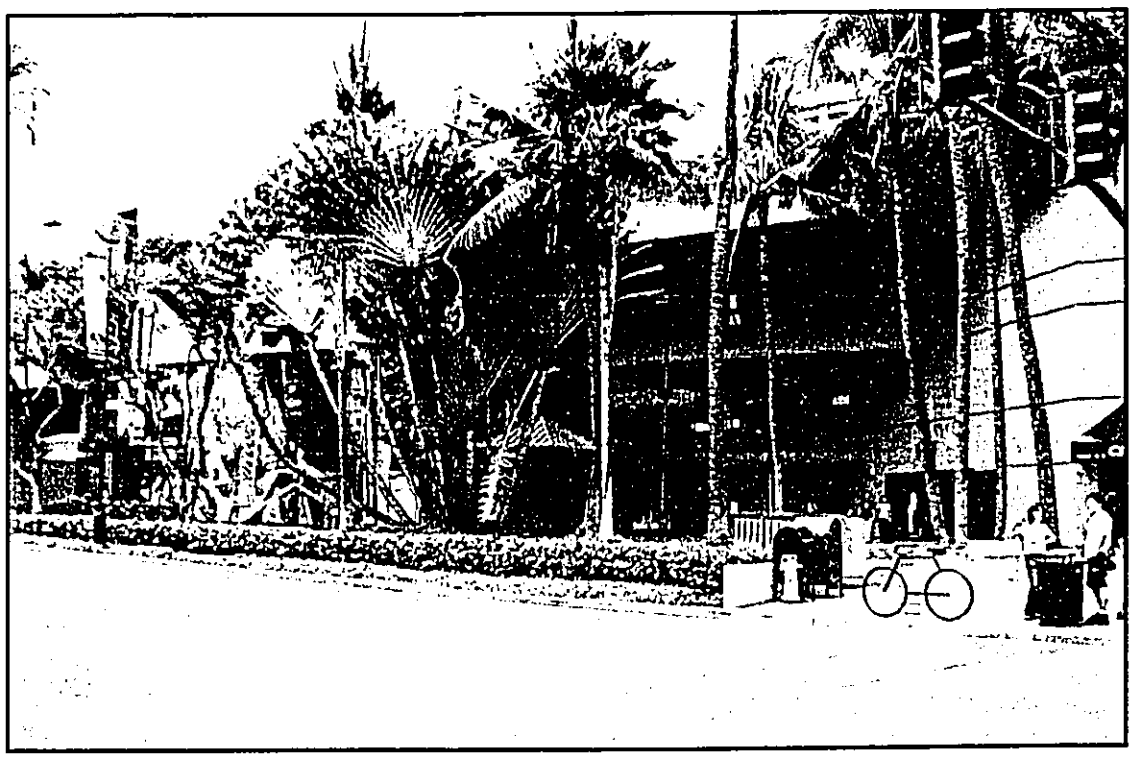
Photograph 1: Building A, Corner of Kalakaua Ave. and Lewers St.



Photograph 2: Building A, Fronting Kalakaua Ave.

WILSON OKAMOTO CORPORATION ENGINEERS · PLANNERS	ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION
	Photographs 1 and 2 of Existing Project Site

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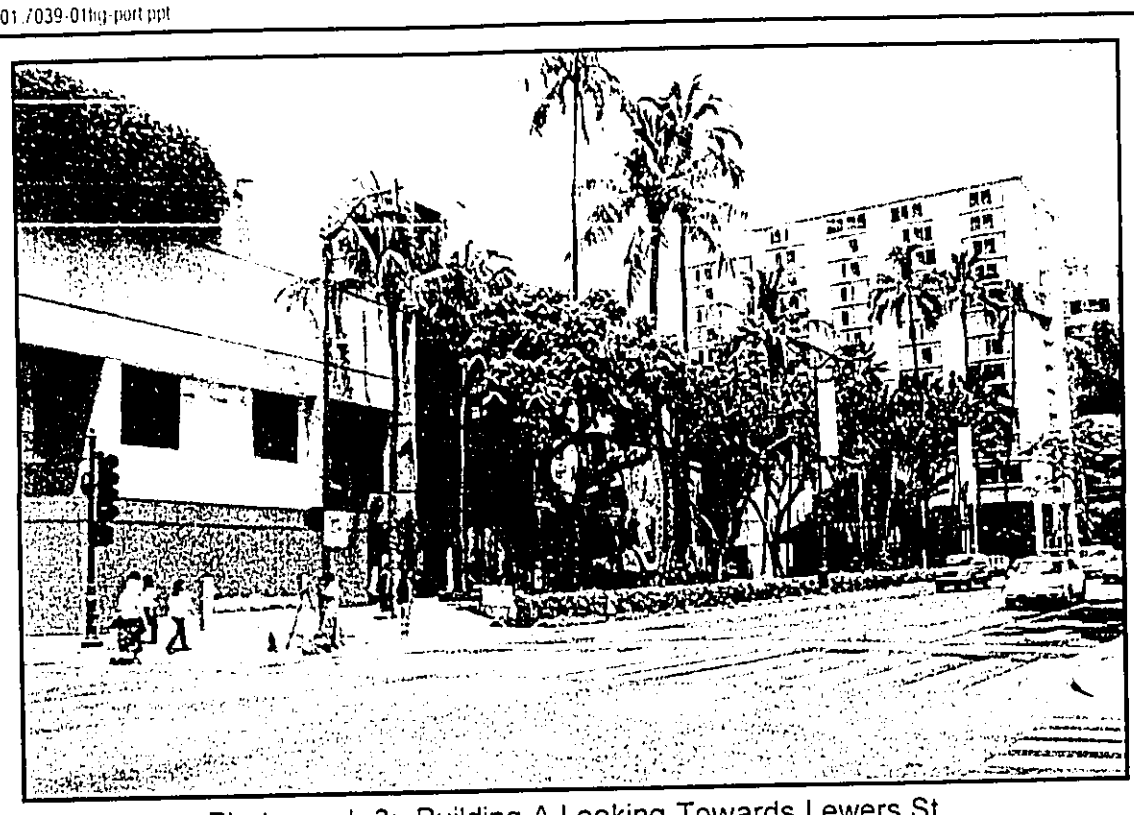
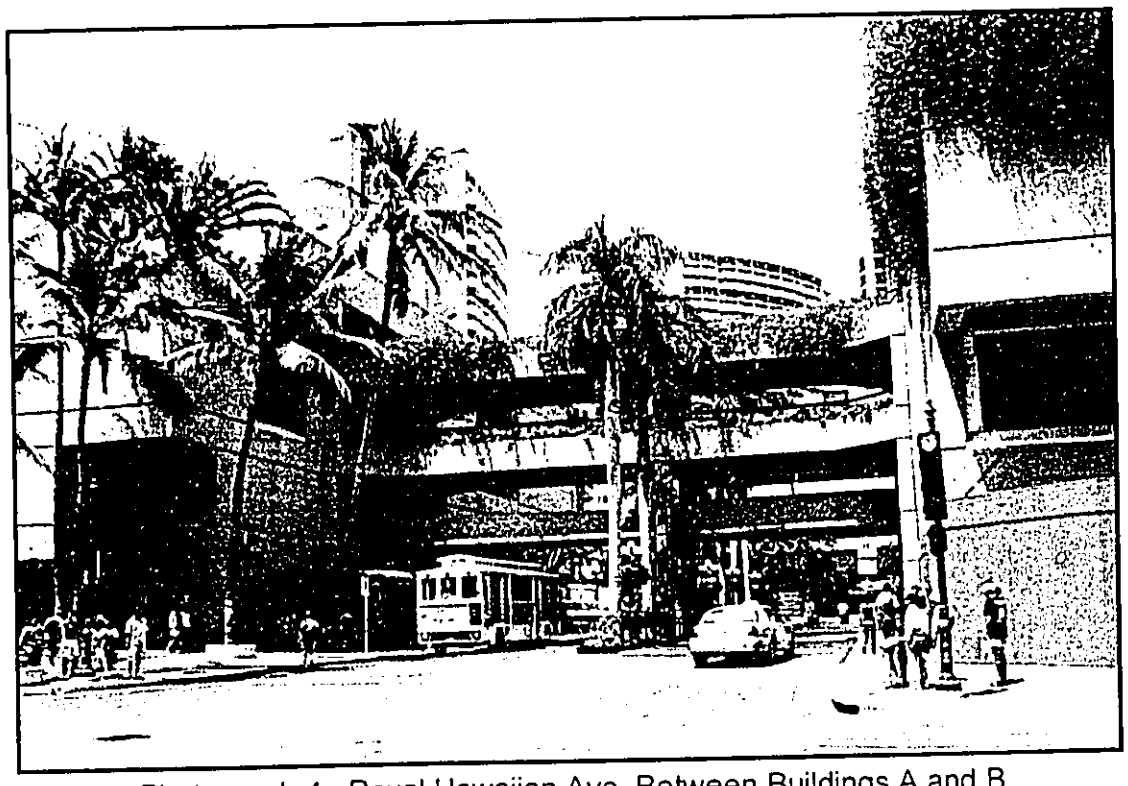


Photograph 3: Building A Looking Towards Lewers St.



Photograph 4: Royal Hawaiian Ave. Between Buildings A and B

WILSON OKAMOTO CORPORATION ENGINEERS - PLANNERS	ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION
	Photographs 3 and 4 of Existing Project Site

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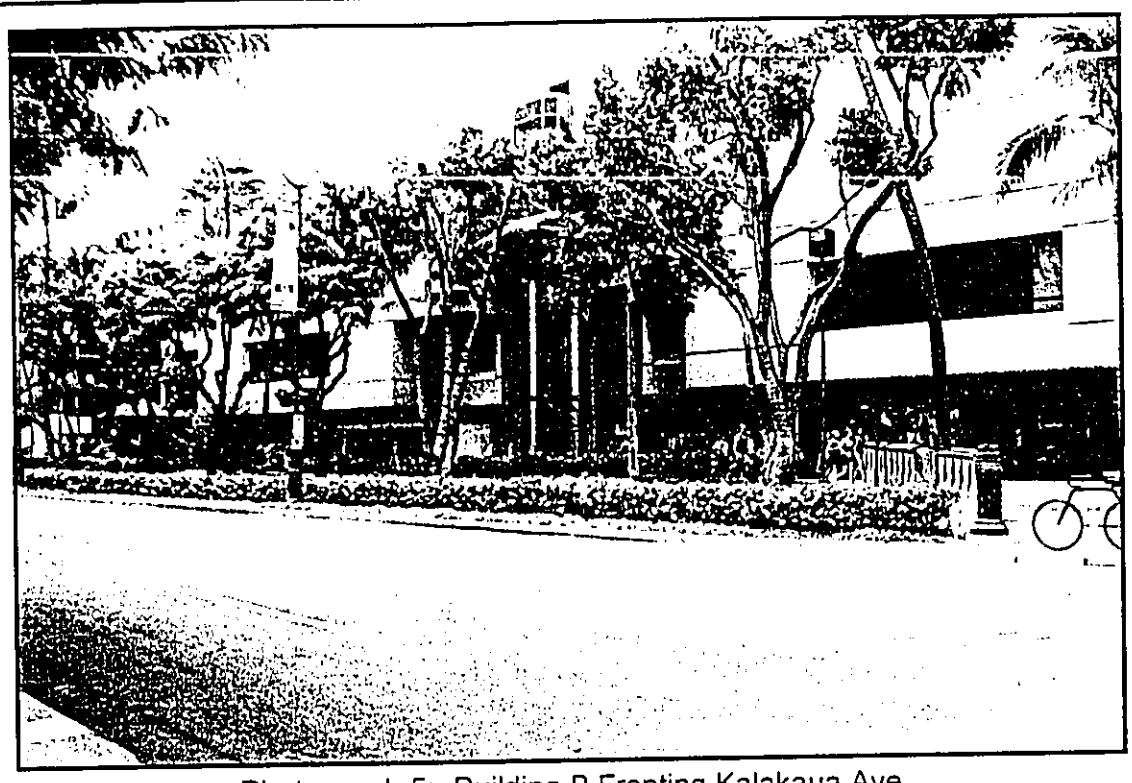
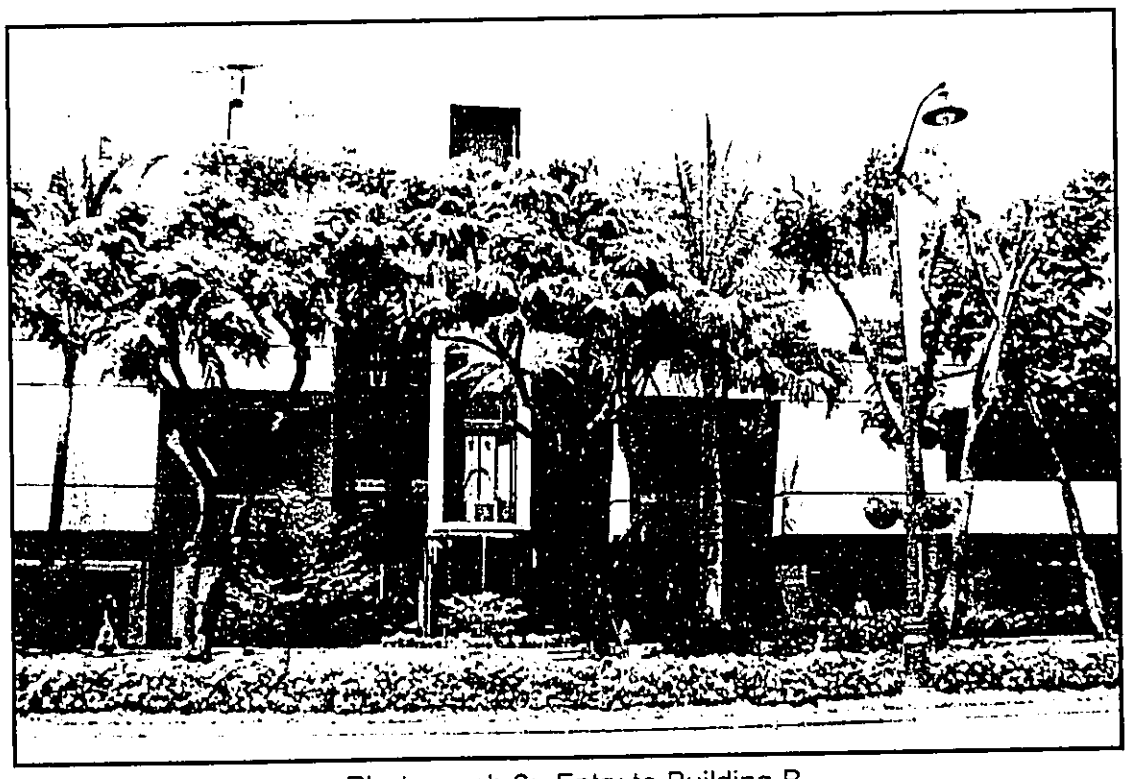


Photograph 5: Building B Fronting Kalakaua Ave.



Photograph 6: Entry to Building B

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ROYAL HAWAIIAN SHOPPING CENTER RENOVATION

Photographs 5 and 6 of Existing Project Site

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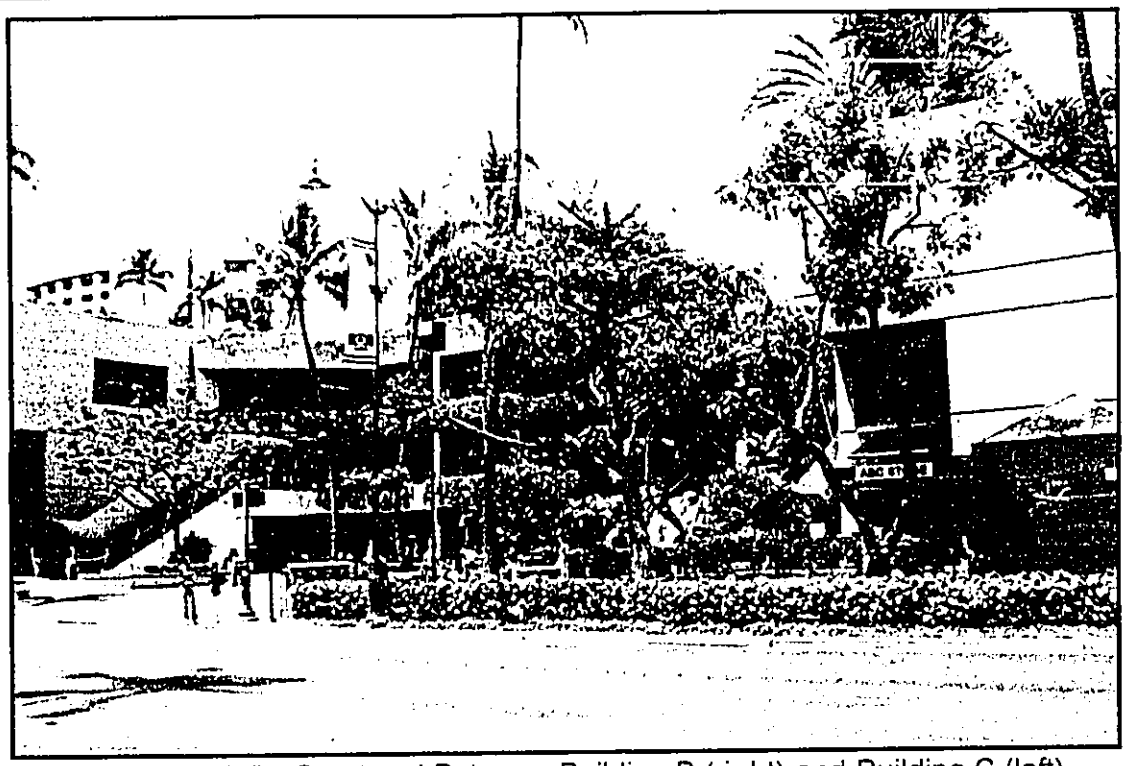
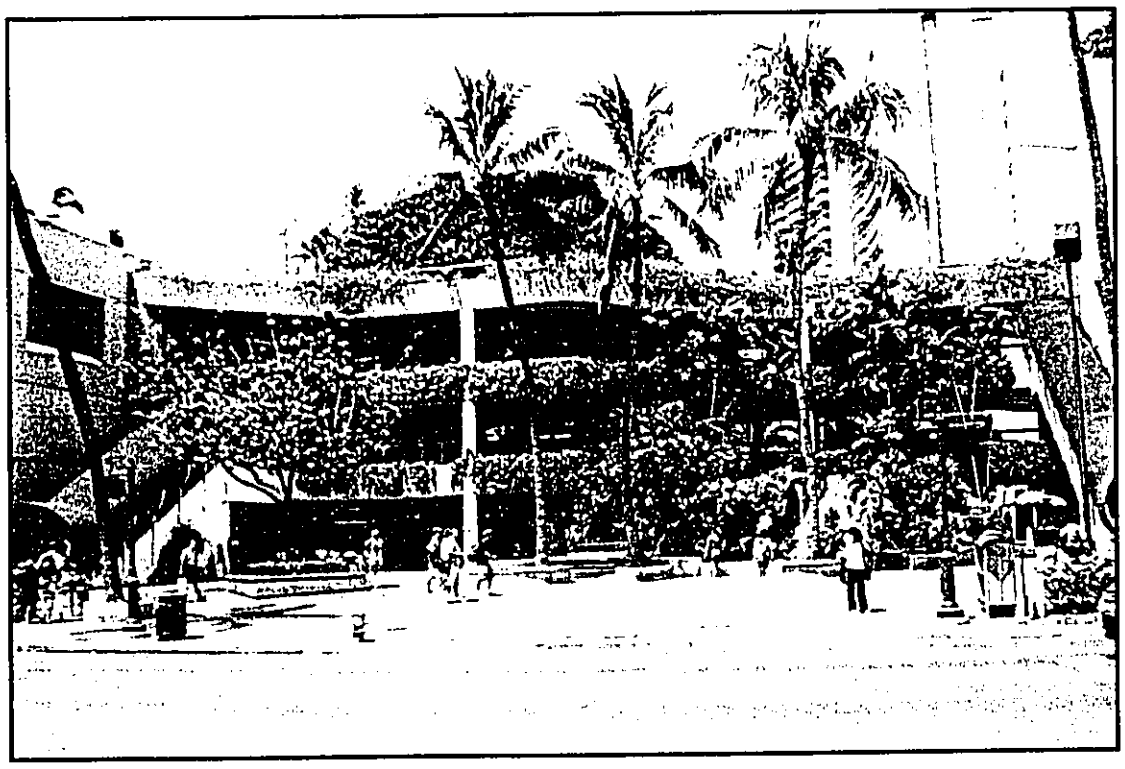


Photograph 7: Courtyard Between Building B (right) and Building C (left)



Photograph 8: Courtyard Between Building B
and C With 3 Levels of Pedestrian Bridges

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ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION

Photographs 7 and 8 of Existing Project Site

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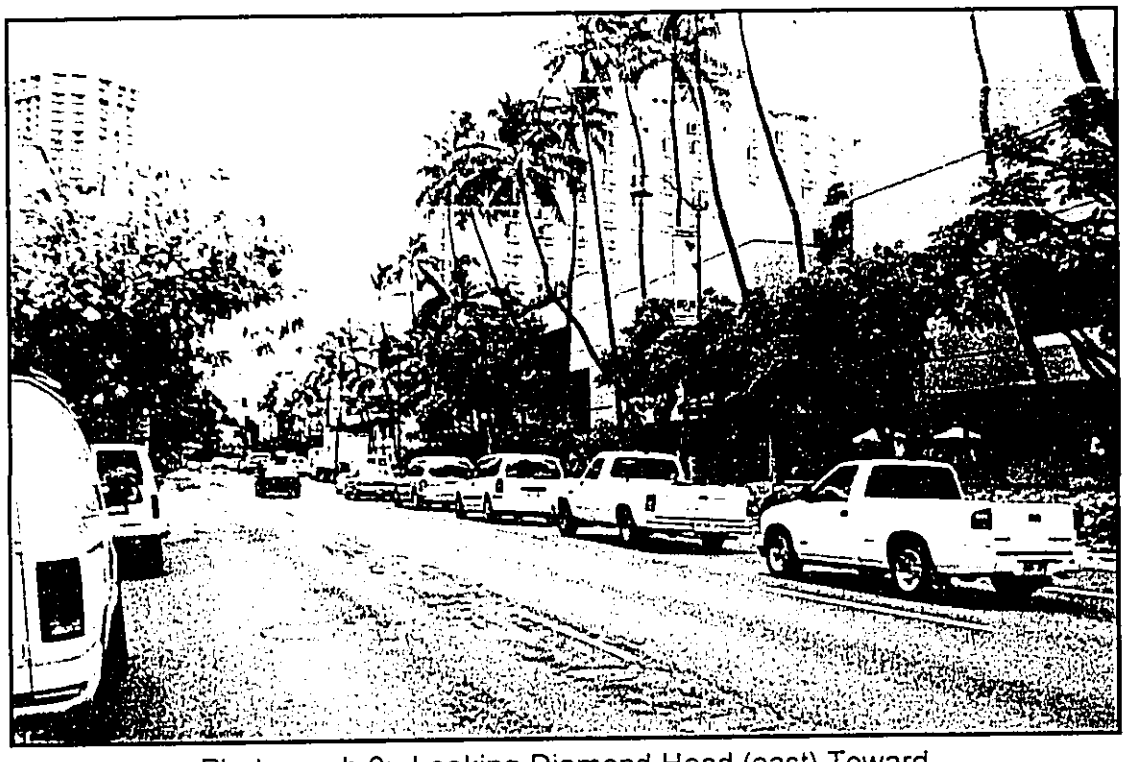
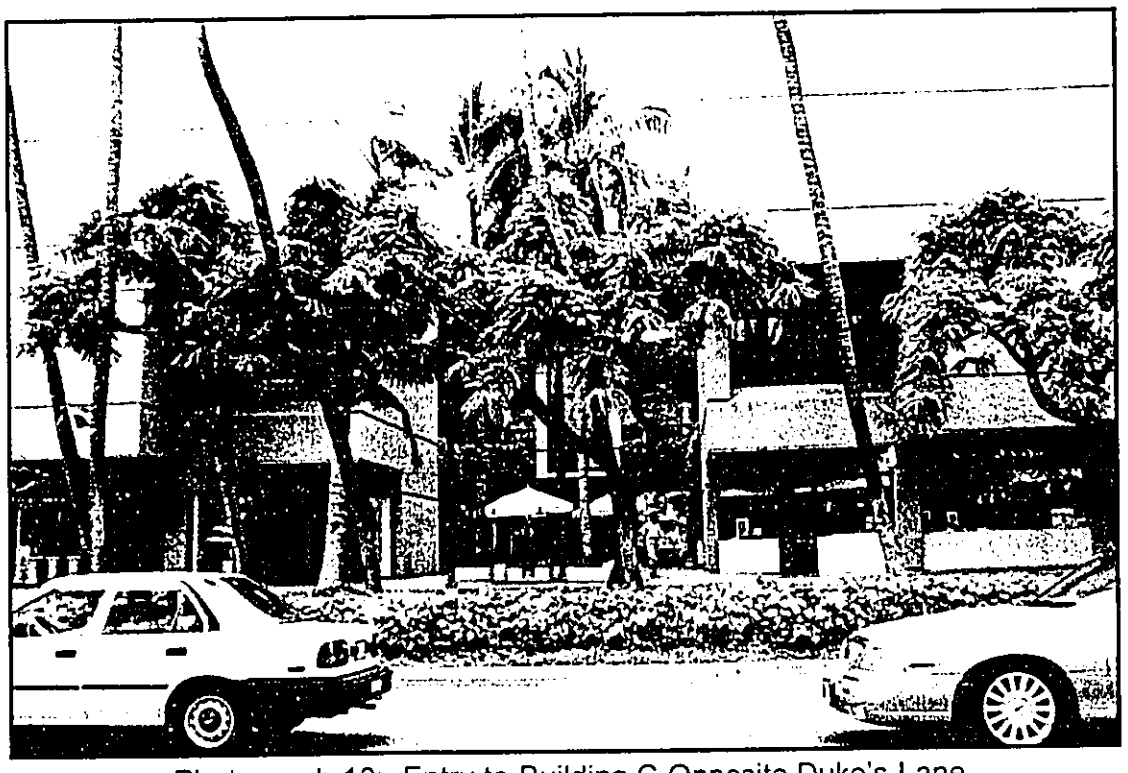


Photograph 9: Looking Diamond Head (east) Toward
The Outrigger Waikiki On The Beach Hotel



Photograph 10: Entry to Building C Opposite Duke's Lane

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ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION

Photographs 9 and 10 of Existing Project Site

All three retail buildings are connected by a continuous pedestrian walkway at ground level and by pedestrian bridges at the upper levels, with escalators, elevators and stairs between levels providing vertical pedestrian circulation.

A large landscaped courtyard with a stage and water feature is located between Buildings "B" and "C", opposite Seaside Avenue.

The Center's frontage along Kalakaua Avenue is landscaped predominantly with a mix of coconut palms, shower trees and groundcover between the street and the tile-paved sidewalk with pedestrian access to street crossings.

Surrounding land uses include various resort hotel retail and commercial properties. (see Figure 4) Along the makai side of Kalakaua Avenue, various surrounding hotel uses include the Ohana Islander Waikiki and Marc Suites Waikiki Royal hotels across Lewers Street from RHSC Building "A"/parking structure; the Ohana Reef Towers hotel makai across Don Ho Lane from RHSC Building "A"; the Sheraton Waikiki hotel parking structure makai of and abutting the RHSC parking structure; the Sheraton Waikiki hotel; and the Royal Hawaiian hotel makai of RHSC Buildings "B" and "C"; and the Outrigger Waikiki On the Beach hotel on the Diamond Head-side of RHSC Building "C." Along the mauka side of Kalakaua Avenue, the Louis Vuitton store and DFS Galleria front the block between Lewers Street and Royal Hawaiian Avenue opposite RHSC Building "A"; the Waikiki Shopping Plaza occupies the block between Royal Hawaiian Avenue and Seaside Avenue, opposite RHSC Building "B"; the Waikiki Business Plaza and the former Waikiki Theater 3 are located between Seaside Avenue and Duke's Lane, opposite RHSC Building "C"; and, the Waikiki Beachcomber hotel and International Marketplace are located on the Diamond Head-side of Duke's Lane, also opposite RHSC Building "C." A public beach access is located between the Diamond Head end of RHSC and the Outrigger on the Beach hotel.

1.3 Project Description

The objective of the proposed RHSC revitalization is to reestablish its role as a major retail center in Waikiki by: a) Incorporating features that will convey a Hawaiian sense of place consistent with the City's Waikiki Special District design guidelines; b) Incorporating historical, cultural and educational features consistent with the goal of Kamehameha Schools to perpetuate all things Hawaiian; and, c) Improving visual and pedestrian linkages with the adjoining Sheraton Waikiki and Royal Hawaiian hotels to create an integrated resort destination. All improvements will comply with WSD design standards for building height and setback, floor area ratio density and open space, as well as Land Use Ordinance standards for parking and off-street loading areas.

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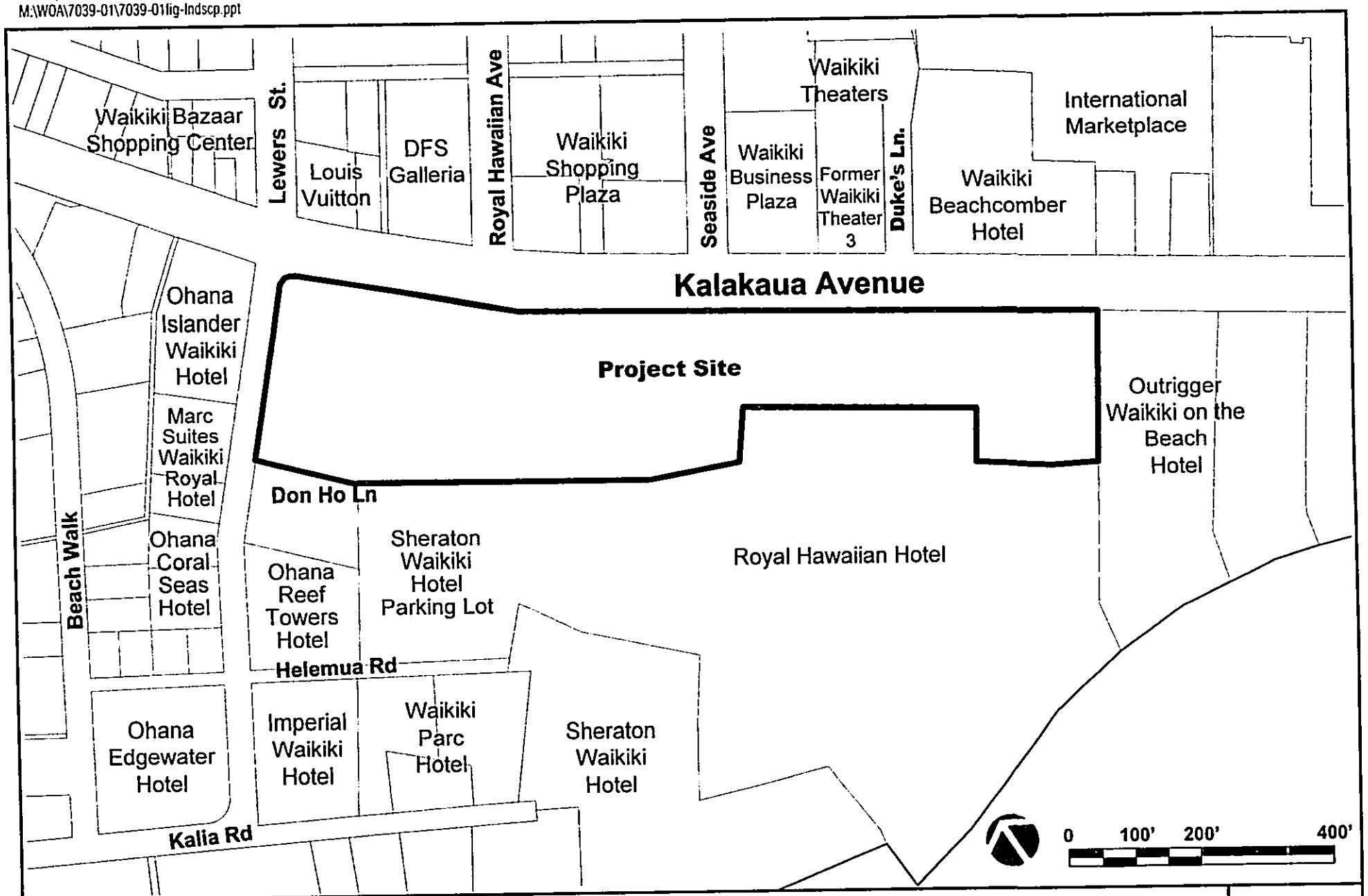

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ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION

Surrounding Uses Map

FIGURE 4

The proposed revitalization includes various improvements (see Figures 5-11):

1. Recreating the existing courtyard between Buildings "B" and "C" in the theme of the "Royal Grove" to serve as a central focal point and gathering place to celebrate and appreciate all things Hawaiian:

    - All existing pedestrian bridges between the buildings will be demolished and a single new curved "floating" bridge will be constructed at the third level. This will open views showcasing the existing large banyan tree and provide glimpses of the Royal Hawaiian hotel, including its domed towers.
    - The sidewalk fronting Kalakaua Avenue will be reconstructed with textured paving, opening onto the courtyard from both sides. The pavement theme will also extend across Kakakaua Avenue at the existing pedestrian crossing fronting the courtyard. The textured pavement for the exterior sidewalks and portions of the courtyard ground floor interior walkways will be similar to the pavement installed by the City at the Kuhio Beach Center.
    - Landscaping along the Kalakaua Avenue frontage will feature coconut palms reminiscing the 10,000 coconut palms of the 16th century Royal Grove. Existing canopy trees and shrubs will be removed to open views toward the courtyard and further the coconut grove setting. Grassy lawns and seating areas will create impromptu gathering areas similar to the design concept of the sidewalk fronting the renovated Kuhio Beach Center.
    - The courtyard will include areas for formal and informal Hawaiian performances. Along a meandering water feature will be places for story telling, cultural and historical exhibits, including a marker for the existing Waikiki Historical Trail.

2. The sidewalk along Kalakaua Avenue on either side of the courtyard will extend the landscaping theme of coconut palms and grassy mounds interspersed with seating areas and kiosks featuring lei making and other interactive cultural uses and amenities for pedestrians to stop, gather and enliven the streetscape. Decorative torches and other accented lighting will further enhance the sidewalk experience into the evening. A passenger loading platform for the City's Bus Rapid Transit system is planned for construction along Kalakaua Avenue fronting the Ewa end of Building "B", near the "Royal Grove" courtyard. The platform and associated passenger access operations will be functionally and aesthetically integrated with the proposed sidewalk and landscape improvements fronting this portion of the RHSC.

3. Royal Hawaiian Avenue will be lined with Royal Palms to enhance the primary vehicular entrance to the resort area.

4. View corridors from Kalakaua Avenue will be opened between buildings by removing existing obstructions, including elevators, stairs, and kiosks. These new

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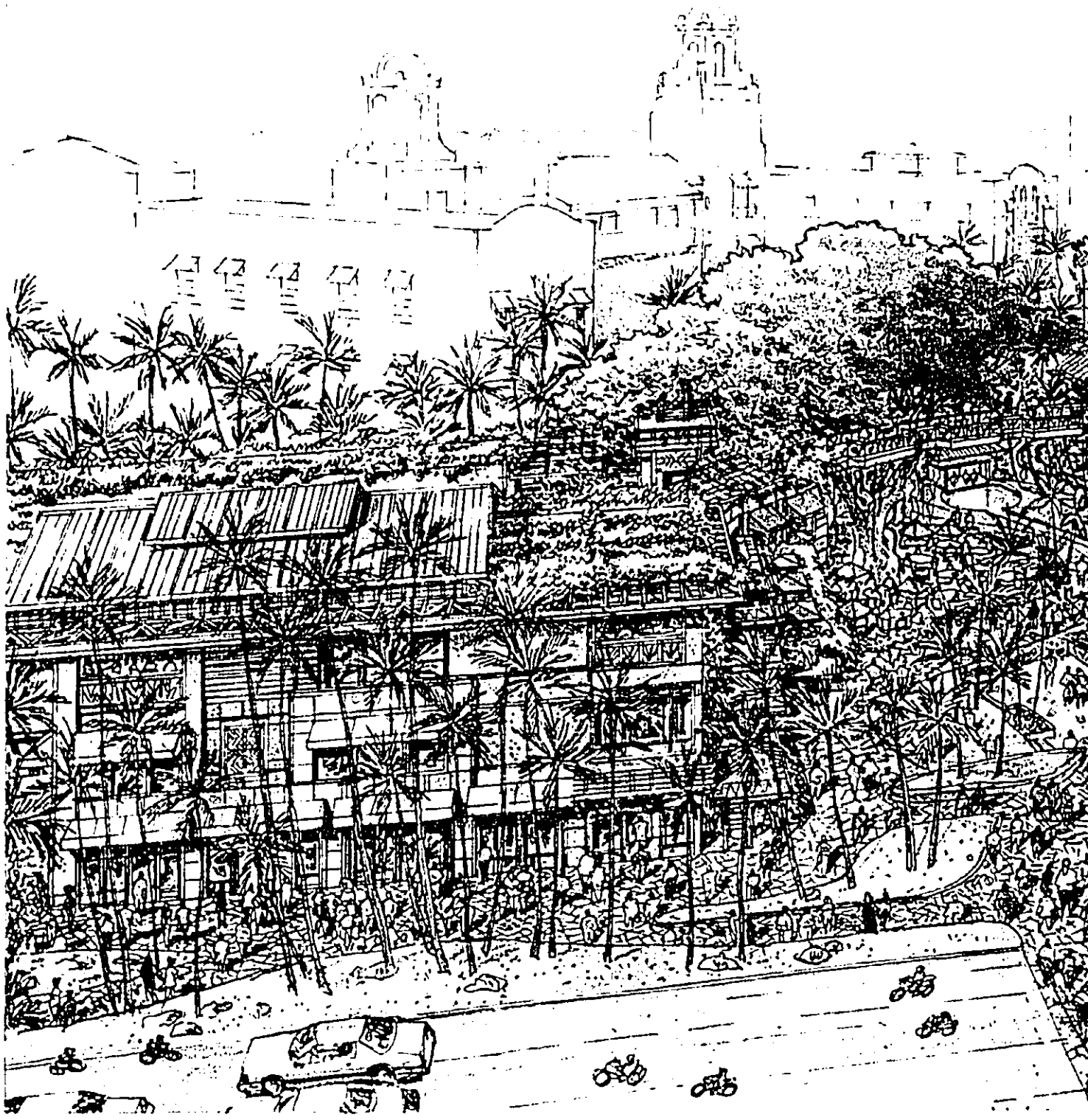

ROYAL GROVE AERIAL VI

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ROYAL HAWAIIAN SHOPPING CENTER RE

Royal Grove Aerial Vie

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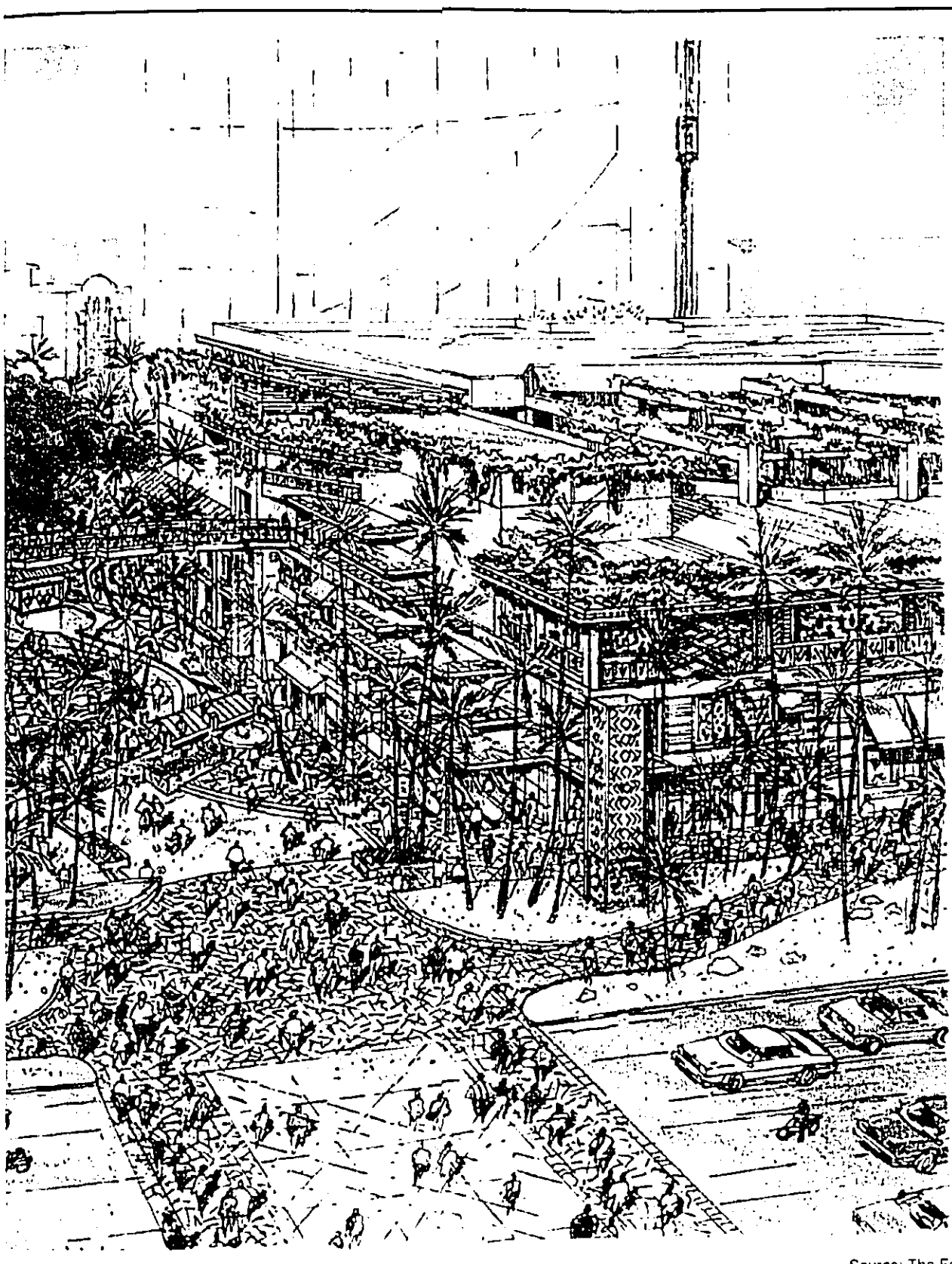

VE AERIAL VIEW

Source: The Festival Companies

NG CENTER REVITALIZATION

e Aerial View

FIGURE
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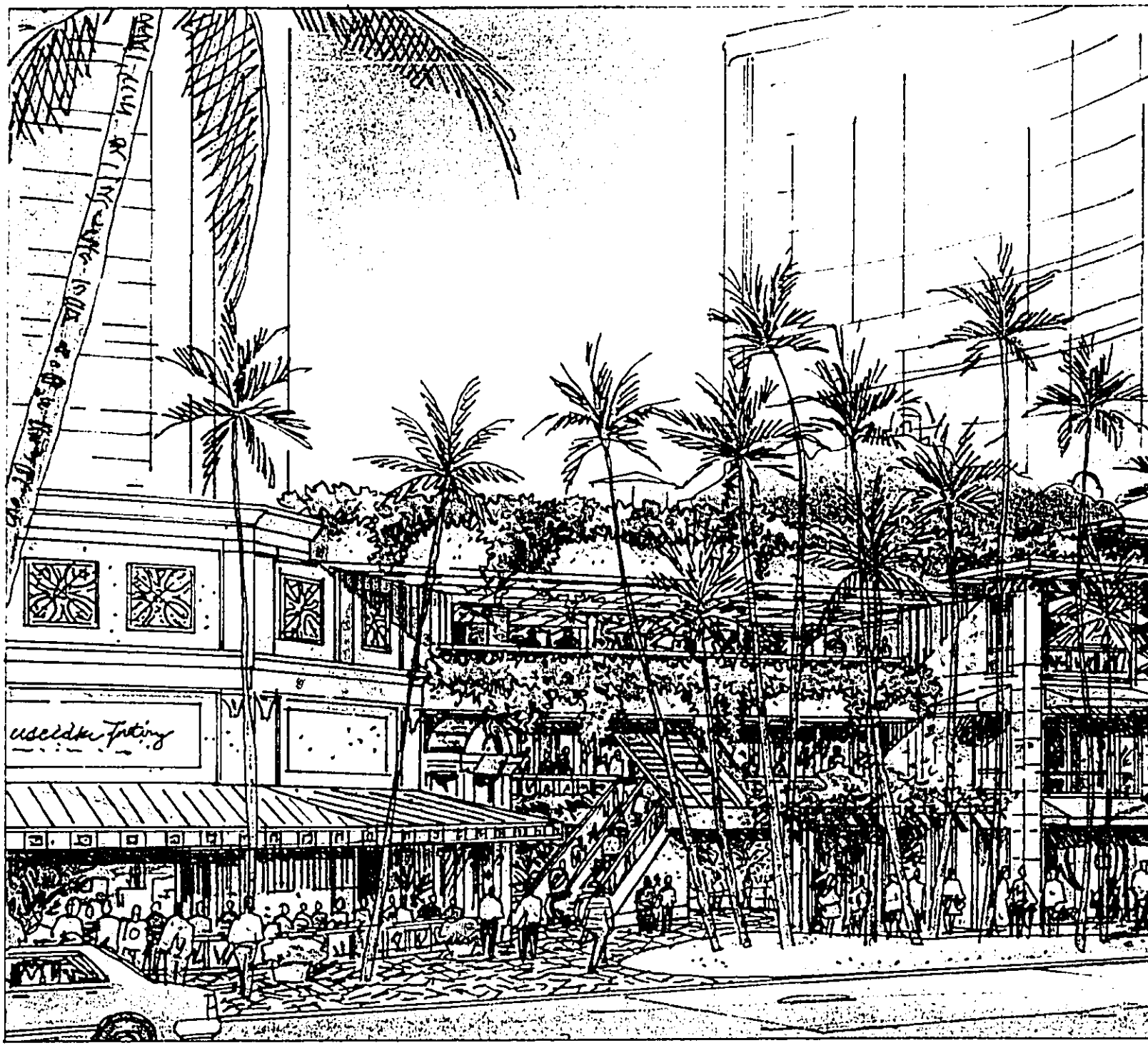

DIAMOND HEAD ENTRY AT BUILDI

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CORPORATION
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ROYAL HAWAIIAN SHOPPING CENTER R

Diamond Head Entry At Bu

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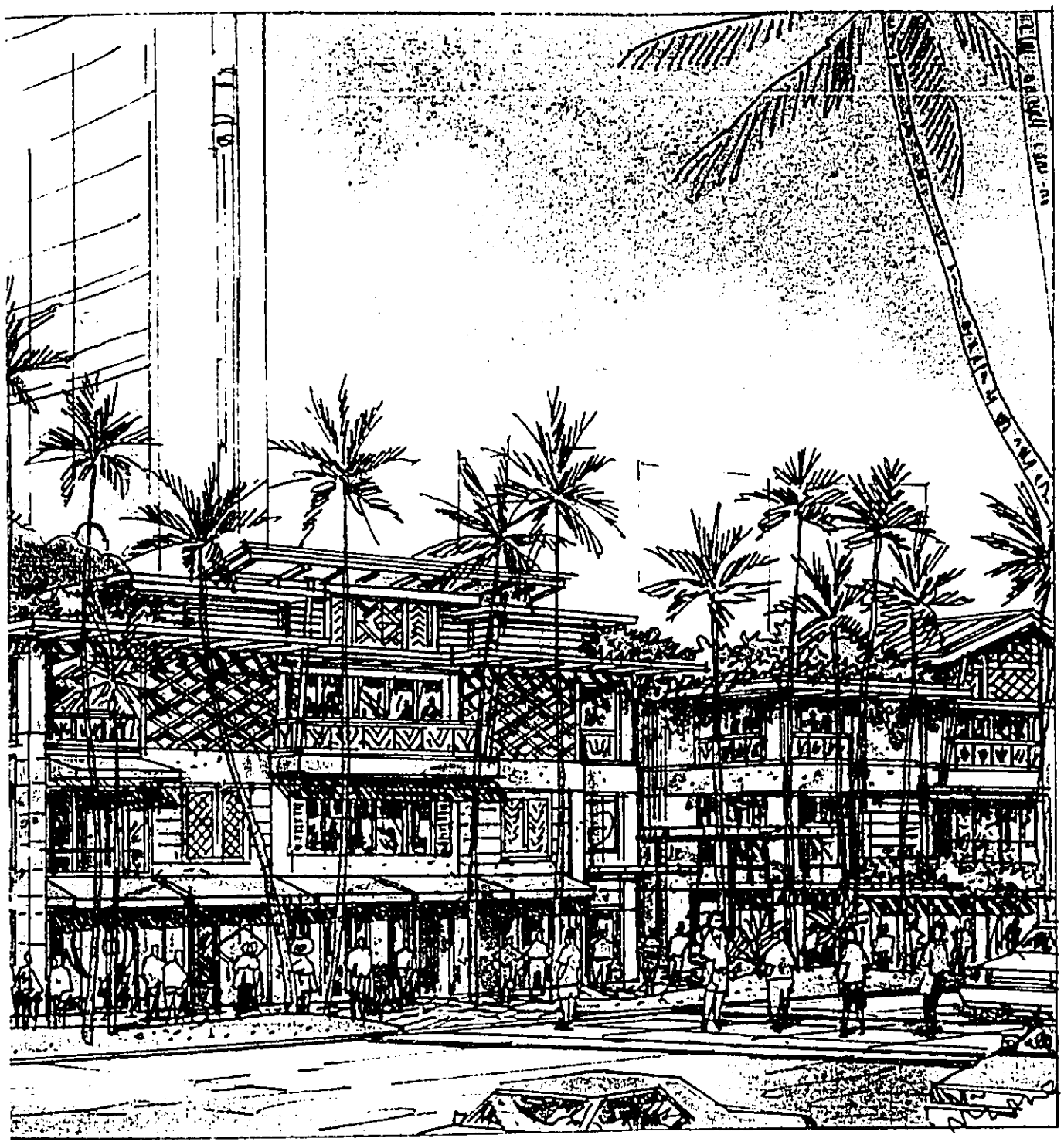

RY AT BUILDING C

Source: The Festival Companies

NG CENTER REVITALIZATION

Entry At Building C

FIGURE
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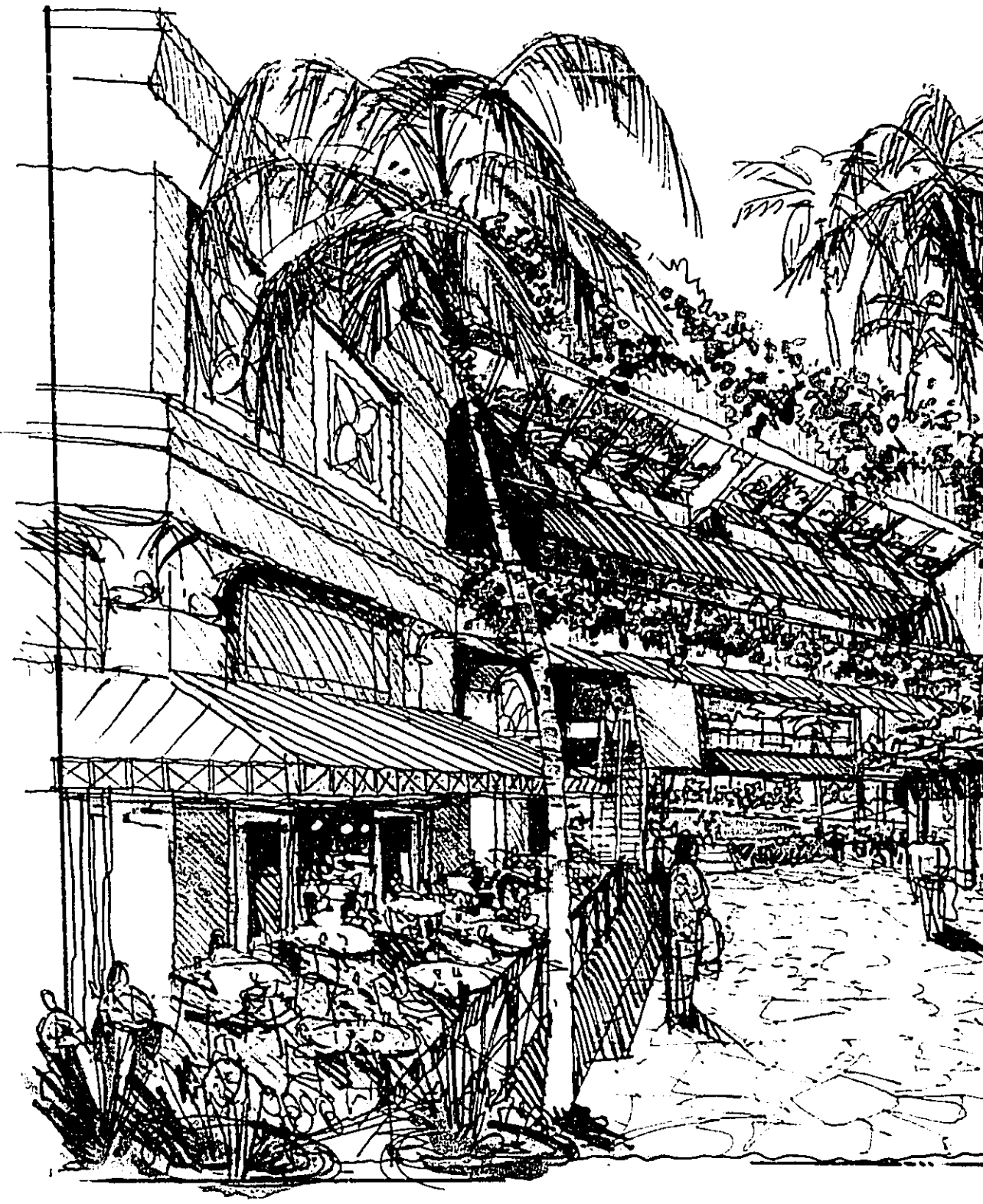

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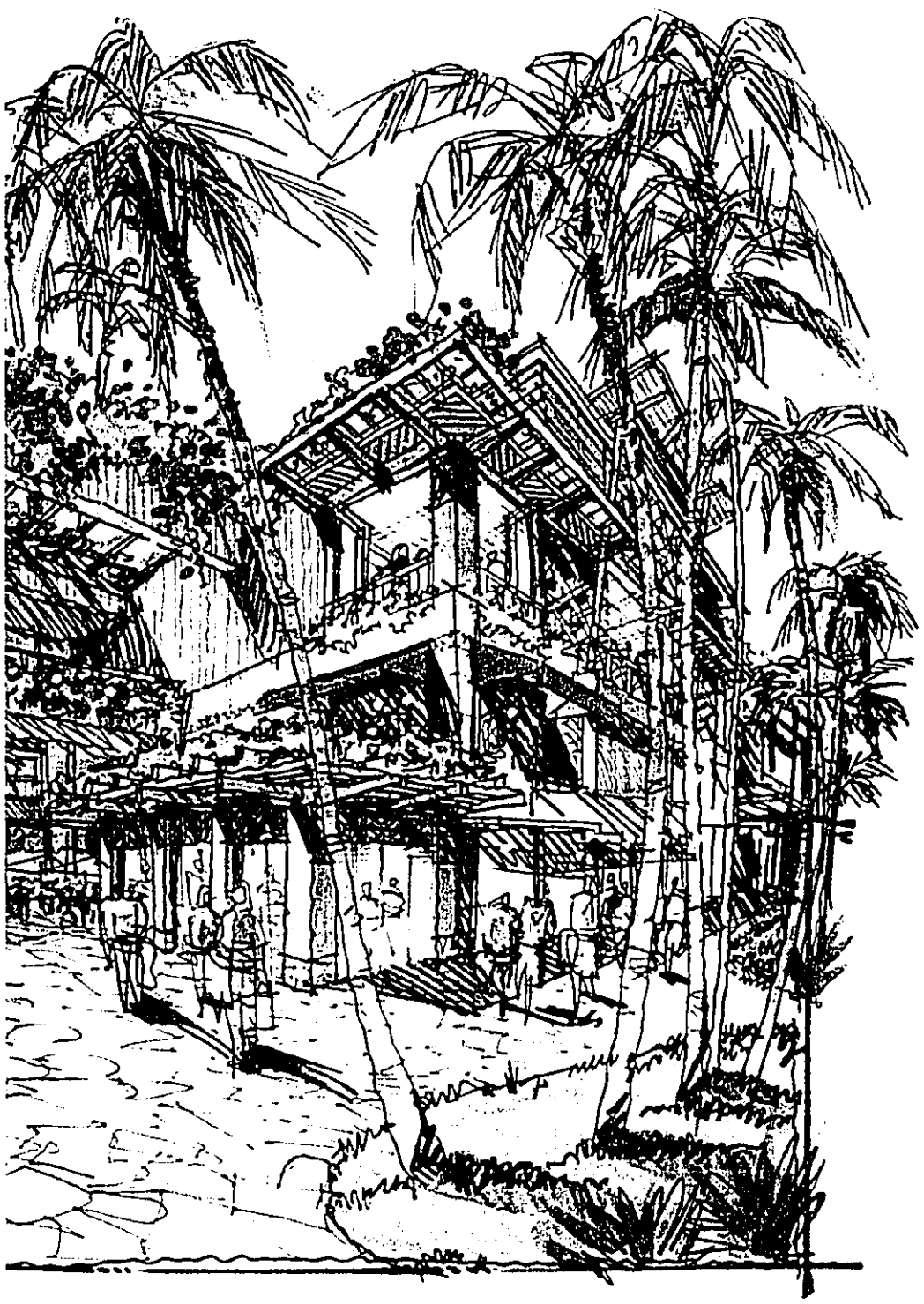
ENGINEERS - PLANNERS

ROYAL HAWAIIAN SHOPPING CENTER RE

View Into Royal Hawaiian Garden Pre



Source: The Festival Companies

ING CENTER REVITALIZATION

Garden Precinct At Building C

FIGURE
7

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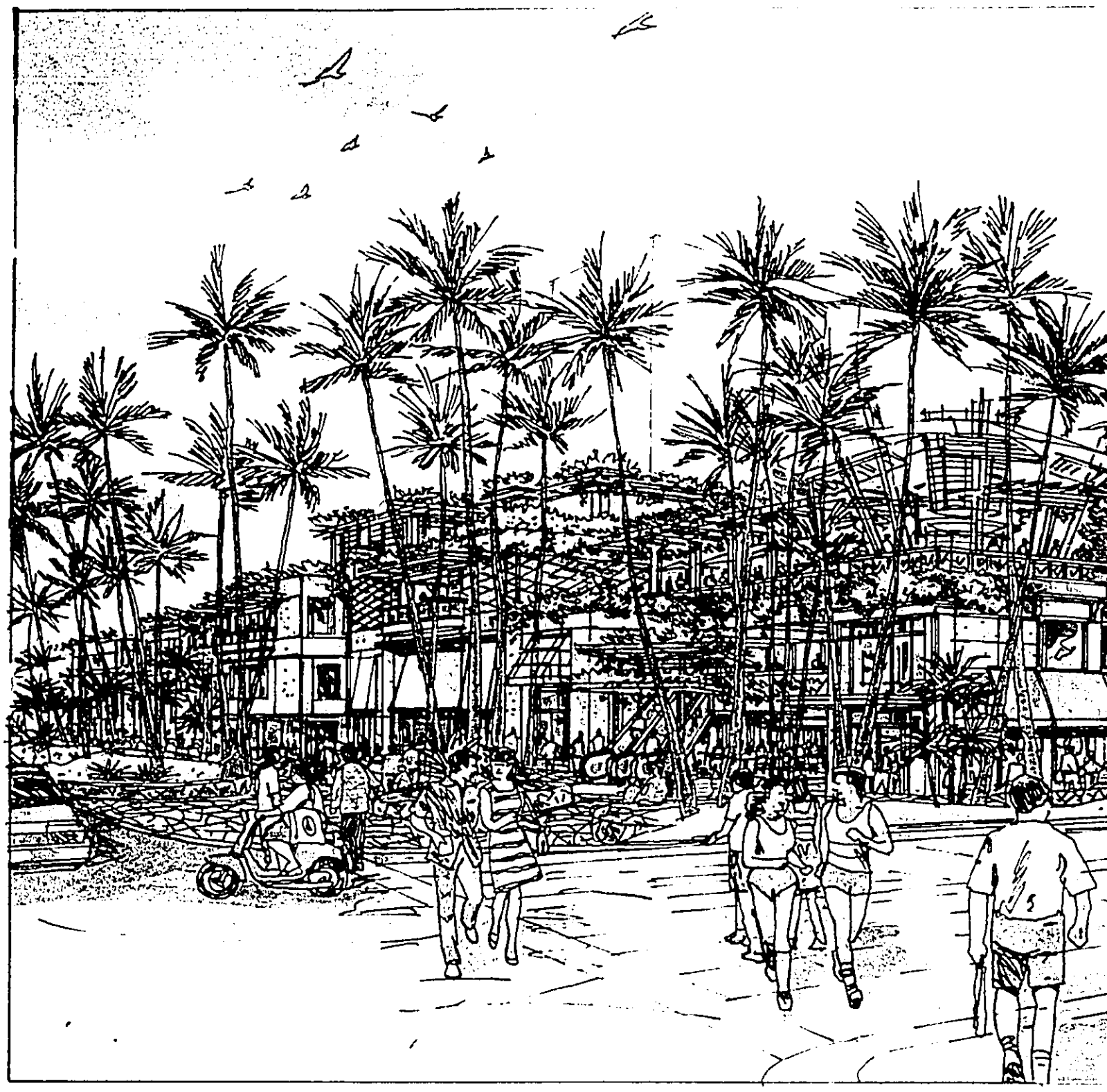

CORNER OF KALAKAUA & LE

WILSON OKAMOTO
CORPORATION
ENGINEERS - PLANNERS

ROYAL HAWAIIAN SHOPPING CENTER R

Corner of Kalakaua Avenue and

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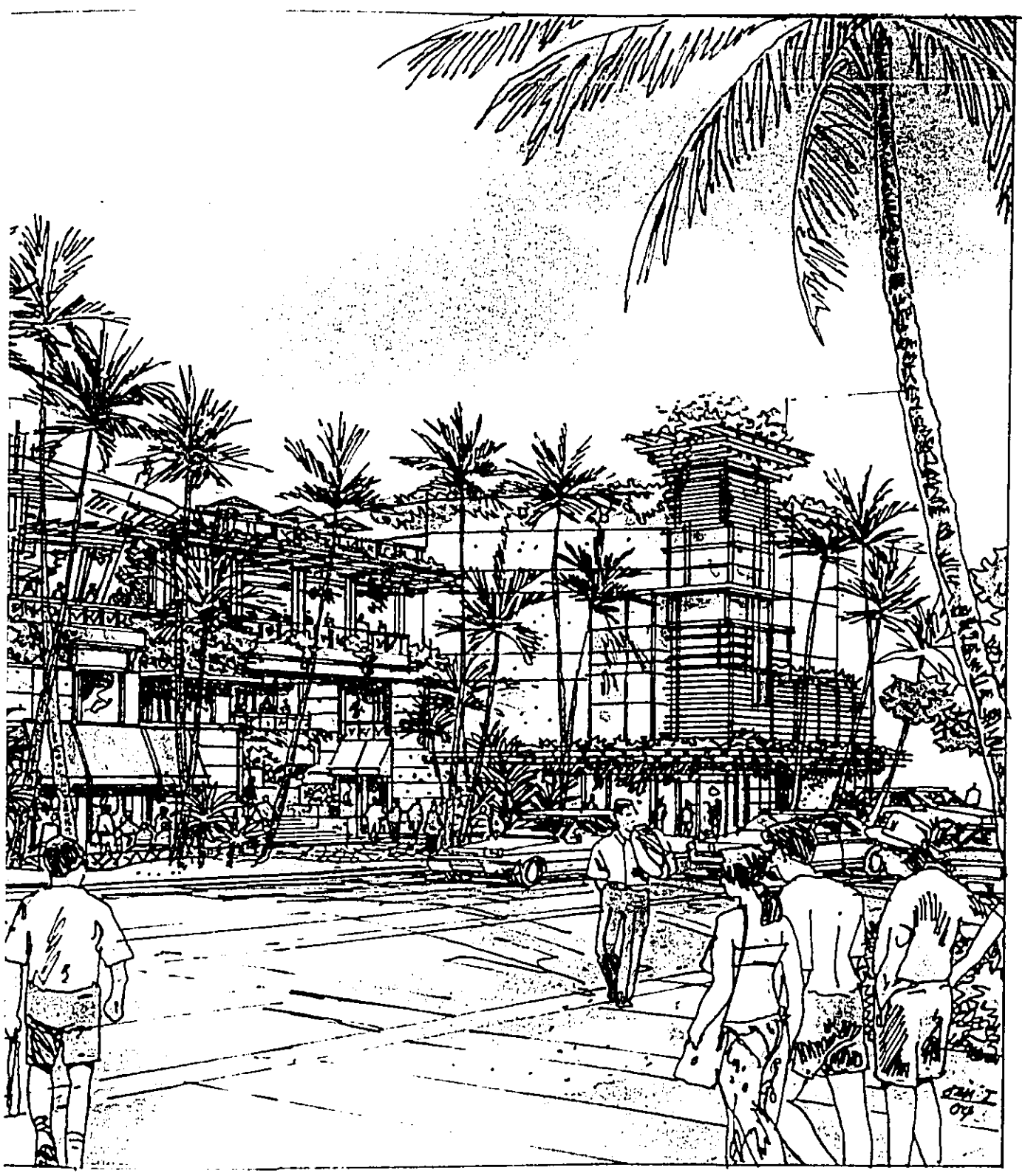

AKAUA & LEWERS

Source: The Festival Companies

NG CENTER REVITALIZATION

/enue and Lewers Street

FIGURE
8

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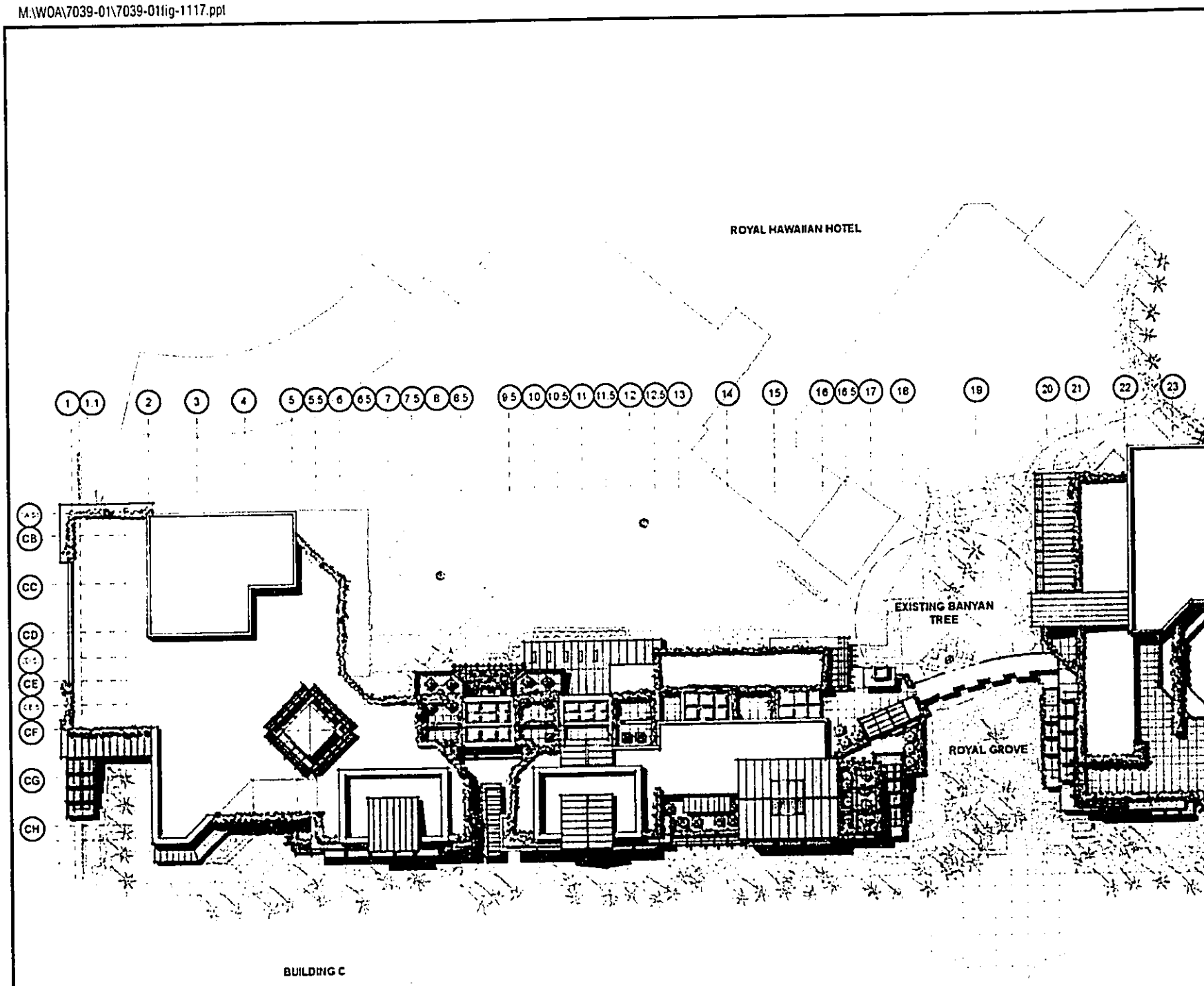

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Graphic Scale in Feet

OVERALL PLAN - LEVEL 5 ROOF

WILSON OKAMOTO CORPORATION
ENGINEERS - PLANNERS

ROYAL HAWAIIAN SHOPPING CENTER RE

Overall Plan – Level 5 Roo

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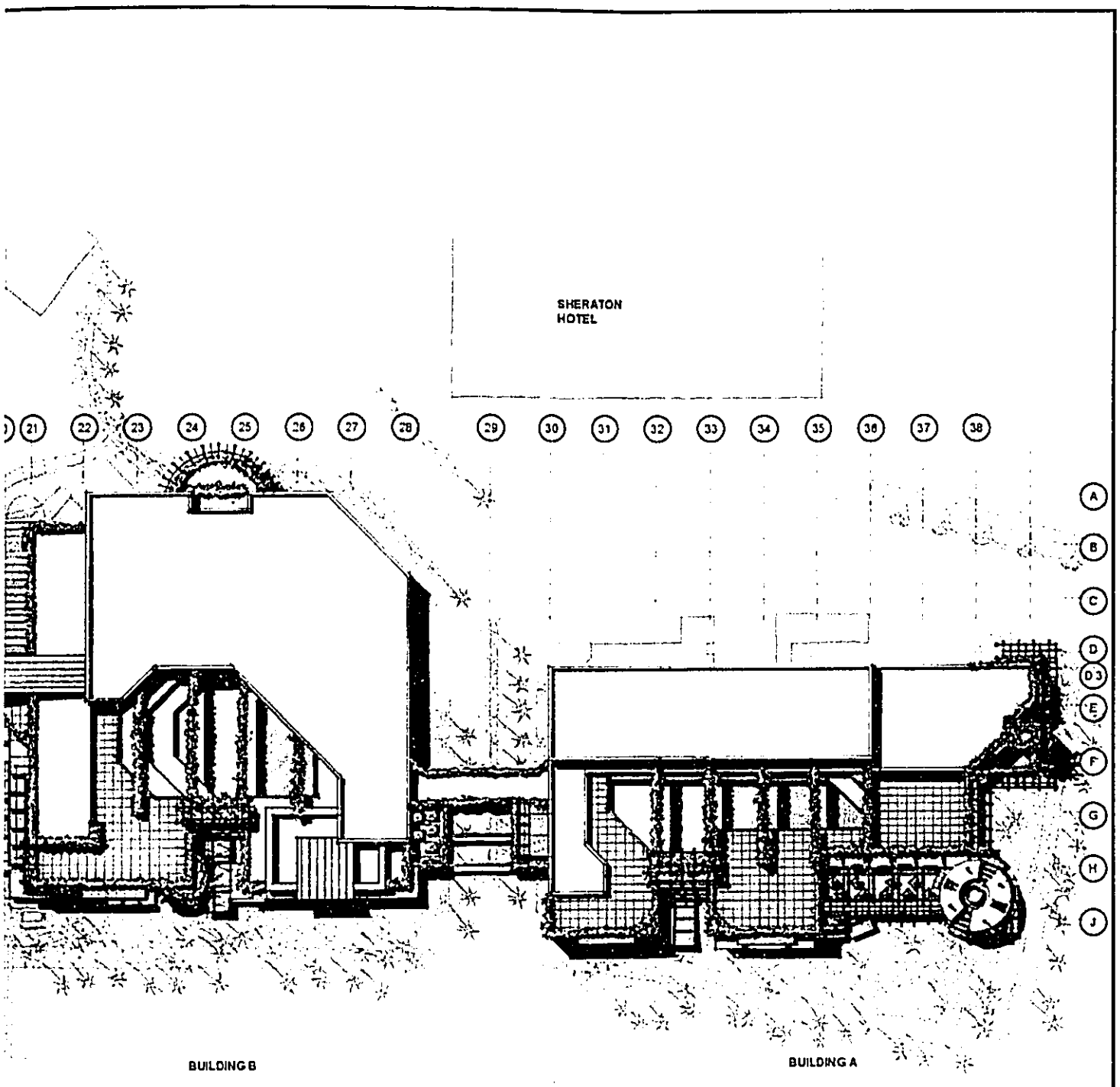

EVEL 5 ROOF PLAN

Source: The Festival Companies

NG CENTER REVITALIZATION	FIGURE
Level 5 Roof Plan	**9**

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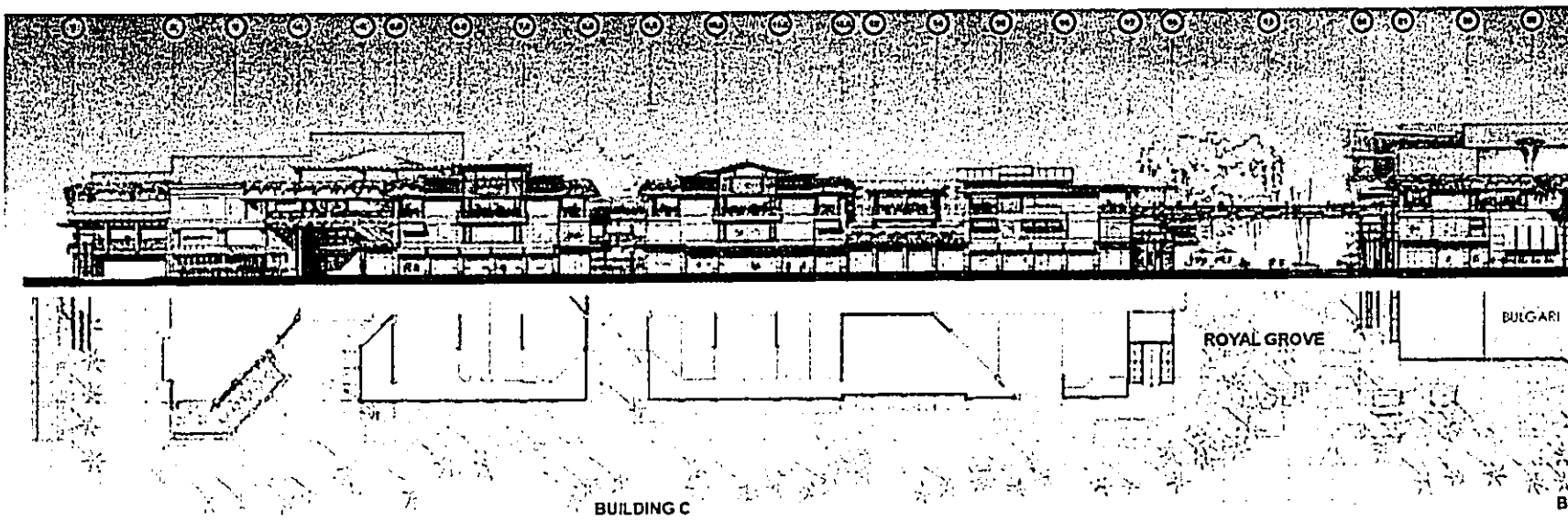

KALAKAUA AVENUE

SEASIDE AVENUE

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Graphic Scale in Feet

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ROYAL HAWAIIAN SHOPPING CENTER REV

North (Kalakaua Avenue) Building

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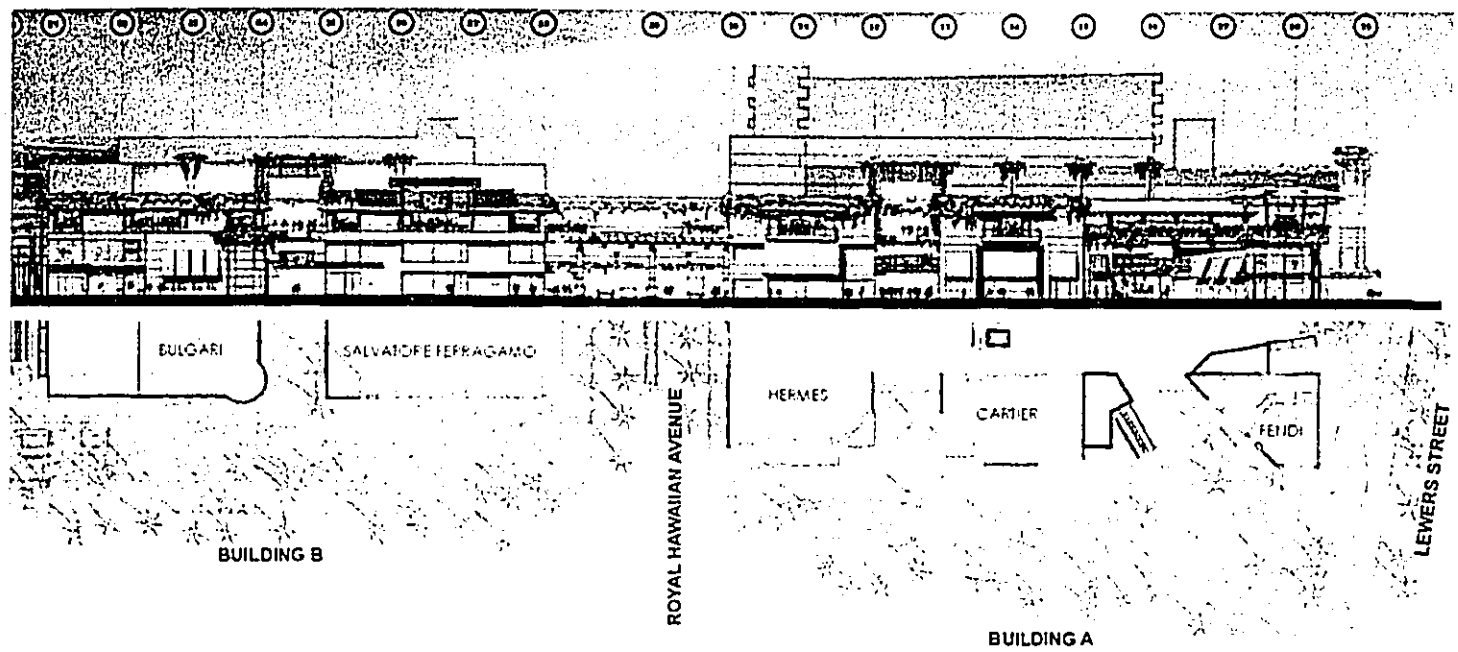

Source: The Festival Companies

NG CENTER REVITALIZATION	
nue) Building Elevation	FIGURE **10**

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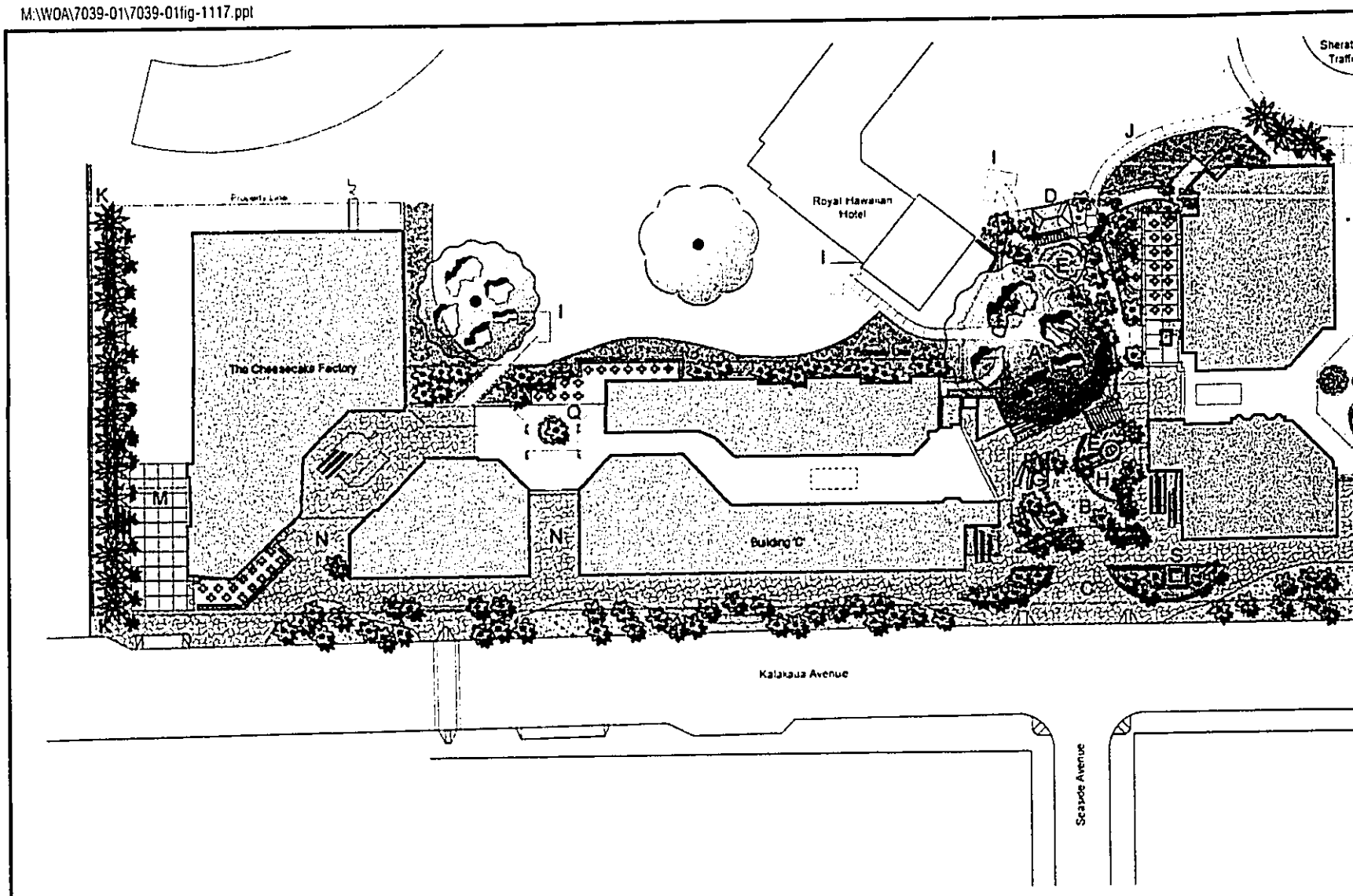

LANDSCAPE FEATURES LEGEND

- A Royal Grove, Contemplative Zone (Central Court)
- B Royal Grove, Activity Zone (Central Court)
- C Royal Grove, Entry Zone (Central Court)
- D Hale
- E Water Feature - Stream and Lagoon
- F Outdoor Deck Seating Area
- G Seating Area
- H Performance Area
- I Pedestrian Connection to Royal Hawaiian Hotel
- J Pedestrian Connection to Sheraton Hotel Traffic Circle
- K Pedestrian Connection to Beach
- L Entry Walk to Shopping Center (Second Level)
- M Service Court
- N Shopping Center Pedestrian Entry (First Level)
- O Public Open Space at Royal Hawaiian Avenue Intersection
- P Public Open Space at Lewers Street Intersection
- Q Interior Theme Garden
- R Retail Structure (Lei Hut or Coffee Cart)
- S Icon Element

PLANT LEGEND

TREES

Symbol	Botanical Name	Common Name	Size	Spacing	Quantity	Disposition/Remarks
	Cocos nucifera	Coconut Palm	25'-35' Trunk Height	N/A	10 Existing	Save and Protect in Place
	Cocos nucifera	Coconut Palm	30' Trunk Height	Per Plan	35	-
	Cocos nucifera	Coconut Palm	25' Trunk Height	Per Plan	88	-
	Cocos nucifera	Coconut Palm	20' Trunk Height	Per Plan	51	-
	Ficus benghalensis	Banyan Tree	45'-50' Height/ 80'-90' Spread	N/A	1 Existing	On-Site Tree, Save and Protect in Place
	Ficus benghalensis	Banyan Tree	40'-45' Height 70'-80' Spread	N/A	1 Existing	Off-Site Tree, Save and Protect in Place
	Roystonea elata	Royal Palm	40-45' Height	Per Plan	5 Existing	Save and Protect in Place
	Roystonea elata	Royal Palm	25' Trunk Height	Per Plan	40	-
	Samanea saman	Monkeypod Tree	40'-45' Height, 50'-60' Spread	N/A	1 Existing	Save and Protect in Place
	Tamarindus indica	Tamarind Tree	16'-18' Height 5"-6" Caliper	Per Plan	6	-
	Existing Tree	Interior Courtyard Tree	40-45' Height 20' Spread	N/A	1 Existing	Save and Protect in Place

UNDERSTORY PLANTS, SHRUBS AND GROUNDCOVER

Botanical Name	Common Name
Epipremnum aureum	Golden Pothos
Eranthemum pulchellum	Eranthemum
Hedychium spp.	Red Ginger
Heliconia bihai	Lobster Claw H
Heliconia indica 'Spectabelis'	N.C.N.
Hibiscus rosa-sinensis 'Red'	Red Hibiscus
Hibiscus rosa-sinensis 'White Wings'	White Hibiscus
Ptychosperma macarthuri	MacArthur Pal
Raphis excelsa	Lady Palm

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ROYAL HAWAIIAN SHOPPING CENTER R

Conceptual Landscapin

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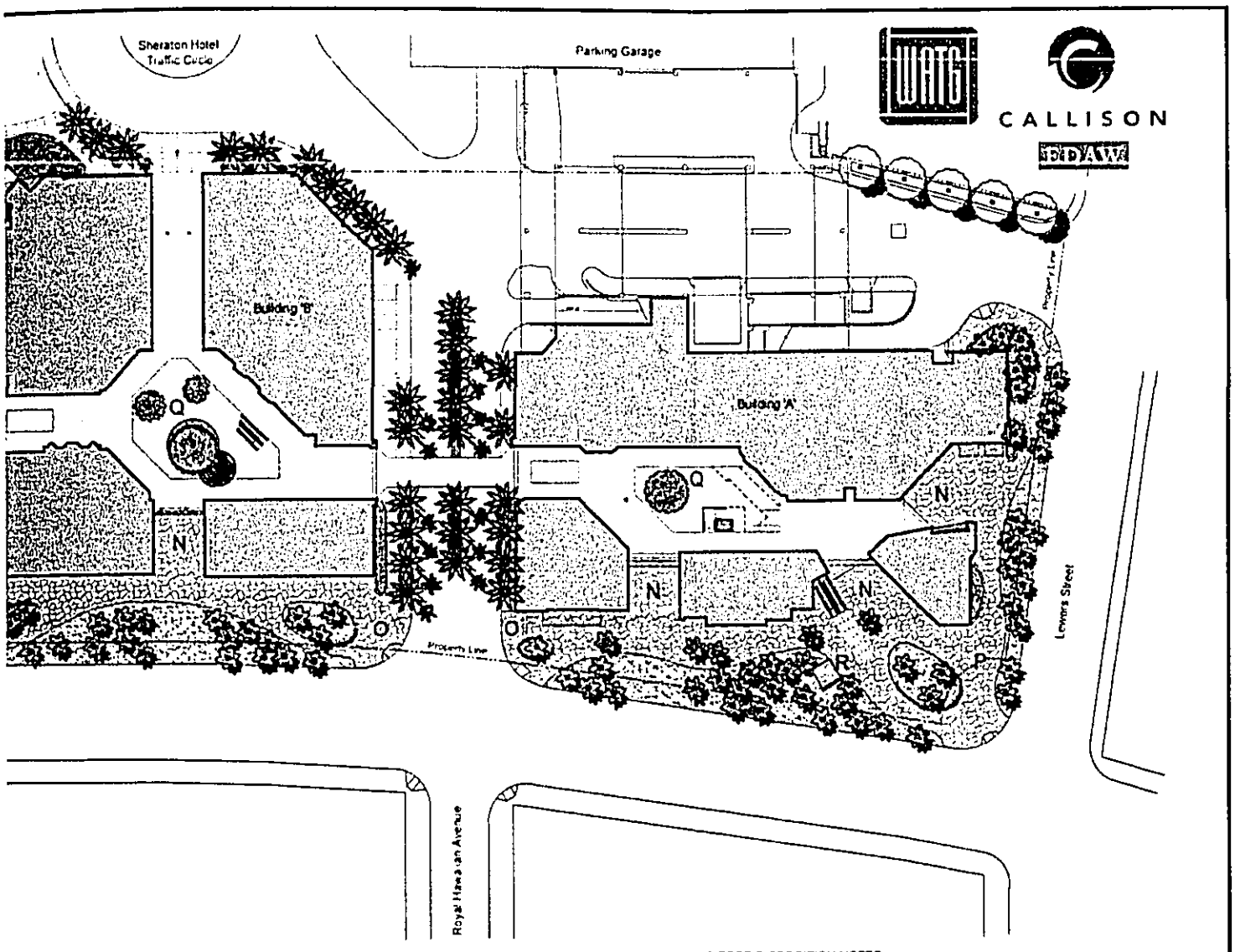

TS, SHRUBS AND GROUNDCOVER

al Name	Common Name	Size	Spacing	Quantity	Disposition/Remarks
·um aureum	Golden Pothos	4" Pot	12" o c	TBD	Triangular Spacing
·mum pulchellum	Eranthemum	3 Gal/24"-30" Height	30" o c	TBD	Triangular Spacing
·um spp	Red Ginger	3 Gal/30" Height	30" o c	TBD	Triangular Spacing
·a bilbe	Lobster Claw Heliconia	5 Gal/4'-5' Height	36" o c	TBD	Triangular Spacing
·a indica bella'	N C N.	5 Gal/ 4'-5' Height	36" o c	TBD	Triangular Spacing
·s rosa-sinensis	Red Hibiscus	5 Gal	36" o c	TBD	Triangular Spacing
·s rosa-sinensis Mngs'	White Hibiscus	5 Gal	36" o c	TBD	Triangular Spacing
·sperma macarthuri	MacArthur Palm	25 Gal/6'-7' Height	N/A	TBD	-
excelsa	Lady Palm	5 Gal/4' Height	N/A	TBD	-

EXISTING TREE DISPOSITION NOTES

1 The existing Ficus benghalensis ("Banyan Tree") on site is to be saved and protected in place

2 As many as possible of the Cocos nucifera ("Coconut Palm") palms are to be saved and protected in place

3 Of those Cocos nucifera ("Coconut Palm") palms that must be removed those that are horticulturally viable and likely to be transplanted successfully will be re-used on site as part of the landscape renovation

4 The existing Ficus benghalensis ("Banyan Tree") and Samanea saman ("Monkeypod Tree") within the Royal Hawaiian Hotel Garden are to be saved and protected in place

Source: The Festival Companies

ING CENTER REVITALIZATION

andscaping Plan

FIGURE
11

5. pedestrian view corridors will more directly connect the Sheraton Waikiki and Royal Hawaiian hotel properties with Kalakaua Avenue through the RHSC. New escalators and relocated elevators will improve internal vertical pedestrian circulation to upper floors.

6. Core buildings improvements by the owner and storefront improvements by tenants will incorporate a "Hawaiian sense of place" and designed to tie to the historic legacy of the property and of Hawaii. Portions of the exterior core building façade will be clad in warm stone veneers with some of the veneer having sea shells and other marine fossils appearing in the face of the stone. Trellis work over the pedestrian and restaurant lanais will be made from wood timbers and stained with warm rich colors. Stone floor materials in the public areas will be lighter warm brown and beige colors with mildly textured surfaces.

   Tenants building new stores have been asked to:
   - Add more trellis to storefronts to provide further shade and shadow texturing on building façades;
   - Use natural stone finishes where possible in store front designs, in lieu of man made materials;
   - Use more wood mullions and wood trim around windows and doors as well as inside display cases instead of metal finishes;
   - Include more traditional Hawaiian stone relief patterns or symbols at various places in storefront designs such as below display windows and around doorways;
   - Open up storefronts with more windows to further break up building mass; and,
   - Use interesting colors, color shades and tones in store front finishes and trims.

7. Interior renovations will reconfigure floor areas with a net reduction of 7,948 square feet, from 463,180 square feet to 455,232 square feet. Use of open areas for open air restaurant dining, however, is estimated to increase gross leasable floor area by approximately 17,000 square feet, from approximately 293,000 square feet to approximately 310,000 square feet.

8. Other associated construction will include installation of new underground utility lines, installation of new grease interceptors to serve new restaurant kitchens and excavations for new elevator shafts and escalator equipment.

9. In the longer term, the RHSC will require tenant improvements to follow design guidelines that will further reinforce Waikiki Special District design themes and those of the RHSC to promote a Hawaiian Sense of Place. These guidelines will provide criteria for signage, require shade elements such as trellises, overhangs and awnings as well as the use of appropriate materials and architectural forms and motifs. Buildings fronting Kalakaua Avenue will be renovated to be predominantly comprised of two-story architectural facades that will help reduce the sense of

building mass and create smaller building proportions. New construction at street level will include, where possible, undulating building storefronts. There will be more open air restaurant dining and gathering areas on the third and fourth levels.

1.4 Project Schedule and Cost

Construction of the proposed project is anticipated to commence in January, 2005 with completion estimated by December, 2005. The preliminary estimated construction cost of the proposed project is $42 million.

2. DESCRIPTION OF THE EXISTING ENVIRONMENT, PROJECT IMPACTS AND MITIGATION MEASURES

The following is a description of the existing environment, assessment of potential project impacts and proposed mitigation measures.

2.1 Climate

The climate of the Honolulu area is typical of the leeward coastal lowlands of Oahu. The area is characterized by abundant sunshine, persistent tradewinds, relatively constant temperatures, moderate humidity, and infrequent severe storms.

Northeasterly tradewinds prevail throughout the year although their frequency varies from more than 50 percent during the summer months to 90 percent in January. The average annual wind velocity is approximately 10 miles per hour.

The mean temperature measured at Honolulu International Airport ranges from 70 degrees Fahrenheit (°F) in the winter to 84°F in the summer. The temperatures in the Waikiki project area may be slightly higher due to localized urban heating effects. The average annual precipitation in the vicinity of the project site is approximately 24 inches, with most of the rainfall occurring between November and April. Relative humidity ranges between 56 and 72 percent.

Impacts
The proposed project will not affect regional climate conditions.

2.2 Topography and Soils

Topography: The project site and surrounding areas are relatively flat and contain no unusual or unique topographic features. The ground floor elevation of RHSC is approximately eight feet above mean sea level (msl).

Soils: According to the U.S. Department of Agriculture Soil Conservation Service, the soils underlying the project site are classified as Jaucas sand (JaC). A representative profile of this soil type is single grain, pale brown to very pale brown, sandy, and more than 60 inches deep. The slope range of this soil is 0 to 15 percent, but in most places the slope does not exceed 7 percent. Permeability is rapid, and runoff is very slow to slow, and the hazard of water erosion is slight. Landscaped areas are likely comprised of imported soils.

Impacts and Mitigation Measures
The proposed project will not significantly alter the topography of the project site. Excavation will be limited to the construction of new elevator shafts, escalators, grease interceptors and trenches for utility lines. The area of soil disturbance within the project site will be greater than one-acre and, as such, a National

Pollutant Discharge Elimination System (NPDES) Notice of Intent (NOI) for Construction Storm Water Activities will be required from the State of Hawaii Department of Health (DOH).

2.3 Hydrology

Oahu's south central coast, geographically referred to as the Honolulu Plain, is underlain by a broad elevated coral reef which has been partly covered by alluvium carried down from the mountains. Core samples reveal that lava flows of the Honolulu Volcanic Series are interbedded with these reef deposits which were formed when the sea level was higher than it is now.

The same interbedding of coral and alluvial deposits which play an important role in Oahu's geology also influenced the hydrological character of Oahu's leeward coastline. The interface between upper sedimentary layers and the underlying basalt constitutes a zone of low permeability known as caprock. This caprock extends along the coastline about 800 to 900 feet below sea level, forming an impervious zone which prevents the seaward movement of potable water from the basaltic aquifers.

Historically, Makiki, Manoa and Palolo streams flowed into the area known as Waikiki. Waikiki means the "land of spouting waters" and was extensively cultivated in taro by Hawaiians and later with rice by immigrant farmers. The Ala Wai Canal was dredged in 1921, creating fast lands and demarcating the area now known as Waikiki.

There is no surface water within the project site. The nearest surface water body is the shoreline south (makai) of the Sheraton Waikiki and Royal Hawaiian hotels.

According to the State Commission on Water Resource Management there are no registered potable water wells in the Waikiki area.

The City and County of Honolulu Board of Water Supply Pass/No Pass line delineates the boundary of the potable water aquifer. The project site falls within areas makai of the line, which infers that activities on the project site will not impact potable groundwater resources.

Impacts and Mitigation Measures

In the short-term, construction of new elevator shafts and grease traps will require excavation to depths of up to 12 feet below existing ground level, entailing removal of previous fill material, as well as alluvial and coral deposits. Since the water table will be encountered at a depth of approximately eight feet below existing grade, some of the deeper excavations may require temporary dewatering. If discharges are anticipated as a result of dewatering activities, a NPDES NOI for Discharges Associated with Construction Activity Dewatering will be obtained from the DOH. Additionally, disposal of the dewatering effluent into

the municipal storm drain system will require a permit from the City and County of Honolulu Department of Planning and Permitting.

Soil runoff from excavations will be controlled in compliance with City and County of Honolulu grading permit requirements. Typical mitigation measures include removing excess excavated materials, appropriately stockpiling materials to be used for backfill and constructing over exposed soils as early as possible.

2.4 Flood Hazard

According to the Flood Insurance Rate Map (FIRM), Number 15003C0370E effective November 20, 2000, prepared by the Federal Emergency Management Agency (FEMA), the project site has three flood hazard designations (see Figure 12). The western portion of the project site, from Lewers Street to the area approximately opposite Seaside Avenue is designated Zone AO, Special Flood Hazard Areas Inundated by 100-year Flood, with an average flood depth determined at two feet. Buildings "A" and "B" are within this designation. The eastern portion of the project site, including most of Building "C" is designated Zone A, Special Flood Hazard Areas Inundated by 100-year Flood, with no base flood elevation determined. A small sliver of the project site between these two flood hazard designations, is designated Zone AE, Special Flood Hazard Areas Inundated by 100-year Flood, with a base flood elevation determined between six and seven feet msl.

Impacts and Mitigation Measures

All renovations will comply with City flood ordinances. The ground floor elevations of the RHSC, will not change. At 7.5 feet msl for Building "C", the portion of the ground floor level within Zone AE lies above the base flood elevation, which is determined to be between six and seven feet. The ground floor elevations of 8.0 feet msl for Building "A" and 7.5 feet msl for Building "B" within Zone AO, are higher than the two-foot flood depth added to the approximate elevation of five feet msl along Lewers Street and Kalakaua Avenue fronting these buildings.

2.5 Flora and Fauna

Existing vegetation within the project site is limited to landscaped areas. A preliminary arborist's survey identified palm and tree species around the perimeter of RHSC as well as in internal courtyards and planters. Species include coconut palms, royal palms, Macarthur palms, loulu palms, octopus trees, kukui, Chinese banyan, milo and wiliwili trees as well as other ornamental trees, shrubs and groundcover. The RHSC street frontage along Kalakaua Avenue is dominated by 68 coconut palms, and 11 shower trees. Royal palms are located in the median of Royal Hawaiian Avenue. Notable trees in the adjoining makai property include two large banyans and a large monkeypod tree.

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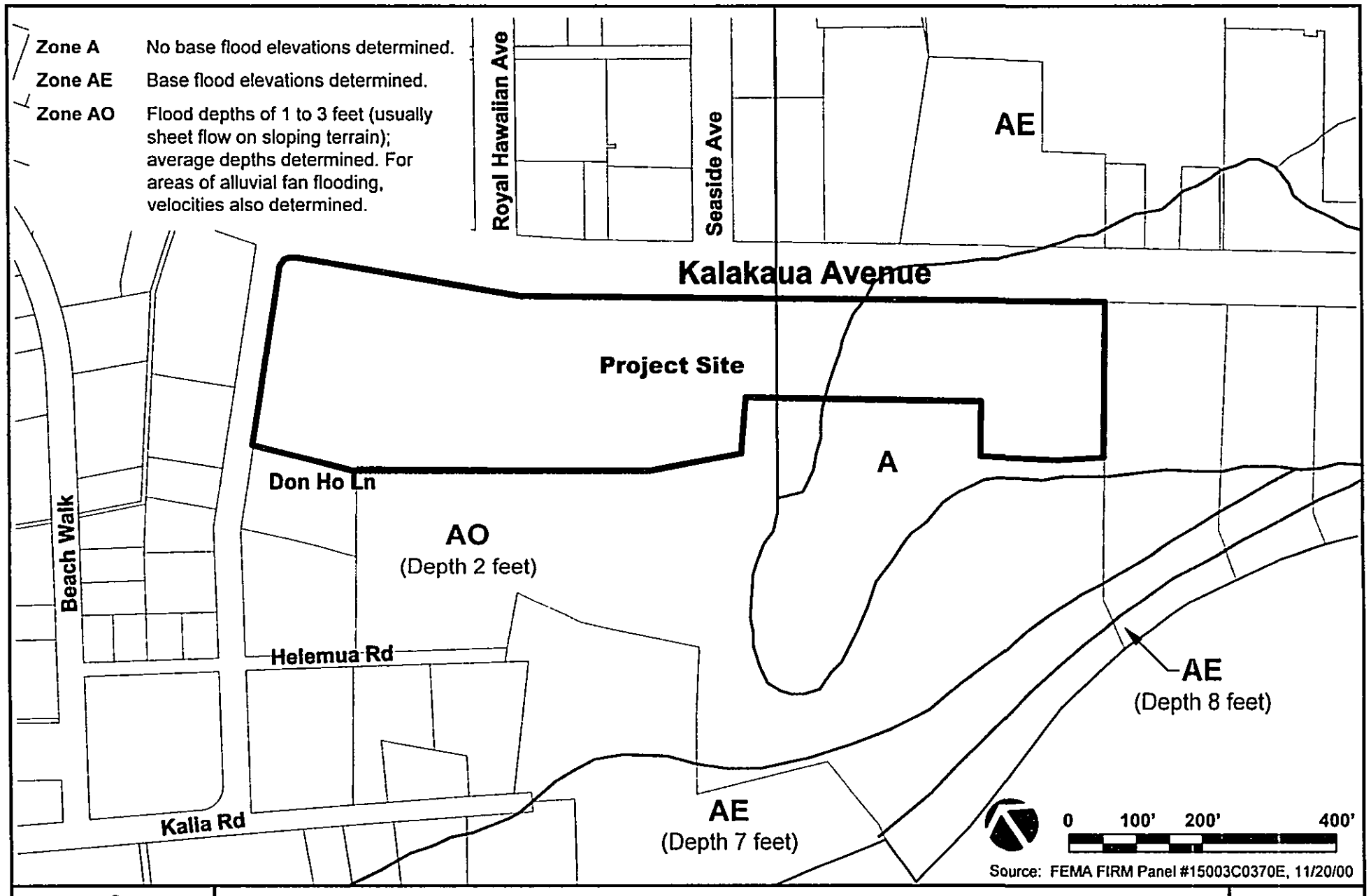

WILSON OKAMOTO CORPORATION ENGINEERS - PLANNERS	ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION Flood Map	FIGURE 12

Faunal species may include rats and mice that are common to inner city environments. Avifaunal species identified at the project site include those common to urban areas such as the barred dove, mynah, sparrow, Brazilian cardinal, and finches.

No federally protected, threatened or endangered species of plants or animals are known to inhabit the project area.

Impacts and Mitigation Measures

No adverse impacts on flora and fauna are anticipated. The large banyan and monkeypod trees in the adjoining properties will be retained and featured in the design of the renovated RHSC. Almost all of the coconut trees in the project site and along Kalakaua Avenue will be retained while those that need to be removed will be transplanted within the project site, if feasible. The shower trees along Kalakaua Avenue will be removed and transplanted elsewhere, if feasible, and replaced with more coconut trees. Additional landscaping will include more royal palms along Royal Hawaiian Avenue, more coconut palms along the street and in the courtyard, which may also feature a new tamarind tree, in honor of Princess Pauahi. A tree-protection plan for all trees to remain will be prepared by a Certified Arborist.

2.6 Noise

Ambient noise levels along Kalakaua Avenue in the vicinity of the project site are relatively high because it is at the heart of urban resort activity in Waikiki. High volumes of pedestrian and vehicular traffic along Kalakaua Avenue generate noise throughout the day and late into the evening. Noise from busy commercial establishments offering dining, entertainment, and shopping opportunities are also part of Waikiki's urban resort ambiance. Mostly during the day, noisier vehicles such as delivery trucks, tour buses refuse haulers converge to service the high-density resort core, as do responding emergency vehicles with sirens, at all hours of the day and night. Building equipment such as air conditioners, commercial kitchen and parking structure exhaust systems, and elevators are stationary noise sources while portable blowers, mowers, trimmers and other power tools are used for property rnaintenance. Construction noise is also common in Waikiki as economic opportunities fuel investment in public infrastructure and amenities, as well as private improvements and redevelopment.

An Environmental Noise Assessment Report for the proposed project was prepared by D. L. Adams Associates, Ltd. in June 2004. Excerpts from the report are summarized below, while the report in its entirety is reproduced as Appendix A.

Ambient noise level measurements were recorded at RHSC between June 18, 2004 and June 23, 2004 on the third level, near the southwest corner of Building "C", facing the neighboring Royal Hawaiian hotel. The sound levels generally ranged between 55 dBA during the nighttime or early morning hours to 70 dBA during the daytime and high pedestrian traffic times. The 4-day average daytime L_{eq} was 64 dBA, and the 4-day

average nighttime L_{eq} was 59 dBA. The 4-day average day-night level, L_{dn}, was 67 dBA. The day-night level is a 24 hour measurement that assigns a 10 dB penalty for noises during the nighttime hours (10:00 p.m. to 7:00 a.m.).

The existing sound levels exceed the State Department of Health (DOH) maximum permissible noise levels of 60 dBA during the daytime hours and 50 dBA during nighttime hours. This suggests that the standard may be unreasonably stringent for the level of activity, types of public and commercial uses and development density characterizing the urban resort environment in this area of Waikiki.

Presently, the dominant sources of noise include vehicular traffic in the area, conversations by pedestrians, and low-level music from nearby bars and restaurants. Other noise sources include wind, birds, and other tourist-related activities.

Impacts and Mitigation Measures

Construction Noise:
During the construction phase of the revitalization project, typical construction noises will be audible in the area. However, noise from construction activities must comply with State Department of Health noise regulations (Chapter 11-46 Community Noise Control, Hawaii Administrative Rules) as specified for construction related activities.

If the proposed construction activity occurs while other nearby construction projects are also on-going, there may be a cumulative effect on the character of ambient noise. People in the vicinity may have a heightened awareness of construction activities occurring in the area. Some people could perceive this as a greater nuisance, even though noise generated at each construction site may be within limits of compliance.

Operational Noise:
In the long-term, after construction is complete and the shopping center tenants have moved in, noise generated by the shopping center tenants must meet the State noise regulations (Chapter 11-46 Community Noise Control, Hawaii Administrative Rules) and the City and County of Honolulu Liquor Commission rules, which allow adjustments for existing ambient noise levels. Noise control measures will be included in the design of the shopping center, particularly for restaurants on the makai side, which might employ sound systems for live and/or recorded music.

Traffic noise associated with the proposed project is not anticipated to increase since the Traffic Impact Report (see Appendix D) projected no significant increase in traffic attributable to the project in the vicinity of the project site.

2.7 Air Quality

Air quality in the vicinity of the project site is primarily affected by vehicular emissions generated along surrounding streets. Among the various air pollutants for which State and National standards have been established, carbon monoxide level is the primary concern in areas near heavy traffic flow. The federal standard for carbon monoxide is a maximum of 40 micrograms per cubic meter ($\mu g/m^3$) for 1-hour samples and 10 $\mu g/m^3$ for and 8-hour sample. State of Hawaii regulations, which are more stringent, limit carbon monoxide to 10 $\mu g/m^3$ for 1-hour samples and 5 $\mu g/m^3$ for 8-hour samples. According to the State Department of Health Clean Air Branch, the Waikiki Air Monitoring Station on Kalakaua Avenue reported that carbon monoxide levels have not exceeded State or Federal standards in the past several.

Impacts and Mitigation Measures

The proposed project will have short-term construction-related impacts on air quality, including the generation of dust and emissions from construction vehicles, equipment and commuting construction workers. The construction contractor is responsible for complying with State Department of Health, Administrative Rules, Title 11, Chapter 60-11.1 regarding "Air Pollution Control, specifically Section 11-60.1-33 regarding fugitive dust and the prohibition of visible dust emissions at property boundaries.

Mitigation measures to address short-term impacts include:

- Minimizing the movement of construction vehicles during peak traffic periods; and,

- Controlling the generation of fugitive dust through frequent watering of excavated areas and constructing or planting landscaping over exposed soils as soon as possible.

In the long-term, it is not anticipated that traffic associated with the proposed project will adversely affect air quality since the Traffic Impact Report (see Appendix D) projected no significant increase in traffic attributable to the project in the vicinity of the project site.

2.8 Archaeological, Historic, and Cultural Resources

2.8.1 Archaeological Resources

An archaeological assessment of the RHSC property was prepared by Cultural Surveys Hawaii, Inc. in June, 2004. A summary of its findings is provided below, while the report in its entirety is reproduced as Appendix B. The *ahupuaa* 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 and numerous fishponds – supporting a large population that included the highest-ranking

alii (Hawaiian royalty). In the second half of the nineteenth century, after a period of depopulation, Waikiki was reanimated by the Hawaiian *alii* and the foreigners residing there, and by 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 the twentieth century when the newly-constructed Ala Wai Canal drained the remaining ponds and irrigated fields of Waikiki.

The present RHSC property is a portion of Helumoa, the land in Waikiki where Kamehameha I resided, following his conquest of Oahu Island. Throughout the nineteenth century, Helumoa continued to be associated with Hawaiian monarchs, including Kamehameha V who built a seaside bungalow on the grounds of the present Royal Hawaiian Hotel. By the late nineteenth century, the lands of Helumoa were a portion of the estate of Princess Bernice Pauahi Bishop and so continue to the present.

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 location are burials that have been encountered in the vicinity along Kalakaua Avenue and on the grounds of the Royal Hawaiian Hotel. Additionally, anecdotal information suggests that there may have been burials encountered during the construction of the RHSC in the 1970s. No documentation of such burials, however, was found during research conducted for the archaeological assessment.

2.8.2 Cultural Resources

Based on a history of total urbanization of the area, including and surrounding the project site, no on-going cultural practices at the project site are likely to be considered a continuation of historic cultural practices, due to the absence of the following:

- Surface archaeological sites within the project site;
- Fishing, hunting and gathering resources or opportunities within the project site; and,
- Known sacred sites within the project site.

Nevertheless, modern revival of traditional cultural practices are featured, primarily for the purpose of entertainment and cultural education and interpretation at the RHSC, including hula, chants and rituals.

Impacts and Mitigation Measures

Archaeological Resources

Several archaeological 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 entire Waikiki area. The authors of these studies emphasize that

the potential for discovering similar intact deposits elsewhere in Waikiki cannot be discounted. Therefore, it is possible that intact prehistoric and early contact cultural deposits are lying undisturbed beneath modern fill layers within the project site. An additional concern is the possible presence of human burials within the project site.

Based on these considerations, and given the cultural sensitivity of the entire Waikiki area, a monitoring plan will be prepared for approval by the State Historic Preservation Division (SHPD). Prior to submittal to SHPD the monitoring plan will be reviewed by Kamehameha Schools staff and its cultural consultants. The plan will include provisions for on-site archaeological monitoring of all excavation activities below modern fill layers within the project site.

Cultural Resources

The proposed RHSC revitalization will incorporate physical features, as well as activities and events that will convey a stronger Hawaiian sense of place though historical, cultural and educational themes consistent with the goal of Kamehameha Schools to perpetuate all things Hawaiian. The centerpiece of the proposed revitalization is the "Royal Grove" courtyard reminiscing the 10,000 coconut palms of the 16th centural Royal Grove. The courtyard will include areas for formal and informal Hawaiian performances, places for story telling, cultural and historical exhibits, including a marker for the existing Waikiki Historic Trail. Kamehameha Schools is actively involved in developing the cultural design concepts and programs to ensure that they are historically and culturally accurate and appropriate.

The SHPD commented on the Archaeological Assessment by letter dated September 2, 2004. Their letter, together with a written response from Cultural Surveys Hawaii, Inc., are included in Appendix C.

2.9 Views

None of the streets or locations in the immediate vicinity of the project site are identified as significant public view corridors in the Waikiki Special District Guidelines pursuant to Section 7.80-3(a) of the Land Use Ordinance.

Impacts and Mitigation Measures

The proposed renovations are intended to improve the visual character of the RHSC to convey a Hawaiian sense of place consistent with the Waikiki Special District (WSD) guidelines and the goal of Kamehameha Schools to perpetuate all things Hawaiian. All renovations will comply with applicable development standards of the WSD Resort Commercial precinct in which the project site is located, including those for height, density, open space and building setbacks.

2.10 Socio-Economic Characteristics

Population and Housing: The 2000 Census reported the population of Oahu at 876,156. According to a demographic profile of various Oahu neighborhoods prepared by the City's Department of Planning and Permitting using the 2000 Census data, Neighborhood Area 9: Waikiki had a population of 10,720. In comparison to Oahu as a whole, the Waikiki population is generally older; has a racial mix with proportionately more Whites and less Asians and Native Hawaiian or Pacific Islanders; much lower proportion of family households and an even lower proportion of households with children under 18; proportionately lower homeownership rates; and, greater vacancy rates. (See Table 1).

Economy: As updated information from the 2000 Census regarding economic trends by census tracts in Hawaii is not yet available, data from the 1990 Census was reviewed. According to the 1990 Census data, median household income for Neighborhood Area 9: Waikiki was $26,980, which is significantly lower than the median household income of $40,581 for Oahu.

Impacts and Mitigation Measures

Population and Housing: No impacts on the population and the housing inventory in Waikiki are anticipated to result from the proposed project as it does not involve residential uses.

Economy: In the short term, an estimated expenditure of $42 million during the anticipated 12-month construction period will confer some positive benefits to the local economy. This would include generating indirect sales of $40.3 million, for a total expenditure and sales of $82.3 million. An annual average of 304 construction jobs and 414 support jobs would also be created, with average annual total earnings of $25.6 million over the 12-month period. State and County Tax revenue associated with construction expenditures would be $4.7 million over the 12-month period.

2.11 Public Services

2.11.1 Police Services

Waikiki is located within the Honolulu Police Department's (HFD) District 6, and is patrolled by officers stationed at the substation located on Kuhio Beach. In addition, the Waikiki Citizens Patrol is comprised of volunteer citizens who walk around Waikiki during some evenings, offering advice and directions to tourists and directing police attention as needed.

TABLE 1
DEMOGRAPHIC CHARACTERISTICS: 2000

Subject	Neighborhood Area #9		Oahu	
	Number	Percent	Number	Percent
Total population	**19,720**	**100**	**876,156**	**100**
AGE				
Under 5 Years	688	3.5	56,849	6.5
5 – 17 years	1,187	6.0	151,909	17.3
18 – 64 years	14,222	72.1	549,661	62.7
65 years and over	3,623	18.4	117,737	13.4
Median age (years)	42.2	--	35.7	--
RACE (alone or in combination with other races)				
White	10,005	50.7	308,838	35.2
Black or African American	605	3.1	29,764	3.4
American Indian and Alaska Native	292	1.5	15,921	1.8
Asian	8,876	45.0	539,384	61.6
Native Hawaiian and other Pacific Islander	1,725	8.7	189,292	21.6
Other	534	2.7	32,003	3.7
HOUSEHOLD (BY TYPE)				
Total Households	**11,397**	**100**	**286,450**	**100**
Family households (families)	4,087	35.9	205,672	71.8
With own children under 18 years	1,167	10.2	91,022	31.8
Married-couple family	3,129	27.5	156,195	54.5
With own children under 18 years	777	6.8	70,442	24.6
Female householder, no husband present	643	5.6	35,138	12.3
With own children under 18 years	293	2.6	15,235	5.3
Non – families	7,310	64.1	80,778	28.2
Living with non-relatives	1,475	12.9	18,815	6.6
Living alone and 65 years and over	1,503	13.2	20,021	7.0
Average persons per household	1.72	--	2.95	--
HOUSING OCCUPANCY AND TENURE				
Total Housing Units	18,370	100	315,988	100
Occupied units	11,397	62.0	286,450	90.7
By owner	3,819	20.8	156,290	49.5
By renter	7,578	41.3	130,160	41.2
Vacant units	6,973	38.0	29,538	9.3
Available housing vacancy rate (%)	23.1		4.9	--
Homeownership rate (%)	33.5		54.6	--

Source: 2001 Census File, City & County of Honolulu, Department of Planning & Permitting

Impacts and Mitigation Measures

In the short-term construction-related impacts such as dust emissions, noise, and traffic will likely increase demand for police services in the vicinity of the project site. In the long-term, the proposed project will continue as an existing retail use with no anticipated change in the level of demand for police services.

2.11.2 Fire Services

Waikiki is located within the Honolulu Fire Department's (HFD) Battalion Two. It is served by the Waikiki and McCully Fire Stations located on Kapahulu Avenue and Date Street, respectively. The former is equipped with a fire engine and ladder truck, while the later is equipped with a fire engine.

Impacts and Mitigation Measures

The proposed renovations will comply with current building codes for fire protection. The HFD conducted an on-site assessment and determined that the fire apparatus access and existing fire hydrant locations are adequate for fire protection. Throughout the project site, access to fire apparatuses will be maintained. In addition, the HFD's Fire Communications Center will be notified regarding any interruption of the existing fire hydrant system. No change in demand for fire protection services is anticipated as a result of the project.

2.11.3 Medical Services

The proposed project is located less than five miles away from four of the state's major hospitals, including Straub Hospital, Queen's Hospital, Kapiolani Hospital for Women and Children, and the Kaiser Permanente Honolulu Clinic. These hospitals offer a full range of emergency and acute-care services. Physicians' offices are also located throughout the Honolulu area. Within Waikiki, Queen's Hospital operates a walk-in clinic at the Hilton Hawaiian Village, located less than one mile west (Ewa) of the project site.

Impacts and Mitigation Measures

No significant impacts to medical services is anticipated as the proposed project continues and existing retail use.

2.11.4 Public Educational Services

The project is located in the State Department of Education's Honolulu District, and is serviced by Ala Wai Elementary School, Washington Middle School, and Kaimuki High School.

Impacts and Mitigation Measures

No impacts on public educational services is anticipated as the proposed project involves no residential uses.

2.11.5 Recreation

Various public recreational opportunities are provided throughout Waikiki. These include Waikiki, De Russy, Sans Souci, and Queens Surf beaches, Kapiolani Park, Ala Wai Golf Course, Ala Wai Field and Golf Course, Ala Wai Canal, and Ala Wai Boat Harbor. A public beach access is located adjacent to the Diamond Head boundary of the project site.

Impacts and Mitigation Measures

No impacts on the demand for recreational opportunities is anticipated as the proposed project involves no additional visitor or residential units. The existing public beach access will not be impacted by the proposed renovation.

2.12 Traffic

A Traffic Impact Report for the proposed project was prepared for the proposed project by Wilson Okamoto Corporation in June 2004. Excerpts from the report are summarized below, while the report in its entirety is reproduced as Appendix D.

Parking for the Royal Hawaiian Shopping Center is currently provided in an existing above-grade garage with access off of Royal Hawaiian Avenue, a north-south oriented roadway that primarily serves as a connector roadway between Kalakaua Avenue, Kuhio Avenue, and Ala Wai Boulevard. Kalakaua Avenue and Ala Wai Boulevard are one-way roadways that together form a couplet system serving both local and regional trips through Waikiki. Kuhio Avenue is a two-way roadway that runs between and parallel to Kalakaua Avenue and Ala Wai Boulevard. Kuhio Avenue also serves local and regional trips through Waikiki. In recent years, traffic volumes along these primary access roadways and in the project vicinity have increased significantly due to growth in the tourism industry.

A field investigation was conducted in March and April of 2004 and consisted of manual turning movement count surveys during the morning peak hours between 6:30 AM and 8:30 AM, afternoon peak hours between 3:30 PM and 6:30 PM, and Saturday peak hours between 3:30 PM and 7:00 PM at the following intersections:

- Lewers Street and Kalakaua Avenue
- Lewers Street and Kuhio Avenue
- Lewers Street and Ala Wai Boulevard
- Royal Hawaiian Avenue and Kalakaua Avenue
- Seaside Avenue and Kalakaua Avenue
- Duke's Lane and Kalakaua Avenue
- Duke's Lane, Kuhio Avenue, and Nohonani Street
- Nohonani Street and Ala Wai Boulevard
- Kaiulani Avenue and Kalakaua Avenue
- Kaiulani Avenue and Kuhio Avenue
- Kanekapolei Avenue and Kuhio Avenue
- Kanekapolei Avenue and Ala Wai Boulevard

The highway capacity analysis performed in the 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), a quantitative and qualitative assessment of traffic operations during the peak hours of traffic. Levels of Service are defined by LOS "A" through "F" with LOS "A" representing ideal or free-flow traffic operating conditions and LOS "F" representing unacceptable or potentially congested traffic operating conditions.

Based on the field investigations, peak traffic periods occur during the weekday afternoon and Saturday afternoon. Therefore, the analysis was based on the corresponding peak hours of traffic, which are between 3:45 and 4:45 pm on the weekday and between 4:15 and 5:15 pm on Saturday. As shown in Table 2 in the "Exist" column for "Weekday PM" and "Sat PM", existing traffic operations for both peak periods generally range from LOS "A" through LOS "C" for critical movements at the study intersections.

Impacts and Mitigation Measures

In the short-term, construction activities can potentially impact vehicular and pedestrian traffic along streets adjoining the project site. As appropriate, construction contractor(s) will be required to mitigate potential vehicular and pedestrian traffic impacts through appropriate traffic control measures and safety devices. Examples of measures that may be employed include:

- Providing signage and other warnings to alert approaching motorists and pedestrians to construction activities ahead;
- Providing barriers, cones, signage, lighting, non-skid covering over trenches, adequate and safe sidewalk widths, adequate intersection visibility and other provisions to promote safe passage of vehicles and pedestrians through construction zones;
- Restricting transport of construction vehicles during the peak traffic hours. To the extent possible, require construction vehicles to use available main routes/roads as alternate routes to the project sites rather than local streets, to minimize the impacts on area residents;
- Providing flaggers and/or police officers, when necessary, to control traffic and pedestrian flow;
- Notifying providers of emergency services (fire, ambulance and police) prior to implementation of any required detours or street closures;
- Notifying the City Department of Transportation Services to alert Oahu Transit Services of the detours or street closures; and,
- Providing appropriate barriers as necessary to deter the public from unauthorized entry into restricted or hazardous construction zones during working and non-working hours.

Construction activities requiring temporary lane closure will require a Street Usage permit from the City Department of Transportation Services. In the event that construction activities at nearby properties may also require temporary lane closures, potential cumulative impacts on traffic can be mitigated, if necessary, by coordinating schedules for permitted uses.

Long-term traffic impacts of the proposed project were assessed by comparing forecast traffic conditions in 2008 with and without the project. Forecast traffic conditions without the project include an annual traffic growth rate factor based on historical traffic count data obtained from the State Department of Transportation (DOT), Highways Division. The growth rate factor is conservative in accounting for variations in projected traffic demands and patterns as a result of other on-going and planned projects in the area. These include the 2100 Kalakaua project, the 2121 Kuhio project, and the International Market Place renovation.

Forecasted traffic conditions with the project adds project-related traffic demand to the 2008 "without project" forecast for a cumulative assessment. Project-related traffic demand is based on the trip generation methodology developed by the Institute of Transportation Engineers (ITE) and published in "Trip Generation, 7th Edition," 2003. The ITE trip generation rates correlate vehicle trip generation data with various land use characteristics such as the number of vehicle trips generated per additional 1,000 square feet of gross leasable area. Although the proposed renovation is anticipated to reduce floor area, as defined by the City's Land Use Ordinance (LUO) by 7,948 square feet, use of open areas for outdoor dining is estimated to increase gross leasable area by approximately 17,066 square feet. Moreover, while it is anticipated that the proposed revitalization will attract a high proportion of pedestrian traffic, the assessment conservatively assumed that all of the trips generated represent vehicular trips during both the weekday PM and Saturday PM peak hours of traffic. Existing, as well as forecast 2008 traffic conditions with and without the proposed project, are presented in Table 2.

Since the proposed RHSC revitalization is intended to beautify and improve the existing facilities rather than significantly increase the shopping center's retail space, no significant impact on traffic operations in the vicinity of the project site are anticipated. The total traffic volumes entering the study intersections along Kalakaua Avenue, Kuhio Avenue, and Ala Wai Boulevard are expected to increase by approximately 2% or less during both peak hours of traffic with the proposed project. These increases in the total traffic volumes are in the range of daily volume fluctuations along those roadways and represent a minimal increase in the overall traffic volumes. In addition, although the study assumes that all site-generated trips are vehicular trips, many of the trips generated by the proposed project may be discounted as walk-in or pass-by trips. As such, the

trips associated with the proposed revitalization could be greatly reduced. Even with this conservative analysis approach, all of the of the study intersections are anticipated to operate at acceptable levels of service.

TABLE 2
EXISTING AND PROJECTED (WITH AND WITHOUT PROJECT) LOS TRAFFIC OPERATING CONDITIONS

Intersection	Critical Movement	Weekday PM		Sat PM	
		Exist	Year 2008 w/out Proj	Exist	Year 2008 w/out Proj
Lewers St/Kalakaua Ave	Eastbound (LT-TH-RT)	B	B	B	C
	Northbound (TH)	C	C	C	C
Lewers St/Kuhio Ave	Eastbound (LT-TH)	A	B	A	B
	Northbound (LT-TH-RT)	C	C	C	C
Lewers St/Ala Wai Blvd	Westbound (TH)	B	C	B	B
	Northbound (LT)	C	C	C	C
Royal Hawaiian Ave/ Kalakaua Ave	Eastbound (LT-TH-RT)	B	B	B	B
	Northbound (RT)	C	C	C	C
	Southbound (LT)	C	C	C	C
Seaside Ave/ Kalakaua Ave	Eastbound (LT-TH)	B	B	B	B
Duke's Ln/Nohonani St/Kuhio Ave	Eastbound (TH)	A	B	B	B
	Northbound (LT-RT)	C	C	C	C
	Southbound (RT)	C	C	D	C
Kaiulani Ave/ Kalakaua Ave	Eastbound (LT)	B	B	B	C
Kanekapolei Ave/ Kuhio Ave	Westbound (LT-TH-RT)	B	B	B	B
	Northbound (LT-TH)	C	C	C	C
Kanekapolei Ave/ Ala Wai Blvd	Westbound (LT-TH)	B	B	B	B
	Northbound (LT)	C	C	C	C

Based on field observations and the analysis of the traffic data, the study recommended the following:

1. Modify the traffic signal timing at the intersection of Kuhio Avenue with Nohonani Street and Duke's Lane to accommodate Year 2008 projected traffic operations, with or without the project, by reallocating the maximum green phases at the intersection for each traffic movement. Prior to any traffic signal timing adjustments, this recommendation should be verified and coordinated with the City after the completion of the project to ensure that such modification is necessary.

2. Ensure that modifications to existing pedestrian facilities including entranceways and walkways are in accordance with Americans with Disabilities (ADA) requirements and provide adequate storage within the project to avoid pedestrian queuing on the public sidewalks and other areas. This recommendation may be addressed during the design phase of the project.

3. Provide sufficient loading and unloading areas for merchants and deliveries. These areas should be at convenient locations so loading activities associated with the project do not occur on City streets. This recommendation may be addressed during the design phase of the project.

2.13 Utilities

Water: Water service for the RHSC is provided from an existing 8-inch water main running beneath the south (makai) side of Kalakaua Avenue. A 3-inch lateral from that main supplies water to RHSC through a domestic 3" water meter and an above-ground backflow preventer. Fire hydrants fronting the RHSC along Kalakaua Avenue are also supplied by connections to the 8-inch water main for fire protection

Wastewater: There are two existing sewer laterals serving the RHSC, each discharging wastewater flows into two separate 12-inch sewer mains running beneath Kalakaua Avenue. These sewer mains convey flows mauka along Seaside Avenue and Kaiulani Avenue, respectively, and discharge into to the existing Beach Walk Wastewater Pump Station (WWPS) located on the makai side of Kuhio Avenue at the municipal parking lot opposite Kaiolu Street.

Drainage: The existing drainage system for the RHSC collects storm runoff in a 24-inch pipe, which crosses Kalakaua Avenue and discharges into an existing 2-foot by 6-foot box drain running beneath Seaside Avenue to Ala Wai Boulevard, where it turns west (makai) to run beneath Ala Wai Boulevard and eventually discharge into the Ala Wai Canal.

Impacts and Mitigation Measures

Water: During the design phase of the project, water demands, both existing and proposed, shall be submitted to the Board of Water Supply for their use in estimating water facility charges, if any.

Wastewater: According to the City's Department of Planning and Permitting Wastewater Branch, the existing sewer system is adequate to accommodate additional flows, if any, from the proposed project. A sewer connection application will be submitted if additional flow requirements are determined during the building permit processing.

Drainage: The City and County of Honolulu's Department of Planning and Permitting's (DPP) current policy on storm water run-off requires that there be "no increase" in run-off quantities from the site relative to pre-development conditions. The proposed renovations will not increase the impermeable surface area within the project site. Therefore, there will be no increase in run-off quantities.

3. RELATIONSHIP TO LAND USE PLANS, POLICIES AND CONTROLS

This section discusses State and city and County of Honolulu land use plans, policies and controls relating to the proposed project.

3.1 State Land Use District

The Hawaii Land Use Law of Chapter 205, Hawaii Revised Statutes, classifies all land in the State into four land use districts: Urban, Agricultural, Conservation, and Rural. The project site is designated within the Urban District which includes *"lands characterized by city-like concentrations of people, structures, streets, urban level of services and other related land uses."* The proposed project is consistent with the Urban classification.

3.2 City and County of Honolulu

3.2.1 Primary Urban Center Development Plan

On June 21, 2004, the City & County of Honolulu's Primary Urban Center (PUC) Development Plan went into effect. The Plan is one of eight regional plans covering the Island of Oahu. As mandated by the City Charter, the plans set forth City policy to guide zoning, land use and public investment in manner that is consistent with and supports the General Plan of the City & County of Honolulu. Two of the five Key Elements expressing the Plan's Vision directly relate to and are supported by the proposed project, including:

- Livable neighborhoods have business districts, parks and plazas, and walkable streets.

  Comment: The proposed RHSC revitalization includes major improvements to the pedestrian streetscape fronting the Center, including the creation of the "Royal Grove" courtyard conveying a distinctly Hawaiian sense of place.

- Honolulu is the Pacific's leading city and travel destination.

  Comment: The proposed RHSC revitalization is part of the ongoing redevelopment and improvement of Waikiki for it to remain the State's largest and most popular visitor destination.

The PUC Development Plan Land Use Map designates the project site "Resort." This designation is a mixed-use designation that is consistent with the commercial uses at the RHSC:

> "Resort consists primarily of resort hotels, timeshares, and other apartments used as temporary visitor units (TVUs); and supporting commercial uses, such as

shops, restaurants, and entertainment. This designation only applies to the Waikiki, Marina, Hobron and Ft. DeRussy neighborhoods.

Also designated on the Land Use Map is the Pedestrian Network Concept for Honolulu, which includes the portion of Kalakaua Avenue fronting the RHSC. The proposed pedestrian streetscape improvements along Kalakaua Avenue support this concept.

3.2.2 Waikiki Livable Community Project

The Waikiki Livable Community Project (WLCP) is a planning study prepared by the City and County of Honolulu Department of Transportation Services through a grant from the Federal Highway Administration's Transportation and Community and System Preservation Pilot Program and federal funding from the O'ahu Metropolitan Planning Organization. The WLCP takes a broad view of the diverse needs that the transportation system in this bustling urban resort and residential community serves toward improving its uniquely "Hawaiian-sense" of livability. This sense of livability draws from concepts contained in George Kanahele's 1994 watershed book "Restoring Hawaiianness to Waikīkī" in which Kanahele called for Waikiki to become a "community of Aloha." In particular, the WLCP recognized that this sense of livability is experienced most directly by the thousands of visitors, residents, and workers daily as pedestrians along Waikiki's streets and sidewalks. Hence, it adopted a "Pedestrian First" policy advocated by a Joint City-State Task Force report to the Legislature entitled "Recapturing the Magic of Waikīkī" (December, 1999). The WLCP pursued a community-based effort to solicit comprehensive input on the issues, options, and opportunities for creating and achieving a shared vision of a more livable Waikiki and charting a new course toward that vision. These are documented in the Livability and Mobility Report.

The proposed RHSC revitalization implements the "Pedestrian First" streetscape recommendations for the Primary Pedestrian Routes in Waikiki along the section of Kalakaua Avenue fronting the Center. The proposed pedestrian streetscape improvements also support the concept of a public-private partnership in creating "seamless" pedestrian routes spanning public rights-of-way and publicly-accessible private property along sidewalk areas.

3.2.3 Land Use Ordinance and Waikiki Special District

The project site is located within the Waikiki Special District (WSD), which provides unique zoning precincts with associated land use and design standards that are generally more stringent that those applicable to the rest of Oahu. The District was established in 1976 to preserve and enhance the character of Waikiki, and to maintain a balance in Waikiki's mix of resort, commercial, residential and recreational use. In February, 1996 the City Planning Department published the Waikiki Planning and Program Guide to provide an overview of recent efforts toward the continued improvement and enhancement of Waikiki. Among its recommendations were amendments to the WSD to promote renovation,

replacement and enhancement in the resort districts, promote a "Hawaiian Sense of Place" and preserve views and unique Hawaiian features.

The project site lies within the WSD's Resort/Commercial Precinct (see Figure 13). The proposed project revitalizes an existing retail complex, which is a "Permitted Principal Use" within that precinct. All of the proposed improvements will comply with the design standards of the precinct, including those governing lot area/dimensions, yards, density, open space, heights and transitional height setbacks. Moreover, the proposed improvements are intended to incorporate features that will revitalize the existing retail complex to convey a greater Hawaiian sense of place consistent with the WSD design guidelines. Approval of a WSD Minor Permit will be required to implement the proposed improvements. The WSD Minor Permit is acted upon by the Director of Planning and Permitting and does not require a public hearing.

3.2.4 Special Management Area

A small portion of the project site at the makai-Diamond Head corner lies within the boundary of the City and County of Honolulu's Special Management Area (SMA) (see Figure 14). Improvements within the SMA, such as modifications to the building façades, pavement improvements, and a new escalator would be exempt from SMA permit requirements under the following definitions (Section 205A-22, HRS):

- Demolition or removal of structures, except those structures located on any historic site as designated in national or state registers;
- Repair, maintenance, or interior alterations to existing structures; or,
- Nonstructural improvements to existing commercial structures.

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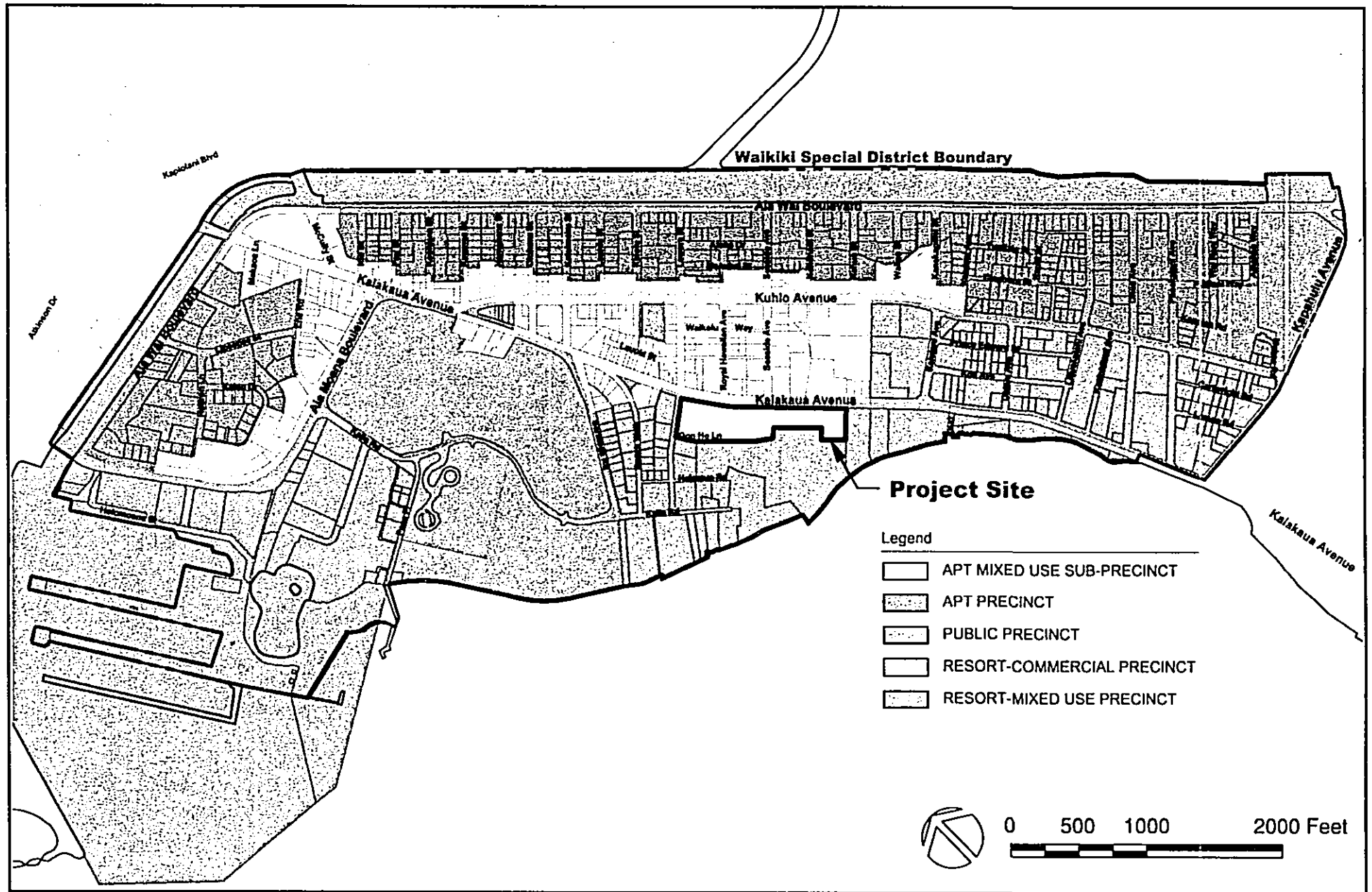

WILSON OKAMOTO CORPORATION ENGINEERS - PLANNERS	ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION Waikiki Special District Map	FIGURE 13

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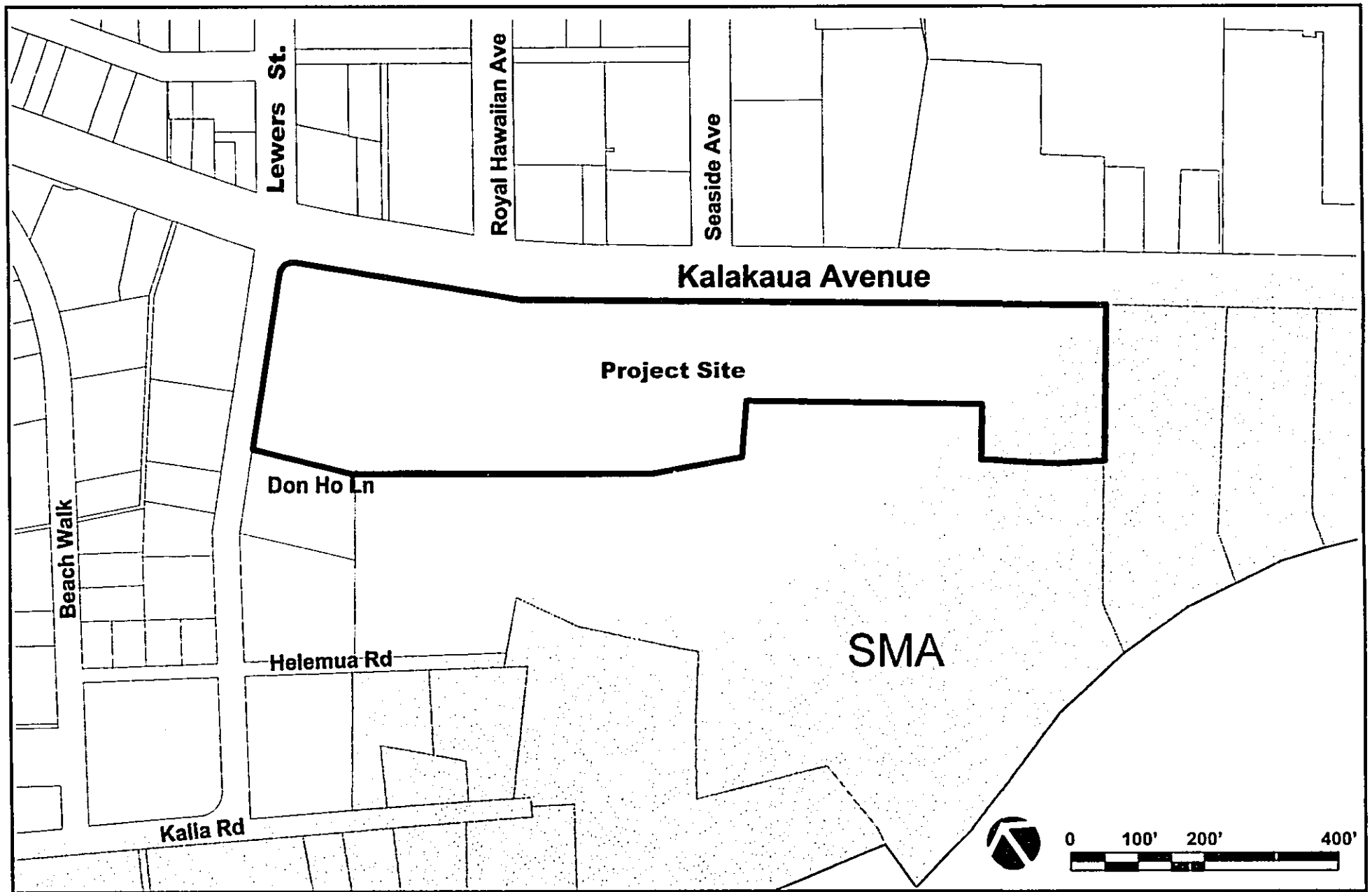

WILSON OKAMOTO CORPORATION
ENGINEERS - PLANNERS

ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION

Special Management Area

FIGURE 14

4. DETERMINATION OF FONSI

A. Applicant

Kamehameha Schools and The Festival Companies

B. Accepting Authority

City and County of Honolulu, Department of Planning and Permitting.

C. Description of the Proposed Action

Revitalization of an existing retail complex by incorporating features that will convey a Hawaiian sense of place consistent with the City's Waikiki Special District design guidelines; incorporating historical, cultural and educational features consistent with the goal of Kamehameha Schools to perpetuate all things Hawaiian; and, improving visual and pedestrian linkages with adjoining resort properties. Major improvements include renovating the streetscape frontage along Kalakaua Avenue with a focal point at a recreated "Royal Grove" courtyard opposite Seaside Avenue; demolition and relocation of elevators, stairs and pedestrian bridges to create view corridors and enhance pedestrian access into and through the retail complex; exterior and interior building renovations; utility improvements; landscaping; and, tenant improvements.

D. Determination and Reasons Supporting Determination

Potential impacts of the proposed project have been evaluated in accordance with the significance criteria of Section 11-200-12 of the Department of Health's Administrative Rules. In general, the proposed project will not:

(1) Involve an irrevocable commitment to loss or destruction of any natural or cultural resource;

No significant natural resources or habitats have been identified on the project site. Undiscovered ancestral native remains that may be present in the vicinity of the project site are a potentially significant cultural resource. Due to extensive prior ground disturbance during the construction of the Royal Hawaiian Shopping Center in the 1970s and the limited area of proposed ground disturbing activities, which will occur within previously disturbed areas, the potential for significantly impacting ancestral native remains is relatively low. The proposed preparation of an archaeological monitoring plan to be implemented during ground disturbing activities will assure that any remains uncovered will be identified and recovered for appropriate final disposition

(2) Curtail the range of beneficial uses of the environment;

The proposed project will not curtail the beneficial uses of the environment. The proposed project involves the revitalization of an existing use that is consistent with State and County land use plans policies and controls.

(3) Conflict with the state's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders;

The proposed project does not conflict with long-term environmental policies, goals, and guidelines of the State of Hawaii. As presented in this EA, the project's potential temporary adverse impacts are associated only with short-term construction-related activities and can be mitigated through adherence to standard construction mitigation practices.

(4) Substantially affect the economic or social welfare of the community or state;

The proposed project would provide short-term economic benefits in the form of construction jobs, and promote the long-term economic viability of an existing retail employment opportunity. The proposed project would also positively impact the social welfare of the region by enhancing an existing retail complex and the economic vibrance of Waikiki as a whole, consistent with the intent of the Waikiki Special District.

(5) Substantially affect public health;

No impacts to the public's health and welfare are anticipated.

(6) Involve substantial secondary impacts, such as population changes or effects on public facilities;

The proposed project will not involve substantial secondary impacts as it will essentially continue an existing retail use.

(7) Involve a substantial degradation of environmental quality;

Construction activities associated with the proposed project are anticipated to result in short-term impacts to noise, air quality, water quality and traffic in the immediate project vicinity. With the incorporation of mitigation measures during the construction period, the project will not result in long-term degradation to the environmental quality

(8) Individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions;

No cumulative effects are anticipated, inasmuch as the proposed project involves the continuation of an existing retail use consistent with the land use plans policies and controls.

(9) Substantially affect a rare, threatened, or endangered species, or its habitat;

There are no known rare, threatened or endangered species of flora or fauna or associated habitat identified on the project site.

(10) Detrimentally affect air or water quality or ambient noise levels;

Operation of construction equipment would temporarily elevate ambient noise and concentrations of exhaust emission in the immediate vicinity of the project site. Operation of the proposed project will have no significant long-term changes in impact on air or water quality or ambient noise levels in the vicinity.

(11) Affect or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters;

The proposed improvements will comply with City flood ordinances.

(12) Substantially affect scenic vistas and view planes identified in county or state plans or studies; or,

The proposed project is intended to enhance the aesthetic character of an existing retail complex consistent with the intent of the Waikiki Special District. None of the streets or locations in the vicinity of the project site are identified as major public view corridors. The proposed improvements will comply with applicable development standards of the existing zoning designation including height, density, open space and setback requirements, and will reflect a "Hawaiian Sense of Place" pursuant to the Waikiki Special District Guidelines.

(13) Require substantial energy consumption.

Construction and operation of the project will not require substantial increases in energy consumption.

5. ALTERNATIVES TO THE PROPOSED ACTION

5.1 No Action Alternative

In the no action alternative, the existing RHSC will continue in its existing condition, without any major renovation since it was completed in 1979. The no action alternative would preclude all short- and long-term beneficial and adverse impacts described in this EA. Construction-related environmental impacts including those on traffic, air and noise, would be avoided. Furthermore, the high initial costs to construct the development would be avoided. On the other hand, the opportunity to revitalize the RHSC to convey a more "Hawaiian sense of place" consistent with the intent of the Waikiki Special District and Kamehameha Schools would not be realized. This could place the RHSC at an economic disadvantage as other competing retail developments such as the Outrigger's Waikiki Beach Walk and the International Marketplace pursue redevelopment. In the broader perspective, the no action alternative would impede the revitalization of Waikiki, which is essential to the long-term economic viability of this mature visitor destination.

5.2 Alternative Revitalization Concepts

A range of alternative revitalization concepts from total demolition and reconstruction to superficial cosmetic changes were considered. The proposed renovation was determined to optimize achievement of the revitalization objective relative to construction costs and the asset value of the existing development.

6. PERMITS AND APPROVALS

The following is a list of permits and approvals, which may be required prior to construction of the proposed project:

State of Hawaii

Department of Health
- Noise Variance Permit
- National Pollutant Discharge Elimination System (NPDES) Notice of Intent for Construction Stormwater Activity
- NPDES Notice of Intent For Construction Dewatering Activity
- NPDES Notice of Intent For Hydrotesting Activity

Disabilities Communication and Access Board (DCAB)
- Review pursuant to the Americans with Disabilities Act Accessibility Guidelines (ADAAG)

City and County of Honolulu

Department of Planning and Permitting
- Waikiki Special District Minor Permit for:
  - Major exterior repair, alteration or addition to nonhistoric structures
  - Streetscape improvements
  - Removal of trees over six inches in diameter
  - Exterior painting that significantly changes the character or appearance of the structures
- Removal of Street Trees
- Grading Permit
- Excavation Permit
- Drainage Connection License
- Permit to Excavate Public Right-of-Way
- Construction Permit
- Building Permit
- Electrical Permit
- Plumbing Permit
- Sidewalk/Driveway Work Permit

Department of Transportation Services
- Street Usage Permit

7. CONSULTATION

7.1 Parties Consulted During The Pre-EA Consultation Period

The following agencies were consulted during the pre-assessment consultation phase of the Draft EA. Available documentation of consultation is attached.

City and County of Honolulu
Department of Planning and Permitting
Department of Transportation Services

Elected Officials
Councilmember Charles Djou

Organizations
Waikiki Neighborhood Board (No. 9)
Waikiki Improvement Association

7.2 Parties Consulted During The Draft EA Review Period

Copies of the Draft EA were transmitted to the following agencies and organizations during the public review period of the Draft EA. Of the 19 parties that formally replied during the review period, some had no comments while other provided substantive comments as indicated by the ✓ and ✓✓, respectively. All written comments are reproduced herein.

State of Hawaii
- Department of Health (DOH)
  - Environmental Health Administration
    - Noise, Radiation and Indoor Air Quality Branch ✓✓
  - Environmental Management Division
    - Clean Air Branch
    - Clean Water Branch ✓✓
- Office of Environmental Quality Control ✓✓
- Department of Business, Economic Development and Tourism (DBEDT) ✓✓
  - Office of Planning
  - Energy, Resources & Technology Division
- Department of Hawaiian Homelands ✓
- Department of Land and Natural Resources (DLNR)
  - State Historic Preservation Division
  - Land Division ✓
  - Division of State Parks ✓
  - Division of Forestry and Wildlife ✓
  - Engineering Division ✓✓
- Department of Transportation ✓✓
- Office of Hawaiian Affairs ✓✓
- U.H. Environmental Center
- Hawaii State Library (Waikiki-Kapahulu Branch)

City and County of Honolulu
- Department of Parks and Recreation ✓
- Board of Water Supply ✓✓
- Fire Department ✓✓
- Police Department ✓✓
- Department of Planning and Permitting ✓✓
  - Building Division
  - Site Development Division
  - Planning Division
- Department of Design and Construction ✓✓
- Office of Waikiki Development
- Department of Transportation Services
- Department of Environmental Services
- Department of Facilities Maintenance

City and County of Honolulu (continued)

Municipal Reference and Records Center
Office of Economic Development - Waikiki
Ala Moana Satellite City Hall
Waikiki Neighborhood Board (No. 9)

Elected Officials

Senator Gordon Trimble (12th District)
Representative Galen Fox (23rd District)
Representative Scott Nishimoto (21st District)
Councilmember Charles Djou (4th District)

Organizations

Outdoor Circle ✓✓
Historic Hawaii Foundation
Construction Industry Legislative Organization
Legislative Information Service of Hawaii
Sierra Club
League of Women Voters of Honolulu
Waikiki Improvement Association
Waikiki Residence Association
Waikiki Community Center

Surrounding Property Owners

Kyo-Ya Corporation ✓✓
Outrigger - LAX, L.P.
Queen Emma Foundation
2181 Kalakaua
Outrigger Hotels Hawaii
Ala Wai Gateway, LP
AG Waikiki Galleria, LLC
Comete Realty, Ltd.
Waikiki Shopping Plaza
Waikiki Business Plaza, Inc.
CP Properties, Inc.

Pre-Environmental Assessment Consultation

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

Memorandum

DATE	June 9, 2004
TO	Department of Planning & Permitting (DPP) Land Use Permits Division City & County of Honolulu 650 South King Street Honolulu, Hawaii 96813 Attn: Mr. Patrick Seguirant, Branch Chief
FROM	Henry Ting, WATG
COPY	Don Goo, WATG Rick Myers, WATG
SUBJECT	**Royal Hawaiian Shopping Center Renovation** WATG No. 041024
RE	WSD Permit

A design review meeting was held in our office on Friday 21 May 2004 with Honolulu Department of Planning & Permitting (DPP), Design Advisory Committee (DAC), Kamehameha School (KS), Festival, Callison, EDAW, Sussman Prejza (SP) and WATG. The attendees were as follow.

Eric Crispin, DPP
Patrick Seguirant, DPP
Alan Nemiroff, DAC
Julie Walters, DAC
Ted Garduque, DAC
Lester Inouye, DAC
Norman Hong, DAC
Tom Fee, DAC

Kirk Belsby, KS
Susan Todani, KS
Robert Oda, KS
Rosalind Schurgin, Festival
Jerry Garner, Festival

Judd Eddy, Callison
Mark Sopp, Callison
Jim Curtis, EDAW
John Johnston, SP
Rick Myers, WATG
Henry Ting, WATG

We had a conference call on Monday 7 June 2004 with you and Rick Myers to follow up on DDP decision regarding the permitting requirements for this project. DPP informed WATG that the project requires a Waikiki Special District (WSD) Minor Permit with a full Environmental Assessment (EA). The EA has to be submitted prior to the WSD application, however, DPP will start their preliminary review while the EA work is proceeding.

This memo is a confirmation of DPP decision. If you have any questions, feel free to call me at 521-8888 or by e-mail at hting@watg.com

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7039-01
July 15, 2004

WILSON
OKAMOTO
CORPORATION

ENGINEERS
PLANNERS
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH. (808)946-2277
FAX (808)946-2253

CONTACT MEMO

SUBJECT: Royal Hawaiian Shopping Center Revitalization
Presentation to Waikiki Neighborhood Board No. 9

PERSON
CONTACTED: Mr. Jerry Garner, The Festival Companies

INFORMATION ITEM:

Mr. Garner informed me that the subject presentation to the Waikiki Neighborhood Board was made at their regular meeting of July 13, 2004 as listed in the attached agenda. Following the presentation, the quorum of members present voted unanimously in support of the proposed project.

Earl Matsukawa, Project Manager

cc: Jerry Garner, The Festival Companies

Attachment

WILSON
OKAMOTO
CORPORATION

ENGINEERS
PLANNERS
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: (808)946-2277
FAX: (808)946-2253

7039-01
July 15, 2004

MEETING MEMO

SUBJECT: Royal Hawaiian Shopping Center Revitalization
Bus Rapid Transit (BRT) Station

PERSONS PRESENT:
Ms. Cheryl Soon, Director, Department of Transportation Services (DTS), City & County of Honolulu
Ms. Faith Miyamoto, DTS
Mr. Clyde Shimizu, Parsons Brinkerhoff Quade & Douglas
Mr. James Stone, Group 70
Ms. Susan Todani, Kamehameha Schools
Mr. Robert Oda, Kamehameha Schools
Mr. Jerry Garner, The Festival Companies
Mr. Earl Matsukawa, Wilson Okamoto Corporation

MEETING DATE: July 14, 2004

MEETING LOCATION: DTS, 3rd Floor, Honolulu Municipal Building

INFORMATION ITEMS:

1. The meeting was called to discuss the planned BRT station on Kalakaua Avenue fronting the Royal Hawaiian Shopping Center (RHSC).

2. The planned location of the station fronts the Ewa end of Building "C" and includes an 8' wide concrete passenger loading platform extending 120' along the curb and standing 11" above the road surface. The platform will have a three-section canopy shelter, benches, trash receptacles and landscaping. Its surface will be paved with quartzite. ADA wheelchair access will be available from the Ewa end and stairs will lead up to the sidewalk. DTS provided design drawings and images of the station.

3. Mr. Garner inquired if it would be possible to relocate the station. Ms. Soon responded that the construction contract has already been awarded. If the station is modified, it would be at the approval of DTS and the change order cost would be borne by RHSC. Mr. Shimizu indicated that construction could begin as soon as 30 days, although it would be up to the contractor to schedule construction of specific stations.

4. Mr. Garner inquired if the canopy shelter could be designed to complement the proposed RHSC revitalization. Ms. Soon responded that the shelter would be constructed in a subsequent phase so DTS would welcome discussion of design suggestions.

5. Mr. Garner stated that he would consult the RHSC project designers regarding any modifications to the station location and design that may better integrate it with the proposed renovations. Due to the short time schedule, it was agreed that Mr. Garner will return within one week to discuss specific modifications, if any.

Earl Matsukawa, Project Manager

cc: Mr. Jerry Garner, The Festival Companies

Wimberly Allison Tong & Goo
Architects, Planners and Consultants

Memorandum

DATE: 1 July 2004

TO: **WAIKIKI NEIGHBORHOOD BOARD**
ATTN. Bob Finley, Chairman

FROM: Rick Myers

COPY:

SUBJECT: **ROYAL HAWAIIAN SHOPPING CENTER MASTER RENOVATION**
2201 KALAKAUA AVENUE
Re: July Meeting

We gladly accept your invitation to present to the Waikiki Neighborhood Board the Royal Hawaiian Center Revitalization project by Kamehameha Schools and the developer The Festival Companies at the next neighborhood board meeting scheduled for Tuesday 13 July 2004. It is our understanding that the general meeting would be held from 7:00pm until 8:00pm. Presentations would start soon after around 8:00pm. We understand that presentations should be approximately 15 minutes in duration to leave time for discussion. We also understand that a projection screen will be available for our use at the meeting.

The developer is looking forward to meeting you and the other board members since they are now new residents to the Waikiki business community.

If you have any questions feel free to call me at (808) 521-8888 or by e-mail at rmyers@watg.com.

rm:h:rhsc/rhsc development041024/041024/correspondence/40701waikiki_neighborhood_ board .doc

Honolulu • Newport Beach • London • Singapore
700 Bishop St., Suite 1800 • Honolulu, Hawaii 96813 • Tel 808.521.8888 • Fax 808.521.3888 • E-mail honolulu@watg.com

WAIKIKI NEIGHBORHOOD BOARD

REGULAR MEETING AGENDA **WEB:**
www.neighborhoodlink.com/honolulu/nb9
TUESDAY, JULY 13, 2004
WAIKIKI COMMUNITY CENTER
310 PAOAKALANI AVENUE
7:00 TO 9:30 P.M.

E-Mail: bob2222@hawaii.rr.com
OLELO REBROADCAST AT 9:00PM CHANNEL 54

I. CALL TO ORDER, ROBERT FINLEY, CHAIRMAN
II. ESTABLISH A QUORIUM
III. APPROVAL OF MINUTES OF JUNE 8, 2004 MEETING
IV. UNFINISHED BUSINESS. None.
V. TREASURER'S REPORT
VI. ELECTION TO REPLACE SEAT IN SUB DISTRICT 2
VII. CHAIR ANNOUNCEMENTS
VIII. FIRE DEPARTMENT REPORT
POLICE DEPARTMENT REPORT
BOARD OF WATER SUPPLY

IX. ELECTED OFFICIALS
SENATOR GORDON TRIMBLE
REPRESENTATIVES GALEN FOX AND SCOTT NISHIMOTO
COUNCILMEMBER CHARLES DJOU
MAYOR'S REPRESENTATIVE ERIC CRISPEN
GOVERNOR'S REPRESENTATIVE DR. KADOHIRO
OTHERS
CITIZENS' CONCERNS

X. PRESENTATION
ROYAL HAWAIIAN SHOPPING CENTER RENOVATION
CITY'S PROPOSAL TO REDEVELOP ALA WAI BOULEVARD – Department of Planning and Permitting (DPP) – Manny Menendez

XI. PROJECT UPDATES
KUHIO RENOVATION PROJECT –

XII. COMMITTEE REPORTS
XIII. CHAIR REPORT
XIV. ANNOUNCEMENTS
XV. ADJOURNMENT

NOTICE...NOTICE...NOTICE

The next regular meeting of the Waikiki Neighborhood Board #9 will be held on August 10, 2004 in the auditorium of the Waikiki Community Center, 310 Paoakalani Avenue at 7:00PM.

Meetings can be viewed on Olelo every Friday night at 9 PM on Channel 54.

ANY DISABLED PERSON REQUIRING ACCOMIDATION TO PARTICIPATE AT THIS MEETING MAY CALL THE NEIGHBORHOOD COMMISSION OFFICE AT 527-5749 FOR ASSISTANCE.

Friday, July 09, 2004

WAIKIKI IMPROVEMENT ASSOCIATION

Board of Directors Meeting

Pacific Beach Hotel, Ahi Room
Wednesday, July 14, 2004
4:00 to 5:00 pm

Agenda

I **Minutes of May 27, 2004 Meeting**

II **Financial Report**

III **President's Report**
- Ala Wai Canal Project
- Kuhio Avenue Status Report
- State Transportation & Improvement Plan Amendment (OMPO Vote)

IV **Royal Hawaiian Shopping Center Presentation by Susan Todani, Kamehameha Schools**

V **Hawaiian Electric Company Presentation on Hawaii's Energy Futures**

VI **Mid-Year Membership Meeting – August 4, 2004**
"A Tribute to Honolulu Mayor Jeremy Harris"
11:30 AM – Reception/12:00 NOON – Lunch/1:00 – 2:00 PM – Program
Waikiki Beach Marriott Resort & Spa, Leahi Ballroom
$40 per person / $350 per table (seats 10)
RSVP by Friday, July 23, 2004

VII **New Business**

VIII **Adjournment**

Draft Environmental Assessment Consultation

LINDA LINGLE
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801-3378

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

In reply, please refer to
File

August 10, 2004

TO: Eric G. Crispin, AIA
Director of Planning and Permitting
City & County of Honolulu

FROM: Russell S. Takata, Program Manager
Department of Health
Noise, Radiation & Indoor Air Quality Branch

SUBJECT: Comments to the Draft Environmental Assessment
Royal Hawaiian Shopping Center Revitalization
Tax Map Key 2-6-002: 18

Our comments should be printed as follows:

"Project activities shall comply with the Administrative Rules of the Department of Health:

- Chapter 11-46 Community Noise Control.

Should there be any questions, please contact Russell S. Takata, Environmental Health Program Manager, Noise, Radiation and Indoor Air Quality Branch, at 586-4701."

WILSON
OKAMOTO
CORPORATION

ENGINEERS
PLANNERS

7039-02
October 19, 2004

Mr. Russell S Takata, Program Manager
Noise, Radiation & Indoor Air Quality Branch
State of Hawaii
Department of Health
P.O. Box 3378
Honolulu, HI 96801

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Mr. Takata:

Thank you for your letter dated August 10, 2004 commenting on the subject Draft Environmental Assessment (EA). The following is offered in the respective order of your comments:

We appreciate the information you provided regarding noise regulations. The Final EA will include a statement regarding the compliance of all project activities with the Administrative Rules of the Department of Health, Chapter 11-46 regarding "Community Noise Control".

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

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LINDA LIN
GOVE
THEODORE E.
DIRE
STEVE BRETSCHNEI
DEPUTY DIRE

DEPARTMENT OF BUSINESS,
ECONOMIC DEVELOPMENT & TOURISM

Strategic Industries Division
235 South Beretania Street, Leiopapa A Kamehameha Bldg., 5th Floor, Honolulu, Hawaii 96813 Telephone (808) 587-3
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804 Fax: (808) 587-3
Web site: www.hawaii.gov/dbedt/sid

August 12, 2004

RECEIVED
AUG 19 2004
DEPT. OF PLANNING AND PERMITTING
650 SOUTH KING ST.
HONOLULU, HI 96813

Mr. Eric G. Crispin, AIA
Director of Planning and Permitting
City and County of Honolulu
650 South King St.
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-002: 018

Dear Mr. Crispin:

Thank you for the opportunity to comment on the Draft EA for the Royal Hawaiian Shopping Center Revitalization. We understand that the project will include renovating the streetscape frontage along Kalakaua Avenue, improvements to pedestrian access into and through the retail complex, utility improvements, landscaping, and exterior and interior building renovation. Our comments are addressed to: 1) State energy conservation goals, 2) Energy saving design practices and technologies, and 3) recycling and recycled-content products.

(1) **State energy conservation goals.** Project buildings, activities, and site grounds should be designed with energy saving considerations. The mandate for such consideration is found in Chapter 344, HRS ("State Environmental Policy") and Chapter 226 ("Hawaii State Planning Act"). In particular, we would like to call to your attention HRS 226 18(c)(4) which includes a State objective of promoting all cost-effective energy conservation through adoption of energy-efficient practices and technologies. We suggest that you contact Hawaiian Electric Co., Inc., which may offer demand-side management rebates for energy efficient technologies.

(2) **Energy saving design practices and technologies.** Methods and technologies that could be considered during the design phase of the project include:

a. Use of site shading, orientation, and use of naturally ventilated areas to reduce cooling load;

b. Maximum use of day lighting;
c. Use of high efficiency compact fluorescent lighting;
d. Exceed Model Energy Code requirements;
e. Use of roof and gutter to divert rainwater for landscaping;
f. Use of landscaping for dust control and to minimize heat gain to area; and
g. Use of photovoltaics, fuel cells and other renewable energy sources.

(3) **Recycling and recycled-content products.**

a. Develop a job-site recycling plan for the construction phase of the project and recycle as much construction and demolition waste as possible;
b. Incorporate provisions for recycling into the project – a collection system and space for bins for recyclable;
c. Specify and use products with recycled-content such as: steel, concrete aggregate fill, drywall, carpet and glass tile; and
d. Specify and use as appropriate, locally produced products such as plastic lumber, hydromulch, soil amendment and glass tile.

Please do not hesitate to call on us for clarification of any of the above.

Sincerely,

Maurice H. Kaya
Chief Technology Officer

c: OEQC

7039-02
October 19, 2004

WILSON
OKAMOTO
CORPORATION

ENGINEERS
PLANNERS
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253

Mr. Maurice H. Kaya
Chief Technology Officer
State of Hawaii
Department of Business, Economic Development & Tourism
P.O. Box 2359
Honolulu, HI 96804

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Mr. Kaya:

Thank you for your letter dated August 12, 2004 commenting on the subject Draft Environmental Assessment (EA). The following is offered in the respective order of your comments:

1. State Energy Conservation Goals
   Based on their development experience, the co-applicant, The Festival Companies, recognizes the economic benefit of incorporating energy saving designs to realize building life-cycle operation and maintenance cost savings. Hawaiian Electric Co., Inc. will be contacted for information regarding demand-side management rebates for using energy efficient technologies.

2. Energy Saving Design Practices and Technologies
   The building life-cycle cost savings achievable through energy saving design practices and technologies is an important economic consideration. Your list of suggested methods and technologies that may be applicable to the proposed project is appreciated and will be fully considered in the design phase.

3. Recycling and Recycled-Content Products
   The experience of co-applicant The Festival Companies is that recycling of demolition debris and construction waste represents a such a significant cost saving that construction contractors must incorporate recycling practices to be competitive. The construction contractor has set an initial target of 25% recycling demolition and construction waste and will develop best management practices for the project to achieve this target.

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The use of recycled-content products and locally produced recycled-content materials will be considered based on their features, performance and cost relative to comparable products on the market.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

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
File: 08053PKP 04

August 13, 2004

Mr. Eric G. Crispin, AIA
Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Attention: Mr. Anthony Ching
Urban Design Branch

Dear Mr. Crispin:

Subject: Kamehameha Schools and The Festival Companies
Revitalization of an Existing Retail Complex

The Department of Health (DOH), Clean Water Branch (CWB), has reviewed the subject application and offers the following comments:

1. The Army Corps of Engineers should be contacted at (808) 438-9258 to identify whether a Federal license or permit (including a Department of Army permit) is required for this project. Pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act"), a Section 401 Water Quality Certification is required for "[a]ny applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...."

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following activities:

   a. Storm water associated with industrial activities, as defined in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi).

   b. Construction activities, including clearing, grading, and excavation, that result in the disturbance of equal to or greater than one (1) acre of total land area. The total land area includes a contiguous area where multiple separate and distinct construction activities may be taking place at different times on different schedules under a larger common plan of development or sale. An NPDES permit is required before the commencement of the construction activities.

   c. Discharges of treated effluent from leaking underground storage tank remedial activities.

   d. Discharges of once through cooling water less than one (1) million gallons per day.

   e. Discharges of hydrotesting water.

   f. Discharges of construction dewatering effluent.

   g. Discharges of treated effluent from petroleum bulk stations and terminals.

   h. Discharges of treated effluent from well drilling activities.

   i. Discharges of treated effluent from recycled water distribution systems.

   j. Discharges of storm water from a small municipal separate storm sewer system.

   k. Discharges of circulation water from decorative ponds or tanks.

   The CWB requires that a Notice of Intent (NOI) to be covered by an NPDES general permit for any of the above activities be submitted at least 30 days before the commencement of the respective activities. The NOI forms may be picked up at our office or downloaded from our website at:
   http://www.hawaii.gov/health/environmental/water/cleanwater/index.html

3. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters and/or coverage of the discharge(s) under the NPDES general permit(s) is not permissible (i.e. NPDES general permits do not cover discharges into Class 1 or Class AA State waters). An application for the NPDES permit is to be submitted at least 180 days before the commencement of the respective activities. The NPDES application forms may also be picked up at our office or downloaded from our website at:
   http://www.hawaii.gov/health/environmental/water/cleanwater/index.html

4. Hawaii Administrative Rules (HAR), Section 11-55-38, also requires the applicant to either submit a copy of the new NOI or NPDES permit application to the State Department of Land and Natural Resources, State Historic Preservation Division (SHPD), or demonstrate to the satisfaction of the DOH that the project, activity, or site covered by the NOI or application has been or is being reviewed by SHPD.

5. The DOH is in the process of readopting HAR, Chapters 11-54 and 11-55 to regulate the application of pesticides to surface waters of the State. This may include overspray of pesticide applied adjacent to surface waters. Therefore, the applicant may be required to apply for NPDES permit coverage should the revised regulations be in effect during the length of the project.

If you have any questions, please contact Ms. Kris Poentis of the Engineering Section, CWB, at 586-4309.

Sincerely,

DENIS R. LAU, P.E., CHIEF
Clean Water Branch

KP:bt

7039-02
October 19, 2004

WILSON
OKAMOTO
CORPORATION

ENGINEERS
PLANNERS

1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253

Mr. Denis R. Lau, P.E., Chief
Clean Water Branch
Department of Health
State of Hawaii
P.O. Box 3378
Honolulu, HI 96801-3378

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Mr. Lau:

Thank you for your letter dated August 13, 2003 (Ref. 08053PKP.04) commenting on the subject Draft Environmental Assessment (EA). The following is offered in the respective order of your comments:

1. Based on a telephone conversation on September 13, 2004 between Ms. Lolly Silva of the Army Corps of Engineers and Ms. Laura Mau of our office, a Department of the Army permit is not required for the project.
2. We appreciate the information provided regarding the NPDES permits, which will be obtained as required.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

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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

KAULANA H. PARK
EXECUTIVE ASSISTANT

August 16, 2004

Mr. Eric G. Crispin, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Crispin:

Thank you for the opportunity to review the draft environmental assessment report for the Royal Hawaiian Shopping Center Revitalization project. The Department of Hawaiian Home Lands has no comments to offer at this time.

If you have any questions, please call me at 586-3801 or call our Planning Office at 586-3836.

Aloha and mahalo,

Micah A. Kane, Chairman
Hawaiian Homes Commission

RECEIVED
AUG 17 2004
DEPT. OF PLANNING AND PERMITTING
650 SOUTH KING ST.
HONOLULU, HI 96813

7039-02
October 19, 2004

WILSON OKAMOTO CORPORATION
ENGINEERS
PLANNERS
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HAWAII 96826
PH: (808) 946-2277
FAX: (808) 946-2253

Mr. Micah A. Kane, Chairman
Hawaiian Homes Commission
Department of Hawaiian Home Lands
State of Hawaii
P.O. Box 1870
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Mr. Kane:

Thank you for your letter dated August 16, 2004 indicating that you have no comments on the subject Draft Environmental Assessment (EA). We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

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LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
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
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

September 2, 2004

LD-NAV
2004 ED-17 (tc)

Honorable Eric G Crispin, AIA
Director of Planning and Permitting
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Crispin:

SUBJECT: Waikiki Special Permit Application (Minor)
File No.: 2004-ED-17
Applicant: Kamehameha Schools & The Festival Companies
Project: Royal Hawaiian Shopping Center Revitalization

Thank you for the opportunity to review and comment on the subject matter

A copy of the document pertaining to the subject matter was transmitted or made available to the following Department of Land and Natural Resources' Divisions for their review and comment.

- Division of Forestry & Wildlife
- Engineering Division
- Division of State Parks
- Division of Aquatic Resources
- Office of Conservation and Coastal Lands
- Land-Oahu District Land Office
- Land-Planning and Development

Enclosed please find a copy of the Engineering Division comment.

Based on the attached responses the Department of Land and Natural Resources has no other comment to offer on the subject matter.

Should you have any questions, please contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 1-808-587-0384.

Very truly yours,

DIERDRE S. MAMIYA
Administrator

C: ODLO

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
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CONSERVATION AND COASTAL LANDS
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION

POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 10, 2004

Ref.: 2004 ED-17 (TC)
LD-NAV

Suspense Date: 8/27/04

MEMORANDUM:

TO: *XXX Office of Conservation and Coastal Lands
*XXX Land-Oahu District Land Office
XXX Engineering Division (DD)
*XXX Division of Forestry and Wildlife
*XXX Division of State Parks
XXX Office of Conservation and Coastal Lands (DD)
*XXX Morris Atta

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Waikiki Special Permit Application (Minor)
File No.: 2004 ED-17
Applicant: Kamehameha Schools and The Festival Companies
Project: Royal Hawaiian Shopping Center Revitalization
TMK: (1) 2-6-002: 18 - Waikiki, Oahu

Please review the document pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

*Note: One copy of the document is available for your review in the Land Division Office, Room 220.

If you need more time to review the subject matter, please contact Nick Vaccaro at 587-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments. ( ) Comments attached.

Signed: Paul J Conry Date: AUG 11 2004

Name: PAUL I. CONRY, ADMINISTRATOR
DIVISION OF FORESTRY AND WILDLIFE Division: _____

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LINDA LINGLE
GOVERNOR OF HAWAII

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PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 10, 2004

Ref.: 2004 ED-17 (TC)
LD-NAV

Suspense Date: 8/27/04

ADMINISTRATOR
ASST ADMIN
DEPUTY
PLAN BR
RES MGMT BR
CLERICAL
ADMIN ASST
INTERP BR

MEMORANDUM:

TO: *XXX Office of Conservation and Coastal Lands
*XXX Land-Oahu District Land Office
XXX Engineering Division (DD)
*XXX Division of Forestry and Wildlife
*XXX Division of State Parks
XXX Office of Conservation and Coastal Lands (DD)
*XXX Morris Atta

FOR:
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COMMENTS & REC
DRAFT REPLY
FILE
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FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Waikiki Special Permit Application (Minor)
File No.: 2004 ED-17
Applicant: Kamehameha Schools and The Festival Companies
Project: Royal Hawaiian Shopping Center Revitalization
TMK: (1) 2-6-002: 18 - Waikiki, Oahu

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If you need more time to review the subject matter, please contact Nick Vaccaro at 587-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

(✓) We have no comments. ( ) Comments attached.

Signed: [signature] Date: 8/16/04

Name: Daniel S. Quinn Division: State Parks

2004 SEP -7 AM 10 11 45847

LINDA LINGLE
GOVERNOR OF HAWAII

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LAND DIVISION
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AUG 12 RECD

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
COMMISSION ON WATER RESOURCE MANAGEMENT
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LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

August 10, 2004

Ref.: 2004 ED-17 (TC)
LD-NAV

Suspense Date: 8/27/04

ADMINISTRATOR
ASST ADMIN
DEPUTY
PLAN BR
RES MGMT BR
CLERICAL
ADMIN ASST
INTERP BR

MEMORANDUM:

TO: *XXX Office of Conservation and Coastal Lands
*XXX Land-Oahu District Land Office
XXX Engineering Division (DD)
*XXX Division of Forestry and Wildlife
*XXX Division of State Parks
XXX Office of Conservation and Coastal Lands (DD)
*XXX Morris Atta

FOR:
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DRAFT REPLY
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RUSH OUT
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FAX/SEND COPY TO

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Waikiki Special Permit Application (Minor)
File No.: 2004 ED-17
Applicant: Kamehameha Schools and The Festival Companies
Project: Royal Hawaiian Shopping Center Revitalization
TMK: (1) 2-6-002: 18 - Waikiki, Oahu

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If you need more time to review the subject matter, please contact Nick Vaccaro at 587-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

(✓) We have no comments. ( ) Comments attached.

Signed: [signature] Date: 8/12/04

Name: Daniel S. Quinn Division: State Parks

LINDA LINGLE
GOVERNOR OF HAWAII

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2004 AUG 17 P 3:21

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2004 SEP 7 AM 10 10

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

August 10, 2004

Ref.: 2004 ED-17 (TC)
LD-NAV

Suspense Date: 8/27/04

MEMORANDUM:

TO: *XXX Office of Conservation and Coastal Lands
*XXX Land-Oahu District Land Office
XXX Engineering Division (DD)
*XXX Division of Forestry and Wildlife
*XXX Division of State Parks
XXX Office of Conservation and Coastal Lands (DD)
*XXX Morris Atta

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Waikiki Special Permit Application (Minor)
File No.: 2004 ED-17
Applicant: Kamehameha Schools and The Festival Companies
Project: Royal Hawaiian Shopping Center Revitalization
TMK: (1) 2-6-002: 18 - Waikiki, Oahu

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If you need more time to review the subject matter, please contact Nick Vaccaro at 587-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments. ( ) Comments attached.

Signed: Paul J. Conry Date: AUG 16 2004

Name: PAUL J. CONRY, ADMINISTRATOR
DIVISION OF FORESTRY AND WILDLIFE

Division:

LINDA LINGLE
GOVERNOR OF HAWAII

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2004 AUG 25 A 10:17

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
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2004 SEP 7 AM 10 10

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

August 10, 2004

Ref.: 2004 ED-17 (TC)
LD-NAV

Suspense Date: 8/27/04

MEMORANDUM:

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*XXX Land-Oahu District Land Office
XXX Engineering Division (DD)
*XXX Division of Forestry and Wildlife
*XXX Division of State Parks
XXX Office of Conservation and Coastal Lands (DD)
*XXX Morris Atta

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Waikiki Special Permit Application (Minor)
File No.: 2004 ED-17
Applicant: Kamehameha Schools and The Festival Companies
Project: Royal Hawaiian Shopping Center Revitalization
TMK: (1) 2-6-002: 18 - Waikiki, Oahu

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If you need more time to review the subject matter, please contact Nick Vaccaro at 587-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments. ( ) Comments attached.

Signed: Date: Aug. 25, 2004

Name: Robert M. Ing Division: Land
4

LINDA LINGLE
GOVERNOR OF HAWAII

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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
POST OFFICE BOX 621
HONOLULU, HAWAII 96809

2004 SEP -7 AM 10 10

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
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KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

August 10, 2004

Ref.: 2004 ED-17 (TC)
LD-NAV

Suspense Date: 8/27/04

MEMORANDUM:

TO: *XXX Office of Conservation and Coastal Lands
*XXX Land-Oahu District Land Office
XXX Engineering Division (DD)
*XXX Division of Forestry and Wildlife
*XXX Division of State Parks
XXX Office of Conservation and Coastal Lands (DD)
*XXX Morris Atta

FROM: Dierdre S. Mamiya, Administrator
Land Division

SUBJECT: Waikiki Special Permit Application (Minor)
File No.: 2004 ED-17
Applicant: Kamehameha Schools and The Festival Companies
Project: Royal Hawaiian Shopping Center Revitalization
TMK: (1) 2-6-002: 18 - Waikiki, Oahu

Please review the document pertaining to the subject matter and submit your comments (if any) on Division letterhead signed and dated by the suspense date.

*Note: One copy of the document is available for your review in the Land Division Office, Room 220.

If you need more time to review the subject matter, please contact Nick Vaccaro at 587-0384. If this office does not receive your comments by the suspense date, we will assume there are no comments.

( ) We have no comments.
(X) Comments attached.

Signed: Eric T. Hirano
Date: 8/27/04

Name: ERIC T. HIRANO, CHIEF ENGINEER
Division: Engineering

2004 SEP -7 AM 10 10

DEPARTMENT OF LAND AND NATURAL RESOURCES
ENGINEERING DIVISION

LAINAV

Ref.: 2004 ED-17 (TC)

COMMENTS

(X) We confirm that the project site, according to the Flood Insurance Rate Maps (FIRM), is located in Flood Zones AO, A and AE.
( ) Please take note that the project site, according to the Flood Insurance Rate Map (FIRM), is located in Zones ___.
( ) Please note that the correct Flood Zone Designation for the project site according to the Flood Insurance Rate Map (FIRM) is ___.
(X) Please note that the project site 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), whenever development within a Special Flood Hazard Area is undertaken. If there are any questions, please contact the State NFIP Coordinator, Ms. Carol Tyau-Beam, of the Department of Land and Natural Resources, Engineering Division at (808) 587-0267.

Please be advised that 44CFR indicates the minimum standards set forth by the NFIP. Your Community's local flood ordinance may prove to be more restrictive and thus take precedence over the minimum NFIP standards. If there are questions regarding the local flood ordinances, please contact the applicable County NFIP Coordinators below:

(X) Mr. Robert Sumimoto at (808) 523-4254 or Mr. Mario Siu Li at (808) 523-4247 of the City and County of Honolulu, Department of Planning and Permitting.
( ) Mr. Kelly Gomes at (808) 961-8327 (Hilo) or Mr. Kiran Emler at (808) 327-3530 (Kona) of the County of Hawaii, Department of Public Works.
( ) Mr. Francis Cerizo at (808) 270-7771 of the County of Maui, Department of Planning.
( ) Mr. Mario Antonio at (808) 241-6620 of the County of Kauai, Department of Public Works.

( ) The applicant should include project water demands and infrastructure required to meet water demands. Please note that the implementation of any State-sponsored projects requiring water service from the Honolulu Board of Water Supply system must first obtain water allocation credits from the Engineering Division before it can receive a building permit and/or water meter.
( ) The applicant should provide the water demands and calculations to the Engineering Division so it can be included in the State Water Projects Plan Update.

( ) Additional Comments: _____

( ) Other: _____

Should you have any questions, please call Mr. Andrew Monden of the Planning Branch at 587-0229.

Signed: Eric T. Hirano
ERIC T. HIRANO, CHIEF ENGINEER
Date: 8/27/04

7039-02
October 19, 2004

WILSON
OKAMOTO
CORPORATION

ENGINEERS
PLANNERS
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253

Ms. Dierdre S. Mamiya, Administrator
State of Hawaii
Department of Land and Natural Resources
Land Division
P.O. Box 521
Honolulu, HI 96809

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Ms. Mamiya:

Thank you for your letter dated September 2, 2004 (Ref. LD-NAV 2004 ED-17(tc)) commenting on the subject Draft Environmental Assessment (EA). We offer the following responses to comments offered by your Engineering Branch. Your Division of Forestry and Wildlife, Division of State Parks, and Oahu District Land Office indicated that they had no comments to offer.

Engineering Branch

Your confirmation of the flood hazard zone designation is appreciated. As stated in the Draft EA, all renovations will comply with City flood ordinances, which you indicate may be more restrictive than the rules and regulations of the National Flood Insurance Program.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

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LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186
E-mail: oeqc@health.state.hi.us

September 7, 2004

Mr. Eric Crispin, Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawai'i 96813

Dear Mr. Crispin:

Subject: Draft Environmental Assessment for the Royal Hawaiian Shopping Center Revitalization, O'ahu

Thank you for the opportunity to review and comment on the subject project. We have the following comments.

1. Please address the cumulative impacts of this project by taking into account other nearby Waikiki projects (BRT, Outrigger Beach Walk, etc.) that are scheduled within the same time period.

2. Will the businesses operating in the Shopping Center be open or closed during the renovations?

3. Please consider applying the latest "green building" techniques during the reconstruction.

Sincerely,

Genevieve Salmonson
Director

WILSON
OKAMOTO
CORPORATION

ENGINEERS
PLANNERS
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253

7039-02
October 19, 2004

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

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Ms. Salmonson:

Thank you for your letter dated September 7, 2004 commenting on the subject Draft Environmental Assessment (EA). The following is offered in the respective order of your comments:

Cumulative Impacts

Potential short-term cumulative impacts during construction depend on the timing of specific construction activities at nearby projects. Since construction schedules are constantly subject to change for any number of reasons, it is impractical to anticipate, to any degree of certainty, potential cumulative impacts such as on ambient noise levels, pedestrian circulation or vehicular traffic in the vicinity.

Section 2.6 of the Draft EA discusses construction noise as part of the ambient noise quality in Waikiki. The Final EA will state that if the proposed construction activity occurs while other nearby construction projects are on-going, the character of ambient noise will be affected, and people may have a heightened awareness of construction activities in the vicinity.

Short-term cumulative impacts on pedestrian and vehicular traffic, if any, would be subsequently addressed through the City's street usage permit based on requests for scheduled activities affecting streets. The permit is required for activities ranging from construction work to parades and is intended to minimize conflicts and traffic congestion. The Final EA will include a discussion to this effect in Section 2.12 regarding Traffic.

Potential long-term cumulative impacts on traffic are addressed by including an annual growth rate factor, as discussed in Section 2.12 of the Draft EA.

Business Operations
Construction activities for the proposed revitalization project will be conducted to minimize impacts on business operations, including impacts on customers. To the extent possible, continuous normal operation of all businesses in the Center will be accommodated throughout the construction period with particular attention to maintaining customer safety, access and comfort.

Green Building
Based on their development experience, the co-applicant, The Festival Companies, recognizes the economic benefit of incorporating sustainable building design techniques to realize building life-cycle operation and maintenance cost savings. Therefore, incorporation of design techniques such as those presented in the "Guidelines for Sustainable Building Design in Hawaii" will be fully considered.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

LINDA LINGLE
GOVERNOR

2004 SEP 20 P3 4 04

CITY & COUNTY HONOLULU

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

RODNEY K. HARAGA
DIRECTOR

Deputy Directors
BRUCE Y. MATSUI
LINDEN H. JOESTING
BRIAN H. SEKIGUCHI

IN REPLY REFER TO

STP 8.1366

September 14, 2004

Mr. Eric G. Crispin, AIA
Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Crispin:

Subject: Royal Hawaiian Shopping Plaza Revitalization
Draft Environmental Assessment (DEA)
TMK: 2-6-002: 018

Thank you for your transmittal requesting our comments on the subject application.

The proposed revitalization of the existing retail complex in Waikiki will not have a significant impact to our State facilities.

We appreciate the opportunity to provide our comments.

Very truly yours,

RODNEY K. HARAGA
Director of Transportation

WILSON OKAMOTO CORPORATION
ENGINEERS
PLANNERS

7039-02
October 21, 2004

Mr. Rodney Haraga, Director
Department of Transportation
State of Hawaii
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Mr. Haraga:

Thank you for your letter dated September 14, 2004 indicating that the project will not have a significant impact on DOT's facilities. We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

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PHONE (808) 594-1888

FAX (808) 594-1865

2004 SEP 24 PM 1 05

STATE OF HAWAI'I
OFFICE OF HAWAIIAN AFFAIRS
711 KAPI'OLANI BOULEVARD, SUITE 500
HONOLULU, HAWAI'I 96813

HRD/1401

September 15, 2004

Mr. Eric G. Crispin, AIA
Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Re: Draft Environmental Assessment, Royal Hawaiian Shopping Center Revitalization, 2201 Kalakaua Avenue, Waikīkī, TMK: 2-6-002:018

Dear Mr. Crispin:

The Office of Hawaiian Affairs (OHA) is in receipt of your August 4, 2004 request for review and comment on the aforementioned project, which provides for the renovation of the existing Royal Hawaiian Shopping Center (RHSC) owned by the Kamehameha Schools. OHA apologizes for the delayed response and offers the following comments, concerns and suggestions in the areas of cultural landscaping and historic cultural sites.

According to the Draft Environmental Assessment (DEA) for the proposed revitalization plan, the overall objective of the RHSC renovation is to:

> *[R]establish its role as a major retail center in Waikīkī by incorporating features that will convey a Hawaiian sense of place consistent with the City's Waikīkī Waikīkī Special District design guidelines; incorporating historical, cultural and educational features consistent with the goal of Kamehameha Schools to perpetuate all things Hawaiian;*

Given the important history associated with Helumoa, the area in which the Royal Hawaiian Hotel (RHH) and RHSC are currently situated, OHA is pleased with the primary objective of the revitalization plan to restore elements of the native Hawaiian cultural and historical aspects of the site. The educational goals associated with this effort are also commendable, especially from a sister organization also committed to the advancement of the Hawaiian people.

With this in mind, OHA offers the following:

Cultural Landscaping

The proposal to establish some semblance of the previous "Royal Grove" of coconut palms to "*serve as a central focal point and gathering place to celebrate and appreciate all things Hawaiian*" is a favorable element of the proposed project.

In addition to the extensive planting of coconut palms to reestablish (partially) the look and feel of the previous density of the grove, efforts will be made to preserve other trees on the property such as Banyan, Coconut, and Royal Palms. Other landscaping plants to be utilized include Heliconia, Ginger and Hibiscus. OHA would like to suggest that where feasible, and in keeping with the primary objective of the renovation, that native plants be utilized in the landscaping proposals and educational effort to lend an authenticity to the overall objective.

George S. Kanahele, in his "*Restoring Hawaiianness To Waikīkī, July 1994*", suggested as a goal to "*preserve, maintain and nurture as many native Hawaiian trees, plants and flowers as current conditions allow*" and recommended utilizing trees such as *milo*, *kou* and '*ulu* which apparently thrived in ancient Waikīkī.

With a steady stream of visitors and locals alike, the opportunity to provide educational furtherance of our native foliage seems ideal. The proposal to honor Princess Bernice Pauahi Bishop with the planting of a Tamarind tree is an especially thoughtful touch to the plan.

Given the previous existence, and subsequent loss, of surface flowing water in the area, such as 'Apuakehau, and the importance of the water flows in Waikīkī in sustaining fish stocks and food stocks, the proposal to establish a flowing water feature in the project as part of the focal center seems appropriate.

It is hoped that the water feature retain some aspects of real water systems previously found in the area, and less of the recently constructed water features along the Kuhio beach promenade which appear very much to be "manmade." Mr. Kanahele, in his 1994 publication for Queen Emma Foundation also suggested the utilization of natural spring restoration to add a sense of Hawaiianess to the area.

The opportunity to utilize *kalo*, *'opae'ula*, or other native aquatic species in the renovation would again provide an excellent opportunity for educational efforts with the large international contingency expected to pass through this site. OHA suggests that these options be considered.

The plan to reduce the sense of building mass is also commendable in helping to restore the area to a look and feel of an earlier time in Hawaii's history and hopefully a trend to be continued throughout other projects slated for the Waikīkī District.

Historic Cultural Sites

In determining the Finding of No Significant Impact (FONSI), the DEA cites the evaluation of the potential impacts of the renovation project in accordance with the significance criteria of Section 11-200-12 of the Department of Health's Administrative Rules. Specifically, whether the project will:

(1) Involve the irrevocable commitment to loss or destruction of any natural or cultural resource.

The DEA finding is:

No significant natural resources or habitats have been identified on the project site.

It is unclear as to why the FONSI makes no mention of "cultural resources" which are part of the significance criteria in Section 11-200-12 (b)(1), HAR. OHA would contend that significant cultural resources have been identified on the site in the form of ancestral native remains found in the area of the Royal Hawaiian Hotel and the high probability of remains existing on the RHSC parcel. Without archaeological inventory level testing, a purely documentary review of available records is unlikely in and of itself to identify these cultural resources.

Although the RHSC and the RHH are two separate entities, the proximity of the two sites along with the lack of such property lines in the past raise the concern that the existence of ancestral Hawaiian burial sites on the RHH property may certainly extend into and around the RHSC. Furthermore, the significance of Helumoa and the important historical association of the area with notable *ali'i* require careful evaluation of the site.

In reviewing available records from the Bernice Pauahi Bishop Museum (BPBM) related to inventories conducted pursuant to the Native American Graves Protection and Repatriation Act of 1990 (NAGPRA), the following citations are noted as missing from the summary of archaeological studies contained in the DEA:

In 1923, human remains representing five individuals from Helumoa, Waikiki, O'ahu, were collected by Kenneth P. Emory. Museum information indicates they were victims of the 1853 small pox epidemic.

This citation is important for if the information regarding the association with the smallpox epidemic is accurate, the potential for more mass burials in the area of Helumoa increases significantly. Another citation is:

In 1963, human remains representing 96 individuals from Waikiki, O'ahu, were collected and donated to the Bishop Museum by Robert N. Bowen

Although the location of these remains is as of yet undetermined, and the Waikīkī *ahupua'a* is far more extensive than the modern Waikīkī proper, some effort should be made to review available information from the BPBM to determine the provenience of this large collection of individuals. A third relevant citation is:

In 1970, human remains representing eight individuals from Waikiki, O'ahu, were donated to the Bishop Museum by the Sheraton Hawai'i Corp. Donor information indicates these human remains were recovered during excavations for tank construction.

It is unclear as to the holdings of Sheraton Hawai'i Corp. in 1970 but an effort should be made to determine which hotel is referenced due to the proximity of the Sheraton Waikīkī to both the RHSC and the RHH.

The 2001 renovation project at the RHH to establish an outdoor component to an existing spa discovered at least one individual during minimal trenching activities. Subsequent to that discovery, a human skull was turned into the Burial Sites Program of the State Historic Preservation Division by an anonymous donor. The provenience information provided with the *po'o* was that it was taken during the construction of the RHH.

OHA understands that a preliminary plan by the Kamehameha Schools regarding the disposition of human skeletal remains repatriated from the BPBM in the late 1990's centered on the establishment of a reinterment site at the RHSC for a portion of the inventory. It is our understanding that this proposal was to address the final disposition of *iwi* of which Kamehameha Schools felt they had a *kuleana*. These remains, along with others, were alternatively reinterred in Ka Hali'a Aloha, the established burial mound located in Waikīkī. Additional research should be done to establish the provenience of the *iwi* originally slated to be reinterred at the RHSC and whether they originated from the RHSC or other adjacent property.

Conclusion

OHA maintains that given the available documentation and nature of the area, there is a high probability of encountering ancestral native Hawaiian human skeletal remains in the project site during ground disturbing activity which extends one to two feet, or further, below existing grade.

Inventory level testing should occur at areas where such excavation is planned such as trenching for utilities, tree planting and the elevator shaft excavations. Archaeological monitoring should be sufficient for tree removal and demolition work.

As the project proceeds, in accordance with Section 6E-43.6, Hawaii Revised Statutes and Chapter 13-300, Hawaii Administrative Rules, if any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity and the State Historic Preservation Division shall be contacted.

OHA further suggests, if feasible, the utilization of native plants and trees in the project area to complement the educational aspects of the renovation and to foster the cultural landscape and important history of the area. The proposed water feature also provides a unique opportunity along these same lines.

If you have any questions or concerns, please contact Kai Markell, Policy Advocate, at 594-1945 or kaim@oha.org. Once again, thank you for your patience during our review and assessment of this important matter.

'O wau iho nō,

Clyde W. Nāmu'o
Administrator

7039-02
October 21, 2004

WILSON
OKAMOTO
CORPORATION

ENGINEERS
PLANNERS
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253

Mr. Clyde W. Nāmu'o, Administrator
State of Hawaii
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, HI 96813

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Mr. Nāmu'o:

Thank you for your letter dated September 15, 2004 (Ref. HRD/1401) commenting on the subject Draft Environmental Assessment (EA). We acknowledge and appreciate your support for the objective of the proposed revitalization project. We offer the following in response to your comments:

Cultural Landscaping
As stated in the Draft EA, landscaping will include extensive planting of coconut trees, as well as the preservation of the existing large banyan tree makai of the courtyard. More royal palms will also be planted along Royal Hawaiian Avenue. Use of other native trees and plants associated with the area or which may serve a cultural purpose will be considered in developing the final landscape plan.

The proposed meandering water feature in the courtyard will be designed to convey a natural setting and will feature areas for cultural education and interpretation. We will evaluate the feasibility of sustaining native aquatic species in the water feature as you have suggested.

Historic Cultural Sites
The Final EA will correct the reference in the significance criteria to include "cultural resources." Indeed, undiscovered ancestral native remains that may be present in the vicinity of the project site are a potentially significant cultural resource. The citations you provided will be evaluated by the archaeological consultant in consultation with Kai Markell, OHA Policy Advocate, and the archaeological assessment will be revised accordingly in the Final EA.

Kamehameha Schools is a Hawaiian institution which is extremely sensitive to Wahi Kupuna. In fact, Kamehameha Schools already has internal policies on discoveries and repatriation of human remains and burial grounds that will be

strictly observed. In this instance, due to extensive prior ground disturbance during the construction of the Royal Hawaiian Shopping Center in the 1970s and the limited area of proposed ground disturbing activities which will occur within previously disturbed areas, the potential for significantly impacting ancestral native remains is relatively low.

The proposed archaeological monitoring plan will be prepared and implemented during ground disturbing activities to assure that any remains uncovered will be identified and recovered for appropriate final disposition. The State Historic Preservation Division is being consulted regarding the need to prepare an inventory survey for specific areas of ground-disturbance.

Further, the revitalization plans propose that all major existing buildings will remain and no major ground level building structures will be added. This minimizes any archaeological disturbances.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

1000 ULUOHIA STREET, SUITE 309 • KAPOLEI, HAWAII 96707
TELEPHONE: (808) 692-5561 • FAX: (808) 692-5161 • INTERNET: www.honolulu.gov

August 17, 2004

WILLIAM D. BALFOUR, JR.
DIRECTOR

EDWARD T. "SKIPPER" DIAZ
DEPUTY DIRECTOR

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: WILLIAM D. BALFOUR, JR., DIRECTOR

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT - ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION

Thank you for the opportunity to review and comment on the Draft Environmental Assessment relating to the Revitalization of the Royal Hawaiian Shopping Center by Kamehameha Schools.

The Department of Parks and Recreation has no comment on this project.

Should you have any questions, please contact Mr. John Reid, at 692-5454.

W. D. Balfour

WILLIAM D. BALFOUR, JR.
Director

WDB:mk
(71815)

WILSON OKAMOTO CORPORATION
ENGINEERS
PLANNERS
1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HAWAII 96826
PH: 808.946.2277
FAX: 808.946.2253

7026-02
October 19, 2004

Mr. William D. Balfour, Jr., Director
Department of Parks and Recreation
City and County of Honolulu
1000 Uluohia Street, Suite 309
Kapolei, HI 96707

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Mr. Balfour:

Thank you for your letter dated August 17, 2004 indicating that you have no comments on the subject Draft Environmental Assessment (EA). We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

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

August 18, 2004

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: for CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT FOR ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION, 2004/ED-17(TC)

The existing water system is presently adequate to accommodate the proposed revitalization project.

The availability of water will be confirmed when the building permit is approved. 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 at 748-5442.

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

September 1, 2004

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: for CLIFFORD S. JAMILE, MANAGER AND CHIEF ENGINEER

SUBJECT: MEMORANDUM DATED AUGUST 24, 2004 REGARDING THE SPECIAL DISTRICT (MAJOR) PERMIT APPLICATION NO. 2004/SDD-54, WAIKIKI KALAKAUA RETAIL PROJECT, TMK: 2-6-22: 9, 14 AND 24

The existing water system is presently adequate to accommodate the proposed retail development.

The availability of water will be confirmed when the building permit is approved. When water is made available, the applicant will be required to pay our Water System Facilities Charges for resource development, transmission and daily storage.

If you have any questions, please contact Joseph Kaakua at 748-5442.

7039-02
October 19, 2004

WILSON
OKAMOTO
CORPORATION

ENGINEERS
PLANNERS

Mr. Clifford S. Jamile
Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Mr. Jamile:

Thank you for your letters dated August 18 and September 1, 2004 indicating that the existing water system is presently adequate to accommodate the proposed project. We acknowledge that the availability of water will be confirmed upon your review and approval of the building permit. We further acknowledge that the project is subject to your department's Cross-Connection Control And Backflow prevention requirements prior to approval of the building permit. With regard to the Water System Facility Charges for resource development, transmission and daily storage, we understand that the charges will be based on the difference between current and proposed water use facilities. Inasmuch as the proposed project involves the revitalization of an existing retail development, it is anticipated that there will be little or no net difference in water use facilities.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

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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

JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

August 27, 2004

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: ATTILIO K. LEONARDI, FIRE CHIEF

SUBJECT: CHAPTER 343, HAWAII REVISED STATUTES
DRAFT ENVIRONMENTAL ASSESSMENT
ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION

APPLICANT:	KAMEHAMEHA SCHOOLS AND THE FESTIVAL COMPANIES
LANDOWNER:	KAMEHAMEHA SCHOOLS
AGENT:	WILSON OKAMOTO CORPORATION
LOCATION:	2201 KALAKAUA AVENUE WAIKIKI, OAHU, HAWAII
TAX MAP KEY:	2-6-002: 018
REQUEST:	WAIKIKI SPECIAL DISTRICT PERMIT (MINOR)
PROPOSAL:	REVITALIZATION OF AN EXISTING RETAIL COMPLEX

We received your memorandum dated August 4, 2004, requesting our review and comments on the above-mentioned project.

The Honolulu Fire Department requires that the following be complied with for the duration of the project:

1. Maintain fire apparatus access throughout the construction site.
2. Notify the Fire Communication Center at 523-4411 regarding any interruption of the existing fire hydrant system.
3. Maintain fire apparatus access to fire department hose connections.

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/SY:bh

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
3375 KOAPAKA STREET SUITE H425 • HONOLULU, HAWAII 96819-1420
TELEPHONE (808) 831-7761 • FAX (808) 831-7750 • INTERNET www.honolulufire.org

JEREMY HARRIS
MAYOR

ATTILIO K. LEONARDI
FIRE CHIEF

JOHN CLARK
DEPUTY FIRE CHIEF

September 9, 2004

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: ATTILIO K. LEONARDI, FIRE CHIEF

SUBJECT: SPECIAL DISTRICT (MAJOR) PERMIT APPLICATION NO. 2004/SDD-54

PROJECT:	KALAKAUA AVENUE RETAIL PROJECT
LOCATIONS:	2284 KALAKAUA AVENUE (PARCEL 9) 325 SEASIDE AVENUE (PARCEL 14) 333 SEASIDE AVENUE (PARCEL 24) HONOLULU, OAHU, HAWAII
TAX MAP KEYS:	2-6-022: 009, 014, AND 024
RECEIVED:	AUGUST 19, 2004

We received your memorandum dated August 24, 2004, requesting our review and comments on the above-mentioned project.

The Honolulu Fire Department (HFD) conducted an on-site assessment of the property and has determined that the fire apparatus access and existing fire hydrant locations are adequate for fire protection. Therefore, the HFD has no objections to the project.

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:bh

7039-02
October 19, 2004

WILSON
OKAMOTO
CORPORATION

ENGINEERS
PLANNERS

1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253

Mr. Attilio K. Leonardi, Fire Chief
Fire Department
City and County of Honolulu
3375 Koapaka Street, suite H425
Honolulu, Hawaii 96819-1869

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Chief Leonardi:

Thank you for your letters dated August 27, and September 9, 2004 commenting on the subject project. The project will comply with your stated concerns as follows:

August 27, 2004 Letter

1. Fire apparatus access will be maintained throughout the construction site;
2. Fire Communications Center will be notified regarding any interruption of the existing fire hydrant system; and
3. Fire apparatus access will be maintained to fire department hose connections.

September 9, 2004 Letter

Thank you for your on-site assessment and determination that the fire apparatus access and existing fire hydrant locations are adequate for fire protection.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, DPP
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

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POLICE DEPARTMENT

CITY AND COUNTY OF HONOLULU

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

JEREMY HARRIS
MAYOR

2004 SEP 2 PM 3 13

BOISSE P. CORREA
CHIEF

GLEN R. KAJIYAMA
PAUL D. PUTZULU
DEPUTY CHIEFS

OUR REFERENCE CS-KP

August 31, 2004

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

FROM: BOISSE P. CORREA, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT, ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION, TAX MAP KEY: 2-6-002: 018

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

This project should have minimal impact on police services provided that the construction vehicles related to the site renovation do not impede traffic flow in the area.

If there are any questions, please call Major Thomas Nitta of District 6 at 529-3361 or Ms. Carol Sodetani of the Support Services Bureau at 529-3658.

BOISSE P. CORREA
Chief of Police

By
KARL GODSEY
Assistant Chief of Police
Support Services Bureau

Serving and Protecting with Aloha

WILSON OKAMOTO CORPORATION
ENGINEERS
PLANNERS

7039-02
October 19, 2004

Mr. Boisse P. Correa, Chief
Police Department
City and County of Honolulu
801 South Beretania Street
Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Chief Correa:

Thank you for your letter dated August 31, 2004 (Reference CS-KP) commenting on the subject Draft Environmental Assessment (EA). The Final EA will include a discussion on measures that may be employed to mitigate potential impacts to vehicular traffic during construction. We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

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DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU

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JEREMY HARRIS
MAYOR

ERIC G. CRISPIN, AIA
DIRECTOR

BARBARA KIM STANTON
DEPUTY DIRECTOR

KATHY SOKUGAWA
CHIEF PLANNER

2004/ED-17(TC)

September 7, 2004

RECEIVED
SEP 10 2004
WILSON OKAMOTO CORPORATION

Mr. Earl Matsukawa, AICP
Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Matsukawa:

SUBJECT: DRAFT ENVIRONMENTAL ASSESSMENT - 2004/ED-17

Project:	Royal Hawaiian Shopping Center Revitalization
Location:	2201 Kalakaua Avenue - Waikiki
Tax Map Key:	2-6-002: 018
Received:	July 19, 2004

In accordance with the provisions of Chapter 343, Hawaii Revised Statutes, you must respond, in writing, to these and any other comments that were received during the 30-day comment period, which began with publication of a notice of availability of the Draft EA in The Environmental Notice on August 8, 2004. The Final EA must include these comments and responses, as well as the revised text, where needed.

Also, we have reviewed the Draft Environmental Assessment (DEA) for the above project and have the following comments:

1. Section 1.3 - Project Description - Briefly describe how the proposed façade treatments will promote a Hawaiian sense of place, i.e., in terms of the proposed building materials, finishes, and colors. In addition, the plans should disclose the following:

   a. Location and type of improvements as they relate to the proposed BRT station on Kalakaua Avenue; and

   b. Any proposed improvements to Lewers Street which may complement the Outrigger Beach Walk Project.

2. Section 3.2.3 Land Use Ordinance and Waikiki Special District - Describe how the proposed project complies with the required open space, maximum allowed density, outdoor dining areas, and transitional height setbacks. Specifically, we are concerned about the proposed new storefront lines and changes to the existing landscaping.

   The proposed expansion of the storefronts toward Kalakaua Avenue may impede existing pedestrian traffic in the area and create a ground floor experience void of areas for pedestrian refuge and interaction. We recommend that a pedestrian study be included in this document that addresses the minimum pedestrian width for public access purposes and that the proposed new storefront be set back further in certain areas to allow for areas of pedestrian shelter and activity.

   In addition, the removal of all canopy form trees from the Kalakaua Avenue frontage is not consistent with the Waikiki Special District and street tree regulations. A mix of tree types with the use of fragrant, lush, tropical vegetation, and native plant species is encouraged. Canopy form trees would also provide much needed shade and shelter for pedestrians. A revised landscape plan should be considered which incorporates the above elements.

3. Section 6 - Permits and Approvals - Grading and drainage permits are listed as required permits and approvals under the Department of Planning and Permitting. Please verify whether a grading permit will be required if the project does not intend to alter the topography of the project site (per Section 2.2). Please clarify the meaning of drainage permit (i.e., Drain Connection License or dewatering permit).

We look forward to reviewing your final environmental assessment. Should you have any questions, please contact Anthony Ching of our Urban Design Branch at 527-5833.

Sincerely yours,

for ERIC G. CRISPIN, AIA
Director of Planning
and Permitting

EGC:nt

doc32121)rev1

7039-02
October 21, 2004

WILSON OKAMOTO CORPORATION
ENGINEERS
PLANNERS

Mr. Eric G. Crispin, AIA, Director
City and County of Honolulu
Department of Planning & Permitting
650 S. King Street, 7th Floor
Honolulu, Hawai'i 96813

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Mr. Crispin:

Thank you for your letter dated September 7, 2004 (Reference 2004/ED-17 (TC)) commenting on the subject Draft EA. In accordance with Chapter 343, Hawaii Revised Statutes, all comment letters received during the 30-day comment period have been responded to in writing. The comment letters and our corresponding response letters will be reproduced in the forthcoming Final EA. In addition, the Final EA will include text revisions, as needed, based on the comments received.

We offer the following responses in the respective order of your numbered comments:

1. Section 1.3 – Project Description
   The Final EA will include a brief description of the proposed façade treatments that will promote a Hawaiian sense of place through materials, finishes and colors. As you know, Kamehameha Schools (KS) very much wishes to promote a Hawaiian sense of place with the revitalization of the Royal Hawaiian Shopping Center. To that end, much attention is being placed on the use of proper forms, materials, finishes and colors in combination with appropriate cultural theming. Plans submitted in the Waikiki Special District minor permit application are being carefully reviewed by KS and KS's design team to do all that is possible with the funds available to revitalize this important project with the key idea of restoring Hawaiian-ness to Waikiki. In addition, per your request:

   a. Our plans will detail the location and type of improvements as they relate to the proposed BRT station on Kalakaua Avenue.

b. KS has met with Outrigger Hotels & Resorts and will be meeting again to coordinate our site improvements along Lewers Street to complement the Outrigger Beach Walk Project.

2. Section 3.2.3 Land Use Ordinance and Waikiki Special District
Section 3.2.3. of the Draft EA states that the proposed project will comply with the design standards of the Resort/Commercial Precinct. Detailed plans and tabular summaries of design compliance will be provided in conjunction with the WSD permit application for confirmation.

The proposed project will not increase building heights and will retain all of the existing open space along Kalakaua Avenue, Lewers Street and between buildings "B" and "C." All of this open space area will be improved with new landscaping, hardscape and water features. The only increase in existing ground floor footprint is at building "B" and "C" facing Kalakaua Avenue. At these locations, the architects and KS feel it is important to bring the ground floor wall forward to align with the present second level overhang to change the dynamic of having such a ponderous second level element cantilevered over the first level. This modification will properly rest the upper building onto the ground level floor to create a more "squared off" traditional look. This will reduce the contemporary shape or mass of the project and set the stage for using two-story tenant facades that will further break up the mass and horizontal layering that occurs now.

The proposed ground floor façade alignments at Buildings "B" and "C" will not impede pedestrian traffic flow. Pedestrian traffic flow along Kalakaua Avenue and Lewers Street fronting the project will actually improve as a result of new pedestrian pathways that allow for both pedestrian interaction and refuge. Currently, the pedestrian walkway width in two locations along the Kalakaua Avenue frontage is only 12 feet wide. This occurs 90 feet Diamond Head of the Duke's Lane crosswalk (near the Cheesecake Factory) and also 60 feet Diamond Head of the Seaside Avenue crosswalk. Pedestrian traffic at these locations is constrained because of the narrowness of the sidewalk and the jog in the pathway. In both of the above locations the conditions exists for approximately 35 feet of travel distance.

The proposed hardscape plan provides an undulating pedestrian pathway with a minimum clear pathway width of 15 feet along the entire Kalakaua

Avenue frontage with no sharp jogs. In addition to the 15-foot wide primary pedestrian pathway there will be secondary pathways 7 to 12 feet wide incorporated into the hardscape in several locations to further facilitate pedestrian traffic flow. Adjacent to some of these pathways and, especially in the front of the Royal Grove, seating will be provided for pedestrian refuge and interaction. The proposed plan will remove all of the existing curbs along the sidewalks and will be designed to have a direct transition from hardscape surface to grass lawn like that found at Kuhio Beach Park.

The proposed landscape plan is based upon revitalizing the Royal Hawaiian Shopping Center in a way that uniquely ties it to the property's historic and cultural legacy. The proposed removal of existing canopy trees and replacement with coconut palms will restore the historic character of the landscape. Returning the landscape to the earlier "Royal Grove" period will honor the historical significance of the property. In general terms, the proposed landscape design will maintain the same ratio of landscape to hardscape as existing. Shown below is artwork and a historical photograph that depict the historical landscape.

An artist's rendering of a pa'u-clad woman riding through the coconut grove at Kamehameha V's Waikiki residence. Baker-Van Dyke Collection.

King Lot, Kamehameha V's home at Waikiki as it looked in 1870. The water in the foreground is the 'Apuakahau Stream, fed by waters that drained from the mountain valleys of Manoa, Makiki, and Palolo. The ancient coconut grove laced through the entire royal acreage in the Waikiki area. After Lot's death in 1872, his beachfront kauhale (housing compound) continued to serve as a retreat for Hawai'i royalty. Hawaii State Archives

3. Section 6 – Permits and Approvals
   Section 6 of the Draft EA lists permits and approvals that may be required for the proposed project. Specific permit requirements will be determined as detailed designs of specific improvements are prepared. A grading permit may be required, depending upon the amount of earthwork that will be involved, based on the final design. Section 2.2 in the Final EA will be revised to state that the proposed project will not significantly alter the topography of the project site. The permits and approvals in Section 6 of the Final EA will be revised to list "Grading permit" and "Drainage Connection License" separately.

We appreciate your interest and participation in the consultation phase of the environmental review process. Your letter will be included in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

DEPARTMENT OF DESIGN AND CONSTRUCTION

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR
HONOLULU, HAWAII 96813
Phone: (808) 523-4566 • Fax: (808) 523-4567
Website: www.honolulu.gov

JEREMY HARRIS
MAYOR

2004 SEP 13 PM 2 17

CITY & COUNTY HONOLULU

TIMOTHY E. STEINBERGER, P.E.
DIRECTOR

72007

September 13, 2004

TO: ERIC G. CRISPIN, AIA, DIRECTOR
DEPARTMENT OF PLANNING AND PERMITTING

ATTENTION: ANTHONY CHING

FROM: TIMOTHY E. STEINBERGER, P.E., DIRECTOR

SUBJECT: ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)
PROJECT NO. (2004/ED-17

Thank you for the opportunity to review and provide comments to the referenced DEA by Wilson Okamoto Corporation. We offer the following comments.

We have no objection to the proposed project as described in the report. The proposed plan appears to be more favorable to pedestrians and motorists being able to view the shoreline from Kalakaua Avenue. This should assist people in finding a publicly accessible route to the shoreline and is to be encouraged.

Please contact Mr. Terry Hildebrand at extension 4696 if there are any questions.

TES:ei

WILSON
OKAMOTO
CORPORATION

ENGINEERS
PLANNERS

7039-02
October 19, 2004

Mr. Timothy E. Steinberger, P.E., Director
City and County of Honolulu
Department of Design and Construction
650 S. King Street, 11th Floor
Honolulu, Hawai'i 96813

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Mr. Steinberger:

Thank you for your letter dated September 13, 2004 (Reference 72007) commenting that you have no objections to the proposed project. Regarding your comment on views of the shoreline from Kalakaua Avenue, we wish to clarify that the Royal Hawaiian Shopping Center property does not front the shoreline. While the proposed revitalization will improve views through the Center from Kalakaua Avenue, the Royal Hawaiian and Sheraton Waikiki hotels lie between the proposed revitalization project and the shoreline. Public access to the shoreline will continue to be available through the public beach access along the eastern boundary of the Center. We appreciate your interest and participation in the consultation phase of the environmental review process. Your letter and this response will be included in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, Department of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

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THE OUTDOOR CIRCLE
1314 South King St., Suite 306 • Honolulu, HI 96814
Phone: 808-593-0300 Fax: 808-593-0525

August 25, 2004

Mr. Eric Crispin, AIA
Director
Department of Planning and Permitting
City & County of Honolulu
650 South King Street
Honolulu, HI 96813

Re: Environmental Assessment for the Royal Hawaiian Shopping Center Revitalization

Dear Mr Crispin:

On behalf of The Outdoor Circle I would like to thank you for including our organization as a consulted party in the above referenced Environmental Assessment (EA).

Our comments and questions are listed below:

- It is not clearly stated in the EA exactly how many trees will be removed and how many will be replaced in the project area. Please specify these numbers.
- Please include a tree protection plan, developed by a Certified Arborist, for all trees to remain on site. Indicate in the EA that a Certified Arborist will be on-site during construction to ensure that the tree protection plan is implemented correctly.
- Please describe what penalties will be brought upon the contractor if any of the trees to be preserved are damaged during construction.
- Please provide a list of permits which will be required for this project in the EA and specify who will be responsible for obtaining them.
- As described in Section 2.8.1, the Royal Hawaiian Shopping Center is partially built on the original Helumoa historical site. Are there any trees or coconut palms that will be removed as part of this renovation plan that are historic, dating back to the time when Hawaiian royalty lived in this area? If so, what steps will be taken to mitigate for the loss of these historic trees and/or coconut palms?

Thank you for the opportunity to comment. We look forward to hearing your reply.

Sincerely,

Kimberly Hillebrand
Certified Arborist
Landscape and Planting Project Manager

Cc: Patrick Seguirant, Department of Planning & Permitting
Anthony Ching, Department of Planning & Permitting
Susan Todani, Kamehameha Schools
Jerry Garner, The Festival Companies
Earl Matsukawa, Wilson Okamoto Corporation

WILSON OKAMOTO CORPORATION
ENGINEERS
PLANNERS

7039-02
October 19, 2004

Ms. Kimberly Hillebrand, Certified Arborist
Landscape and Planting Project Manager
The Outdoor Circle
1314 South King Street, Suite 306
Honolulu, HI 96814

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Ms. Hillebrand:

Thank you for your letter dated August 25, 2004 commenting on the subject project. The following is provided in the respective order of you comments:

1. The Draft EA describes the proposed project, including the proposed landscape concept, as a basis for assessing the significance of potential environmental impacts. The proposed landscape concept will replace virtually all trees with an abundance of coconut palms. Although the specific number of trees to be removed and replaced has yet to be determined, implementation of the proposed landscape concept is not anticipated to result in a significant adverse environmental impact pursuant to Section 11-200-12, Hawaii Administrative Rules (HAR).

   A detailed landscape plan and a complete list of all existing trees and their proposed disposition will be submitted to the Department of Planning and Permitting in support of the Waikiki Special District (WSD) major permit application. These will be available for public review and comment during the permit process.

2. The Final EA will state that a tree-protection plan for all trees to remain will be prepared by a Certified Arborist. The need for a Certified Arborist to monitor implementation of tree-protection measures during various stages of construction will be determined in consultation with the Arborist.

3. Since none of the trees within the project site are threatened or endangered species or recognized as historically significant or exceptional, there are no legal penalties for damaging trees to intended to remain. Nevertheless, the contractor would be liable for any unauthorized damage

to property, including trees. The contractor could be required to replace damaged trees or compensate the owners of damaged trees.

4. Permits and approvals required for the project are listed in Section 6 of the Draft EA, pursuant to Section 11-200-10, HAR. Persons responsible for obtaining each permit have not been determined, nor is such information required in the Draft EA.

5. The Archeological Assessment prepared by Cultural Surveys Hawaii, which as included as Appendix B in the Draft EA, discussed the residence of Kamehameha V in the Helumoa area where the project is located. Kamehameha V, better know as Prince Lot, died in 1872. Since that time most of the land in the area was developed and redeveloped, with the existing Royal Hawaiian Shopping Center constructed in the 1970s. Coconut palms generally do not live more than a hundred years so it is highly unlikely that any of the existing palms date back to the late 1800s. The large banyan tree makai of the existing courtyard is probably the oldest tree associated with the site and it will be preserved.

We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

Kyo-ya company ltd.
KOKUSAI KOGYO GROUP

September 3, 2004

Mr. Eric Crispin
Director
Department of Planning and Permitting
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

RE: Review of the Draft Environmental Assessment Royal Hawaiian Shopping Center Revitalization Submission

Dear Mr. Crispin,

Kyo-ya Company is the owner of the Sheraton Waikiki and The Royal Hawaiian, adjacent to the Royal Hawaiian Shopping Center.

Over the past months, we have had several presentations about their project by the executives from Kamehameha Schools and The Festival Company. We have also reviewed the Draft Environmental Assessment prepared by Wilson Okamoto Corporation and wish to provide to you the following comments:

1) Our Company welcomes and supports this revitalization project, as it will provide an improved Waikiki guest experience for our visitors and residents in the heart of Waikiki.

2) As the current draft Environmental Assessment does not provide detailed drawings for the project, Kamehameha Schools and The Festival Companies have and are continuing to discuss various open issues that involve design elements that are adjacent to our hotel properties and any open operational issues.

3) Kamehameha Schools and The Festival Companies have agreed to set a regular meeting schedule with Starwood Hotel management and Kyo-ya Company representatives to review and discuss the implementation of the plan to mitigate and to reduce any discomfort to our hotel guests during and after the period of construction.

SHERATON WAIKIKI HOTEL, Second Floor
2255 Kalakaua Avenue, Honolulu, Hawaii 96815
Phone: (808) 931-4650 • Fax (808) 923-0282

We thank you for the opportunity to provide our comments. Please feel free to contact us, should any questions arise regarding to the above.

With best regards,

Ernest K. Nishizaki
Executive Vice President &
Chief Operating Officer

fjh
cc: Ms. Susan Todani, Kamehameha Schools
Ms. Rosalind Jonas Schurgin, The Festival Company

7039-02
October 19, 2004

WILSON
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CORPORATION

ENGINEERS
PLANNERS

1907 S. BERETANIA ST.
SUITE 400
HONOLULU, HI 96826
PH: (808) 946-2277
FAX: (808) 946-2253

Mr. Ernest K. Nishizaki
Executive Vice President and Chief Operating Officer
Kyoya Company Ltd.
Sheraton Waikiki Hotel, Second Floor
2255 Kalakaua Avenue
Honolulu, Hawaii 96815

Subject: Draft Environmental Assessment (EA)
Royal Hawaiian Shopping Center Revitalization
Tax Map Key: 2-6-2: 18
Waikiki, Hawaii

Dear Mr. Nishizaki:

Thank you for your letter dated September 3, 2004 expressing your support for subject project. Kamehameha School and The Festival Companies are committed to continuing discussions with you regarding the project's design elements, operational issues, and construction-related mitigation. We appreciate your interest and participation in the public review phase of the Draft EA. Your letter, along with this response, will be reproduced in the forthcoming Final EA.

Sincerely,

Earl Matsukawa, AICP, Project Manager

cc: Mr. Patrick Seguirant, City and County of Honolulu, Dept. of Planning and Permitting
Mr. Jerry Garner, The Festival Companies
Mr. Rick Myers, Wimberly Allison Tong and Goo

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Appendix A

Environmental Noise Assessment Report
D. L. Adams Associates, Ltd.

D. L. ADAMS ASSOCIATES, LTD.
Consultants in Acoustics and Performing Arts Technologies

Project No. 04-46

ENVIRONMENTAL NOISE ASSESSMENT REPORT
ROYAL HAWAIIAN SHOPPING CENTER REVITALIZATION
WAIKIKI DEVELOPMENT
HONOLULU, O'AHU, HAWAII

June 2004

Prepared for
Wimberly Allison Tong & Goo
Honolulu, Hawaii

970 N. KALAHEO AVE. • SUITE A311 • KAILUA, HAWAII 96734
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CONTENTS

1.0 EXECUTIVE SUMMARY

1.1 The Royal Hawaiian Shopping Center Revitalization project is proposed to upgrade the existing shopping center to add new shopping center businesses The existing structure will be modified to increase functionality of the shopping center.

1.2 Continuous ambient noise levels in the existing shopping center were measured at one location for 4 days The noise measurement location was near the southwest corner of Building C, approximately 30 feet above grade. The results from the noise measurements show a 4-day average daytime L_{eq} noise level of 64 dBA and an average nighttime L_{eq} noise level of 59 dBA. The 4-day average day-night level, L_{dn}, was 67 dBA. Sources of noise generally include vehicular traffic in the area, conversations, and music from nearby restaurants and bars.

1.3 During the construction phase of the revitalization project, typical construction noises will be audible in the area. However, noise from construction activities must comply with State Department of Health noise regulations as specified for construction related activities.

1.4 After construction is complete and the shopping center tenants have moved in, noise generated by the shopping center tenants must meet the State noise rules and the City and County of Honolulu Liquor Commission rules, which allow adjustments for existing ambient noise levels

1.5 Noise control will be included in the design of the shopping center, particularly for restaurants on the makai side, which might employ sound systems for live and/or recorded music.

2.0 PROJECT DESCRIPTION

The Royal Hawaiian Shopping Center Revitalization project proposes to improve the condition and the functionality of the existing shopping center, located in Waikiki The new shopping center will have added shops, new tenants, and a venue for small outdoor music performances.

During the revitalization and construction in each building, that building will be closed to the public. The building will reopen when construction is complete. Typical construction equipment will be on-site throughout the construction.

3.0 NOISE STANDARDS

Various local and federal agencies have established guidelines and standards for assessing environmental noise impacts and set noise limits as a function of land use A brief description of common acoustic terminology used in these guidelines and standards is presented in Appendix A.

3.1 State of Hawaii, Department of Health, Community Noise Control

The State of Hawaii Department of Health Community Noise Control Statute [Reference 1] defines three classes of zoning districts and specifies corresponding maximum permissible sound levels due to stationary noise sources such as air-conditioning units, exhaust systems, generators, compressors, pumps, etc., and equipment related to agricultural, construction, and industrial activities. These levels are enforced by the State Department of Health (DOH) for any location at or beyond the property line and shall not be exceeded for more than 10% of the time during any 20-minute period. The specified noise limits which apply are a function of the zoning and time of day as shown in Figure 1. With respect to mixed zoning districts, the statute specifies that the primary land use designation shall be used to determine the applicable zoning district class and the maximum permissible sound level.

For special conditions where the ambient sound level is greater than the maximum permissible sound level, the DOH allows for an adjustment of the maximum level. The DOH will consider the ambient noise level as the maximum permissible sound level.

3.2 Liquor Commission of the City and County of Honolulu

The Rules of the Liquor Commission of the City and County of Honolulu [Reference 2] state that no licensee shall make or permit noise which results in a complaint from one or more residents or tenants in the vicinity and exceeds the maximum permissible sound levels (MPSL) when liquor is being served on

licensed premises or any adjacent areas under the licensee's control. The MPSL's are established by Zoning Districts as defined by the State Department of Health (DOH) and shall not be exceeded for more than 10% of the time during any 20-minute period. The MPSL's set forth by the Liquor Commission for Class B Zoning Districts, which includes multi-family dwellings, apartments, businesses, commercial, hotels, and resorts are 60 dBA daytime and 50 dBA nighttime, as shown on Figure 1. Noise levels are measured on the complainants property.

3.3 U.S. Environmental Protection Agency (EPA)

The U.S. EPA has identified a range of yearly day-night equivalent sound levels, L_{dn}, sufficient to protect public health and welfare from the effects of environmental noise [Reference 3]. The EPA has established a goal to reduce exterior environmental noise to an L_{dn} not exceeding 65 dBA and a future goal to further reduce exterior environmental noise to an L_{dn} not exceeding 55 dBA Additionally, the EPA states that these goals are not intended as regulations as it has no authority to regulate noise levels, but rather they are intended to be viewed as levels below which the general population will not be at risk from any of the identified effects of noise.

4.0 EXISTING ACOUSTICAL ENVIRONMENT

Ambient noise level measurements were conducted from June 18, 2004 to June 23, 2004. The measurement location was on the 3rd level, near the southwest corner of Building C, as shown in Figure 2. This measurement location was selected as the nearest position to the neighboring Royal Hawaiian Hotel. The microphone and sound level meter were placed on the outdoor rear patio of the 3rd level in Building C. The microphone was taped and secured to an extension tube which positioned the microphone approximately 8 feet from the corner of the existing building and approximately 30 feet above grade. The microphone was positioned very close to the property line between the Royal Hawaiian Shopping Center and the Royal Hawaiian Hotel.

Continuous, hourly, equivalent sound levels, L_{eq}, were recorded during the measurement period. The measurement was taken using a Larson-Davis Laboratories, Model 820, Type-1 Sound Level Meter together with a Larson-Davis, Model 2560 Type-1 Microphone. Calibration was checked before and after the measurements with a Larson-Davis Model CAL200 calibrator. Both the sound level meter and the calibrator have been certified by the manufacturer within the recommended calibration period.

The results are graphically presented in Figure 3, which show the measured equivalent sound levels, L_{eq}, in A-weighted decibels (dBA). The sound levels generally ranged between 55 dBA during the nighttime or early morning hours to 70 dBA during the daytime and high pedestrian traffic times. The 4-day average daytime L_{eq} was 64 dBA, and the 4-day average nighttime L_{eq} was 59 dBA. The 4-day average day-night level, L_{dn}, was 67 dBA. The day-night level is a 24 hour measurement that assigns a 10 dB penalty for noises during the nighttime hours (10:00 p.m. to 7:00 a.m.).

The existing sound levels exceed the DOH maximum permissible noise levels of 60 dBA during the daytime hours and 50 dBA during nighttime hours. Therefore, the maximum permissible noise levels should be increased to 64 dBA during the daytime hours and 59 dBA during the nighttime hours, based on our noise measurements.

Presently, the dominant sources of noise include vehicular traffic in the area, conversations by pedestrians, and low level music from nearby bars and restaurants. Other noise sources include wind, birds, and other tourist-related activities.

5.0 POTENTIAL NOISE IMPACTS DUE TO THE PROJECT

5.1 Project Construction Noise & On-Site Equipment

Development of project areas will involve excavation, grading, and renovation construction of the shopping center. The various construction phases of the project may generate significant amounts of noise. The surrounding hotels and businesses may be impacted by the construction noise due to their proximity to the project. The actual noise levels produced during construction will be a function of the methods employed during each stage of the construction process. Typical ranges of construction equipment noise are shown in Figure 4.

5.3 Noise Generated By the New Shopping Center

The use of the new shopping center will be similar to the existing shopping center. However, the expansion of the shopping center and the locations of retail shops, restaurants, and noise related activities may alter the existing noise environment. The new restaurants on the 3rd level may increase the noise levels.

Both the existing and the new center have an area designated for outdoor live music performances. The location and orientation of the live music performances will not change with the new facility.

The revitalization of the Royal Hawaiian Shopping Center is aimed at improving the functionality and the appearance of the existing facility. Although the new design should attract more customers, vehicular traffic in the area is not anticipated to significantly increase. Therefore, noise due to project generated vehicular traffic in the area should not increase.

6.0 NOISE IMPACT MITIGATION

6.1 Mitigation of Construction Noise

In cases where construction noise exceeds, or is expected to exceed the State's "maximum permissible" property line noise levels [Reference 1], a permit must be obtained from the Hawaii DOH to allow the operation of vehicles, cranes, construction equipment, power tools, etc., which emit noise levels in excess of the "maximum permissible" levels

In order for the Hawaii DOH to issue a construction noise permit, the Contractor must submit a noise permit application to the DOH, which describes the construction activities for the project. Prior to issuing the noise permit, the Hawaii DOH may require action by the Contractor to incorporate noise mitigation into the construction plan The DOH may also require the Contractor to conduct noise monitoring or community meetings inviting the neighboring residents and business owners to discuss construction noise. The Contractor should use reasonable and standard practices to mitigate noise, such as using mufflers on diesel and gasoline engine machines, using properly tuned and balanced machines, etc. However, the State DOH may require additional noise mitigation, such as temporary noise barriers, or time of day usage limits for certain kinds of construction activities.

Specific permit restrictions for construction activities [Reference 1] are:

> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels ... before 7:00 a.m. and after 6:00 p.m. of the same day, Monday through Friday."
>
> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels... before 9:00 a.m. and after 6:00 p.m. on Saturday."
>
> "No permit shall allow any construction activities which emit noise in excess of the maximum permissible sound levels on Sundays and on holidays."

The use of hoe rams and jack hammers 25 lbs. or larger, high pressure sprayers, and chain saws may be restricted to 9:00 a.m. to 5:30 p.m., Monday through Friday.

The DOH noise permit does not limit the noise level generated at the construction site, but rather the *times* at which noisy construction can take place. Therefore, noise mitigation for construction activities should be addressed using project management to ensure that the time constraints within the DOH permit are followed.

Most construction equipment falls under the terms and conditions of the Hawaii DOH issued noise permit. This permit allows noisy construction activities to take place during the daytime hours (see the specific hours reference above). However, any activities that require overnight operation or operation outside of the permit hours, such as a water pump or electric generator for lights, must meet the State's maximum permissible sound limits according the applicable zoning district class. Temporary enclosures or barrier walls may be required to adequately mitigate noise from this equipment. If it is not feasible or practical to meet the State's noise limits, the Contractor may apply for a noise variance with the Hawaii DOH.

6.2 Mitigation of Shopping Center Noise

The design of new restaurants located on the makai side (i.e., the Royal Hawaiian Hotel and the Sheraton Waikiki Hotel side) of the shopping center should give special consideration to controlling the noise emanating from them so as to comply with the State *Community Noise Control* rules and, for those serving liquor, with the City and County of Honolulu Liquor Commission rules. This is particularly true for those establishments that will employ sound systems for live and/or recorded music.

The music volume of any outdoor live music performances or speech presentations should be controlled so that the sound levels produced are not greater than the ambient noise levels.

7.0 REFERENCES:

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

2. *Rules of the Liquor Commission of the City and County of Honolulu, State of Hawaii*, City and County of Honolulu, August 1998.

3 *Toward a National Strategy for Noise Control*, U.S. Environmental Protection Agency, April 1977.

APPENDIX A

ACOUSTIC TERMINOLOGY

Sound Pressure Level

Sound, or noise, is the term given to variations in air pressure that are capable of being detected by the human ear Small fluctuations in atmospheric pressure (sound pressure) constitute the physical property measured with a sound pressure level meter. Because the human ear can detect variations in atmospheric pressure over such a large range of magnitudes, sound pressure is expressed on a logarithmic scale in units called decibels (dB). Noise is defined as "unwanted" sound.

Technically, sound pressure level (SPL) is defined as:

$$SPL = 20 \log (P/P_{ref}) \text{ dB}$$

where P is the sound pressure fluctuation (above or below atmospheric pressure) and P_{ref} is the reference pressure, 20 µPa, which is approximately the lowest sound pressure that can be detected by the human ear. For example:

If P = 20 µPa, then SPL = 0 dB
If P = 200 µPa, then SPL = 20 dB
If P = 2000 µPa, then SPL = 40 dB

The sound pressure level that results from a combination of noise sources is not the arithmetic sum of the individual sound sources, but rather the logarithmic sum. For example, two sound levels of 50 dB produce a combined sound level of 53 dB, not 100 dB. Two sound levels of 40 and 50 dB produce a combined level of 50.4 dB.

Human sensitivity to changes in sound pressure level is highly individualized. Sensitivity to sound depends on frequency content, time of occurrence, duration, and psychological factors such as emotions and expectations. However, in general, a change of 1 or 2 dB in the level of sound is difficult for most people to detect. A 3 dB change is commonly taken as the smallest perceptible change and a 6 dB change corresponds to a noticeable change in loudness. A 10 dB increase or decrease in sound level corresponds to an approximate doubling or halving of loudness, respectively.

A-Weighted Sound Level

Studies have shown conclusively that at equal sound pressure levels, people are generally more sensitive to certain higher frequency sounds (such as made by speech, horns, and whistles) than most lower frequency sounds (such as made by motors and engines)[1] at the same level. To

---

[1] D.W. Robinson and R.S Dadson, "A Re-Determination of the Equal-Loudness Relations for Pure Tones," *British Journal of Applied Physics*, vol. 7, pp. 166 - 181, 1956. (Adopted by the International Standards Organization as Recommendation R-226.

address this preferential response to frequency, the A-weighted scale was developed. The A-weighted scale adjusts the sound level in each frequency band in much the same manner that the human auditory system does. Thus the A-weighted sound level (read as "dBA") becomes a single number that defines the level of a sound and has some correlation with the sensitivity of the human ear to that sound. Different sounds with the same A-weighted sound level are perceived as being equally loud. The A-weighted noise level is commonly used today in environmental noise analysis and in noise regulations. Typical values of the A-weighted sound level of various noise sources are shown in Figure A-1.

Equivalent Sound Level

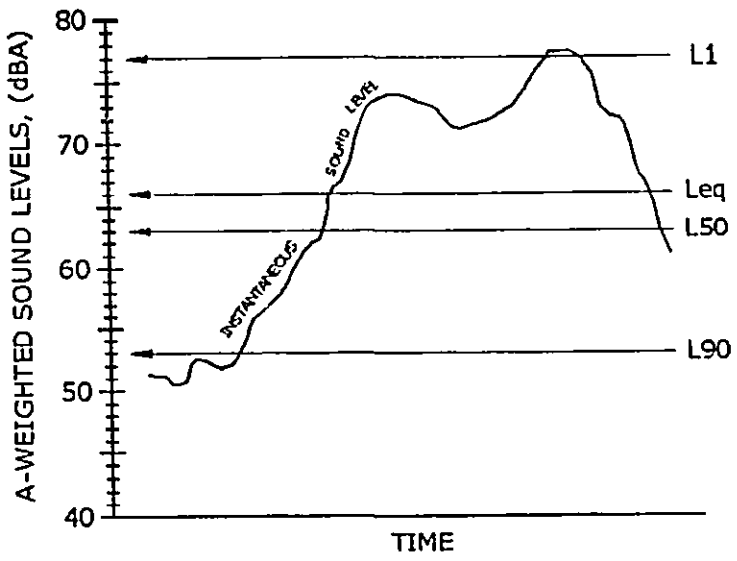
The Equivalent Sound Level (L_{eq}) is a type of average which represents the steady level that, integrated over a time period, would produce the same energy as the actual signal. The actual *instantaneous* noise levels typically fluctuate above and below the measured L_{eq} during the measurement period. The A-weighted L_{eq} is a common index for measuring environmental noise. A graphical description of the equivalent sound level is shown in Figure A-2.

Statistical Sound Level

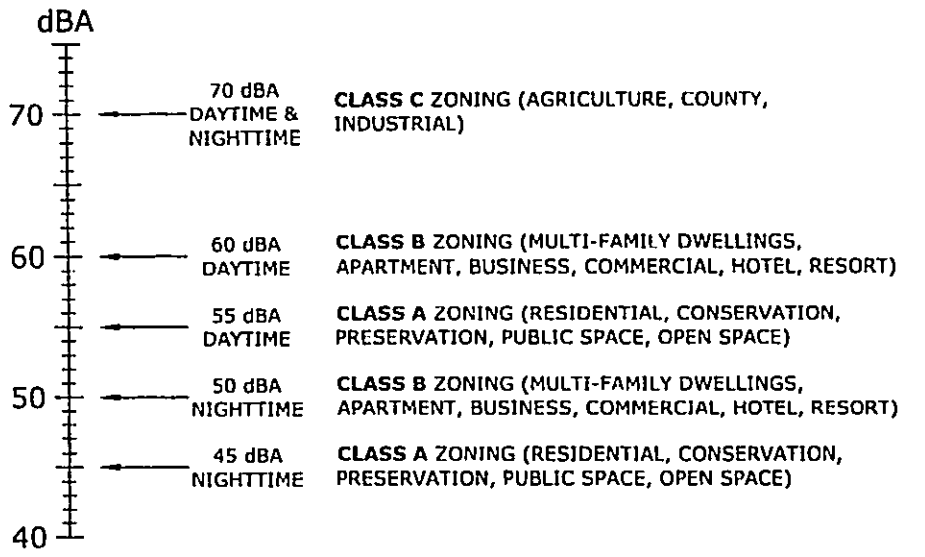
The sound levels of long-term noise producing activities such as traffic movement, aircraft operations, etc., can vary considerably with time. In order to obtain a single number rating of such a noise source, a statistically-based method of expressing sound or noise levels has been developed. It is known as the Exceedence Level, L_n. The L_n represents the sound level that is exceeded for n% of the measurement time period. For example, L_{10} = 60 dBA indicates that for the duration of the measurement period, the sound level exceeded 60 dBA 10% of the time. Typically, in noise regulations and standards, the specified time period is one hour. Commonly used Exceedence Levels include L_0, L_{10}, L_{50}, and L_{90}, which are widely used to assess community and environmental noise. A graphical description of the equivalent sound level is shown in Figure A-2.

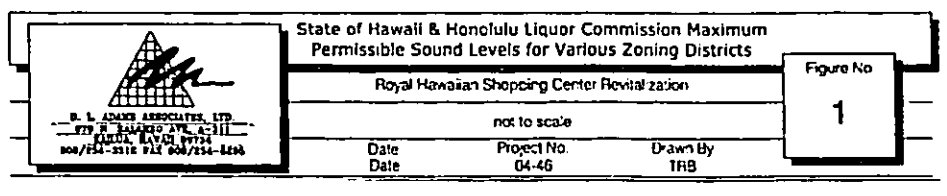
Day-Night Equivalent Sound Level

The Day-Night Equivalent Sound Level, L_{dn}, is the Equivalent Sound Level, L_{eq}, measured over a 24-hour period. However, a 10 dB penalty is added to the noise levels recorded between 10 p.m. and 7 a.m. to account for people's higher sensitivity to noise at night when the background noise level is typically lower. The L_{dn} is a commonly used noise descriptor in assessing land use compatibility, and is widely used by federal and local agencies and standards organizations.



D. L. ADAMS ASSOCIATES, LTD	Example Graph of Equivalent Sound Level and Statistical Sound Levels		
	Royal Hawaiian Shopping Center Revitalization		Figure No. A-2
	not to scale		
	Date: June 30, 2004	Drawn By: trb	


dBA
70
60
50
40
70 dBA DAYTIME & NIGHTTIME
CLASS C ZONING (AGRICULTURE, COUNTY, INDUSTRIAL)
60 dBA DAYTIME
CLASS B ZONING (MULTI-FAMILY DWELLINGS, APARTMENT, BUSINESS, COMMERCIAL, HOTEL, RESORT)
55 dBA DAYTIME
CLASS A ZONING (RESIDENTIAL, CONSERVATION, PRESERVATION, PUBLIC SPACE, OPEN SPACE)
50 dBA NIGHTTIME
CLASS B ZONING (MULTI-FAMILY DWELLINGS, APARTMENT, BUSINESS, COMMERCIAL, HOTEL, RESORT)
45 dBA NIGHTTIME
CLASS A ZONING (RESIDENTIAL, CONSERVATION, PRESERVATION, PUBLIC SPACE, OPEN SPACE)


State of Hawaii & Honolulu Liquor Commission Maximum Permissible Sound Levels for Various Zoning Districts
Royal Hawaiian Shopping Center Revitalization
not to scale
Date
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Project No.
04-46
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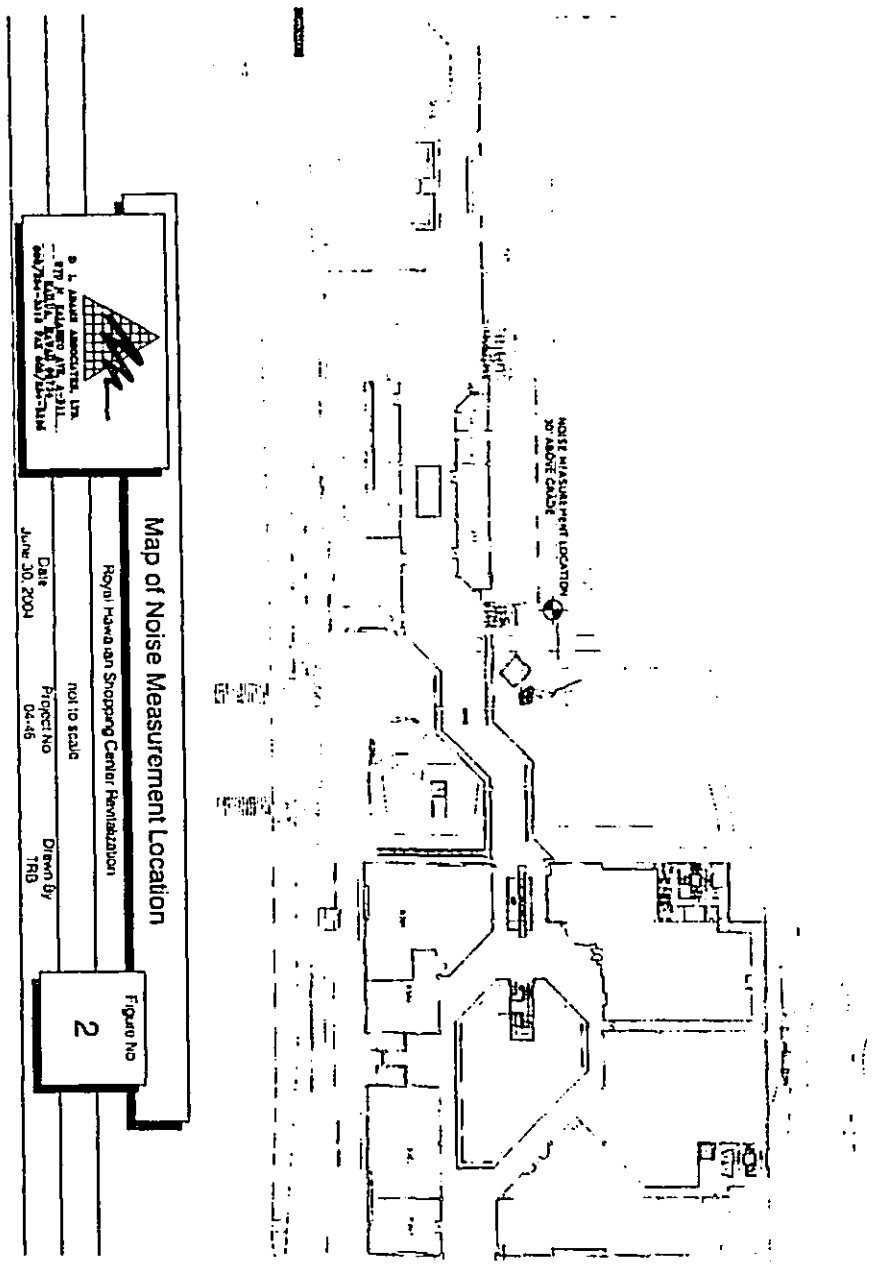
1


Map of Noise Measurement Location
Royal Hawaiian Shopping Center Revitalization
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Date
June 30, 2004
Project No
04-46
Drawn By
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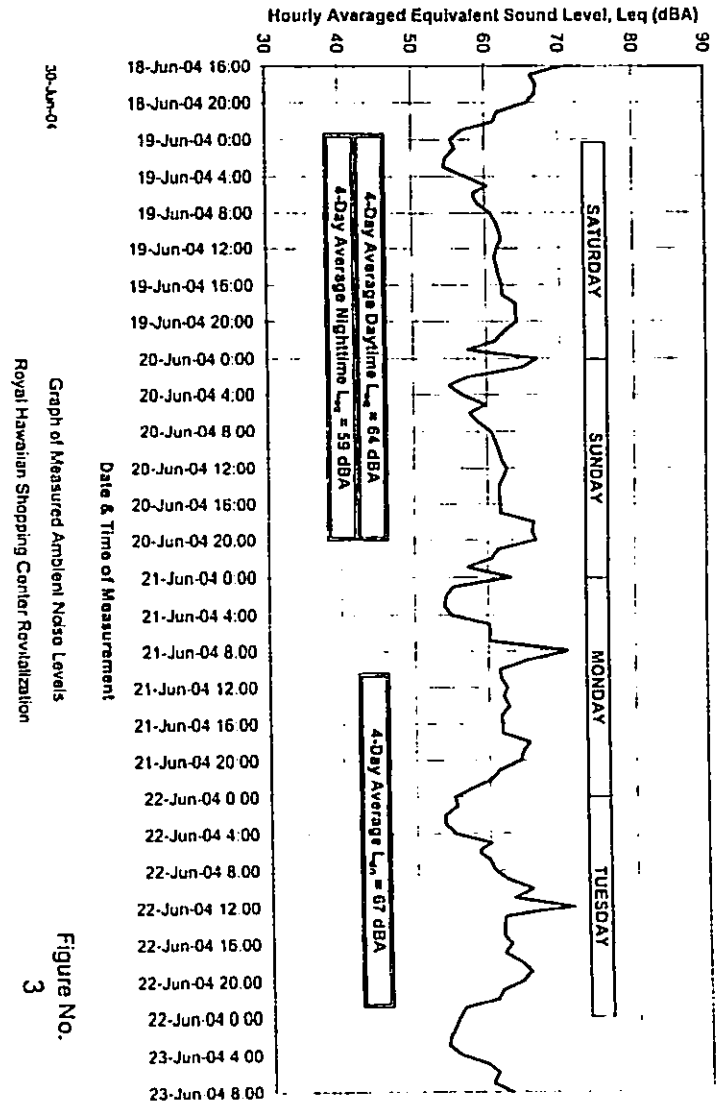
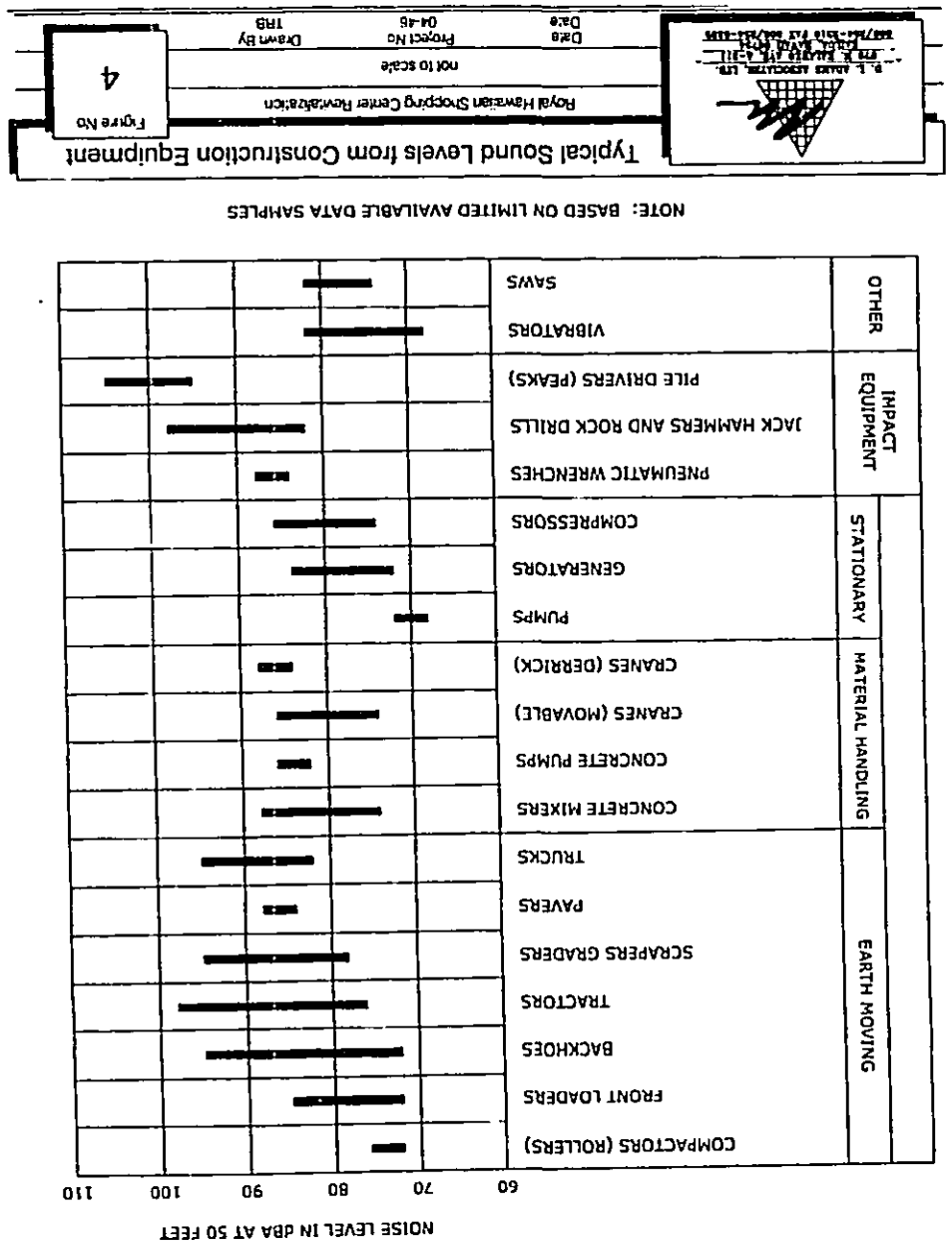
2
NOISE MEASUREMENT LOCATION
30' ABOVE GRADE



Graph of Measured Ambient Noise Levels
Royal Hawaiian Shopping Center Revitalization

Figure No. 3



Appendix B

Archaeological Assessment
Cultural Surveys Hawai'i, Inc.

Archaeological Assessment for the

Royal Hawaiian Shopping Center Parcel,

Waikīkī Ahupua'a, Kona District, O'ahu

TMK: 2-6-02:18

by

Rodney Chiogioji, B.A.,
and
Hallett H. Hammatt, Ph.D.

Prepared for
Wilson Okamoto Corporation

by
Cultural Surveys Hawai'i, Inc.
Revised October 2004

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I. INTRODUCTION

A. Project Background

At the request of Wilson Okamoto Corporation, Cultural Surveys Hawai'i (CSH) has conducted an archaeological assessment of the 6.3-acre Royal Hawaiian Shopping Center parcel in Waikīkī Ahupua'a, Kona District, Island of O'ahu (TMK 2-6-02:18) (Figures 1-4). The project area is bounded by Kalākaua Avenue on the northeast, the Royal Hawaiian Hotel property on the southwest, Lewers Street on the northwest, and the Outrigger Hotel property on the southeast. The shopping center property is proposed for renovation.

B. Scope-of-Work

The scope of work for this assessment included:

1) Historical research to include study of archival sources, historic maps, Land Commission Awards and previous archaeological reports to construct a history of land use and to determine if archaeological sites have been recorded on or near the property.

2) Field inspection of the project area to further assess the potential for impact to subsurface deposits. The goal of the assessment was to identify any sensitive area that might require further investigation or mitigation before the project proceeds.

3) Preparation of a report to include the results of the historical research and the fieldwork with an assessment of archaeological potential based on that research, with recommendations for archaeological work, if appropriate. This report will also provide mitigation recommendations if there are any archaeologically sensitive areas that need to be taken into consideration.

C. Methods

The archaeological assessment for the shopping center parcel involved a field inspection by Cultural Surveys Hawai'i on June 22, 2004. Historical background research included study of archival sources, Land Commission Awards and historic maps, as well as a review of past archaeological research in Waikīkī to construct a history of land use and to assess the potential for the presence of subsurface cultural deposits and human burials within the parcel.

D. Natural Setting

The project area is flat and averages 2 to 3 meters above mean sea level. The average rainfall in this coastal area of Waikīkī is between 20-30 inches per year, with temperatures ranging from 60 to 85 degrees Fahrenheit (Armstrong 1973:56). Although the area has been graded and filled (Fill Land), the natural soil deposit is Jaucus sand (JaC) (Foote et al. 1973).

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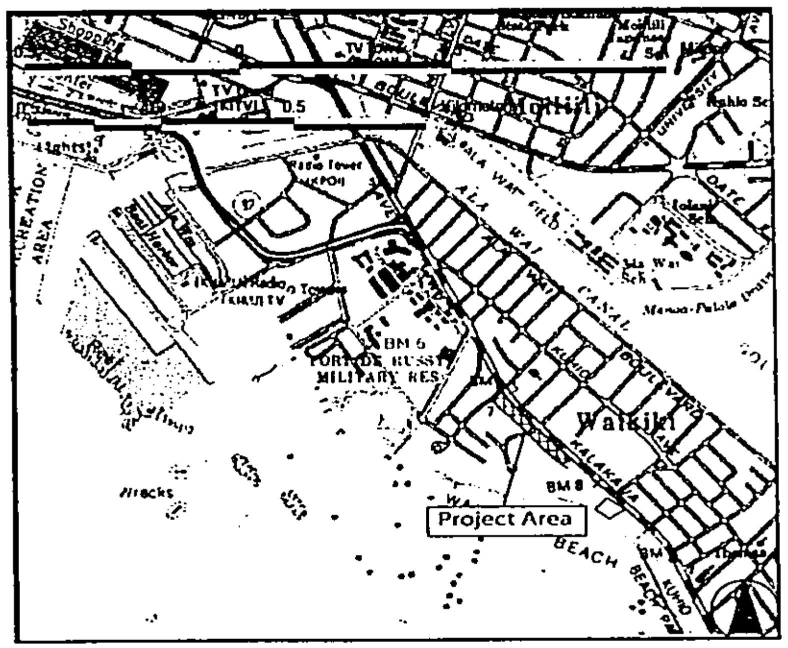

Figure 1. Portion of USGS Topographic Map, Honolulu Quadrangle, showing location of project area

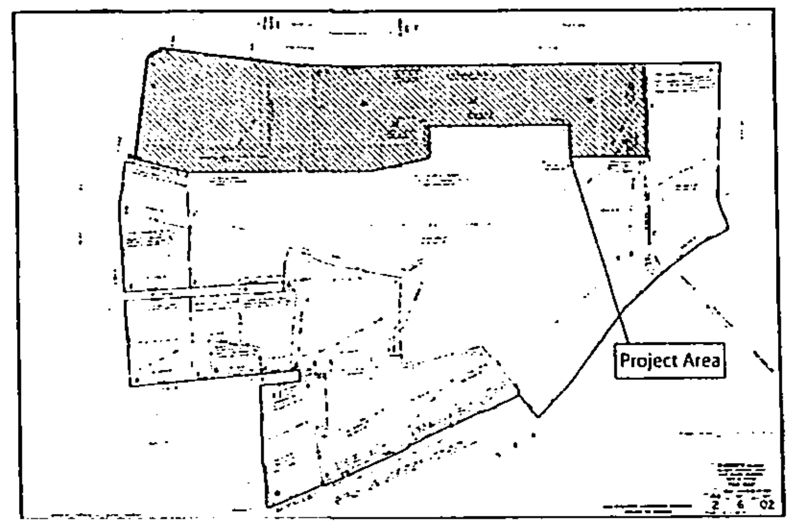

Figure 2. Tax map (2-6-02) showing location of project area

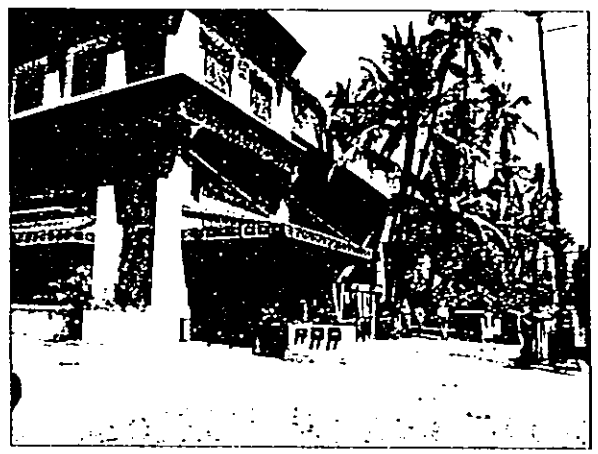

Figure 3. Southeast corner of Royal Hawaiian Shopping Center along Kalākaua Avenue; view to northwest

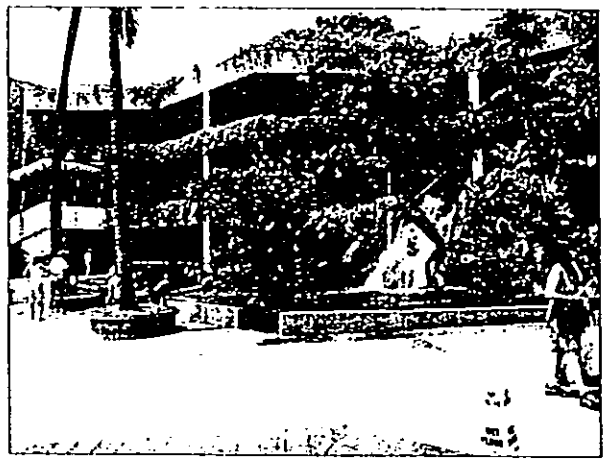

Figure 4. Central portion of Royal Hawaiian Shopping Center on Kalākaua Avenue; view to southeast

II. HISTORICAL BACKGROUND

A. Pre-Contact to Early 1800's

By the time of the arrival of Europeans in the Hawaiian Islands during the late eighteenth century, Waikīkī 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, Kalanikūpule. The 19th-century Hawaiian historian John Papa 'Ī'ī (1959:17), himself a member of the *ali'i* (chiefly class), described the king's Waikīkī residence:

> Kamehameha's houses were at Puaaliilii, *makai* of the old road, and extended as far as the west side of the sands of 'Apuakehau. Within it was Helumoa where Ka'ahumanu *mā* went to while away the time. The king built a stone house there, enclosed by a fence . . . ('Ī'ī 1959:17).

'Ī'ī 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" ('Ī'ī 1959:17).

Chiefly residences, however, were only one element of a complex of features – 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 Mānoa and Pālolo valleys. This field system – an impressive feat of engineering the design of which is traditionally attributed to the chief Kalamakua – took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a*. Water was also available from springs in nearby Mō'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 (1798:161-164), 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.

Further details of the exuberant life that must have characterized the Hawaiians use of the lands that included the *ahupua'a* of Waikīkī are given by Archibald Menzies (1920:23-24), 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.

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. Kamehameha himself moved his residence from Waikīkī to the coast near Honolulu harbor, likely in order to maintain his control of the lucrative trade in sandalwood that had developed. By 1828, the missionary Levi Chamberlain(1957:26), 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 1820's, the population was estimated at 6,000 to 7,000) but also of the European diseases that had devastating effects upon the Hawaiian populis.

B. Mid-Nineteenth Century and the Māhele

The depopulation of Waikīkī, however, was not total and the *ahupua'a* continued to sustain Hawaiians living traditionally into the mid-19th century. The Organic Acts of 1845 and 1846 initiated the process of the Māhele (the division of Hawaiian lands) which introduced private property into Hawaiian society. In 1848, the crown (Hawaiian government) and the *ali'i* (royalty) received their land titles. Subsequently in the Māhele, Land Commission Awards (LCAs) for *kuleana* parcels were awarded to commoners and others who could prove residency on and use of the parcels they claimed. Land Commission Award records document awardees continuing to maintain fishponds and irrigated and dry-land agricultural plots, though on a greatly reduced scale than had been previously possible with adequate manpower.

C. Mid to Late 1800s

As the 19th century progressed, 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. A visitor to O'ahu in 1873 described Waikīkī as "a hamlet of plain cottages, whither the people of Honolulu go to revel in bathing clothes, mosquitoes, and solitude, at odd times of the year" (Bliss 1873).

Other developments during the second half of the 19th century a prelude of changes that would dramatically alter the landscape of Waikīkī during the 20th century - include the improvement of the road connecting Waikīkī to Honolulu (the route of the present Kalākaua Ave.), the building of a tram line between the two areas, and the opening of Kapi'olani Park on June 11, 1877. Traditional land-uses in Waikīkī were abandoned or modified. By the end of the 19th century most of the fishponds 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 immigrant laborers imported from China and Japan, and for shipment to the west coast of the United States.

As the sugar industry throughout the Hawaiian kingdom expanded in the second half of the 19th century, the need for increased numbers of field laborers prompted passage of contract labor laws. In 1852, the first Chinese contract laborers arrived in the islands. Contracts were for five years, and pay was $3 a month plus room and board. Upon completion of their contracts, a number of the immigrants remained in the islands, many becoming merchants or rice farmers.

As was happening in other locales, in the 1880's, groups of Chinese began leasing and buying (from the Hawaiians of Waikīkī) former taro lands for conversion to rice farming. The taro lands' availability throughout the islands in the late 1800's reflected the declining demand for taro as the native Hawaiian population diminished.

The Hawaiian Islands were well positioned for rice cultivation. A market for rice in California had developed as increasing numbers of Chinese laborers immigrated there since the mid-19th century. Similarly, as Chinese immigration to the islands also accelerated, a domestic market opened.

> The primary market for both husked rice and paddy raised in all parts of the Hawaiian Islands was in Honolulu. The number of Chinese in the islands created a large home demand.
>
> In 1880 the home market was made more secure by an increase in the duty on rice imported into Hawai'i to 1½ cents on paddy and 2½ cents on hulled rice. It resulted in further checking the importation of foreign rice and giving an immense impetus to the home product [Coulter and Chun, 1937: 13]

By 1892, Waikīkī had 542 acres planted in rice, representing almost 12% of the total 4,659 acres planted in rice on O'ahu. Most of the former taro *lo'i* converted to rice fields were located *mauka* of the present Ala Wai Boulevard.

D. 1900 to 1920

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 Fort 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 fishponds 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].

All the fishponds were filled by 1928.

A fire insurance map of 1914 shows that there were five areas in Waikīkī where residential and commercial structures were concentrated in the early 20th century (Figure 5). These areas were located: 1) clustered at Saratoga Road and Lewers Road; 2) near the intersection of Ena Road and Kalākaua Avenue; 3) *makai* of Kālia Road on the east side of Ft. DeRussy; 4) clustered around the Moana Hotel on Kalākaua Avenue; and 5) in Kapahulu on the *'Ewa* side of Makee Road (the present Kapahulu Avenue). The fire insurance map also reveals the relative isolation of Waikīkī, in the early 20th century, from the encroaching grid of modern Honolulu streets.

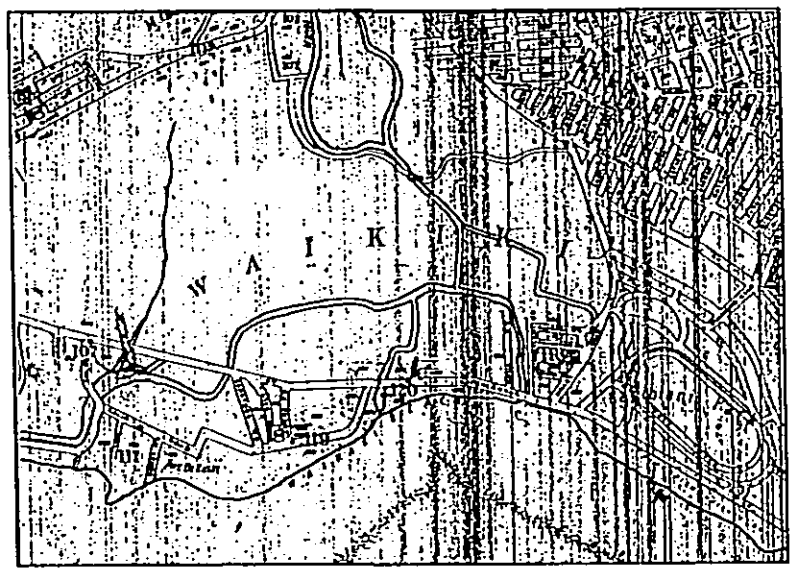

Figure 5. Portion of 1914 Sanborn Fire Insurance Map of Waikīkī

E. 1920's to 1930's

During the 1920's, the Waikīkī landscape would be transformed when the construction of the Ala Wai Drainage Canal, begun in 1921 and completed in 1928, resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī (Figure 6). 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, Mō'ili'ili, and McCully districts, as well as lower Makiki and Mānoa. .
>
> 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]

During the course of the Ala Wai Canal's construction, the banana patches and ponds between the canal and the *mauka* side of Kalākaua Avenue were filled and the present grid of streets was laid out. These newly created land tracts spurred a rush to development in the 1930's. An article in the Honolulu Star-Bulletin in 1938 extolled the area's progress:

> The expansion of apartment and private residence construction is no secret. Examination of building permits will show that more projects have been completed during the past year, and more are now underway in this area, than in any other section of the territory.
>
> These developments are being made by island residents who have recognized the fact that Waikīkī presents the unparalleled possibility for safe investment with excellent return. (Newton 1938: 10)

The writer speculated that the "future of Waikīkī is assured."

F. 1940's

The entrance of the United States into World War II following the Japanese bombing of Pearl Harbor on December 7, 1941 put on hold plans for the development of Waikīkī as a tourist destination. Until the war's end in 1945, the tourist trade was non-existent "...since the Navy controlled travel to and from Hawai'i and did not allow pleasure trips" (Brown 1989: 141). For the duration of the war, Waikīkī was transformed into a recreation area for military personnel.

> It was not the same Waikīkī as before the war, though; barbed wire barricades now lined its sands, and there were other changes too. Fort DeRussy became a huge recreation center, with a dance hall called Maluhia that attracted thousands of men at a time. The Moana Hotel continued to function, but many other establishments and private homes in the area were taken over by the military. [Brown 1989:141]

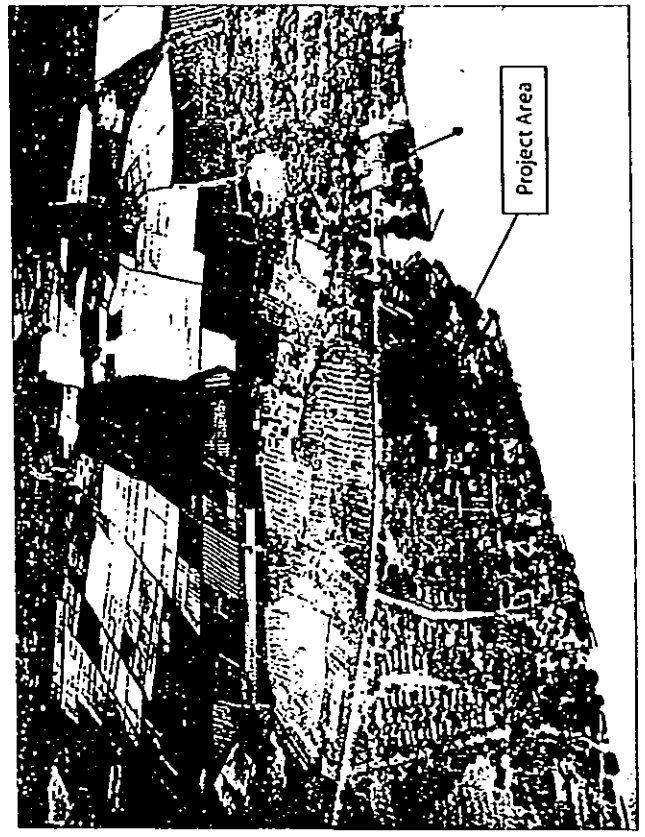

Figure 6. Aerial Photograph of Waikīkī Before the Completion of the Ala Wai Drainage Canal (Hawai'i State Archives)

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Nearing the war's end, concerns began arising over the future of Waikīkī. An article in the Honolulu Advertiser of July 16, 1945 decried "honky-tonks" that had sprung up in Waikīkī during the course of the war, and asked: "Can anyone look at present-day Kalākaua Ave. – lined with makeshift curio shops, noisy 'recreation' centers, eyesores that pass under the name of lunchrooms and miscellany of 'joints' – and hope that Waikīkī can stage a comeback [as a tourist destination]?"

G. 1950's

By the mid-1950's there were more than fifty hotels and apartments from the Kālia area to the Diamond Head end of Kapi'olani Park. The Waikīkī population, by the mid-1950's, was not limited to transient tourists but included 11,000 permanent residents living in 4,000 single dwellings and apartments in stucco or frame buildings.

II. Historic Documentation of the Present Project Area

The project area is situated within the shoreline *'ili* of Helumoa in the *ahupua'a* of Waikīkī. During the nineteenth century, Helumoa was the site of coastal house lots and the ocean outlet, i.e. "*muliwai*", of 'Apuakehau stream. Mid 1800 Mahele documents indicate numerous *kuleana* and grant parcels specific to Helumoa (Figure 7). Based on review of TMK and historic maps, in the vicinity the present project area parcel were portions of at least two *kuleana* LCAs: 228 to Kaleiheana and 1445 to Kanemakua. Land use data for LCAs 228 and 1445 include multiple *'apana*. The first documented claim on the land where the Royal Hawaiian Hotel is now, was the claim placed on it by Kanemakua on December 11 1848. In his claim Kanemakua testified that he had lived there since the time of Kamehameha II. He also claimed seven houses, three irrigation ditches and three streams all belonging to him. According to testimony his "House lot, [was] situated in Helamoa, Waititi and bounded: *Mauka* by Kekuanaoa's land, Waialae by an arm of the sea, *Makai*, the sea, Honolulu by Kaluahinenui's" (Waihona 'Aina 2000).

LCA 228 was granted to Kaleiheana in 1847. John 'I'i stated in testimony regarding the property in question:

> . . . I have seen this land and these names which are written in this claim document are the attendants of Kameameha I. Their work was taking care of the house and preparing the food. These people were in constant contact with the chiefs and were close to each and every chief. When Kamehameha I died, they continued to live on the property and when the chief returned form Hawaii Kalaiheana went to live there. These people have lived there since Kamehameha II to Kaahumanu's reign, and to the year 1846 when Kuluwailehua had raised objections.

It is further stated that Kamehameha I lived on this land until his death and subsequently the land has been the resting place for the chiefs down to Kamehameha V

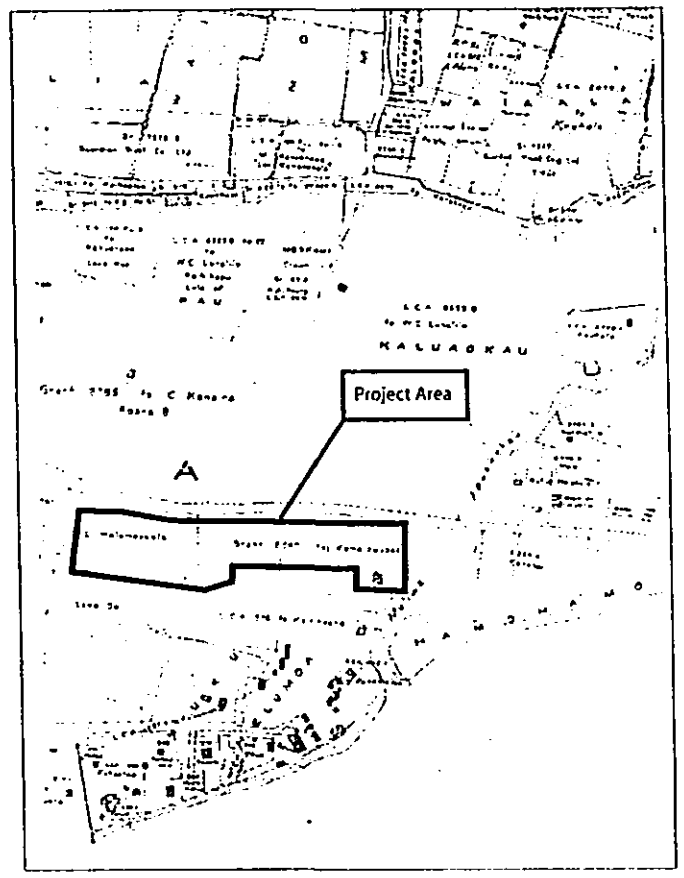

Figure 7. Portion of 1881 S.E. Bishop Map with the Approximate Location of the Project Area

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Kanemakua described his land boundaries as being bounded on the *mauka* side by Kekuanaoa's land. Mataio Kekuanaoa is the father of Kamehameha V and in fact did live on Kanewai as did Kamehameha V (Figure 8). "King Kamehameha V's grass thatched cottage [that] was located among the famous 10,000 coconut trees of Helumoa" (Grant, Hymer 2000) Helumoa ("Resting Place") became the King's Park and Grove.

> "The most notable grass hut in Hawaii Nei . . . is the structure erected at Waikiki by Kamehameha V, who used it as his seaside bungalow . . . often (assembling) his cabinet meetings there and transacting much of his official business beneath the thatched roof . . . [There] in the early 1820's, Liholiho (Kamehameha II), son of the conqueror, waged his battles with the bottle; the substantial grass house with its outbuildings, surrounded by an extensive royal coconut grove served as a beach hideaway" (E. B. Scott, 1968)

Figure 8. Kamehameha V's house on the beach of Waikiki (E. B. Scott, 1968)

Kamehameha V, better known as Prince Lot, died in 1872. Through a succession of inheritance after his death, the land on which he rested on the shores of Waikiki, were left to Princess Ruth Ke'elikōlani, who passed away in March of 1883, and ultimately it was given to Princess Bernice Pauahi Bishop "the last direct descendant of Kamehameha I and sole heir to the crown lands" (Kamehameha Schools 2001). An 1893 map by W.A. Wall indicates the land owner is Charles R. Bishop, Princess Bernice Pauahi Bishops husband (Figure 9).

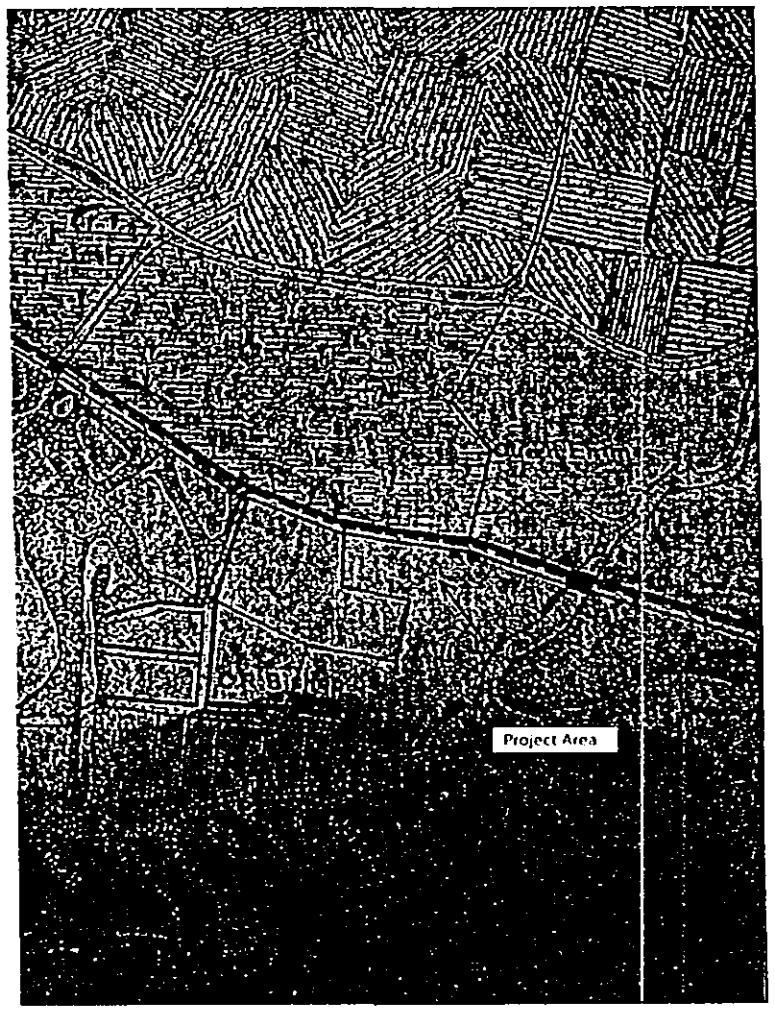

Figure 9. Portion of 1893 map by W. A. Wall showing land owners in vicinity of project area

The Seaside Hotel was built on the Kings Park grounds in the 1890's, surrounded by ten acres of algaroba and coco palms. Many of the homes recorded in the LCA 1445 and 228 were still standing in 1881 and most likely were incorporated into the Seaside Hotel as the Hotel offered separate bungalows and an open air dining lanai. Kamehameha V's Beach side bungalow was renovated and rebuilt right next to the Seaside Hotel. In the mid 1920's the old Seaside Hotel, bathhouses and cottages were leveled to make way for the new Royal Hawaiian Hotel which opened on February 1, 1927 (Figure 10).

A fire insurance map dating to 1951 indicates that, up to that time, no buildings were located between the Royal Hawaiian Hotel and Kalākaua Avenue. By the late 1950s, a row of retail shops had been constructed along Kalākaua Avenue. In the late 1970s, these shops were demolished and the present Royal Hawaiian Shopping Center was constructed on the present project area parcel.

Figure 10. 1929 aerial photo of Royal Hawaiian Hotel (E. B. Scott, 1968)

III. PREVIOUS ARCHAEOLOGICAL RESEARCH

A. Archaeological Studies in Waikiki

The *ahupua'a* of Waikīkī, in the centuries before the arrival of Europeans, was an intensely utilized area, with abundant natural and cultivated resources that supported a large population. In the nineteenth and early twentieth centuries, after a period of depopulation, Waikīkī was reanimated by Hawaiians and foreigners residing there, and by farmers continuing to work the irrigated field systems that had been converted from taro to rice. Farming continued up to the first decades of the twentieth century until the Ala Wai Canal drained the remaining ponds and irrigated fields. Remnants of the pre-contact and historical occupation of Waikīkī have been discovered and recorded in archaeological reports, usually in connection with construction activities related to urban development, or infrastructural improvements. These discoveries, which have occurred throughout Waikīkī, have included many human burials, as well as pre-contact Hawaiian and historic cultural deposits (Figure 11).

N.B. Emerson reported on the uncovering of human burials during the summer of 1901 on the property of James B. Castle (site of the present Elks Club) in Waikīkī during excavations for the laying of sewer pipes. Emerson (1902:18) noted:

> The soil was white coral sand mixed with coarse coral debris and seashells together with a slight admixture of red earth and perhaps an occasional trace of charcoal. The ground had been trenched to a depth of five or six feet, at about which level a large number of human bones were met with, mostly placed in separate groups apart from each other, as if each group formed the bones of a single skeleton. Many of the skulls and larger bones had been removed by the workmen before my arrival, especially the more perfect ones.

Emerson's report on the find describes the remains of at least four individuals, all presumed to be Hawaiian. Associated burial goods were also exposed during excavation; these included "a number of conical beads of whale-teeth such as the Hawaiians formerly made" and "a number of round glass beads of large size." The glass beads "can be assigned with certainty to some date subsequent to the arrival of the white man" (Emerson 1902:19). Also located with the beads was "a small sized *niho-palaoa*, such as was generally appropriated to the use of the chiefs" which had been "carved from the tooth of the sperm-whale" and which was "evidently of great age" (Emerson 1902:19).

Kenneth P. Emory of the Bishop Museum recovered the remains of five individuals in 1923 and speculated that they were victims of the 1853 small pox epidemic. A recent OHA review (Nāmu'o Sept 15, 2004) has noted that if accurate the potential for burials in the Helumoa area increases significantly.

In the 1920's and 30's the first systematic archaeological survey of O'ahu was conducted by J. C. McAllister (1933). He recorded four *heiau*, three of which were located at the *mauka* reaches of Waikīkī Ahupua'a in lower Mānoa Valley. The fourth *heiau* - Papa'ena'ena - was located at the foot of Diamond Head crater in the environs of the present Hawai'i School for Girls. Papa'ena'ena Heiau is traditionally associated with Kamehameha I who was said to have visited the *heiau* before setting off to battle for Ni'ihau and Kaua'i in 1804. Five years later,

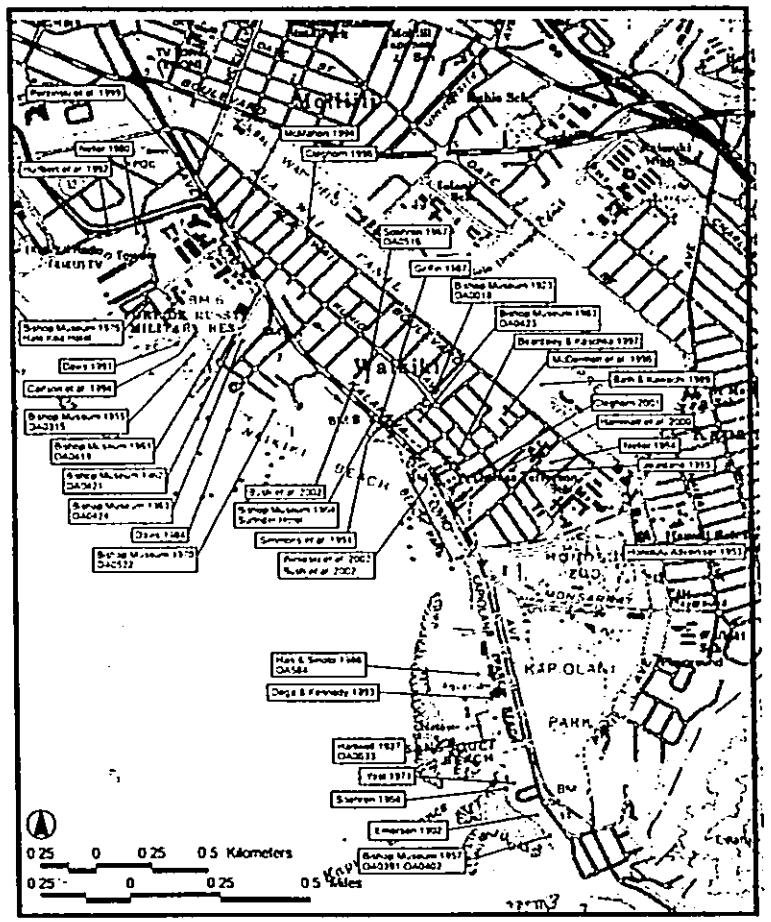

Figure 11. Archaeological Studies and Human Burial Discoveries in the Waikīkī Area.

according to John Papa ʻIʻī, Kamehameha placed at Papaʻenaʻena the remains of an adulterer – "all prepared in the customary manner of that time" (ʻIʻī 1959:50-51).

In 1963, two human skulls and other human remains were discovered in a construction trench at 2431 Prince Edward St. (Bishop Museum site Oa-A4-23, cited in Neller 1984).

Multiple burials (96 in one account) were encountered in 1963 during excavation for the construction of the present Outrigger Canoe Club at the Diamond Head end of Kalākaua Avenue. As reported in a newspaper article on Jan. 24, 1963:

> The Outrigger Canoe Club yesterday dedicated its new site [on land adjacent to and leased from the Elks Club], an ancient Hawaiian burial ground in Waikīkī...
>
> Robert Bowen of the Bishop Museum has been working closely with Ernest Souza, Hawaiian Dredging superintendent, on the removal of skeletons unearthed on the site, between the Colony Surf and the Elks Club...
>
> Most of the bodies were buried in the traditional *hoʻolewa* position, with the legs bound tightly against the chest.
>
> One of the skeletons, Bowen said, shows evidence of a successful amputation of the lower forearm, indicating that the Hawaiians knew this kind of operation before the arrival of Europeans.
>
> The ages of the skeletons ranged from children to 40-year-old men and women. The average life span of the Hawaiians at the time was about 32 years. (*Honolulu Star-Bulletin*; Jan. 24, 1963: 1A)

A total of twenty-seven burials were encountered (Yost 1971: 28). Apparently, no formal archaeological report on the burials was produced.

In 1964, sand dune burials, a traditional Hawaiian mortuary practice, were revealed as beach sand eroded fronting the Surfrider Hotel (Bishop Museum Site Files).

In 1970 human remains representing eight individuals were encountered during tank construction at Sheraton Hawai'i Corp. lands at Waikīkī. A recent OHA letter (Nāmu'o September 15, 2004) has noted the potential relevance of this discovery to the present project, but it is unclear at this time what Sheraton parcel the remains were recovered from. OHA has asked that this matter be pursued in archaeological studies associated with this project.

In 1976, during construction of the Hale Koa Hotel, adjacent to the Hilton Hawaiian Village Hotel, six burials were unearthed, five of apparent prehistoric or early historic age, and one of more recent date (Bishop Museum Site Files).

In 1980, three burials were exposed at the Hilton Hawaiian Village 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 inspection of the project area. Neller's (1980:5) report noted:

> The bones from three Hawaiian burials were partially recovered; one belonged to a young adult male, on 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 Mō'ili'ili, adjacent to where the shoreline would have been 1000 years ago.

Neller (1980:5) 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". He further notes:

> It is suspected that other important historic archaeological sites exist in the highly developed concrete jungle of Waikīkī, with discrete, dateable trash deposits related to the different ethnic and social groups that occupied Waikīkī over the last 200 years.

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 Halekūlani Hotel (Davis 1984). Six human burials were recovered along with "animal burials [and] cultural refuse from prehistoric Hawaiian fire pits, 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 Waikīkī to no later than the mid-1600s". Just as significant to Davis was the collection of historic era material at the Halekūlani site; he states:

> [The] Halekūlani 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 Waikīkī, Honolulu, or in any of the other urbanized areas of Hawai'i.

In 1983, at the Lili'uokalani Gardens condominium construction site, seven traditional Hawaiian burials were recovered (Neller 1984). This had been the site of a bungalow owned by Queen Lili'uokalani at the end of the 19th century. In addition to the burials, the site contained plentiful historic artifacts, and a pre-historic cultural layer pre-dating the burials.

In 1985, International Archaeological Research Institute, Inc. performed archaeological monitoring and data recovery at the Pacific Beach Hotel Office Annex (Beardsley and Kaschko 1997). Two traditional Hawaiian burials were discovered and removed. Intact buried traditional Hawaiian cultural deposits were discovered, including a late pre-contact habitation layer containing pits, fire pits, post molds, artifacts, and food debris. The artifacts included basalt and volcanic glass flakes and cores, a basalt adze and adze fragments, worked pearl shells, a coral file and abraders, and a pearl shell fishhook fragment. Additionally, a late nineteenth century trash pit was discovered, which contained a variety of ceramics, bottles, and other materials.

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, Waikīkī. 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 three partial burials reported by Neller (1980) were found within this project area (see above). No further burials were encountered during the PHRI fieldwork (Hurlbert et al. 1992).

In 1987, a human burial was discovered and removed at the intersection of Kalākaua Ave. and Ka'iulani St. during excavations for a gas pipe fronting the Moana Hotel (Griffin 1987).

In 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 landform 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" (Bath and Kawachi 1989: 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 beachfront 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. 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 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 uncovered a culturally enriched layer that contained postholes.

In 1993, during construction activities at the Waikīkī Aquarium, fragmentary human remains were discovered scattered in a back dirt pile, although no burial pit was identified (Dega and Kennedy 1993).

On April 28, 1994 an inadvertent burial discovery was made during excavation for a water line at the intersection of Kalākaua Ave. and Kuamo'o St. (just *mauka* of Ft. DeRussy). These remains represented a single individual (McMahon 1994).

In 1995, the remains of one individual were discovered *in situ* during construction activities on Paoakalani Street, fronting the Waikīkī Sunset Hotel (Jourdane 1995).

In 1996 Pacific Legacy, Inc. conducted an archaeological inventory survey of the block bounded by Kalākaua Ave., Kūhiō Ave., 'Olohana St., and Kālaimoku St. (Cleghorn 1996). The survey included the excavation of seven backhoe trenches. 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" (Cleghorn 1996:15).

In 1996, a traditional Hawaiian burial was discovered and left in place during test excavations on two lots at Lili'uokalani Ave. and Tusitala Street (McDermott et al. 1996). Indigenous Hawaiian artifacts and historic artifacts were also found within the project area.

In 1997, during archaeological monitoring by Cultural Surveys Hawai'i, Inc. for the Waikiki Force Main Replacement project, scattered human bones were encountered on 'Ōhua St. (Winieski and Hammatt 2000). 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 were within a coralline sand matrix that had been heavily disturbed by previous construction, and by the on-going construction project. No precise location for the original burial site was identified.

In April 1999, two human burials were inadvertently encountered near the intersection of Ena Road and Kalākaua Avenue during excavation activities for the first phase of the Waikiki Anti-crime Lighting Improvements Project (Perzinski et al. 1999).

From November 1999 to May 2000, forty-four human burials with associated cultural deposits were encountered during excavation for a waterline project on Kalākaua Avenue between the Ka'iulani and 'Ōhua Avenues (Winieski et al. 2002a). Except for previously disturbed partial burials located in fill materials, the bulk of the burials were encountered within a coralline sand matrix. Additionally, a major cultural layer was found and documented.

From January 2000, to October 2000, ten human burials were encountered during archaeological monitoring of the Kūhiō Beach Extension / Kalākaua Promenade project (Winieski *et al.* 2002b). Six of these were located within a coralline sand matrix. The four others were partial and previously disturbed within fill. Additionally, a major cultural layer was found and documented, apparently part of the same major cultural layer associated with the waterline project between Ka'iulani and 'Ōhua Avenues.

On May 2nd and June 14th, 2001, two *in situ* and two previously disturbed human burials were encountered at the site of a new Burger King (Cleghorn 2001a) and an adjoining ABC Store (Cleghorn 2001b). The finds were located at the intersection of 'Ōhua Street and Kalākaua Avenue. Because of their proximity to five burials encountered during the Kalākaua 16" Water Main Installation (Winieski et al. 2002), they were included in the previously assigned State Site 50-80-14-5861. Three of these burials were recovered, and one was left in place. Volcanic glass fragments were found in association with one of the burials. A cultural layer was also observed which contained moderate to heavy concentrations of charcoal, and fragments of volcanic glass. Historic-era artifacts, including a bottle fragment, plastic and glass buttons, a ceramic fragment, and metal fragments, were also encountered within fill materials.

From July 1999 to October 2000, four sets of human remains were inadvertently encountered during excavation activities for the Waikīkī Anti-Crime Street Lighting Improvement project along portions of Kalākaua Avenue (Bush *et al.* 2002). The first burial was encountered on Kalākaua Avenue, just before Duke's Lane and assigned State Site number 50-80-14-5864. The burial was left in place. The second burial was encountered at the intersection of Kalākaua Avenue and Ka'iulani Avenue. Earlier, during archaeological monitoring for the water main project, two burials were encountered in the immediate area of the second burial find and assigned State Site 50-80-14-5856 Features A and B. Due to the close proximity to the previously encountered burials, the second burial was assigned the same State Site number 50-80-14-5856, and designated Feature C. Burials 3 and 4 were recovered at the intersection of Kalākaua Avenue and Kealohilani, near an area of concentrated burials assigned State Site number 50-80-14-5860 during monitoring for the water main project. Consequently, burials 3 and 4 were also assigned State Site 50-80-14-5860, features U and V. In addition to human remains, pre-contact deposits, historic and modern rubbish concentrations, and pond sediments were also encountered.

In April 2001 human remains were inadvertently disturbed during excavations associated with the construction of a spa at the Royal Hawaiian Hotel (Elmore *et al.* 2001). Archaeological Consultants of the Pacific, Inc was responsible for the documentation of the remainder of the burial and carrying out the instruction of DLNR/ SHPD. The burial and place it was encountered was assigned State Site # 50-80-14-5937. The burial was encountered on the North side of the hotel in the spa garden. The disturbed remains were wrapped in muslin cloth and placed with the in-situ remains and reburied. The burial was recorded as a post contact burial based on artifacts associated with it. The associated artifacts included one shell button found *in-situ* and three more shell buttons found in the disturbed material. A single drilled dog tooth was also found during excavation but could not be positively associated with the burial site. A recent OHA letter (Nāmu'o September 15, 2004) has noted that subsequent to that discovery a human skull was turned in to the Burial Sites Program of the State Historic Preservation Division by an anonymous donor.

B. The Present Project Area

A review of archaeological reports on file at the State Historic Preservation Division indicates that no previous archaeological investigations have been completed within the present Royal Hawaiian Shopping Center parcel. Cultural Surveys Hawai'i is aware of anecdotal information suggesting that human burials may have been encountered during construction of the shopping center in the late 1970s. However, no documentation of such burials has been found

during research for the present archaeological assessment. Nevertheless, the anecdotal information should not be ignored since, as noted above, burial finds have been encountered in adjacent areas along Kalākaua Avenue and on the grounds of the Royal Hawaiian Hotel. A recent OHA letter (Nāmu'o September 15, 2004) has recommended that the question of the provenience of these *iwi* should be pursued and it is recommended that this matter be taken up in the course of any future archaeological studies in support of the proposed redevelopment.

Table 1. Previous archaeological investigations in Waikīkī *Ahupua'a*

*Where discrepancies are present, the Federal Register, January 28, 1998 (Volume 63, Number 18) was followed

Reference	Type of Investigation	General Location	Findings
Federal Register Early 1900s	Found in Bishop Museum collection 1996	"Waikīkī"	1 set of human remains*
Emerson 1902 (1901)	Burial find documentation	Present Elk's Club	4 (+?) sets of human remains, found with whale's teeth & glass beads
Westervelt 1913, Bishop Museum Records	Burial find documentation OA002, OA003	Sacred Hearts Convent	2 sets of human remains
Majoska 1916, Bishop Museum Records	Burial find documentation OA 0009	Sand burial Waikīkī, location unknown	1 set of human remains
Wilder 1917, Bishop Museum Records	Burial find documentation OA 0012	Waikīkī, location unknown	1 set of human remains
Hawai'i Dredging Co. 1923, Bishop Museum Records	Burial find documentation OA 0018	'Āinahau, Waikīkī	1 set of human remains
Emory 1923 Bishop Museum Records	Burial find documentation OA 0019-OA0023	Helumoa Waikīkī	5 sets of human remains Information indicates they were victims of the 1853 small pox epidemic
Carriera 1926, Bishop Museum Records	Burial find documentation OA 0087	Unknown residence, Waikīkī	1 set of human remains
Hartwell 1927, Bishop Museum Records	Burial find documentation OA 0633	San Souci Beach, Waikīkī	1 set of human remains

Reference	Type of Investigation	General Location	Findings
McAllister 1933	Island-wide survey	All of O'ahu	Waikīkī listed as Site 60.
Murphy 1950, Bishop Museum Records	Burial find documentation OA 0210-OA0212	3207 Noela Drive, Waikīkī	3 sets of human remains
Hawai'i Advertiser 1953	Popular account	Waikīkī-Kapahulu Library Grounds	Reported burial ground
Hawai'i Advertiser 1953	Popular account	Near Ala Wai Golf Course	Reported burial area
1955 Bishop Museum Records	Burial find documentation OA 0315	Reef Hotel, Waikīkī	2 sets of human remains*
G. D. Center, 1957 Bishop Museum Records	Burial find documentation OA 0391-OA0402	George Dad Center 2987 Kalākaua Avenue	9 sets of human remains*
Potter 1959 Bishop Museum Records	Burial find documentation OA 0613, OA614	Diamond Head, Lae'ahi	2 sets of human remains
Gorman 1961 Bishop Museum Records	Burial find documentation OA 0419	331 Saratoga Road, Waikīkī	1 set of human remains – found at construction site
Jackson 1962, Bishop Museum Records	Burial find documentation OA 0421	Reef Hotel, Waikīkī	1 set of human remains – sand burial
Bowen 1963, Bishop Museum, also Hon. Advertiser 1/25/1963 & Yost 1971	Burial find documentation OA 0425 – OA0463	Present Outrigger Canoe Club, Waikīkī	96 sets of human remains (traditional Hawaiian burials) collected and donated to the B.P. Bishop Museum

Reference	Type of Investigation	General Location	Findings
Chang 1963, Bishop Museum Records	Burial find documentation OA 0424	Edgewater Drive near Reef Hotel, Waikīkī	5 sets of human remains*
Soehren, 1964, Neller 1984, Bishop Museum Records	Burial find documentation OA 0462, OA463	2431 Prince Edward St.	2 (+?) sets of human remains – found in construction trench
Soehren, 1964, Bishop Museum Records	Burial find documentation OA 0464	Outrigger Canoe Club, Waikīkī	1 set of human remains –found on beach in front of hotel
1964, Bishop Museum Records	Burial find documentation (no accession # assigned?)	Surfrider Hotel, Waikīkī	1 set of human remains -revealed in eroding beach sand (human tibia only)
Soehren 1967, Bishop Museum Records	Burial find documentation OA0516	International Market Place, Waikīkī	1 set of human remains – found in "Tahiti by Six Restaurant construction site
Bishop Museum 1970	Burial find documentation OA0522	Excavations for tank construction, Sheraton Hawai'i Corp. lands, Waikīkī	8* sets of human remains donated to the B.P. Bishop Museum by the Sheraton Hawai'i Corp
Bishop Museum 1976	Burial find documentation (no accession #s assigned?)	Hale Koa Hotel site, Waikīkī	6 sets of human remains – 5 traditional, 1 more recent
Nakamura 1979	History Graduate Thesis	Waikīkī	History of Waikīkī with focus on the radical changes in land use that occurred in the early 20th century.
Neller 1980	Monitoring Report, brief field inspection:	Kālia Burial Site: Hilton Hawaiian Village	Partial recovery of 3 historic Hawaiian burials, trash pit from 1890's, no prehistoric Hawaiian sites.

Reference	Type of Investigation	General Location	Findings
Bishop Museum 1981; Davis 1984	Burial find documentation OA0565-OA0572; Interim Progress Report on Testing, Excavations, and Monitoring	Halekūlani Hotel, Waikīkī	8* sets of human remains Intact cultural deposits found, numerous 19th century finds.
Neller 1981	Reconnaisance Survey	Halekūlani Hotel	Limited background research on area
Acson 1983	Historical Research, Past and Present Landmarks	'Ewa to Diamond Head end of Waikīkī	Nine walks through Waikīkī, photos, maps and historical info.
Bishop Museum 1984	Burial Remains List	Waikīkī Ahupua'a	Listing of burial remains found in Waikīkī Ahupua'a at the Bishop Museum
Davis 1984	Archaeological and Historical Investigation	Halekulani Hotel, Waikīkī	48 historic and prehistoric features excavated.
Neller 1984	Informal Narrative Report	Lili'uokalani Gardens, Paoakalani Street, Waikīkī	7 sets of human remains, recovery of human skeletons at construction site
Beardsley & Kaschko 1997	Burial Recovery Report	Pacific Beach Hotel Office Annex, Waikīkī	2 sets of human remains, late pre-contact habitation deposit
Center for Oral History 1985	Oral Histories, Volumes I-IV	Waikīkī	Oral Histories of Waikīkī, 1900-1985, Volumes I-IV
Han & Sinoto 1976, Bishop Museum Records	Burial find documentation OA0584	Queen's Beach, Waikīkī	1 set of human remains – found eroding from beach
Griffin 1987	Burial Recovery Report	Along Kalākaua Ave. near the corner of Kai'ulani St., Waikīkī	1 set of human remains – bones removed and bagged by construction crew, burial found in *makai* wall of gas pipe excavation.

Reference	Type of Investigation	General Location	Findings
SHPD 1987	Burial, PA Report	Kalākaua Ave.,	From excavation adjacent to Moana Hotel (site -9901).
Bath & Kawachi 1989	Burial recovery report	Ala Wai Golf Course	2 sets of human remains
Simmons et al. 1991 (1988)	Archaeological monitoring and data recovery	Moana Hotel Banyan Court, Waikīkī	17 sets of human remains, traditional midden and artifacts
Davis 1989 (1991)	Reconnaissance Survey and Historical Research	Fort DeRussy, Waikīkī	1 set of human remains. Fishponds and other features are buried in this area. Sites -4573 thru -4577 are fishponds, 4570 is a remnant cultural deposit.
Riford 1989	Pre-Field Background Literature Search	TMK: 2-6-014:039, Waikīkī	List of literature pertaining to Waikīkī area.
Rosendahl 1989	Inventory Survey, Preliminary Report	Fort DeRussy, Waikīkī	Historic artifacts, no human remains
Athens 1990	Letter	TMK: 2-6-023:025, Waikīkī	Letter to SHPD listing human remains at IARII lab from Pacific Beach Hotel, and Barbers Point Generating Station.
Hurst 1990	Historical Literature and Documents Search	Waikikian Hotel, Waikīkī	Background and planning document. No fieldwork was done.

Reference	Type of Investigation	General Location	Findings
Chiogioji 1991	Assessment	2 parcels, TMK 2-6-24:65-68 and 80-83, TMK 2-6-24:34-40 & 42-45, Waikīkī	TMK 2-6-24:36-40, formerly a corner of the ʻĀinahau estate; remainder of parcels, former *ʻauwai*, *kalo* and rice fields; subsurface test excavations and specific sampling strategy recommended.
Davis 1991	Monitoring Report	Fort DeRussy, Waikīkī	See also Davis 1989. No groundwater contamination found; subsurface features and material remains date to early post-contact times (c. 1780s to 1790s) through the mid-19th century.
Kennedy 1991	Monitoring Report	TMK: 2-6-022:014 IMAX theatre location, Waikīkī	Pollen and bulk-sediment ^{14}C samples from ponded sediments were recovered. The three ^{14}C dates and the pollen sequence were interpreted as inverted.
SHPD 1991	Public Inquiry	TMK: 2-6-024:036, Waikīkī	Bones were determined to be non-human and part of the extensive fill material present in the area.
Simons et al. 1991	Interim Field Study, Monitoring and Data Recovery	Moana Hotel Area, Waikīkī	Human skeletal remains, 8 burials, preliminary osteological analysis indicates pre-contact type; artifactual material recovered, both pre- and post-contact types.
Hurlbett 1992	Monitoring Report	TMK: 2-6-008:001, Waikīkī	Site -2870 (3 burials) found by Neller in 1980. This report is on testing and monitoring in same area.
Pietrusewsky 1992a	PA Report	Moana Hotel, Waikīkī	Right half of human mandible found by hotel guest.
Pietrusewsky 1992b	PA Report	Liliʻuokalani Gardens Site, Hamohamo, Waikīkī	Human Remains from the Liliʻuokalani Gardens Site, Hamohamo, Waikīkī, Oʻahu
Rosendahl 1992	Monitoring Report	Hilton Hawaiian Village, Waikīkī	Identified12 historic refuse pits, 3 historic to modern trenches; not recommended for further work, significant solely for information content.

Reference	Type of Investigation	General Location	Findings
Streck 1992	Memorandum for Record	Fort DeRussy, Waikīkī	Human burial discovery (believed to be late prehistoric Hawaiian) during data recovery excavations, May, 20, 1992.
Cleghorn 1993	Report on Inadvertant Discovery of Remains	Waikīkī Aquarium, Waikīkī	Remains of one human individual, mandible identified.
Dagher 1993	Report on Inadvertant Discovery of Remains	Waikīkī Aquarium, Waikīkī	Human remains of at least one person identified, excavation recommended.
Dega and Kennedy 1993	Report on Inadvertant Discovery of Remains	Waikīkī Aquarium, Waikīkī	1 [?] set of human remains. Discovery of unidentified bone fragments, all remains turned over to SHPD.
Hammatt and Chiogioji 1993	Archaeological Assessment	16-Acre Portion of the Ala Wai Golf Course, Waikīkī	Not associated with any know surface archaeological site, however prehistoric and early historic occupation layers associated with *loʻi* system remain intact below modern fill. Specific sampling strategy and potential burial testing recommended.
Carlson et al. 1994	Report of human remains	Kālia Road, Waikīkī	40 sets of human remains, the majority in a communal feature
Maly et al. 1994	Archaeological and Historical Assessment Study	Convention Center Project Area, Waikīkī	Recommend subsurface testing to determine presence or absence of cultural deposits and features.
McMahon 1994	SHPD Burial Report	Intersection of Kalākaua and Kuamoʻo Streets, Waikīkī	1 set of human remains. Inadvertent Burial Discovery: misc. bones uncovered in back dirt pile during construction. Follow up by CSH.
Hammatt and Shideler 1995	Sub-surface Inventory Surface	Hawai'i Convention Center Site, 1777 Kalākaua Ave., Waikīkī	No further work recommended.

Reference	Type of Investigation	General Location	Findings
Jourdane 1995	Report of Inadvertant Discovery of Human Remains	Paoakalani Avenue, Waikīkī	1 set of human remains. Human skeletal remains discovered in planted strip between street and sidewalk fronting hotel.
Simons et al. 1995	Data Recovery Excavations	Fort DeRussy, Waikīkī	Historic and prehistoric artifacts, artifact debris, and midden materials collected from 7 occupational layers. 6 prehistoric cultural features recorded: *'auwai* bunds and channels, fishpond walls and sediments, a possible *lo'i*, and hearths.
Cleghorn 1996	Inventory Survey	TMK: 2-6-016:23, 25, 26, 28, 61, 69, Waikīkī	7 backhoe trenches excavated, no sites located.
Grant 1996	Historical Reference	Waikīkī	Historical information about Waikīkī prior to 1900.
Hammatt and Shideler 1996	Data Recovery	Hawai'i Convention Center Site, Waikīkī	No clear evidence that Kuwili Pond sediments present in project area; no further work recommended.
McDermott et al. 1996	Inventory Survey	'Āinahau Estate, Waikīkī	1 set of human remains. Buried remnants of *'auwai* and *lo'i* and human burial found on grounds of 'Āinahau Estate, ^{14}C dates
Denham et al. 1997	Data Recovery Report	Fort DeRussy, Waikīkī	Excavations conducted at fishponds, ^{14}C dates mid-17th C.
Denham and Pantaleo 1997	Monitoring and Excavations Report	Fort DeRusssy , Waikīkī	Final Report does not include SHPD recommendations. 10 subsurface features and 9 burial locations found. ^{14}C dates
Beardsley and Kaschko 1997	Monitoring and Data Recovery Report	Pacific Beach Hotel Office Annex, Waikīkī	Traditional Hawaiian cultural deposits and 2 human burials. 3 ^{14}C dates
Hammatt and Chiogioji 1998	Assessment	King Kalākaua Plaza Phase II, Waikīkī	No surface archaeological sites, documented human burials, presence of subsurface cultural deposits (both of pre-contact Hawaiian and historic provenance).

Reference	Type of Investigation	General Location	Findings
Hammatt and McDermott 1999	Burial Disinterment Plan and Report	Kalākaua Avenue, Waikīkī	Two human burials found
Perzinski et al. 1999	Monitoring Report	Along Portions of Ala Wai Boulevard, Kalākaua Avenue, Ala Moana Boulevard, and 'Ena Road, Waikīkī	Two human burials found (1 preceeding monitoring); pockets of undisturbed layers still exist. Burial #2 previously disturbed.
Rosendahl 1999	Interim Report: Inventory Survey	Fort DeRussy, Waikīkī	This area is part of the old shoreline.
Hammatt and Chiogioji 2000	Archaeological Assessment	Honolulu Zoo Parcel, Waikīkī	Majority of zoo parcel unlikely to yield significant cultural deposits. However, strong possibility of significant subsurface cultural deposits in the southwestern portion, and archaeological monitoring is recommended in this area.
LeSuer et al. 2000	Inventory Survey	King Kalākaua Plaza Phase II, Waikīkī	Site -5796 has been adversely affected by land alteration of the project area. Site -4970, has been adequately documented.
Cleghorn 2001a,b	Mitigation	Burger King Construction Site, Waikīkī	Concerning three incidents of uncovered human remains while locating a buried sewer-line for the ABC's store.
Corbin 2001	Inventory Survey	Hilton Waikikian Property, Waikīkī	No arch. sites were found during excavations of the area
Elmore and Kennedy 2001	Burial Report	Royal Hawaiian Hotel, Waikīkī	Human remains found during trench excavations for conduit. In situ remains left in place, remains disturbed reentered with others.
McGuire and Hammatt 2001	Cultural Assessment	Along Lewers St., Beach Walk, Kālia Rd. and Saratoga Rd. Proposed Waikīkī Beach Walk project (Outrigger properties renovations), Waikiki	Primary cultural concern identified as inadvertent burial discovery. Cultural monitoring recommended for all subsurface work within project area.

Reference	Type of Investigation	General Location	Findings
Perzinski and Hammatt 2001a	Monitoring Report	Kapi'olani Bandstand, Waikīkī	A charcoal layer was observed, more concentrated on the southwest side of the bandstand; recovered indigenous artifact, basalt lamp with a handle, from the southeast end of the bandstand.
Perzinski and Hammatt 2001b	Monitoring Report	Kapi'olani Park, Waikīkī	No cultural layer, artifacts, midden or human burials were encountered during the excavations.
Perzinski and Hammatt 2001c	Monitoring Report	Kalākaua Avenue from the Natatorium to Poni Mo'i Road	No cultural layer, artifacts, midden or human burials were encountered during the excavations.
Rosendahl 2001	Assessment Study	Outrigger Beach Walk, Waikīkī	Assessment of previous archaeological and historical literature.
Winieski and Hammatt 2001	Monitoring Report	TMK: 1-2-6-025:000, 'Ōhua Street, Waikīkī	1 set of human remains. There is a possibility that Hawaiian or Historic materials as well as human burials may still be present within the project area.
Winieski et al. 2001a	Monitoring Report	Kalākaua, Moana to Monsarrat, Waikīkī	44 sets of human remains; 37 disinterred, 7 left in place; believed to be Native Hawaiian, prior to 1820.
Winieski et al. 2001b	Monitoring Report	Kalākaua, Moana to Monsarrat, Waikīkī	10 sets of human remains, mostly pre-contact
Winieski et al. 2001c	Monitoring Report	Kalākaua, Moana to Monsarrat, Waikīkī	4 sets of human remains, mostly pre-contact
Borthwick et al. 2002	Inventory Survey	71,000 sq. ft. parcel, TMK: 2-6-016:002, Waikīkī	No burials were encountered during testing; absence of dry Jaucus sand deposits indicate that burial finds are unlikely in project area.

Reference	Type of Investigation	General Location	Findings
Bush et al. 2002	Monitoring Report	Kalākaua Avenue, between Ala Moana Blvd. and Kapahulu Ave., Waikīkī	Encountered 4 Human burials, analysis suggests pre-contact Native Hawaiians; several historic trash pits; entire pig within an *imu* pit (estimated date, A.D. 1641-1671); gleyed muck associated with former ponds.
Calis 2002	Monitoring Report	Lemon Road, Waikīkī	No historic deposits, major previous disturbance
Elmore and Kennedy 2002	Monitoring Report	Fort DeRussy, Waikīkī	No findings.
Mann and Hammatt 2002	Monitoring Report	Lili'uokalani Avenue and Uluniu Avenue, Waikīkī	5 burial finds of 6 individuals; two historic trash pits.
Putzi and Cleghorn 2002	Monitoring Report	Hilton Hawaiian Village	No findings during monitoring of trench excavations for sewer connections.
Winieski, Perzinski, Shideler and Hammatt 2002	Monitoring Report	Kalākaua Ave. between Ka'iulani and Monsarrat Avenues, Waikīkī	44 human burials encountered. 37 disinterred; buried habitation layer identified which contained traditional Hawaiian artifacts, midden, hearths, firepits, and charcoal concentrations; fragment of light gauge rail, remnant of Honolulu Transit trolley system, observed; low energy alluvial sediments associated with the now channelized Muliwai Kukaunahi also observed.
Winieski, Perzinski, Souza and Hammatt 2002	Monitoring Report	Kūhiō Beach, Waikīkī	Skeletal remains of 10 individuals, six disinterred, only 2 in situ. 4 indigenous artifacts, none in situ. Discontinuous cultural layer, historic seawall.
Bush et al. 2003	Monitoring Report	International Marketplace, Waikīkī	Historic trash found.

Reference	Type of Investigation	General Location	Findings
Tome and Dega 2003	Monitoring Report	Waikīkī Marriot, Waikīkī	No in situ remains, recommends monitoring if more work to be done, one isolated not in situ possible human bone fragment. Not identifiable.
Tulchin and Hammatt 2003	Archaeological and Cultural Impact Assessment	2284 Kalākaua Ave., Waikīkī	Notes possibility of burials within the project area; recommends an inventory survey with subsurface testing.

IV. SUMMARY AND RECOMMENDATION

The *ahupua'a* of Waikīkī 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 and numerous fishponds – supporting a large population that included the highest-ranking *ali'i* (Hawaiian royalty). In the second half of the nineteenth century, after a period of depopulation and desuetude, Waikīkī was reanimated by the Hawaiian *ali'i* and the foreigners residing there, and by 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 the twentieth century when the newly-constructed Ala Wai Canal drained the remaining ponds and irrigated fields of Waikīkī.

The present Royal Hawaiian Shopping Center parcel is a portion of Helumoa, the land in Waikīkī where Kamehameha I resided, following his conquest of O'ahu Island. Throughout the nineteenth century, Helumoa continued to be associated with Hawaiian monarchs, including Kamehameha V who built a seaside bungalow on the grounds of the present Royal Hawaiian Hotel. By the late nineteenth century, the lands of Helumoa were a portion of the estate of Princess Bernice Pauahi Bishop and so continue to the present.

Archaeological reports have documented human burials – both pre-contact Hawaiian and historic – throughout the breadth of Waikīkī as far *mauka* as the Ala Wai Golf Course. Especially relevant to the present project area location are burials that have been encountered in the vicinity along Kalākaua Avenue and on the grounds of the Royal Hawaiian Hotel. Additionally, as noted above, anecdotal information suggests that there may have been burials encountered during the construction of the Royal Hawaiian Shopping Center in the 1970s. However, no documentation of such burials has been found at the present time.

Several archaeological studies have recorded the presence within Waikīkī 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 entire Waikīkī area. The authors of these studies emphasize that the potential for discovering similar intact deposits elsewhere in Waikīkī cannot be discounted.

It is possible that intact prehistoric and early contact cultural deposits are lying undisturbed beneath modern fill layers within the project parcel. An additional concern is the possible presence of human burials within the parcel.

Based on these considerations, and given the cultural sensitivity of the entire Waikīkī area, it is recommended that a monitoring plan be prepared which includes provisions for on-site archaeological monitoring of all excavation activities below modern fill layers within the Royal Hawaiian Shopping Center parcel.

A recent OHA letter (Nāmu'o September 15, 2004) has noted that the provenience of certain human remains understood to have been recovered near the present project area c. 1971 remain poorly documented. It is recommended that this matter be pursued in the course of the development of any further archaeological studies of these lands.

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Appendix C

Comment Letter from SHPD Dated 9-2-04 and
Response Letter from Cultural Surveys Hawai'i, Inc.,
Dated 10-22-04

LINDA LINGLE
GOVERNOR OF HAWAII

PETER T. YOUNG
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

DAN DAVIDSON
DEPUTY DIRECTOR - LAND

YVONNE Y. IZU
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
BUREAU OF CONVEYANCES
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HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

September 2, 2004

Mr. Rodney Chiogioji
Cultural Surveys Hawaii
PO Box 1114
Kailua, Hawaii 96734

LOG NO: 2004.2674
DOC NO: 0409SC02

Dear Mr. Chiogioji:

SUBJECT: Chapter 6E-42 Historic Preservation Review of an Archaeological Assessment for the Royal Hawaiian Shopping Center Parcel
Waikīkī, Kona, O'ahu
TMK: (1) 2-6-002:018

Thank you for the submission of a report documenting the results of an archaeological assessment prepared for the proposed redevelopment of the Royal Hawaiian Shopping Center in Waikīkī (Chiogioji & Hammatt. 2004. *Archaeological Assessment for the Royal Hawaiian Shopping Center Parcel, Waikiki Ahupua'a, Kona District, O'ahu [TMK: 2-6-02:18]*). We received the subject report on July 22, 2004 and provide the following comments.

You have prepared thorough and well-documented sections on the historical and archaeological backgrounds of the project area, and you have concluded that it is possible that significant historic sites, including human burials and cultural layers, are within subsurface deposits in the project area. You have recommended that a program of precautionary monitoring be carried out. While we generally concur with these findings and the recommendation of archaeological monitoring, we would also suggest that, depending on final redevelopment plans, some consideration be given to the possibility of conducting an archaeological inventory survey with subsurface testing, perhaps after the demolition of existing structures but before any new construction.

Finally, we are uncertain as to why the report was called an "assessment." According to our rules [cf. HAR 13-284-5(b)(5)(A)], an assessment is the work product that results when no sites are found during an archaeological inventory survey. It appears that, instead, you have evaluated the potential for historic sites to be present in the areas of the Royal Hawaiian Shopping Center to undergo renovation.

Since the subject document does not fall under our fee schedule or review requirements as such, we will simply acknowledge its receipt at this time and take no further action. In addition, since a fee for the review of an assessment ($50) was also submitted with this document, we would like to suggest that for any future submittals directly related to this project (e.g., an archaeological monitoring plan prepared for the Royal Hawaiian Shopping Center redevelopment), the amount of the submitted fee should be deducted from future fee submittals. Please make a notation on the submittal form to this effect.

Should you have any questions, please contact Sara Collins at 692-8026.

Aloha,

P. Holly McEldowney, Administrator
State Historic Preservation Division

SC: sky

C: A. Van Horn Diamond, Chair, O'ahu Island Burial Council
Nathan Napoka, Branch Chief, History and Culture Branch

CULTURAL SURVEYS HAWAI'I
Archaeological and Cultural Impact Studies
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October 22, 2004

Ms. Melanie Chinen, Administrator
State Historic Preservation Division
Kākuhihewa Building, Room 555
601 Kamōkila Blvd
Kapolei Hawai'i 96707

Subject: Response to Chapter 6E-42 Historic Preservation Review of an Archaeological Assessment for the Royal Hawaiian Shopping Center Parcel, Waikīkī, O'ahu TMK (1) 2-6-002:018

Dear Ms. Melanie Chinen:

Thank you for the State Historic Preservation Division (SHPD) review letter (McEldowney to Chiogioji, September 2, 2004; Log No: 2004.2674, Doc No. 0409SC02) addressing our *Archaeological Assessment for the Royal Hawaiian Shopping Center Parcel, Waikīkī Ahupua'a, Kona District, O'ahu [TMK: 2-6-02:19]*. We are pleased that your office found the historical and archaeological background sections to be thorough and well-documented and that your office generally concurs with our findings and the recommendation of archaeological monitoring.

The review letter notes that:

> ...we would also suggest that, depending on final redevelopment plans, some consideration be given to the possibility of conducting an archaeological inventory survey with subsurface testing, perhaps after the demolition of existing structures but before any new construction.

We have, as requested, re-considered the specific nature of this project to re-evaluate our recommendations regarding appropriate mitigation of potential adverse impacts to historic resources. We still conclude that an archaeological monitoring program is the appropriate approach and we appreciate the opportunity to support this conclusion in this memo.

In order to more fully understand the nature of this project we have met on-site with representatives of the developer interests (specifically The Festival Companies staff) to go over historic photographs, and current re-development plans and to walk the site. The Royal Hawaiian Shopping Center was constructed circa 1971 at which time there was substantial site work. The vast majority of the parcel was cleared and grubbed and substantial fill appears to have been imported. Approximately 90% of the site is covered with hard-scape infrastructure (buildings, paved walkways, paved roads), with the remaining 10% or so of these lands in landscaping. These are intensively built upon lands. The proposed re-development is almost entirely of the nature of a cosmetic rejuvenation and all existing buildings will remain. Present plans are that the

shopping center will remain fully operational during this rejuvenation project. Our understanding is that proposed renovations consist almost entirely of the following:

- Removal of approximately 60 trees (mostly along adjacent portions of Kalākaua Avenue and Lewers Street),
- Planting of approximately 70 trees most of which will involve excavations of approximately 4 ft^3 (mostly along adjacent portions of Kalākaua Avenue and Lewers Street),
- Excavation of two grease interceptors adjacent to existing buildings in areas presently paved,
- New escalators and elevators typically within the existing buildings and adjacent to existing vertical transport infrastructure,
- Re-configuration of an existing water feature within the central proposed "Royal Grove" area of the shopping center
- Removal of certain existing landscape curbs and some paving,
- Some excavation around pile caps for tie beams for exterior decks.

The nature of the subsurface work is that it will overwhelmingly involve small excavations separated from each other by some distance. Most of these will be along Lewers Street and Kalākaua Avenue or within the buildings adjacent to areas understood as previously disturbed by foundation work. The only excavations of any extent appear to be associated with the new water feature right in the paved central courtyard but due to liability concerns this will be quite shallow.

Because the proposed subsurface impacts will be small and widespread an archaeological inventory survey does not appear to be appropriate. In addition there is the matter that existing contracts require the shopping center to be fully functional throughout the cosmetic rejuvenation. Conducting archaeological studies under such conditions would be difficult at best in such areas of intensive pedestrian and vehicular traffic. The proposed project ground disturbances (small, dispersed trenching with a backhoe) are very similar to archaeological mechanized testing methods. These trenching methods will provide the opportunity to assess the presence or absence of archaeological resources. This monitoring program will in many ways resemble an archeological testing program.

Thus we are still recommending an archaeological monitoring program including consultation with the O'ahu Island Burial Council, as the appropriate form of mitigation to address potential cultural resources. If you have any remaining uncertainty regarding this approach we would welcome a site visit that we believe would result in agreement.

Sincerely,

David W. Shideler
O'ahu Office Director
Cultural Surveys Hawai'i, Inc.

Appendix D

Traffic Impact Assessment

Wilson Okamoto Corporation

TRAFFIC IMPACT REPORT

FOR THE

ROYAL HAWAIIAN SHOPPING CENTER

Prepared for:

Kamehameha Schools

Prepared by:

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

June 2004

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I. INTRODUCTION

A. Purpose of Study

The purpose of this study is to identify and assess the traffic impacts resulting from modifications to the existing Royal Hawaiian Shopping Center in Waikiki on the island of Oahu. The Royal Hawaiian Shopping Center is bordered by Kalakaua Avenue to the north, Lewers Street to the west, the Royal Hawaiian and Sheraton Hotels to the south, and the Outrigger Waikiki to the east.

B. Scope of Study

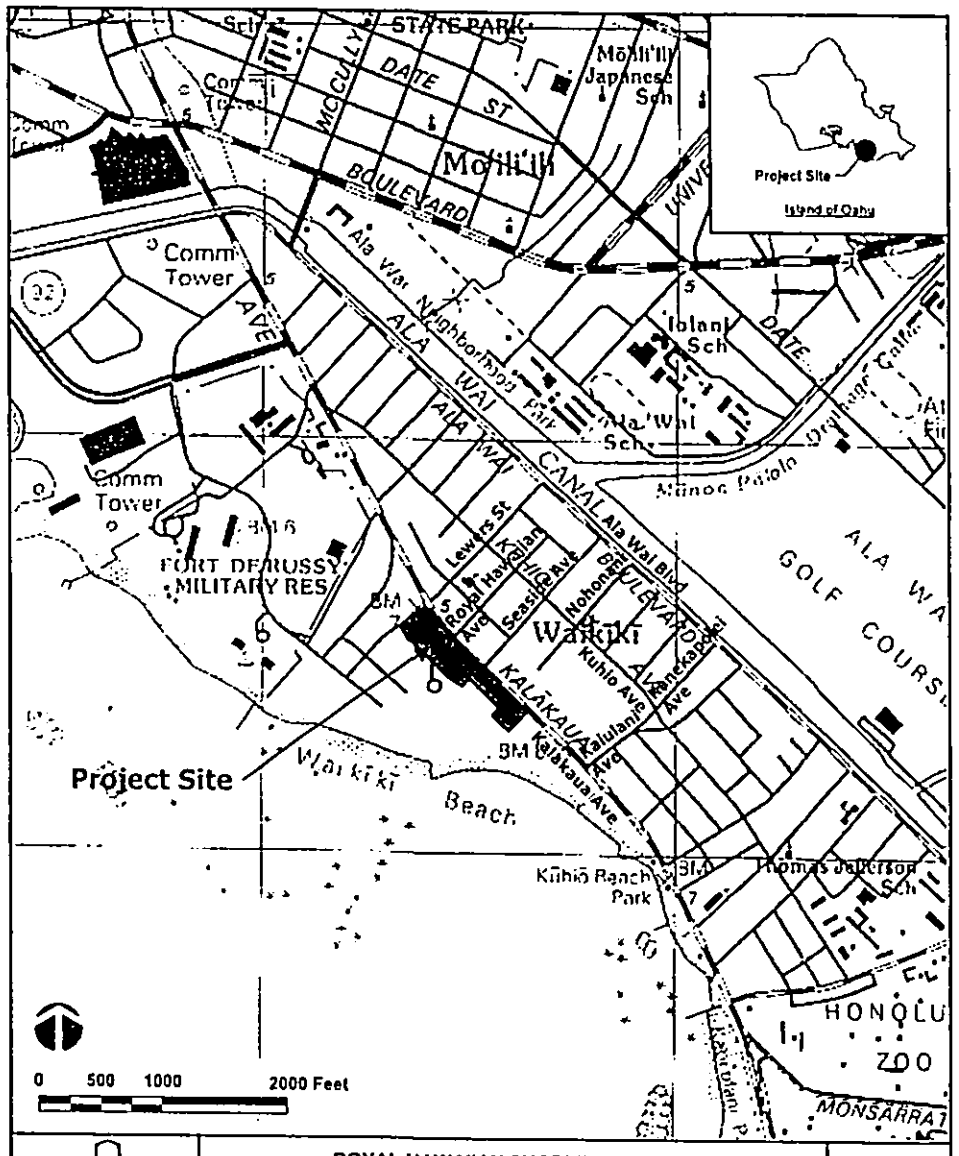
This report presents the findings and conclusions of the traffic study, the scope of which includes:

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 along Kalakaua Avenue in Waikiki on the island of Oahu and is further identified as Tax Map Key: 2-6-02: 18 (see Figure 1). The existing shopping center is surrounded by a variety of commercial uses, as well as, several hotels. Currently, parking for the Royal Hawaiian Shopping Center is provided in an existing above-grade garage with access off of Royal Hawaiian Avenue.



WILSON OKAMOTO CORPORATION ENGINEERS - PLANNERS	ROYAL HAWAIIAN SHOPPING CENTER Location Map and Vicinity Map	FIGURE 1

RECEIVED AS FOLLOWS

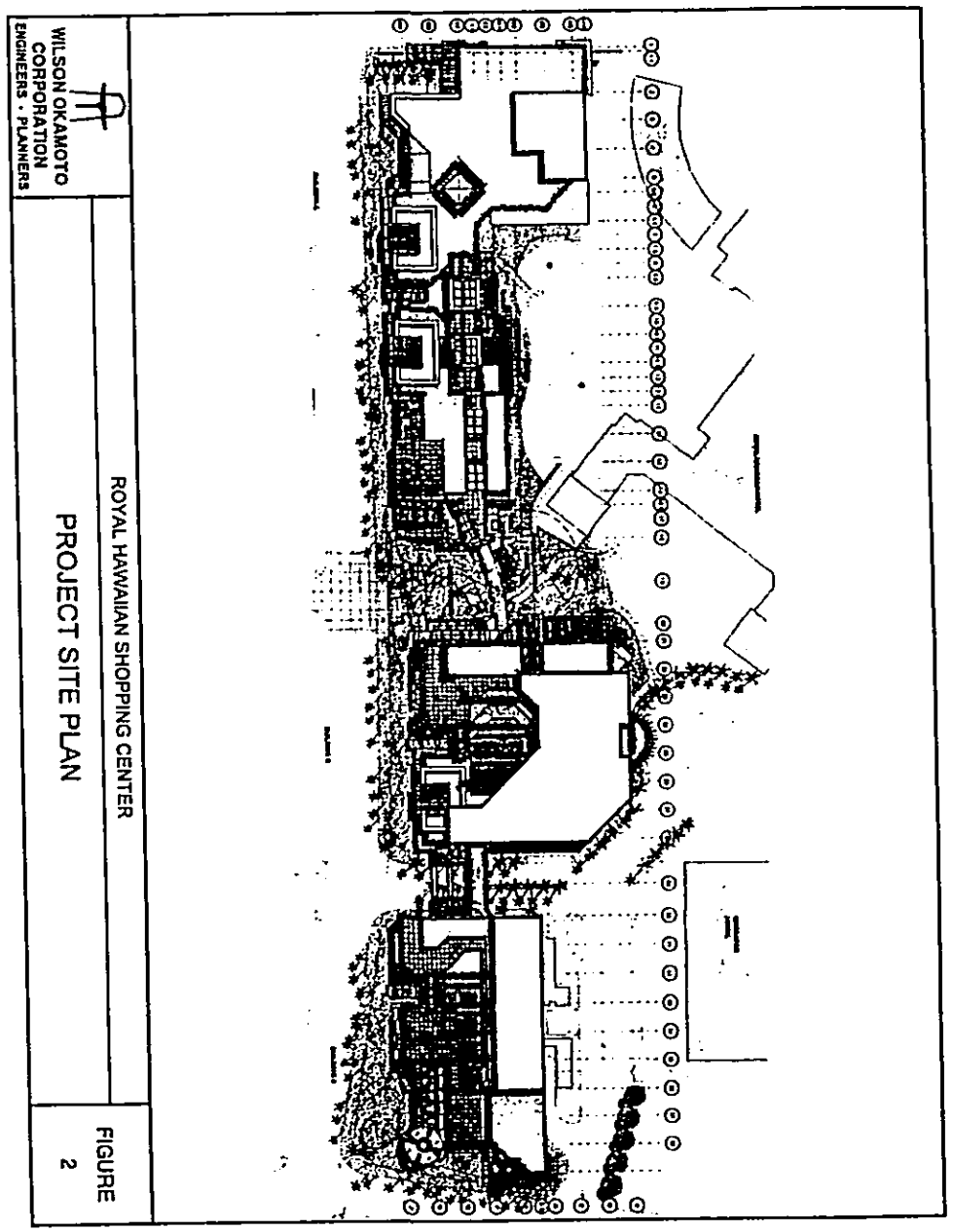
B. Project Characteristics

The proposed renovations to the Royal Hawaiian Shopping Center will be located at the existing site along Kalakaua Avenue. The proposed project is intended to revitalize the shopping center's role as a major retail center in Waikiki by incorporating features that will convey a Hawaiian sense of place consistent with Waikiki Special District design guidelines, incorporate historical, cultural, and educational features consistent with the goal of Kamehameha Schools to perpetuate all things Hawaiian, and improve visual and pedestrian linkages with the adjoining Sheraton Waikiki and Royal Hawaiian hotels to create an integrated resort destination. 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 which will result in an increase of approximately 17,066 square feet of additional gross leasable area (GLA). Currently, parking for the Royal Hawaiian Shopping Center is provided in an existing above-grade garage with access off of Royal Hawaiian Avenue. For the purpose of this report, the renovations are assumed to be completed and by the Year 2008. Figure 2 shows the project site plan.

III. EXISTING TRAFFIC CONDITIONS

A. General

Parking for the Royal Hawaiian Shopping Center is currently provided in an existing above-grade garage with access off of Royal Hawaiian Avenue, a north-south oriented roadway that primarily serves as a connector roadway between Kalakaua Avenue, Kuhio Avenue, and Ala Wai Boulevard. Kalakaua Avenue and Ala Wai Boulevard are one-way roadways that together form a couplet system serving both local and regional trips through Waikiki. Kuhio Avenue is a two-way roadway that runs parallel to Kalakaua Avenue and Ala Wai Boulevard that also serves local and regional trips through Waikiki. In recent years, traffic volumes along these primary access roadways and in the project vicinity have increased significantly due to growth in the tourism industry.



B. Area Roadway System

Along the west edge of the project site, 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 northwest corner of the project site, Lewers Street intersects Kalakaua Avenue, a generally four-lane, one-way City and County of Honolulu roadway. At this signalized intersection, Lewers Street has two northbound lanes that serve through and right-turn traffic movements with posted signs indicating that right-turn movements are prohibited on red while Kalakaua Avenue has four eastbound lanes that serve all traffic movements.

Approximately, 600 feet north of the intersection with Kalakaua Avenue, Lewers Street intersects Kuhio Avenue. At this signalized intersection, Lewers Street has two northbound lanes that serve all traffic movements. Kuhio Avenue is generally a four-lane, two-way City and County of Honolulu roadway. However, Kuhio Avenue is currently undergoing extensive roadway improvements and, as such, the roadway has been temporarily reduced by one lane in the westbound direction. Typically, Kuhio Avenue has two westbound lanes at this intersection that serve through and right-turn traffic movements and two eastbound lanes that serve left-turn and through traffic movements. However, during the on-going construction period, one of the westbound lanes has been closed to permit construction activities.

Approximately 650 feet north of the intersection with Kuhio Avenue, Lewers Street intersects Ala Wai Boulevard. At this signalized t-intersection, Lewers 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 this intersection, Ala Wai Boulevard has three lanes that serve through traffic movements.

Approximately, 330 feet east of the intersection with Lewers Street, Kalakaua Avenue intersects Royal Hawaiian Avenue. At this signalized intersection, Kalakaua

Avenue has four eastbound lanes that serve left-turn, through, and right-turn traffic movements. Royal Hawaiian Avenue is a north-south oriented City and County of Honolulu roadway that originates at Ala Wai Boulevard as a two-lane, one-way (southbound) roadway then continues from Kalakaua Avenue as a two-lane, two-way roadway to its terminus at Don Ho Street. At the intersection with Kalakaua Avenue, Royal Hawaiian Avenue has two southbound lanes that serve left-turn and through traffic movements and one northbound lane that serves right-turn traffic movements.

Approximately 330 feet east of the intersection with Royal Hawaiian Avenue, Kalakaua Avenue intersects Seaside Avenue. At this signalized t-intersection, Kalakaua Avenue has five eastbound lanes that serve all traffic movements Seaside Avenue is a two-lane, one-way (northbound) City and County of Honolulu roadway between Kalakaua Avenue and Ala Wai Boulevard oriented in the north-south direction. Pedestrians at the intersection of Kalakaua Avenue and Seaside Avenue are provided a dedicated crossing phase in the traffic signal cycle to permit simultaneous crossing in all directions.

Approximately 275 feet east of the intersection with Seaside Avenue, Kalakaua Avenue intersects Duke's Lane. At this unsignalized t-intersection, Kalakaua Avenue has four eastbound lanes that serve left-turn and through traffic movements. Duke's Lane is a one-lane, one-way (northbound) private roadway oriented in the north-south direction between Kalakaua Avenue and Kuhio Avenue.

Approximately 775 feet north of the intersection with Kalakaua Avenue, Duke's Lane intersects Kuhio Avenue and Nohonani Street. At this signalized intersection, Duke's Lane has one northbound lane that serves left-turn and right-turn traffic movements while Kuhio Avenue typically has two lanes in both directions that serve through traffic movements. However, during the on-going construction period, one of the westbound lanes along Kuhio Avenue has been closed to permit construction activities. Nohonani Street is a predominantly one-lane, one-way (southbound) City and County of Honolulu roadway between Ala Wai Boulevard and Kuhio Avenue oriented in the north-south direction. At the intersection with Kuhio

Avenue and Duke's Lane, Nohonani Street has two lanes that serve left-turn and right-turn traffic movements.

Approximately 650 feet north of the intersection with Kuhio Avenue, Nohonani Street intersects Ala Wai Boulevard. At this unsignalized t-intersection, Ala Wai Boulevard has three westbound lanes that serve left-turn and through traffic movements.

Approximately 900 feet east of the intersection with Duke's Lane, Kalakaua Avenue intersects Kaiulani Avenue. At this signalized t-intersection, Kalakaua Avenue has four eastbound lanes that serve left-turn and through traffic movements. Kaiulani Avenue is a two-lane, one way (northbound) City and County of Honolulu roadway oriented in the north-south direction that originates at Kalakaua Avenue as a two-lane, one-way (northbound) roadway and continues north until the intersection with Kanekapolei Avenue where the roadway forks northeast and then continues on to its terminus at Ala Wai Boulevard.

Approximately 700 feet north of the intersection of Kalakaua Avenue and Kaiulani Avenue, Kanekapolei intersects Kuhio Avenue. At this signalized intersection, Kuhio Avenue typically has two lanes in both directions that serve all traffic movements. However, during the on-going construction period, one of the westbound lanes along Kuhio Avenue has been closed to permit construction activities. Kanekapolei Avenue is a four-lane, two-way City and County of Honolulu roadway oriented in the north-south direction between Kaiulani Avenue and Ala Wai Boulevard. At the intersection with Kuhio Avenue, Kanekapolei Avenue has two northbound lanes that serve through and left-turn traffic movements with posted signs indicating prohibited right-turn movements to Kuhio Avenue and two southbound lanes that serve all traffic movements.

Approximately 725 feet north of the intersection with Kuhio Avenue, Kanekapolei Avenue intersects Ala Wai Boulevard. At this signalized t-intersection, Ala Wai Boulevard has three westbound lanes that serve left-turn and through traffic movements while Kanekapolei Avenue has two lanes that serve left-turn traffic movements.

B. Traffic Volumes and Conditions

1. General

a. Field Investigation

A field investigation was conducted in March and April of 2004 and consisted of manual turning movement count surveys during the morning peak hours between 6:30 AM and 8:30 AM, afternoon peak hours between 3:30 PM and 6:30 PM, and Saturday peak hours between 3:30 PM and 7:00 PM at the following intersections:

- Lewers Street and Kalakaua Avenue
- Lewers Street and Kuhio Avenue
- Lewers Street and Ala Wai Boulevard
- Royal Hawaiian Avenue and Kalakaua Avenue
- Seaside Avenue and Kalakaua Avenue
- Duke's Lane and Kalakaua Avenue
- Duke's Lane, Kuhio Avenue, and Nohonani Street
- Nohonani Street and Ala Wai Boulevard
- Kaiulani Avenue and Kalakaua Avenue
- Kaiulani Avenue and Kuhio Avenue
- Kanekapolei Avenue and Kuhio Avenue
- Kanekapolei Avenue and Ala Wai Boulevard

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.

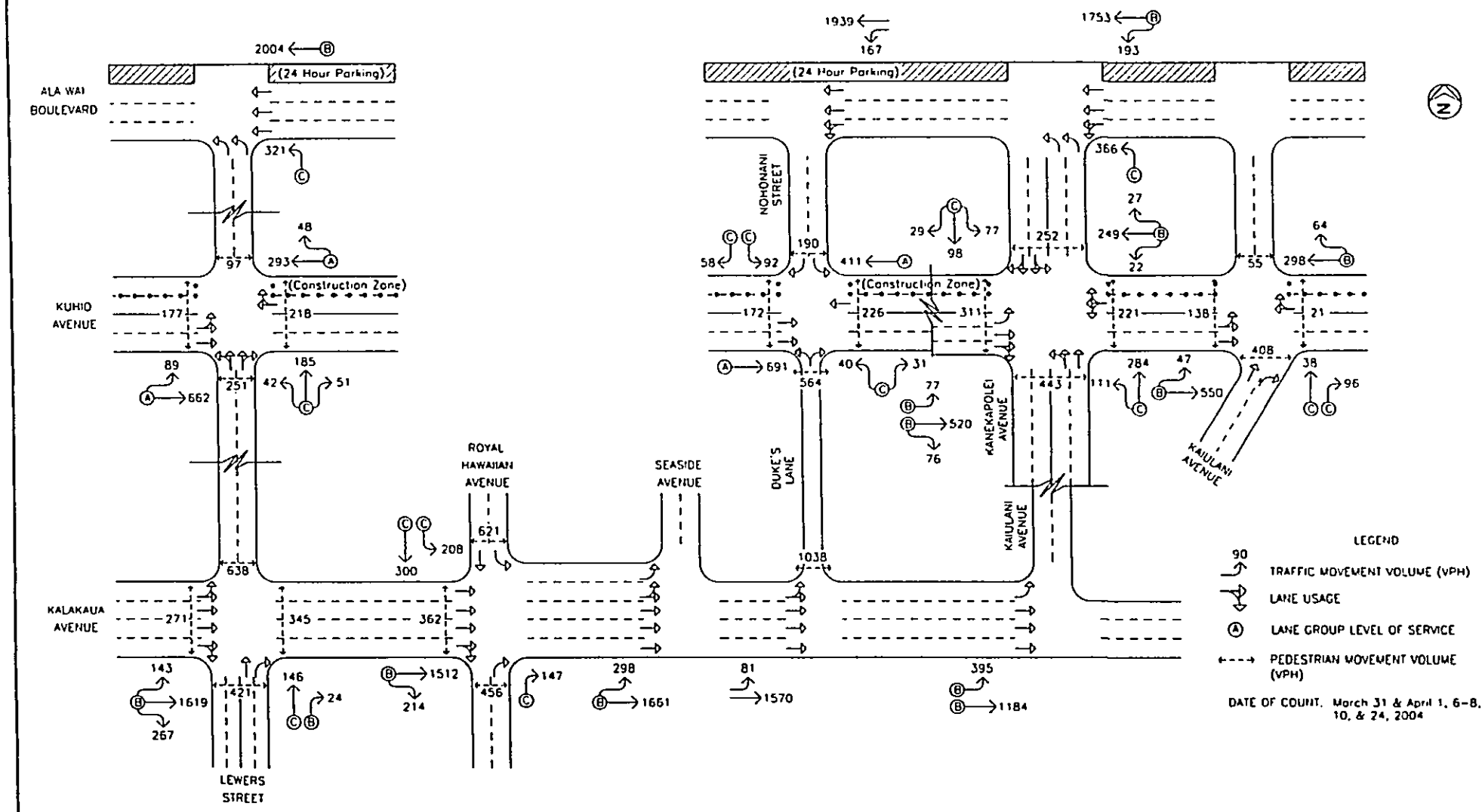
2. Existing Peak Hour Traffic

a. General

The traffic volumes during the AM peak hours of traffic at the study intersections are relatively low as compared to the weekday and Saturday PM peak hours of traffic. The analysis therefore excludes the AM peak period and focuses on the weekday PM and Saturday PM peak hours of traffic. Figures 3 and 4 show the existing weekday PM and Saturday PM peak hour traffic volumes and operating traffic conditions. The weekday PM peak hour of traffic generally occurs between 3:45 PM and 4:45 PM in the vicinity of the proposed project. The Saturday 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. Lewers Street and Kalakaua Avenue

At the intersection with Kalakaua Avenue, Lewers Street carries 170 vehicles northbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, the traffic volume is slightly less with 100 vehicles traveling northbound. The critical traffic movement of the Lewers Street approach is the northbound through traffic movement that operates at LOS "C" during

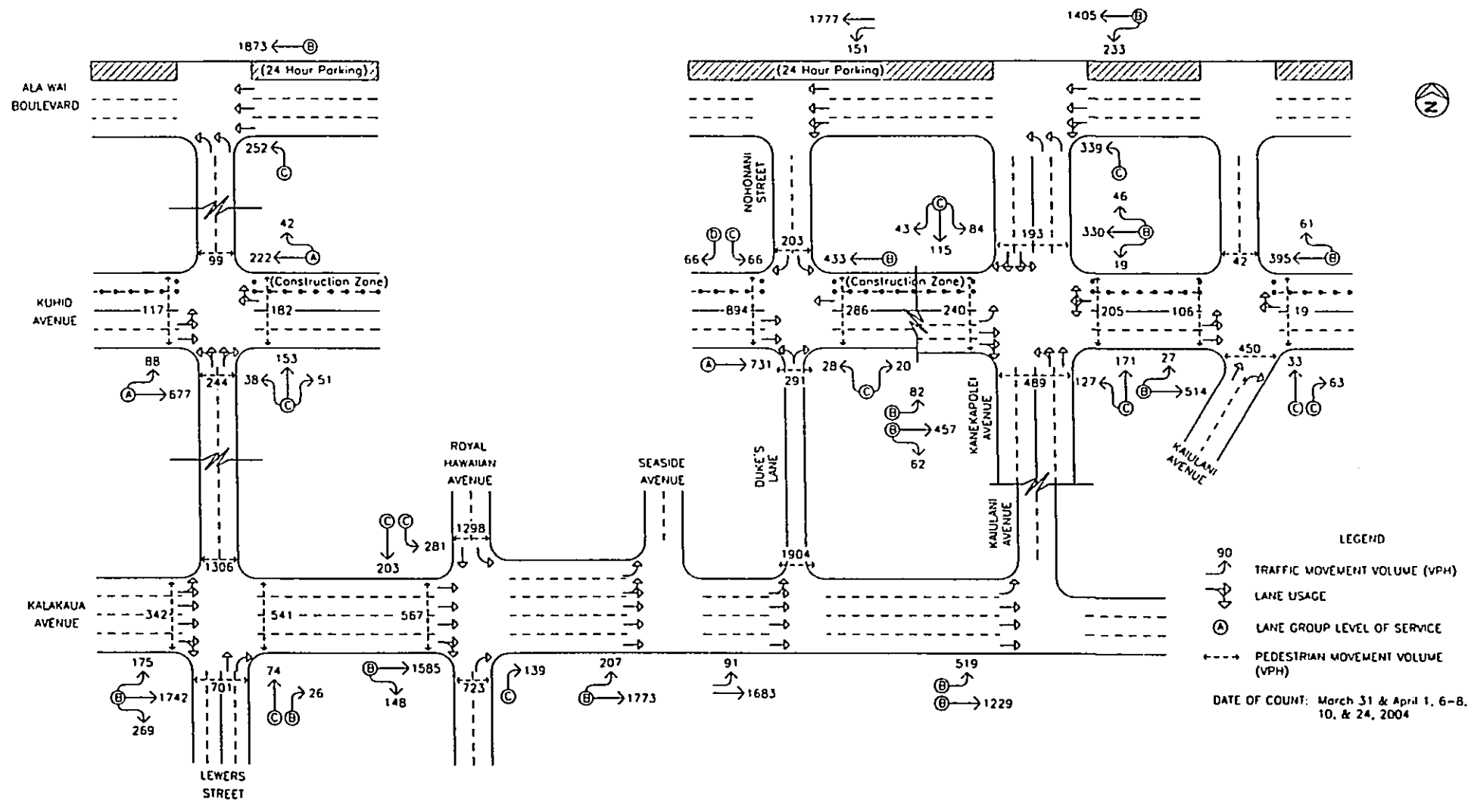


ROYAL HAWAIIAN SHOPPING CENTER

EXISTING WEEKDAY PM PEAK HOUR OF TRAFFIC

FIGURE 3

WILSON OKAMOTO CORPORATION
ENGINEERS · PLANNERS



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ROYAL HAWAIIAN SHOPPING CENTER

EXISTING SATURDAY PM PEAK HOUR OF TRAFFIC

FIGURE 4

both peak periods of traffic. Pedestrian volumes crossing Lewers Street are fairly high with 421 pedestrians crossing on the south side of the intersection and 638 pedestrians crossing on the north side during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, there are 701 pedestrians crossing Lewers Street on the south side of the intersection and 1,306 pedestrians crossing on the north side. These pedestrians conflict with eastbound left-turning and right-turning vehicles along Kalakaua Avenue resulting in occasional queues 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.

The Kalakaua Avenue approach of this intersection carries 2,090 vehicles eastbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour, the traffic volume is approximately the same with 2,186 vehicles traveling eastbound. This approach operates at LOS "B" during both peak hours of traffic. Pedestrian volumes crossing Kalakaua Avenue are lower than those crossing Lewers Street with 345 pedestrians crossing on the east side of the intersection and 271 pedestrians crossing on the west side during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, there are 541 pedestrians crossing Kalakaua Avenue on the east side of the intersection and 342 pedestrians crossing on the west side. The pedestrians crossing Kalakaua Avenue on the east side of the intersection conflict with northbound right-turning vehicles along Lewers Street. However, they do not significantly impact the operations for that traffic movement.

c. Lewers Street and Kuhio Avenue

At the intersection with Kuhio Avenue, Lewers Street carries 278 vehicles northbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, the traffic volume is

approximately the same with 242 vehicles traveling northbound. The Lewers Street approach operates at LOS "C" during both peak periods of traffic. Pedestrian volumes crossing Lewers Street are fairly low with 251 pedestrians crossing on the south side of the intersection and 97 pedestrians crossing on the north side during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, there are 244 pedestrians crossing Lewers Street on the south side of the intersection and 99 pedestrians crossing on the north side. The pedestrians crossing Lewers Street on the north side of the intersection conflict with westbound right-turning vehicles along Kuhio Avenue. However, they do not significantly impact the operations for that traffic movement.

The Kuhio Avenue approaches of this intersection carry 751 vehicles westbound and 341 vehicles eastbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour, the total traffic volume is slightly less with 264 vehicles traveling westbound and 765 vehicles traveling eastbound. The critical traffic movement of the Kuhio Avenue approaches is the eastbound left-turn and through traffic movement which operates at LOS "A" during both peak hours of traffic. Pedestrian volumes crossing Kuhio Avenue are similar to those crossing Lewers Street with 218 pedestrians crossing on the east side of the intersection and 177 pedestrians crossing on the west side during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, there are 182 pedestrians crossing Kuhio Avenue on the east side of the intersection and 117 pedestrians crossing on the west side. These pedestrians conflict with northbound left-turning and right-turning vehicles along Lewers Street. However, they do not significantly impact the operations for those traffic movements

d. Lewers Street and Ala Wai Boulevard

At the intersection with Ala Wai Boulevard, Lewers Street carries 321 vehicles northbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, the traffic volume is slightly less with 252 vehicles traveling northbound. The Lewers Street approach operates at LOS "C" during both peak periods of traffic.

The Ala Wai Boulevard approach of this intersection carries 2,004 vehicles westbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour, the traffic volume slightly less with 1,873 vehicles traveling westbound. The Ala Wai Boulevard approach operates at LOS "B" during both peak hours of traffic.

e. Royal Hawaiian Avenue and Kalakaua Avenue

At the intersection with Kalakaua Avenue, Royal Hawaiian Avenue carries 147 vehicles northbound and 508 vehicles southbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, the traffic volume is approximately the same with 139 vehicles traveling northbound and 484 vehicles traveling southbound. The critical traffic movements of the Royal Hawaiian Avenue approaches is the northbound right-turn and southbound left-turn traffic movements which operate at LOS "C" during both peak hours of traffic. Pedestrian volumes crossing Royal Hawaiian Avenue are fairly high with 456 pedestrians crossing Royal Hawaiian Avenue on the south side of the intersection and 621 pedestrians crossing on the north side during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, there are 723 pedestrians crossing Royal Hawaiian Avenue on the south side of the intersection and 1,298 pedestrians crossing on the north side. These pedestrians conflict with eastbound right-turning vehicles along Kalakaua Avenue resulting in periodic queues 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.

The Kalakaua Avenue approach of this intersection carries 1,726 vehicles eastbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour, the traffic volume is approximately the same with 1,733 vehicles traveling eastbound. This approach operates at LOS "B" during both peak hours of traffic. Pedestrian volumes crossing Kalakaua Avenue are lower than those crossing Lewers Street with 362 pedestrians crossing Kalakaua Avenue on the west side of the intersection during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, there are 567 pedestrians crossing Kalakaua Avenue on the east side of the intersection.

f. Seaside Avenue and Kalakaua Avenue

At the intersection with Seaside Avenue, Kalakaua Avenue carries 1,959 vehicles eastbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour, the traffic volume is approximately the same with 1,980 vehicles traveling eastbound. This approach operates at LOS "B" during both peak hours of traffic.

g. Duke's Lane, Nohonani Street, and Kuhio Avenue

At the intersection with Kuhio Avenue, Duke's Lane carries 71 vehicles northbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, the traffic volume is less with 48 vehicles traveling northbound. The Duke's Lane approach operates at LOS "C" during both peak periods of traffic. Pedestrian volumes crossing Duke's Lane are fairly high during the weekday PM peak period with 564 pedestrians crossing Duke's Lane on the south side of the intersection. During the Saturday PM peak hour of traffic, pedestrian volumes are less with 291 pedestrians crossing Duke's Lane on the south side of the intersection.

The Nohonani Street approach of this intersection carries 150 vehicles southbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, the traffic volume is slightly less with 132 vehicles traveling southbound. The critical movement on the Nohonani Street approach is the southbound right-turn traffic movement which operates at LOS "C" and LOS "D" during the weekday and Saturday PM peak periods, respectively. Pedestrian volumes crossing Nohonani Street are moderate with 190 pedestrians crossing Nohonani Street on the north side of the intersection during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, there are 203 pedestrians crossing Nohonani Street on the north side of the intersection.

The Kuhio Avenue approaches of this intersection carry 411 vehicles westbound and 691 vehicles eastbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour, the traffic volume is slightly higher with 433 vehicles traveling westbound and 731 vehicles traveling eastbound. The critical movement of the Kuhio Avenue approaches is the eastbound through traffic movement which operates at LOS "A" during both peak periods, respectively. Pedestrian volumes crossing Kuhio Avenue are similar to those crossing Nohonani Street during the weekday PM peak hour of traffic with 226 pedestrians crossing Kuhio Avenue on the east side of the intersection and 172 pedestrians crossing on the west side. During the Saturday PM peak hour, pedestrian volumes are much higher with 286 pedestrians crossing Kuhio Avenue on the east side of the intersection and 894 pedestrians crossing Kuhio on the west side. These pedestrians conflict with the northbound and southbound left-turning and right-turning vehicles along Duke's Lane and Nohonani Street. However, they do not significantly impact the operations for those traffic movements.

h. Kaiulani Avenue and Kalakaua Avenue

At the intersection with Kaiulani Avenue, Kalakaua Avenue carries 1,579 vehicles eastbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, the traffic volume is slightly higher with 1,748 vehicles traveling eastbound. . The critical movement of the Kalakaua Avenue approach is the eastbound left-turn traffic movement which operates at LOS "B" during both peak hours of traffic.

i. Kanekapolei Avenue and Kuhio Avenue

At the intersection with Kuhio Avenue, Kanekapolei Avenue carries 395 vehicles northbound and 204 vehicles southbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, the overall traffic volume is approximately the same with 298 vehicles traveling northbound and 242 vehicles traveling southbound. The critical movement of the Kanekapolei Avenue approaches is the northbound left-turn and through traffic movement which operates at LOS "C" during both peak hours of traffic. Pedestrian volumes crossing Kanekapolei Avenue are relatively high during the weekday PM peak period with 443 pedestrians crossing Kanekapolei Avenue on the south side of the intersection and 252 pedestrians crossing on the north side. During the Saturday PM peak period, there were 489 pedestrians crossing Kanekapolei Avenue on the south side of the intersection and 193 pedestrians crossing on the north side. These pedestrians conflict with eastbound and westbound left-turning and right-turning vehicles along Kuhio Avenue. However, they do not significantly impact the operations for those traffic movements.

The Kuhio Avenue approaches of this intersection carry 298 vehicles westbound and 673 vehicles eastbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour, the

overall traffic volume is approximately the same with 395 vehicles traveling westbound and 601 vehicles traveling eastbound. The critical traffic movement for the Kuhio Avenue approaches is the westbound left-turn, through, and right-turn traffic movement which operates at LOS "B" during both peak periods. Pedestrian volumes crossing Kuhio Avenue are similar to those crossing Kanekapolei Avenue on the north side with 221 pedestrians crossing Kuhio Avenue on the east side of the intersection and 311 pedestrians crossing on the west side during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, there are 205 pedestrians crossing Kuhio Avenue on the east side of the intersection and 240 pedestrians crossing on the west side. These pedestrians conflict with northbound left-turning and southbound left-turning and right-turning vehicles along Kanekapolei Avenue. However, they do not significantly impact the operations for those traffic movements.

j. Kanekapolei Avenue and Ala Wai Boulevard

At the intersection with Ala Wai Boulevard, Kanekapolei Avenue carries 366 vehicles northbound during the weekday PM peak hour of traffic. During the Saturday PM peak hour of traffic, the traffic volumes are approximately the same with 339 vehicles traveling northbound. The Kalaimoku Street approach operates at LOS "C" during both peak hours of traffic.

The Ala Wai Boulevard approach of this intersection carries 1,946 vehicles westbound during the PM peak hour of traffic. During the Saturday PM peak hour, the traffic volume is slightly lower with 1,638 vehicles traveling westbound. This approach operates at LOS "B" during both peak hours of traffic.

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 additional 1,000 square feet of gross leasable area. The proposed development will be located in an area with limited parking, high volumes of pedestrian traffic, and a high density of attractive destinations and, as such, many of the patrons of the shopping center may elect to walk to their destination rather than drive. However, for the purpose of this report, all of the trips generated by the proposed development are conservatively assumed to represent vehicular trips during both the weekday PM and Saturday PM peak hours of traffic. Table 1 summarizes the project site trip generation characteristics applied to the weekday PM and Saturday PM peak hours of traffic.

Table 1: Peak Hour Trip Generation

SPECIALTY RETAIL CENTER		
INDEPENDENT VARIABLE: 17,066 square feet net increase		
		PROJECTED TRIP ENDS
WEEKDAY PM PEAK	ENTER	27
	EXIT	35
	TOTAL	62
SAT PM PEAK	ENTER	36
	EXIT	36
	TOTAL	72

It should be noted that during both peak periods, the estimated number of trips generated by the proposed renovations at the shopping center is much less than the threshold of 100 additional vehicles per hour that has been

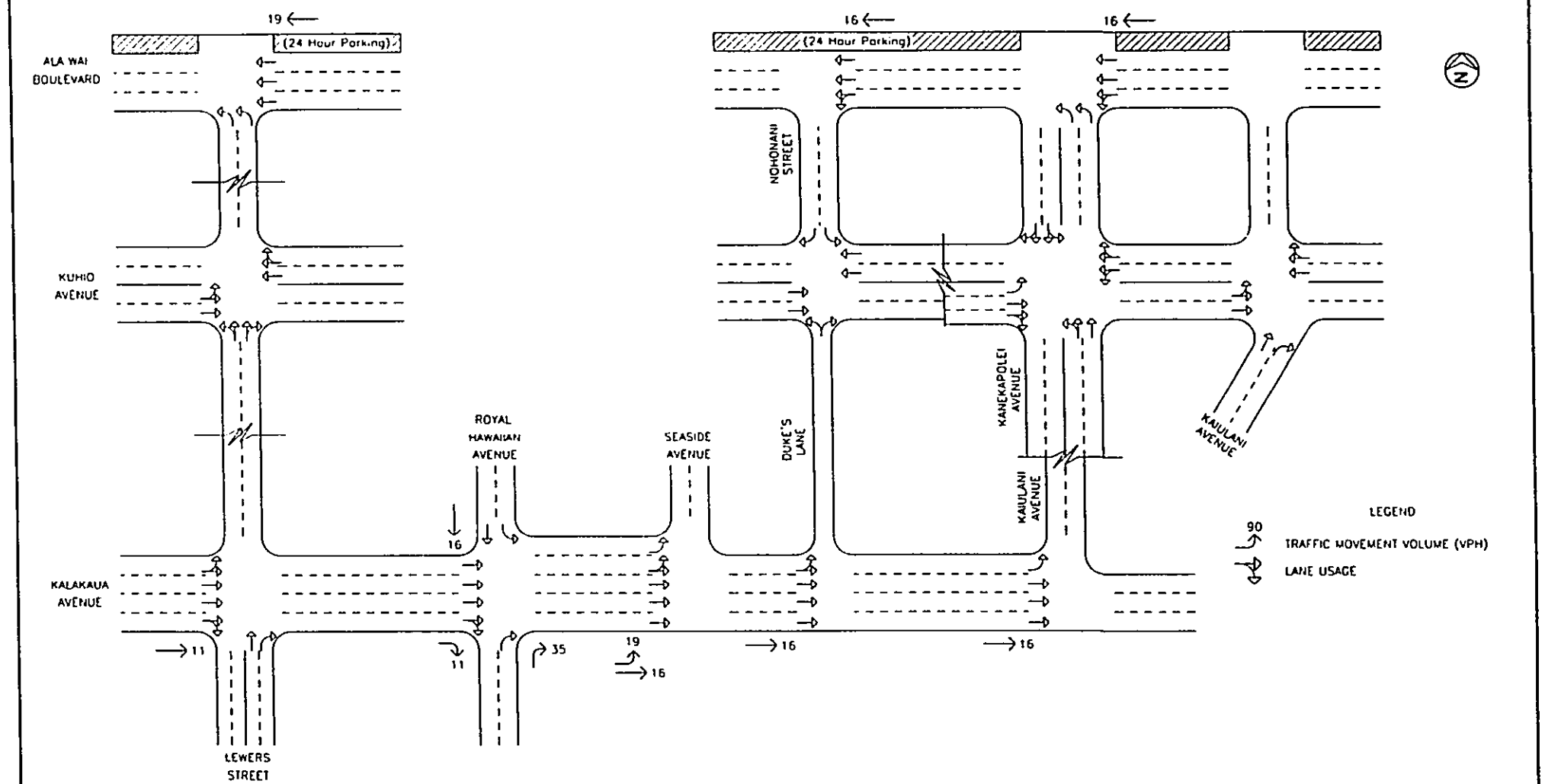
suggested by the Institute of Transportation Engineers (ITE) in their 1991 document entitled "Traffic Access and Impact Studies for Site Development, A Recommended Practice."

2. Trip Distribution

Figures 5 and 6 show the distribution of site-generated vehicular trips at the study intersections during weekday PM and Saturday PM peak hours of traffic. The directional distribution of site-generated entering vehicles at the intersection of Royal Hawaiian Avenue and Kalakaua Avenue was based upon the existing distribution of traffic at that intersection while the distribution of exiting vehicles was based upon the prevailing directional distribution of traffic along the Kalakaua Avenue and Ala Wai Boulevard couplet. As such, 46% of the vehicles were assumed to be traveling eastbound during the weekday PM peak period while 54% were assumed to be traveling westbound. During the Saturday PM peak period, 50% were assumed to be traveling eastbound while 50% were assumed to be traveling westbound. The distribution of traffic at the study intersections was based upon the assumed direction of travel for all site-generated trips.

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 2004 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 although this percentage increase is considered high for an area that generally is built-out. As such, a growth rate factor of 1.29 was applied to the existing traffic demands at the study intersections along Kalakaua Avenue, Kuhio Avenue, and Ala Wai Boulevard to simulate projected Year 2008 traffic demands at those intersections.



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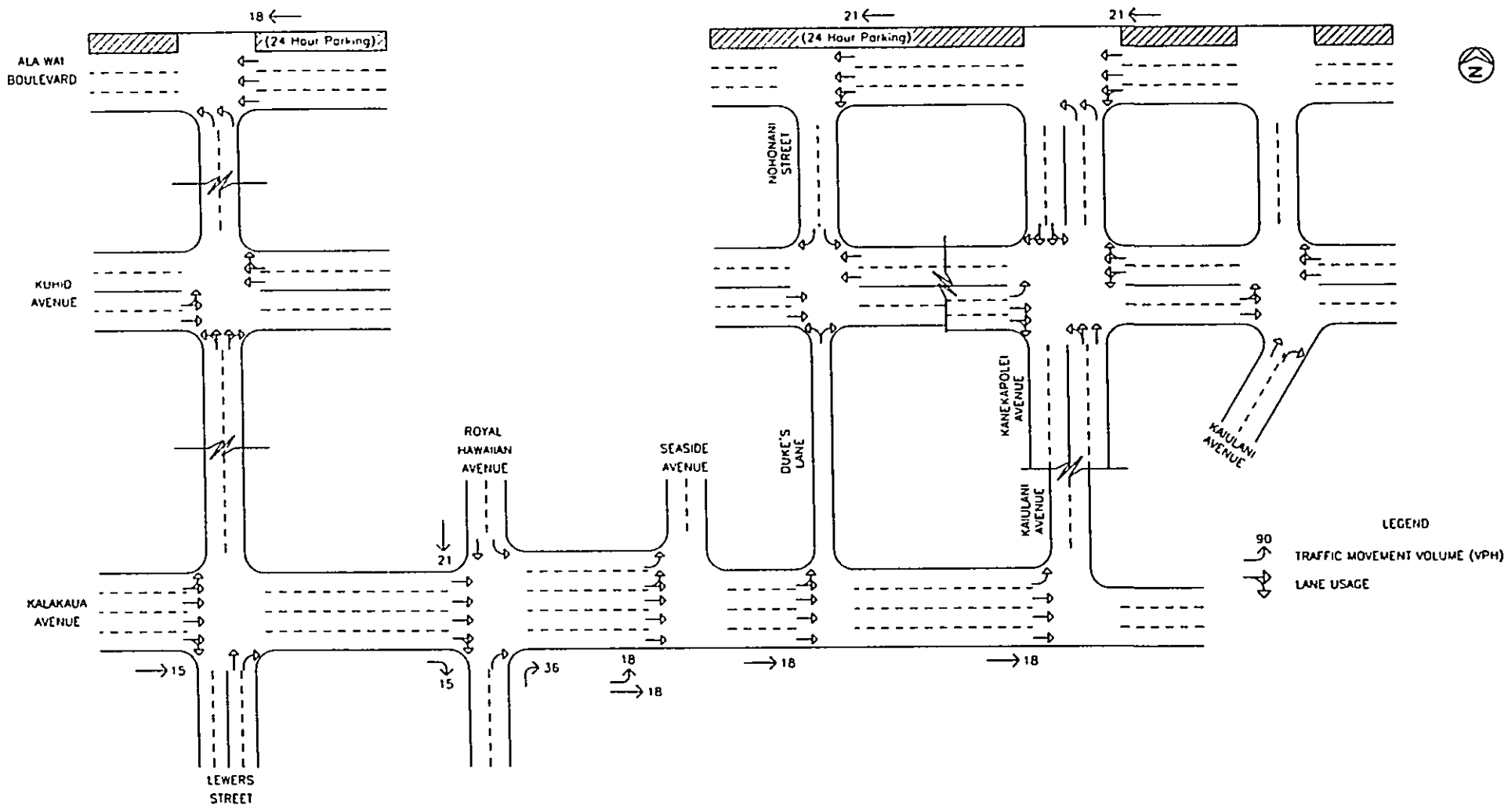
ROYAL HAWAIIAN SHOPPING CENTER

DISTRIBUTION OF SITE-GENERATED VEHICLES - YEAR 2008 WEEKDAY PM PEAK PERIOD OF TRAFFIC

FIGURE 5



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ROYAL HAWAIIAN SHOPPING CENTER

DISTRIBUTION OF SITE-GENERATED VEHICLES - YEAR 2008 SATURDAY PM PEAK PERIOD OF TRAFFIC

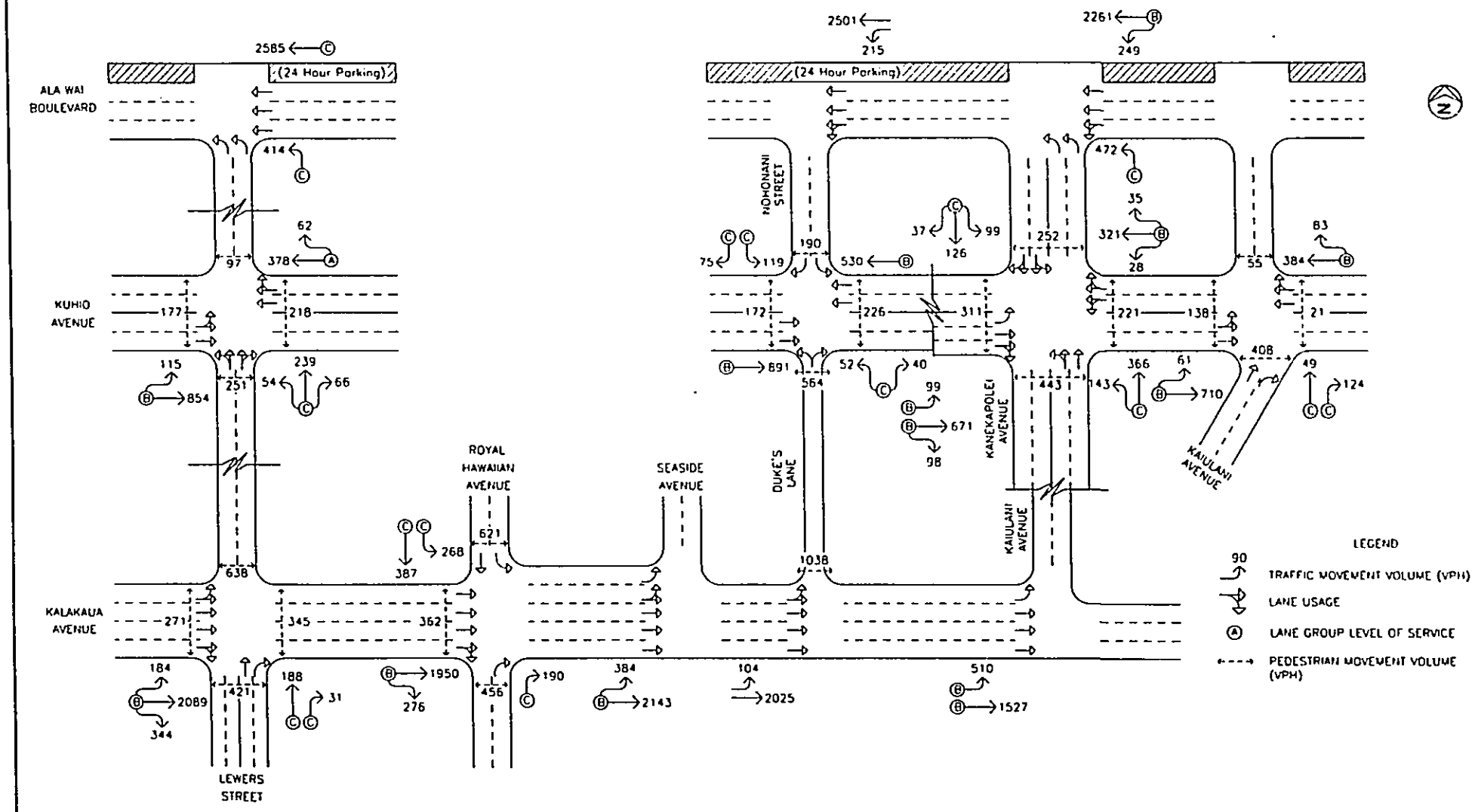
FIGURE 6

C. Other Considerations

Within the project vicinity, there are a number of on-going or planned projects that may influence traffic operations along the roadways surrounding the project site. The 2100 Kalakaua project is an on-going project located along Kalakaua Avenue at the intersection with Kalaimoku Street. This project will include timeshare units, retail space, and other uses. Adjacent to the 2100 Kalakaua project site is the project site for 2121 Kuhio project which will also include timeshare units, as well as, a restaurant. In addition, approximately three blocks west of these project sites is the International Market Place which is currently planning to renovate and expand its existing facility. Although this study for the proposed renovations at the Royal Hawaiian Shopping Center is not a traffic impact study for each of these other individual projects, the anticipated traffic demands as a result of all of these major projects in the vicinity are incorporated in the analysis. A conservative, universal growth factor was applied to all the traffic movements all of the study intersections to simulate ambient growth in traffic in the project vicinity. This conservative ambient growth is anticipated to absorb any variations in the projected traffic demands and patterns as a result of the other projects in the vicinity.

D. Total Traffic Volumes Without Project

Figures 7 and 8 show the projected weekday PM peak hour and Saturday PM peak hour traffic volumes and operating conditions in the project vicinity without the implementation of the proposed renovations to the existing Royal Hawaiian Shopping Center. For the purpose of this study, the traffic signal timing at the intersection of Kuhio Avenue with Nohonani Street and Duke's Lane was modified to accommodate the increase in traffic along those roadways. The existing levels of service are included in Table 2 for comparison purposes. LOS calculations are included in Appendix D.



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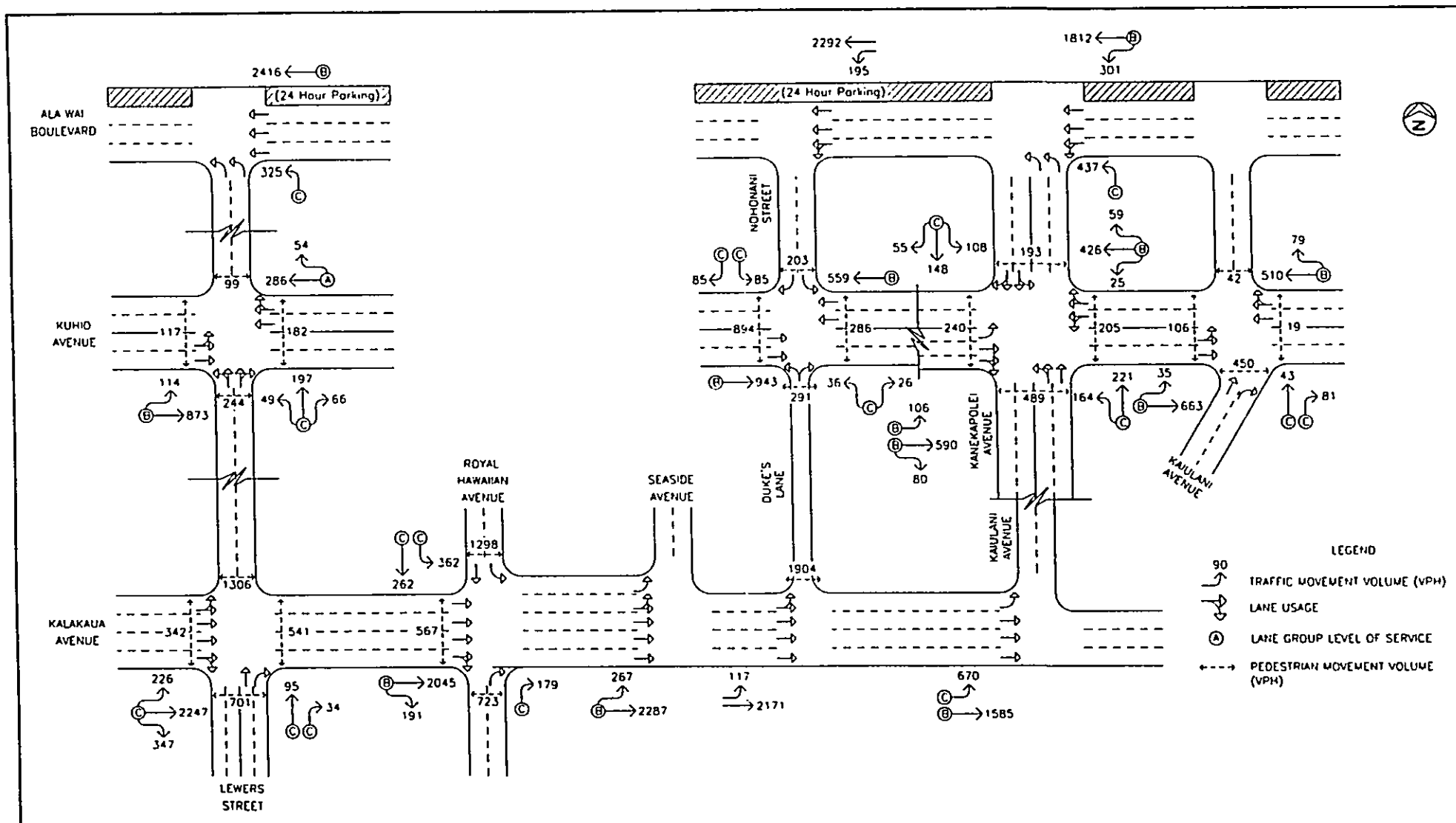
ROYAL HAWAIIAN SHOPPING CENTER

YEAR 2008 WEEKDAY PM PEAK HOUR OF TRAFFIC

FIGURE 7



ROYAL HAWAIIAN SHOPPING CENTER

YEAR 2008 SATURDAY PM PEAK HOUR OF TRAFFIC

FIGURE 8

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Table 3: Existing and Projected (Without Project) LOS Traffic Operating Conditions

Intersection	Critical Movement	Weekday PM		Sat PM	
		Exist	Year 2008 w/out Proj	Exist	Year 2008 w/out Proj
Lewers St/Kalakaua Ave	Eastbound (LT-TH-RT)	B	B	B	C
	Northbound (TH)	C	C	C	C
Lewers St/Kuhio Ave	Eastbound (LT-TH)	A	B	A	B
	Northbound (LT-TH-RT)	C	C	C	C
Lewers St/Ala Wai Blvd	Westbound (TH)	B	C	B	B
	Northbound (LT)	C	C	C	C
Royal Hawaiian Ave/ Kalakaua Ave	Eastbound (LT-TH-RT)	B	B	B	B
	Northbound (RT)	C	C	C	C
	Southbound (LT)	C	C	C	C
Seaside Ave/ Kalakaua Ave	Eastbound (LT-TH)	B	B	B	B
Duke's Ln/Nohonani St/Kuhio Ave	Eastbound (TH)	A	B	B	B
	Northbound (LT-RT)	C	C	C	C
	Southbound (RT)	C	C	D	C
Kaiulani Ave/ Kalakaua Ave	Eastbound (LT)	B	B	B	C
Kanekapolei Ave/ Kuhio Ave	Westbound (LT-TH-RT)	B	B	B	B
	Northbound (LT-TH)	C	C	C	C
Kanekapolei Ave/ Ala Wai Blvd	Westbound (LT-TH)	B	B	B	B
	Northbound (LT)	C	C	C	C

Traffic operations under Year 2008 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 weekday PM and Saturday PM peak periods. Along Kuhio Avenue, the critical movements on the eastbound approaches of the intersections with Nohonani Street and Duke's Lane are anticipated to deteriorate from LOS "A" to LOS "B" during the weekday PM and

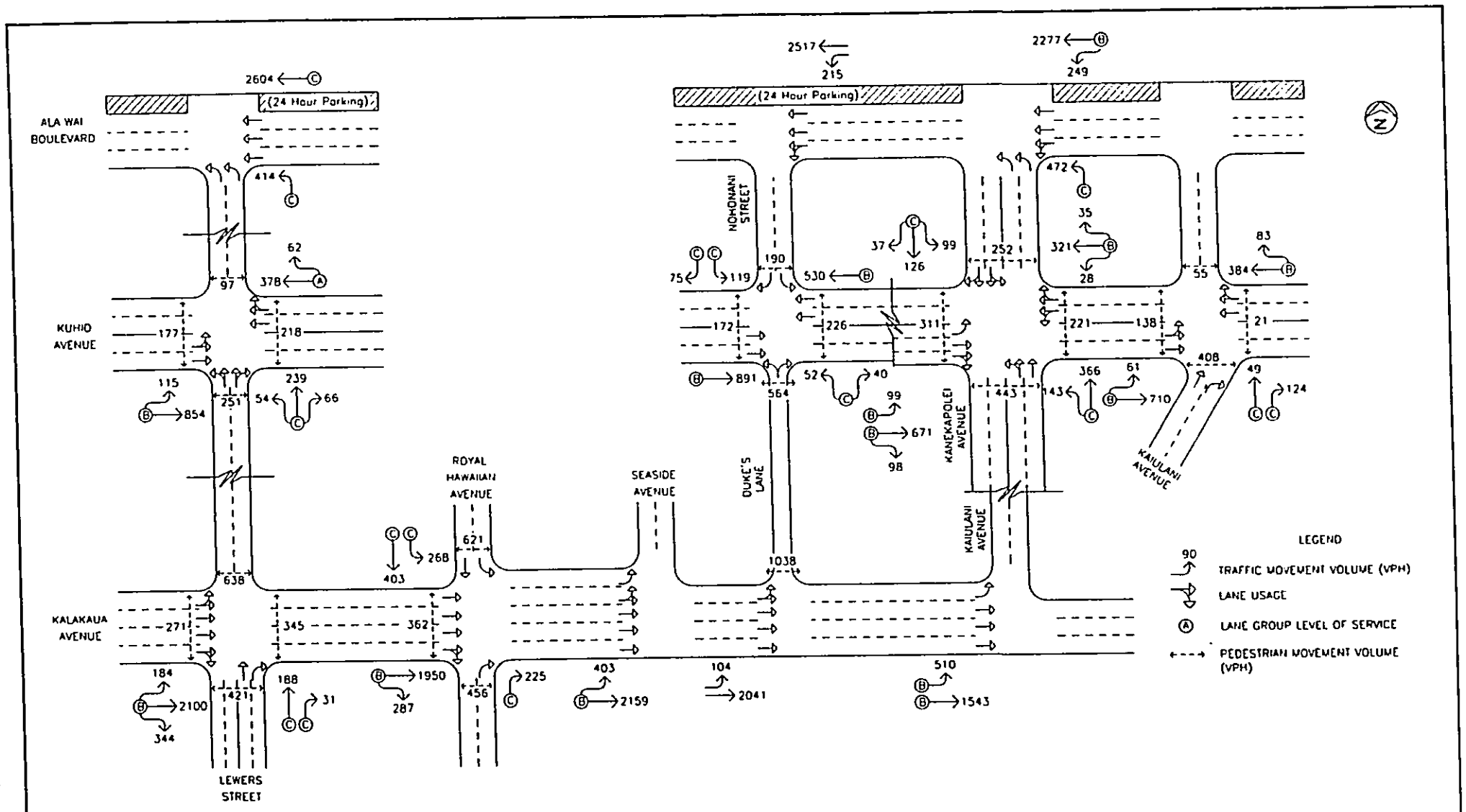
Saturday PM peak periods. Similarly, the critical movements on the eastbound approaches of the intersections of Kalakaua Avenue with Lewers Street and Kaiulani Avenue are expected to deteriorate from LOS "B" to LOS "C" during the Saturday PM peak period. In addition, during the weekday PM peak period, the westbound approach of Ala Wai Boulevard at the intersection with Lewers Street is anticipated to deteriorate from LOS "B" to LOS "C." The remaining critical movements at these intersections, as well as, the remaining study intersections are expected to operate at levels of service similar to existing traffic conditions during both peak hours of traffic with the exception of the southbound right-turn movement on Nohonani Street at the intersection with Kuhio Avenue and Duke's Lane which is expected to improve from LOS "D" to LOS "C" due to traffic signal timing adjustments.

E. Total Traffic Volumes With Project

Figures 9 and 10 show the cumulative weekday PM and Saturday PM peak hour traffic conditions resulting from the projected external traffic and the implementation of the proposed renovations at the Royal Hawaiian Shopping Center. The cumulative volumes consist of site-generated traffic superimposed over Year 2008 projected traffic demands. The traffic impacts resulting from the proposed project are addressed in the following section.

V. TRAFFIC IMPACT ANALYSIS

The Year 2008 cumulative weekday PM and Saturday PM peak hour traffic conditions with the implementation of the proposed renovations at the Royal Hawaiian Shopping Center are summarized in Table 3. The existing and projected Year 2008 operating conditions without the proposed project are provided for comparison purposes. LOS calculations are included in Appendix E.



ROYAL HAWAIIAN SHOPPING CENTER

YEAR 2008 WEEKDAY PM PEAK HOUR OF TRAFFIC

FIGURE 9

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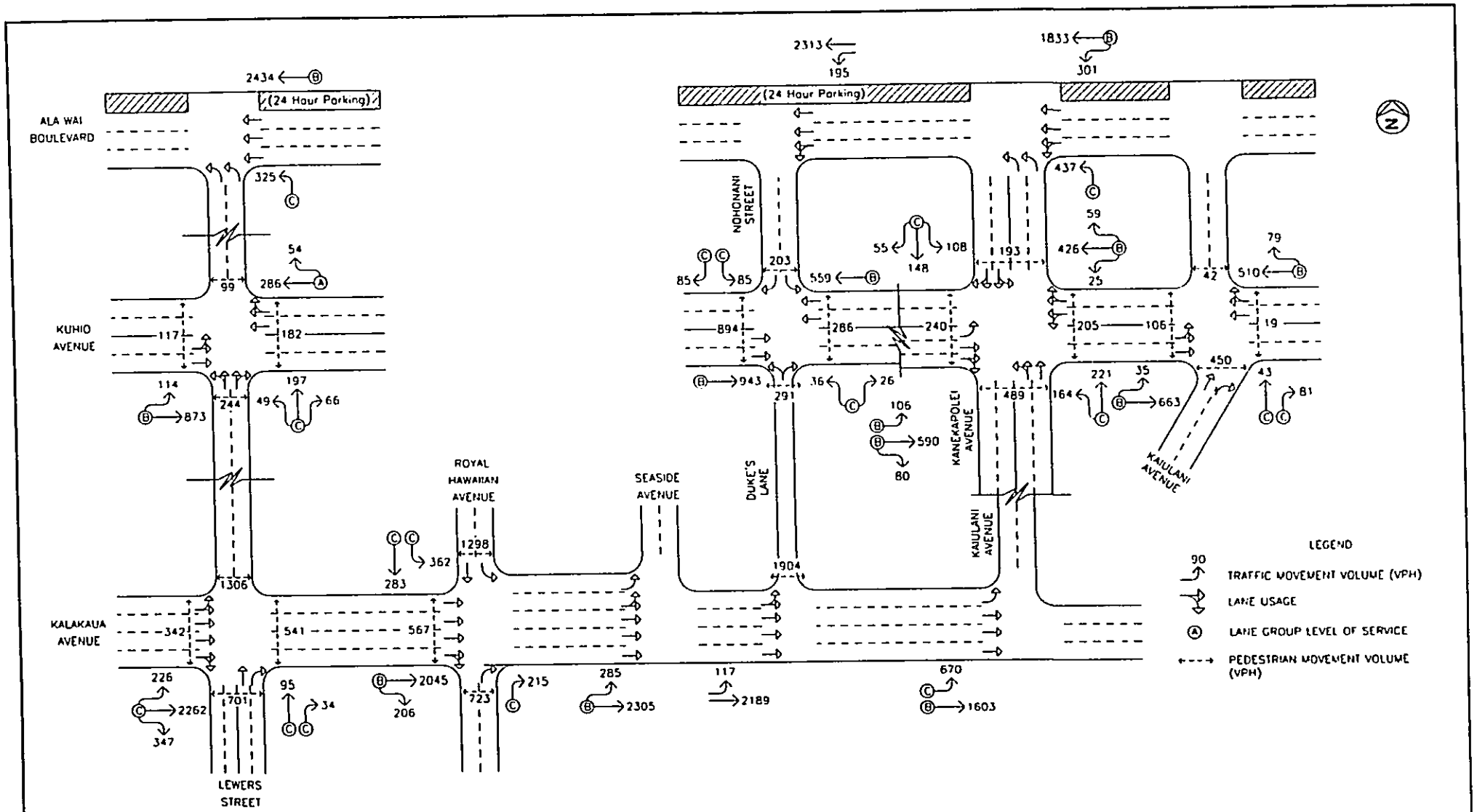

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ROYAL HAWAIIAN SHOPPING CENTER

YEAR 2008 SATURDAY PM PEAK HOUR OF TRAFFIC

FIGURE 10

Table 3: Existing and Projected (Without and With Project) LOS Traffic Operating Conditions

Intersection	Critical Movement	Weekday PM			Sat PM		
		Exist	Year 2008		Exist	Year 2008	
			w/out Proj	w/ Proj.		w/out Proj	w/ Proj.
Lewers St/Kalakaua Ave	Eastbound (LT-TH-RT)	B	B	B	B	C	C
	Northbound (TH)	C	C	C	C	C	C
Lewers St/Kuhio Ave	Eastbound (LT-TH)	A	B	B	A	B	B
	Northbound (LT-TH-RT)	C	C	C	C	C	C
Lewers St/Ala Wai Blvd	Westbound (TH)	B	C	C	B	B	B
	Northbound (LT)	C	C	C	C	C	C
Royal Hawaiian Ave/ Kalakaua Ave	Eastbound (LT-TH-RT)	B	B	B	B	B	B
	Northbound (RT)	C	C	C	C	C	C
	Southbound (LT)	C	C	C	C	C	C
Seaside Ave/ Kalakaua Ave	Eastbound (LT-TH)	B	B	B	B	B	B
Duke's Ln/Nohonani St/Kuhio Ave	Eastbound (TH)	A	B	B	B	B	B
	Northbound (LT-RT)	C	C	C	C	C	C
	Southbound (RT)	C	C	C	D	C	C
Kaiulani Ave/ Kalakaua Ave	Eastbound (LT)	B	B	B	B	C	C
Kanekapolei Ave/ Kuhio Ave	Westbound (LT-TH-RT)	B	B	B	B	B	B
	Northbound (LT-TH)	C	C	C	C	C	C
Kanekapolei Ave/ Ala Wai Blvd	Westbound (LT-TH)	B	B	B	B	B	B
	Northbound (LT)	C	C	C	C	C	C

Traffic operations under Year 2008 with project conditions are expected to operate at levels of service similar to Year 2008 without project conditions in the project vicinity during the weekday PM and Saturday PM peak periods. The critical traffic movements at all of the study intersections would continue to operate at LOS "B" or LOS "C" during both peak periods of traffic despite the addition of site-generated vehicles to the surrounding roadway network.

VI. RECOMMENDATIONS

Based on field observations and the analysis of the traffic data, the following are the recommendations of this study associated with the proposed renovations at the Royal Hawaiian Shopping Center:

1. Modify the traffic signal timing at the intersection of Kuhio Avenue with Nohonani Street and Duke's Lane to accommodate Year 2008 projected traffic operations without the project by reallocating the maximum green phases for the intersection each traffic movement. Prior to any traffic signal timing adjustments, this recommendation should be verified and coordinated with the City after the completion of the project to ensure that such modification is necessary.

2. Ensure that modifications to existing pedestrian facilities including entranceways and walkways are in accordance with Americans with Disabilities (ADA) requirements and provide adequate storage within the project to avoid pedestrian queuing on the public sidewalks and other areas. This recommendation may be addressed during the design phase of the project.

3. Provide sufficient loading and unloading areas for merchants and deliveries. These areas should be at convenient locations so loading activities associated with the project do not occur on City streets. This recommendation may be addressed during the design phase of the project.

VII. CONCLUSION

The proposed renovations to the existing Royal Hawaiian Shopping Center are intended to beautify and improve the existing facilities rather than significantly increase the shopping center's leasable area. As such, the proposed renovations are not expected to significantly impact traffic operations in the vicinity. The total traffic volumes entering the study intersections along Kalakaua Avenue, Kuhio Avenue, and Ala Wai Boulevard are expected to increase by approximately 2% or less during both peak hours of traffic with the development of the proposed project. These increases in the total traffic volumes are in the range of daily volume fluctuations along those roadways and represent a minimal increase in the overall traffic volumes. In addition, although the study assumes that all site-generated trips are vehicular trips, many of the trips generated by the proposed project may be considered as walk-in or pass-by trips. As such, the trips associated with the proposed renovations could be greatly reduced. Even with this conservative analysis approach, all of the of the study intersections are anticipated to operate at acceptable levels of service.

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

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

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

Groups Printed- 1 - Unshifted

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Start Time	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	192	192	0	0	0	85	85	0	28	7	142	177	36	380	77	83	576	1030
03:45 PM	0	0	0	165	165	0	0	0	93	93	0	26	7	151	184	28	407	77	53	565	1007
Total	0	0	0	357	357	0	0	0	178	178	0	54	14	293	361	64	787	154	136	1141	2037
04:00 PM	0	0	0	151	151	0	0	0	108	108	0	45	4	85	134	34	402	72	77	585	978
04:15 PM	0	0	0	195	195	0	0	0	58	58	0	43	5	102	150	46	390	56	81	575	978
04:30 PM	0	0	0	127	127	0	0	0	86	86	0	32	6	83	123	33	420	62	60	575	911
04:45 PM	0	0	0	208	208	0	0	0	103	103	0	29	3	127	159	47	454	54	78	633	1103
Total	0	0	0	681	681	0	0	0	355	355	0	149	20	397	566	162	1666	244	296	2368	3970
05:00 PM	0	0	0	190	190	0	0	0	85	85	0	25	6	137	168	36	442	48	119	645	1088
05:15 PM	0	0	0	179	179	0	0	0	140	140	0	30	5	148	183	43	410	46	100	599	1101
05:30 PM	0	0	0	214	214	0	0	0	94	94	0	27	5	168	200	33	448	67	102	650	1158
05:45 PM	0	0	0	173	173	0	0	0	95	95	0	20	2	133	155	44	415	74	65	598	1021
Total	0	0	0	756	756	0	0	0	414	414	0	102	18	586	706	156	1715	235	386	2492	4368
06:00 PM	0	0	0	188	188	0	0	0	110	110	0	33	8	168	209	42	407	66	92	607	1114
06:15 PM	0	0	0	177	177	0	0	0	124	124	0	28	6	154	188	40	374	58	84	556	1045
Grand Total	0	0	0	2159	2159	0	0	0	1181	1181	0	366	66	1598	2030	464	4949	757	994	7164	12534
Apprch %	0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0		0.0	18.0	3.3	78.7		6.5	69.1	10.6	13.9		
Total %	0.0	0.0	0.0	17.2	17.2	0.0	0.0	0.0	9.4	9.4	0.0	2.9	0.5	12.7	16.2	3.7	39.5	6.0	7.9	57.2	

	Lewers St Southbound				Kalakaua Ave Westbound				Lewers St Northbound				Kalakaua Ave Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App Total	Int. Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1																	
Intersection	04:45 PM																
Volume	0	0	0	0	0	0	0	0	0	111	19	130	159	1754	215	2128	2258
Percent	0.0	0.0	0.0		0.0	0.0	0.0		0.0	85.4	14.6		7.5	82.4	10.1		
04:45 Volume	0	0	0	0	0	0	0	0	0	29	3	32	47	454	54	555	587
Peak Factor																	0.962
High Int.	3:15:00 PM				3:15:00 PM				05:15 PM				04:45 PM				
Volume	0	0	0	0	0	0	0	0	0	30	5	35	47	454	54	555	
Peak Factor												0.929				0.959	

APPENDIX A

EXISTING TRAFFIC COUNT DATA

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

Counter: T-1839/T-1841
Counted By: CL
Weather: Clear

File Name : kallews
Site Code : 00000001
Start Date : 05/01/2004
Page No : 1

Groups Printed: Unshifted

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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	270	270	0	0	0	159	159	0	31	3	172	206	34	428	60	101	623	1258
03:45 PM	0	0	0	315	315	0	0	0	120	120	0	23	6	169	198	40	435	76	111	662	1295
Total	0	0	0	585	585	0	0	0	279	279	0	54	9	341	404	74	863	136	212	1285	2553
04:00 PM	0	0	0	306	306	0	0	0	166	166	0	49	3	184	236	30	408	59	125	622	1330
04:15 PM	0	0	0	284	284	0	0	0	105	105	0	19	7	153	179	47	429	58	84	618	1186
04:30 PM	0	0	0	337	337	0	0	0	167	167	0	21	3	173	197	41	407	72	73	593	1294
04:45 PM	0	0	0	318	318	0	0	0	129	129	0	12	10	173	195	40	455	62	78	635	1277
Total	0	0	0	1245	1245	0	0	0	567	567	0	101	23	683	807	158	1699	251	360	2468	5087
05:00 PM	0	0	0	367	367	0	0	0	140	140	0	22	6	202	230	47	451	77	107	682	1419
05:15 PM	0	0	0	301	301	0	0	0	174	174	0	21	4	240	265	42	424	73	82	621	1361
05:30 PM	0	0	0	285	285	0	0	0	162	162	0	14	8	281	303	51	412	60	70	593	1343
05:45 PM	0	0	0	335	335	0	0	0	197	197	0	22	3	240	265	53	449	77	138	717	1514
Total	0	0	0	1288	1288	0	0	0	673	673	0	79	21	963	1063	193	1736	287	397	2813	5037
06:00 PM	0	0	0	355	355	0	0	0	178	178	0	22	8	260	290	48	416	105	146	715	1538
06:15 PM	0	0	0	326	326	0	0	0	203	203	0	14	10	269	293	33	416	60	105	614	1436
Grand Total	0	0	0	3799	3799	0	0	0	1900	1900	0	270	71	2516	2857	506	5130	839	1220	7695	16251
Apprch %	0.0	0.0	0.0	100.0		0.0	0.0	0.0	100.0		0.0	9.5	2.5	88.1		6.6	66.7	10.9	15.9		
Total %	0.0	0.0	0.0	23.4	23.4	0.0	0.0	0.0	11.7	11.7	0.0	1.7	0.4	15.5	17.6	3.1	31.6	5.2	7.5	47.4	

	Lewers St Southbound				Kalakaua Ave Westbound				Lewers St Northbound				Kalakaua Ave Eastbound				
Start Time	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	0	0	0	0	0	0	0	0	0	79	21	100	193	1736	287	2216	2316
Percent	0.0	0.0	0.0		0.0	0.0	0.0		0.0	79.0	21.0		8.7	78.3	13.0		
05:45 Volume	0	0	0	0	0	0	0	0	0	22	3	25	53	449	77	579	604
Peak Factor																	0.959
High Int	3:15:00 PM				3:15:00 PM				05:00 PM				05:45 PM				
Volume	0	0	0	0	0	0	0	0	0	22	6	28	53	449	77	579	
Peak Factor												0.893				0.957	

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

	Lewers Street Southbound					Kuhio Avenue Westbound					Lewers Street Northbound					Kuhio Avenue Eastbound					
Start Time	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	49	133	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	160	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	78	9	46	133	7	46	10	38	101	21	176	0	54	251	524
Total	0	0	0	103	103	0	299	44	215	558	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	48	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	

	Lewers Street Southbound				Kuhio Avenue Westbound				Lewers Street Northbound				Kuhio Avenue Eastbound				
Start Time	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1																	
Intersection	04:00 PM																
Volume	0	0	0	0	0	299	44	341	43	193	52	288	87	670	0	757	1386
Percent	0.0	0.0	0.0		0.0	87.7	12.9		14.9	67.0	18.1		11.5	88.5	0.0		
04:15 Volume	0	0	0	0	0	82	11	93	12	50	18	80	22	180	0	202	375
Peak Factor																	0.924
High Int	3:15:00 PM				4:15:00 PM				04:00 PM				04:15 PM				
Volume	0	0	0	0	0	82	11	93	12	61	13	86	22	180	0	202	
Peak Factor								0.917				0.837				0.937	

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

Counter: D1-0526/D1-0527
Counted By: JL/IQ
Weather: Clear

File Name : kuhlews
Site Code : 00000002
Start Date : 05/01/2004
Page No : 1

Groups Printed- 1 - Unshifted

	Lewers St Southbound					Kuhio Ave Westbound					Lewers St Northbound					Kuhio Ave Eastbound					
Start Time	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	13	13	0	38	15	50	103	7	41	9	47	104	16	169	0	39	224	444
03:45 PM	0	0	0	7	7	0	65	11	38	114	5	36	13	35	89	14	154	0	21	189	399
Total	0	0	0	20	20	0	103	26	88	217	12	77	22	82	193	30	323	0	60	413	843
04:00 PM	0	0	0	31	31	0	47	11	89	147	8	59	14	65	146	26	160	0	44	230	554
04:15 PM	0	0	0	23	23	0	63	7	39	109	6	42	13	59	120	22	173	0	26	221	473
04:30 PM	0	0	0	29	29	0	49	17	43	109	13	41	14	47	115	19	168	0	31	218	471
04:45 PM	0	0	0	23	23	0	62	8	56	126	8	27	10	76	121	28	167	0	32	227	497
Total	0	0	0	106	106	0	221	43	227	491	35	169	51	247	502	95	668	0	133	896	1995
05:00 PM	0	0	0	24	24	0	45	10	44	102	11	43	14	62	130	19	169	0	28	216	472
05:15 PM	0	0	0	35	35	0	57	11	47	115	8	44	8	45	105	22	171	0	36	229	484
05:30 PM	0	0	0	20	20	0	53	7	40	100	14	33	14	83	144	14	160	0	21	195	459
05:45 PM	0	0	0	27	27	0	53	7	25	85	6	30	19	77	132	18	188	0	46	252	496
Total	0	0	0	106	106	0	211	35	156	402	39	150	55	267	511	73	688	0	131	892	1911
06:00 PM	0	0	0	37	37	0	56	5	36	97	14	41	11	70	136	24	167	0	31	222	492
06:15 PM	0	0	0	31	31	0	51	10	31	92	4	11	8	58	81	12	108	0	18	138	342
Grand Total	0	0	0	300	300	0	642	119	538	1299	104	448	147	724	1423	234	1954	0	373	2561	5583
Apprch %	0.0	0.0	0.0	100.0		0.0	49.4	9.2	41.4		7.3	31.5	10.3	50.9		9.1	76.3	0.0	14.6		
Total %	0.0	0.0	0.0	5.4	5.4	0.0	11.5	2.1	9.6	23.3	1.9	8.0	2.6	13.0	25.5	4.2	35.0	0.0	6.7	45.9	

	Lewers St Southbound				Kuhio Ave Westbound				Lewers St Northbound				Kuhio Ave Eastbound				
Start Time	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1																	
Intersection	04:00 PM																
Volume	0	0	0	0	0	221	43	264	35	169	51	255	95	668	0	763	1282
Percent	0.0	0.0	0.0		0.0	83.7	16.3		13.7	66.3	20.0		12.5	87.5	0.0		
04:15 Volume	0	0	0	0	0	63	7	70	6	42	13	61	22	173	0	195	326
Peak Factor																	0.983
High Int	3:15:00 PM				04:15 PM				04:00 PM				04:15 PM				
Volume	0	0	0	0	0	63	7	70	8	59	14	81	22	173	0	195	
Peak Factor								0.943				0.787				0.978	

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

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

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

Groups Printed- Unshifted

		Ala Wai Boulevard Westbound				Lewers Street Northbound					
Start Time	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	App Total	Int Total
Factor		1.0	1.0	1.0		1.0	1.0	1.0			
03:30 PM	0	0	473	0	473	71	0	0	71	0	544
03:45 PM	0	0	460	0	460	72	0	0	72	0	532
Total	0	0	933	0	933	143	0	0	143	0	1076
04:00 PM	0	0	499	0	499	97	0	0	97	0	596
04:15 PM	0	0	502	0	502	82	0	0	82	0	584
04:30 PM	0	0	543	0	543	70	0	0	70	0	613
04:45 PM	0	0	514	0	514	63	0	0	63	0	577
Total	0	0	2058	0	2058	312	0	0	312	0	2370
05:00 PM	0	0	522	0	522	64	0	0	64	0	586
05:15 PM	0	0	499	0	499	74	0	0	74	0	573
05:30 PM	0	0	470	0	470	67	0	0	67	0	537
05:45 PM	0	0	448	0	448	67	0	0	67	0	515
Total	0	0	1939	0	1939	272	0	0	272	0	2211
06:00 PM	0	0	436	0	436	85	0	0	85	0	521
06:15 PM	0	0	452	0	452	68	0	0	68	0	520
Grand Total	0	0	5848	0	5848	880	0	0	880	0	6728
Apprch %		0.0	100.0	0.0		100.0	0.0	0.0			
Total %	0.0	0.0	86.9	0.0	86.9	13.1	0.0	0.0	13.1	0.0	

		Ala Wai Boulevard Westbound				Lewers Street Northbound					
Start Time	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	App Total	Int Total
Peak Hour From 03:30 PM to 05:15 PM - Peak 1 of 1											
Intersection	04:00 PM										
Volume	0	0	2058	0	2058	312	0	0	312	0	2370
Percent		0.0	100.0	0.0		100.0	0.0	0.0			
04:30 Volume	0	0	543	0	543	70	0	0	70	0	613
Peak Factor											0.967
High Int	3:15:00 PM	04:30 PM				04:00 PM				3:15:00 PM	
Volume	0	0	543	0	543	97	0	0	97		
Peak Factor					0.948				0.804		

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

Counter: D1-0525
Counted By: MK
Weather: Clear

File Name : alalews
Site Code : 00000003
Start Date : 05/01/2004
Page No : 1

Groups Printed- Unshifted

	Ala Wai Blvd Westbound				Lewers St Northbound					
Start Time	Left	Thru	Right	App Total	Left	Thru	Right	App Total	App Total	Int Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0			
03:30 PM	0	444	0	444	68	0	0	68	0	512
03:45 PM	0	427	0	427	63	0	0	63	0	490
Total	0	871	0	871	131	0	0	131	0	1002
04:00 PM	0	472	0	472	76	0	0	76	0	548
04:15 PM	0	502	0	502	67	0	0	67	0	569
04:30 PM	0	488	0	488	70	0	0	70	0	558
04:45 PM	0	447	0	447	43	0	0	43	0	490
Total	0	1909	0	1909	256	0	0	256	0	2165
05:00 PM	0	436	0	436	72	0	0	72	0	508
05:15 PM	0	444	0	444	57	0	0	57	0	501
05:30 PM	0	429	0	429	47	0	0	47	0	476
05:45 PM	0	452	0	452	45	0	0	45	0	497
Total	0	1761	0	1761	221	0	0	221	0	1982
06:00 PM	0	446	0	446	75	0	0	75	0	521
06:15 PM	0	469	0	469	58	0	0	58	0	527
Grand Total	0	5456	0	5456	741	0	0	741	0	6197
Apprch %		100.0	0.0		100.0	0.0	0.0			
Total %	0.0	88.0	0.0	88.0	12.0	0.0	0.0	12.0	0.0	

	Ala Wai Blvd Westbound				Lewers St Northbound					
Start Time	Left	Thru	Right	App Total	Left	Thru	Right	App Total	App Total	Int Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1										
Intersection 03:45 PM										
Volume	0	1885	0	1889	276	0	0	276	0	2165
Percent		100.0	0.0		100.0	0.0	0.0			
04:15 Volume	0	502	0	502	67	0	0	67	0	569
Peak Factor										0.951
High Int	3:15:00 PM	04:15 PM			04:00 PM				3:15:00 PM	
Volume	0	502	0	502	76	0	0	76		
Peak Factor				0.941				0.908		

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Honolulu, HI 96826

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

File Name : kalroy
Site Code : 00000000
Start Date : 03/31/2004
Page No : 1

Groups Printed- Group 1

	Royal Hawn Ave Southbound				Royal Hawn Ave Northbound				Kalakaua Ave Eastbound				
Start Time	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Factor	1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
03:30 PM	47	68	0	115	0	0	0	33	33	0	342	50	392	540
03:45 PM	47	68	0	115	0	0	0	35	35	0	375	54	429	579
Total	94	136	0	230	0	0	0	68	68	0	717	104	821	1119
04:00 PM	52	75	0	127	0	0	0	36	36	0	381	53	434	597
04:15 PM	57	82	0	139	0	0	0	40	40	0	369	51	420	599
04:30 PM	52	75	0	127	0	0	0	36	36	0	387	56	443	606
04:45 PM	53	76	0	129	0	0	0	37	37	0	398	59	457	623
Total	214	308	0	522	0	0	0	149	149	0	1535	219	1754	2425
05:00 PM	61	88	0	149	0	0	0	42	42	0	433	58	491	682
05:15 PM	56	81	0	137	0	0	0	39	39	0	389	54	443	619
05:30 PM	55	79	0	134	0	0	0	38	38	0	403	59	462	634
05:45 PM	54	78	0	132	0	0	0	38	38	0	388	54	442	612
Total	226	326	0	552	0	0	0	157	157	0	1613	225	1838	2547
06:00 PM	54	78	0	132	0	0	0	37	37	0	392	54	446	615
06:15 PM	46	66	0	112	0	0	0	32	32	0	341	49	390	534
Grand Total	634	914	0	1548	0	0	0	443	443	0	4598	651	5249	7240
Apprch %	41.0	59.0	0.0		0.0	0.0	0.0	100.0		0.0	87.6	12.4		
Total %	8.8	12.6	0.0	21.4	0.0	0.0	0.0	6.1	6.1	0.0	63.5	9.0	72.5	

	Royal Hawn Ave Southbound				Royal Hawn Ave Northbound				Kalakaua Ave Eastbound				
Start Time	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1													
Intersection 04:45 PM													
Volume	225	324	0	549	0	0	0	156	156	0	1623	230	1853	2558
Percent	41.0	59.0	0.0		0.0	0.0	0.0	100.0		0.0	87.6	12.4		
05:00 Volume	61	88	0	149	0	0	0	42	42	0	433	58	491	682
Peak Factor													0.938	
High Int	05:00 PM				3:15:00 PM	05:00 PM				05:00 PM				
Volume	61	88	0	149	0	0	0	42	42	0	433	58	491	
Peak Factor				0.921					0.929				0.943	

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

Counter: D1-0769
Counted By: CL
Weather: Clear

File Name : kalroys
Site Code : 00000000
Start Date : 05/01/2004
Page No : 1

Groups Printed- Group 1

	Royal Hawn Ave Southbound					Royal Hawn Ave Northbound				Kalakaua Ave Eastbound				
Start Time	Left	Thru	Right	App Total	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Factor	1.0	1.0	1.0			1.0	1.0	1.0		1.0	1.0	1.0		
03:30 PM	67	48	0	115	0	0	0	33	33	0	383	36	419	567
03:45 PM	62	45	0	107	0	0	0	30	30	0	404	37	441	578
Total	129	93	0	222	0	0	0	63	63	0	787	73	860	1145
04:00 PM	79	57	0	136	0	0	0	39	39	0	367	35	402	577
04:15 PM	73	52	0	125	0	0	0	36	36	0	401	37	438	599
04:30 PM	68	49	0	117	0	0	0	33	33	0	376	34	410	560
04:45 PM	70	50	0	120	0	0	0	35	35	0	407	39	446	601
Total	290	208	0	498	0	0	0	143	143	0	1551	145	1696	2337
05:00 PM	70	52	0	122	0	0	0	35	35	0	401	38	439	596
05:15 PM	61	44	0	105	0	0	0	30	30	0	372	36	408	543
05:30 PM	58	42	0	100	0	0	0	29	29	0	354	35	389	518
05:45 PM	64	46	0	110	0	0	0	32	32	0	388	38	426	568
Total	253	184	0	437	0	0	0	126	126	0	1515	147	1662	2225
06:00 PM	61	44	0	105	0	0	0	30	30	0	354	36	390	525
06:15 PM	52	37	0	89	0	0	0	26	26	0	343	36	379	494
Grand Total	785	566	0	1351	0	0	0	388	388	0	4550	437	4987	6726
Apprch %	58.1	41.9	0.0			0.0	0.0	100.0		0.0	91.2	8.8		
Total %	11.7	8.4	0.0	20.1	0.0	0.0	0.0	5.8	5.8	0.0	67.6	6.5	74.1	

	Royal Hawn Ave Southbound					Royal Hawn Ave Northbound				Kalakaua Ave Eastbound				
Start Time	Left	Thru	Right	App Total	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1														
Intersection	04:15 PM													
Volume	281	203	0	484	0	0	0	139	139	0	1585	148	1733	2356
Percent	58.1	41.9	0.0			0.0	0.0	100.0		0.0	91.5	8.5		
04:45 Volume	70	50	0	120	0	0	0	35	35	0	407	39	446	601
Peak Factor														0.980
High Int	04:15 PM				3:15:00 PM	04:15 PM				04:45 PM				
Volume	73	52	0	125	0	0	0	36	36	0	407	39	446	
Peak Factor				0.968					0.965				0.971	

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

Counter: D1-0526
Counted By: GMT
Weather: Clear

File Name : kalseap
Site Code : 00000007
Start Date : 04/01/2004
Page No : 1

Groups Printed- Unshifted

				Kalakaua Avenue Eastbound				
Start Time	App Total	App Total	App Total	Left	Thru	Right	App Total	Int Total
Factor				1.0	1.0	1.0		
03:30 PM	0	0	0	87	348	0	435	435
03:45 PM	0	0	0	80	381	0	461	461
Total	0	0	0	167	729	0	896	896
04:00 PM	0	0	0	55	431	0	486	486
04:15 PM	0	0	0	81	446	0	527	527
04:30 PM	0	0	0	82	403	0	485	485
04:45 PM	0	0	0	67	423	0	490	490
Total	0	0	0	285	1703	0	1988	1988
05:00 PM	0	0	0	66	497	0	563	563
05:15 PM	0	0	0	71	452	0	523	523
05:30 PM	0	0	0	64	443	0	507	507
05:45 PM	0	0	0	65	435	0	500	500
Total	0	0	0	266	1827	0	2093	2093
06:00 PM	0	0	0	63	433	0	496	496
06:15 PM	0	0	0	44	383	0	427	427
Grand Total	0	0	0	825	5075	0	5900	5900
Apprch %				14.0	86.0	0.0		
Total %	0.0	0.0	0.0	14.0	86.0	0.0	100.0	

				Kalakaua Avenue Eastbound				
Start Time	App Total	App Total	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1								
Intersection	05:00 PM							
Volume	0	0	0	266	1827	0	2093	2093
Percent				12.7	87.3	0.0		
05:00 Volume	0	0	0	66	497	0	563	563
Peak Factor								0.929
High Int	3:15:00 PM	3:15:00 PM	3:15:00 PM	05:00 PM				
Volume	0	0	0	66	497	0	563	
Peak Factor							0.929	

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

Counter: D1-0527
Counted By: RQF
Weather: Clear

File Name : kalsea$
Site Code : 00000001
Start Date : 04/10/2004
Page No : 1

Groups Printed- Unshifted

				Kalakaua Ave Eastbound				
Start Time	App Total	App Total	App Total	Left	Thru	Right	App Total	Int Total
Factor				1.0	1.0	1.0		
03:30 PM	0	0	0	69	405	0	474	474
03:45 PM	0	0	0	75	360	0	435	435
Total	0	0	0	144	765	0	909	909
04:00 PM	0	0	0	90	466	0	556	556
04:15 PM	0	0	0	68	447	0	515	515
04:30 PM	0	0	0	39	437	0	476	476
04:45 PM	0	0	0	53	442	0	495	495
Total	0	0	0	250	1792	0	2042	2042
05:00 PM	0	0	0	47	447	0	494	494
05:15 PM	0	0	0	47	384	0	431	431
05:30 PM	0	0	0	51	357	0	408	408
05:45 PM	0	0	0	48	406	0	454	454
Total	0	0	0	193	1594	0	1787	1787
06:00 PM	0	0	0	47	380	0	427	427
06:15 PM	0	0	0	32	333	0	365	365
06:30 PM	0	0	0	40	350	0	390	390
06:45 PM	0	0	0	67	345	0	412	412
Total	0	0	0	186	1408	0	1594	1594
Grand Total	0	0	0	773	5559	0	6332	6332
Apprch %				12.2	87.8	0.0		
Total %	0.0	0.0	0.0	12.2	87.8	0.0	100.0	

				Kalakaua Ave Eastbound				
Start Time	App Total	App Total	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1								
Intersection	04:00 PM							
Volume	0	0	0	250	1792	0	2042	2042
Percent	0	0	0	12.2	87.8	0.0		
04:00 Volume				90	466	0	556	556
Peak Factor							0.918	
High Int	3:15:00 PM	3:15:00 PM	3:15:00 PM	04:00 PM				
Volume	0	0	0	90	466	0	556	
Peak Factor							0.918	

Wilson Okamoto Corporation
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Honolulu, HI 96826

Counter: D1-0528
Counted By: GM
Weather: Clear

File Name : kaldukp
Site Code : 00000008
Start Date : 04/01/2004
Page No : 1

Groups Printed- Unshifted

	Duke's Lane Southbound						Kalakaua Avenue Eastbound					
Start Time	Left	Thru	Right	Peds	App Total	App Total	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		
03:30 PM	0	0	0	251	251	0	0	16	326	0	0	342	593
03:45 PM	0	0	0	233	233	0	0	22	363	0	0	385	618
Total	0	0	0	484	484	0	0	38	689	0	0	727	1211
04:00 PM	0	0	0	212	212	0	0	19	392	0	0	411	623
04:15 PM	0	0	0	235	235	0	0	27	421	0	0	448	683
04:30 PM	0	0	0	358	358	0	0	13	394	0	0	407	765
04:45 PM	0	0	0	290	290	0	0	16	433	0	0	449	739
Total	0	0	0	1095	1095	0	0	75	1640	0	0	1715	2810
05:00 PM	0	0	0	277	277	0	0	14	464	0	0	478	755
05:15 PM	0	0	0	347	347	0	0	8	458	0	0	466	813
05:30 PM	0	0	0	344	344	0	0	20	427	0	0	447	791
05:45 PM	0	0	0	347	347	0	0	13	432	0	0	445	792
Total	0	0	0	1315	1315	0	0	55	1781	0	0	1836	3151
06:00 PM	0	0	0	414	414	0	0	22	408	0	0	430	844
06:15 PM	0	0	0	417	417	0	0	19	358	0	0	377	794
Grand Total	0	0	0	3725	3725	0	0	209	4876	0	0	5085	8810
Apprch %	0.0	0.0	0.0	100.0				4.1	95.9	0.0	0.0		
Total %	0.0	0.0	0.0	42.3	42.3	0.0	0.0	2.4	55.3	0.0	0.0	57.7	

	Duke's Lane Southbound						Kalakaua Avenue Eastbound				
Start Time	Left	Thru	Right	App Total	App Total	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1											
Intersection	04:45 PM										
Volume	0	0	0	0	0	0	58	1782	0	1840	1840
Percent	0.0	0.0	0.0				3.2	96.8	0.0		
05:00 Volume	0	0	0	0	0	0	14	464	0	478	478
Peak Factor										0.962	
High Int	3:15:00 PM			3:15:00 PM	3:15:00 PM		05:00 PM				
Volume	0	0	0	0	0	0	14	464	0	478	
Peak Factor										0.962	

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Honolulu, HI 96826

Counter:
Counted By: JL
Weather: Clear

File Name : dukkals
Site Code : 00000000
Start Date : 04/10/2004
Page No : 1

Groups Printed- Group 1

	Duke's Ln Southbound							Kalakaua Ave Eastbound					
Start Time	Left	Thru	Right	Peds	App Total	App Total	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		
03:30 PM	0	0	0	363	363	0	0	27	378	0	0	405	768
03:45 PM	0	0	0	414	414	0	0	18	342	0	0	360	774
Total	0	0	0	777	777	0	0	45	720	0	0	765	1542
04:00 PM	0	0	0	400	400	0	0	22	444	0	0	466	866
04:15 PM	0	0	0	441	441	0	0	20	427	0	0	447	888
04:30 PM	0	0	0	491	491	0	0	25	412	0	0	437	928
04:45 PM	0	0	0	525	525	0	0	26	417	0	0	443	968
Total	0	0	0	1857	1857	0	0	93	1700	0	0	1793	3650
05:00 PM	0	0	0	447	447	0	0	20	427	0	0	447	894
05:15 PM	0	0	0	527	527	0	0	17	367	0	0	384	911
05:30 PM	0	0	0	415	415	0	0	22	335	0	0	357	772
05:45 PM	0	0	0	570	570	0	0	23	383	0	0	406	976
Total	0	0	0	1959	1959	0	0	82	1512	0	0	1594	3553
06:00 PM	0	0	0	460	460	0	0	34	346	0	0	380	840
06:15 PM	0	0	0	515	515	0	0	25	308	0	0	333	848
06:30 PM	0	0	0	472	472	0	0	10	340	0	0	350	822
06:45 PM	0	0	0	655	655	0	0	12	333	0	0	345	1000
Total	0	0	0	2102	2102	0	0	81	1327	0	0	1408	3510
Grand Total	0	0	0	6695	6695	0	0	301	5259	0	0	5560	12255
Apprch %	0.0	0.0	0.0	100.0				5.4	94.6	0.0	0.0		
Total %	0.0	0.0	0.0	54.6	54.6	0.0	0.0	2.5	42.9	0.0	0.0	45.4	

	Duke's Ln Southbound							Kalakaua Ave Eastbound					
Start Time	Left	Thru	Right	App Total	App Total	App Total		Left	Thru	Right	App Total		Int Total
Peak Hour From 03:30 PM to 06:45 PM - Peak 1 of 1													
Intersection	04:00 PM												
Volume	0	0	0	0	0	0		93	1700	0	1793		1793
Percent	0.0	0.0	0.0					5.2	94.8	0.0			
04:00 Volume	0	0	0	0	0	0		22	444	0	466		466
Peak Factor												0.962	
High Int.	3:15:00 PM				3:15:00 PM	3:15:00 PM		04:00 PM					
Volume	0	0	0	0	0	0		22	444	0	466		
Peak Factor											0.962		

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Honolulu, HI 96826

Counter: D1-0525/D1-0769
Counted By: IQ/GT
Weather: Clear

File Name : kuhnohp
Site Code : 00000009
Start Date : 04/01/2004
Page No : 1

Groups Printed- 1 - Unshifted

	Nohonani Street Southbound					Kuhio Avenue Westbound					Duke's Lane Northbound					Kuhio Avenue Eastbound					
Start Time	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	16	0	13	71	100	0	82	0	78	160	9	0	9	151	169	0	139	0	48	187	616
03:45 PM	27	0	12	54	93	0	94	0	34	128	8	0	5	107	120	0	179	1	27	207	548
Total	43	0	25	125	193	0	176	0	112	288	17	0	14	258	289	0	318	1	75	394	1164
04:00 PM	25	0	17	39	81	0	107	0	48	155	14	0	8	137	159	0	174	0	51	225	620
04:15 PM	20	0	8	59	87	0	103	0	62	165	9	0	7	154	170	0	166	0	41	207	629
04:30 PM	20	0	21	38	79	0	107	0	82	189	9	0	11	166	186	0	172	0	53	225	679
04:45 PM	19	0	16	53	88	0	89	0	64	153	4	0	3	145	152	0	162	1	42	205	598
Total	84	0	62	189	335	0	406	0	256	662	36	0	29	602	667	0	674	1	187	862	2526
05:00 PM	17	0	15	59	91	0	93	0	39	132	10	0	14	94	118	0	177	0	37	214	555
05:15 PM	19	0	14	52	85	0	90	0	48	138	8	0	7	149	164	0	190	0	38	228	615
05:30 PM	20	0	11	64	95	0	94	0	63	157	11	0	3	94	108	0	188	1	42	231	591
05:45 PM	24	0	13	74	111	0	95	0	65	160	9	0	5	84	98	0	175	0	49	224	593
Total	80	0	53	249	382	0	372	0	215	587	38	0	29	421	488	0	730	1	166	897	2354
06:00 PM	28	0	12	92	132	0	108	0	63	171	7	0	8	144	159	0	170	0	53	223	685
06:15 PM	19	0	23	82	124	0	108	0	91	199	7	0	5	134	146	0	176	1	51	228	697
Grand Total	254	0	175	737	1166	0	1170	0	737	1907	105	0	85	1559	1749	0	2068	4	532	2604	7426
Apprch %	21.8	0.0	15.0	63.2		0.0	61.4	0.0	38.6		6.0	0.0	4.9	89.1		0.0	79.4	0.2	20.4		
Total %	3.4	0.0	2.4	9.9	15.7	0.0	15.8	0.0	9.9	25.7	1.4	0.0	1.1	21.0	23.6	0.0	27.8	0.1	7.2	35.1	

	Nohonani Street Southbound				Kuhio Avenue Westbound				Duke's Lane Northbound				Kuhio Avenue Eastbound				
Start Time	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1																	
Intersection	03:45 PM																
Volume	92	0	58	150	0	411	0	411	40	0	31	71	0	691	1	692	1324
Percent	61.3	0.0	38.7		0.0	100.0	0.0		56.3	0.0	43.7		0.0	99.9	0.1		
04:00 Volume	25	0	17	42	0	107	0	107	14	0	8	22	0	174	0	174	345
Peak Factor																	0.959
High Int.	04:00 PM				04:00 PM				04:00 PM				03:45 PM				
Volume	25	0	17	42	0	107	0	107	14	0	8	22	0	179	1	180	
Peak Factor				0.893				0.960				0.807				0.961	

Wilson Okamoto Corporation
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Honolulu, HI 96826

Counter: T-1839/D1-0528
Counted By: TF/LY
Weather: Clear

File Name : kuhnohs
Site Code : 00000003
Start Date : 04/10/2004
Page No : 1

Groups Printed- Unshifted

	Nohonani St Southbound					Kuhio Ave Westbound					Dukes Ln Northbound					Kuhio Ave Eastbound					
Start Time	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	20	0	17	41	78	0	91	0	56	147	3	0	4	135	142	0	145	0	55	200	567
03 45 PM	15	0	19	56	90	0	87	0	65	152	2	0	2	15	19	0	35	0	11	46	307
Total	35	0	36	97	168	0	178	0	121	299	5	0	6	150	161	0	180	0	66	246	874
04 00 PM	23	0	24	72	119	0	95	0	72	167	3	0	5	53	61	0	156	1	199	356	703
04 15 PM	11	0	21	54	86	1	105	0	84	190	10	0	5	70	85	0	184	0	246	430	791
04 30 PM	19	0	18	50	87	1	104	0	76	181	6	0	5	83	94	0	173	0	229	402	764
04 45 PM	20	0	16	51	87	0	107	0	64	171	9	0	2	69	80	0	197	0	228	425	763
Total	73	0	79	227	379	2	411	0	296	709	28	0	17	275	320	0	710	1	902	1613	3021
05 00 PM	16	1	11	48	76	0	117	0	62	179	3	0	8	69	80	0	177	0	191	368	703
05 15 PM	20	0	20	52	92	0	102	0	46	148	5	0	8	66	79	0	154	0	153	307	626
05 30 PM	21	0	18	52	91	0	109	0	48	157	5	0	3	41	49	0	167	0	170	337	634
05 45 PM	16	0	16	75	107	0	106	0	57	163	3	0	2	57	62	0	147	0	204	351	683
Total	73	1	65	227	366	0	434	0	213	647	16	0	21	233	270	0	645	0	718	1363	2646
06 00 PM	19	0	18	103	140	0	114	0	99	213	7	0	3	70	80	0	156	0	213	369	802
06 15 PM	22	0	14	90	126	0	111	0	81	192	10	0	7	92	109	0	175	0	297	472	899
06 30 PM	13	0	13	97	123	1	107	0	46	154	10	0	10	77	97	0	196	0	208	404	778
06 45 PM	27	0	17	79	123	1	112	0	76	191	3	0	2	62	67	0	158	0	258	414	795
Total	81	0	62	369	512	2	444	0	304	750	30	0	22	301	353	0	685	0	974	1659	3274
07 00 PM	0	0	0	0	0	0	0	0	0	0	8	0	3	55	66	0	178	0	252	430	496
Grand Total	262	1	242	920	1425	4	1467	0	934	2405	87	0	59	1014	1170	0	2398	1	2912	5311	10311
Apprch %	18 4	0 1	17 0	64 6		0 2	61 0	0 0	38 8		7 4	0 0	5 9	86 7		0 0	45 2	0 0	54 8		
Total %	2 5	0 0	2 3	8 9	13 8	0 0	14 2	0 0	9 1	23 3	0 8	0 0	0 7	9 8	11 3	0 0	23 3	0 0	28 2	51 5	

	Nohonani St Southbound				Kuhio Ave Westbound				Dukes Ln Northbound				Kuhio Ave Eastbound				
Start Time	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03 30 PM to 07 00 PM - Peak 1 of 1																	
Intersection	04 15 PM																
Volume	66	1	66	133	2	433	0	435	28	0	20	48	0	731	0	731	1347
Percent	49 6	0 8	49 6		0 5	99 5	0 0		58 3	0 0	41 7		0 0	100 0	0 0		
04 45 Volume	20	0	16	36	0	107	0	107	9	0	2	11	0	197	0	197	351
Peak Factor																	0 959
High Int	04 30 PM				05 00 PM				04 15 PM				04 45 PM				
Volume	19	0	18	37	0	117	0	117	10	0	5	15	0	197	0	197	
Peak Factor				0 599				0 929				0 800				0 925	

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

File Name : alanohp
Site Code : 00000010
Start Date : 04/01/2004
Page No : 1

Groups Printed- Unshifted

	Ala Wai Boulevard Westbound						
Start Time	Left	Thru	Right	App Total	App Total	App Total	Int Total
Factor	1 0	1 0	1 0				
03 30 PM	38	498	0	536	0	0	536
03 45 PM	46	470	0	516	0	0	516
Total	84	968	0	1052	0	0	1052
04 00 PM	46	515	0	561	0	0	561
04 15 PM	37	483	0	520	0	0	520
04 30 PM	35	471	0	507	0	0	507
04 45 PM	42	457	0	499	0	0	499
Total	161	1926	0	2087	0	0	2087
05 00 PM	38	505	0	543	0	0	543
05 15 PM	43	467	0	510	0	0	510
05 30 PM	35	434	0	472	0	0	472
05 45 PM	33	415	0	448	0	0	448
Total	152	1821	0	1973	0	0	1973
06 00 PM	37	444	0	481	0	0	481
06 15 PM	40	402	0	442	0	0	442
Grand Total	474	5561	0	6035	0	0	6035
Apprch %	7 9	92 1	0 0				
Total %	7 9	92 1	0 0	100 0	0 0	0 0	

	Ala Wai Boulevard Westbound						
Start Time	Left	Thru	Right	App Total	App Total	App Total	Int Total
Peak Hour From 03 30 PM to 06 15 PM - Peak 1 of 1							
Intersection	03 30 PM						
Volume	167	1965	0	2133	0	0	2133
Percent	7 8	92 2	0 0				
04 00 Volume	46	515	0	561	0	0	561
Peak Factor							0 951
High Int	04 00 PM				3 15 00 PM	3 15 00 PM	
Volume	46	515	0	561			
Peak Factor				0 951			

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1907 S. Beretania St., Suite 400
Honolulu, HI 96826

Counter: D1-0525
Counted By: TO
Weather: Clear

File Name : alanohs
Site Code : 00000004
Start Date : 04/10/2004
Page No : 1

Groups Printed- Unshifted

		Ala Wai Blvd Westbound						
Start Time	App Total	Left	Thru	Right	App Total	App Total	App Total	Int Total
Factor		1.0	1.0	1.0				
03:30 PM	0	47	469	0	516	0	0	516
03:45 PM	0	43	445	0	488	0	0	488
Total	0	90	914	0	1004	0	0	1004
04:00 PM	0	46	528	0	574	0	0	574
04:15 PM	0	30	475	0	505	0	0	505
04:30 PM	0	41	477	0	518	0	0	518
04:45 PM	0	41	398	0	439	0	0	439
Total	0	158	1878	0	2036	0	0	2036
05:00 PM	0	39	427	0	466	0	0	466
05:15 PM	0	37	451	0	488	0	0	488
05:30 PM	0	38	444	0	482	0	0	482
05:45 PM	0	32	478	0	510	0	0	510
Total	0	146	1800	0	1946	0	0	1946
06:00 PM	0	42	434	0	476	0	0	476
06:15 PM	0	31	457	0	488	0	0	488
06:30 PM	0	32	412	0	444	0	0	444
06:45 PM	0	48	393	0	441	0	0	441
Total	0	153	1696	0	1849	0	0	1849
Grand Total	0	547	6288	0	6835	0	0	6835
Apprch %		8.0	92.0	0.0				
Total %	0.0	8.0	92.0	0.0	100.0	0.0	0.0	

		Ala Wai Blvd Westbound						
Start Time	App Total	Left	Thru	Right	App Total	App Total	App Total	Int Total
Peak Hour From 03:30 PM to 06:45 PM - Peak 1 of 1								
Intersection	03:45 PM							
Volume	0	160	1925	0	2085	0	0	2085
Percent		7.7	92.3	0.0				
04:00 Volume	0	46	528	0	574	0	0	574
Peak Factor								0.908
High Int	3:15:00 PM	04:00 PM				3:15:00 PM	3:15:00 PM	
Volume	0	46	528	0	574			
Peak Factor					0.908			

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Honolulu, HI 96826

Counter: D1-0527
Counted By: RT
Weather: Clear

File Name : kalkaip
Site Code : 00000011
Start Date : 04/01/2004
Page No : 1

Groups Printed- Unshifted

				Kalakaua Avenue Eastbound				
Start Time	App Total	App Total	App Total	Left	Thru	Right	App Total	Int Total
Factor				1.0	1.0	1.0		
03:30 PM	0	0	0	97	263	0	360	360
03:45 PM	0	0	0	101	259	0	360	360
Total	0	0	0	198	522	0	720	720
04:00 PM	0	0	0	111	295	0	406	406
04:15 PM	0	0	0	96	323	0	419	419
04:30 PM	0	0	0	87	307	0	394	394
04:45 PM	0	0	0	91	302	0	393	393
Total	0	0	0	385	1227	0	1612	1612
05:00 PM	0	0	0	98	337	0	435	435
05:15 PM	0	0	0	103	350	0	453	453
05:30 PM	0	0	0	119	318	0	437	437
05:45 PM	0	0	0	106	293	0	399	399
Total	0	0	0	425	1298	0	1724	1724
06:00 PM	0	0	0	93	307	0	400	400
06:15 PM	0	0	0	101	290	0	391	391
Grand Total	0	0	0	1203	3644	0	4847	4847
Apprch %				24.8	75.2	0.0		
Total %	0.0	0.0	0.0	24.8	75.2	0.0	100.0	

				Kalakaua Avenue Eastbound				
Start Time	App Total	App Total	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1								
Intersection	05:00 PM							
Volume	0	0	0	426	1298	0	1724	1724
Percent				24.7	75.3	0.0		
05:15 Volume	0	0	0	103	350	0	453	453
Peak Factor								0.951
High Int	3:15:00 PM	3:15:00 PM	3:15:00 PM	05:15 PM				
Volume	0	0	0	103	350	0	453	
Peak Factor							0.951	

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

Counter: T-1841
Counted By: MAF
Weather: Clear

File Name : kaikals
Site Code : 00000005
Start Date : 04/10/2004
Page No : 1

Groups Printed- Unshifted

					Kalakaua Ave Eastbound				
Start Time	App Total	App Total	App Total	Left	Thru	Right	App Total	Int Total
Factor				1.0	1.0	1.0		
03:30 PM	0	0	0	112	315	0	427	427
03:45 PM	0	0	0	101	315	0	416	416
Total	0	0	0	213	630	0	843	843
04:00 PM	0	0	0	114	299	0	413	413
04:15 PM	0	0	0	122	339	0	461	461
04:30 PM	0	0	0	145	304	0	449	449
04:45 PM	0	0	0	116	299	0	415	415
Total	0	0	0	497	1241	0	1738	1738
05:00 PM	0	0	0	136	287	0	423	423
05:15 PM	0	0	0	120	299	0	419	419
05:30 PM	0	0	0	127	272	0	399	399
05:45 PM	0	0	0	122	274	0	396	396
Total	0	0	0	505	1132	0	1637	1637
06:00 PM	0	0	0	97	281	0	378	378
06:15 PM	0	0	0	92	245	0	337	337
06:30 PM	0	0	0	119	278	0	397	397
06:45 PM	0	0	0	109	268	0	377	377
Total	0	0	0	417	1072	0	1489	1489
Grand Total	0	0	0	1632	4075	0	5707	5707
Apprch %				28.6	71.4	0.0		
Total %	0.0	0.0	0.0	28.6	71.4	0.0	100.0	

					Kalakaua Ave Eastbound			
Start Time	App Total	App Total	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:45 PM - Peak 1 of 1								
Intersection	04:15 PM							
Volume	0	0	0	519	1229	0	1748	1748
Percent				29.7	70.3	0.0		
04:15 Volume	0	0	0	122	339	0	461	461
Peak Factor								0.948
High Int	3:15:00 PM	3:15:00 PM	3:15:00 PM	04:15 PM				
Volume	0	0	0	122	339	0	461	
Peak Factor							0.948	

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1907 S. Beretania St., Suite 400
Honolulu, HI 96826

Counter: D1-0525/D1-0526
Counted By: IQ/TO
Weather: Clear

File Name : kankuhp
Site Code : 00000012
Start Date : 04/13/2004
Page No : 1

Groups Printed- 1 - Unshifted

	Kaneakapolei Ave Southbound					Kuhio Ave Westbound					Kaneakapolei Ave Northbound					Kuhio Ave Eastbound					
Start Time	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	19	23	6	45	93	4	52	7	31	94	19	58	3	102	182	18	125	14	74	231	600
03:45 PM	16	27	9	52	104	6	80	5	45	136	22	82	0	128	232	22	96	23	83	224	696
Total	35	50	15	97	197	10	132	12	76	230	41	140	3	230	414	40	221	37	157	455	1296
04:00 PM	17	30	7	57	111	11	51	8	55	125	27	74	0	106	207	20	143	18	74	255	698
04:15 PM	12	23	6	68	109	7	62	5	60	134	36	67	0	111	214	13	145	18	79	255	712
04:30 PM	32	18	7	75	132	3	56	4	61	124	26	61	1	98	186	22	136	17	75	250	692
04:45 PM	24	27	2	63	116	5	51	11	63	130	27	59	1	104	191	34	117	17	61	229	666
Total	85	98	22	263	468	26	220	28	239	513	116	261	2	419	798	89	541	70	289	989	2768
05:00 PM	19	32	3	70	124	9	66	7	37	119	25	57	0	131	213	31	163	19	76	289	745
05:15 PM	17	22	3	54	96	1	73	5	45	124	19	55	1	132	217	22	154	24	103	303	740
05:30 PM	20	24	2	69	115	2	60	4	49	115	25	45	1	119	190	37	132	14	82	265	685
05:45 PM	22	33	3	98	154	3	62	6	54	125	24	55	0	218	297	36	155	27	97	315	891
Total	78	111	11	289	489	15	261	22	185	483	93	222	2	600	917	126	604	84	358	1172	3061
06:00 PM	28	14	8	91	141	5	58	1	45	109	14	29	1	134	178	22	173	23	65	283	711
06:15 PM	24	22	5	97	148	4	51	1	36	92	2	26	0	112	140	22	177	39	121	359	739
Grand Total	250	295	61	837	1443	60	722	64	581	1427	266	678	8	1495	2447	299	1716	253	993	3258	9575
Apprch %	17.3	20.4	4.2	58.0		4.2	50.6	4.5	40.7		10.9	27.7	0.3	61.1		9.2	52.7	7.8	30.4		
Total %	2.9	3.4	0.7	9.8	16.8	0.7	8.4	0.7	6.8	16.6	3.1	7.9	0.1	17.4	28.5	3.5	20.0	3.0	11.5	38.0	

	Kaneakapolei Ave Southbound				Kuhio Ave Westbound				Kaneakapolei Ave Northbound				Kuhio Ave Eastbound				
Start Time	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 05:15 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	78	111	11	200	15	261	22	298	93	222	2	317	126	604	84	814	1629
Percent	39.0	55.5	5.5		5.0	87.6	7.4		29.3	70.0	0.6		15.5	74.2	10.3		
05:00 Volume	19	32	3	54	9	66	7	82	25	57	0	82	31	163	19	213	431
Peak Factor																	0.945
High Int	05:45 PM				05:00 PM				05:15 PM				05:45 PM				
Volume	22	33	3	58	9	66	7	82	19	65	1	85	36	155	27	218	
Peak Factor				0.862				0.909				0.932				0.933	

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

Counter:
Counted By: MP/IQ
Weather: Clear

File Name : kankuhs
Site Code : 00000006
Start Date : 04/10/2004
Page No : 1

Groups Printed- 1 - Unshifted

	Kanekapolei Ave Southbound					Kuhio Ave Westbound					Kanekapolei Ave Northbound					Kuhio Ave Eastbound					
Start Time	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	23	26	12	59	120	3	67	6	42	118	23	55	2	84	164	18	107	20	67	212	614
03 45 PM	13	25	8	39	85	9	66	3	41	119	19	33	1	129	182	27	111	16	43	197	583
Total	36	51	20	98	205	12	133	9	83	237	42	88	3	213	346	45	218	36	110	409	1197
04 00 PM	20	26	6	41	93	4	80	10	40	134	31	54	2	173	260	27	120	19	59	225	712
04 15 PM	17	24	10	38	89	4	82	4	56	146	31	39	7	140	217	11	102	15	63	191	643
04 30 PM	23	30	11	59	123	16	74	6	50	146	26	48	0	137	211	18	112	12	50	192	672
04 45 PM	30	33	9	47	119	14	80	4	48	146	31	49	0	85	165	21	124	14	50	209	639
Total	90	113	36	185	424	38	316	24	194	572	119	190	9	535	853	77	458	60	222	817	2666
05 00 PM	14	28	13	49	104	12	94	5	51	162	39	35	0	127	201	32	119	21	77	249	716
05 15 PM	19	25	10	42	96	6	78	7	55	146	25	38	2	107	172	12	121	13	33	179	593
05 30 PM	24	26	17	49	116	13	68	2	49	132	35	40	2	127	204	5	105	7	65	182	634
05 45 PM	17	32	17	77	143	11	77	3	54	145	29	30	1	164	224	19	127	8	31	185	697
Total	74	111	57	217	459	42	317	17	209	585	128	143	5	525	801	68	472	49	206	795	2640
06 00 PM	20	17	7	26	70	12	82	13	38	145	40	46	0	85	171	14	139	7	26	186	572
06 15 PM	27	16	13	77	133	6	77	3	77	163	39	56	1	159	255	22	148	17	70	257	808
06 30 PM	33	21	14	79	147	10	69	9	53	141	43	56	3	156	258	21	146	9	73	249	795
06 45 PM	26	27	11	65	129	12	87	3	80	182	37	49	0	132	218	17	136	11	53	217	746
Total	106	81	45	247	479	40	315	28	248	631	159	207	4	532	902	74	569	44	222	909	2921
Grand Total	306	356	158	747	1567	132	1081	78	734	2025	448	628	21	1805	2902	264	1717	189	760	2930	9424
Apprch %	19 5	22 7	10 1	47 7		6 5	53 4	3 9	36 2		15 4	21 6	0 7	62 2		9 0	58 6	6 5	25 9		
Total %	3 2	3 8	1 7	7 9	16 6	1 4	11 5	0 8	7 8	21 5	4 8	6 7	0 2	19 2	30 8	2 8	18 2	2 0	8 1	31 1	

	Kanekapolei Ave Southbound				Kuhio Ave Westbound				Kanekapolei Ave Northbound				Kuhio Ave Eastbound				
Start Time	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03 30 PM to 06 45 PM - Peak 1 of 1																	
Intersection	06 00 PM																
Volume	106	81	45	232	40	315	28	383	159	207	4	370	74	569	44	687	1672
Percent	45 7	34 9	19 4		10 4	82 2	7 3		43 0	55 9	1 1		10 8	82 8	6 4		
06 30 Volume	33	21	14	68	10	69	9	88	43	56	3	102	21	146	9	176	434
Peak Factor																	0 963
High Int	06 30 PM				06 00 PM				06 30 PM				06 15 PM				
Volume	33	21	14	68	12	82	13	107	43	56	3	102	22	148	17	187	
Peak Factor				0 853				0 895				0 907				0 918	

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

Counter: T-1839
Counted By: CL
Weather: Clear

File Name : alakanp
Site Code : 00000001
Start Date : 04/13/2004
Page No : 1

Groups Printed- Unshifted

		Ala Wai Blvd Westbound				Kanekapolei Ave Northbound					
Start Time	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	App Total	Int Total
Factor		1 0	1 0	1 0		1 0	1 0	1 0			
03 30 PM	0	46	422	0	470	81	0	0	81	0	551
03 45 PM	0	53	448	0	499	98	0	0	98	0	597
Total	0	99	870	0	969	179	0	0	179	0	1148
04 00 PM	0	50	434	0	484	98	0	0	98	0	582
04 15 PM	0	37	420	0	457	82	0	0	82	0	539
04 30 PM	0	55	451	0	506	88	0	0	88	0	594
04 45 PM	0	51	393	0	444	86	0	0	86	0	530
Total	0	193	1698	0	1891	354	0	0	354	0	2245
05 00 PM	0	52	433	0	485	90	0	0	90	0	575
05 15 PM	0	44	402	0	446	92	0	0	92	0	538
05 30 PM	0	42	418	0	460	72	0	0	72	0	532
05 45 PM	0	53	381	0	434	85	0	0	85	0	519
Total	0	191	1634	0	1825	339	0	0	339	0	2164
06 00 PM	0	47	358	0	405	56	0	0	56	0	461
06 15 PM	0	52	364	0	416	46	0	0	46	0	462
Grand Total	0	582	4924	0	5506	974	0	0	974	0	6480
Apprch %		10 6	89 4	0 0		100 0	0 0	0 0			
Total %	0 0	9 0	76 0	0 0	85 0	15 0	0 0	0 0	15 0	0 0	

		Ala Wai Blvd Westbound				Kanekapolei Ave Northbound					
Start Time	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	App Total	Int Total
Peak Hour From 03 30 PM to 06 15 PM - Peak 1 of 1											
Intersection	03 45 PM										
Volume	0	193	1753	0	1946	366	0	0	366	0	2312
Percent		9 9	90 1	0 0		100 0	0 0	0 0			
03 45 Volume	0	51	448	0	499	98	0	0	98	0	597
Peak Factor											0 968
High Int	3 15 00 PM	04 30 PM				03 45 PM				3 15 00 PM	
Volume	0	55	451	0	506	98	0	0	98		
Peak Factor					0 961				0 934		

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Counter: D1-0769
Counted By: MK
Weather: Clear

File Name : alakans
Site Code : 00000008
Start Date : 04/10/2004
Page No : 1

Groups Printed- Unshifted

		Ala Wai Blvd Westbound				Kanekapolei Ave Northbound					
Start Time	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	App Total	Int Total
Factor		1.0	1.0	1.0		1.0	1.0	1.0			
03:30 PM	0	56	400	0	456	95	0	0	95	0	551
03:45 PM	0	42	390	0	432	77	0	0	77	0	509
Total	0	98	790	0	888	172	0	0	172	0	1060
04:00 PM	0	49	387	0	436	107	0	0	107	0	543
04:15 PM	0	51	384	0	435	88	0	0	88	0	523
04:30 PM	0	60	334	0	394	89	0	0	89	0	483
04:45 PM	0	69	336	0	405	80	0	0	80	0	485
Total	0	229	1441	0	1670	364	0	0	364	0	2034
05:00 PM	0	53	351	0	404	82	0	0	82	0	486
05:15 PM	0	51	360	0	411	88	0	0	88	0	499
05:30 PM	0	63	370	0	433	71	0	0	71	0	504
05:45 PM	0	65	385	0	450	77	0	0	77	0	527
Total	0	232	1466	0	1698	318	0	0	318	0	2016
06:00 PM	0	43	378	0	421	80	0	0	80	0	501
06:15 PM	0	52	369	0	421	95	0	0	95	0	516
06:30 PM	0	65	334	0	399	81	0	0	81	0	480
06:45 PM	0	61	333	0	394	68	0	0	68	0	462
Total	0	221	1414	0	1635	324	0	0	324	0	1959
Grand Total	0	780	5111	0	5891	1178	0	0	1178	0	7069
Apprch %		13.2	86.8	0.0		100.0	0.0	0.0			
Total %	0.0	11.0	72.3	0.0	83.3	16.7	0.0	0.0	16.7	0.0	

		Ala Wai Blvd Westbound				Kanekapolei Ave Northbound					
Start Time	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	App Total	Int Total
Peak Hour From 03:30 PM to 06:45 PM - Peak 1 of 1											
Intersection	03:30 PM										
Volume	0	198	1561	0	1759	367	0	0	367	0	2126
Percent		11.3	88.7	0.0		100.0	0.0	0.0			
03:30 Volume	0	56	400	0	456	95	0	0	95	0	551
Peak Factor					0.954				0.857		0.965
High Int	3:15:00 PM	03:30 PM				04:00 PM				3:15:00 PM	
Volume	0	56	400	0	456	107	0	0	107		
Peak Factor											

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

Counter: D1-0527
Counted By: GMT
Weather: Clear

File Name : kaikuhp
Site Code : 00000012
Start Date : 04/13/2004
Page No : 1

Groups Printed- Unshifted

	Kaiulani Ave Southbound					Kuhio Ave Westbound					Kaiulani Ave Northbound					Kuhio Ave Eastbound					
Start Time	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	6	6	0	83	10	8	81	0	11	21	90	122	15	129	0	43	187	396
03:45 PM	0	0	0	5	5	0	91	11	4	106	0	12	16	94	122	10	102	0	25	137	370
Total	0	0	0	11	11	0	154	21	12	187	0	23	37	184	244	25	231	0	68	324	766
04:00 PM	0	0	0	14	14	0	70	13	8	91	0	9	21	99	129	12	148	0	37	197	431
04:15 PM	0	0	0	18	18	0	74	10	1	85	0	10	28	102	140	8	149	0	47	204	447
04:30 PM	0	0	0	18	18	0	63	14	1	78	0	7	31	113	151	17	151	0	29	197	444
04:45 PM	0	0	0	24	24	0	67	16	1	84	0	11	16	85	112	9	132	0	34	175	395
Total	0	0	0	74	74	0	274	53	11	338	0	37	96	399	532	46	580	0	147	773	1717
05:00 PM	0	0	0	38	38	0	82	12	2	96	0	7	23	110	140	11	171	0	44	226	500
05:15 PM	0	0	0	19	19	0	79	12	0	91	0	6	13	94	113	9	162	0	37	208	431
05:30 PM	0	0	0	31	31	0	66	15	2	83	0	9	15	112	136	9	143	0	38	190	440
05:45 PM	0	0	0	68	68	0	71	22	4	97	0	11	21	173	205	20	157	0	46	223	593
Total	0	0	0	156	156	0	298	61	8	367	0	33	72	489	594	49	633	0	165	847	1964
06:00 PM	0	0	0	49	49	0	64	14	0	78	0	4	7	125	136	13	188	0	26	227	490
06:15 PM	0	0	0	53	53	0	56	7	3	66	0	3	16	99	118	19	182	0	42	243	480
Grand Total	0	0	0	343	343	0	846	156	34	1036	0	100	228	1296	1624	152	1814	0	448	2414	5417
Apprch %	0.0	0.0	0.0	100.0		0.0	81.7	15.1	3.3		0.0	6.2	14.0	79.8		6.3	75.1	0.0	18.6		
Total %	0.0	0.0	0.0	6.3	6.3	0.0	15.6	2.9	0.6	19.1	0.0	1.8	4.2	23.9	30.0	2.8	33.5	0.0	8.3	44.6	

	Kaiulani Ave Southbound				Kuhio Ave Westbound				Kaiulani Ave Northbound				Kuhio Ave Eastbound				
Start Time	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:15 PM - Peak 1 of 1																	
Intersection	05:00 PM																
Volume	0	0	0	0	0	298	61	359	0	33	72	105	49	633	0	682	1146
Percent	0.0	0.0	0.0		0.0	83.0	17.0		0.0	31.4	68.6		7.2	92.8	0.0		
05:00 Volume	0	0	0	0	0	82	12	94	0	7	23	33	11	171	0	182	306
Peak Factor								0.955				0.820				0.937	0.936
High Int	3:15:00 PM				05:00 PM				05:45 PM				05:00 PM				
Volume	0	0	0	0	0	82	12	94	0	11	21	32	11	171	0	182	
Peak Factor																	

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

Counter:
Counted By: JG
Weather: Clear

File Name : kaikuhs
Site Code : 00000000
Start Date : 04/10/2004
Page No : 1

Groups Printed- Group 1

		Kuhio Ave Westbound				Kaiulani Ave Northbound				Kuhio Ave Eastbound				
Start Time	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App. Total	Int. Total
Factor		1.0	1.0	1.0		1.0	1.0	1.0		1.0	1.0	1.0		
03:30 PM	0	0	76	3	79	0	1	3	4	5	125	0	130	213
03:45 PM	0	0	78	19	97	0	12	21	33	15	109	0	124	254
Total	0	0	154	22	176	0	13	24	37	20	234	0	254	467
04:00 PM	0	0	94	9	103	0	6	15	21	9	131	0	140	264
04:15 PM	0	0	90	12	102	0	7	24	31	3	116	0	119	252
04:30 PM	0	0	96	17	113	0	10	10	20	13	122	0	135	268
04:45 PM	0	0	98	9	107	0	5	6	11	7	147	0	154	272
Total	0	0	378	47	425	0	28	55	83	32	516	0	548	1056
05:00 PM	0	0	111	23	134	0	11	23	34	4	129	0	133	301
05:15 PM	0	0	91	21	112	0	9	16	25	10	130	0	140	277
05:30 PM	0	0	83	9	92	0	7	11	18	2	127	0	129	239
05:45 PM	0	0	91	13	104	0	15	12	27	9	135	0	144	275
Total	0	0	376	66	442	0	42	62	104	25	521	0	546	1092
06:00 PM	0	0	107	10	117	0	7	11	18	9	150	0	159	294
06:15 PM	0	0	86	12	98	0	9	8	17	12	163	0	175	290
06:30 PM	0	0	88	19	107	0	5	17	22	13	166	0	179	308
06:45 PM	0	0	102	9	111	0	5	10	15	17	145	0	162	288
Total	0	0	383	50	433	0	26	46	72	51	624	0	675	1180
Grand Total	0	0	1291	185	1476	0	109	187	296	128	1895	0	2023	3795
Apprch %		0.0	87.5	12.5		0.0	36.8	63.2		6.3	93.7	0.0		
Total %	0.0	0.0	34.0	4.9	38.9	0.0	2.9	4.9	7.8	3.4	49.9	0.0	53.3	

		Kuhio Ave Westbound				Kaiulani Ave Northbound				Kuhio Ave Eastbound				
Start Time	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Left	Thru	Right	App Total	Int Total
Peak Hour From 03:30 PM to 06:45 PM - Peak 1 of 1														
Intersection	06:00 PM													
Volume	0	0	383	50	433	0	26	46	72	51	624	0	675	1180
Percent		0.0	88.5	11.5		0.0	36.1	63.9		7.6	92.4	0.0		
06:30 Volume	0	0	88	19	107	0	5	17	22	13	166	0	179	308
Peak Factor														0.958
High Int	3:15:00 PM	06:00 PM				06:30 PM				06:30 PM				
Volume	0	0	107	10	117	0	5	17	22	13	166	0	179	
Peak Factor					0.925				0.818				0.943	

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.

"Highway Capacity Manual," Transportation Research Board, 2000

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.

"Highway Capacity Manual," Transportation Research Board, 2000.

APPENDIX C

CAPACITY ANALYSIS CALCULATIONS
EXISTING PEAK HOUR TRAFFIC ANALYSIS

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 4/20/2004
Period: AM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
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	143	1619	267					146	24			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	2414	6070	0.61	0.56	12.4	B	12.4	B
Westbound								
Northbound								
T	582	1863	0.29	0.31	22.0	C	21.7	C
R	343	1098	0.08	0.31	19.9	B		
Southbound								

Intersection Delay = 13.2 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 4/20/2004
Period: Sat PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
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	175	1742	269					74	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					75.0			
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	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	3312	5888	0.69	0.56	13.8	B	13.8	B
Westbound								
Northbound								
T	582	1863	0.14	0.31	20.3	C	20.2	C
R	343	1099	0.08	0.31	19.9	B		
Southbound								

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

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency:
Date: 4/20/2004
Period: PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
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	2	0	0	1	0	0	2	0	0	0	0
LGConfig		LT			TR			LTR				
Volume	189	662			293	48	142	185	51			
Lane Width		12.0			12.0			12.0				
RTOR Vol					5				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	X				Peds	X			
WB Left					SB Left				
Thru	P				Thru				
Right	P				Right				
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	55.0					25.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	1959	3205	0.41	0.61	9.7	A	9.7	A
Westbound								
TR	1112	1819	0.33	0.61	9.3	A	9.3	A
Northbound								
LTR	868	3125	0.39	0.28	27.6	C	27.6	C
Southbound								

Intersection Delay = 13.6 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency:
Date: 4/20/2004
Period: Sat PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
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	2	0	0	1	0	0	2	0	0	0	0
LGConfig		LT			TR			LTR				
Volume	88	677			222	42	38	153	51			
Lane Width		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	X				Peds	X			
WB Left					SB Left				
Thru	P				Thru				
Right	P				Right				
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	55.0					25.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	1977	3235	0.40	0.61	9.6	A	9.6	A
Westbound								
TR	1108	1813	0.25	0.61	8.6	A	8.6	A
Northbound								
LTR	880	3167	0.30	0.28	26.5	C	26.5	C
Southbound								

Intersection Delay = 12.8 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency:
Date: 4/20/2004
Period: PM Peak
Project ID:
E/W St: Ala Wai Blvd

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

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		1321					
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
T	2906	5085	0.75	0.57	13.1	B	13.1	B
Northbound								
L	981	3433	0.39	0.29	21.3	C	21.3	C
Southbound								

Intersection Delay = 14.3 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 4/20/2004
Period: Sat PM Peak
Project ID:
E/W St: Ala Wai Blvd

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing

N/S St: Lewers St

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					1873		1252					
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
T	2906	5085	0.69	0.57	12.0	B	12.0	B
Northbound								
L	981	3433	0.29	0.29	20.2	C	20.2	C
Southbound								

Intersection Delay = 13.1 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 4/20/2004
Period: PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing

N/S St: Royal Hawaiian Ave

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	0	1	1	1	0
LGConfig		TR							R	L	T	
Volume		1512	214						147	1208	300	
Lane Width		12.0							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				
Right		P			Right	P			
Peds		X			Peds	X			
WB Left					SB Left	P			
Thru					Thru	P			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
TR	3555	6320	0.50	0.56	11.2	B	11.2	B
Westbound								
Northbound								
							22.7	C
R	503	1611	0.32	0.31	22.7	C		
Southbound								
L	564	1805	0.41	0.31	23.8	C		
T	594	1900	0.56	0.31	26.6	C	25.5	C

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

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 4/20/2004
Period: Sat PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing

N/S St: Royal Hawaiian Ave

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	0	1	1	1	0
LGConfig		TR							R	L	T	
Volume		1585	148						139	281	203	
Lane Width		12.0							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			
Right		P			Right	P		
Peds		X			Peds	X		
WB Left					SB Left	P		
Thru					Thru	P		
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
TR	3594	6390	0.50	0.56	11.1	B	11.1	B
Westbound								
Northbound								
R	503	1611	0.28	0.31	22.2	C	22.2	C
Southbound								
L	564	1805	0.52	0.31	26.0	C		
T	594	1900	0.36	0.31	22.9	C	24.7	C

Intersection Delay = 14.6 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency:
Date: 4/21/2004
Period: PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing

N/S St: Seaside

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	4	0	0	0	0	0	0	0	0	0	0
LGConfig	L	LT										
Volume	298	1661										
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		P			NB Left			
Thru		P			Thru			
Right					Right			
Peds					Peds	X		
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	996	1770	0.16	0.56	8.8	A		
LT	3799	6753	0.51	0.56	11.3	B	11.1	B
Westbound								
Northbound								
Southbound								

Intersection Delay = 11.1 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency:
Date: 4/21/2004
Period: Sat PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing
N/S St: Seaside

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	4	0	0	0	0	0	0	0	0	0	0
LGConfig	L	LT										
Volume	207	1773										
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	P				NB Left			
Thru	P				Thru			
Right					Right			
Peds					Peds	X		
WB Left					SB Left			
Thru					Thru			
Right					Right			
Peds					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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	996	1770	0.11	0.56	8.4	A		
LT	3804	6762	0.51	0.56	11.3	B	11.1	B
Westbound								
Northbound								
Southbound								

Intersection Delay = 11.1 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 4/21/2004
Period: PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing
N/S St: Duke's Lane/Hohonani St

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	1	0	0	0	0	1	0	1
LGConfig		T			T			LR		L		R
Volume		691			411		140		31	192		58
Lane Width		12.0			12.0			12.0		12.0		12.0
RTOR Vol									3			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			
Right					Right	P		
Peds	X				Peds	X		
WB Left					SB Left	P		
Thru	P				Thru			
Right	P				Right	P		
Peds	X				Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	55.0				25.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	2163	3539	0.33	0.61	9.0	A	9.0	A
Westbound								
T	1138	1863	0.38	0.61	9.9	A	9.8	A
Northbound								
LR	349	1258	0.24	0.28	26.8	C	26.8	C
Southbound								
L	372	1338	0.28	0.28	27.3	C		
R	304	1093	0.19	0.28	26.2	C	26.9	C

Intersection Delay = 12.4 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency:
Date: 4/21/2004
Period: Sat PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing

N/S St: Duke's Lane/Mohonani St

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	1	0	0	0	0	1	0	1
LGConfig		T			T			LR		L		R
Volume		731			433		128		20	166		66
Lane Width		12.0			12.0			12.0		12.0		12.0
RTOR Vol									2			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				
Right					Right	P			
Peds		X			Peds	X			
WB Left					SB Left	P			
Thru		P			Thru				
Right		P			Right	P			
Peds		X			Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green		55.0				25.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	2163	3539	0.36	0.61	9.2	A	9.2	A
Westbound								
T	1138	1863	0.41	0.61	10.2	B	10.2	B
Northbound								
LR	234	843	0.24	0.28	27.6	C	27.6	C
Southbound								
L	343	1236	0.21	0.28	26.4	C	35.1	D
R	122	440	0.54	0.28	44.7	D		

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

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency:
Date: 4/21/2004
Period: PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing

N/S St: Kaiulani Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	0	0	0	0	0	0	0	0	0
LGConfig	L	T										
Volume	395	1184										
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		P			NB Left				
Thru		P			Thru				
Right					Right				
Peds					Peds	X			
WB Left					SB Left				
Thru					Thru				
Right					Right				
Peds					Peds	X			
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	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	885	1770	0.47	0.50	14.9	B		
T	2543	5085	0.50	0.50	14.0	B	14.2	B
Westbound								
Northbound								
Southbound								

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

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency:
Date: 4/21/2004
Period: Sat PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing

N/S St: Kaiulani Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	0	0	0	0	0	0	0	0	0
LGConfig	L	T										
Volume	519	1229										
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	P							
Thru	P							
Right								
Peds								
WB Left								
Thru								
Right								
Peds								
NB Right								
SB 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	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	885	1770	0.62	0.50	17.7	B		
T	2543	5085	0.51	0.50	14.1	B	15.2	B
Westbound								
Northbound								
Southbound								

Intersection Delay = 15.2 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency:
Date: 4/21/2004
Period: PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing

N/S St: Kanekapolei Avenue

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	1	0	0	2	0	0	2	0
LGConfig	L	TR			LTR			LT		DefL	TR	
Volume	177	520	76	122	249	27	111	284		177	98	29
Lane Width	12.0	12.0			12.0			12.0		12.0	12.0	
RTOR Vol			8			3						3

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	P				Right			
Peds	X				Peds X			
WB Left	P				SB Left P			
Thru	P				Thru P			
Right	P				Right P			
Peds	X				Peds X			
NB Right					EB Right			
SB Right					WB Right			
Green	50.0				30.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	499	898	0.17	0.56	10.5	B		
TR	1879	3382	0.34	0.56	11.4	B	11.3	B
Westbound								
LTR	938	1689	0.38	0.56	12.5	B	12.5	B
Northbound								
LT	859	2576	0.48	0.33	25.8	C	25.8	C
Southbound								
DefL	251	754	0.35	0.33	26.4	C		
TR	543	1629	0.26	0.33	23.0	C	24.3	C

Intersection Delay = 16.8 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency:
Date: 4/21/2004
Period: Sat PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing
N/S St: Kanekapolei Avenue

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	1	0	0	2	0	0	2	0
LGConfig	L	TR			LTR		Defl.	T			LTR	
Volume	182	457	62	119	330	46	127	171		184	115	43
Lane Width	12.0	12.0			12.0		12.0	12.0			12.0	
RTOR Vol			6			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	P				Right				
Peds	X				Peds	X			
WB Left	P				SB Left	P			
Thru	P				Thru	P			
Right	P				Right	P			
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	50.0					30.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	462	831	0.20	0.56	11.0	B		
TR	1879	3382	0.31	0.56	11.2	B	11.2	B
Westbound								
LTR	966	1739	0.45	0.56	13.4	B	13.4	B
Northbound								
Defl.	269	806	0.51	0.33	31.0	C		
T	621	1863	0.30	0.33	23.4	C	26.6	C
Southbound								
LTR	802	2406	0.35	0.33	23.9	C	23.9	C

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

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency:
Date: 4/21/2004
Period: PM Peak
Project ID:
E/W St: Ala Wai Blvd

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing
N/S St: Kanekapolei Ave

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					LT		L					
Volume				193	1753		166					
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	P				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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LT	2891	5060	0.70	0.57	12.2	B	12.2	B
Northbound								
L	981	3433	0.40	0.29	21.4	C		
							21.4	C
Southbound								

Intersection Delay = 13.7 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst:
Agency:
Date: 4/21/2004
Period: Sat PM Peak
Project ID:
E/W St: Ala Wai Blvd

Inter.:
Area Type: All other areas
Jurisd:
Year : Existing
N/S St: Kanekapolei Ave

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					LT		L					
Volume				1233	1405		1339					
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				
NB Left		P			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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LT	2885	5049	0.60	0.57	10.8	B	10.8	B
Northbound								
L	981	3433	0.44	0.29	21.8	C	21.8	C
Southbound								

Intersection Delay = 13.0 (sec/veh) Intersection LOS = B

APPENDIX D

CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2008 PEAK HOUR TRAFFIC
ANALYSIS WITHOUT PROJECT

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj
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	1184	2089	344					168	31			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	3414	6070	0.78	0.56	15.6	B	15.6	B
Westbound								
Northbound								
T	582	1863	0.37	0.31	23.2	C	22.8	C
R	343	1098	0.10	0.31	20.2	C		
Southbound								

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

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj
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	1226	2247	347					95	34			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	3311	5887	0.90	0.56	20.0*	C	20.0*	C
Westbound								
Northbound								
T	582	1863	0.10	0.31	20.8	C	20.6	C
R	343	1099	0.11	0.31	20.2	C		
Southbound								

Intersection Delay = 20.1 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj
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	2	0	0	2	0	0	2	0	0	0	0
LGConfig		LT			TR			LTR				
Volume	115	854			378	62	154	239	66			
Lane Width		12.0			12.0			12.0				
RTOR Vol						6			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	X				Peds	X			
WB Left					SB Left				
Thru	P				Thru				
Right	P				Right				
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	55.0					25.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	1746	2857	0.60	0.61	12.2	B	12.2	B
Westbound								
TR	2108	3449	0.22	0.61	8.1	A	8.1	A
Northbound								
LTR	887	3192	0.49	0.28	29.1	C	29.1	C
Southbound								

Intersection Delay = 15.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj
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	2	0	0	2	0	0	2	0	0	0	0
LGConfig		LT			TR			LTR				
Volume	114	973			286	54	149	197	66			
Lane Width		12.0			12.0			12.0				
RTOR Vol						4			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	X				Peds	X			
WB Left					SB Left				
Thru	P				Thru				
Right	P				Right				
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	55.0					25.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	1814	2969	0.56	0.61	11.5	B	11.5	B
Westbound								
TR	2099	3435	0.17	0.61	7.8	A	7.8	A
Northbound								
LTR	893	3213	0.38	0.28	27.5	C	27.5	C
Southbound								

Intersection Delay = 14.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Ala Wai Blvd

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj
N/S St: Lewers St

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					2585		414					
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
T	2906	5085	0.97	0.57	28.9	C	28.9	C
Northbound								
L	981	3433	0.51	0.29	22.8	C	22.8	C
Southbound								

Intersection Delay = 28.0 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date:
Period: Sat PM Peak
Project ID:
E/W St: Ala Wai Blvd

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj
N/S St: Lewers St

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					2416		325					
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
T	2906	5085	0.89	0.57	18.2	B	18.2	B
Northbound								
L	981	3433	0.38	0.29	21.1	C	21.1	C
Southbound								

Intersection Delay = 18.6 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out project

N/S St: Royal Hawaiian Ave

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	0	1	1	1	0
LGConfig		TR							R	L	T	
Volume		1950	276						190	1268	387	
Lane Width		12.0							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				
Right		P			Right	P			
Peds		X			Peds	X			
WB Left					SB Left	P			
Thru					Thru	P			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
TR	3554	6319	0.65	0.56	12.9	B	12.9	B
Westbound								
Northbound								
							24.2	C
R	503	1611	0.41	0.31	24.2	C		
Southbound								
L	564	1805	0.52	0.31	26.1	C		
T	594	1900	0.72	0.31	31.9	C	29.5	C

Intersection Delay = 17.4 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out project

N/S St: Royal Hawaiian Ave

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	0	1	1	1	0
LGConfig		TR							R	L	T	
Volume		2045	191						179	1362	262	
Lane Width		12.0							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				
Right		P			Right	P			
Peds		X			Peds	X			
WB Left					SB Left	P			
Thru					Thru	P			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
TR	3595	6391	0.64	0.56	12.9	B	12.9	B
Westbound								
Northbound								
							23.4	C
R	503	1611	0.37	0.31	23.4	C		
Southbound								
L	564	1805	0.67	0.31	30.3	C		
T	594	1900	0.46	0.31	24.6	C	27.9	C

Intersection Delay = 16.6 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj
N/S St: Seaside

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	4	0	0	0	0	0	0	0	0	0	0
LGConfig	L	LT										
Volume	384	2143										
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	P				NB Left				
Thru	P				Thru				
Right					Right				
Peds					Peds	X			
WB Left					SB Left				
Thru					Thru				
Right					Right				
Peds					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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	996	1770	0.21	0.56	9.1	A		
LT	3799	6753	0.66	0.56	13.1	B	12.8	B
Westbound								
Northbound								
Southbound								

Intersection Delay = 12.8 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj
N/S St: Seaside

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	4	0	0	0	0	0	0	0	0	0	0
LGConfig	L	LT										
Volume	1267	2287										
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	P				NB Left				
Thru	P				Thru				
Right					Right				
Peds					Peds	X			
WB Left					SB Left				
Thru					Thru				
Right					Right				
Peds					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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	996	1770	0.14	0.56	8.6	A		
LT	3804	6762	0.66	0.56	13.1	B	12.9	B
Westbound								
Northbound								
Southbound								

Intersection Delay = 12.9 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj
N/S St: Duke's Lane/Hohonani St

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			LR		L		R
Volume		891			530		52		40	119		75
Lane Width		12.0			12.0			12.0		12.0		12.0
RTOR Vol									4			8

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				
Right					Right	P			
Peds	X				Peds	X			
WB Left					SB Left	P			
Thru	P				Thru				
Right	P				Right	P			
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	50.0					30.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1966	3539	0.47	0.56	12.9	B	12.9	B
Westbound								
T	1966	3539	0.28	0.56	10.9	B	10.9	B
Northbound								
LR	475	1424	0.23	0.33	22.8	C	22.8	C
Southbound								
L	470	1410	0.29	0.33	23.6	C	23.0	C
R	446	1338	0.17	0.33	22.0	C		

Intersection Delay = 14.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj
N/S St: Duke's Lane/Hohonani St

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			LR		L		R
Volume		943			559		36		26	85		85
Lane Width		12.0			12.0			12.0		12.0		12.0
RTOR Vol									3			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				
Right					Right	P			
Peds	X				Peds	X			
WB Left					SB Left	P			
Thru	P				Thru				
Right	P				Right	P			
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	50.0					30.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1966	3539	0.52	0.56	13.4	B	13.4	B
Westbound								
T	1966	3539	0.31	0.56	11.1	B	11.1	B
Northbound								
LR	388	1164	0.19	0.33	22.5	C	22.5	C
Southbound								
L	438	1314	0.21	0.33	22.7	C	23.3	C
R	316	949	0.27	0.33	24.0	C		

Intersection Delay = 14.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj
N/S St: Kaiulani Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	0	0	0	0	0	0	0	0	0
LGConfig	L	T										
Volume	510	1527										
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	P				NB Left				
Thru	P				Thru				
Right					Right				
Peds					Peds	X			
WB Left					SB Left				
Thru					Thru				
Right					Right				
Peds					Peds	X			
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	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	885	1770	0.61	0.50	17.6	B		
T	2543	5085	0.64	0.50	15.9	B	16.4	B
Westbound								
Northbound								
Southbound								

Intersection Delay = 16.4 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj
N/S St: Kaiulani Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	0	0	0	0	0	0	0	0	0
LGConfig	L	T										
Volume	670	1585										
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	P				NB Left				
Thru	P				Thru				
Right					Right				
Peds					Peds	X			
WB Left					SB Left				
Thru					Thru				
Right					Right				
Peds					Peds	X			
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	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	885	1770	0.80	0.50	24.4	C		
T	2543	5085	0.66	0.50	16.2	B	18.7	B
Westbound								
Northbound								
Southbound								

Intersection Delay = 18.7 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj

N/S St: Kanekapolei Avenue

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	2	0
LGConfig	L	TR			LTR			LT		DefL	TR	
Volume	199	671	98	128	321	35	143	366		99	126	37
Lane Width	12.0	12.0			12.0			12.0		12.0	12.0	
RTOR Vol			10			4						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	P				Right				
Peds	X				Peds	X			
WB Left	P				SB Left	P			
Thru	P				Thru	P			
Right	P				Right	P			
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	50.0					30.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	456	820	0.23	0.56	11.4	B		
TR	1878	3381	0.44	0.56	12.5	B	12.3	B
Westbound								
LTR	1641	2953	0.28	0.56	11.0	B	11.0	B
Northbound								
LT	989	2667	0.60	0.33	28.1	C	28.1	C
Southbound								
DefL	204	613	0.54	0.33	34.8	C		
TR	567	1701	0.32	0.33	23.8	C	28.0	C

Intersection Delay = 17.9 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/out proj

N/S St: Kanekapolei Avenue

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	2	0
LGConfig	L	TR			LTR		DefL	T			LTR	
Volume	106	590	80	125	426	59	164	221		108	148	55
Lane Width	12.0	12.0			12.0		12.0	12.0			12.0	
RTOR Vol			8			6						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	P				Right				
Peds	X				Peds	X			
WB Left	P				SB Left	P			
Thru	P				Thru	P			
Right	P				Right	P			
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	50.0					30.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	408	734	0.30	0.56	12.5	B		
TR	1878	3381	0.41	0.56	12.1	B	12.2	B
Westbound								
LTR	1705	3069	0.33	0.56	11.1	B	11.4	B
Northbound								
DefL	270	810	0.65	0.33	37.8	D		
T	621	1863	0.38	0.33	24.7	C	30.3	C
Southbound								
LTR	802	2405	0.45	0.33	25.4	C	25.4	C

Intersection Delay = 17.5 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 6/15/04
Period: PM Peak
Project ID:
E/W St: Ala Wai Blvd

Inter.:
Area Type: All other areas
Juriad:
Year : Year 2008 w/out proj

N/S St: Kanekapolei Ave

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					LT		L					
Volume				249	2261		472					
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		P			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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LT	2891	5060	0.90	0.57	19.0	B	19.0	B
Northbound								
L	981	3433	0.52	0.29	22.9	C	22.9	C
Southbound								

Intersection Delay = 19.6 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Ala Wai Blvd

Inter.:
Area Type: All other areas
Juriad:
Year : Year 2008 w/out proj

N/S St: Kanekapolei Ave

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					LT		L					
Volume				301	1812		437					
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		P			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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LT	2885	5049	0.78	0.57	13.8	B	13.8	B
Northbound								
L	981	3433	0.56	0.29	23.6	C	23.6	C
Southbound								

Intersection Delay = 15.7 (sec/veh) Intersection LOS = B

APPENDIX E

CAPACITY ANALYSIS CALCULATIONS
PROJECTED YEAR 2008 PEAK HOUR TRAFFIC
ANALYSIS WITH PROJECT

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj
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	184	2100	344					188	31			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	3416	6073	0.79	0.56	15.6	B	15.6	B
Westbound								
Northbound								
T	582	1863	0.37	0.31	23.2	C	22.8	C
R	343	1098	0.10	0.31	20.2	C		
Southbound								

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

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj
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	226	2262	347					95	34			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LTR	3314	5891	0.90	0.56	20.3	C	20.3	C
Westbound								
Northbound								
T	582	1863	0.18	0.31	20.8	C	20.6	C
R	343	1099	0.11	0.31	20.2	C		
Southbound								

Intersection Delay = 20.3 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj
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	2	0	0	2	0	0	2	0	0	0	0
LGConfig		LT			TR			LTR				
Volume	115	854			378	67	154	239	66			
Lane Width		12.0			12.0			12.0				
RTOR Vol						6			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	X				Peds	X			
WB Left					SB Left				
Thru	P				Thru				
Right	P				Right				
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	55.0					25.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	1746	2857	0.60	0.61	12.2	B	12.2	B
Westbound								
TR	2108	3449	0.22	0.61	8.1	A	8.1	A
Northbound								
LTR	887	3192	0.49	0.28	29.1	C	29.1	C
Southbound								

Intersection Delay = 15.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj
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	2	0	0	2	0	0	2	0	0	0	0
LGConfig		LT			TR			LTR				
Volume	114	873			286	54	149	197	66			
Lane Width		12.0			12.0			12.0				
RTOR Vol						4			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	X				Peds	X			
WB Left					SB Left				
Thru	P				Thru				
Right	P				Right				
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	55.0					25.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
LT	1814	2969	0.56	0.61	11.5	B	11.5	B
Westbound								
TR	2099	3435	0.17	0.61	7.8	A	7.8	A
Northbound								
LTR	893	3213	0.38	0.28	27.5	C	27.5	C
Southbound								

Intersection Delay = 14.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Ala Wai Blvd

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj
N/S St: Lewers St

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					2604		1414					
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		10.0				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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
T	2906	5085	0.97	0.57	31.5	C	31.5	C
Northbound								
L	981	3433	0.51	0.29	22.8	C		
							22.8	C
Southbound								

Intersection Delay = 30.2 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Ala Wai Blvd

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj

N/S St: Lewers St

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					2434		325					
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
T	2906	5085	0.90	0.57	18.7	B	18.7	B
Northbound								
L	981	3433	0.38	0.29	21.1	C	21.1	C
Southbound								

Intersection Delay = 19.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ project

N/S St: Royal Hawaiian Ave

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	0	1	1	1	0
LGConfig		TR							R	L	T	
Volume		1950	287						225	268	403	
Lane Width		12.0							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				
Right		P			Right	P			
Peds		X			Peds	X			
WB Left					SB Left	P			
Thru					Thru	P			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
TR	3546	6304	0.65	0.56	13.0	B	13.0	B
Westbound								
Northbound								
R	503	1611	0.49	0.31	25.7	C	25.7	C
Southbound								
L	564	1805	0.52	0.31	26.1	C		
T	594	1900	0.75	0.31	33.4	C	30.5	C

Intersection Delay = 17.9 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2009 w/ project
N/S St: Royal Hawaiian Ave

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	0	1	1	1	0
LGConfig		TR							R	L	T	
Volume		2045	206						215	362	283	
Lane Width		12.0							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				
Right		P			Right	P			
Peds		X			Peds	X			
WB Left					SB Left	P			
Thru					Thru	P			
Right		X			Right				
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
TR	3580	6364	0.65	0.56	13.0	B	13.0	B
Westbound								
Northbound								
							24.8	C
R	503	1611	0.44	0.31	24.8	C		
Southbound								
L	564	1805	0.67	0.31	30.3	C		
T	594	1900	0.50	0.31	25.4	C	28.1	C

Intersection Delay = 17.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj
N/S St: Seaside

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	4	0	0	0	0	0	0	0	0	0	0
LGConfig	L		LT									
Volume	384	2159										
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		P			NB Left				
Thru		P			Thru				
Right					Right				
Peds					Peds	X			
WB Left					SB Left				
Thru					Thru				
Right					Right				
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	936	1770	0.21	0.56	9.1	A		
LT	3799	6753	0.67	0.56	13.2	B	12.9	B
Westbound								
Northbound								
Southbound								

Intersection Delay = 12.9 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj
N/S St: Seaside

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	4	0	0	0	0	0	0	0	0	0	0
LGConfig	L	LT										
Volume	267	2305										
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	P				NB Left				
Thru	P				Thru				
Right					Right				
Peds					Peds	X			
WB Left					SB Left				
Thru					Thru				
Right					Right				
Peds					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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	996	1770	0.14	0.56	8.6	A		
LT	3804	6762	0.67	0.56	13.2	B	13.0	B
Westbound								
Northbound								
Southbound								

Intersection Delay = 13.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj
N/S St: Duke's Lane/Nohonani St

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			LR		L		R
Volume		891			530		52		40	119		75
Lane Width		12.0			12.0			12.0		12.0		12.0
RTOR Vol									4			8

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				
Right					Right	P			
Peds	X				Peds	X			
WB Left					SB Left	P			
Thru	P				Thru				
Right	P				Right	P			
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	50.0					30.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1966	3539	0.47	0.56	12.9	B	12.9	B
Westbound								
T	1966	3539	0.20	0.56	10.9	B	10.9	B
Northbound								
LR	475	1424	0.23	0.33	22.8	C	22.8	C
Southbound								
L	470	1410	0.29	0.33	23.6	C		
							23.0	C
R	446	1338	0.17	0.33	22.0	C		

Intersection Delay = 14.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj

N/S St: Duke's Lane/Mohonani St

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			LR		L		R
Volume		943			559		36		26	185		85
Lane Width		12.0			12.0			12.0		12.0		12.0
RTOR Vol									3			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				
Right					Right	P			
Peds	X				Peds	X			
WB Left					SB Left	P			
Thru	P				Thru				
Right	P				Right	P			
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	50.0					30.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
T	1966	3539	0.52	0.56	13.4	B	13.4	B
Westbound								
T	1966	3539	0.31	0.56	11.1	B	11.1	B
Northbound								
LR	388	1164	0.19	0.33	22.5	C	22.5	C
Southbound								
L	438	1314	0.21	0.33	22.7	C	23.3	C
R	316	949	0.27	0.33	24.0	C		

Intersection Delay = 14.0 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj

N/S St: Kaiulani Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	0	0	0	0	0	0	0	0	0
LGConfig	L	T										
Volume	510	1543										
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	P				NB Left				
Thru	P				Thru				
Right					Right				
Peds					Peds	X			
WB Left					SB Left				
Thru					Thru				
Right					Right				
Peds					Peds	X			
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	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	885	1770	0.61	0.50	17.6	B		
T	2543	5085	0.65	0.50	16.0	B	16.4	B
Westbound								
Northbound								
Southbound								

Intersection Delay = 16.4 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kalakaua Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj

N/S St: Kaiulani Avenue

SIGNALIZED INTERSECTION SUMMARY

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	3	0	0	0	0	0	0	0	0	0	0
LGConfig	L	T										
Volume	670	1603										
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	P				NB Left				
Thru	P				Thru				
Right					Right				
Peds					Peds	X			
WB Left					SB Left				
Thru					Thru				
Right					Right				
Peds					Peds	X			
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	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	885	1770	0.80	0.50	24.4	C		
T	2543	5085	0.66	0.50	16.4	B	18.7	B
Westbound								
Northbound								
Southbound								

Intersection Delay = 18.7 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj

N/S St: Kanekapolei Avenue

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	2	0
LGConfig	L	TR			LTR			LT		DefL	TR	
Volume	99	671	98	128	321	35	143	366		99	126	37
Lane Width	12.0	12.0			12.0			12.0		12.0	12.0	
RTOR Vol			10			4						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	P				Right				
Peds	X				Peds	X			
WB Left	P				SB Left	P			
Thru	P				Thru	P			
Right	P				Right	P			
Peds	X				Peds	X			
NB Right					EB Right				
SB Right					WB Right				
Green	50.0					30.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	456	820	0.23	0.56	11.4	B		
TR	1978	3381	0.44	0.56	12.5	B	12.3	B
Westbound								
LTR	1641	2953	0.28	0.56	11.0	B	11.0	B
Northbound								
LT	889	2667	0.60	0.33	28.1	C	28.1	C
Southbound								
DefL	204	613	0.54	0.33	34.8	C		
TR	567	1701	0.32	0.33	23.8	C	28.0	C

Intersection Delay = 17.9 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Kuhio Avenue

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj

N/S St: Kanekapolei Avenue

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	2	0
LGConfig	L	TR			LTR		DefL	T			LTR	
Volume	106	590	80	125	426	59	164	221		108	148	55
Lane Width	12.0	12.0			12.0		12.0	12.0			12.0	
RTOR Vol			8			6						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	P				Right			
Peds	X				Peds	X		
WB Left	P				SB Left	P		
Thru	P				Thru	P		
Right	P				Right	P		
Peds	X				Peds	X		
NB Right					EB Right			
SB Right					WB Right			
Green	50.0				30.0			
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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
L	408	734	0.30	0.56	12.5	B		
TR	1878	3381	0.41	0.56	12.1	B	12.2	B
Westbound								
LTR	1705	3069	0.33	0.56	11.4	B	11.4	B
Northbound								
DefL	270	810	0.65	0.33	37.8	D		
T	621	1863	0.38	0.33	24.7	C	30.3	C
Southbound								
LTR	802	2405	0.45	0.33	25.4	C	25.4	C

Intersection Delay = 17.5 (sec/veh) Intersection LOS = B

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 6/15/04
Period: PM Peak
Project ID:
E/W St: Ala Wai Blvd

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj

N/S St: Kanekapolei Ave

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					LT		L					
Volume				1249	2277		1472					
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	P				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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LT	2891	5060	0.91	0.57	19.5	B	19.5	B
Northbound								
L	991	3433	0.52	0.29	22.9	C		
							22.9	C
Southbound								

Intersection Delay = 20.0 (sec/veh) Intersection LOS = C

HCS2000: Signalized Intersections Release 4.1d

Analyst: CL
Agency:
Date: 06/15/04
Period: Sat PM Peak
Project ID:
E/W St: Ala Wai Blvd

Inter.:
Area Type: All other areas
Jurisd:
Year : Year 2008 w/ proj

N/S St: Kanekapolei Ave

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					LT		L					
Volume				301	1833		437					
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					P			
Thru								
Right								
Peds								
WB Left		P						
Thru		P						
Right								
Peds								
NB Right								
SB 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 v/c	Ratios g/C	Lane Group Delay	Lane Group LOS	Approach Delay	Approach LOS
Eastbound								
Westbound								
LT	2886	5050	0.79	0.57	14.0	B	14.0	B
Northbound								
L	981	3433	0.56	0.29	23.6	C	23.6	C
Southbound								

Intersection Delay = 15.9 (sec/veh) Intersection LOS = B

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