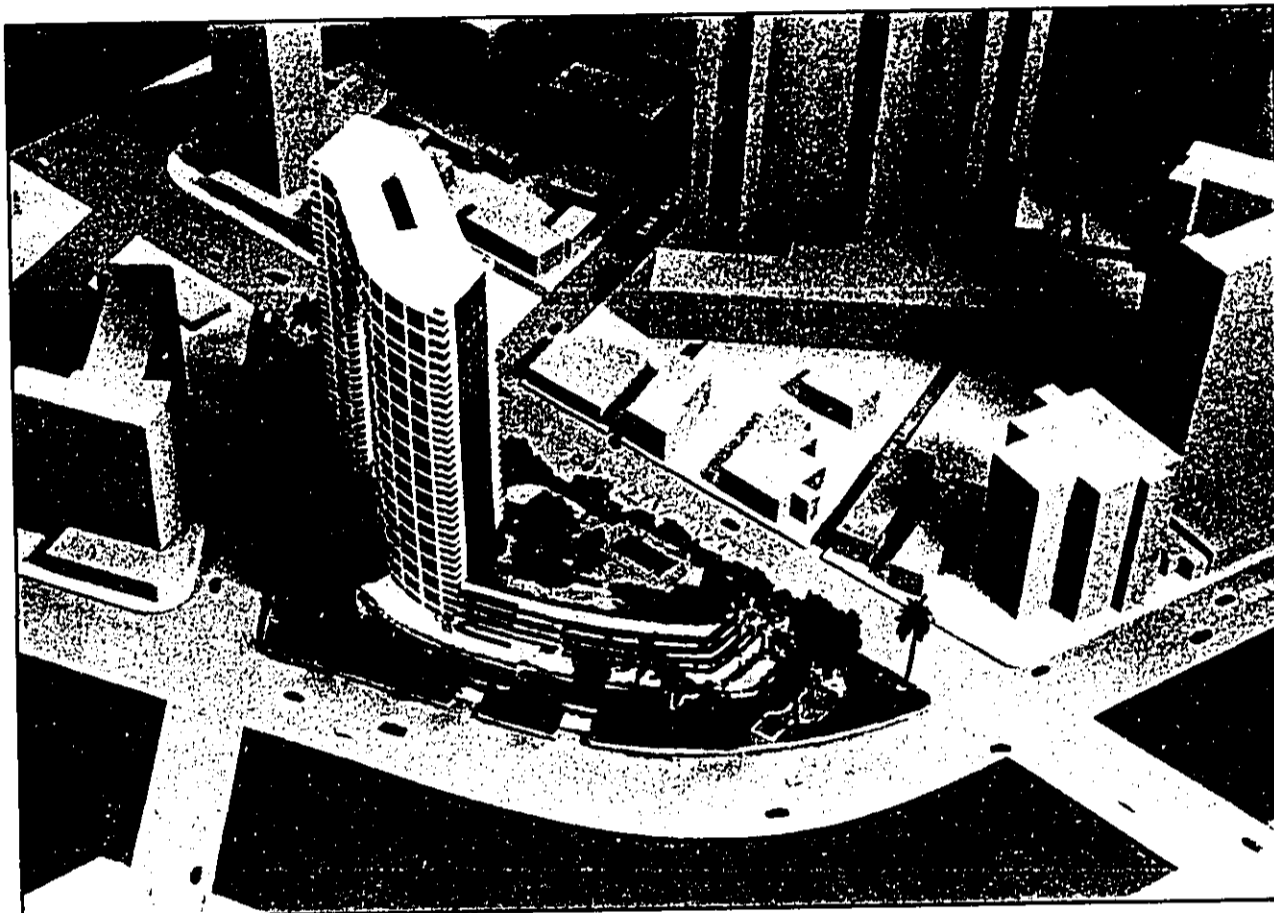


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Waikiki Landmark

FINAL

Environmental Impact Statement

OA
420A

Bel-Landmark, Inc. • September 1989

**WAIKIKI LANDMARK
ENVIRONMENTAL IMPACT STATEMENT**

APPLICANT:

**S. SUKAMTO
BEL-LANDMARK, INC.**

PREPARED BY:

**DHM PLANNERS INC.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813**

September 1989

CONSULTANT TEAM

CERMAK PETERKA PETERSEN, INC.

Wind Tunnel Study

DARBY & ASSOCIATES

Noise Impact Study

PACIFIC PLANNING & ENGINEERING

Traffic Impact Study

TRB HAWAII, LTD.

Shadow Impact Study

UNIVERSITY ASSOCIATES, INC.

Air Quality Impact Study

DHM Planners inc.

Land Use & Environmental Planning

Staff Members:

Duk Hee Murabayashi

Diane E. Borchardt

Janice Murabayashi

Eric Parker

Lynn Taguchi

**WAIKIKI LANDMARK
ENVIRONMENTAL IMPACT STATEMENT**

APPLICANT	S. Sukamto Bel-Landmark, Inc. 1088 Bishop Street, Suite 4100 Honolulu, Hawaii 96813
CONSULTANT	Mrs. Duk Hee Murabayashi DHM Planners inc. 1188 Bishop Street, Suite 2405 Honolulu, Hawaii 96813 Phone: 521-9855
ACCEPTING AUTHORITY	Department of Land Utilization City and County of Honolulu
PROPOSED ACTION	Mixed use residential (89%) and commercial (11%) development: 206 (approximately) residential condominiums and 36,795 net square feet of commercial space; Maximum height: 320 feet.
PROJECT LOCATION	Waikiki, Island of Oahu Triangle parcel bordered by Kalakaua Avenue, Ala Wai Boulevard and McCully Street.
TAX MAP KEY	TMK 2-6-14: Parcels 39, 41, 43, 44, 49, 50, 52-56, 59
LOT AREA	124,419 square feet (2.856 acres)
STATE LAND USE	Urban
DP LAND USE	Commercial Emphasis Mixed Use
ZONING	Resort Commercial Precinct within the Waikiki Special Design District; also designated as a "Waikiki Gateway."
LANDOWNER	First Hawaiian Bank Trustee, under unrecorded Land Trust Agreement dated March 21, 1980.
LESSEE/ DEVELOPER	Bel-Landmark, Inc. et al.
EIS PREPARATION NOTICE	<u>OEQC BULLETIN</u> , September 23, 1988
DRAFT ENVIRONMENTAL IMPACT STATEMENT	<u>OEQC BULLETIN</u> , March 23, 1989
COMMENTS AND CONCERNS:	In response to comments expressed during the review period, revisions and additions to the draft Environmental Impact Statement are in bold type.

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Chapter I

I. STATEMENT OF PURPOSE AND NEED FOR ACTION

The applicant, Bel-Landmark, Inc. is proposing to build a mixed residential/commercial development in Waikiki on the island of Oahu. The proposed development will include approximately 206 residential condominiums and 36,795 net square feet of commercial space which will help meet some of the demand for residential condominiums and commercial space in Waikiki. Further resort development of the subject property is restricted by the Development Plan (DP) for the Primary Urban Center which limits 30,000 visitor units for Waikiki (Ordinance 81-7a9, Sec. 2.2b.(2)). Market conditions, however, support the development of a residential/commercial project on the subject property. The project will allow the subject property to be used to its highest and best use.

Chapter II

II. DEVELOPMENT PROPOSAL

A. LOCATION

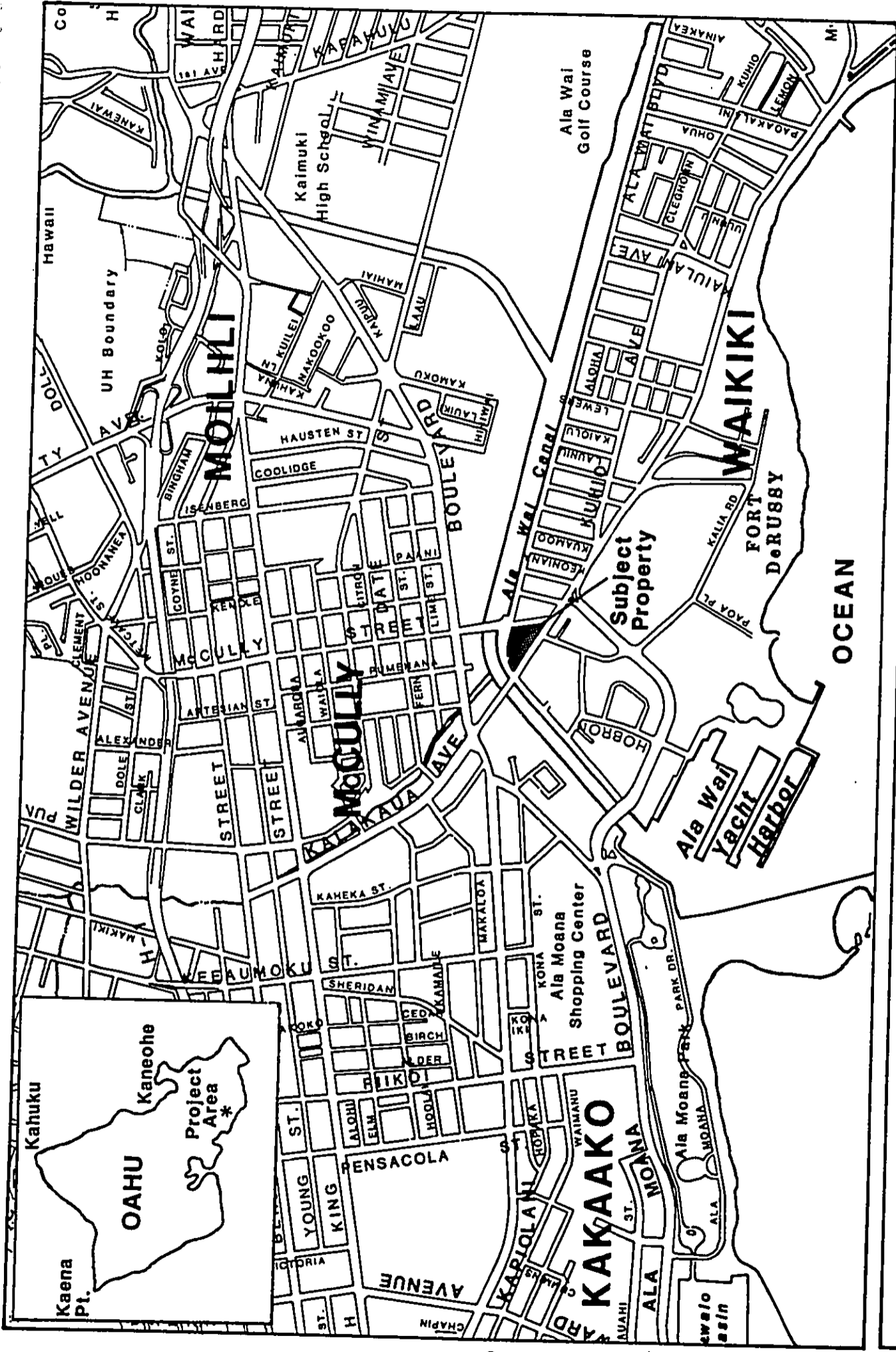
The subject property is located in Waikiki, in Honolulu, on the island of Oahu (Exhibit II-1). The triangular shaped parcel is identified as TMK 2-6-14; parcels 39, 41, 43, 44, 49, 50, 52-56, and 59 (Exhibit II-2). It is bordered by Ala Wai Boulevard, Kalakaua Avenue and McCully Street, and is approximately 2.856 acres.

B. HISTORIC PERSPECTIVE

In 1980 the subject property was proposed for development of a 28-story (320 feet high) office/commercial building, with a five-story, parking-commercial-recreation structure. That proposal included 350 office suites, approximately 60,000 square feet (sf) of commercial space, and 700 parking spaces. An Environmental Impact Statement (EIS)¹ for that project was accepted on April 15, 1980 by the Department of Land Utilization (DLU).

In addition, on November 18, 1982 Development Conformance Certificate was approved. However, since a building permit was not obtained within two years of the date of issuance of the certificate, the approval is no longer valid.

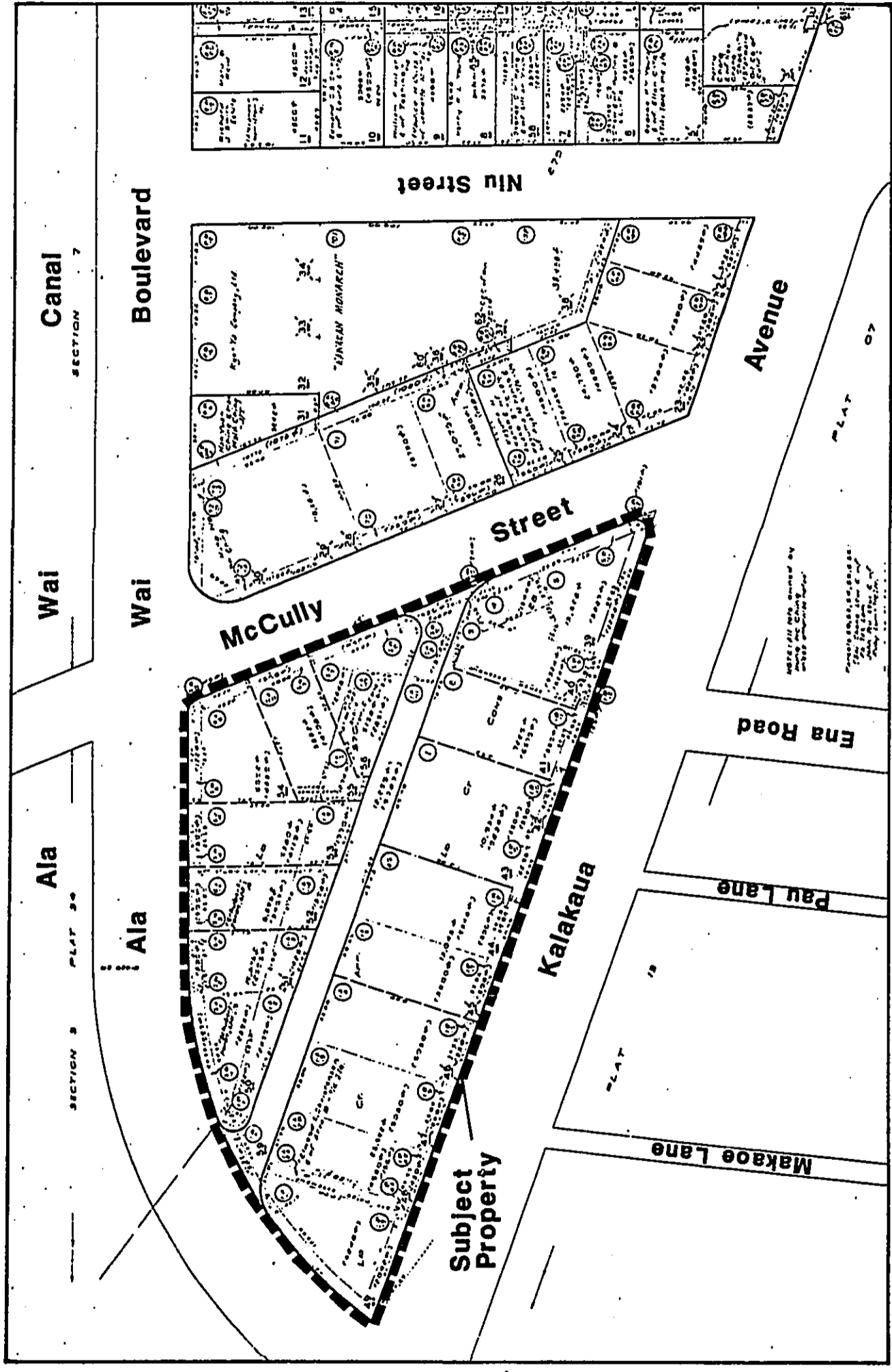
1. Revised Environmental Impact Statement for the Proposed Waikiki Triangle Project, (Developer: L. Robert Allen; Architect: Jo Paul Rognstad & Associates Inc.; Environmental Consultants: Environmental Communications, Inc.), March 1980.



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Exhibit II-1
Location Map



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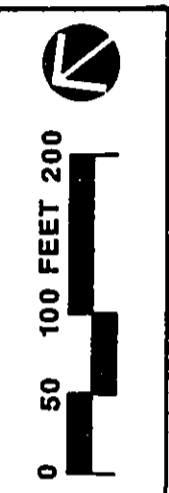


Exhibit II-2
Tax Key Map 2-6-14:39,41,43,44,49,50,52-56,59

C. PROJECT DESCRIPTION

The proposed project is a residential (89%) and commercial (11%) development, with a total of approximately 431,110 gross sf of floor area. The final design will consist of two slender towers connected at the top five floors. Available project information includes the following specifications:

1. 206 Residential Condominiums

(390,847 gross sf, 292,580 net sf)

<u>Type</u>	<u>Size (net sf)</u>	<u>No. of Units</u>	<u>% of Total No. of Units</u>
1 BR/1 Bath	800	32	16%
2 BR/2 Bath	1,000-1,400	166	81%
3 BR/2 Bath	3,600-5,500	8	3%
TOTAL		206 Units	

2. Commercial Space

(51,940 gross sf, 36,795 net sf). A maximum of 11% of the total net floor area in the proposed development will be leased for retail stores and restaurants. The commercial space will be located in the first two floors of the proposed development. Restaurants will comprise 20% of the commercial space, and retail stores will comprise 80%.

3. Parking

In compliance with parking guidelines in the Land Use Ordinance (pp. 3-18 - 3-19) for the Waikiki Special Design District, the proposed project will contain the following:

- o A minimum of 1 stall per residential condominium unit (254 stalls)
- o A minimum of 1 stall per 800 sf of commercial area (167 stalls)
- o An additional 174 stalls within 400 feet walking distance from the Royal Aloha Condominium, located Diamond Head of the subject property, across McCully Street. These parking stalls are for the residents of the Royal Aloha Condominium and this provision is part of the development agreement for the subject property.

The total number of parking stalls is 595. The parking lot will be designed and situated to minimize noise impacts of the cars in the garage on the residential condominium units.

4. Ventilation

The proposed development will be centrally air conditioned, with operable windows and individual electric meters.

5. Height

The development will have a maximum height of 320 feet, in compliance with the 320-foot height limit specified for this area of the Waikiki Special Design District.

6. Floor Area Ratio (FAR)

The proposed project will have a density equivalent to BMX-3 (Business Mixed Use) zoning provisions. BMX-3 allows a floor area ratio up to 3.5 with open space bonuses.

7. Setbacks

There is a 30-foot setback from both the Ala Wai Boulevard and Kalakaua Avenue, and a 20-foot setback from McCully Street.² The first 10 feet of the setback areas will be restricted to landscaping.

There is also an additional 10-foot City and County of Honolulu road widening setback fronting the subject property along Kalakaua Avenue which will be utilized in accordance with City and County of Honolulu, Department of Public Works standards.

In addition, construction will be coordinated with the Kalakaua Avenue Safety and Beautification project, Phase II, in relation to the proposed use of the sidewalks and Kalakaua Avenue setback. Provisions have also been made for the encroachment of the proposed fixed guideway rapid transit station within the subject property in coordination with the Rapid Transit Development Division.

2. Land Use Ordinance, Section 7.80-3 General Requirements for the Waikiki Special Design District, pgs. 7-47 to 7-48.

8. Open Space/Park Dedication

The proposed open space for the project will provide more than the minimum 20% open space requirement.

Additionally, the project will meet "Park Dedication Rules and Regulations," as specified by the DLU (January 1985). These regulations require park dedication equal to 10% of the maximum permitted floor area, or 110 square feet per dwelling or lodging unit, whichever is less. The park dedication requirements will be applied toward the project's open space requirements.

9. Waikiki Gateway Design Requirements

In compliance with the design considerations for areas designated as a "Waikiki Gateway," the proposed project design includes consideration for open space and architectural treatment as specified in the LUO, Waikiki Special Design District (B-17).

D. DEVELOPMENT SCHEDULE

If all government approvals are obtained as projected, construction is expected to begin in early Spring 1990, with completion in Spring 1992.

E. ESTIMATED COST

The estimated project development cost is \$100-\$130 million.

Chapter III

III. ENVIRONMENTAL CONDITIONS/PROJECT IMPACTS

A. EXISTING USES

(Exhibits III-1A and III-1B)

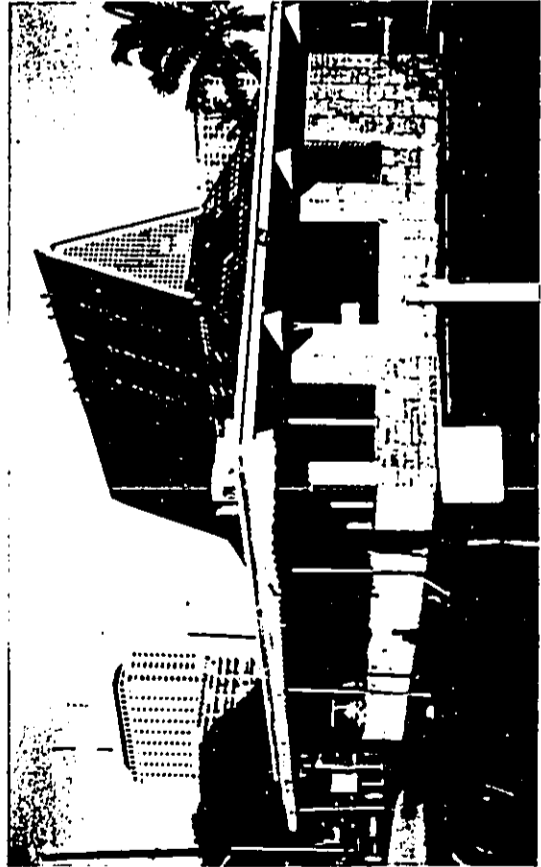
On the subject property there are 12 small businesses:

1. Waikiki Rent-A-Car (car rental company)
2. Honolulu Rent-A-Car (car rental company)
3. AAA Condo Rentals (real estate rentals)
4. Pacific Island Estate Jewelry (pawn shop)
5. AmeriCab (taxi company)
6. Bag's End (pawn shop)
7. Classic Surfboards (surfing equipment retail store)
8. Galaxy TV (TV sales and repair)
9. Noe Realty (real estate sales)
10. Sailor Jack's Tattoo (tattoo parlor)
11. Masquerade/Phaze (night club)
12. Pro-Park (parking lot) - This parking lot includes 135 spaces for the Royal Aloha Condominium, located across McCully Street.

All of the 12 businesses on the subject property are on a month-to-month lease. Excluding Masquerade, which employs 40-60 full and part time employees, the other small businesses together employ approximately 30 full time employees and 50 part time employees.

Project Impacts

See Chapter V.A. DISPLACEMENT (page 55) for impacts on existing uses.



USO Group Corporation



Walkiki Rent-A-Car



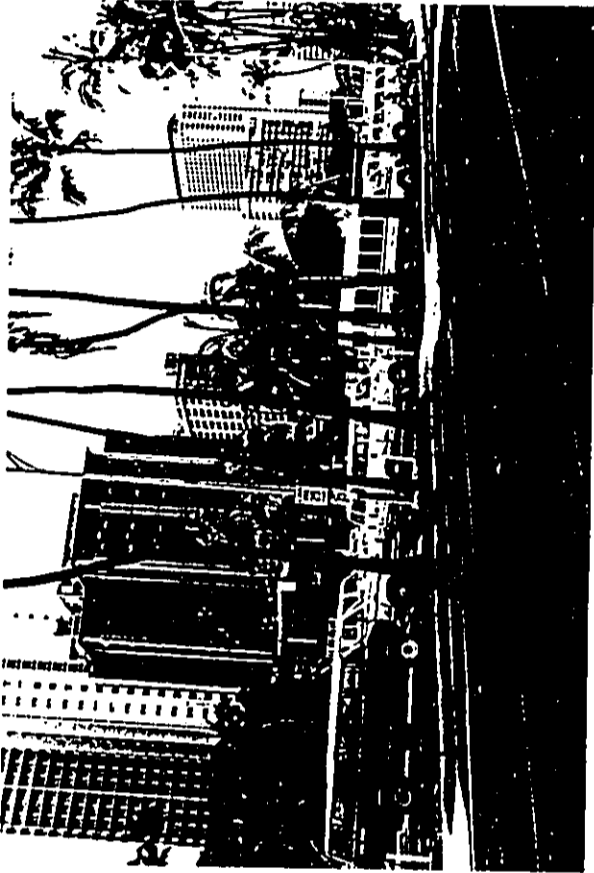
2-Story Commercial Building (View from Kalakaua Ave.)



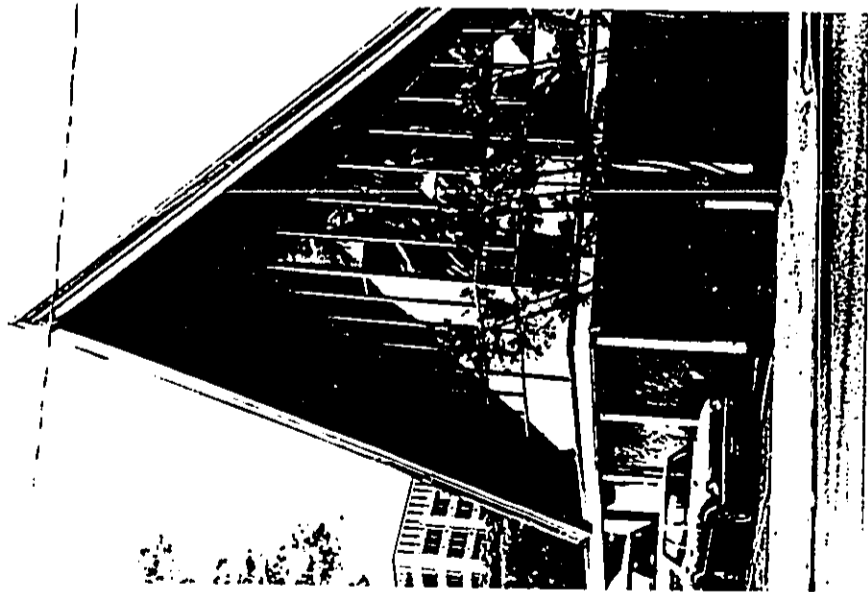
2-Story Commercial Building (Back View)

**Exhibit III-1A
Existing Uses on Subject Property**

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Pro-Park Parking Lot



Masquerade Nightclub

**Exhibit III-1B
Existing Uses on Subject Property**

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Environmental
Planning

B. SURROUNDING USES

(Exhibits III-2A and 2B)

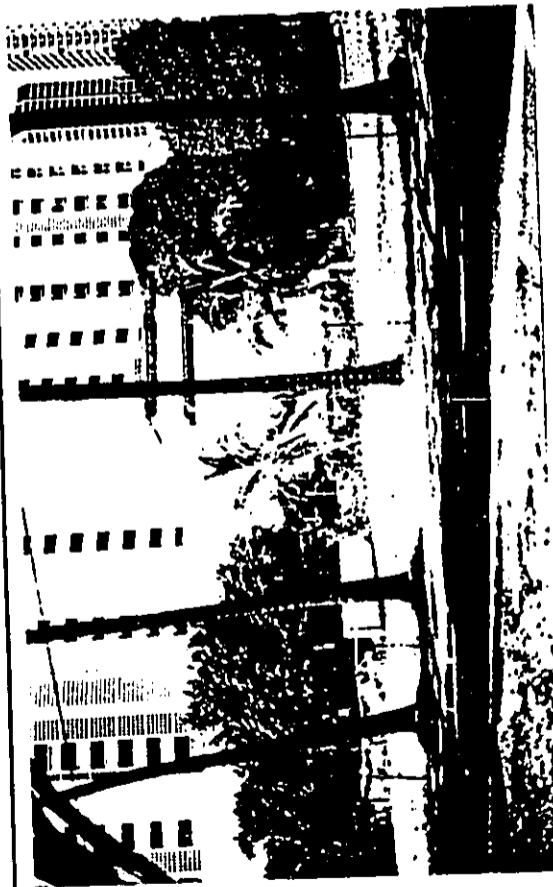
The following properties are located makai of the subject property, across Kalakaua Avenue:

1. 10-story office building
2. Nanea Condominium (2 buildings, 3 stories each)
3. Vacant lot
4. The Wave Waikiki (discotheque and bar)
5. On Stage Hawaii (gift shop)
6. 1-story "brown building" (vacant)
7. 7-Eleven store (convenience store)
8. Kalakauan Condominium (2 residential buildings, 6 stories each, with commercial space on the ground floor)

The following properties are located Diamond Head of the subject property across McCully Street (Exhibit III-3):

1. Jack in the Box (fast food restaurant)
2. Royal Aloha Condominium (16-story residential building, with some commercial units)

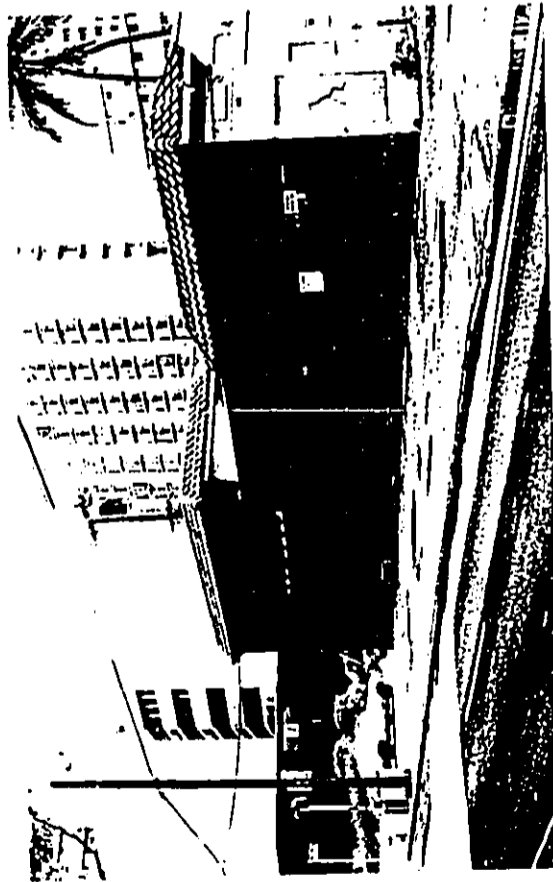
Both the Kalakauan Condominium and the Royal Aloha Condominium include commercial space. The Kalakauan, which consists of two buildings, has three commercial spaces on the ground floor of the building facing Kalakaua Avenue. This commercial space includes the Waikiki Photo and Laboratory, Inc., plus two vacant commercial spaces, which are currently advertised for rent.



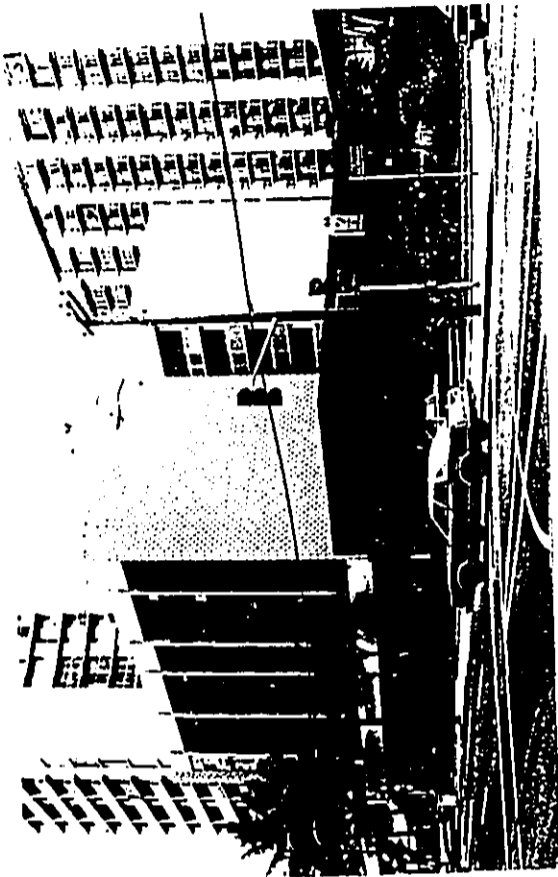
Vacant Lot



On Stage Hawaii and The Wave Walkiki



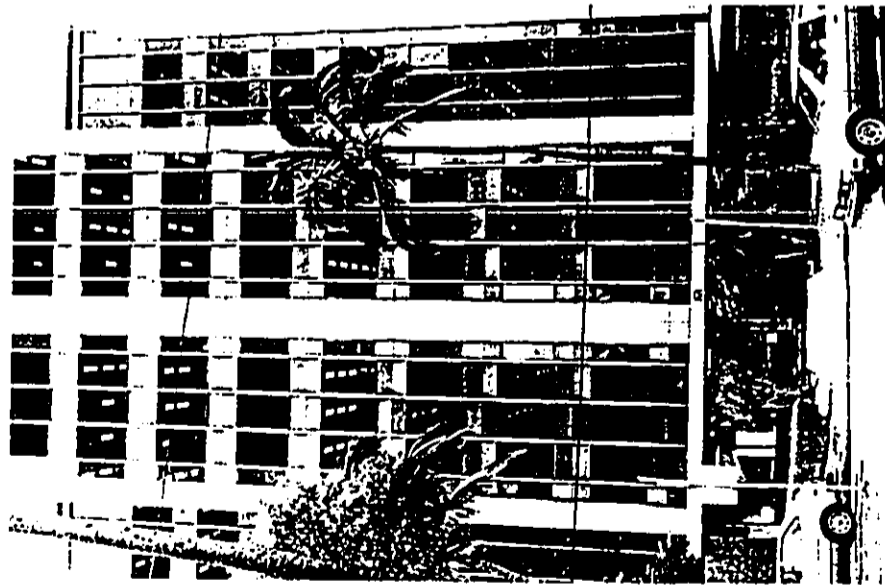
Vacant "Brown Building"



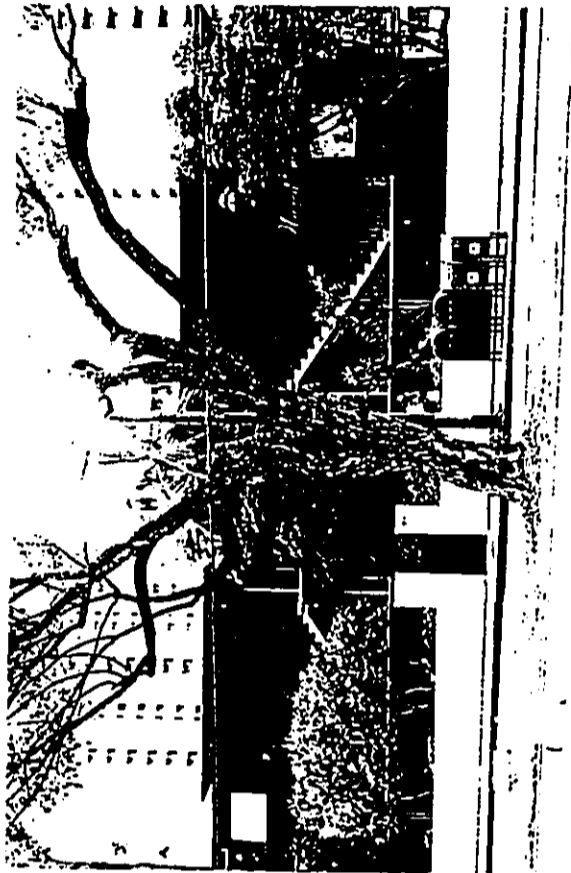
7-Eleven Store and Kalakauan Condominium

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Planning

**Exhibit III-2A
Surrounding Properties Located Across Kalakaua Avenue**



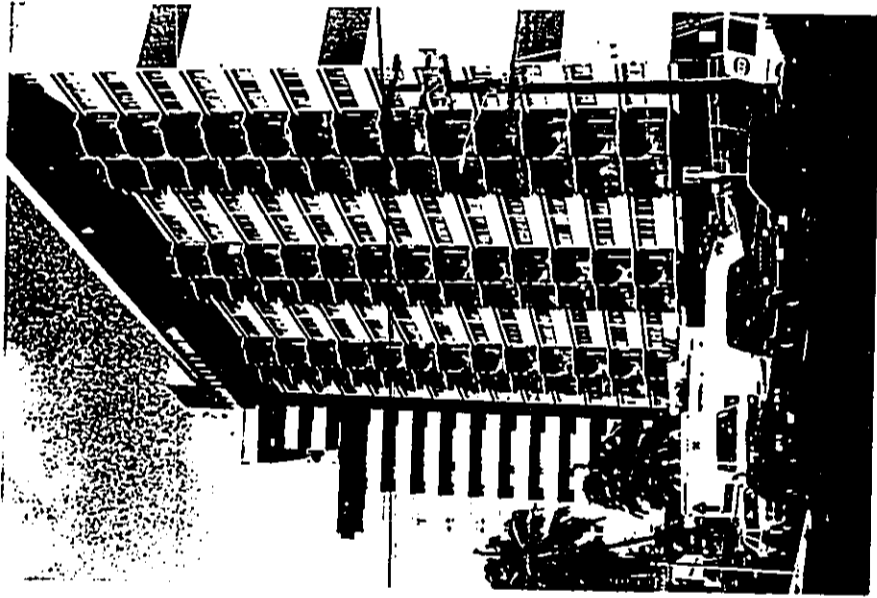
10-Story Office Building



Nanea Condominium

**Exhibit III-2B
Surrounding Properties Located Across Kalakaua Avenue**

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Royal Aloha Condominium

**Exhibit III-3
Surrounding Properties Across McCully Street**

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Under previous zoning regulations, the Royal Aloha Condominium was a mixed residential/commercial building. There are several nonconforming commercial uses in the building, including Cilly's (a discotheque), Century 21 Realty Company, Marika Yamato Realty, Whitby Candy, corporate office space for the Waikiki Bazaar, and Aloha Parliamentary (a professional parliamentarian consulting company). Additionally, there is a large vacant commercial space for rent, which was previously occupied by Denny's Restaurant.

Project Impacts

See Chapter III.M. VISUAL (page 35) for visual impacts on surrounding properties.

C. TOPOGRAPHY/SLOPE

Existing Conditions

The subject property is level and is approximately 5± feet above mean sea level. The site has been filled in and graded, and has been in urban use for over 50 years. It does not have any unique or unusual topographic features.

Project Impacts

There will be an insignificant impact on the topography of the subject property, since the property is level. There will be a minimal amount of grading during site preparation.

D. SOILS

Existing Conditions

According to the Soil Survey of the Soil Conservation Service,³ the subject property consists of Fill land, mixed (FL). The Soil Survey describes this type of soil as follows:

"It consists of areas filled with material dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources.... This land type is used for urban development including airports, housing areas, and industrial facilities."

Project Impacts

There will be no project impact on the soil conditions of the subject property.

E. FLOOD CONDITIONS

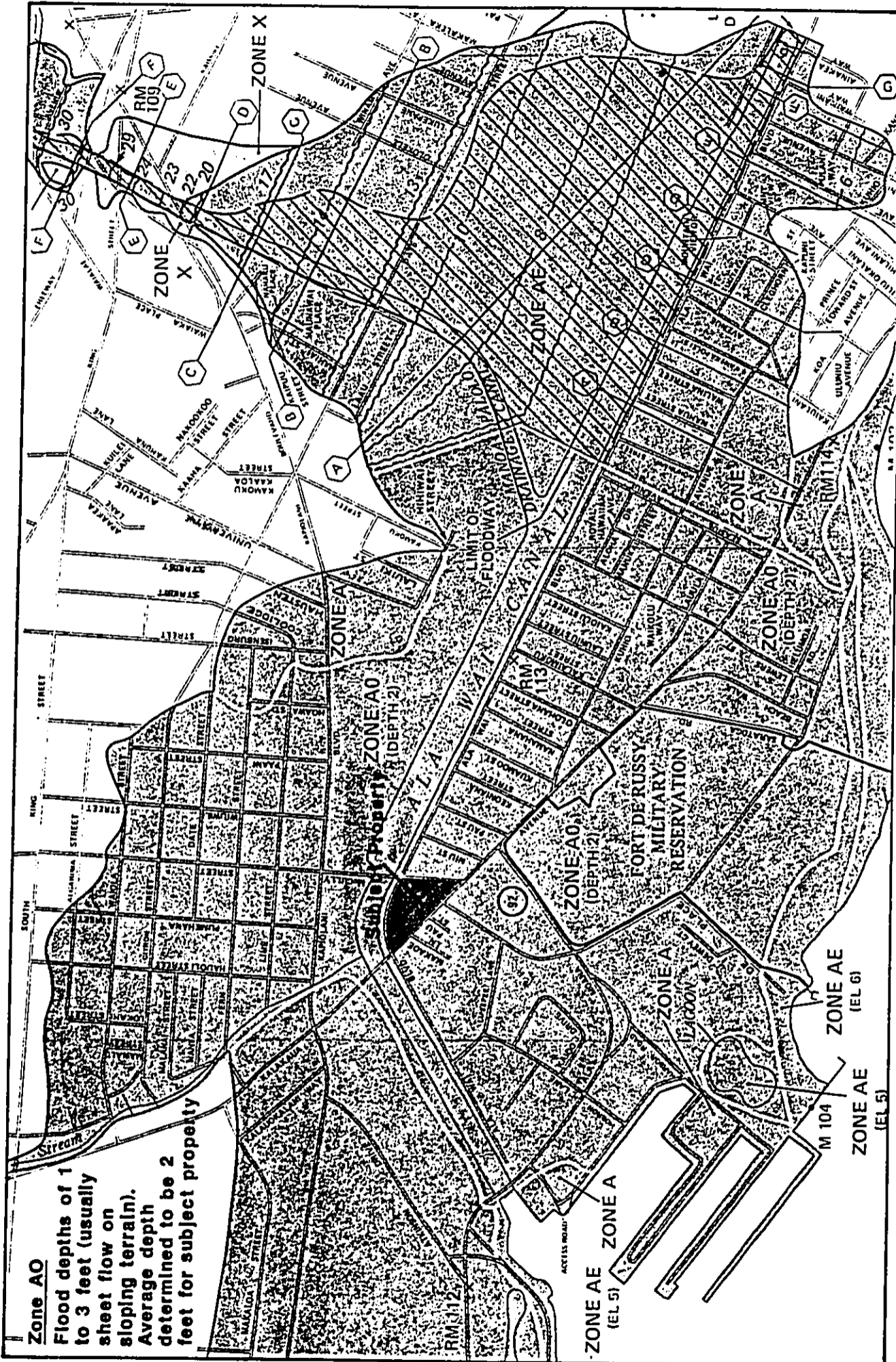
(Exhibit III-4)

Existing Conditions

The entire site is in Flood Zone AO, designating a flood hazard area inundated by a 100-year flood.⁴ Flood depths have been determined to be two feet in this area.

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

4. FIRM Flood Insurance Rate Map, National Flood Insurance Program, Panel 120 (Federal Emergency Management Agency, September 4, 1987).



Zone AO
 Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain). Average depth determined to be 2 feet for subject property

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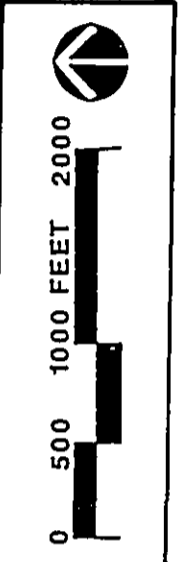


Exhibit III-4
Flood Insurance Rate Map

Project Impacts

The project will not have any impact on the flood conditions in the area. It will, however, be in compliance with all flood control regulations.

The Land Use Ordinance (Sec. 7.10-6B.5.) requires that the lowest habitable floor of residential structures be elevated above the crown (highest point) of the nearest street, or above the depth number (two feet in this case) specified on the flood maps. The lowest habitable floor of non-residential structures must also be above that level, or be completely flood proofed and watertight.

The first two floors of the proposed development will be commercial and will be in compliance with applicable flood proofing regulations.

F. WETLANDS

Existing Conditions

Similar to the rest of Waikiki, the subject property has been filled and converted to "dry lands," and has been in urban use for over 50 years.

Project Impacts

There will be no impact on wetlands and no wetlands permit by the U.S. Army Corps of Engineers is required for the subject property.⁵

5. Telephone conversation with Warren Kanai, Civil Engineer, U.S. Army Corps of Engineers, December 22, 1987.

G. VEGETATION

Existing Conditions

Several coconut and palm trees line the perimeter of the subject property, in addition to some hala trees, rubber trees, plumeria trees, oleander bushes, and other shrubbery. Eight monkeypod trees and a few coconut trees are located on the subject property.

Project Impacts

The project will have an insignificant impact on existing vegetation. Where possible, existing vegetation will be retained. This is especially true for the existing monkeypod and coconut trees. These trees will be either incorporated into the landscaping design or will be relocated on the subject property. The vegetation for the subject property will be increased, since the proposed development will be heavily landscaped. Design controls specifying park dedication and open space requirements will ensure a significant amount of landscaping on the subject property.

H. FAUNA

Existing Conditions

In light of the existing commercial uses, the only fauna on the subject property are rats and mice, and various birds which are common to the urban areas of Honolulu.

Project Impacts

The project will have an insignificant impact on existing fauna on the subject property. Construction activity may displace some birds which currently feed and nest on the subject property. However, once landscaping is completed, the area will provide potential habitats for birds, and the project may have a positive impact on the bird population in the area.

I. ARCHAEOLOGICAL RESOURCES

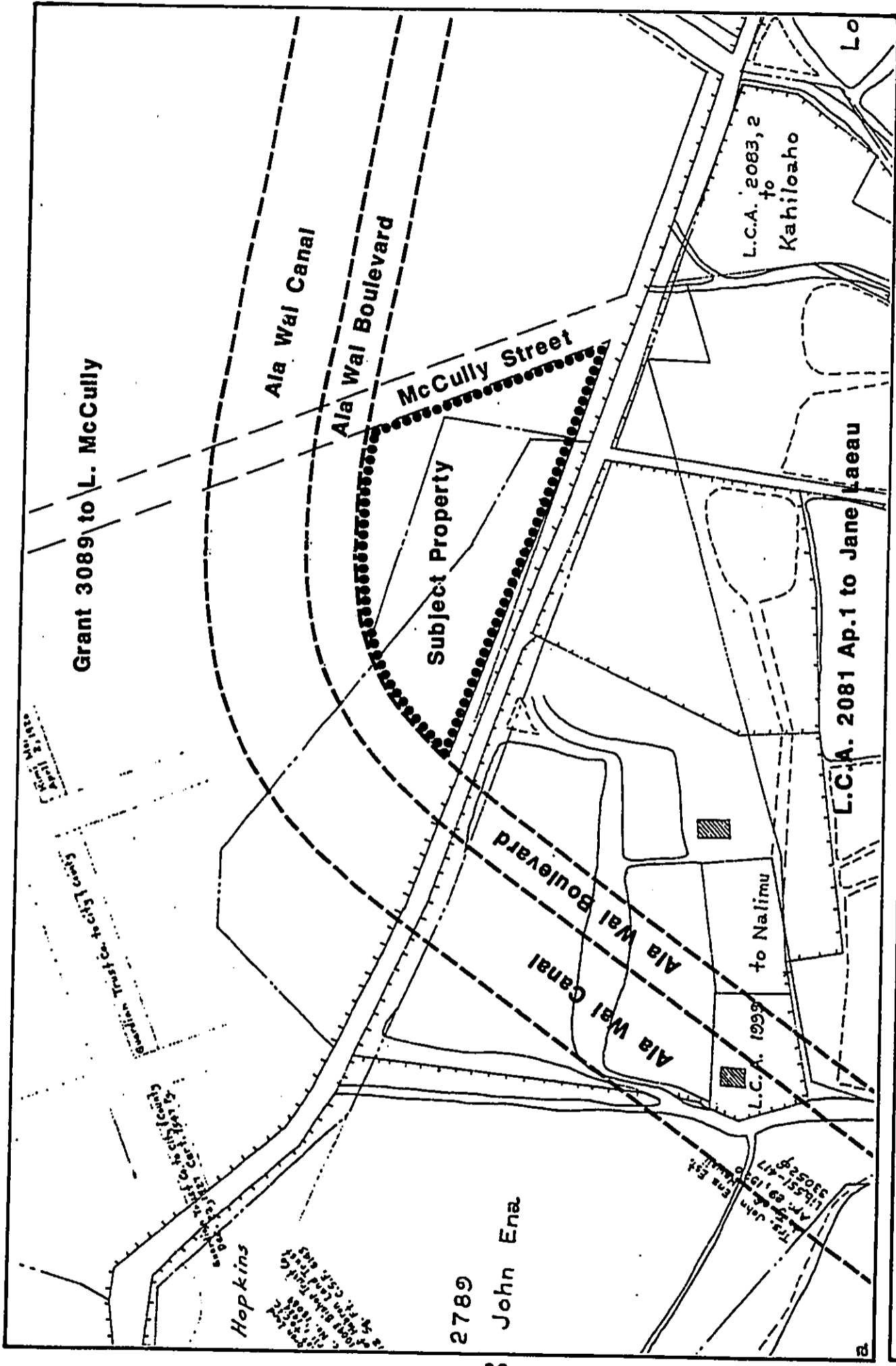
Existing Conditions

A pre-field background literature review for archaeological resources was conducted on the subject property by the Bishop Museum Applied Research Group. A full text of this review is in Appendix A and a summary of the review follows.⁶

Land ownership of the subject property is shown on a 1881 map by S.E. Bishop (Exhibit III-5). There is no indication of land use on the subject property on the 1881 map.

Between 1921 and 1926 the Ala Wai Canal was created and it is likely that the subject property was filled with material dredged from the new canal. A 1927 aerial photo of the completed canal shows the subject property with a circular structure and some white coral fill (Exhibit III-6). The

6. "Pre-Field Background Literature Search for Archaeological Resources at the Proposed Waikiki Landmark Property" by Mary F. Riford, Applied Research Group, Bishop Museum, February 1989.



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Exhibit III-5
1881 Map of Subject Property



— Subject Property

**Exhibit III-6
Aerial Photo of Subject Property - 1927**

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Planning

subject property is dark indicating low vegetation and is separated into three parcels by white roadways. Bishop Museum concludes that prior to 1920 it is likely the subject property contained taro fields which were filled in by 1927. Therefore, Bishop Museum has established a low to moderate potential for locating subsurface archaeological resources on the subject property.

The Historic Sites Section of the Department of Land and Natural Resources (DLNR) confirms this research. Therefore, the Historic Sites Section has agreed to forego normal field reconnaissance procedures for the subject property in view of the present altered condition of the area.⁷ The Historic Sites Section, however, does not underestimate the possibility that subsurface archaeological deposits and burials may be present. This is based on the fact that such deposits have been discovered in adjacent areas in Waikiki.

Project Impacts

Upon Bishop Museum recommendation and in compliance with requests by the Historic Sites Section, backhoe-assisted subsurface testing will be conducted at the time of demolition. The applicant will also comply with departmental guidelines which require the cessation of

7. Letter of January 12, 1989 from Bishop Museum outlining discussions and agreements with the Historic Sites Section, Department of Land and Natural Resources. (See Appendix B.)

construction work in the event that any archaeological artifacts are discovered, and the notification of the Historic Sites Section.

J. TRAFFIC

Existing Conditions

A traffic assessment study was conducted by Pacific Planning & Engineering to determine the proposed project's impact on traffic.⁸ The full text of the study is included as Appendix C. A summary of the report follows.

Access to the subject property is via Kalakaua Avenue, Ala Wai Boulevard and McCully Street, which are major roadways providing entrance and exit into Waikiki.

Traffic counts were taken during the afternoon peak hour of 4:00-5:00 p.m. for December 17th (Thursday) and 29th (Tuesday), 1987. Traffic volumes taken by DTS for a 24-hour period in 1984 at the intersections of Kalakaua Avenue/Lewers Street and Ala Wai Boulevard/Lewers Street were also included.⁹ These 24-hour counts reveal that the most severe traffic congestion occurs between 4:00-5:00 p.m.

8. "Traffic Impact Assessment Report for the Proposed Waikiki Landmark" by Pacific Planning & Engineering, Inc., November 1988.

9. Available traffic survey information indicates little or no increase in area traffic volumes over recent years.

Field survey indicated that late night weekend traffic congestion was a result of singular events, such as movies, beginning or ending at the same time.

Traffic impacts were measured by changes in Level-of-Service (LOS) and capacity levels for each intersection.¹⁰

Present LOS levels at the three intersections adjacent to the subject property indicate a LOS B¹¹ with a capacity level of "under capacity." These levels are considered acceptable, with most traffic streams having minor delays.

The LOS level was also determined for the Kalakaua Avenue/Kapiolani Boulevard intersection, a major intersection near the subject property. This intersection has an existing LOS D¹² with a capacity level of "near capacity."

10. LOS describes traffic conditions in terms of speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. LOS categories range from LOS A, the best, free flow conditions, to LOS F, the worst, congested conditions.

Capacity levels describe whether an intersection is operating over, near, or under capacity.

11. LOS B describes operations with delay in the range of 5.1 to 15.0 sec per vehicle usually with good progression and/or short cycle lengths.

12. LOS D describes operations with a delay in the range of 25.1 to 40.0 sec. per vehicle. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression. Many vehicles stop, and the proportion of vehicles not stopping declines.

Project Impacts

The study assessed anticipated 1991 traffic impacts, with and without the proposed development and focused on the three existing intersections of Kalakaua Avenue/Ala Wai Boulevard, Ala Wai Boulevard/McCully Street, and Kalakaua Avenue/McCully Street. Impacts were assessed during the afternoon peak hour of 4:00 pm to 5:00 pm since traffic counts indicated a 5% heavier afternoon traffic flow than in the morning peak hours. The Kalakaua Avenue/Kapiolani Boulevard intersection was also assessed to determine anticipated 1991 project traffic impacts.

Results from the traffic study indicate that the proposed Waikiki Landmark will increase traffic volumes slightly along major roadways and intersections leading to the subject property. The LOS levels for the three adjacent intersections are expected to remain at LOS B with and without the proposed project. The Kalakaua Avenue/Kapiolani Boulevard intersection will remain at LOS D with and without the proposed project.¹³

13. Night time traffic is not expected to be impacted by the proposed project since night clubs or discotheques are not planned for the commercial sector because of the adverse impact to the condominium sector.

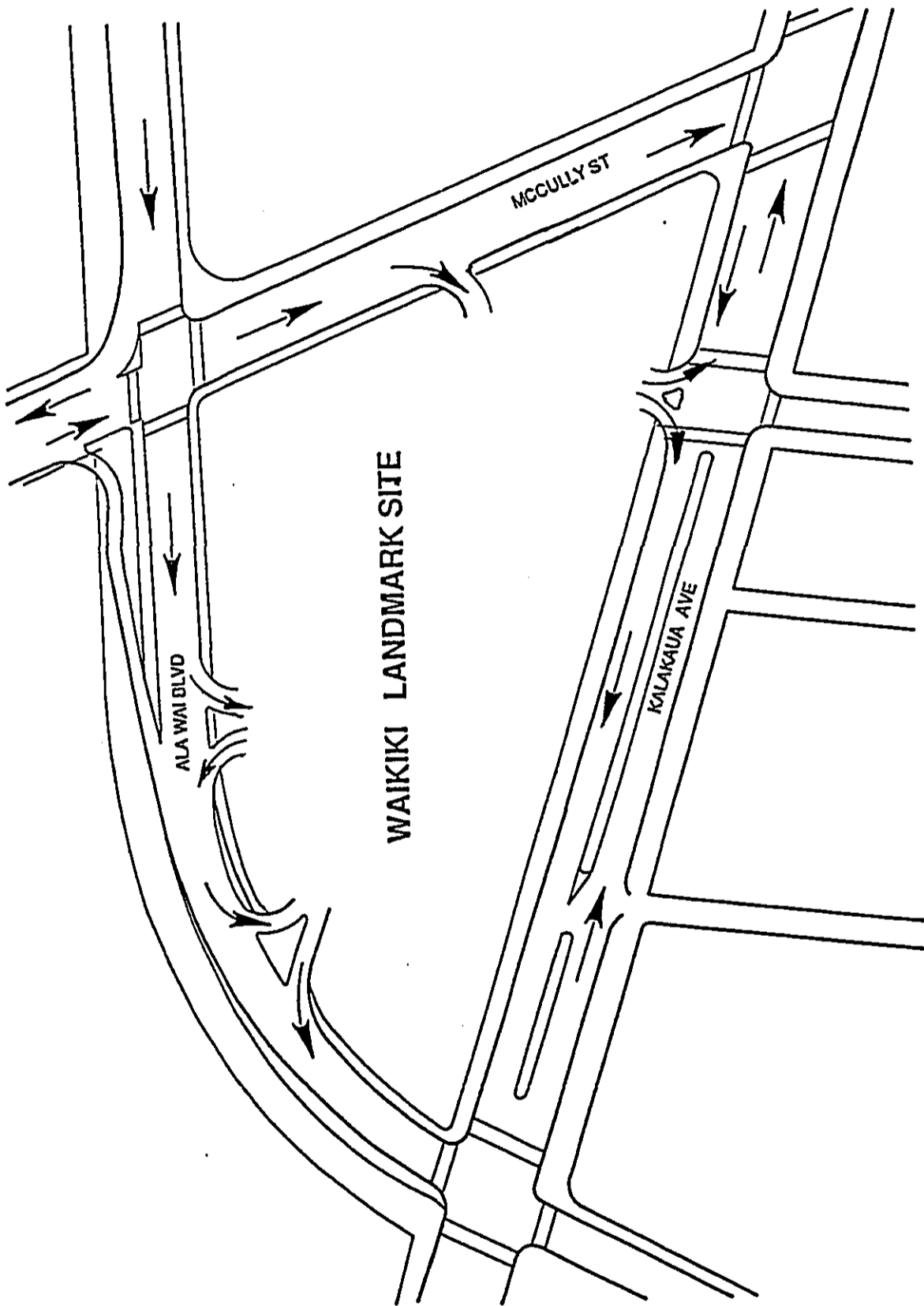
The traffic impact assessment study concludes that all four major intersections near the subject property will remain under or near capacity level and at an acceptable LOS during the afternoon peak hour traffic with the addition of the Waikiki Landmark.

The traffic study also indicates that the LOS at the major intersections studied are expected to improve with the proposed City and County improvements for Kalakaua Avenue and the improved traffic signal control system to be completed by 1993.

Finally, an effort was made to determine the level of difficulty motorists will encounter when attempting to exit the subject property.¹⁴ Entrance and exit driveways are located on Ala Wai Boulevard. An entrance driveway is also located on McCully Street with the exit driveway located on Kalakaua Avenue opposite Ena Road (Exhibit III-7).

Motorists leaving the proposed project in a northerly direction towards downtown during the afternoon peak hours will encounter some difficulty exiting left on Ala Wai Boulevard and attempting to enter the immediate right turn lanes onto Kalakaua Avenue. The motorists exiting onto Kalakaua Avenue will encounter very little difficulty in

14. The exact locations of entrance and exit driveways has not yet been finalized. The following discussion, however, analyzes the design recommended by the Department of Transportation Services, City and County of Honolulu.



Source: Pacific Planning & Engineering, November 1988

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Exhibit III-7
Traffic Circulation Plan

entering the traffic stream. The right turn onto Kalakaua Avenue toward downtown from this exit will be into a bus lane with very little traffic. The left turn exit onto Kalakaua Avenue towards Waikiki will flow easily into traffic from Kalakaua Avenue and Ena Road at the traffic signal.

Adequate site distances meeting the existing speed limit requirements will be provided at all driveway connections for vehicles as well as for pedestrians. Costs to modify the signals at the intersection of Kalakaua Avenue and Ena Road will be borne by the developer.

K. AIR QUALITY

Existing Conditions

An air quality impact study was conducted by University Associates, Inc. for the proposed project.¹⁵ The full text of the study is included as Appendix D of this report, and a summary follows.

University Associates stated that traffic is the major source of pollutants in the vicinity of the subject property. The study focused on carbon monoxide (CO), the major emission from vehicular traffic.

15. "Air Quality Assessment Report for the Proposed Waikiki Landmark, Revision of January 1988 Report" by University Associates, Inc., February 1989.

Carbon monoxide was monitored for one week (January 6 - 13, 1988) at the subject property. CO concentrations were compared with CO readings at the Department of Health (DOH) long term site on Kalakaua Avenue in order to estimate long term CO levels at the subject property. The DOH sets standards relating to the second highest annual CO readings.¹⁶

At the subject property, the 1987 estimated second highest one hour and eight hour concentrations, 9.4 ppm (parts per million) and 5.0 ppm, respectively, exceeded the State Ambient Air Quality Standards (AAQS).

Project Impacts

Despite the anticipated slight increase in traffic volumes along major roadways leading to the subject property, the air quality in the vicinity of the subject property is expected to improve in 1991, the project completion date.

According to the U.S. Environmental Protection Agency, CO emission rates for cars will continue to drop over the next decade, as new cars are fitted with better catalytic converters and old cars disappear.¹⁷ Therefore, despite the

16. The highest annual reading is used to establish the level which can only be exceeded once per year and is usually considered a unique event. Thus, the second highest reading is used to set the standard.

17. It is expected, however, that unless new Federal emission standards are enacted, this downward trend will reverse and, as traffic volumes increase, pollutant emissions will rise in the next 10-15 years. See comment letter from Jim Morrow, American Lung Association of Hawaii in Chapter XIV.

anticipated traffic increase, reduced vehicular emissions are expected to result in significantly lower CO concentrations at the subject property.

University Associates, Inc. estimated the second highest one hour concentration for 1991 for the subject property with the proposed project to be 7.6 ppm, which is below the 1987 estimate of 9.4 ppm, and below the State AAQS of 8.7 ppm. Similarly, the second highest eight hour concentration for the subject property in 1991 is projected to be 4.0 ppm, which is lower than both the 1987 estimate of 5.0 ppm and the State AAQS of 4.35 ppm.

For 1991, without the proposed project, the estimated second highest one hour CO concentration for the subject property is 7.0 ppm and the second highest eight hour concentration is estimated to be 3.7 ppm. Both are close in value to estimates given for the subject property with the proposed project and are below the State AAQS. Therefore, the proposed project will produce slightly higher CO levels but the increase is insignificant.

L. NOISE CONDITIONS

Existing Conditions

Darby and Associates conducted a noise impact evaluation for the proposed development.¹⁸ The full text of the study is included as Appendix E and a summary of the study follows.

The noise study indicated that motor vehicle traffic was the primary source of noise in the vicinity of the subject property. Other noise sources included aircraft flyovers, people talking or shouting in the streets, mopeds and motorcycles, trash collection operations, loud amplified music from automobiles, and demolition/construction activities in the area.

Project Impacts

The project is expected to have an insignificant impact on noise in the area. The project will generate a slight increase in traffic noise, the main source of noise in the area.

Predicted noise level increases for listeners on the sidewalk and on lanais up to the third floor range from no change (on Ala Wai Boulevard), to less than one decibel (on Kalakaua Avenue and the makai portion of McCully Street), to almost two decibels (the mauka portion of McCully Street).

18. "Noise Impact Evaluation for the Proposed Waikiki Landmark Project" by Darby & Associates, January 1988.

For listeners on lanais on the upper floors, the noise study indicated that the proposed development will tend to block (and thus reduce) some traffic noise impacts from some distant streets, as well as trap, or cause a reverberant noise buildup of sounds from the roadway in the space between an existing high rise building, and the proposed development. The net result, however, is that one effect will tend to counteract the other, and the resultant noise impact is expected to be negligible.

Construction of the project may generate a significant amount of noise, and the applicant will obtain a noise permit from the Department of Health (DOH). The permit specifies noise level conditions for construction activities, and restricts certain construction activities to specific times during the day. Construction will be conducted according to all regulations as specified by the DOH.

Darby and Associates indicated that noise associated with the operation of the project (air conditioning equipment, exhaust fans, trash compactors, parking garage activity, deliveries or trash collection) is not expected to exceed State and City and County of Honolulu noise regulations.

The project design will include noise mitigation measures to reduce potential noise impacts. Air conditioning equipment, exhaust fans, trash compactors and loading docks will be properly situated to minimize noise impacts.

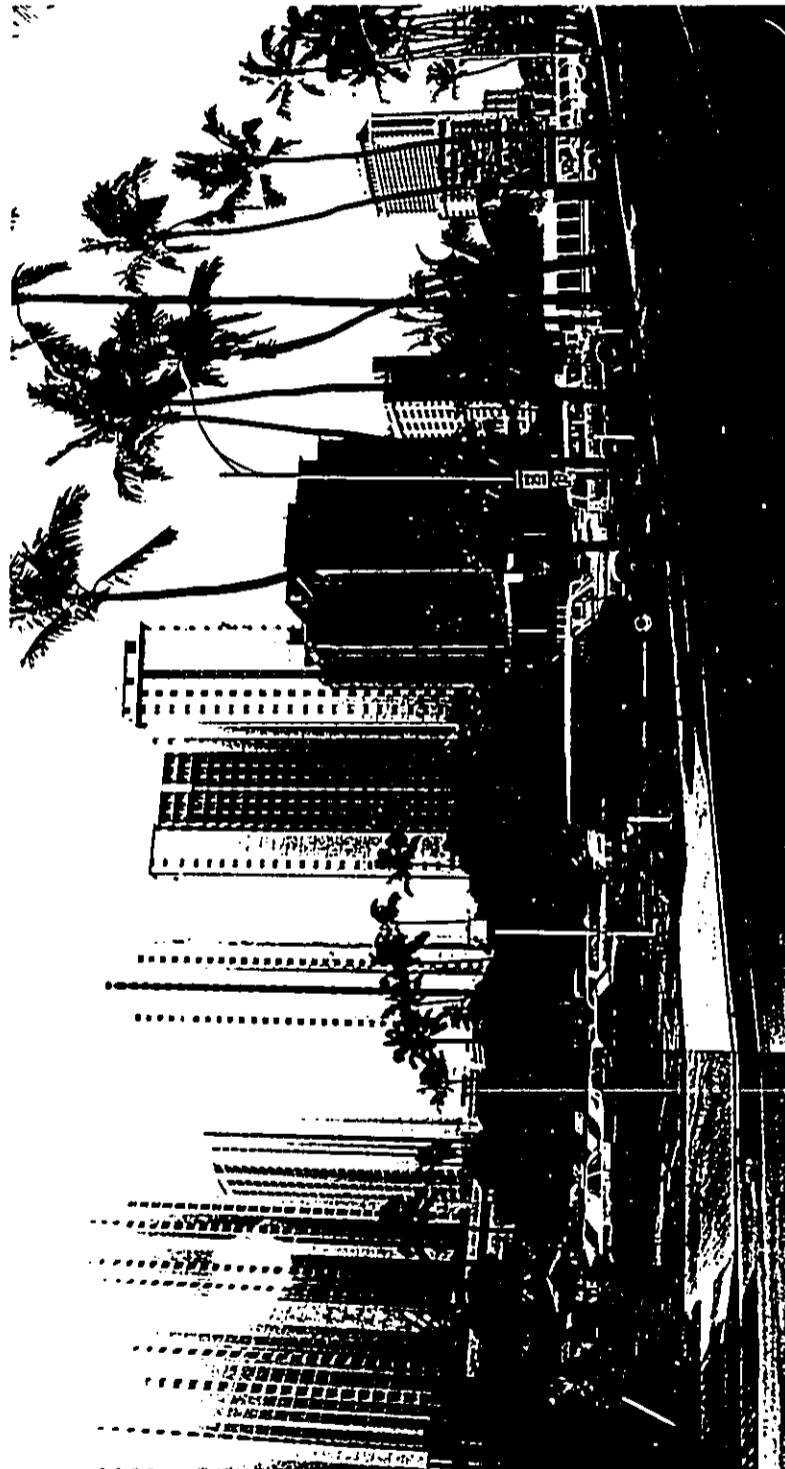
M. VISUAL

Existing Conditions

The proposed project is surrounded on all sides by roadways. There are no tall structures immediately north of the subject property since the Ala Wai Canal is just beyond Ala Wai Boulevard. Across McCully Street to the east is the 16-story Royal Aloha Condominium. Beyond Kalakaua Avenue which borders the subject property to the south and west are eight separate properties, the highest a 10-story building. Also to the west is the Kalakaua Avenue/Ala Wai Boulevard intersection.

The ocean is not visible from the vicinity of the subject property because several high rise buildings block makai views (Exhibit III-8).

The mauka views from the vicinity of the subject property are already obstructed by other high rise buildings (Exhibit III-9).



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Exhibit III-8
Makai Views From Across Ala Wai Boulevard



**Exhibit III-9
Ewa/Mauka Views From Subject Property**

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The existing views of the subject property present a conglomeration of small businesses and parking lots with no unity or landscaping. This results in a "honky-tonk" effect and is viewed as an eyesore by the surrounding residents.

Project Impacts

The project design was completed in consideration of the following urban design and visual factors:

1. Maintain maximum open space with emphasis at street corners.
2. Develop Kalakaua/Ala Wai intersection as "symbolic gateway" to Waikiki. Provide large open space and low buildings at this end.
3. Develop Kalakaua Avenue as a main street concept
 - a. Maximum openness and vista toward Diamond Head
 - b. Maximum tower setbacks and non-parallel tower orientation
4. Preserve mauka-makai sight lines through subject property.

The proposed project design, two slender towers, 80-feet apart with the top five floors connected, may be a new look on Oahu. However, the 80-foot slot between the towers gives a visual appearance of two slender towers instead of a

lower, "block style" building with the same density, which would dominate the entire subject property and impact more view planes.

The project will have no impact on ocean views, since existing buildings block views of the ocean. The proposed development will impact upon the mauka views of properties located across Kalakaua Avenue from the subject property, although this view is already obstructed.

Ewa views from the Royal Aloha Condominium will be obstructed by the proposed development. However, the Century Center residential/commercial building on Kalakaua Avenue already blocks the Ewa views from that condominium. (See Exhibit III-9, page 37).

Overall, the appearance of the subject property will be significantly improved with new buildings and extensive landscaping incorporated into the design of the project. This will present a unified appearance to the subject property which is presently lacking and will be viewed as a positive impact by the surrounding residents.

N. WIND

Existing Conditions

The prevailing winds at the subject property are Northeast/East Northeast (NE/ENE) normal trade winds. The average wind speed recorded for Honolulu in 1986 was 11.5 miles per hour (mph) with a high of 46 mph during the year.¹⁹ The highest speeds are usually recorded during the months, April-August, with a range of 86%-95% trade wind frequency during these months. The winter months of November-February had a range of 42%-64% trade wind frequency.

A wind tunnel study was conducted by Cermak Peterka Petersen, Inc. to determine 1) pedestrian-level wind climate at primary locations of pedestrian activity on the proposed Waikiki Landmark site, 2) changes in pedestrian-level wind climate surrounding the proposed Waikiki Landmark site, and 3) evaluation of levels of pedestrian comfort.²⁰ The complete text of the study is included as Appendix F and a summary of the study follows.

19. The State of Hawaii Data Book, 1987, Department of Business and Economic Development, 1987.

20. "Wind-Tunnel Tests: Waikiki Landmark, Honolulu, Hawaii" by Cermak Peterka Petersen, Inc., July 1989.

Project Impacts

A model of the proposed Waikiki Landmark was constructed and a flow visualization study conducted at the beginning of the test using smoke to make wind currents visible, to observe flow patterns and to identify areas of flow patterns which might produce significant pedestrian discomfort. In general, pedestrian discomfort will occur with wind speeds in excess of 30 miles per hour (mph). Measurements of mean and peak gust wind speeds were made at 24 locations without the Waikiki Landmark in place and at 39 locations with the Waikiki Landmark present. (Exhibits III-10 and III-11). Measurements of means and peak gust wind speeds were taken at a height of 5-7 feet above the surface with the proposed project in place.

Evaluation of the changes in pedestrian level wind speeds in the areas surrounding the proposed project were made by comparing wind speeds at locations 1-16 with and without the Waikiki Landmark. For locations 1-3 which are located east and southeast of the subject property along the Ala Wai Canal and on McCully Street, the wind speeds are essentially unchanged. A modest increase of 25% for wind speed and 30% for the peak gust was experienced at locations 4-6 (north of the subject property on the Ala Wai Canal and Kalakaua Avenue) with the Waikiki Landmark. However, the wind speeds at these locations are within the acceptable criteria.

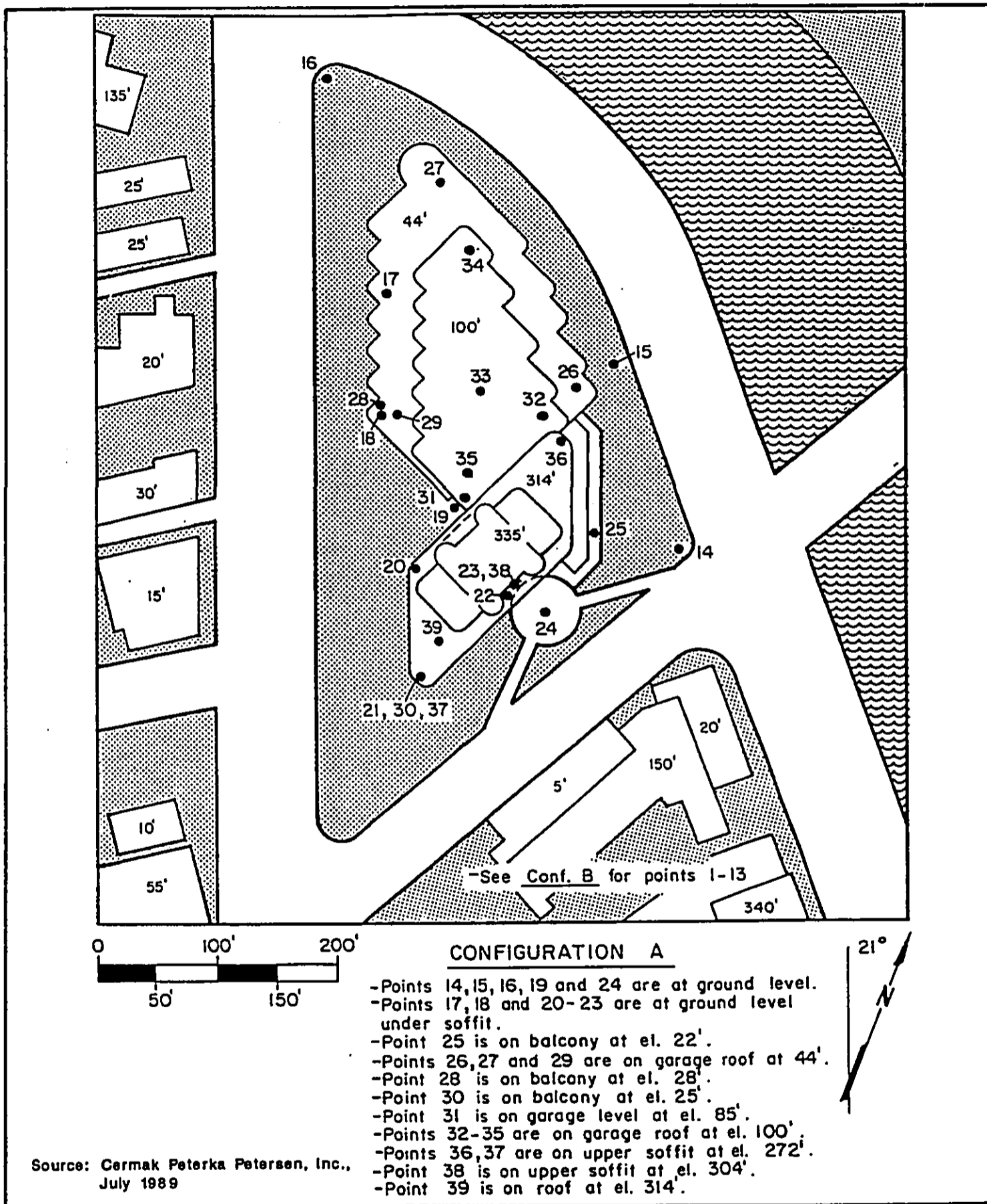
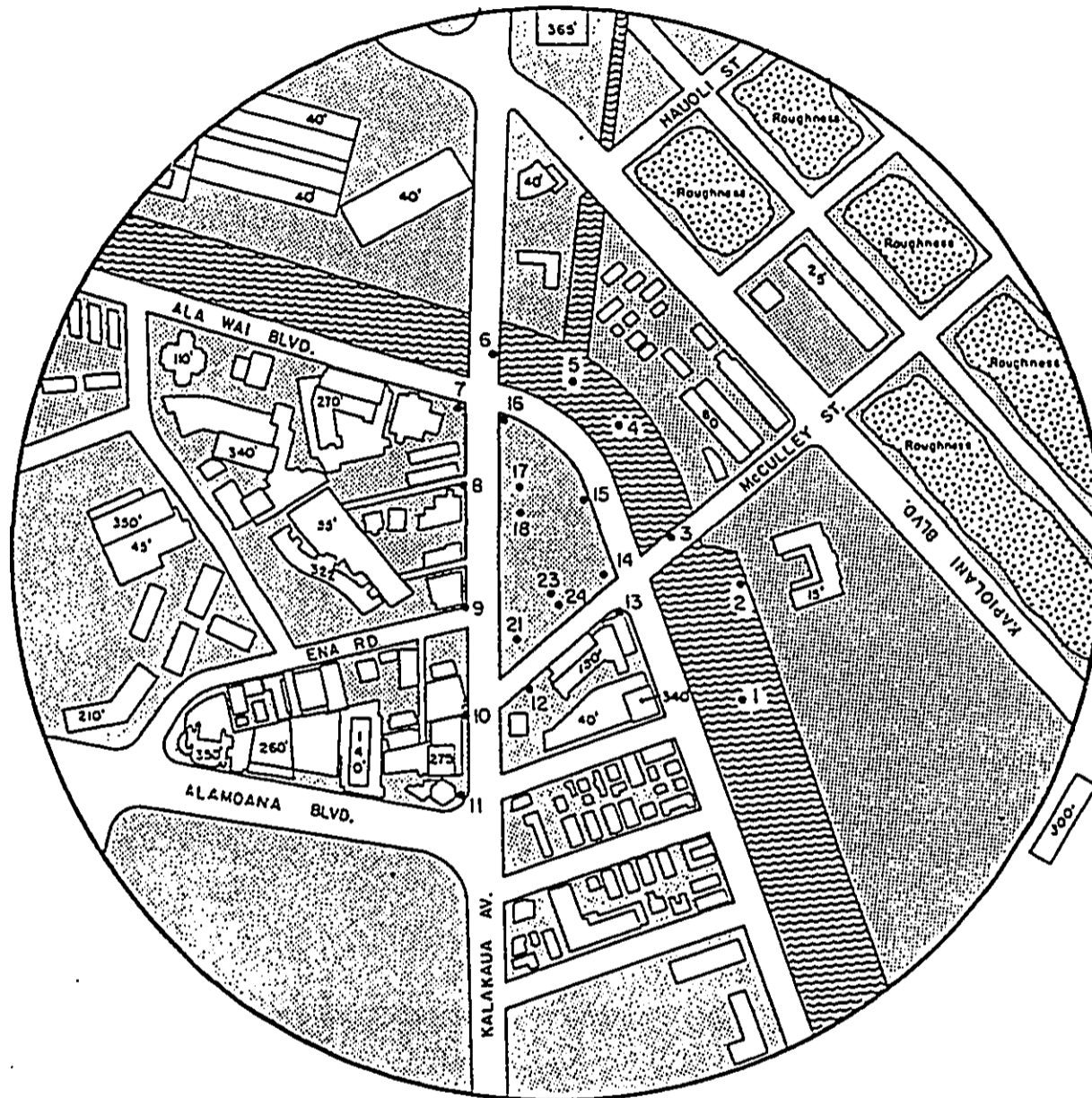


Exhibit III-10
Wind Velocity Measurement Locations
With Waikiki Landmark



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CONFIGURATION B

-Waikiki Landmark out.
 -Points 1-18, 21, 23 and 24 are located at ground level.

Source: Cermak Peterka Petersen, Inc., July 1989

**Exhibit III-11
 Wind Velocity Measurement Locations
 Without Waikiki Landmark**



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For locations 8-16 along Kalakaua Avenue, McCully Street and Ala Wai Boulevard, only locations 10, 13 and 16 will experience wind speed increases. Location 10 will experience doubled wind speed 1% of the time and 25% wind speed increases for locations 13 and 16. The peak gust speed at these locations will be increased by about 50%. The increases in wind speed at the locations to be used as walkways are determined to be acceptable. For all of these locations, mean wind speed of 20 mph will be exceeded 1% or less of the time. In summary, the wind tunnel study determined that wind speeds over surrounding areas will be within the acceptable range with the Waikiki Landmark.

Evaluation of the changes in pedestrian level wind speeds over the subject property indicate that four locations, 30, 32, 33 and 36²¹, will have unacceptable wind speeds with the construction of the Waikiki Landmark. Location 33 on the garage roof at approximately 100 feet is of greatest concern since this is the location of the swimming pool. The mean wind speed will exceed 31 mph 1% of the time and 22 mph 10% of the time while peak gusts will exceed 54 mph 1% of the time and 42 mph 10% of the time. Architectural addition of wind screens are suggested as effective solution to permit satisfactory use of this area as planned. Development of an

21. Location 30 is on balcony at elevation 25'. Locations 32 and 33 are on garage roof at elevation 100'. Location 36 is on upper soffit at elevation 272'.

effective wind-screen configuration will require wind speed measurements for various configurations which are aesthetically and economically acceptable.

o. SHADOW

Existing Conditions

There are no buildings over two stories existing on the subject property. Because of the current uses on the subject property, no shadows impact the surrounding area.

A shadow study was conducted by TRB Hawaii, Ltd. to determine the impact of shadows cast on the surrounding area by the proposed Waikiki Landmark.²² The complete text of the study is included as Appendix G and a summary of the study follows.

Project Impacts

Two design alternatives were evaluated in the study.²³ Since Design Alternative No. 1 has been selected for the proposed project, a discussion of the project impacts for that design follows.

A shadow was judged to have an impact if it reached the sidewalk on the opposite side of a street from the subject property. The percentage of shadow length on the sidewalk was

22. "Waikiki Landmark Shadow Study" by TRB Hawaii, Ltd., February 1989.

23. For a complete description of Design Alternatives No. 1 and No. 2, see Chapter XI. ALTERNATIVES TO THE PROPOSED ACTION.

then estimated. When a shadow did not reach an opposite sidewalk or remained on the subject property, it was determined not to have an impact. Shadows for each condition were photographed for one representative day of each month in two-hour increments.

Shadow impacts were evaluated for the three roadways surrounding the subject property. In general there was no shadow impact across McCully Avenue until after 12:00 noon since the sun is to the east of the subject property and casts a shadow to the west. Similarly, the shadow impacts on Kalakaua Avenue do not occur until after 12:00 noon, since the sun is in the west in relation to Kalakaua Avenue and casts shadows toward the east. Ala Wai Boulevard experiences a shadow impact throughout the middle of the day during the later months of the year when the sun is at a low angle at 12:00 noon.

In conclusion, the proposed Waikiki Landmark will cast shadow patterns on the surrounding area. The proposed project does not, however, create a permanent day-long shadow on any surrounding area. Furthermore, the anticipated shadow impacts are "positive" in a sense that it relieves the impacted buildings from the afternoon sun. In Hawaii's subtropical climate, the mid-afternoon is the hottest part of the day. A shadow cast from another building often offers a relief from the direct sunlight.

Chapter IV

IV. PUBLIC FACILITIES AND SERVICES/PROJECT IMPACTS

A. WATER

Existing Conditions

Existing water mains around the subject property include 12" mains on McCully Street, 16" mains on the Ala Wai Boulevard and 8" mains on Kalakaua Avenue.

Project Impacts

The project will increase the demand on water resources. Rough estimates²⁴ of the anticipated water usage by the proposed development include:

61,800 gallons per day (gpd) for the 206 residential
condominiums

4,440 gpd for the 36,795 net sf of commercial space

The landscaped areas will also be irrigated, but the amount of landscaping has not yet been finalized. As mentioned previously, however, the development will be in compliance with the open space and park dedication requirements for the project. If approximately 20% (the open space requirement) of the subject property, or 0.6 acres, is landscaped, it can be estimated that 2,400 gpd will be required for irrigation of the project's landscaped areas. These figures are based

24. Telephone conversation with Joe Kaakua, Board of Water Supply, December 23, 1987. Original estimates were based on 375 residential condominiums and 50,000 net commercial sf. The current anticipated water usage reflects the decrease in residential condominiums.

on the standards of 300 gpd per high rise condominium unit, 120 gpd per 1,000 sf of commercial space, and 4,000 gpd for irrigation of one landscaped acre.

In response to the applicant's request, the Board of Water Supply (BWS) has indicated that the water system is currently adequate to handle the proposed project needs (See Appendix H). The BWS will issue a determination of water availability when the Building Permit for the project is approved.

B. DRAINAGE

Existing Conditions

Stormwater currently drains off the subject property into the existing street drainage system. This water drains into the Ala Wai Canal, which drains into the ocean at the Ala Wai Boat Harbor. There are 24-inch drain lines along McCully Street and Kalakaua Avenue, and catchment basins near the subject property on McCully Street and Kalakaua Avenue.

Project Impacts

Since the subject property is already completely paved, the project will not increase the quantity of the water to be drained from the subject property. Rather, with the provision of ample open space and landscaping, the volume of sheet water flow may be reduced.

Present grading will be maintained. The applicant will submit the drainage system report and application for the necessary government approvals.

During construction, all appropriate precautions will be taken to prevent runoff created by construction activity from entering the Ala Wai Canal and the ocean.

C. WASTEWATER SYSTEM

Existing Conditions

There is currently a 12" sewer line on Kalakaua Avenue which connects with 8" and 6" sewer lines on the subject property.

Project Impacts

The project will not have a significant impact on the wastewater system in the area.

The City Department of Public Works has approved the applicant's request for connection to the City's sewer system (See Appendix I, August 7, 1989 approval). The applicant will provide for the construction of the project's sewer system and the cost of sewer connection.

D. SOLID WASTE

Existing Conditions

Solid waste from the subject property is currently collected by a private collection company and the City and County of Honolulu.

Project Impacts

The project will not have a significant impact on solid waste collection services in the area. The developer will provide an adequate number of on-site trash receptacles for pickup by either a private system, or the City and County of Honolulu. The trash receptacles will be appropriately screened and sealed to minimize any adverse impacts. The project will be in compliance with applicable solid waste collection regulations.

E. **PARKS**

Existing Conditions

Park facilities within 3 miles of the subject property include Kapiolani Park, the Waikiki Gateway Park, the Ala Wai Field and Playground, and the Honolulu Zoo. Beach parks also within a 3-mile radius include Ala Moana Beach Park (plus Magic Island), Fort DeRussy, Kuhio Beach Park, and Kapiolani Beach Park.

Project Impacts

Based on an average 1.7 persons per unit²⁵, the proposed project will add approximately 350 new residents in the Waikiki area. These new residents, however, may not impact one particular park since there are several parks within a 3-mile radius of the subject property.

25. State of Hawaii Data Book 1988, Department of Business & Economic Development, 1988.

In addition, in compliance with City Park Dedication Rules and Regulations, the applicant will provide recreational facilities on the proposed development. These will include a recreational building/health club, swimming pool, paddle tennis court, and picnic and barbecue area. The proposed project will provide more than the required minimum open space and will comply with all appropriate regulations.

F. SCHOOLS

Existing Conditions

There are several schools in the vicinity of the subject property. Public schools include Ala Wai Elementary School, Lunalilo Elementary School, Kuhio Elementary School, Washington Intermediate School, and Kaimuki High School. The subject property is also within easy access to various private schools, including Iolani School, Bingham Tract School, Punahou School, Maryknoll School and University High School.

Project Impacts

The proposed project will not have a significant impact on the area's school system. Based on 1980 census data, there were approximately 385 school age children between the ages of 5 - 19 in Census Tract (CT) 20.02 which includes the subject property. If the same ratio can be applied to the proposed project, 10.7% of 350 new residents would result in

approximately 38 additional school age children.²⁶ Existing schools will be able to provide educational services to children living in the project's residential condominiums.

G. ELECTRICITY AND TELEPHONE

Existing Conditions

Electrical service to the subject property is via 46 KV overhead transmission lines and three underground lines serviced by the Hawaiian Electric Company (HECO). (Exhibit IV-1) There are four substations located within 2 miles of the subject property: the Ena, McCully Waikiki and Makaloa substations.

Telephone lines, serviced by Hawaiian Telephone Company, are located along Kalakaua Avenue, Ala Wai Boulevard and McCully Street.

Project Impacts

The project will have an impact on the electrical power service in the area. However, the specific power requirements will be coordinated with HECO and all necessary arrangements will be made if the power requirements of the proposed project exceed HELCO's existing capability in the area. The existing telephone lines will be adequate to

26. The average of 1.7 persons per unit is consistent with both the State of Hawaii Data Book 1987 and the 1980 Census of Population and Housing for CT 20.02.

Legend

Facilities

Overhead Lines

Underground Lines

Ala

PLAT 34

Wai

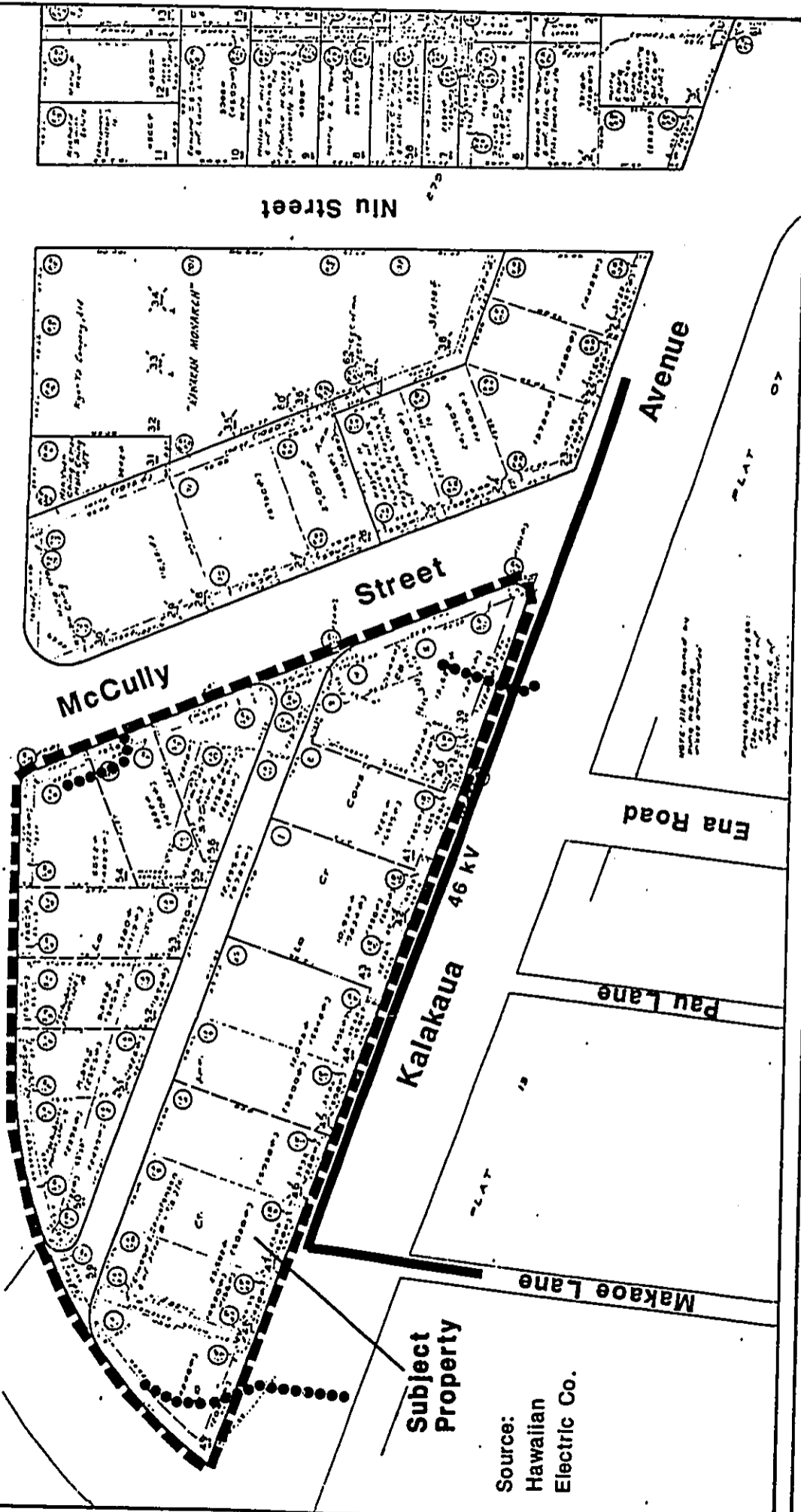
Canal

SECTION 7

Ala

Wai

Boulevard



Subject Property

Source:
Hawaiian
Electric Co.

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Exhibit IV--1
Electrical Service Map

handle the telephone needs of the project. The applicant will obtain the necessary approvals for connection to both electrical and telephone lines.

H. FIRE PROTECTION

Existing Conditions

The Pawa Fire Station provides the first response to fire emergency calls to the subject property, and the McCully and Waikiki Fire Stations provide the second response.

Project Impacts

The proposed development will have an insignificant impact on the fire protection services in the area. The developer will comply with fire safety standards and install required fire protection systems.

I. POLICE PROTECTION

Existing Conditions

The subject property is located in District VI of the Honolulu Police Department.

Project Impacts

The project is not expected to have a significant impact on police services since the project will have its own security force to protect its occupants and property. Coordination with the Honolulu Police Department will be maintained to ensure adequate police protection.

Chapter V

V. **SOCIO-ECONOMIC CONDITIONS/PROJECT IMPACTS**

A. **DISPLACEMENT**

Existing Conditions

There are currently 12 businesses on the subject property.

Project Impacts

The proposed development is expected to result in the displacement of the existing businesses on the subject property. Displacement has been an inevitable prospect, in light of the month-to-month and short term nature of the leases. Some of these businesses could possibly negotiate for space in the commercial portion of the development, which will include restaurants (10,000 net sf of the proposed commercial space) and retail stores (40,000 net sf).

The number of employees for the proposed 36,795 net sf of commercial space will most likely exceed the existing number of employees on the subject property. Some of the displaced employees may either find jobs in the new retail and restaurant operations, or retain their jobs at a new location.

B. **ECONOMIC CONDITIONS**

Existing Conditions

The economic impact of the twelve businesses on the subject property is not known. However, the property is underutilized and has considerable economic potential, in light of its prime Waikiki location.

Project Impacts

Long-term economic impacts will include impacts from the operation of 36,795 net sf of commercial space, general excise and income taxes from the businesses and increased real property taxes from the overall development. It is difficult to quantify in detail the long-term economic impact at this time.

A primary short-term economic impacts from the project will result from the project's construction. Each dollar spent for the construction of the proposed project will not only stimulate growth in those businesses from which the purchases are made directly, but will also stimulate growth as the dollar is recycled through numerous other sectors of the island's economy.

The short term impacts of the project can be considered as those impacts on:

- a) Sales (output)
- b) Household income
- c) Employment

A technique for measuring the inter-industry relationships in a given region is the Input-Output Model. This model is used to develop multipliers which enable one to measure the overall economic impact of a project on the sales, household income and employment of a particular area. The Input-Output model of Hawaii's economy, which was developed

by the staff of the Research and Economic Division of the Department of Business and Economic Development (DBED, previously Department of Planning and Economic Development) is used in this report to analyze the short term economic impacts of the proposed project on the economy.

Estimates of the short term sales, household income and employment impacts resulting from construction of the project are based on the total construction expenditure of the project, excluding land costs. The construction cost for the project is estimated to be \$100-\$130 million. The appropriate multipliers and coefficients from the Hawaii Input-Output Model are then multiplied by the construction cost to determine the economic impacts in dollars. The multipliers and coefficients used include direct, indirect and induced effects.²⁷

For this project, the multipliers for the "commercial construction" category are used. The following calculations are rounded off and should be interpreted as rough estimates.

27. The following definitions are taken from The Economic Impact of Tourism in Hawaii: 1970 to 1980, Research Report 1983-2 (Department of Planning and Economic Development, April 1983).
Direct effect - the change in sales, income and employment in Hawaii's economy as a direct result of the purchase of goods and services by the proposed project. Indirect effect - the change in sales, income and employment generated indirectly in the economy as the businesses that directly receive the project development dollars spend them in order to buy material and service inputs to meet the demand created by direct sales for the project's development. Induced effect - the further change in sales, income and employment as employees and proprietors spend their income earned from companies as a result of a direct or indirect effect of the project development's spending.

- a) Sales - The output, or sales impact, is the measure of the change in output of Hawaii's industries (measured by sales) resulting from total construction expenditures. From the Input-Output Model, the output multiplier, which includes direct, indirect and induced sales, is 1.9.

This indicates that the estimated \$100 - \$130 million construction cost will generate an additional \$190 - \$247 million in sales.

$$(\$100 \text{ million} \times 1.9 = \$190 \text{ million})$$

$$(\$130 \text{ million} \times 1.9 = \$247 \text{ million})$$

- b) Household Income - The total household income (direct, indirect and induced) generated by construction of the proposed project can be estimated by multiplying the total construction cost times the income coefficient for the commercial construction category, which is 0.67.

Thus the \$100 - \$130 million spent for construction will generate a total of \$67 - \$87 million in household income.

$$(\$100 \text{ million} \times 0.67 = \$67 \text{ million})$$

$$(\$130 \text{ million} \times 0.67 = \$87 \text{ million})$$

Of this total \$67 - \$87 million, \$30-\$39 million consists of direct labor income generated by the construction of the project. The direct labor income

multiplier in the Input-Output Model for the commercial construction category is 30%. In other words, about 30% of the total construction is spent directly for labor.

$$(\$100 \text{ million} \times .30 = \$30 \text{ million})$$

$$(\$130 \text{ million} \times .30 = \$39 \text{ million})$$

- c) Employment - In 1987, there was an average of one direct job in the construction industry for every \$102,300 worth of construction put in place.²⁸ Using the same ratio for the proposed project, it can be estimated that about 978 - 1,271 jobs will be directly generated by the construction of the proposed development.

$$(\$100 \text{ million divided by } \$102,300 = 978 \text{ direct jobs})$$

$$(\$130 \text{ million divided by } \$102,300 = 1,271 \text{ direct jobs})$$

The total number of jobs generated in the economy by the project can be estimated by multiplying the number of direct jobs generated by the construction of the project times the state multiplier, which is 2.5 in this case.

28. The State of Hawaii Data Book, 1986, Department of Planning and Economic Development, December 1986, pp. 339 and 543.

Thus, construction of the project can be expected to generate a total of about 2,445 - 3,175 jobs in the economy, over the project's estimated two-year construction period.

(1,239 direct jobs x 2.5 = 2,445 jobs)

(1,610 direct jobs x 2.5 = 3,175 jobs)

In summary, the short-term impacts from construction of the proposed residential/commercial project on the sales, household income and employment on Oahu were projected above by using an estimated total construction expenditure of \$100-\$130 million and the multipliers from the Hawaii Input-Output Model for the commercial construction category. These impacts will occur over the total construction time period for the project, approximately two years.

With reference to government revenues, the proposed project will affect state and local tax revenues during both the construction and operation and maintenance of the project. The impact on total tax collections is difficult to estimate precisely. However, the impact can be estimated by analyzing the general relationship between taxes and labor income in Hawaii.

Data provided by the DBED²⁹ indicates that the state tax collection for calendar year 1987 was approximately \$1.776

29. The State of Hawaii Data Book, 1988, Department of Business and Economic Development, December 1988, pp. 273285 and 363.

billion, and labor income for 1987 was about \$12.804 billion. Thus, the ratio of state collections to labor income was .139 in 1987 (\$1.776 billion divided by \$12.804 billion). In other words, the State collected about 13.9 cents in taxes and other sources for every dollar of labor income paid in Hawaii.

Using the State collections to labor income ratio of .123 and the total Household Income figure of \$67 - \$87 million (projected in the previous discussion on short term economic impacts), it can be estimated that the State will collect about \$9.3 - \$12.1 million in State and local government revenues from the construction of the project.

$$(.139 \times \$67 \text{ million} = \$ 9.3 \text{ million})$$

$$(.139 \times \$87 \text{ million} = \$12.1 \text{ million})$$

C. HOUSING

Existing Conditions

There are no residential units on the subject property.

Project Impacts

The proposed project will have a positive impact on the supply of housing, by providing 206 new residential condominium units. The sale prices of these units have not yet been firmly established. A current estimate, however,

indicates a price range of \$350,000-\$650,000.³⁰ The final sale prices will be largely dependent upon construction costs.

The developer will comply with all State and City and County of Honolulu rules and regulations concerning affordable and special needs housing requirements.

D. POPULATION

Existing Conditions

There was a 3,210 resident population in CT 20.02 (the location of the subject property) in 1985. This represents a decline from a 3,600 resident population in 1980. There were 2,074 households in CT 20.02 in 1980 and this represents an average 1.7 people per household.³¹ Data from 1980 also indicate that there were 385 children (ages 5 - 19) and this represents 10.7% of the total resident population of 3,600.

Project Impacts

Using the average of 1.7 persons per household, it is projected that there will be approximately 350 residents in the 206 proposed residential condominiums.

30. Telephone conversation with Colby Jones, Bel-Landmark, Inc., February 10, 1989.

31. State of Hawaii Data Book 1988, Department of Business and Economic Development, 1988.

The proposed development is not expected to provide an impetus for new residents to move to Hawaii.

The proposed development will not have a direct impact on Hawaii's visitor population since the development is proposed for residential, not resort use. However, in light of the project's Waikiki location, tourists may shop at the project's commercial units.

Chapter VI

VI. RELATIONSHIP OF THE PROPOSED ACTION TO LAND USE PLANS,
POLICIES AND CONTROLS FOR THE AFFECTED AREA

A. FEDERAL

1. Federal Flood Insurance Program

The entire site is in an AO zone, as designated by the Federal Emergency Management Agency. This designation is given to special flood hazard areas inundated by 100-year floods.

The proposed development will be in compliance with all applicable flood proofing regulations.

B. STATE

1. The Hawaii State Plan

The proposed project will meet several objectives of The Hawaii State Plan (Hawaii Revised Statutes, amended), including:

a. Sec. 226-8 Objective and policies for the economy - visitor industry.

(a) Planning for the State's economy with regard to the visitor industry shall be directed towards the achievement of the objective of a visitor industry that constitutes a major component of steady growth for Hawaii's economy.

(b) To achieve the visitor industry objective, it shall be the policy of this State to: ...

- (3) Improve the quality of existing visitor destination areas."

Since the subject property is located in the Waikiki Special Design District, and is an area designated as a "Waikiki Gateway," the project design will include considerations for open space and architectural treatment in compliance with areas designated as a "Waikiki Gateway." The proposed development will be attractively designed and landscaped, and will improve the aesthetic quality of the subject property and surrounding areas which are visitor destination areas.

- b. Sec. 226-19 Objectives and policies for socio-cultural advancement - housing.

- (a) Planning for the State's socio-cultural advancement with regard to housing shall be directed towards achievement of the following objectives:

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

- (2) The orderly development of residential areas sensitive to community needs and other land uses.

- (b) To achieve the housing objectives, it shall be the policy of this State to:
 - (1) Effectively accommodate the housing needs of Hawaii's people....

 - (3) Increase homeownership and rental opportunities and choices in terms of quality, location, cost, densities, style and size of housing....

 - (5) Promote design and location of housing developments taking into account the physical setting, accessibility to public facilities and services, and other concerns of existing communities and surrounding areas.

 - (6) Facilitate the use of available vacant, developable, and underutilized urban lands for housing.

The subject property is prime urban land that is currently underutilized. The proposed 206-unit residential condominium development will increase the

availability of housing in Honolulu. The project's location in Waikiki, which is easily accessible via private and public transportation to all commercial and recreational centers in Honolulu, is ideal.

2. Coastal Zone Management

The proposed project will meet several objectives of Hawaii's Coastal Zone Management Program, Chapter 205A, HRS, including:

205A-2 Coastal zone management program; objectives and policies.

b. Objectives

(2) Historic resources;

(A) Protect, preserve, and where desirable, restore those natural and manmade historic and prehistoric resources in the coastal zone management area that are significant in Hawaiian and American history and culture.

(c) Policies.

(2)(c) Support state goals for protection, restoration, interpretation, and display of historic resources.

A pre-field literature review was conducted by the Bishop Museum Applied Research Group to ascertain the possibility of subsurface archaeological sites. The Historic Sites Section of DLNR confirms this research.

Even though the possibility of archaeological resources on the subject property was not evident, backhoe assisted subsurface testing will be conducted at time of demolition. If any archaeological sites or resources are discovered, the Historic Sites Section will be notified immediately and proper steps will be taken to preserve the site for proper evaluation.

(5) Economic Uses

(A) Provide public or private facilities and improvements important to the State's economy in suitable locations.

The proposed project will provide short-term construction employment as well as long-term commercial employment. Based on the economic potential of the site and its location, the subject property is presently underutilized. The proposed property will not only provide additional housing for Hawaii's residents, but will offer business sites to service the Waikiki Landmark residents and visitors.

3. State Land Use District

The State Land Use District designation for the proposed site is Urban, which permits urban development, including projects such as the proposed residential/commercial project.

C. CITY AND COUNTY OF HONOLULU

1. General Plan

The residential/commercial development in Waikiki will meet several provisions of the General Plan of the City and County of Honolulu, including:

a. Economic Activity

Objective B: To maintain the viability of Oahu's visitor industry.

Policy 2 Provide for a high quality and safe environment for visitors and residents in Waikiki

As stated previously, the subject property is currently underutilized, and contains an assortment of retail operations which are scattered throughout the subject property. The proposed residential/commercial development will be attractively designed and landscaped and will provide a higher quality use of the subject property. The security force provided for the

development will also enhance the safety of the general neighborhood surrounding the subject property.

b. Housing

Objective C: To provide the people of Oahu with a choice of living environments which are reasonably close to employment, recreation and commercial centers and which are adequately served by public utilities.

Policy 3 Encourage residential development near employment centers.

The Waikiki area, location of the proposed project, and the nearby Ala Moana Shopping Center are both major sources of employment and commercial activity. Additionally, the project's location is easily accessible to downtown Honolulu, the center of State and local government activities, and the financial and business center of the State. The major areas of employment for the island of Oahu and the State are within close proximity of the proposed development.

The proposed project is within a 3-mile radius of a wide range of recreation facilities including, but not limited to, Kapiolani Park, Honolulu Zoo, Ala Wai Field and Playground and Ala Moana Beach Park.

c. Physical Development and Urban Design

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

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

Objective B: To develop Honolulu (Waialae-Kahala to Halawa), Aiea, and Pearl City as the Island's primary urban center.

Policy 3 Encourage the establishment of mixed-use districts with appropriate design and development controls to insure an attractive living environment and compatibility with surrounding land uses.

The proposed high rise residential/commercial development will be a more intense use of the subject property. The project will be compatible with existing residential and commercial properties in the surrounding neighborhood. The design and development controls for "Waikiki Gateway" areas will ensure that an attractive development will be built on the subject property.

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

Policy 2 Integrate the City and County's urban design plan into all levels of physical planning and developmental controls.

Policy 4 Require the consideration of urban design principles in all development projects.

Policy 6 Provide special design standards and controls that will allow more compact development and intensive use of lands in the primary urban center.

The proposed residential/commercial development will meet all design and development controls for the subject property. The proposed development will be a more efficient and intensive use of this urban land.

2. Development Plan Land Use

(Exhibit VI-1)

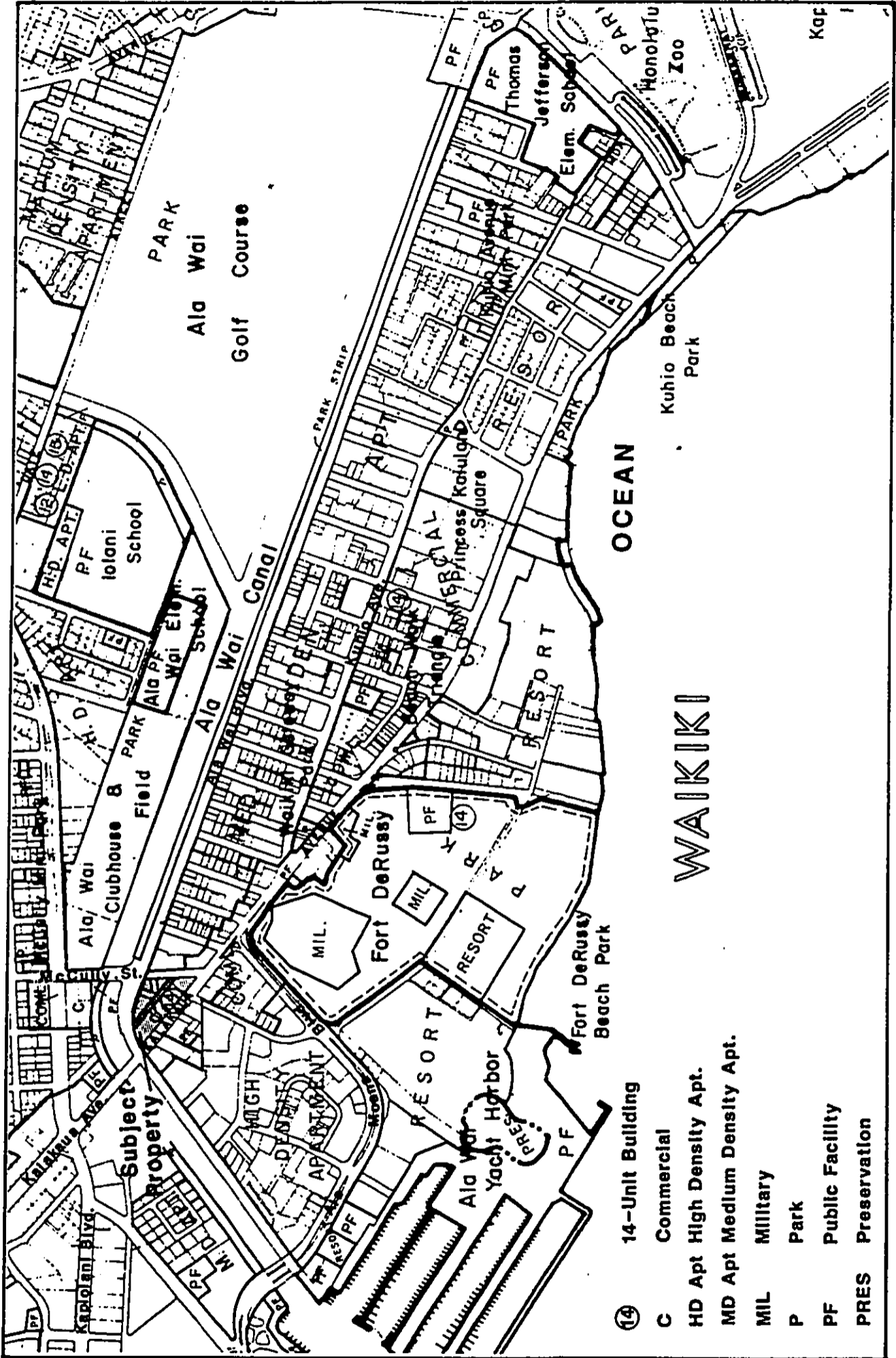
The subject property is presently designated as Commercial on the Primary Urban Center DP Land Use map. In January 1988 the Department of General Planning (DGP) initiated changes to the Special Provisions to extend the DP designation for several areas in Waikiki to Commercial Emphasis Mixed Use. These changes were adopted on January 31, 1989 by the City Council under Bill No. 168. The subject property is included in these changes and the proposed mixed use is in line with the new designation.

3. Development Plan Public Facilities

(Exhibit VI-2)

There are several public facilities in the vicinity of the subject property, including:

- Ala Wai Yacht Harbor
- Fort DeRussy Beach Park
- Public park adjacent to the Ala Wai Clubhouse and field
- Ala Wai Elementary School, Lunalilo Elementary School
- Ala Wai Golf Course
- Waikiki Gateway Park

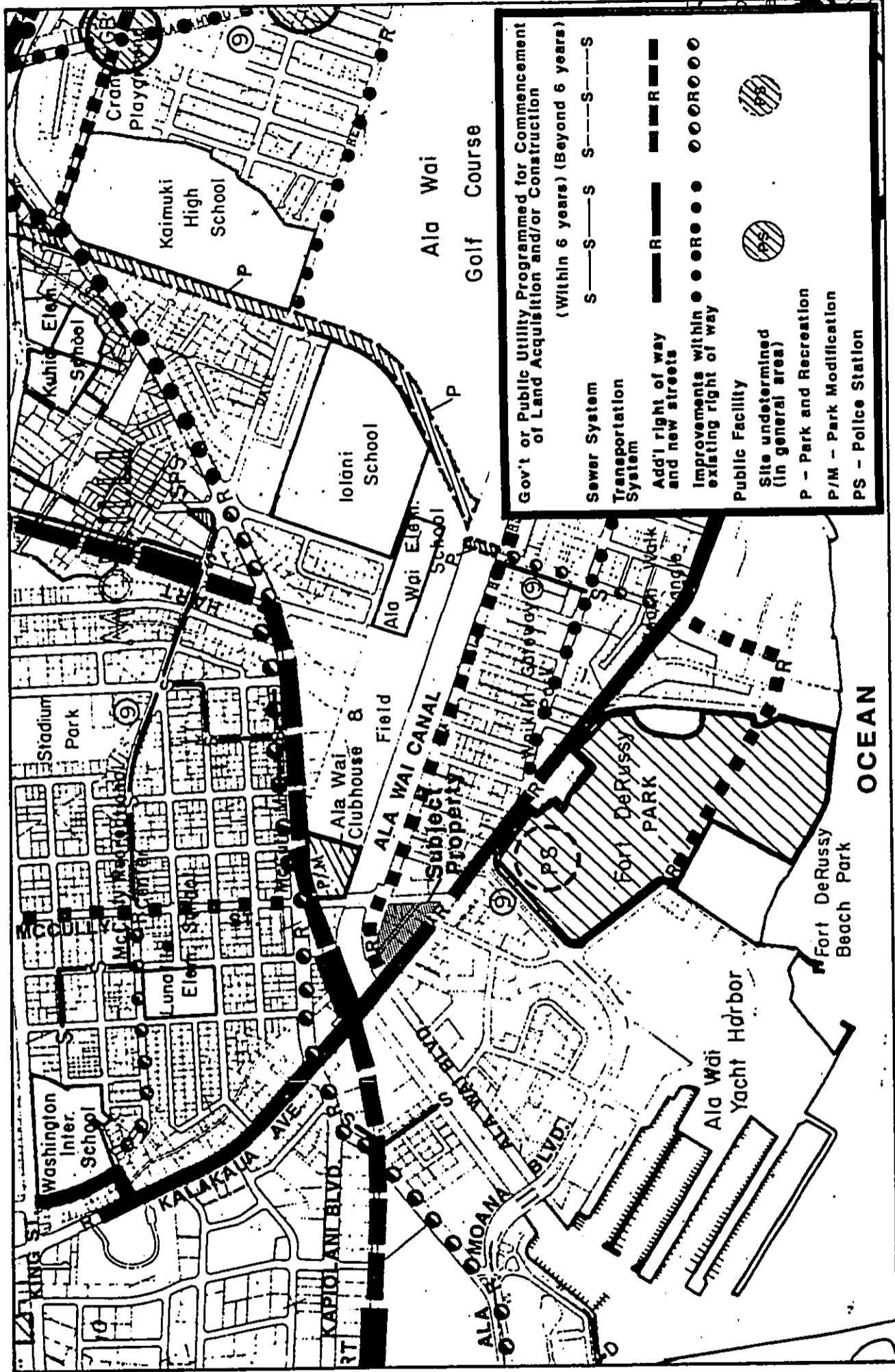


- ⑭ 14-Unit Building
- C Commercial
- HD Apt High Density Apt.
- MD Apt Medium Density Apt.
- MIL Military
- P Park
- PF Public Facility
- PRES Preservation

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Exhibit VI-1
Development Plan Land Use Map



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**Exhibit VI-2
Development Plan Public Facilities Map**

Improvements are proposed as part of the Kalakaua Avenue Improvement Project for the area of Kalakaua Avenue adjacent to the subject property. The DP Public Facilities map for the Primary Urban Center shows right of way improvements on Ala Wai Boulevard in the "beyond six years category", however, such improvements have not yet been scheduled.

A Waikiki Traffic Improvement Study is also under development for Waikiki which will provide a broad overview of existing traffic patterns in Waikiki with suggestions for improvements at specific locations. The study is scheduled for completion in August 1989. Based on the preliminary study for the project, there are no locations identified in the vicinity of the Waikiki Landmark.³²

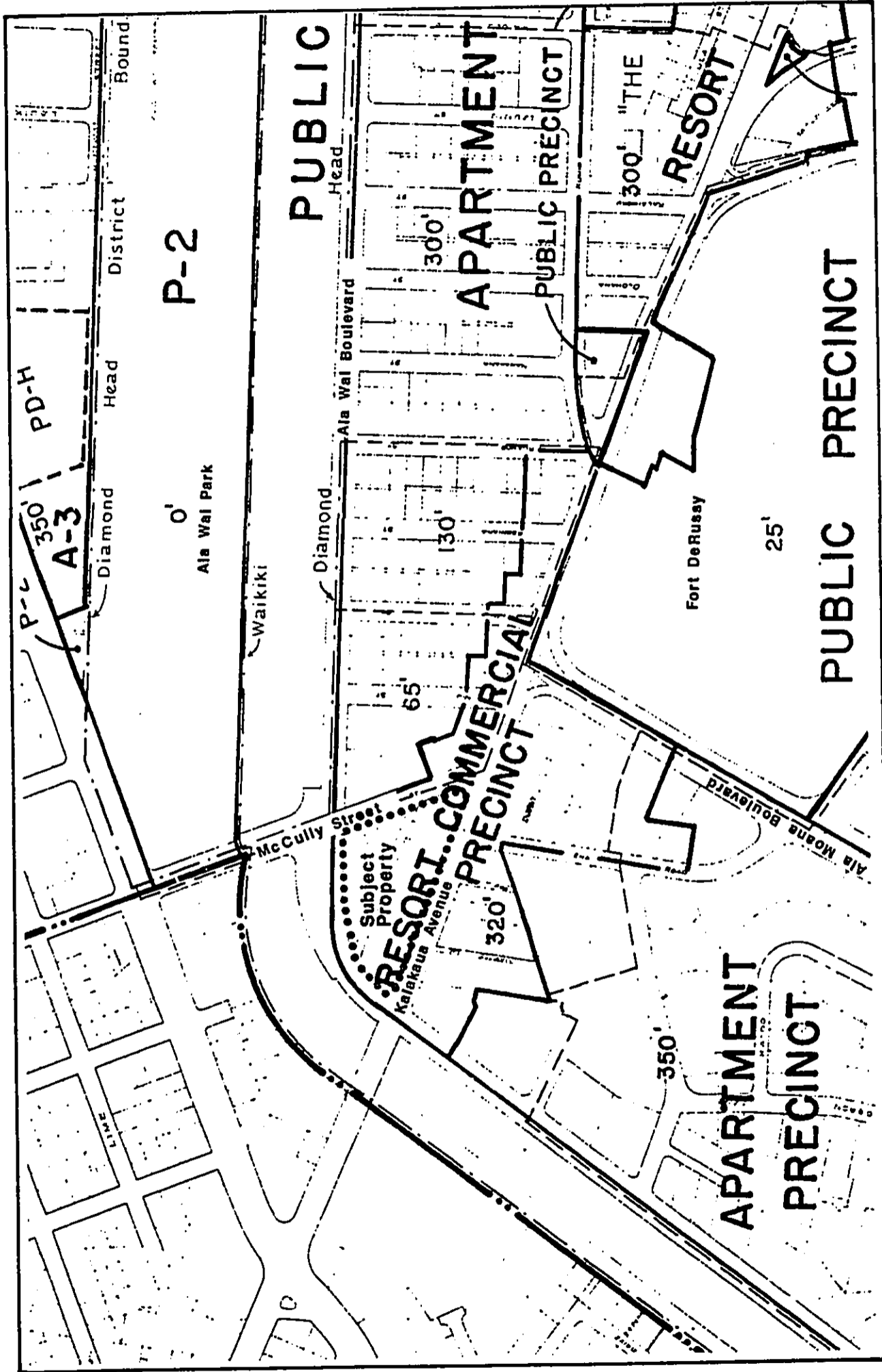
4. Zoning

(Exhibit VI-3)

The subject property is designated as a Resort Commercial Precinct in the Waikiki Special Design District. Changes to the Special Provisions for Waikiki were adopted to extend the Commercial Emphasis Mixed Use to specific areas within Waikiki including the subject property.³³ To comply with the Special

32. Information provided by Melvin Hirayama, Traffic Engineering Division, Department of Transportation Service, June 28, 1989.

33. Bill No. 168 adopted January 31, 1989 by the City Council.



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Exhibit VI-3
Zoning Map

0 200 400 FEET 800

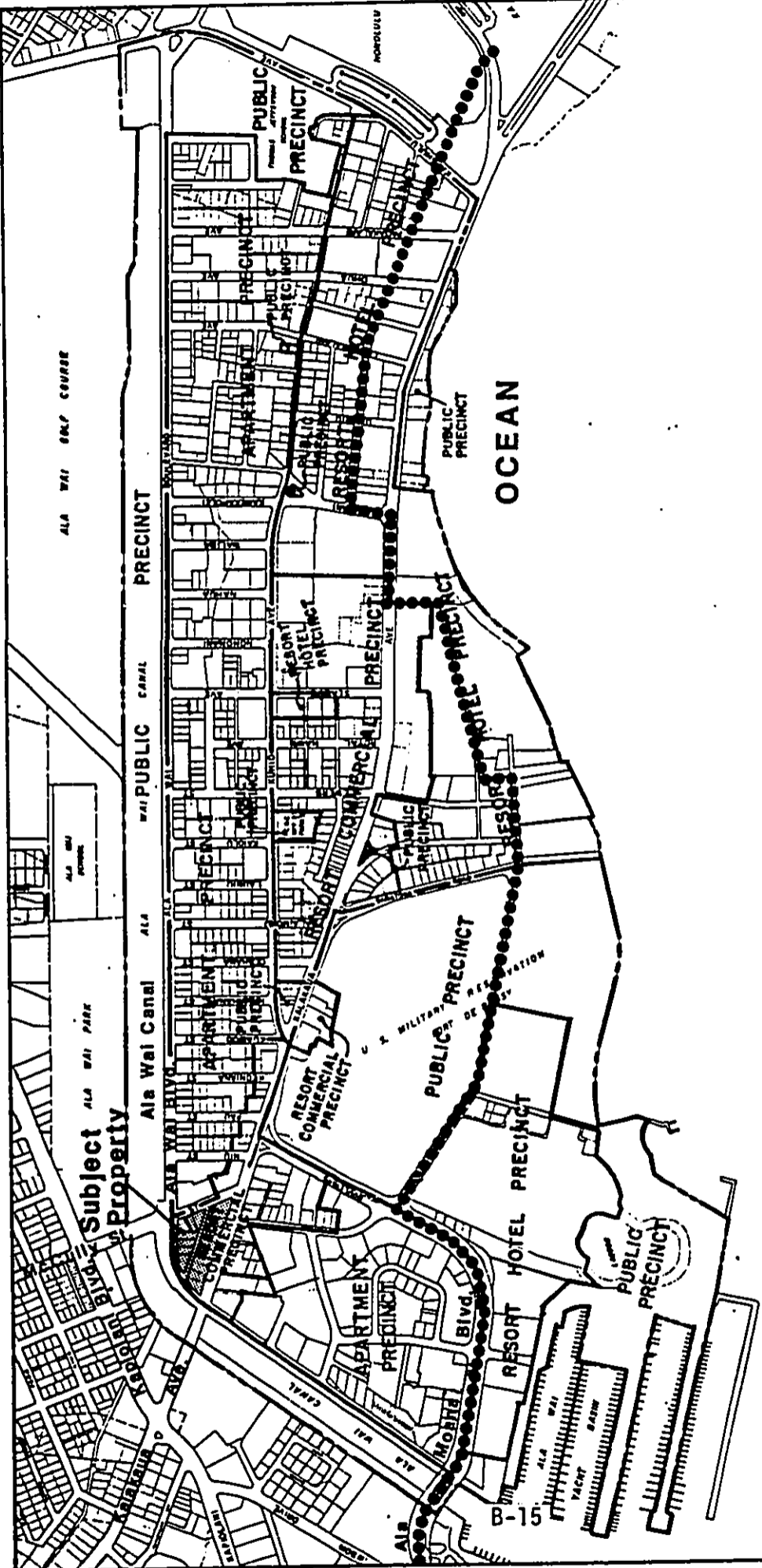
Provisions, the Department of Land Utilization has proposed a minor modification to the Land Use Ordinance allowing multi-family dwelling as a permitted use in the Resort Commercial between Ala Wai Boulevard and Kuamoo Avenue. The Planning Commission has scheduled to hold a public hearing on September 20, 1989.

5. Waikiki Special Design District

(Exhibit VI-4)

The project will be in compliance with the following purposes for the Waikiki District: (Land Use Ordinance, page 7-46)

- "A. To guide the development of Waikiki with due consideration to optimum community benefits.
- B. To promote health, safety, social and economic well-being for the community as a whole.
- C. To protect, by means of proper planning and control, the value of private and public investment within the District and its surrounding communities.
- D. To encourage developments that would improve and complement the public facilities and utilities in Waikiki and the physical and visual aspects of the urban environment in the area....
- H. To bring about a desirable level of urban design compatible with the climate and the character of Hawaii within the District.
- I. To provide a means to control apartment, commercial and hotel density in Waikiki....
- K. To encourage the development of a variety of land uses which are compatible with and will enhance the unique character of the district."



- Waikiki Special Design District Boundary
- _____ Use Precinct Boundary
- Special Management Area Boundary

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Exhibit VI-4
Waikiki Special Design District

6. Waikiki Gateway

(Exhibit VI-5)

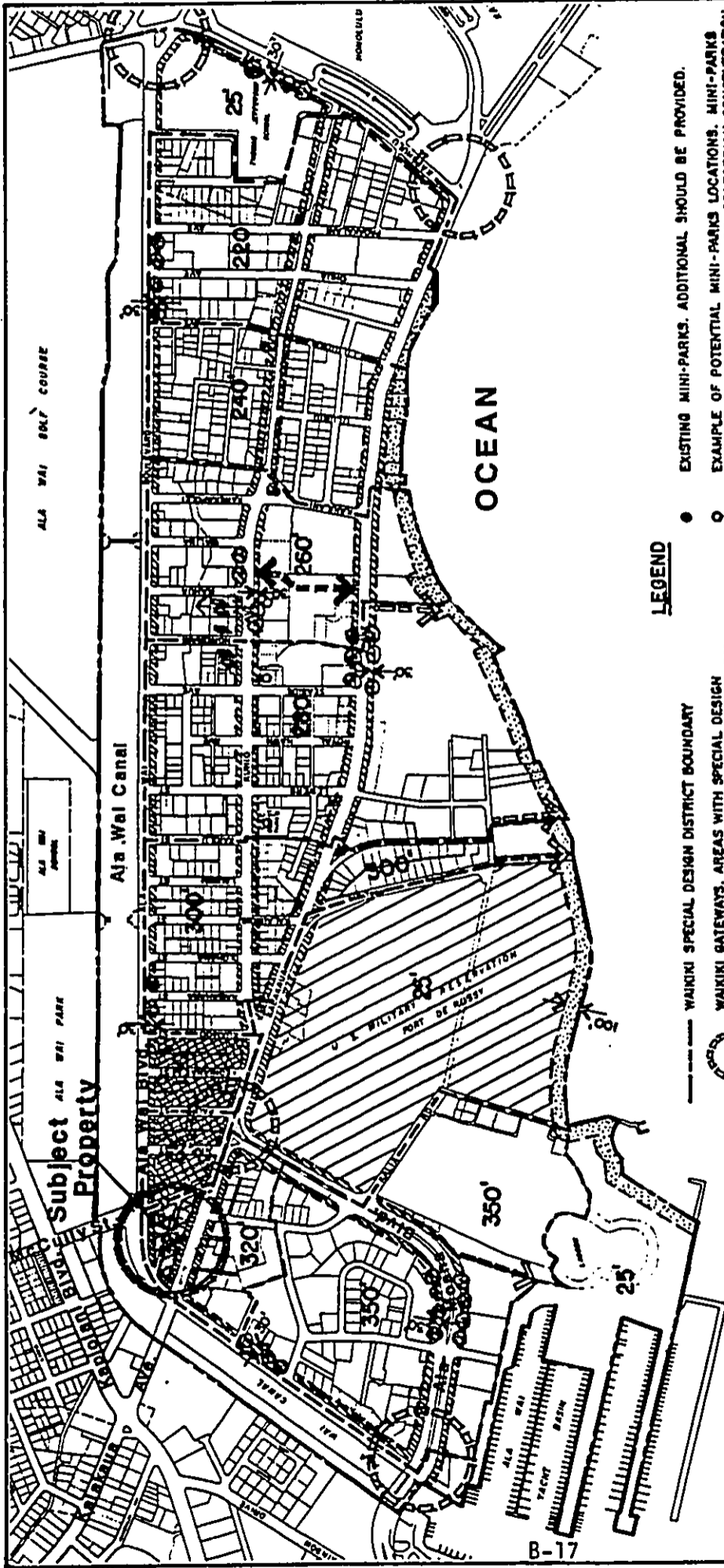
The subject property is in an area designated as a "Waikiki Gateway". The Land Use Ordinance specifies that "special design considerations for open space and architectural treatment" are required for Waikiki Gateway areas.

7. Special Management Area

The subject property is outside the Special Management Area (SMA) designated by Chapter 33, Revised Ordinances of Honolulu, as amended, relating to protection of the shoreline areas of the City and County of Honolulu. The SMA boundary line is designated on Exhibit VI-4, showing the Waikiki Special Design District.

D. LIST OF NECESSARY APPROVALS

A Special Design Permit application, required by the Land Use Ordinance (Sec. 7.20-2) for major projects in Special Districts such as the Waikiki Special Design District, will be obtained prior to the submittal of necessary building permit applications.



LEGEND

- WAIKIKI SPECIAL DESIGN DISTRICT BOUNDARY
- WAIKIKI GATEWAYS, AREAS WITH SPECIAL DESIGN CONSIDERATION FOR OPEN SPACE AND ARCHITECTURAL TREATMENT.
- AN AVERAGE 30' SETBACK ALONG MAJOR STREETS MEASURED FROM EXISTING RIGHT-OF-WAY ON KAPAHULU AVE, KALAKAUA AVE, ALA MOANA AND ALA WAI BOULEVARDS AND MEASURED FROM DEVELOPMENT PLAN RIGHT-OF-WAY ON KUHIO AVE. AVERAGE 30' SETBACK.
- ALL MAJOR STREETS SHALL BE LANDSCAPED WITH STREET TREES.
- 100' SHORELINE SETBACK WITH A BUILDING HEIGHT ENVELOPE OF 1 TO 1 (45') MEASURED FROM SHORELINE
- FORT DERUSSY MAUKA-MAKAI VIEW CORRIDOR.
- HEIGHT LIMIT PLANE TO PRESERVE PUNCHBOWL/DIAMOND HEAD VIEW PLANE.
- EXISTING MINI-PARKS. ADDITIONAL SHOULD BE PROVIDED.
- EXAMPLE OF POTENTIAL MINI-PARKS LOCATIONS. MINI-PARKS SHOULD FOLLOW AREAS OF MAJOR PEDESTRIAN CONCENTRATION
- DEVELOPMENT PLAN BEACH RIGHTS-OF-WAY OTHER PEDESTRIAN BEACH RIGHTS-OF-WAY SHOULD BE PROVIDED. ALL BEACH RIGHTS-OF-WAY SHOULD BE ATTRACTIVELY IMPROVED AND LANDSCAPED.
- DEVELOPMENT PLAN PEDESTRIAN MALL. ADDITIONAL MALL AREAS SHOULD BE PROVIDED.
- LONG AXIS OF ALL NEW STRUCTURES SHOULD BE LOCATED ON A MAUKA-MAKAI DIRECTION WHENEVER POSSIBLE. BULK STRUCTURES SHOULD MINIMIZE MAUKA-MAKAI VIEW OBSTRUCTION.
- DEVELOPMENT PLAN PEDESTRIAN BRIDGE
- LAND AREAS RECOMMENDED AS OPEN SPACE

**Exhibit VI-5
Urban Design Controls
Waikiki Special Design District**



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Chapter VII

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

Since the subject property has been in urban use for over fifty years, the proposed development will not result in a significant change in the use of the area. The proposed residential/commercial development will allow the property to be used to its highest and best use, and will greatly enhance the long-term productivity of the subject property.

Chapter VIII

VIII. ADVERSE IMPACTS WHICH CANNOT BE AVOIDED

A potentially adverse, although minor, project impact includes:

- o Social impact of displacing existing businesses on the subject property

Although the existing 12 businesses are on monthly leases or on leases recently expired and are aware of the pending development proposal, actual displacement from the existing subject property will be an inconvenient, if not adverse activity for them. It is possible that some of the businesses may relocate in the proposed commercial space, although this prospect is unlikely because of the nature of the existing businesses.

Chapter IX

IX. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

The construction of the Waikiki Landmark development will require the irreversible commitment of capital, labor and energy expended in design, development, construction, construction materials and equipment. Since the subject property has been in urban use for over fifty years, the proposed development will not result in an irretrievable loss of natural resources.

Chapter X

X. SUMMARY OF UNRESOLVED ISSUES

There are no unresolved issues for this project. The potential impacts of the proposed development are generally known and appropriate mitigative measures have been developed to address these impacts.

Chapter XI

XI. ALTERNATIVES TO THE PROPOSED ACTION

A. NO ACTION ALTERNATIVE

The present land use activities are temporary and are not economically viable. The subject property's location and land value does not allow a "no action" alternative.

B. USE ALTERNATIVES

1. Commercial Development

Present zoning designates the entire area as Resort Commercial and allows commercial activities related to resort. It was determined that the present market conditions in the Waikiki area will have a difficult time absorbing an additional 431,110 gross sf of commercial floor area.

2. Hotel Development

Since there is a 30,000 visitor unit limit set by the Development Plan ordinance for the Primary Urban Center (Sec. 2.2b.(2) of Ordinance 81-79), further hotel development of the subject property is prohibited.

3. Residential/Commercial Development

The proposed residential/commercial development is the most appropriate use for the subject property. Market conditions support residential and commercial uses at this location. The proposed development is desirable to the surrounding residents since it will eliminate the "hodge-podge" activities currently on the subject

property and will replace it with a aesthetically unified, landscaped residential/commercial complex. The proposed project, therefore, offers the highest and best use for the subject property.

C. DESIGN ALTERNATIVES

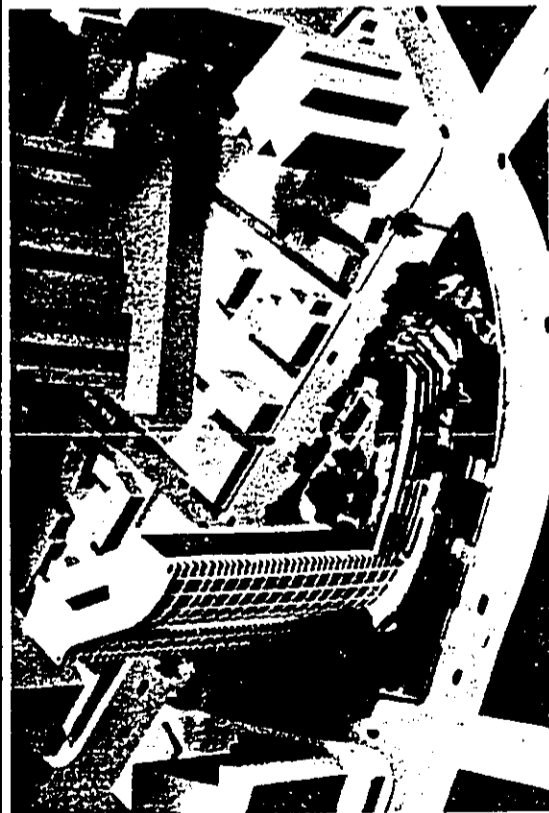
Site analysis was done to define the following urban design goals of the development:

1. Maintain maximum open space with emphasis at street corners.
2. Develop the Kalakaua Avenue/Ala Wai Boulevard intersection as a "symbolic gateway" to Waikiki.
3. Development Kalakaua Avenue as a main street concept.
4. Preserve mauka-makai views through the subject property.

Based on these goals, two alternative designs were considered for the Waikiki Landmark. (Exhibit XI-1)

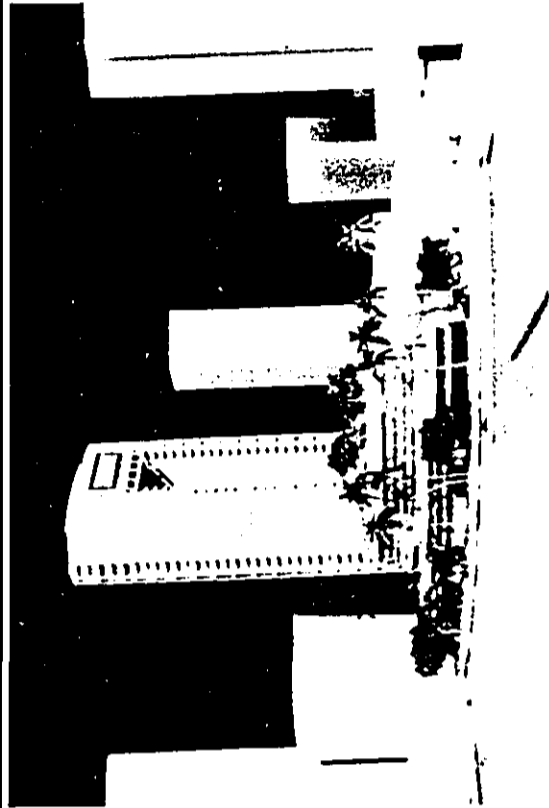
Both designs offered the following features:

- o 60 2-bedroom, 1,400 sf apartments
- o 139 2-bedroom, 1,000 sf apartments
- o 121 1-bedroom, 800 sf apartments
- o 376,700 gross sf total for residential use

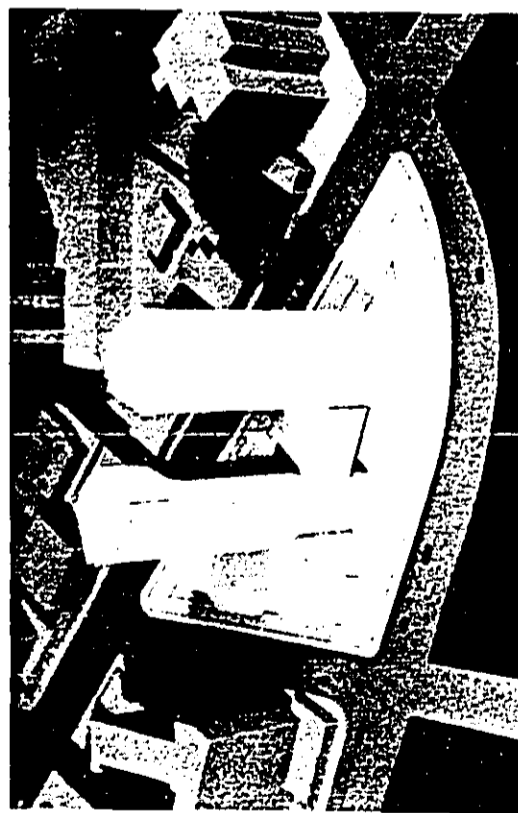


Aerial View

Design Alternative No. 1

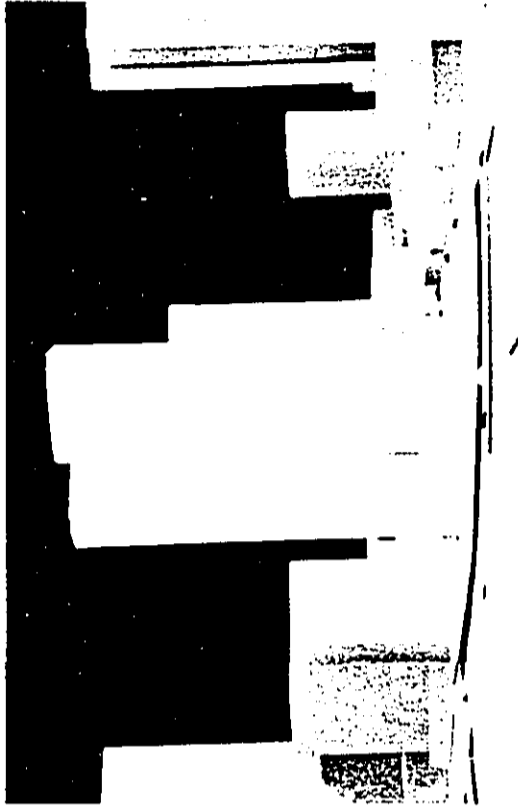


View from Kapiolani Blvd.



Aerial View

Design Alternative No. 2



View from Kapiolani Blvd.

Photo Credits: Architects Hawaii

Exhibit XI-1 Design Alternatives

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- o 56,000 gross sf total for commercial use
- o 435,718 gross sf building area
- o 650 parking stalls provided in the following proportions:
 - a. Residential use 450
 - b. Commercial use 65
 - c. Royal Aloha Condominiums 135

As previously mentioned, Alternative No. 1 has been selected as the project design for the Waikiki Landmark. New numbers for condominiums, square footage and parking stalls for Alternative No. 1 were included in Chapter II. However, a discussion of both alternatives follows.

Design Alternative No. 1

This is a "gateway corner" development with twin towers located at the Diamond Head portion of the subject property. This alternative respects the urban design goal of keeping the "gateway corner" to Waikiki open with landscaping. As one approaches Waikiki, it offers a gradual rise from the street to a low-rise parking structure then further to the highrise towers. The twin towers are in a mauka-makai orientation with a 80-foot open space between the two towers. There is a connection of the upper five floors which increases the efficiency of the building and provides a dramatic effect.

Shadow impacts from Design Alternative No. 1 indicate that McCully Street will experience a slight (4%) average increase at 2:00 p.m. over Design Alternative No. 2 in shadow impacts throughout the year compared to the existing condition. However, at 4:00 p.m. Alternative No. 1 creates 4% less shadow than Alternative No. 2. The maximum shadow impact on McCully Street from Alternative No. 1 is a 33% increase. This compares to a 37% shadow increase for Alternative No. 2.

Kalakaua Avenue will experience an average 6% greater increase in shadow at 8:00 a.m. for Alternative No. 1 than for Alternative No. 2 and 5% more at 10:00 a.m. The total increase in shadows cast by all buildings, however, at 10:00 a.m. is only 6%. Alternative No. 1 provides the maximum impact at 8:00 a.m. increasing the shadow from 24% to 50% for a 26% increase. This compares to a 20% increase for Alternative No. 2.

Ala Wai Boulevard is impacted by Alternative No. 1 throughout the day. However, the shadow impact is consistently less throughout the entire day for Alternative No. 1 than for Alternative No. 2.

This design offers commercial activities along Kalakaua Avenue. In view of existing commercial activities along this roadway and the potential for a convention center on Kalakaua Avenue, this location would offer a positive incentive for businesses.

Design Alternative No. 2

Twin towers are located at the corner of Kalakaua Avenue and Ala Wai Boulevard with the parking structure along McCully Street. The towers would not be connected at the top five floors as in Design Alternative No. 1 but would be connected at the base of the buildings. The parking structure and twin towers would be very visible at the McCully Street entrance to Waikiki. The placement and design of the towers in Design Alternative No. 2 presents more of a solid wall feeling along the Ala Wai Boulevard than does Design Alternative No. 1 and would allow less mauka-makai views at the street level.

Design Alternative No. 2 creates 4% less shadow on McCully Street at 2:00 p.m. than does Alternative No. 1 but creates 4% more shadow at 4:00 p.m. In fact, the maximum shadow impact on McCully Street occurs with Alternative No. 2 at 4:00 p.m. with an 37% increase.

There is a small 6% increase in shadow impact on Kalakaua Avenue from Alternative No. 2 at 10:00 a.m. Alternative No. 1 creates a greater overall impact on Kalakaua Avenue than does Alternative No. 2. Alternative No. 2 consistently creates a greater shadow impact along Ala Wai Boulevard for the entire day.

This design offers commercial activities along McCully Avenue.

Chapter XII

XII. AGENCIES, ORGANIZATIONS, AND INDIVIDUALS CONSULTED

A. Federal

U.S. Army Corps of Engineers

B. State

Department of Business and Economic Development

Department of Land and Natural Resources
Historic Sites Section

C. City and County of Honolulu

Board of Water Supply

Department of General Planning

Department of Land Utilization

Department of Public Works

Department of Transportation Services

D. Others

Bishop Museum
Applied Research Group

Dr. Arthur Chiu, University of Hawaii

Hawaiian Electric Company, Inc.
Environmental Department

Frank Streed, Chief Assistant to
Council Member Arnold Morgado

Chapter XIII

XIII. COMMENTS AND RESPONSES DURING THE CONSULTATION PHASE

The EIS Preparation Notice was published in the OEOC Bulletin on September 23, 1988. All comment letters received by the applicant during the consultation phase are included in the following pages.

Substantive comments received have been addressed in this dEIS.

SUBSTANTIVE COMMENTS/RESPONSES

State of Hawaii

Department of Business and Economic Development
Housing Finance and Development Corporation
Department of Health
Department of Land and Natural Resources
Office of Hawaiian Affairs
Office of State Planning

City and County of Honolulu

Department of General Planning
Department of Housing and Community Development
Department of Land Utilization
Department of Parks and Recreation
Department of Transportation Services

NO COMMENTS/RESPONSES

State of Hawaii

Department of Accounting and General Services
Department of Defense
Department of Education
Department of Transportation

City and County of Honolulu

Board of Water Supply
Building Department
Department of Public Works
Fire Department
Police Department



STATE OF HAWAII
 Department of Business and Economic Development
 Housing Finance and Development Corporation
 P. O. Box 29360
 Honolulu, Hawaii 96820-1760

October 20, 1988

88:PLNG/1362B JT

Joseph K. Conant
 Executive Director

RE REPLY REFER

TO:

1188 Bishop Street
 Suite 2405
 Honolulu, HI 96813
 Ph. (808) 521-9655

land use
 and environmental
 planning

DHM inc.

9 February 1989

Mr. Joseph K. Conant
 Executive Director
 Housing Finance and Development Corporation
 Department of Business and Economic Development
 P.O. Box 29360
 Honolulu, Hawaii 96820-1760

SUBJECT: Environmental Impact Statement Preparation Notice
 Waikiki Landmark
 88:PLNG/1362B JT

Dear Mr. Conant:

Thank you for your comments on the EISPN for the above subject property.

It is difficult to state that the proposed zoning change for Resort Commercial (100% commercial use) to Mixed Use of commercial (20%/apartment (80%)) will realize an increased property value. Nevertheless, the developer will coordinate with the City and County of Honolulu regarding the affordable housing provision. The developer will comply with all rules and regulations as such.

Your comments will be included in the draft Environmental Impact Statement.

Sincerely yours,
 DHM inc.

Dyk Hee Murabayashi
 Dyk Hee Murabayashi (Mrs.)
 President

DEB

Mrs. Duk Hee Murabayashi
 DHM Incorporated
 1188 Bishop Street
 Suite 2405
 Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Re: Waikiki Landmark Environmental Assessment

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

If the requested zoning change is received, we believe the developer will realize an increased property value. As such, this benefit should be shared via the provision of affordable housing (e.g. elderly housing units) or payment of "in-lieu" fees.

It is our understanding that the City and County of Honolulu would normally require a 10% affordable housing set-aside. Cash payments in lieu of the provision of units may also be acceptable. We therefore believe that the applicant should work closely with the City in satisfying such requirement.

Sincerely,

 JOSEPH K. CONANT
 Executive Director

U
 U

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

land use
and environmental
planning

DHM inc.

15 February 1989

Dr. Bruce S. Anderson
Deputy Director for Environmental Health
Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801

**SUBJECT: Environmental Impact Statement Preparation Notice
Waikiki Landmark**

Dear Dr. Anderson:

Thank you for your comments on the EISP for the above subject property. In response to your comments, we contacted University Associates, Inc. and the air quality report has been revised for the draft EIS in order to address your concerns.

Data for winter months is included in the 1987 CO ambient data obtained from the DOH, Waikiki monitoring station. The ratio used to adjust the data from DOH's monitoring location to the subject property is based on measurements of a one week period. At the beginning, the running mean of hourly ratios oscillated which was expected. It soon became stable varying only within the error limit of the observations. It is, therefore, assumed that the ratio was representative of long-term conditions of the winter months, and continued sampling would probably not significantly change the ratio.

Errors due to non-linearity in the instrument response is very small ($\leq 1\%$). The use of several calibration points would not significantly improve the accuracy of the readings since non-linearity is not the major source of uncertainty. The major source of error is zero and span drift due mainly to temperature variations. It was, therefore, determined unnecessary to calibrate at more than two points.

The updated, February 1989, report does include the potential impact of traffic on the existing and future ambient air quality. The data for 1991, with and without the proposed project, indicates that State AAQS will not be exceeded.

Sincerely,
DHM inc.

Duk Hee Murabayashi
Duk Hee Murabayashi (Mrs.)
President

DEB

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

in reply, please refer to:
PH-150



STATE OF HAWAII
DEPARTMENT OF HEALTH

P. O. BOX 3378
HONOLULU, HAWAII 96813
October 24, 1988

Mrs. Duk Hee Murabayashi, President
DHM, Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Subject: Environmental Assessment (EA) for Waikiki Landmark Project, Waikiki, Oahu

Thank you for allowing us to review and comment on the subject EA. We provide the following comments relating to air pollution.

The air quality assessment report utilized the 1987 carbon monoxide ambient data obtained from the Department of Health, Waikiki monitoring station. The report does note that the data for December 1987 was excluded. An explanation should be provided since the higher values would occur during the winter months.

A correlation factor is used to adjust the data from the Department's monitoring location to the location of the project site. Although the correlation factor conservatively increases the Department's results, the validity of the factor is questioned since the monitoring at the project site was only conducted for one week. In addition, based on several span points, the response curves for each instrument should be compared and discussed.

The environmental assessment does not address the potential impact on the existing and future ambient air quality that may result from the vehicular activity associated with the proposed project. Should a potential violation be determined, the environmental assessment should address the mitigating actions which shall be implemented.

Sincerely yours,

Bruce S. Anderson
BRUCE S. ANDERSON, Ph.D.
Deputy Director for
Environmental Health



land use
and environmental
planning

DHM inc.

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

24 January 1989

Dr. Anders Daniels
University Associates
4336 Lanihale Place
Honolulu, Hawaii 96816

SUBJECT: Air Quality Assessment Report
Waikiki Landmark

Dear Dr. Daniels:

Enclosed is a copy of an October 24, 1988 comment letter from the Department of Health regarding the air quality assessment report for the proposed Waikiki Landmark project. There are three specific points to be addressed.

First, data for December 1987 was excluded. An explanation why this month was excluded should be provided in the report since higher CO values would probably occur in winter months.

Second, please address the question regarding the validity of the correlation factor since monitoring was conducted for only one week. In addition, a discussion and comparison of the response curves for each instrument should be included in the report.

Third, the impact on air quality in 1991 both with and without the proposed project does not seem to be included in the assessment report. A clear presentation of these values, in relationship to present 1988 values, perhaps in table format, would be helpful followed by an explanation of how they relate to present State AAQS and in the future.

We are in the process of writing the draft Environmental Impact Statement and would appreciate your response to these comments by February 7, 1989. If you have any questions, please contact Diane Borchardt.

Sincerely,

DHM inc.


Dyk Hee Kurabayashi (Mrs.)
President

Enclosure

DEB



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 517
HONOLULU, HAWAII 96813

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

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- CONTRACTS
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- STATE HISTORIC
- WATER AND LAND DEVELOPMENT

DOC. NO.: 4536E
FILE NO.: 89-190

NOV 2 1988

Mrs. Duk Hee Murabayashi
President, DHM Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

SUBJECT: Waikiki Landmark, Environmental Assessment/EIS
Preparation Notice
TRK: 2-6-74; 39, 41, 43, 44, 49, 50, 52-56, 59

Dear Mrs. Murabayashi:

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

Our Department's Historic Sites Section points out that on page 34 of the Environmental Assessment, there is a statement to the effect that since there are no known archaeological or historical sites on the property, the project will not have any impact on archaeological resources. In the EIS, under Existing Conditions, this should be changed to state that:

"There are no known historic sites on the property, or sites which are eligible for or listed on the Hawaii or National Register of Historic Places. There is, however, a possibility that subsurface archaeological deposits and burials may be present. This assessment is based on the fact that such deposits have been discovered in adjacent areas in Waikiki. Therefore, archaeological subsurface testing will be carried out prior to construction."

In addition, it is premature at this time to state, under Project Impact, that the project will have "no effect" on significant historic sites, and that statement should not appear in the EIS. Instead, there should be a statement under Mitigation Measures to the effect that archaeological subsurface testing will be carried out prior to construction, and that if subsurface deposits are encountered, appropriate mitigation measures will be undertaken after consultation with the State Historic Sites Section.

Mrs. Duk Hee Murabayashi

- 2 -

DOC. NO.: 4536E

Our Division of Aquatic Resources has no objection to the proposed development provided precautions are taken to prevent adverse impact to the aquatic environment from storm runoff containing toxic substances or other contaminants created by the construction activity.

Please feel free to call me or Roy Schaefer of our Office of Conservation and Environmental Affairs, at 548-7837, if you have any questions.

Very truly yours,

WILLIAM W. PATY

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

23 January 1989

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

SUBJECT: Environmental Impact Statement Preparation Notice
Waikiki Landmark

Dear Mr. Paty:

Thank you for your comments on the EISPN for the above subject property.

The Archaeology section of the draft EIS will be revised to reflect your comments concerning archaeological or historical sites on the subject property. A discussion concerning a pre-field literature search as well as subsurface testing at the time of demolition will also be included. In the event an archaeological feature is discovered, the Historic Sites Section of DNR will be immediately contacted and appropriate steps will be taken to preserve the site for evaluation.

In addition, appropriate precautions will be taken to ensure that no contaminated or toxic runoff from the construction site will reach the Ala Wai Canal and the ocean. This, too, has been included in the draft EIS.

Sincerely,

DHM inc.


Dyk Hee Murabayashi (Mrs.)
President

DEB



STATE OF HAWAII
 OFFICE OF HAWAIIAN AFFAIRS
 1405 KAPOLAN BLVD., SUITE 1409
 HONOLULU, HAWAII 96814
 (808) 548-3040
 (808) 548-2442

1188 Bishop Street
 Suite 2405
 Honolulu, HI 96813
 Ph. (808) 521-9855

land use
 and environmental
 planning

DHM inc.

23 January 1989

Mr. Kamaki A. Kanahale, III
 Administrator
 Office of Hawaiian Affairs
 1600 Kapiolani Blvd., Suite 1500
 Honolulu, Hawaii 96814

C-88-0016

December 9, 1988

Mrs. Duk Hee Murabayashi
 President
 DHM, Inc.
 1188 Bishop Street, Suite 2405
 Honolulu, Hawaii 96813

Subject: EISPN: Waikiki Landmark

Dear Mrs. Murabayashi:

Thank you for sending our office a copy of the environmental assessment and for the opportunity to comment.

Please send our office a copy of the archaeological reports produced for this project, such as reconnaissance reports, preliminary reports, research designs, excavations reports, and monitoring reports.

Sincerely,

 Kamaki A. Kanahale, III
 Administrator

KAK:EN:KIR

SUBJECT: Environmental Impact Statement Preparation Notice
 Waikiki Landmark

Dear Mr. Kanahale:

Thank you for your comments on the EISPN for the above subject property.

Bishop Museum in cooperation with the Historic Sites Section of the Department of Land & Natural Resources has determined that a conventional reconnaissance survey on this site would be inappropriate since the subject property is completely paved and occupied by several existing buildings. A pre-field literature search of the subject property will be undertaken, however, by Bishop Museum to predict the location of potential subsurface archaeological features.

At the time of demolition, backhoe assisted subsurface testing will be undertaken as the prefield literature search warrants. If any archaeological features are exposed, the Historic Sites Section will be immediately contacted and appropriate measures taken to preserve the site for evaluation.

Sincerely,
 DHM inc.

 Duk Hee Murabayashi (Mrs.)
 President

DEB



OFFICE OF STATE PLANNING

Office of the Governor

STATE CAPITAL, HONOLULU, HAWAII 96813 TELEPHONE: (808) 548 3473

LOW MARKS GOVERNOR

DHM inc.
land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

9 February 1989

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

**SUBJECT: Environmental Impact Statement Preparation Notice
Waikiki Landmark**

Dear Mr. Masumoto:

Thank you for your comments on the EISPN for the above subject property.

Your comments regarding the location of the subject property in Hawaii's Coastal Zone Management area are appreciated. A discussion of the proposed project's impacts relative to the objectives and policies of Hawaii's Coastal Zone Management Program (Chapter 205A) will be included in the draft Environmental Impact Statement.

Sincerely,
DHM inc.

Duk Hee Mirabayashi
Duk Hee Mirabayashi (Mrs.)
President
DEB

October 14, 1988

Mrs. Duk Hee Mirabayashi
President
DHM Planners, Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Mirabayashi:

**Subject: Environmental Impact Statement Preparation Notice
(EISPN) for the Waikiki Landmark Project**

Our review of the subject EISPN determined that the project site is within the State's Coastal Zone Management (CZM) area, as defined by Chapter 205A, HRS. In this regard, the EIS should contain a discussion of the project's impacts relative to the objectives and policies of Hawaii's CZM Program embodied in Chapter 205A.

Thank you for the opportunity to provide our comments on this document. Please feel free to contact our CZM office at 548-8467 if you have any questions regarding this matter.

Sincerely,

Harold S. Masumoto
Harold S. Masumoto
Director

cc: Dept. of Land Utilization,
City and County of Honolulu

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU
850 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK P. PASH
MAIL ROOM

DONALD A. CLEGG
CHIEF PLANNING OFFICER
GENE CONNELL
DEPUTY CHIEF PLANNING OFFICER

MM/DGP 9/88-3537

October 20, 1988

Mrs. Duk Hee Murabayashi, President
DHM, Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Environmental Assessment/EIS Preparation Notice
Walkiki Landmark
THK 2-6-14: 39, 41, 43, 44, 49, 50, 52-56, 59

This is in response to your request for comments on the Environmental Assessment/EIS Preparation Notice for the Walkiki Landmark project.

As you know, the Primary Urban Center Development Plan does not allow for mixed use of the subject site at the present time. Your assessment indicates that a new mixed use DP land use designation is being proposed. Be advised that we are proposing a change to the Special Provisions text for Walkiki for areas along Kalakaua and Ala Moana Avenues rather than a land use amendment.

The assessment is unclear as to the off-street parking that would be provided. Does the 700 parking stalls include or not include the 135 spaces set aside for the Royal Aloha Condominium under the Development Agreement for the property?

The impact on existing vegetation should be clarified. There should be some indication as to the impact on the palm and monkeypod trees within the area.

The approximate sales price of the proposed condominium units should also be indicated.

Mrs. Duk Hee Murabayashi, President
DHM, Inc.
Page 2
October 20, 1988

Be further advised that the two people per household for the subject area that is attributed to this department was based on the 1980 census and are not 1985 statistics.

If you have any questions, please call Mel Murakami at 527-6020.

Sincerely,

DONALD A. CLEGG
Chief Planning Officer

DAC:js

cc: Department of Land Utilization

DHM inc.

land use
and environmental
planning

9 February 1989

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

Mr. Donald A. Clegg
Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

**SUBJECT: Environmental Impact Statement Preparation Notice
Waikiki Landmark**

Dear Mr. Clegg:

Thank you for your comments on the EISPN for the above subject property.

On January 31, 1989, the City Council adopted Bill No. 168 proposing changes to the Special Provision text for the Waikiki area along Kalakaua and Ala Moana Avenues. We will reflect this in the draft EIS text.

The proposed Waikiki Landmark includes 650 parking stalls, including 135 designated for the Royal Aloha Condominium under the Development Agreement for the property. This is reflected in the draft EIS text.

The existing monkeypod and palm trees on the subject property will be incorporated into the landscaping design wherever possible. If they cannot be included in the design, they will be relocated to other areas within the subject property.

The approximate sales price of the condominiums has not yet been established. Based on the location of the property, it is expected the prices will be in the moderate to luxury price range.

The statistic concerning the number of persons per household reflects 1980 census data and has been changed to 1.7 persons per household.

Your comments will be included in the draft Environmental Impact Statement.

Sincerely,
DHM inc.


Dux Hee Hurabayashi (Mrs.)
President

DEB

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

430 SOUTH KING STREET
HONOLULU, HAWAII 96813
PHONE 522-4181



FRANK P. KAH
DIRECTOR

MIKE MOON
DIRECTOR
MICHAEL N. SCARFONE
PLANNING DIRECTOR

October 28, 1988

Mrs. Duk Hee Murabayashi, President
DHM Planners, Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Subject: Environmental Impact Statement Preparation Notice
Waikiki Landmark Project

We have reviewed the subject Environmental Impact Statement Preparation Notice.

A primary concern of this Department is the provision of housing opportunities to a wide range of income groups, particularly to those households with low and moderate incomes. We recommend that the Environmental Impact Statement for this project contain, in as much detail as possible, a description of the types and price ranges of the housing units proposed for the project and a discussion of the affordability of the units for households of various income groups.

We note that a zone change is required for this project. The Department's current policy is to request that ten percent of the residential units in a proposed project be set-aside for low- and moderate-income households or that the developer contribute in-kind toward the development of such housing. This policy up to now has only affected residential projects, however, all developments requesting zone change actions would be subject to some kind of requirement under a Bill for a Community Benefit Ordinance currently before the City Council. The Department will inform the developer of any requirements should the Community Benefit Assessment Bill be enacted.

Thank you for the opportunity to comment.

Sincerely,

MIKE MOON
Director

land use
and environmental
planning

DHM inc.

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

9 February 1989.

Mr. Michael Scarfone
Director
Department of Housing and Community Development
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

SUBJECT: Environmental Impact Statement Preparation Notice
Waikiki Landmark

Dear Mr. Scarfone:

We received a comment letter from Mr. Mike Moon on the above subject property and offer the following response.

The sale prices for the residential condominiums have not yet been firmly established. At this time, however, the developer does estimate the residential condominiums will be in the \$350,000 to \$650,000 price range. The final sale prices will be largely dependent upon development and construction costs.

We understand that the City Council has not taken any action on the Community Benefit Assessment Bill, initiated by the Department of Land Utilization.

These comments will be included in the draft Environmental Impact Statement.

Sincerely,
DHM inc.

Duk Hee Murabayashi (Mrs.)
President
DEB

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • PHONE 527-4132



FRANK J. FAR
MAYOR

land use
and environmental
planning

DHM inc.

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

JOHN P. WHALEN
DIRECTOR
DEPARTMENT OF LAND UTILIZATION
HONOLULU, HAWAII

LU12/88-8619 (RP)

9 February 1989

Mr. John P. Whalen
Director
Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

SUBJECT: Environmental Impact Statement Preparation Notice
Waikiki Landmark

Dear Mr. Whalen:

Thank you for your comment letter on the EISPN for the above subject property.

Design alternatives will be included in the draft Environmental Impact Statement with a discussion of alternatives for placement of the two separate towers.

The effects of winds at the proposed Waikiki Landmark will be addressed in the draft Environmental Impact Statement.

A shadow effects study of the proposed Waikiki Landmark on adjacent streets and buildings has been conducted and a report will be included in the draft Environmental Impact Statement.

Sincerely,

DHM inc.

Duk Hee Murabayashi
Duk Hee Murabayashi (Mrs.)
President

DEB

January 5, 1989

Mrs. Duk Hee Murabayashi
DHM, Inc.
1188 Bishop Street #2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Environmental Impact Statement
Preparation Notice (EISPN)
for Waikiki Landmark

We are writing in answer to your letter dated December 21, 1988, concerning wind effects. To clarify our previous comment, we are not specifying any particular type of wind study. Nevertheless, we are concerned about the potential effects that large buildings can have on the pedestrian street environment. Wind currents can be reflected downward off building facades onto sidewalk areas, rendering them difficult and/or uncomfortable for pedestrian use. The EIS must analyze wind effects on such public spaces. In order to determine whether there is a significant adverse effect and, if so, how that effect can be mitigated.

If you have any questions, please contact Mr. Robin Foster of our staff at 527-5027.

Very truly yours,

John P. Whalen
JOHN P. WHALEN
Director of Land Utilization

JPM:sl
0226N

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

630 SOUTH KING STREET
HONOLULU HAWAII 96813 • PHONE 527-4322



PLANNING DIVISION

JOHN P. WHALEN
DIRECTOR
BENJAMIN B. LEE
DEPUTY DIRECTOR

land use
and environmental
planning
DHM inc.

21 December 1988

Mr. John P. Whalen
Department of Land Utilization
650 S. King Street
Honolulu, Hawaii 96813

Dear Mr. Whalen:

Thank you for your response and comments of October 20, 1988 to the EISPN for the proposed Waikiki Landmark project. We would like to specifically address the second comment, "The EIS should study the wind effects of the proposed structures on adjacent streets and buildings."

The proposed project site is separated from all other buildings by roadways on all sides and is being sited to allow for the least amount of visual and wind obstruction. Unlike the Ala Moana Yacht Harbour Plaza, we not anticipate adverse wind impacts on specific activities, such as yachting, in the vicinity. Two wind studies, one each by Dr. Arthur N.L. Chiu and Dr. Karl H. Bathen, for that project indicated little adverse effect on the remaining open space affecting wind conditions in the Ala Wai canal and boat harbor.

Based on these studies, it is felt that the proposed building will have little or no effect on the surrounding area. The proposed Waikiki Landmark is significantly mauka of the Ala Moana Yacht Harbour Plaza with buildings between the project and the Harbor. If it was felt there would be wind effects, it would be prudent for the architects to engage wind experts in the design of the building to protect the building. We therefore request that no particular wind study be required for the EIS. If a general study similar to Dr. Chiu's Ala Moana Yacht Harbour Plaza study must be done, we may be able to engage Dr. Chiu. However, as we stated earlier, the location doesn't warrant that type of general study. We will simply discuss the wind issue in the EIS.

If you have any questions or would like to discuss this request, please contact me. Thank you.

Sincerely,
DHM inc.

John P. Whalen
John P. Whalen (Mrs.)
President

Enclosures
cc: Tony Tjan
Alex Weinstein

Mrs. Duk Hee Murabayashi
DHM, Inc.
1188 Bishop Street #2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Environmental Impact Statement
Preparation Notice (EISPN)
for Waikiki Landmark

We have the following requests concerning the EIS for the Waikiki Landmark project:

1. The EIS should consider various design alternatives, including two separate towers dispersed on the site.
2. The EIS should study the wind effects of the proposed structures on adjacent streets and buildings.
3. The EIS should study any shadow or "canyon" effects of the proposed structures on adjacent streets and buildings.

If you have any questions, please contact Robin Foster at 527-5027.

Very truly yours,

John P. Whalen
JOHN P. WHALEN
Director of Land Utilization

JPM:s1
0291N

106

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



FRANKIE KANE
MAILER

HIRAM K. KAWAKA
DIRECTOR
WALTER M. OZAWA
DEPUTY DIRECTOR

October 25, 1988

Mrs. Duk Hee Murabayashi
President
DHM Incorporated
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Subject: Environmental Impact Statement Preparation Notice (EISPM)
Waikiki Landmark
Tax Map Key 2-6-14: 39 et al

We have reviewed the EISPM for the proposed Waikiki Landmark project and make the following comments and recommendations.

The size of the project will have a significant impact on our public park facilities in the subject area. Other than Ala Wai Field, there are no major "active" recreation parks to serve the project. Fort DeRussy and Ala Moana are beach parks that provide only limited and passive recreation use for the project. It is important that recreational areas and facilities be provided and included in the design of the project.

Since the project will be subject to compliance with the Park Dedication Ordinance, the recreational areas and facilities should be designed to meet the private park standards and requirements specified under Rule 10 of the Park Dedication Rules and Regulations. The suggested use of the project's open space requirements for park dedication credit may be questionable.

We recommend that you contact Mr. Jason Yuen of our Advance Planning Branch to discuss the project's recreational needs and park dedication requirements.

Thank you for the opportunity to comment on the EISPM.

Sincerely,

HIRAM K. KAWAKA, Director

HKK:et

land use
and environmental
planning
DHM inc.

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

9 February 1989

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

SUBJECT: Environmental Impact Statement Preparation Notice
Waikiki Landmark

Dear Mr. Ozawa:

We received a comment letter from Mr. Hiram K. Kawaka on the above subject property and offer the following response.

The proposed project is within a three mile radius of the Ala Wai Field and Playground, the Waikiki Gateway Park, Kapiolani Park and the Honolulu Zoo. This three mile radius also includes beach parks such as the Ala Moana Beach Park (plus Magic Island), Fort DeRussy Beach Park, Kuhio Beach Park, and Kapiolani Beach Park. In addition, the proposed project will include the following recreational facilities on the subject property: recreation building/health club, swimming pool, paddle tennis courts, and a picnic/barbeque area.

The proposed project will comply with all regulations concerning private park standards and dedications.

These comments will be included in the draft Environmental Impact Statement.

Sincerely,

DHM inc.

Duk Hee Murabayashi (Mrs.)
President

DEB

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK F. YASU
MAYOR

JOHN E. HIRATA
DIRECTOR
JOSEPH M. MAGALDI, JR.
DEPUTY DIRECTOR

TE-6503
PL1.1310

November 16, 1988

Mrs. Duk Hee Murabayashi
President
DHM Planners Inc.
1188 Bishop Street
Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Subject: Waikiki Landmark
Environmental Assessment
TMK: 2-6-14

108

Mrs. Duk Hee Murabayashi
Page Two
November 16, 1988

2. During the next year, construction is anticipated to begin on Phase II of the Kalakaua Avenue Safety and Beautification Project, which will extend the sidewalk and street improvements to the Ala Wai Canal. Accordingly, we are concerned about the proposed use of the sidewalk area and setback on Kalakaua Avenue and recommend that the developer install brick paved sidewalks and landscaping compatible with the improved section of Kalakaua Avenue further Diamond Head. These improvements should be discussed with the Program Coordination Division at 527-6019.
3. With regard to traffic circulation, there is a 10-foot road widening setback fronting the subject property. Frontage improvements, including the construction of an additional mauka bound lane, should be implemented as part of this project. These improvements should match the improved section fronting the Hard Rock Cafe, further mauka.
4. Driveways should be installed at locations which will be beneficial to the proposed project, cause the least amount of disruptions to traffic and provide adequate sight distances. These items should be addressed in the traffic impact study.

If you have any questions, please contact Kenneth Hirata of my staff at 527-5031.

Sincerely,

JOSEPH M. MAGALDI, JR.
Deputy Director

This is in response to your letter dated September 27, 1988 requesting our comments on the environmental assessment for the subject project.

We have reviewed the report with regard to certain concerns raised by our department and have the following comments:

1. As part of the alternative alignments for the proposed rapid transit system, there is a possibility of locating a station on or adjacent to the Waikiki Landmark development. A side-platform station is proposed in the vicinity of Ena Road. The main elements of the station are set above the mauka bound lanes of Kalakaua Avenue and may require a 32-foot encroachment into the proposed development. In addition, current conceptual plans show a dual-track guideway which may overhang approximately 11 feet into the subject property. The developer should, therefore, coordinate the progress of this project with the Rapid Transit Development Division. They can be contacted at 527-6975.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

DHM inc.

3 February 1989

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

**SUBJECT: Environmental Impact Statement Preparation Notice
Waikiki Landmark**

Dear Mr. Magaldi:

Thank you for your comments on the EISP for the above subject property.

The developer has been apprised of the plans for the proposed rapid transit system and the possibility of locating a station on or adjacent to the Waikiki Landmark. The developer will further coordinate with your Rapid Transit Development Division.

The developer will coordinate with the Program Coordination Division and will comply with the requirements of Phase II of the Kalakaua Avenue Safety and Beautification project.

The developer is aware of the 10-foot road widening setback fronting the subject property and all regulations will be complied with.

Driveways, ingress and egress, will be located on McCully Avenue and Ala Wai Boulevard. Traffic studies indicate relatively smooth traffic patterns and adequate sight distances with these locations.

Your comments will be included in the draft Environmental Impact Statement.

Sincerely yours,

DHM inc.


Dux Hee Muraabayashi (Mrs.)
President

DEB

ALEXIS F. LUM
MAJOR GENERAL
ADJUTANT GENERAL
HYLES H. NAKATSU
COLONEL
DEPUTY ADJUTANT GENERAL



STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
3400 BALUARD ROAD, HONOLULU, HAWAII 96814-1400

October 7, 1988

JOHN WAINES
ENGINEER

RUSSEL S. MAGATA
COMPTROLLER
SEN ETSUBU
MAYOR COMPTROLLER

LETTER NO. (P)1882.8



STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
DIVISION OF PUBLIC WORKS
P. O. BOX 115, HONOLULU, HAWAII 96818

OCT 5 1988

Engineering Office

Mrs. Duk Hee Murabayashi
President
DHM Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813
Dear Mrs. Murabayashi:

Subject: Waikiki Landmark
Environmental Assessment

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

110

Mrs. Duk Hee Murabayashi
DHM Inc.
1188 Bishop Street, Suite 2405
Honolulu, HI 96813

Dear Mrs. Murabayashi:

Waikiki Landmark, Environmental Assessment

Thank you for providing us the opportunity to review the subject project.
We have no comments to offer at this time regarding this project.

Very truly yours,

Teuane Tomihaga
TEUANE TOMIHAGA
State Public Works Engineer

SM:jk

Sincerely,

Joseph M. Matsuda
Joseph M. Matsuda
Major, Hawaii Air
National Guard
Contr & Engr Officer

Enclosure



10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

JOHN WAIKAI
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF EDUCATION
P. O. BOX 2246
HONOLULU, HAWAII 96811

OFFICE OF THE SUPERINTENDENT

October 17, 1988

CHARLES T. TEGUCHI
SUPERINTENDENT

JOHN WAIKAI
GOVERNOR



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
1600 KALANOAULI DRIVE
HONOLULU, HAWAII 96813

October 17, 1988

EDWARD Y. HIFATA
DIRECTOR
DEPUTY DIRECTORS
JOHN K. UOHRUA
RONALD N. HIRAIWA
DAVID T. MOORE
JEANNE K. SCHULTZ

IN REPLY REFER TO:
HWY-PS
2.3248

Mrs. Duk Hee Murabayashi
President
DHM Planners Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

SUBJECT: Waikiki Landmark Environmental Assessment

Our review of the Waikiki Landmark Environmental Assessment indicates that the proposed project should not have any significant enrollment impact on our schools.

Sincerely,

Charles T. Teguchi

Charles T. Teguchi
Superintendent

CTT:jl

cc E. Iwai, OBS
M. Oda, Honolulu District

Mrs. Duk Hee Murabayashi
President
DHM Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Waikiki Landmark
TMK: 2-6-14: 39, 41, 43, 44, 49, 50, 52-56, 59
Environmental Assessment/EIS Preparation Notice

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

The proposed development is not anticipated to significantly affect the State highway facilities. The roadways that will experience the increased traffic from the development are under the City's jurisdiction.

We recommend, however, that the level of service at the intersections be re-examined.

Very truly yours,

Edward Y. Hifata

Edward Y. Hifata
Director of Transportation

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU
630 SOUTH BERETANA STREET
HONOLULU, HAWAII 96813



FRANK F. FARR, Mayor
DONNA B. GOTT, Chairman
JOHN K. ISLA, Vice Chairman
SISTER M. OAKLEY, M.H.C.M.C.K.O.S.F.
EDWARD Y. HERRA
ALFRED J. THEISE
ERNEST A. WATSON
MAURICE M. YAMASATO
KAZU HAYASHIDA
Manager and Chief Engineer

October 12, 1988

Mrs. Duk Hee Murabayashi
President
DHM, Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Subject: Environmental Assessment/EIS Preparation Notice for
Waikiki Landmark, TMK: 2-6-14: 39, 41, 43, 44, 49,
50, 52-56, 59

The comments we made in our letter dated January 21, 1988 to
Richard M. Sato and Associates, and published on Page 4-1 of
the Environmental Assessment/EIS Preparation Notice for
Waikiki Landmark, are still valid and applicable.

If you have any questions, please call Lawrence Whang at
527-6138.

Very truly yours,

Lawrence Whang
KAZU HAYASHIDA
Manager and Chief Engineer

BUILDING DEPARTMENT
CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING
810 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK F. FARR
Mayor

HERBERT K. MURAKA
DIRECTOR AND BUILDING SUPERINTENDENT

PB 88-918

October 5, 1988

Mrs. Duk Hee Murabayashi, President
DHM, Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Subject: Waikiki Landmark
TMK: 2-6-14:39, 41, 43, 44, 49, 50, 52-56, and 59
Environmental Assessment

We have no comments on the Waikiki Landmark Environmental Assessment.

Thank you for the opportunity to review the assessment.

Very truly yours,

Herbert K. Muraka
HERBERT K. MURAKA
Director and Building Superintendent

cc: J. Harada



DEPARTMENT OF PUBLIC WORKS
CITY AND COUNTY OF HONOLULU

640 SOUTH KING STREET
HONOLULU HAWAII 96813



FRANK F. FASI
MAYOR

ALFRED J. THIEDE
DIRECTOR AND CHIEF ENGINEER

In reply refer to:
PRO 88-292(449)

October 11, 1988

Mrs. Duk Hee Murabayashi
President
DHM, Inc.
1188 Bishop Street
Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Subject: Environmental Assessment/EIS Preparation Notice
Waikiki Landmark
Tax Map Key: 2-6-14:39, 41, 43, 44, 49, 50, 52-56, 59

We have reviewed the subject Environmental Assessment (EA) and have the following comments:

1. The existing sewers are available and adequate for the proposed development.
2. The proposed development is subject to the provisions of Article 5, Chapter 20, Revised Ordinance of Honolulu (Ordinance No. 2412).

Very truly yours,

Alfred J. Thiede
ALFRED J. THIEDE
Director and Chief Engineer

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1435 BERTINIA STREET, ROOM 202
HONOLULU HAWAII 96813



FRANK F. FASI
MAYOR

FRANK K. KAHOOHONOHANO
FIRE CHIEF

LIONELLE CAMARA
DEPUTY FIRE CHIEF

October 17, 1988

Mrs. Duk Hee Murabayashi, President
DHM Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:

Re: Waikiki Landmark
THK 2-6-14: 39, 41, 43, 44, 49, 50, 52-56, 59
Environmental Assessment/EIS Preparation Notice

We have reviewed this proposal and have no objections. Existing fire protection services and facilities are considered adequate. The proposed development will have no adverse impact on the fire protection service in the area.

Should you have any questions, please contact Battalion Chief Kenneth Word of our Administrative Services Bureau at 943-3838.

Very truly yours,

Frank K. KahooHonohano
FRANK K. KAHOOHONOHANO
Fire Chief

FKK/HA:lm

POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1435 SOUTH KING STAMBA STREET
HONOLULU, HAWAII 96814-2000



DOUGLAS G. GIBB
CHIEF
ASSEN FERRERES
DEPUTY CHIEF

FRANK F. SAN
JUNIOR

OUR REFERENCE RC-LC

October 19, 1988

Mrs. Duk Hee Murabayashi
President
DHM Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Mrs. Murabayashi:


Re: Waikiki Landmark
TMK: 2-6-14:39, 41, 43, 44, 49, 50, 52-56, 59
Environmental Assessment/EIS Preparation Notice

We have reviewed the Waikiki Landmark Environmental Assessment as requested, and have the following comments.

As indicated in the assessment, the proposed development will be situated across the street from nightclub and discotheque establishments. These establishments generally attract large crowds of young people to the area, which inevitably result in loud noise, trespassing, trespassing vehicle, burglary, theft, drinking, drug and similar complaints from nearby residents. Since this is a common pattern in Waikiki, we can anticipate an increase in calls for police service from the residents of the proposed project. We cannot overemphasize the need for private security to reduce some of these problems.

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

Sincerely,
DOUGLAS G. GIBB
Chief of Police

By 
RONALD SOUZA
Assistant Chief
Support Services Bureau



Chapter XIV

XIV. COMMENTS AND RESPONSES DURING THE PUBLIC REVIEW PERIOD

Written responses to the draft Environmental Impact Statement were received from the following persons and agencies.

SUBSTANTIVE COMMENTS/RESPONSES

State of Hawaii

Department of Business and Economic Development
Housing, Finance & Development
Department of Land and Natural Resources
Office of Environmental Quality Control
Office of Hawaiian Affairs

City and County of Honolulu

Department of General Planning
Department of Housing and Community Development
Department of Land Utilization
Department of Parks and Recreation
Department of Transportation Services
Police Department

Others

American Lung Association of Hawaii
Hawaiian Electric Company, Inc.
University of Hawaii at Manoa
Environmental Center

NO COMMENTS

Federal

Department of the Army
Department of Defense
Department of the Interior
Fish and Wildlife Service
Department of the Navy

State of Hawaii

Department of Accounting and General Services
Project Management Branch
Department of Agriculture
Department of Business and Economic Development
Energy Division
Department of Health

City and County of Honolulu

Board of Water Supply
Building Department
Department of Public Works
Fire Department

89:PLNG/1686B JT

March 30, 1989

MEMORANDUM

TO: Dr. Marvin Miura, Director
Office of Environmental Quality Control

FROM: Joseph K. Conant

SUBJECT: Draft EIS for the Proposed Waikiki Landmark

Thank you for the opportunity to review the subject draft EIS.

As previously stated, we believe that the applicant should work closely with the City and County of Honolulu in satisfying any affordable housing condition. If, for example, 10% of the housing units are required to be affordable to families earning 80% and below of the area median income, then we estimate that sales prices should not exceed \$93,000. This estimate is based on (1) a 1989 median income for a family of four of \$39,100; (2) a 30 year mortgage at a fixed interest rate of 10%; (3) a 10% down payment; (4) \$125 reserved for taxes and insurance; and (5) a housing expense of 33% of family income.

Additionally, the draft State Housing Functional Plan proposes the integration of special needs housing in new and existing neighborhoods. (Special needs housing is generally defined as housing for persons for whom social problems, age, or physical or mental handicaps impair their ability to live independently and for whom such ability can be improved by more

Dr. Marvin Miura
March 30, 1989
Page 2

suitable housing conditions.) The draft housing plan advocates that developers of residential projects should make at least one percent of the total number of units in the project available for special needs groups.

Enclosed is the draft EIS.

JOSEPH K. CONANT
Executive Director

Enclosure

cc: Dept. of Land Utilization
Bel-Landmark Inc.
DHM inc.

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

April 14, 1989

Mr. Joseph K. Conant
Executive Director
Housing, Finance & Development
Department of Business and
Economic Development
State of Hawaii
P.O. Box 2359
Honolulu, Hawaii 96804

SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark

Dear Mr. Conant:

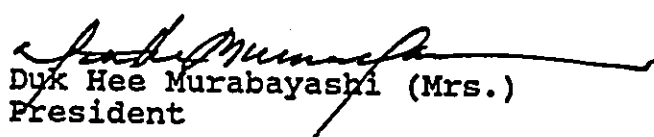
Thank you for your comments on the draft Environmental Impact Statement for the Waikiki Landmark.

As indicated in our previous communication regarding your comments to the EISPN, all City and County of Honolulu requirements will be complied with.

Your comments are appreciated and will be included in the final Environmental Impact Statement.

Sincerely,

DHM inc.


Duk Hee Murabayashi (Mrs.)
President

DEB

cc: Department of Land Utilization
Mr. Tony Tjan, Bel-Landmark, Inc.
OEQC

JOHN WAIHEE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621
HONOLULU, HAWAII 96809

REF: OCEA-sor

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

DEPUTIES

LIBERT K. LANDGRAF
MANABU TAGOMORI
RUSSELL N. FUKUMOTO

AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
ENVIRONMENTAL AFFAIRS
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

APR 10 1989

FILE NO.: 89-489
DOC. NO.: 5466E

MEMORANDUM

TO: The Honorable Marvin T. Miura, Director
Office of Environmental Quality Control

FROM: William W. Paty, Chairperson
Board of Land and Natural Resources

SUBJECT: Draft EIS - Waikiki Landmark
Oahu; TMK: 2-16-14: Parcels 39, 41, 43, 44, 49, 50,
52-56, 59

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

Our Department's Historic Sites Section notes that the archaeological resources section of the Draft EIS states that a background literature review for the project area has been carried out by their archaeological consultant. As this is an urban area, their review found no archaeological resources remain on the surface. To determine presence or absence of subsurface remains, the Draft EIS states that an archaeological consultant will conduct subsurface testing prior to construction. These plans meet our concerns, and we will await the findings of the subsurface testing.

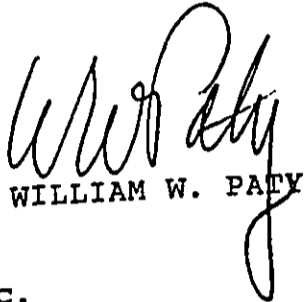
The Division of Aquatic Resources has no objection to the proposed development provided precautions are taken to prevent adverse impact to the aquatic environment from storm runoff containing toxic substances or other contaminants created by the construction activity.

Honorable Marvin T. Miura

- 2 -

FILE NO.: 89-489

Please feel free to call me or Roy Schaefer of our Office of Conservation and Environmental Affairs, at 548-7837, if you have any questions.



WILLIAM W. PATY

cc: Tony Tian, Bel-Landmark Inc.
Diane E. Borchardt, DHM Inc.

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

April 14, 1989

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

SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark

Dear Mr. Paty:

Thank you for your comments on the draft Environmental Impact Statement for the Waikiki Landmark.


We concur with the Historic Sites Section statements regarding information contained in the dEIS. As stated in the dEIS (pages 31-32), subsurface testing will be conducted on the project site prior to construction and will be monitored by the Bishop Museum. The subsurface testing will occur immediately after demolition of the existing buildings and paved parking lots.

We also concur with the Division of Aquatic Resources statements regarding storm runoff and all precautions will be taken.

Your comment letter is appreciated and will be included in the final Environmental Impact Statement.

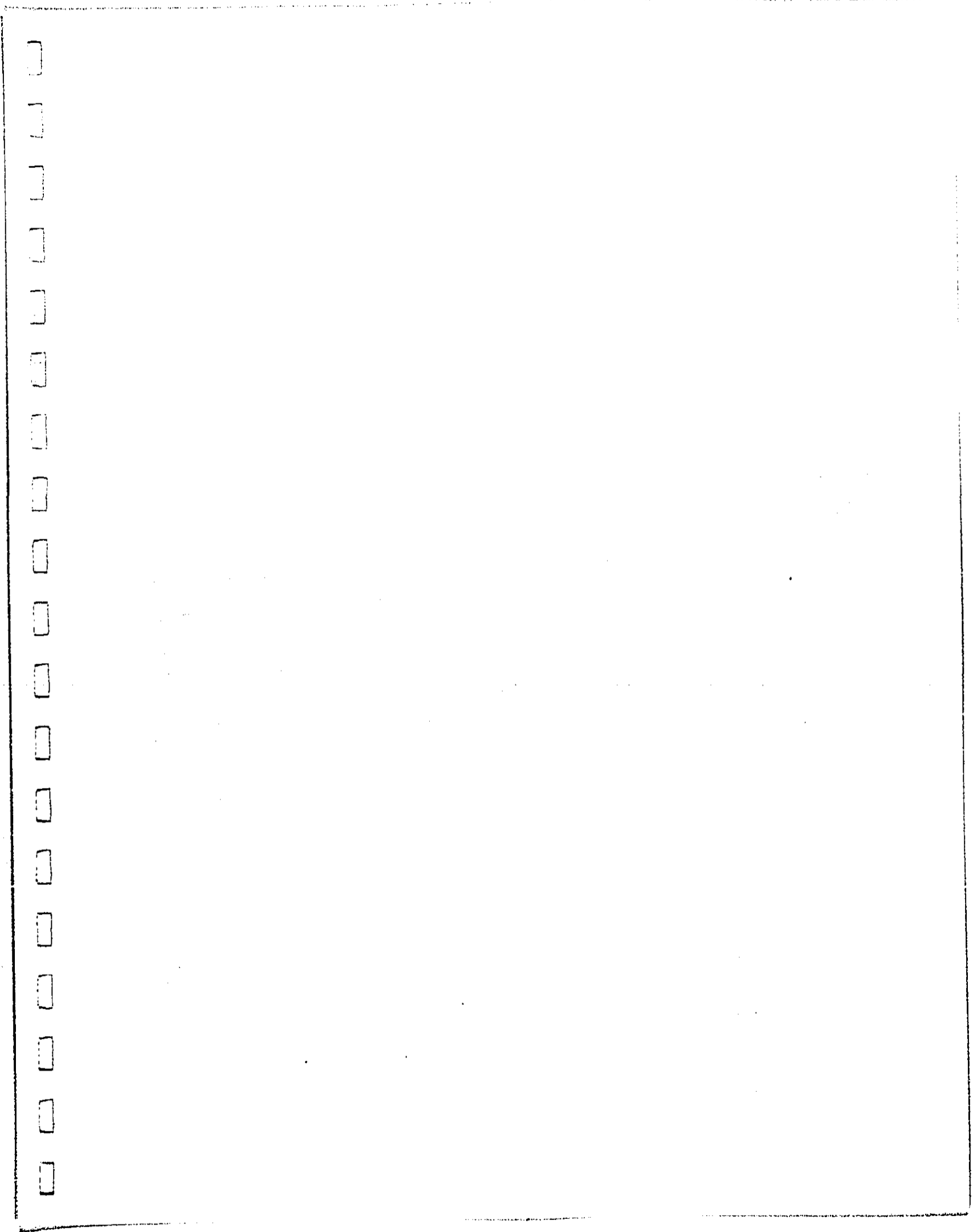
Sincerely,

DHM inc.


Dyk Hee Murabayashi (Mrs.)
President

DEB

cc: Department of Land Utilization
Mr. Tony Tjan, Bel-Landmark, Inc.
OEQC



JOHN WAIHEE
GOVERNOR



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
465 SOUTH KING STREET, ROOM 104
HONOLULU, HAWAII 96813

MARVIN T. MIURA, Ph.D.
DIRECTOR

TELEPHONE NO.
548-6915

April 27, 1989

Diane E. Borchardt
DHM Planners Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Ms. Borchardt:

We have reviewed your Environmental Impact Statement for the Waikiki Landmark project and offer the following comments for your consideration:

1. Comments and responses made during the consultation phase are not included in the draft EIS. Page 86 contains only a listing of state and county agencies. This page states that "All comment letters received by the applicant during the consultation phase are included in the following pages." They are not! The final EIS should contain comments and responses for both the consultation period and the review period.
2. Parking in the area will be significantly restricted once the project is developed. The EIS states that there will be:
 - o A minimum of 1 stall per residential condominium unit (450 stalls)
 - o A minimum of 1 stall per 800 sf of commercial area (65 stalls), and
 - o An additional 135 stalls across McCully Street will be developed.

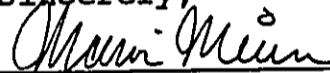
The EIS seems to imply that the 135 stalls across McCully Street are for the occupants of the Royal Aloha Condominium rather than the Waikiki Landmark. This should be clarified.

There does not seem to be sufficient parking for the occupants of the Landmark, many of whom may own more than one car, or for visitors of the Landmark.

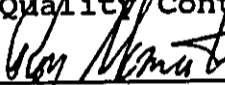
3. No information regarding satisfaction of the City's affordable housing requirements has been disclosed in the draft EIS. Also, the number of units in the proposed development to be available to special needs groups (i.e. elderly, physically or mentally handicapped, and those with social problems) has not been definitively disclosed.
4. The precise location of the park site within the project has not been disclosed. With regard to ordinance no. 4621, we recommend that you contact the City and County of Honolulu, Department of Land Utilization. We further recommend that you contact the City and County of Honolulu, Department of Parks and Recreation to determine whether your proposed park is within the boundaries of their rules and regulations.

Thank you for providing us with this opportunity to review this EIS.

Sincerely,



MARVIN T. MIURA, PH.D.
Director, Office of Environmental
Quality Control



ROY SAKAMOTO
Environmental Technical Specialist

cc: DLU
Parks & Recreation
HFDC
OSP
Waikiki Convention Center Authority

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

May 19, 1989

Dr. Marvin T. Miura
Director
Office of Environmental Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark

Dear Dr. Miura:

Thank you for your comments regarding the draft Environmental Impact Statement for the proposed Waikiki Landmark. Our responses are prepared in the order of your comments.

1. When the draft EIS file notice was published in the March 8, 1989 Bulletin, we realize that the EISPN comment and response letters were inadvertently not included in the process of printing the dEIS. We worked extensively with Mr. George Brosky of your office to correct the error. As the copy of our March 15, 1989 letter to you indicates, we apologized for the error. We then sent an explanatory letter and comment pages to all reviewers. Two (2) complete corrected copies of the dEIS were also sent to your office to replace the defective dEIS. The corrected Waikiki Landmark dEIS was again filed with your office and its filing was published for the second time in the March 23, 1989 Bulletin.

To our surprise, Mr. Roy Sakamoto of your office contacted us on April 27, 1989 to inform us that the comment letters were not included in the dEIS. We explained the whole sequence of the events to him. Despite the corrective action and the explanation, your office is bringing this matter up again. We are not sure what else we can do.

2. Yes, the 135 parking stalls are specifically designated for the Royal Aloha Condominium residents as part of the development agreement for the subject property. This agreement is clearly stated on page 7 of the dEIS.

The number of parking stalls provided with the proposed project not only meets the parking requirement for the Waikiki Special Design District but actually exceeds the requirement.

CORRECTION

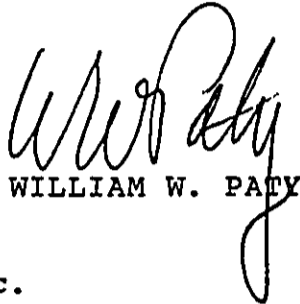
THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

Honorable Marvin T. Miura

- 2 -

FILE NO.: 89-489

Please feel free to call me or Roy Schaefer of our Office of Conservation and Environmental Affairs, at 548-7837, if you have any questions.



WILLIAM W. PATY

cc: Tony Tian, Bel-Landmark Inc.
Diane E. Borchardt, DHM Inc.

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

April 14, 1989

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

SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark

Dear Mr. Paty:

Thank you for your comments on the draft Environmental Impact Statement for the Waikiki Landmark.


We concur with the Historic Sites Section statements regarding information contained in the dEIS. As stated in the dEIS (pages 31-32), subsurface testing will be conducted on the project site prior to construction and will be monitored by the Bishop Museum. The subsurface testing will occur immediately after demolition of the existing buildings and paved parking lots.

We also concur with the Division of Aquatic Resources statements regarding storm runoff and all precautions will be taken.

Your comment letter is appreciated and will be included in the final Environmental Impact Statement.

Sincerely,

DHM inc.


Dyk Hee Murabayashi (Mrs.)
President

DEB

cc: Department of Land Utilization
Mr. Tony Tjan, Bel-Landmark, Inc.
OEQC

JOHN WAIHEE
GOVERNOR



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
465 SOUTH KING STREET, ROOM 104
HONOLULU, HAWAII 96813

MARVIN T. MIURA, Ph.D.
DIRECTOR

TELEPHONE NO.
548-6915

April 27, 1989

Diane E. Borchardt
DHM Planners Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Dear Ms. Borchardt:

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1. Comments and responses made during the consultation phase are not included in the draft EIS. Page 86 contains only a listing of state and county agencies. This page states that "All comment letters received by the applicant during the consultation phase are included in the following pages." They are not! The final EIS should contain comments and responses for both the consultation period and the review period.
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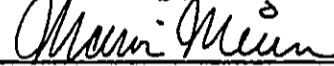
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3. No information regarding satisfaction of the City's affordable housing requirements has been disclosed in the draft EIS. Also, the number of units in the proposed development to be available to special needs groups (i.e. elderly, physically or mentally handicapped, and those with social problems) has not been definitively disclosed.
4. The precise location of the park site within the project has not been disclosed. With regard to ordinance no. 4621, we recommend that you contact the City and County of Honolulu, Department of Land Utilization. We further recommend that you contact the City and County of Honolulu, Department of Parks and Recreation to determine whether your proposed park is within the boundaries of their rules and regulations.

Thank you for providing us with this opportunity to review this EIS.

Sincerely,



MARVIN T. MIURA, PH.D.
Director, Office of Environmental
Quality Control



ROY SAKAMOTO
Environmental Technical Specialist

cc: DLU
Parks & Recreation
HFDC
OSP
Waikiki Convention Center Authority

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

May 19, 1989

Dr. Marvin T. Miura
Director
Office of Environmental Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark

Dear Dr. Miura:

Thank you for your comments regarding the draft Environmental Impact Statement for the proposed Waikiki Landmark. Our responses are prepared in the order of your comments.

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The number of parking stalls provided with the proposed project not only meets the parking requirement for the Waikiki Special Design District but actually exceeds the requirement.

Dr. Marvin T. Miura
May 19, 1989

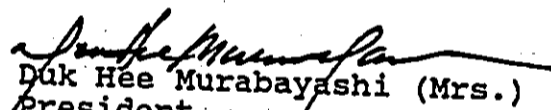
Page 2

3. The developer is not initiating a zone change. Furthermore, the proposed multiple residential use can be construed as a type of "down-zoning." Therefore, there is no requirement for the project to provide affordable housing or special needs housing. However, the developer will comply with all State and City and County of Honolulu rules and regulations concerning affordable and special needs housing requirements, if there will be any, as stated on page 63 of the dEIS.
4. Thank you for recommending us to contact the City and County Departments of Land Utilization and Parks & Recreation in regard to Ordinance 4621. As we stated on page 9 of the dEIS, the project will meet the "Park Dedication Rules and Regulations."

Your comments are appreciated and will be included in the final Environmental Impact Statement.

Sincerely,

DHM inc.


Duk Hee Murabayashi (Mrs.)
President

DEB

Enclosure

cc: DLU
Tony Tjan

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9655

15 March 1989

Dr. Marvin Miura
Director
Office of Environmental Quality Control
465 S. King Street, Room 104
Honolulu, Hawaii 96813

SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark

Dear Dr. Miura:

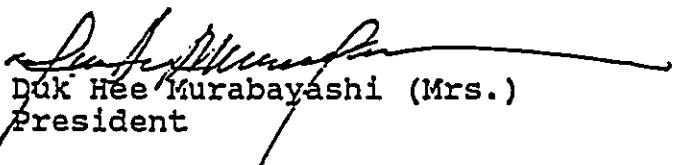
The dEIS for the Waikiki Landmark was filed with the Office of Environmental Quality Control and published in the Bulletin on March 8, 1989. It has come to our attention that the EISPN comment letters in Chapter XIII were separated from the text and not printed or submitted with the dEIS.

We, therefore, would like to request re-publication of the complete dEIS in the March 23, 1989 Bulletin. Enclosed is a copy of the complete Waikiki Landmark dEIS. Comment letters will be mailed from our office to the reviewers on the OEQC mailing list, in compliance with Chapter 343 HRS, Sec. 11-200-21.

We apologize for any inconvenience this may have caused.

Sincerely,

DHM inc.


Duk Hee Murabayashi (Mrs.)
President

Enclosure

DEB



STATE OF HAWAII
OFFICE OF HAWAIIAN AFFAIRS

1600 KAPIOLANI BLVD., SUITE 1500
HONOLULU, HAWAII 96814
(808) 548-8960
(808) 946-2642

March 28, 1989

C-L89-0037

Diane E. Borchardt
DHM Planners Inc.
1188 Bishop St. Suite 2405
Honolulu, HI. 96813

Subject: Draft EIS: Waikiki Landmark
TMK: 2-16-14: 39, 41, 43, 44, 49, 50, 52-56, 59

Dear Ms. Borchardt:

Thank you for sending our office a copy of the Draft EIS, and for the enclosed copy of the archaeological report for the project.

It is important that the archaeological survey reports that accompany environmental impact statements be as complete as possible. This is because it is not reasonable to expect reviewers to understand the impact of a project on cultural resources when archaeological sites are not fully documented in the report. In this case, no archaeological survey has been conducted, and the reviewer is led to understand that the proposed undertaking is in an area not likely to contain significant archaeological resources. However, a plan is proposed for limited reconnaissance level excavations and intermittent monitoring of construction excavations. The plan does not specify 1) that professional archaeologists will do the monitoring, 2) what is meant by "selective monitoring," 3) whether or not the monitoring is dependent upon the results of the backhoe excavations, 4) whether or not salvage excavations will be done or 5) under what conditions construction will be stopped for salvage excavations. The public reviewing the Draft EIS has to rely on decisions made by the developer, the developer's archaeological consultant, and the Historic Sites Section.

Additional documentation could have been provided in the archaeological report to give the reviewer a better understanding of the potential environmental impacts of this project on cultural resources. The appropriate portion of Bishop's 1881 map of Waikiki should have been included, with an overlay giving the reviewer an understanding of how the project area is located in relation to 1881 cultural features. The narrative information in the report is not enough. Other maps, such as the 1897 Monsarrat map and the 1910 U.S. Engineers map, should have been included, as they are important for assessing the research potential of the project area. A review of these maps would suggest that relatively undisturbed 19th century trash deposits might exist on the property, important to the study of historic archaeology in Hawaii. The makai side of Kalakaua Avenue (Waikiki Road in 1897) was once a little cluster of houses surrounded by ponds. The project area is a likely place to expect refuse deposits

Ms. Diane E. Borchardt
March 28, 1989
Page 2

from this settlement. As Waikiki is known for its Chinese farmers and duck ponds, any archaeological deposits encountered in the project area could provide interesting information for tracing the history of the Chinese in Hawaii.

The archaeological study in the Draft EIS does not sufficiently review previous archaeological projects in Waikiki. Such a review would highlight the generally exploratory nature of previous studies, the shortcomings of previous studies, and the problems archaeologists have had in coordinating archaeological mitigation with construction activities. It would provide a better understanding that prehistoric Hawaiian burials have been found in construction projects throughout Waikiki, and that the project area has potential for such important finds. Such a review would have given a better understanding of the importance of studying whatever buried archaeological resources exist in the project area.

The archaeological study should have made reference to the 1906 soils study made while planning the Ala Wai Canal. One test core taken in the project area revealed the presence of buried soil deposits, perhaps related to changing shorelines in Waikiki, perhaps related to ancient Hawaiian campsites in these former coastal areas. Such buried soil layers, even if devoid of cultural remains, are important to Hawaiian archaeology for the environmental and chronological information they contain.

The meaning of archaeological remains is not self-evident, nor is it formalized in codified sets of standard interpretations and explanations. Archaeologists can go to a site and make guesses based on experience, like anyone else, but to learn something new or verify their explanations, archaeologists need to use a scientific approach that includes a research design. Such an approach is particularly important for assessing the value of the isolated artifacts and other cultural features that are likely to be affected by the proposed construction.

These comments are intended to show that the archaeological study of the project area is relevant to our understanding of the culture history of Waikiki. However, to realize that potential, more work needs to be done than is indicated in this Draft EIS. Limited backhoe trenching should not be substituted for a subsurface survey of archaeological resources in the project area or salvage excavations. Neither should monitoring be substituted for controlled, scientific data recovery (excavations) prior to construction.

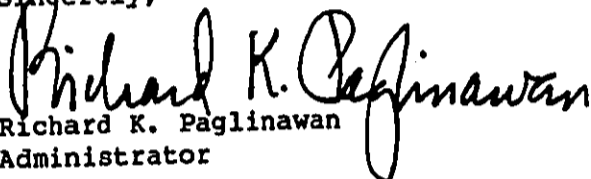
Our office is concerned about loss of archaeological resources that has accompanied modern development of Waikiki. Looters and construction workers have recovered historic bottles, some of them quite rare and valuable, from previous construction projects in the area. A final archaeological report should be required that fully describes and analyzes what was learned about the archaeology of the project area. The report should contain maps and illustrations showing what was found. It should identify areas which were not affected by construction and continue to have research potential. It should synthesize and compare the results with other projects. It should identify and discuss perceived cultural patterns and relevant cultural processes. It should establish the chronological and cultural relationships of the artifacts recovered.

Ms. Diane E. Borchardt
March 28, 1989
Page 3

All construction contracts and project work plans should include provisions (1) for protecting archaeological resources from damage and loss, (2) for full cooperation with the consultant archaeologists, (3) for notification of the Historic Sites Section when discoveries are made, and (4) for curation and ownership of artifacts by the State of Hawaii.

Please send our office copies of any future archaeological reports which may be done for this project.

Sincerely,


Richard K. Paglinawan
Administrator

RKP:EN:klr

cc: OEQC
DLNR/Historic Sites
U.H./Environmental Center
U.H./Anthropology Dept.
DLU/City and County of Honolulu
Bel-Landmark Inc.

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

May 5, 1989

Mr. Richard K. Paglinawan
Administrator
Office of Hawaiian Affairs
1600 Kapiolani Boulevard, Suite 1500
Honolulu, Hawaii 96814

**SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark**

Dear Mr. Paglinawan:

Thank you for your comments on the draft Environmental Impact Statement for the Waikiki Landmark.

As indicated in the attached BLNR's memorandum, the Historic Sites Section of the Department of Land and Natural Resources (DLNR) is in agreement with the Bishop Museum that subsurface testing be conducted at the time of demolition prior to construction. This agreement is based on the altered condition of the area and the fact that the project site is presently covered by asphalt and buildings. Bishop Museum personnel will monitor a subsurface testing at the time of demolition. Appropriate historical maps will be included in the final EIS.

Your concern for archaeological resources discovered on the project site is appreciated and shared by Bishop Museum, the Historic Sites Section and the developer. If archaeological resources are recovered from the project site, cooperative work will be conducted on the project site by Bishop Museum in cooperation with the Historic Sites Section of DLNR and your office. All DLNR rules and regulations will be complied with.

Your comments are appreciated and will be included in the final Environmental Impact Statement.

Sincerely,

DHM inc.


Duk Hee Murabayashi (Mrs.)
President

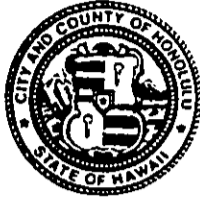
Enclosure

DEB

cc: DLU w/enclosure
OEQC w/enclosure
Tony Tjan w/enclosure

DEPARTMENT OF GENERAL PLANNING
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813



FRANK F. FASI
MAYOR

DONALD A. CLEGG
CHIEF PLANNING OFFICER

GENE CONNELL
DEPUTY CHIEF PLANNING OFFICER

KK/DGP 3/89-885

April 12, 1989

MEMORANDUM

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: DONALD A. CLEGG, CHIEF PLANNING OFFICER
DEPARTMENT OF GENERAL PLANNING

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE WAIKIKI
LANDMARK PROJECT

We have reviewed the subject Draft Environmental Impact Statement (EIS) and recommend that the section on "Land Use Regulations" found in Chapter III on pages 11 through 17 be relocated in the Final EIS to Chapter VI, "Relationship of the Proposed Action to Land Use Plans, Policies and Controls for the Affected Area."

Our other concerns presented in comments to the EIS Preparation Notice have been addressed.

Thank you for providing us with an opportunity to comment.

A handwritten signature in cursive script that reads "Donald A. Clegg".

DONALD A. CLEGG
Chief Planning Officer

DAC:js

cc: OEQC
Mr. Tony Tian, Bel-Landmark Inc.
Ms. Diane E. Borchardt, DHM Inc.

JOHN WAIHEE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621
HONOLULU, HAWAII 96809

REF: OCEA-sor

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

DEPUTIES

LIBERT K. LANDGRAF
MANABU TAGOMORI
RUSSELL N. FUKUMOTO

AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
ENVIRONMENTAL AFFAIRS
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

FILE NO.: 89-489
DOC. NO.: 5465E

APR 10 1989

The Honorable Donald A. Clegg
Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Mr. Clegg:

SUBJECT: Draft EIS - Waikiki Landmark
Oahu; TMK: 2-16-14: Parcels 39, 41, 43, 44, 49, 50,
52-56, 59

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

Our Department's Historic Sites Section notes that the archaeological resources section of the Draft EIS states that a background literature review for the project area has been carried out by their archaeological consultant. As this is an urban area, their review found no archaeological resources remain on the surface. To determine presence or absence of subsurface remains, the Draft EIS states that an archaeological consultant will conduct subsurface testing prior to construction. These plans meet our concerns, and we will await the findings of the subsurface testing.

The Division of Aquatic Resources has no objection to the proposed development provided precautions are taken to prevent adverse impact to the aquatic environment from storm runoff containing toxic substances or other contaminants created by the construction activity.

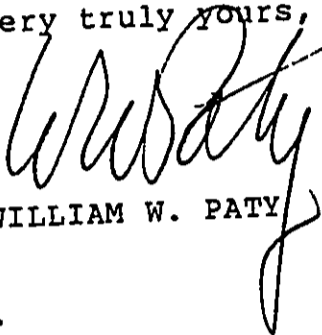
Honorable Donald A. Clegg

- 2 -

FILE NO.: 89-489

Please feel free to call me or Roy Schaefer of our Office of Conservation and Environmental Affairs, at 548-7837, if you have any questions.

Very truly yours,



WILLIAM W. PATY

cc: Tony Tian, Bel-Landmark Inc.
Diane E. Borchardt, DHM Inc.

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

April 17, 1989

Mr. Donald A. Clegg
Chief Planning Officer
Department of General Planning
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

SUBJECT: Draft Environmental Impact Statement
Waikiki Landmark

Dear Mr. Clegg:

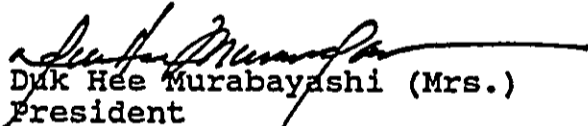
Thank you for your comments on the dEIS for the Waikiki Landmark.

Section A of Chapter III, dealing with land use regulations will be relocated to Chapter VI, "Regulations of the Proposed Action to Land Use Plans, Policies and Controls for the Affected Area," in the final EIS.

Your comments are appreciated and will be included in the final Environmental Impact Statement.

Sincerely,

DHM inc.

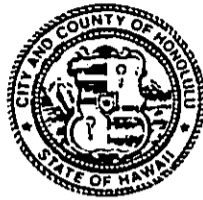

Duk Hee Murabayashi (Mrs.)
President

DEB:lt

cc: Department of Land Utilization
Mr. Tony Tjan, Bel-Landmark Inc.
OEQC

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 5TH FLOOR
HONOLULU, HAWAII 96813
PHONE: 523-4427



FRANK F. FASI
MAYOR

MIKE N. SCARFONE
DIRECTOR

HIRAM K. KAMAKA
DEPUTY DIRECTOR

March 17, 1989

MEMORANDUM

TO: John P. Whalen Director
Department of Land Utilization

FROM: Michael N. Scarfone

SUBJECT: Draft Environmental Impact Statement
Waikiki Landmark
Waikiki, Oahu

Thank you for the opportunity to review and comment on the Draft EIS for the Waikiki Landmark.

The Department of Housing and Community Development has been requesting that ten (10) percent of all residential units be set aside for low- and moderate-income households, or an acceptable in-kind substitute be provided for all zone changes involving residential uses.

Thank you for the opportunity to provide these comments.

Sincerely,

Michael N. Scarfone
for MICHAEL N. SCARFONE
Director

cc: Bel-Landmark, Inc.
DHM, Inc.

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

April 14, 1989

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

SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark

Dear Mr. Scarfone:

Thank you for your comments on the draft Environmental Impact
Statement for the Waikiki Landmark.

As indicated in our previous communication regarding your
comments to the EISPN, all City and County of Honolulu
requirements will be complied with.

Your comments are appreciated and will be included in the final
Environmental Impact Statement.

Sincerely,

DHM inc.

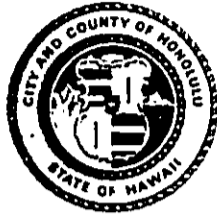

Duk Hee Murabayashi (Mrs.)
President

DEB

cc: Department of Land Utilization
Mr. Tony Tjan, Bel-Landmark, Inc.
OEQC

DEPARTMENT OF LAND UTILIZATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813 • (808) 523-4432



FRANK F. FASI
MAYOR

JOHN P. WHALEN
DIRECTOR

BENJAMIN B. LEE
DEPUTY DIRECTOR

LU3/89-1361 (BWM)

April 28, 1989

Ms. Diane E. Borchardt
DHM, Inc.
1188 Bishop Street
Suite 2405
Honolulu, Hawaii 96813

Dear Ms. Borchardt:

Draft Environmental Impact Statement (DEIS)
Waikiki Landmark, Oahu
Tax Map Keys: 2-6-14: 39, 41, 43,
44, 49, 50, 52-56, 29

We have reviewed the DEIS and offer the following comments:

1. Reference: Pages 2 & 9.

Comment: The statements on zoning and land uses are misleading, since existing zoning regulations would not permit the proposed development.

On page 9, paragraph 8, there is no basis for the 20% open space requirement. The Waikiki Apartment Precinct requires that there be 50% open space; the Resort Commercial Precinct excludes the first 20 feet along the street from being included for open space bonus.

2. Reference: Page 7, paragraph 3.

Comment: If the applicant assumes BMX-3 zoning, then parking for commercial uses must be based on 1 stall per 400 square feet (sf) and not on 1 stall per 800 sf.

Ms. Diane E. Borchardt
Page 2

3. Reference: Page 8, paragraph 7.

Comment: Contrary to statement, no outdoor commercial uses are presently permitted within the required setbacks; therefore outdoor eating within the 30 foot front yard setback is not permitted.

4. Reference: Page 11.

Comment: Project is supposed to be in conformance with the DP for Commercial Emphasis Mixed-Use. With 317,200 sf of residential use and only 50,000 sf of commercial use, show how this is a commercial emphasis project and why Apartment Mixed-Use zoning, such as AMX-3, is not the more appropriate zoning.

5. Reference: Page 15, paragraph 5.

Comment: Statement that proposal conforms to the Waikiki Special District is false.

6. Reference: Page 15, paragraph 6.

Comment: Waikiki Special District does not require Gateway symbols.

7. Reference: Page 32.

Comment: We suspect that the most severe traffic congestion in Waikiki occurs during the late evening hours, possibly around 10:00 p.m., on Fridays and Saturdays. We note that the traffic count data was for the 4:00 p.m. - 5:00 p.m. period, without the date or the day of the week specified.

We suggest that traffic volume for a 24-hour period be noted in the traffic impact assessment report. Friday midnight or Saturday midnight should be included in these data. We also suggest that you note the date and day of the week that the 4:00 p.m. - 5:00 p.m. traffic count was taken.

While you have not indicated so in the Draft EIS, it is possible that the new commercial uses may include night clubs and discotheques. The effect that the activities may have on night time traffic should be analyzed.

8. Reference: Page 43+.

Comment: The DEIS does not address the impacts of the applicant's proposed Alternate 1 vs. Alternate 2. We have the following comments regarding Alternate 2, and the EIS should address these observations:

- a. Under Alternate 2, the parking and commercial structure would be located away from the corner of Kalakaua Avenue and Ala Wai Boulevard, thus providing for a park-like setting with landscaping around the base of the tower. We believe that this is a more appropriate gateway statement for Waikiki than the proposed bulky base structure necessary to create the waterfall feature.
- b. Under Alternate 2, the commercial areas would be located away from the apex of the triangle, and would not disrupt the continuity of commercial uses along Kalakaua Avenue.
- c. The connection of the two towers at the top in Alternate 1 would increase the visual bulk and shadow impact on surrounding areas as compared to Alternate 2. The description of shadow impacts on page 46, should contain shadow illustrations in Appendix E, to support TRB's contention that there would be no significant difference between the two Alternates.

9. Reference: Page 44.

Comment: We do not accept the statement that "no significant wind impacts are anticipated by and to the proposed two buildings," without any technical basis. While we do not expect that you test a model of your structure in a wind tunnel, we do expect some degree of technical analysis. We are particularly concerned with the ground level wind patterns that your structure, by design, will create. With twin towers, the possibility of creating a venturi effect where ground level wind velocities are accelerated is possible. Various technical journals have reported that these effects can be severe; in some situations building occupants were trapped in their buildings by the air pressure on their doors which could only be opened outward.

Ms. Diane E. Borchardt
Page 4

We suggest that you revise the section on Wind Effects to discuss these problems in general, and the specific means that this project will utilize to avoid these problems.

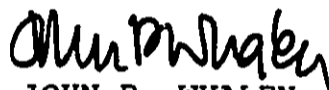
The Final EIS should discuss differences in wind impacts between Alternatives 1 and 2.

10. Reference: Page 56.

Comment: The EIS should compare the economic impacts of the proposal as compared to development as permitted under current zoning.

If you have any questions regarding these comments, please contact Bennett Mark of our Environmental Affairs Branch at 527-5038.

Very truly yours,



JOHN P. WHALEN
Director of Land Utilization

JPW:s1
0299N

cc: OEQC
Tony Tian, Bel-Landmark, Inc.

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

June 29, 1989

Mr. John P. Whalen, Director
Department of Land Utilization
City and County of Honolulu
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Whalen:

SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark

Thank you for your comments on the Waikiki Landmark draft EIS.

1-6. Items 1-6 are zoning related and are unresolved issues. The DLU is contemplating allowance of apartment units in certain geographic portions of the Commercial Emphasis Mixed Use district in accordance with the DP special provisions.

For the purposes of assessing the potential impacts of the project, it is "safe" to use the maximum floor area ratios and maximum number of parking stalls required. In no event, will the project area have more than the stated number of units and/or floor area appropriate to the zoning for the area.

7. Traffic counts were taken for December 17th (Thursday) and 29th (Tuesday), 1987. Also included in the traffic assessment report were traffic volumes for a 24-hour period taken by DTS in 1984 for the intersection of Kalakaua Avenue and Lewers Street and at Ala Wai Boulevard and Lewers Street. These 24-hour counts indicate that the most severe traffic congestion occurs during the 4:00-5:00 p.m. period. Field survey of the Friday and Saturday night 10:00 p.m. traffic congestion indicates that the congestion results from singular events finishing or beginning at the same time.

In addition, no night clubs or discotheques are planned within the commercial uses for the proposed project due to adverse impacts to the condominium use.

Mr. John P. Whalen
June 29, 1989

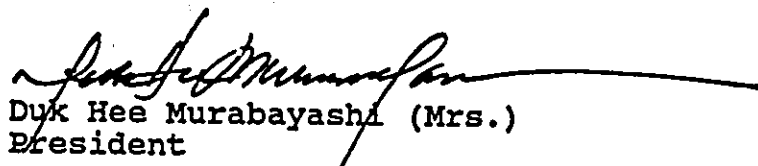
Page 2

8. The comment relating to page 43+ deals with Visual Impacts and is a discussion involving general impacts of both design alternatives. The specific details for each design alternative are included in Chapter XI. Section C Design Alternatives. It should be noted that Alternative No. 1 has been selected by the developer as the design for the proposed project.
9. Based on your comment, steps have been taken to conduct a preliminary wind tunnel study to evaluate the potential project impacts on the surrounding area. The results of the study will be included in the final EIS.
10. Alternative No. 1 has been selected by the developer as the design/size/use mix for the project. Economic impacts of the proposed development are included in the draft EIS for the short-term economic impacts resulting from the construction of proposed project. It is not possible to determine the long-term economic impacts from the project's commercial use since these uses are not presently known. We cannot determine the economic impacts for development under other zoning designations since the uses would also be unknown.

Your comments are appreciated and will be included in the final Environmental Impact Statement.

Sincerely,

DHM inc.


Duk Hee Murabayashi (Mrs.)
President

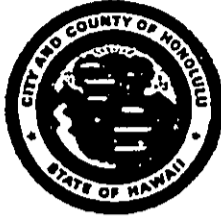
DEB:lt

cc: OEQC

DEPARTMENT OF PARKS AND RECREATION
CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR



WALTER M. OZAWA
DIRECTOR

March 21, 1989

Dr. Marvin Miura, Director
Office of Environmental Quality Control
State of Hawaii
Kekuanaoa Building, Room 104
465 South King Street
Honolulu, Hawaii 96813

Dear Dr. Miura:

Subject: Draft Environmental Impact Statement (EIS)
Waikiki Landmark
Tax Map Key 2-16-14: 39, 41, 43, 44, 49, 50, 52, 56 & 59

We have reviewed the Draft EIS for the proposed Waikiki Landmark Mixed-Use project and make the following comments.

The applicant is aware that the project will be required to comply with Park Dedication Ordinance No. 4621. The recreational areas proposed for private park credit should be designed to meet the standards and requirements specified under Rule 10 of the Park Dedication Rules and Regulations. We would like to remind the applicant that the use of the project's open space requirements for private park credit under the Ordinance may be questionable and should be discussed with our department.

Thank you for the opportunity to comment on the Draft EIS.

Sincerely,

A handwritten signature in black ink, appearing to read "Walter M. Ozawa", is written over the typed name.

WALTER M. OZAWA, Director

WMO:ei

cc: Department of Land Utilization
Mr. Tony Tian, Bel-Landmark, Inc.
DHM, Inc.

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

April 14, 1989

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

SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark

Dear Mr. Ozawa:

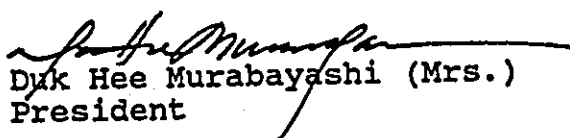
Thank you for your comments on the draft Environmental Impact Statement for the Waikiki Landmark.

As indicated in our previous communication regarding your comments to the EISPN, all City and County of Honolulu requirements will be complied with.

Your comments are appreciated and will be included in the final Environmental Impact Statement.

Sincerely,

DHM inc.

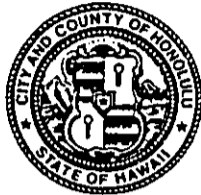

Dyk Hee Murabayashi (Mrs.)
President

DEB

cc: Department of Land Utilization
Mr. Tony Tjan, Bel-Landmark, Inc.
OEQC

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
HONOLULU MUNICIPAL BUILDING
650 SOUTH KING STREET
HONOLULU, HAWAII 96813

FRANK F. FASI
MAYOR



JOSEPH M. MAGALDI, JR.

Acting Director

TE-1481
PL1.1497

April 28, 1989

MEMORANDUM

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: JOSEPH M. MAGALDI, JR., ACTING DIRECTOR

SUBJECT: WAIKIKI LANDMARK
DRAFT ENVIRONMENTAL IMPACT STATEMENT
TMK: 2-16-14: 39, 41, 43, 44, 50,
52-56, and 59

This is in response to the Office of Environmental Quality Control's request for review and comment regarding the subject project.

We have the following comments to offer:

1. Kalakaua Avenue fronting the proposed project should be widened 10 feet in accordance with our department's Planning Area Maps.
2. In addition to the above widening, the proposed fixed guideway rapid transit alignment includes a Waikiki branch line with a station at the proposed project site. The station and support structures for the guideway will require encroachment into the subject property. The developer and his design consultants should coordinate efforts with our Rapid Transit Development Division (RTDD) so that integration of the guideway components is facilitated. The RTDD can be contacted at 527-6975.
3. The developer should provide an additional access on Kalakaua Avenue directly across Ena Road, and the cost to modify the signals should be borne by the developer.

John P. Whalen, Director

April 28, 1989

Page Two

4. The right turn out on McCully Street should be eliminated.
5. Adequate sight distance should be provided at all driveway connections for vehicles as well as for pedestrians.

Further questions may be referred to Mark Kikuchi of my staff at 524-4199.



JOSEPH M. NAGALDI, JR.

cc: Bel-Landmark, Inc.
✓DHM, Inc.
Office of Environmental Quality
Control

DHM inc.

May 19, 1989

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

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

SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark

Dear Mr. Magaldi:

Thank you for your comments on the draft EIS for the Waikiki Landmark. Our response follows the format of your comment letter.

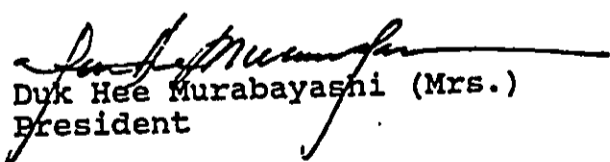
1. Kalakaua Avenue fronting the proposed project will be widened 10 feet in accordance with City and County of Honolulu, Department of Public Works, standards.
2. Provision will be made for the encroachment of the proposed fixed guideway rapid transit station within the project site. Coordination with Mr. Marvin Char of the Rapid Transit Development Division was completed on May 18, 1989.

Items 3, 4 and 5 concerning access and sight distances are currently being discussed with DTS and DLU. It is hoped a resolution acceptable to DTS, DLU and the developer will soon be reached. These issues will be included in the final EIS.

Your comments are appreciated and will be included in the final Environmental Impact Statement.

Sincerely,

DHM inc.


Duk Hee Murabayashi (Mrs.)
President

DEB

cc: DLU
Tony Tjan
Alex Weinstein
OEQC

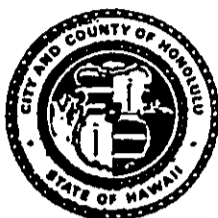
POLICE DEPARTMENT
CITY AND COUNTY OF HONOLULU

1455 SOUTH BERETANIA STREET
HONOLULU, HAWAII 96814 - AREA CODE (808) 943-3111

FRANK F. FASI
MAYOR

DOUGLAS G. GIBB
CHIEF

WARREN FERREIRA
DEPUTY CHIEF



OUR REFERENCE CS-LK

April 14, 1989

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: DOUGLAS G. GIBB, CHIEF OF POLICE
HONOLULU POLICE DEPARTMENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT
RE: WAIKIKI LANDMARK, OAHU; TMK: 2-16-14: PARCELS 39, 41,
43, 44, 49, 50, 52-56, 59

We have reviewed the subject draft Environmental Impact Statement that was prepared by DHM Planners Inc.

Our concerns remain the same as previously stated in our response to the Environmental Assessment/EIS Preparation Notice. Because of the nightclub and discotheque establishments that will remain across the street from the proposed project, young people attracted to such establishments will surely congregate in the immediate vicinity and problems, such as loud noise, trespass, burglary, theft, drinking and drug-use complaints, will probably result. We are therefore anticipating an increase in calls for police service which will more than likely be generated from the future residents of the proposed Waikiki Landmark Development. In order to deter some of the foreseeable problems, we still encourage the use of private security.

In addition, displacing the current parking lot, which accommodates approximately 246 vehicles, in this already congested area of Waikiki, will cause people to park illegally, which will no doubt cause an increase in calls for police services. To help alleviate this problem, we would like to encourage the provision of additional parking spaces to accommodate some of the overflow parking for the area. To further help alleviate this problem, we would also like to recommend that an adequate number of loading areas be provided to ease the flow of traffic both within and without the complex.

John P. Whalen

-2-

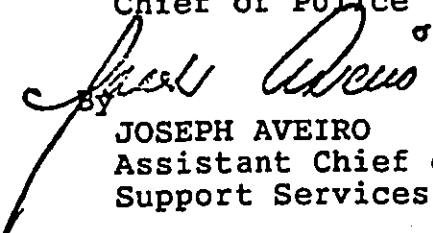
April 14, 1989

Because of the size and nature of the development, past experience has proven that traffic will be negatively impacted. In addition, if there is any possibility of a convention center to be built nearby, the location of that facility would further compound the problem and add to the existing traffic congestion and cause an increase in calls for police service.

The inevitable increase in calls for service as a result of this project, along with other developments in the area, will probably necessitate the need for an additional beat/sector so that adequate police services can be provided.

We would appreciate being updated periodically about this and other developments in this neighborhood to help us project our staffing requirements both during and after construction.

DOUGLAS G. GIBB
Chief of Police


By
JOSEPH AVEIRO
Assistant Chief of Police
Support Services Bureau

cc: Office of Environmental Quality Control
Mr. Tony Tian, Bel-Landmark Inc.
Ms. Diane E. Borchardt, DHM Inc.

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

May 10, 1989

Chief Douglas G. Gibb
Police Department
City and County of Honolulu
1455 South Beretania Street
Honolulu, Hawaii 96814

SUBJECT: Draft Environmental Impact Statement
Waikiki Landmark

Dear Chief Gibb:

Thank you for your comments regarding the draft Environmental Impact Statement for the Waikiki Landmark.

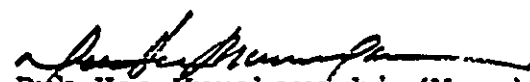
As mentioned in the draft EIS, the proposed project will have its own security force to protect its occupants and property.

The number of parking stalls exceeds the parking requirements established for the Waikiki Special Design District. Loading areas are included in the project design.

You will be kept informed of the progress of this project. Your comments are appreciated and will be included in the final Environmental Impact Statement.

Sincerely,

DHM inc.


Duk Hee Murabayashi (Mrs.)
President

DEB

cc: DLU
OEQC
Tony Tjan

For Information

AMERICAN LUNG ASSOCIATION OF HAWAII
245 North Kukui Street
Honolulu, Hawaii 96817

April 24, 1989

City & County of Honolulu
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Gentlemen:

Subject: Draft Environmental Impact Statement for the
Proposed Waikiki Landmark

We have reviewed the subject EIS with particular attention to the sections addressing air quality and offer the following comments:

In the Air Quality Assessment Report (Appendix C), a comparison was made between traffic projections and vehicle emission rates for the 1987 - 1991 period which indicated a downward trend in carbon monoxide levels. While this may be true in the short-term, in the long-term, due to the lack of new emission standards, the opposite is anticipated. In the next 10 - 15 years the offsetting effect of federal emission standards on rising traffic volumes which has been so effective since the early 1970's will fade away. Unless new standards are promulgated, rising traffic volumes will once again be accompanied by rising pollutant emissions. The onset of this phenomenon will, of course, vary geographically depending on rates of urbanization. The EIS should have included some discussion of this potential long-term problem.

Yours truly,

James W. Morrow
Director
Environmental Health

JWM:ct
L8914

cc: DEGC
Environmental Center
DHM, Inc.

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

May 5, 1989

Mr. Jim W. Morrow
Director
Environmental Health
American Lung Association of Hawaii
245 North Kukui Street
Honolulu, Hawaii 96817

SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark

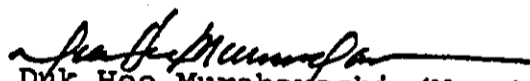
Dear Mr. Morrow:

Thank you for your comments on the draft Environmental Impact Statement for the Waikiki Landmark.

Your comments concerning the need for new Federal emission standards as a result of increasing traffic volumes and higher long-term pollutant emissions will be included in the final EIS.

Sincerely,

DHM inc.


Dik Hee Murabayashi (Mrs.)
President

DEB

cc: DLU
OEQC
Tony Tjan



William A. Bonnet
Manager
Environmental Department

ENV 2-1
JA/G

April 21, 1989

Marvin T. Miura, Ph.D., Director
State of Hawaii
Office of Environmental Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

Dear Dr. Miura:

Subject: Draft Environmental Impact Statement (EIS) for Waikiki
Landmark

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

1. In the first paragraph on Chapter IV, Section G (page 53) regarding existing electrical service to the subject property, HECO has at least four substations located within two miles of the project; the Ena, McCully, Waikiki and Makaloa substations. These substations are fed by 46 KV overhead and underground lines.
2. In reference to the electrical facilities mentioned in Item 1, HECO has an existing overhead line bordering the project along Kalakaua Avenue, and three underground services into the property (see Attachment 1). Since these facilities are energized, the following construction notes are to be included in the EIS:
 - a. The Contractor shall exercise extreme caution whenever construction crosses or is in proximity to HECO underground lines and is to maintain a minimum 13'-0" clearance for his equipment while working close to and/or under the overhead facilities.
 - b. The Contractor shall comply with the State of Hawaii's Occupational Safety and Health Law (DOSH).
 - c. The Contractor shall obtain an excavation permit from HECO's Mapping and Records Division located at 820 Ward Avenue, Fourth Floor, two weeks prior to starting construction.

Marvin T. Miura, Ph.D., Director
April 21, 1989
Page 2

- d. When trench excavation is adjacent to or beneath existing HECO structures or facilities, the Contractor is responsible for:
 - 1. Sheeting and bracing the excavation to prevent slides, cave-ins and settlements, and
 - 2. Protecting existing structures or facilities with beams, struts, or under-pinning.
- e. If pole bracing is required, the Contractor shall call the HECO District Construction Superintendent at Ward Avenue at 543-7745, a minimum of 72 hours in advance.
- f. For verification of underground lines or for assistance in supporting and protecting these lines, the Contractor shall call HECO's Underground Division at 543-7395 a minimum of 72 hours in advance.
- g. Any work required to relocate HECO facilities shall be done by HECO, and the Contractor shall be responsible for all coordination and costs incurred. In addition, should it become necessary for the Contractor to temporarily relocate any HECO facilities, these temporary locations will be done by HECO or by the Contractor under HECO's supervision, and all costs will be borne by the Contractor.
- h. Any damage to HECO's facilities will be reported immediately to HECO's Trouble Dispatcher at 543-7838. The Contractor shall be liable for any damages to HECO's facilities.



Marvin T. Miura, Ph.D, Director
April 21, 1989
Page 3

3. The project will have a significant impact on the power service to this area. Based on the project description, HECO may need to install a new 46-12.47 KV, 10/12.5 MVA distribution substation transformer at one of their substations. HECO will install and recircuit primary electrical cables to provide service to this project. Long lead times are required for these modifications and will be affected by the Waikiki Landmark's projected load and service date.

Sincerely,

Willie C. Baumst

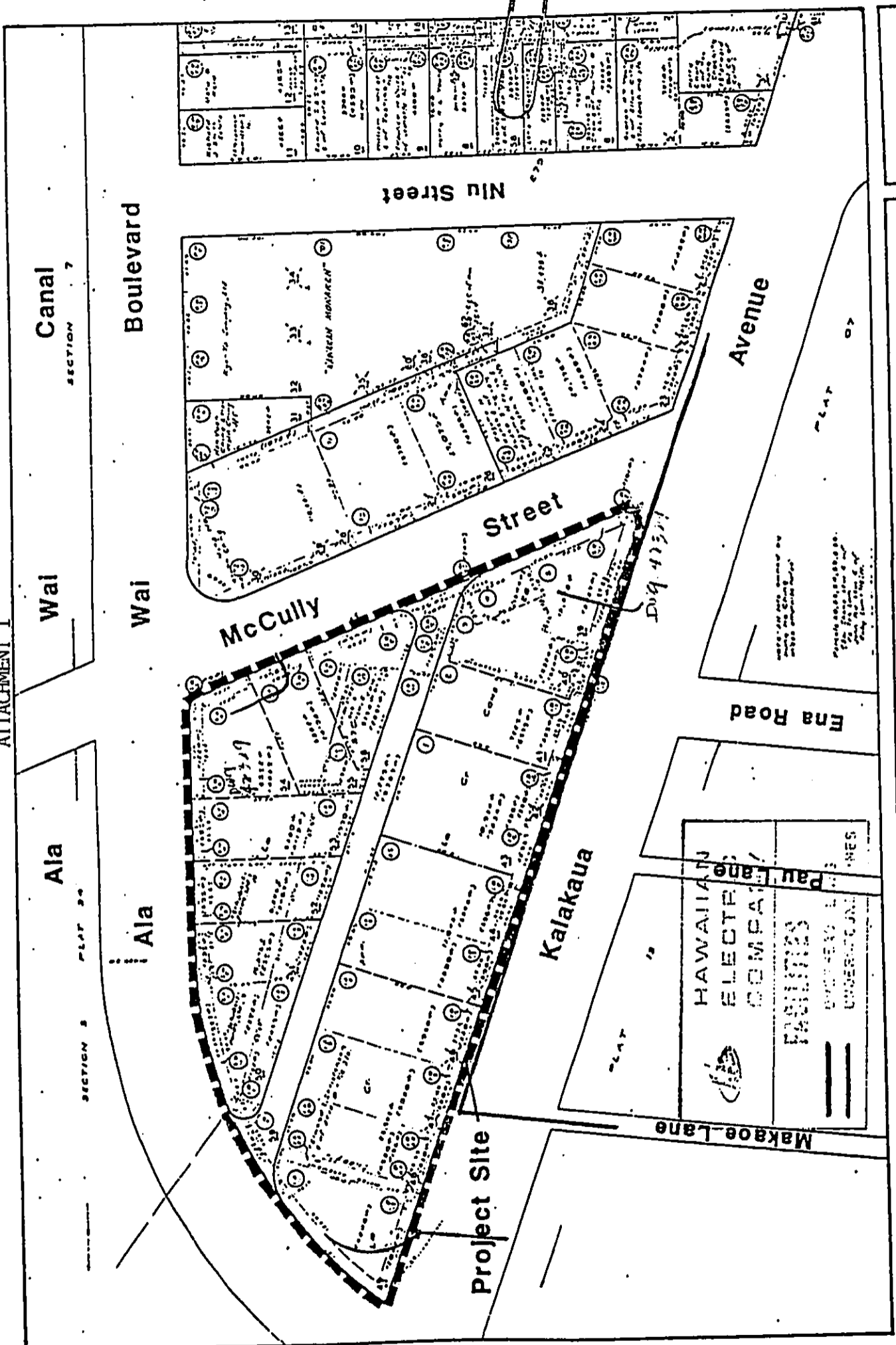
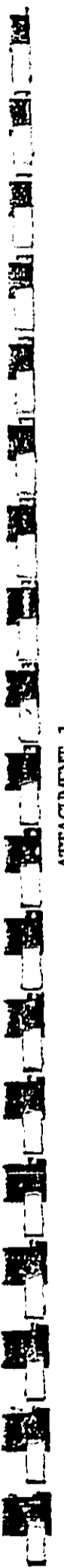
Attachment

cc: City & County of Honolulu
Dept. of Land Utilization

Mr. Tony Tian
Bel-Landmark Inc.

Ms. Diane E. Borchardt
DHM Inc.





DHM inc.
Land Use and
Environmental
Planning



Exhibit II-2
Tax Key Map 2-6-14:39,41,43,44,49,50,52-56,59

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

May 4, 1989

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

SUBJECT: Draft Environmental Impact Statement (dEIS)
Waikiki Landmark

Dear Mr. Bonnet:

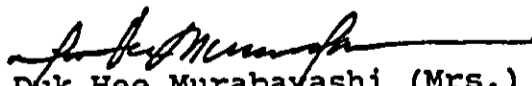
Thank you for your comments regarding the draft Environmental Impact Statement for the Waikiki Landmark. Our response will follow the format of your comment letter.

1. The information regarding the four substations within two miles of the proposed project and the type of overhead and underground lines will be included in the final EIS.
2. All precautions will be taken when work is being done in close proximity to HECO lines. All required permits will be obtained and there will be compliance with all rules and regulations. Your construction notes will be included in the final EIS.
3. The developer will coordinate in a timely fashion with HECO regarding the power requirements of the proposed project and will make necessary arrangements if the power requirements exceed HECO's existing capability in the area.

Your comments will be included in the final Environmental Impact Statement.

Sincerely,

DHM inc.


Duk Hee Murabayashi (Mrs.)
President

DEB

cc: Mr. Tony Tjan
OEQC



University of Hawaii at Manoa

Environmental Center
Crawford 317 • 2550 Campus Road
Honolulu, Hawaii 96822
Telephone (808) 948-7361

May 5, 1989
RE:0530

Department of Land Utilization
City and County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Office of Environmental Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

Dear Sirs:

*Draft Environmental Impact Statement
Waikiki Landmark
Honolulu, Hawaii*

The proposed project consists of a mixed residential/commercial development including approximately 320 residential condominiums and 50,000 square feet of commercial space. Also included in the project are plans for 650 parking stalls, with 450 slots allocated to residents, 65 to commercial patrons, and 135 stalls reserved for residents of the Royal Aloha condominium. The Environmental Center has conducted a review of the Draft Environmental Impact Statement (EIS) with the assistance of Luciano Minerbi, Urban and Regional Planning; and Randall Rush, Environmental Center.

Traffic and Parking

In view of the strategic location of the project site, a compelling need exists to consider mass transit developments noted by the City and County Department of Transportation Services in the present planning process. In addition, alternative strategies for air pollution and traffic abatement in the Waikiki district based on European models which incorporate peripheral park-and-ride facilities and efficient, localized public transit (bus, street car, or light rail) should be integrated into the overall design process.

Appendix B (p. B-22) notes that congestion along Kalakaua Avenue will be alleviated by the City and County's proposed improvement project. In view of the proposed change to Kalakaua Avenue, the feasibility of access to and from the project site along Kalakaua should be evaluated.

A Unit of Water Resources Research

AN EQUAL OPPORTUNITY EMPLOYER
158

Department of Land Utilization
and Office of Environmental Quality Control
May 5, 1989
Page 2

The proposed project fails to adequately mitigate the prospective loss of public parking. At present, Pro-Park Parking Lot provides for residents of the Royal Aloha Condominium and additionally for many patrons of local businesses. The lack of convenient parking is a severe problem in Waikiki. Besides providing sufficient parking for residents of the Landmark and the Royal Aloha Condominiums, the proposal allocates 65 stalls for the commercial sector. However, the document fails to specify whether patrons of neighboring businesses will have access to this lot, or if there will be times when the lot is closed. It is apparent that 65 stalls constitutes a significant decrease in available parking from the present situation and that substantially greater public parking allocations are warranted.

Displacement of Businesses

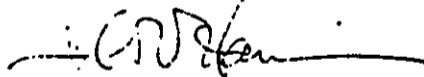
Currently, there are 12 businesses on the subject property employing 140-160 people. The Final EIS needs to address in more detail the socio-economic impacts of displacing these businesses. Although it is speculated that the new commercial sector will increase present job opportunities no facts are given to substantiate this claim. Some of these businesses, (i.e., taxicab companies, nightclub, etc.) provide services particularly appropriate to the Waikiki district, and their relocation in the immediate area would be beneficial.

Urban Design

Design alternative No. 2 (Exhibit XI-1) which locates the two towers away from McCully and Kalakaua Streets seems less visually intrusive for the traffic entering Waikiki. A building site plan should have been included for this alternative so that location of the towers relative to the parcel boundaries could be assessed more easily.

We thank you for this opportunity to comment on this Draft EIS.

Yours truly,



John Harrison
Environmental Coordinator

cc: Bel-Landmark Inc.
DHM Inc. ✓
L. Stephen Lau
Luciano Minerbi
Randall Rush

DHM inc.

land use
and environmental
planning

1188 Bishop Street
Suite 2405
Honolulu, HI 96813
Ph. (808) 521-9855

May 15, 1989

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

SUBJECT: Draft Environmental Impact Statement
Waikiki Landmark

Dear Mr. Harrison:

Thank you for your comments regarding the draft Environmental Impact Statement for the Waikiki Landmark. Our responses are prepared in the order of your comments.

Traffic and Parking

Encouraging new development in Waikiki to be integrated with the much talked about rapid transit system is commendable. However, at present a number of potential alignments exist and no firm commitment (funding) has been made to construct a rapid transit system. Until a route alignment is finalized and a funding commitment is made, further consideration of the proposed development's relationship to rapid transit is not feasible.

The provision of adequate parking is an important issue in any area as densely populated as Waikiki. However, no single development can by itself be expected to resolve the area's parking problems. The parking facilities of the proposed project will not only meet, but will exceed, the Waikiki Special Design District's parking requirements.

The project's traffic engineer has studied the traffic access issues. It was determined that providing access to and from the project site along Kalakaua Avenue is unfeasible because it could potentially impede traffic flow.

Displacement of Businesses

The businesses currently located on the project have been aware of the development of the proposed project. The businesses are either on short term leases or on a month-to-month basis and have been aware that displacement from this site was inevitable.

Mr. John Harrison
May 15, 1989

Page 2

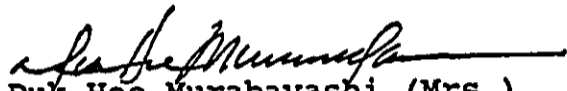
Urban Design

A building site plan for Alternative No. 2 will be included in the final EIS.

Your comments are appreciated and will be included in the final Environmental Impact Statement.

Sincerely,

DHM inc.


Duk Hee Murabayashi (Mrs.)
President

DEB:lt

cc: DLU
OEQC
Tony Tjan

NO COMMENT LETTERS/RESPONSES



DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
BUILDING 230
FT SHAFTER, HAWAII 96840

REPLY TO
ATTENTION OF:
Planning Branch

April 21, 1989

FORM 34 (REV. 1-78)



STATE OF HAWAII
DEPARTMENT OF DEFENSE
OFFICE OF THE ADJUTANT GENERAL
2901 DAWSON ROAD, HONOLULU, HAWAII 96814-499

ALVIN T. LUM
MAJOR GENERAL
ADJUTANT GENERAL

STATE OF HAWAII
DEPARTMENT OF DEFENSE

March 15, 1989

Engineering Office

Department of Land Utilization
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

Dear Sir:

Waikiki Landmark
Honolulu, Oahu

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

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

Sincerely,

Jerry A. Matsuda
Jerry A. Matsuda
Major, Hawaii Air
National Guard
Contr & Engr Officer

cc:
State Office of Environmental Quality Control
Mr. Tony Tian, Bel-Landmark, Inc.
✓ Ms. Diane E. Borchardt, DMB Inc.

NATIONAL GUARD
Americans At Their Best

Dr. Marvin Miura
Office of Environmental
Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

Dear Dr. Miura:

Thank you for the opportunity to review the Draft Environmental Impact Statement (DEIS) for the proposed Waikiki Landmark, Honolulu, Oahu, Hawaii. The following comments are offered:

- A Department of the Army permit is not required for this project.
- The flood hazard information presented on page 27 (section III.F) of the DEIS is accurate.

Sincerely,

C. J. Cheung
Kisun Cheung
Chief, Engineering Division

Copies Furnished:

City and County of Honolulu
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Mr. Tony Tian
Bel-Landmark Inc.
1088 Bishop Street, Suite 4100
Honolulu, Hawaii 96813

✓ Ms. Diane E. Borchardt
DMB Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

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



United States Department of the Interior
FISH AND WILDLIFE SERVICE
PACIFIC ISLANDS OFFICE
P.O. BOX 50187
HONOLULU, HAWAII 96850



MAILING LABEL TO

5090 (1278)
Ser 032/635
10 Mar 1989

City & County of Honolulu
Dept. of Land Utilization
650 South King Street
Honolulu, HI 96813

Gentlemen:

WAIKIKI LANDMARK

The Draft Environmental Impact Statement (DEIS) for Waikiki Landmark has been reviewed, and we have no comments to offer. Since we have no further use for the DEIS, it is being returned to the Office of Environmental Quality Control.

Thank you for the opportunity to review the draft.

Sincerely,

W. K. LIU
Assistant Polis Civil Engineer
in Charge of
Commander

Copy to:
Bel-Landmark, Inc.
John Inc.
OEQC (w/DEIS)

ES
Room 6307

MAR 14 1989

Dr. Marvin Miura, Director
Office of Environmental Quality Control
465 South King Street, Room 104
Honolulu, Hawaii 96813

Re: Draft Environmental Impact Statement (EIS), Waikiki
Landmark, Oahu

Dear Dr. Miura:

We have reviewed the referenced EIS dated March 1989. To the best of our knowledge, no listed or proposed endangered species, migratory birds, or anadromous fishes within our jurisdiction occur in the proposed project area(s). However, due to current manpower and budget restrictions, the Office of Environmental Services cannot devote the time necessary to conduct a thorough review of fish and wildlife concerns associated with the referenced action at this time. We strongly recommend that you consult directly with the Department of Land and Natural Resources.

Please be advised that this notification does not represent Service approval of, or support for, the proposed activity. The Service may review future actions related to this proposal should administrative constraints be alleviated or if adverse impacts to significant fish and wildlife resources are identified. Please continue to keep this office apprised of the project's status.

Sincerely yours,

Ernest Kosaka
Field Office Supervisor
Environmental Services

cc: DLNR
Dept. of Land Utilization
DHU Inc
Bel-Landmark Inc.

JOHN WAINIE
GOVERNOR

DEPARTMENT OF BUSINESS
AND ECONOMIC DEVELOPMENT



YUKIO KITAGAWA
CHAIRPERSON, BOARD OF AGRICULTURE



State of Hawaii
DEPARTMENT OF AGRICULTURE
1428 So. King Street
Honolulu, Hawaii 96814-2512

MAILING ADDRESS:
P. O. Box 22159
Honolulu, Hawaii 96822-0159

March 9, 1989

JOHN WAINIE
GOVERNOR

MEMORANDUM

To: Dr. Marvin T. Miura, Director
Office of Environmental Quality Control

Subject: Draft Environmental Impact Statement (DEIS) for
Hawaii Film Facility Expansion
Department of Accounting and General Services
TMK: 3-1-42: por. 9 Honolulu, Hawaii
Area: 7.477 acres

The Department of Agriculture has reviewed the subject document and has no comments to offer.

Thank you for the opportunity to comment.

Yukio Kitagawa
YUKIO KITAGAWA
Chairperson, Board of Agriculture

cc: DAGS
DHM Inc.



Dr. Marvin T. Miura
Office of Environmental Quality Control
650 South King Street
Honolulu, Hawaii 96813

Dear Dr. Miura:

Subject: Waikiki Landmark Oahu; TMK: 2-16-14: Parcels 39,
41, 43, 44, 49, 50, 52-56,
59

We have no comments to offer at this time.

Sincerely,

Maurice H. Kaya
MAURICE H. KAYA
Energy Program Administrator

MHK/hk

cc: Mr. Tony Tian, Bel-Landmark Inc.
Ms. Diane E. Borchardt, DHM, Inc.



STATE OF HAWAII
DEPARTMENT OF HEALTH

P. O. BOX 3278
HONOLULU, HAWAII 96811

April 4, 1989

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

IN REPLY, PLEASE REFER TO
EPM89

PB 89-209

March 13, 1989

MEMORANDUM

To: Mr. John P. Whalen, Director
Department of Land Utilization
City & County of Honolulu
Dr. Marvin Mjura, Director
Office of Environmental Quality
Control, Department of Health

From: Deputy Director for Environmental Health

Subject: Draft Environmental Impact Statement (DEIS) for Waikiki Landmark,
Oahu, Tax Map Key 2-16-18; Parcels 39, 41, 43, 44, 49, 50, 52-56, 59

Thank you for allowing us to review and comment on the subject DEIS. We do not have any comments to make at this time.

Bruce S. Anderson
BRUCE S. ANDERSON, Ph.D.

MEMO TO: JOHN WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: HERBERT K. MURAOKA
DIRECTOR AND BUILDING SUPERINTENDENT

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
FOR WAIKIKI LANDMARK

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

Thank you for the opportunity to review the Draft EIS.

HERBERT K. MURAOKA
Director and Building Superintendent

RM:jo
cc: J. Harada
Bel-Landmark, Inc.
DRH, Inc.

cc: Mr. Tony Tian, Bel-Landmark, Inc. ✓
Ms. Diane Borchardt, DRH, Inc.

10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32

FIRE DEPARTMENT
CITY AND COUNTY OF HONOLULU
1435 S. MONTELEONE STREET, ROOM 508
HONOLULU, HAWAII 96814



FRANK P. PASH
DIRECTOR

FRANK E. KAHOOHANOIHOANO
FIRE CHIEF
LYONEL E. CAMARA
DEPUTY FIRE CHIEF

FRANK P. PASH
DIRECTOR

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



SAM CALLEJO
DIRECTOR AND CHIEF ENGINEER
In reply refer to:
ENV 89-39(489)

March 17, 1989

March 17, 1989

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION
MARVIN T. HIURA, DIRECTOR
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: FRANK K. KAHOOHANOIHOANO, FIRE CHIEF

SUBJECT: WAIKIKI LANDMARK, OAHU, THK: 2-16-14;
PARCELS 39, 41, 43, 44, 49, 50, 52-55, 59

MEMORANDUM

TO: JOHN P. WHALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: SAM CALLEJO, DIRECTOR AND CHIEF ENGINEER

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS)
WAIKIKI LANDMARK (THK: 2-6-14: 39, 41, 43,
44, 49, 50, 52-56, 59)

We have reviewed the draft EIS provided and foresee no adverse impact in Fire Department facilities or services now provided. We have no additional comments at this time

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

Should you have any questions, please contact Battalion Chief Kenneth Word of our Administrative Services Bureau at 943-3838.

- Existing municipal sewers are available and adequate for the proposed development.
- The proposed development is subject to the provision of Article 5, Chapter 20, Revised Ordinances of Honolulu (ROH) 1978 (1983 Edition); i.e., Ordinance No. 2412.
- We do not have drainage comments at this time.

Frank K. Kahooahoiano
FRANK K. KAHOOHANOIHOANO
Fire Chief

Sam Callejo
SAM CALLEJO
Director and Chief Engineer

FKK/HA:bn

cc: Mr. Tony Tian
Bei-Landmark Inc.

Ms. Diane E. Borchardt
DWH Inc.

cc: OEQC
Bei-Landmark, Inc.
DWH, Inc.



COPY

April 5, 1989

TO: JOHN P. SWALEN, DIRECTOR
DEPARTMENT OF LAND UTILIZATION

FROM: YASU HAYASHIDA, MANAGER AND CHIEF ENGINEER *YH*
BOARD OF WATER SUPPLY

SUBJECT: OFFICE OF ENVIRONMENTAL QUALITY CONTROL'S LETTER
RECEIVED ON MARCH 8, 1989 ON THE ENVIRONMENTAL
IMPACT STATEMENT (EIS) FOR WAIKIKI LANDRAPE

Our previous comments in our letter dated January 21, 1989 on the proposed project, which is published on page T-1 of the EIS, are still applicable to the project.

If you have any questions, please contact Lawrence Khang at 527-6138.

cc: *YH* Tony Tien (Del-Sandmark, Inc.)
YH Diane E. Harchardt (DEH, Inc.)

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

Chapter XV

XV. COMMENTS AND RESPONSES PERTAINING TO THE PUBLIC HEARING

During the EISPN review period the proposed project was presented to the following community organizations:³⁴

Waikiki Neighborhood Board

November 1, 1988

Waikiki Residents Association

November 22, 1988

34. Copies of meeting agendas, letters and, where applicable, minutes of meetings are included at the end of this Chapter.

References

REFERENCES

- "Air Quality Assessment Report for the Proposed Waikiki Landmark", University Associates, Inc., January 1988.
- "Detailed Land Classification", Land Study Bureau, University of Hawaii, December 1972.
- "Development Plan for the Primary Urban Center", Ordinance 81-79, Sec. 2.2b.(2), City and County of Honolulu.
- "The Economic Impact of Tourism in Hawaii: 1970 to 1980", Research Report 1983-2, Department of Planning and Economic Development, April 1983.
- Flood Insurance Rate Map, National Flood Insurance Program, Panel 120 of 135, Federal Emergency Management Agency, September 4, 1987.
- "General Plan: Objectives & Policies", City and County of Honolulu, January 18, 1977, Revised 1982.
- "Hawaii's Coastal Zone Management Program", Chapter 205A, Land Use Commission, City and County of Honolulu.
- "The Hawaii State Plan", Hawaii Revised Statutes, amended, 1986.
- "Land Use Ordinance", Article 7. Special District Regulations, Section 7.80 The Waikiki District and Section 7.20 Special Districts: Purpose, Department of Land Utilization, City and County of Honolulu, October 22, 1986.
- "1980 Census of Population and Housing, Census Tracts", U.S. Department of Commerce, 1983.
- "Noise Impact Evaluation for the Proposed Waikiki Landmark Project, Waikiki, Oahu, Hawaii", Darby and Associates, January 1988.
- "Pre-Field Background Literature Search for Archaeological Resources at the Proposed Waikiki Landmark Property", by Mary F. Riford, Bishop Museum Applied Research Group, February 1989.
- "Revised Environmental Impact Statement for the Proposed Waikiki Triangle Project", Developer: L. Robert Allen; Environmental Consultants: Environmental Communications, Inc., March 1980.
- "Soil Survey of Islands of Kauai, Oahu, Maui, Molokai and Lanai, State of Hawaii", U.S. Department of Agriculture Soil Conservation Service in cooperation with the University of Hawaii Agricultural Experiment Station, August 1972.
- "Special Management Area", Chapter 33, Revised Ordinance 77-100, October 1977.

"The State of Hawaii Data Book, 1986", Department of Planning and Economic Development, 1986.

"The State of Hawaii Data Book, 1987", Department of Business and Economic Development, 1987.

"Traffic Impact Assessment Report, Waikiki Landmark", Pacific Planning & Engineering, Inc., November 1988.

"Waikiki Landmark Shadow Study", TRB Hawaii, Ltd., February 1989.

"Wind-Tunnel Tests: Waikiki Landmark, Honolulu, Hawaii," Cermak Peterka Petersen, Inc., July 1989.

Appendix A

MS. 020689

PRE-FIELD
BACKGROUND LITERATURE SEARCH FOR
ARCHAEOLOGICAL RESOURCES AT THE
PROPOSED WAIKIKI LANDMARK PROPERTY

by

Mary F. Riford

for

DHM, Inc.
1188 Bishop Street
Suite 2405
Honolulu, HI 96813

February 1989

Public Archaeology Section
Applied Research Group
Bishop Museum
Honolulu, Hawai'i

The proposed Waikīkī Landmark development is located in Waikīkī, Kona, O'ahu. The subject property is roughly triangular shape and bordered on the north by Ala Wai Boulevard, on the southeast by McCully Street, and on the west by Kalākaua Avenue (Fig. 1). The property is approximately 2.9 acres in size and includes TMK 2-6-14: parcels 39, 41, 43, 44, 49, 50, 52-56, and 59 (Fig. 2). Current land use on adjacent properties include commercial and residential developments.

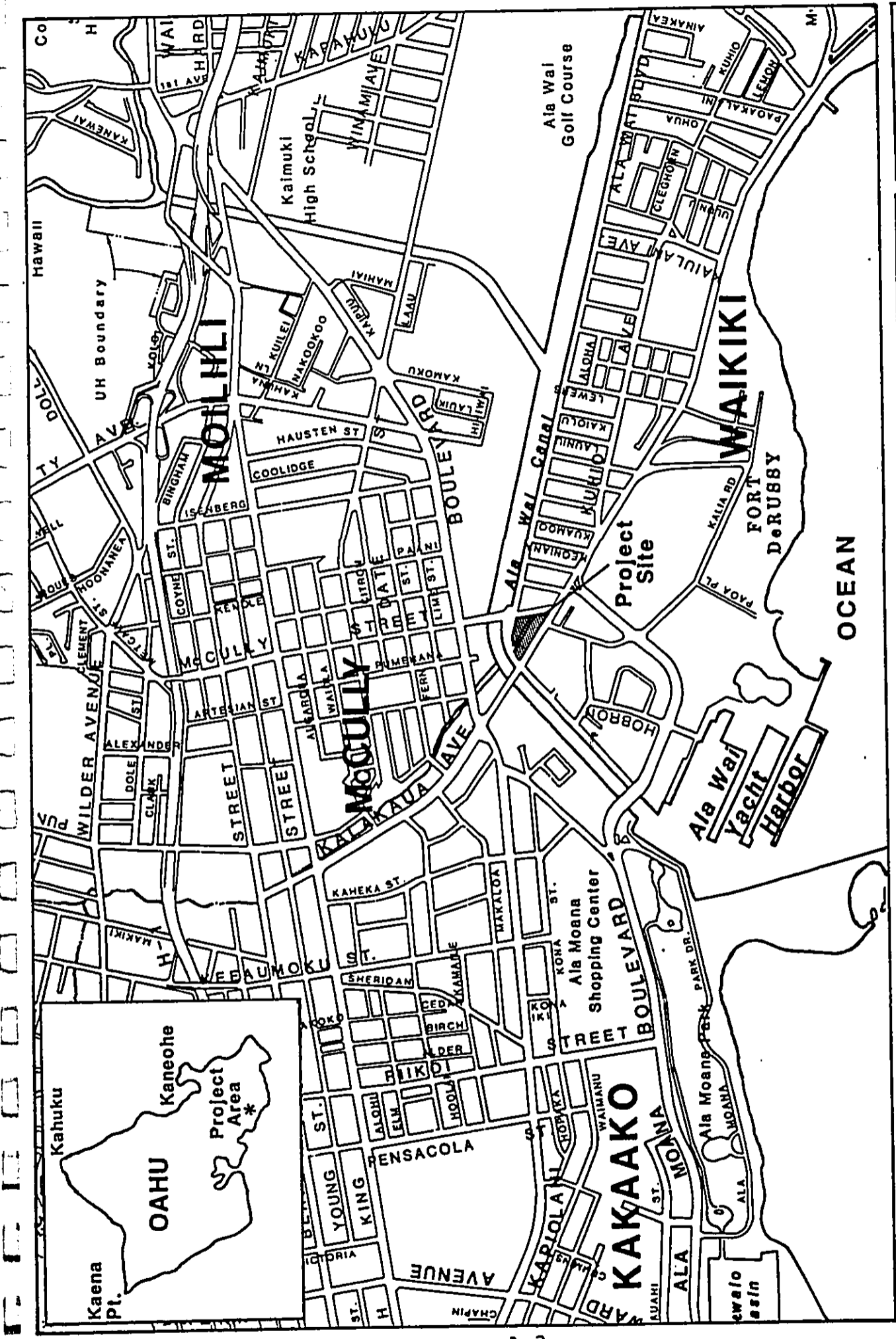
The subject property is approximately 5 ft above mean sea level and 1/2 mi. inland from the shoreline. Located to the north of the property, across Ala Wai Boulevard, is the Ala Wai Canal. Soils on the property are classified as mixed fill land (Foote et al. 1972:31). The land has been filled with material dredged from the ocean or hauled from nearby areas, garbage, and general material from other sources (Ibid. 1972:31).

An 1881 map by S. E. Bishop, which contains an overlay of the Ala Wai Canal, shows land ownership in the subject property in the mid-nineteenth century (Nakamura 1979). The western portion of the property is located in the eastern corner of Land Commission Award 8515. The eastern portion of the property is located at the southern end of a large Royal Patent Grant 3098 awarded to L. McCully.

Bishop's 1881 map shows some of the fishponds and taro field that were present in the Waikīkī area. However, there is no indication of land utilization in the area of the subject property on the 1881 map. The property lies just outside an aerial photograph of the Moana Hotel with a view toward the mountains taken in September 1920 (folder of loose Waikīkī aerials in the Bishop Museum Photo Collection). The 1920 photo shows the area inland from Kalākaua Avenue near the subject property intensively developed with taro pondfields and fishponds.

There were two early twentieth century impacts to the roadways bordering the property. In 1902 an electric trolley line was extended from Punahou to Waikīkī on Alexander and McCully Streets. In 1912 the grade of Kalākaua Avenue was raised (Nakamura 1979:45).

Begun in 1921 the dredging of the Ala Wai canal took five years to complete. Between 1924 and mid-1926 the dredge was at McCully Street filling in the pondfields and fishponds of the McCully tract (Nakamura 1979:106). An aerial photo of the completed canal taken in December 1927 shows a roughly



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Environmental
Planning

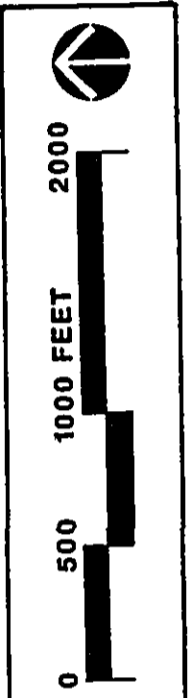
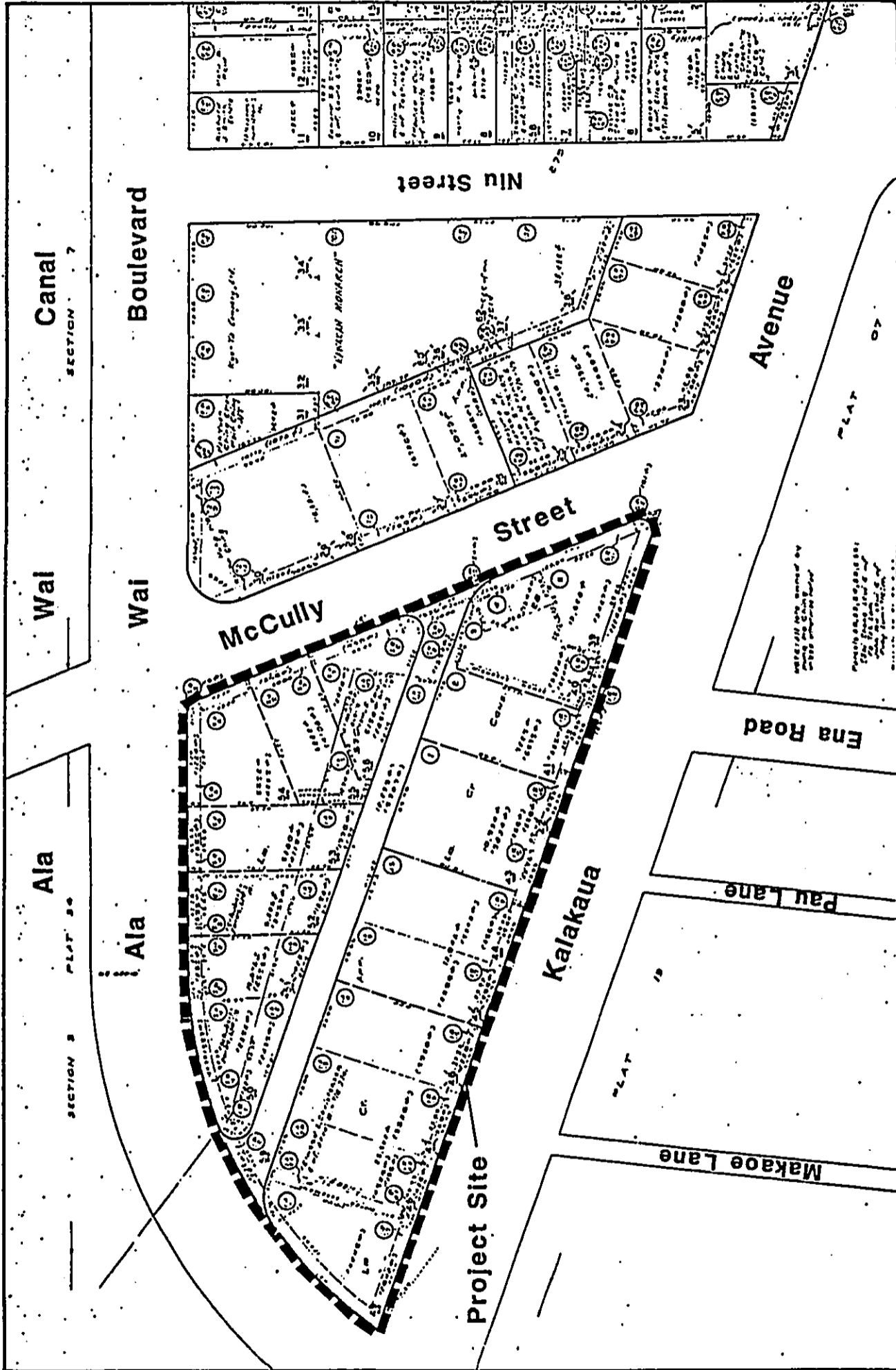


Exhibit 1
Location Map

Fig. 1. LOCATION OF PROJECT AREA (from Waikiki Landmark Environmental Assessment by DHM, Inc.).



DHM inc.
Land Use and
Environmental
Planning



Exhibit 2
Tax Key Map 2-6-14:39,41,43,44,49,50,52-56,59

FIG. 2. DETAILED LOCATION OF PROJECT AREA (from Waikiki Landmark Environmental Assessment by DHM, Inc.).

circular structure and some white coral fill in the subject property at the intersection of Ala Wai Boulevard and Kalākaua Avenue (Nakamura 1979:108; Army Aerials Book 77 p. 77), Photo Collection Bishop Museum). The property is separated into three parcels by white roadways. The parcels are dark indicating that they were covered with a low vegetation such as grass. There appears to be a tree on one of the parcels. The entire area between the canal and Kalākaua Avenue appears to be level and covered with the same vegetation as the subject property. The McCully tract north of the subject property, across the canal, is covered with white coral fill dredged from the canal (Fig. 3).

SUMMARY

Prior to 1920 it is likely that the proposed Waikīkī Landmark property contained taro pondfields. By December 1927 the pondfields had been filled, and a ground cover had been established on the subject property. It is likely that the property was filled between 1924 and mid-1926 with material dredged from the new canal. There is a low to moderate potential for locating *in situ* subsurface archaeological resources in the form of agricultural soils under current structures and below the coral fill.

RECOMMENDATIONS

The proposed Waikīkī Landmark property has been in urban use for more than 50 years. No surface archaeological resources of prehistoric or historic significance are present on the property.

In order to determine the presence or absence of cultural deposits and the prehistoric land use of this area, the following procedures are recommended:

- 1) backhoe assisted subsurface testing,
- 2) selective monitoring during demolition of existing buildings, and
- 3) selective monitoring of construction related excavation.

Early coordination with the Historic Sites Section, State Department of Land and Natural Resources is also recommended.

DOCUMENT CAPTURED AS RECEIVED



Fig.3: Army Aerials of the Project
Area Taken in 1927.
Bishop Museum Visual Collections
(Neg. No. CP38163)

REFERENCES

- DHM Planners, Inc.
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1972 *Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and
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1979 "The Story of Waikiki and the 'Reclamation' Project." MA.
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Appendix B



B I S H O P M U S E U M

1525 BERNICE STREET • P.O. BOX 19000A • HONOLULU, HAWAII • 96817 0916 • (808) 847-3511

January 12, 1989

Mrs. Duk Hee Murabayashi, President
DHM, Inc.
1188 Bishop Street
Honolulu, Hawai'i 96813

Dear Mrs. Murabayashi:

Subject: Archaeological Procedures for Waikiki Landmark

Following our telecom late last year and your letter dated 14 December 1988, we sought and obtained verbal concurrence from the Historic Sites Section, Department of Land and Natural Resources to forgo normal field reconnaissance procedures for the subject parcel in view of the present altered condition of the area.

On Thursday, 5 January 1989, Dr. Paul Cleghorn, Bishop Museum, and Dr. Joyce Bath, DLNR discussed and agreed on the following procedures:

- 1) Since the subject parcel is currently completely paved and occupied by several existing buildings, a conventional reconnaissance survey would be inappropriate, thus
- 2) the Museum will undertake prefield literature search of the subject parcel, with particular emphasis on predicting the location of potential subsurface archaeological features,
- 3) at the time of demolition, backhoe assisted subsurface testing will be conducted as warranted by the results of the literature search, and
- 4) further recommendations may be forthcoming based on the results of subsurface testing.

Per our telecom of 9 January 1989, we have commenced the literature search and according to your requested schedule, we anticipate completion of this preliminary procedure by Friday, 20 January 1989.

We appreciate this opportunity to work with you again. I will be forwarding our formal contract for execution shortly. If you have any questions please call me.

Sincerely,

Aki Sinoto
Public Archaeology Contract Manager
Applied Research Group

xc: Dr. Joyce Bath, staff archaeologist, HSS/DLNR

Appendix C

TRAFFIC IMPACT ASSESSMENT REPORT
FOR THE PROPOSED WAIKIKI LANDMARK

Waikiki, Oahu, Hawaii
TMK 2-6-14-Various

November 1988

Prepared for:

DHM, Inc.

Prepared by:

Pacific Planning & Engineering, Inc.
1144 Tenth Avenue, Suite 202
Honolulu, Hawaii 96816

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INTRODUCTION

Bel-Landmark, Inc. is proposing to construct a commercial and residential development at the corner of Kalakaua Avenue, Ala Wai Boulevard and McCully Street. The proposed complex will consist of 52,000 square feet of retail shops, 7,000 square feet of restaurants, and an estimated 315 condominium units. Approximately 650 parking stalls are planned for the mix use development.

Figure 1 shows the general project location on Oahu. The project site is located in Waikiki at the triangle formed by Kalakaua Avenue, Ala Wai Boulevard and McCully Street identified by Tax Map Key 2-6-14:39, 41, 43, 44, 49, 50, 52-56, and 59.

The present activities at the site consists of a fast food outlet, specialty retail stores, business offices, a night club, a taxi company, two rental car companies and a private parking lot. Vehicular access to the site is by two driveways off McCully Street and two off of Ala Wai Boulevard.

This traffic impact report identifies and evaluates the probable impact of the forecasted traffic generated by the proposed development in the year 1991 when the project is expected to be completed. The analysis primarily focuses on the traffic impact at the three existing intersections of Kalakaua Avenue at Ala Wai Boulevard, Ala Wai Boulevard at McCully Street, and Kalakaua Avenue at McCully Street. These intersections provide vehicular access/egress from all directions. In addition, the intersection of Kalakaua Avenue at Kapiolani Boulevard is analyzed for its effects on traffic circulation near the site. The study describes the impact on the Level of Service (LOS) at the intersections when the project is completed in 1991.

This report assesses traffic impacts during the afternoon peak hour of 4 to 5 pm. Recent traffic counts indicate the pm peak hour traffic volume averaged about five percent greater than the morning peak hour traffic volumes along the adjacent roadways. The proposed project is expected to generate a larger number of vehicles during the pm peak hour than morning hour due to the commercial/residential nature of the development.

PROPOSED WAIKIKI LANDMARK

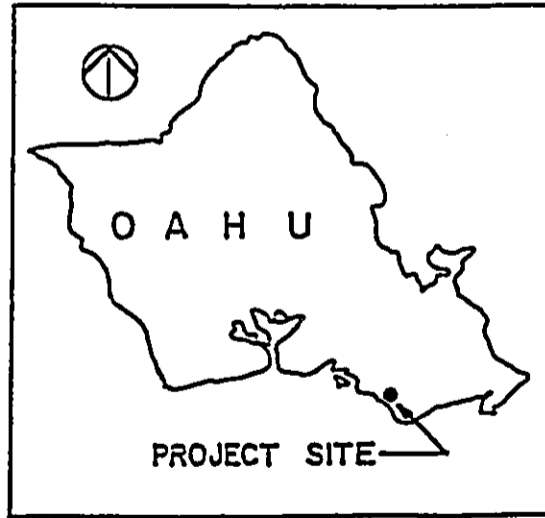
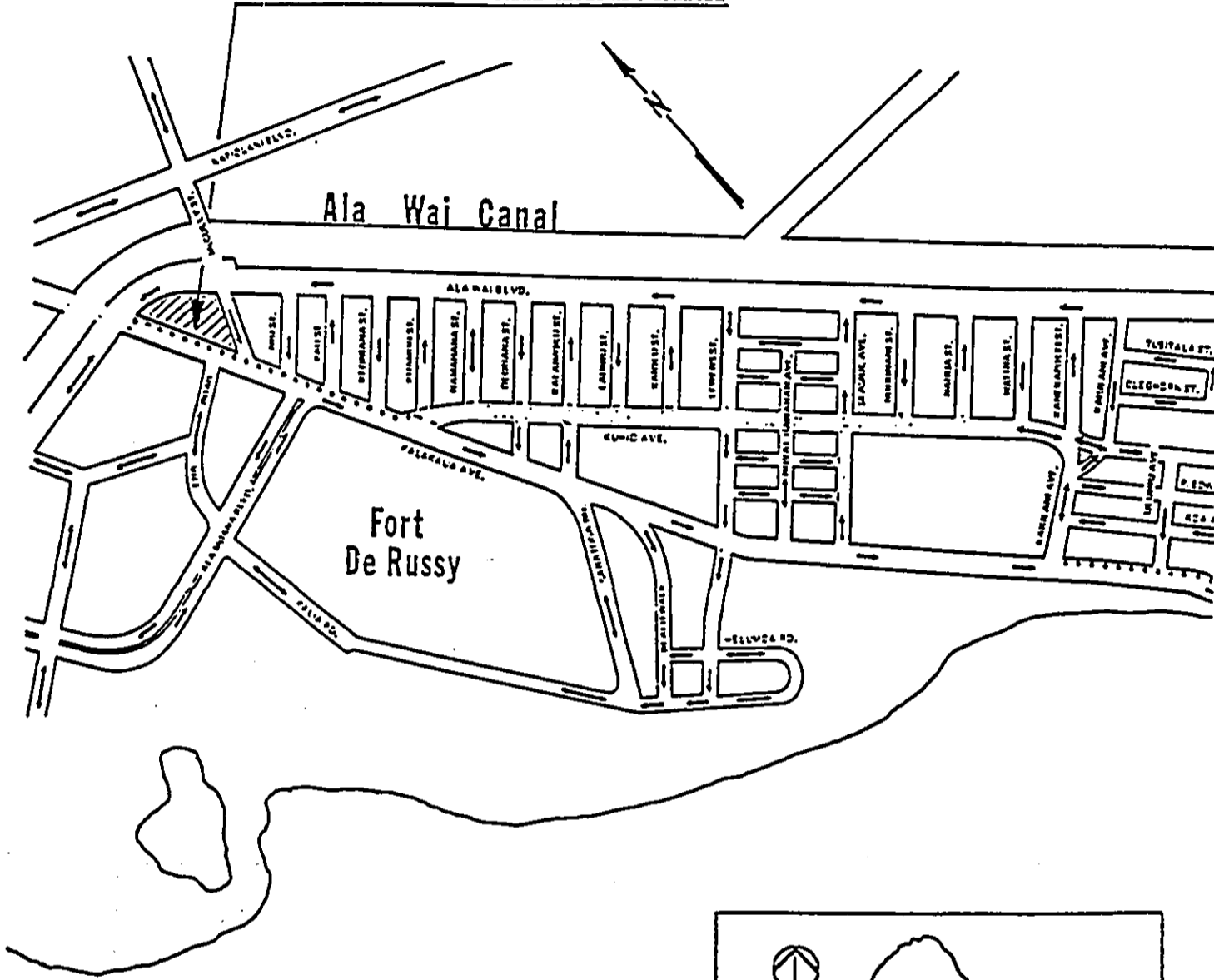


Figure 1. Project Location Map

EXISTING CONDITIONS

Area Conditions and Roadway Network

The general area is a mixture of commercial, business offices and residential condominiums and apartments. The site is partially developed and generally in disrepair.

The major vehicular access to the project site is via Kalakaua Avenue, Ala Wai Boulevard and McCully Street.

McCully Street is a two-way street in the east-west or mauka-makai direction between Kapiolani and Ala Wai Boulevards. Makai of Ala Wai Boulevard, McCully is one-way in the makai direction with its four lanes designated as left turn movements onto Kalakaua Avenue in the Diamond Head direction.

Ala Wai Boulevard is one-way in the Ewa direction from Kapahulu to Kalakaua Avenues. There are four lanes from Kapahulu Avenue to McCully street with an additional right turn lane at the McCully Street intersection. Between McCully Street and Kalakaua Avenue, Ala Wai Boulevard converges from four lanes to three lanes at the Kalakaua Avenue intersection. Ewa or West of Kalakaua Avenue, Ala Wai Boulevard is a two-way, two-lane roadway with parking permitted on both sides of the street.

Kalakaua Avenue is generally one-way in the Diamond Head direction between Ena Road and Monsarrat Avenue. An exclusive public transit bus route is designated along Kalakaua Avenue in the Ewa direction from Kuhio Avenue to the Ena Road intersection, where traffic exiting from Ena Road is permitted to turn left onto KA's single northbound lane towards Downtown Honolulu. The remainder of Kalakaua Avenue between Ala Wai Boulevard and Beretania Street is a two-way four lane roadway with exclusive turning lanes.

Ena Road is a minor collector road providing an alternate circulation route for motorists in Waikiki. It is a single lane, both directions two-way street with limited parking allowed on one side. Traffic exiting from Ena Road onto Kalakaua Avenue is permitted to turn right or left at that intersection which is controlled by traffic signals.

The existing traffic circulation with the proposed access/egress for the proposed Waikiki Landmark project is shown on Figure 2.

The major intersections analyzed include:

1. Kalakaua Avenue at Ala Wai Boulevard,
2. Ala Wai Boulevard at McCully Street,
3. Kalakaua Avenue at McCully Street, and
4. Kalakaua Avenue at Kapiolani Boulevard.

Traffic Conditions

Existing traffic volumes along Kalakaua Avenue, Ala Wai Boulevard and McCully Street were documented using recent data from the Highways Division of the State Department of Transportation and Department of Transportation Services of the City and County of Honolulu. Available survey information indicate little or no increase in area traffic volumes over the recent years.

Additional turning movement counts were taken during the pm peak hour at the major intersections, including the intersection of Kapiolani Boulevard and Kalakaua Avenue. These counts were obtained by PPE, Inc., during the period of December 17 to 29, 1987. Figures 3 through 10 are schematic depictions of the four major intersections without and with the project. Peak hour intersection traffic counts are given in Appendix B.

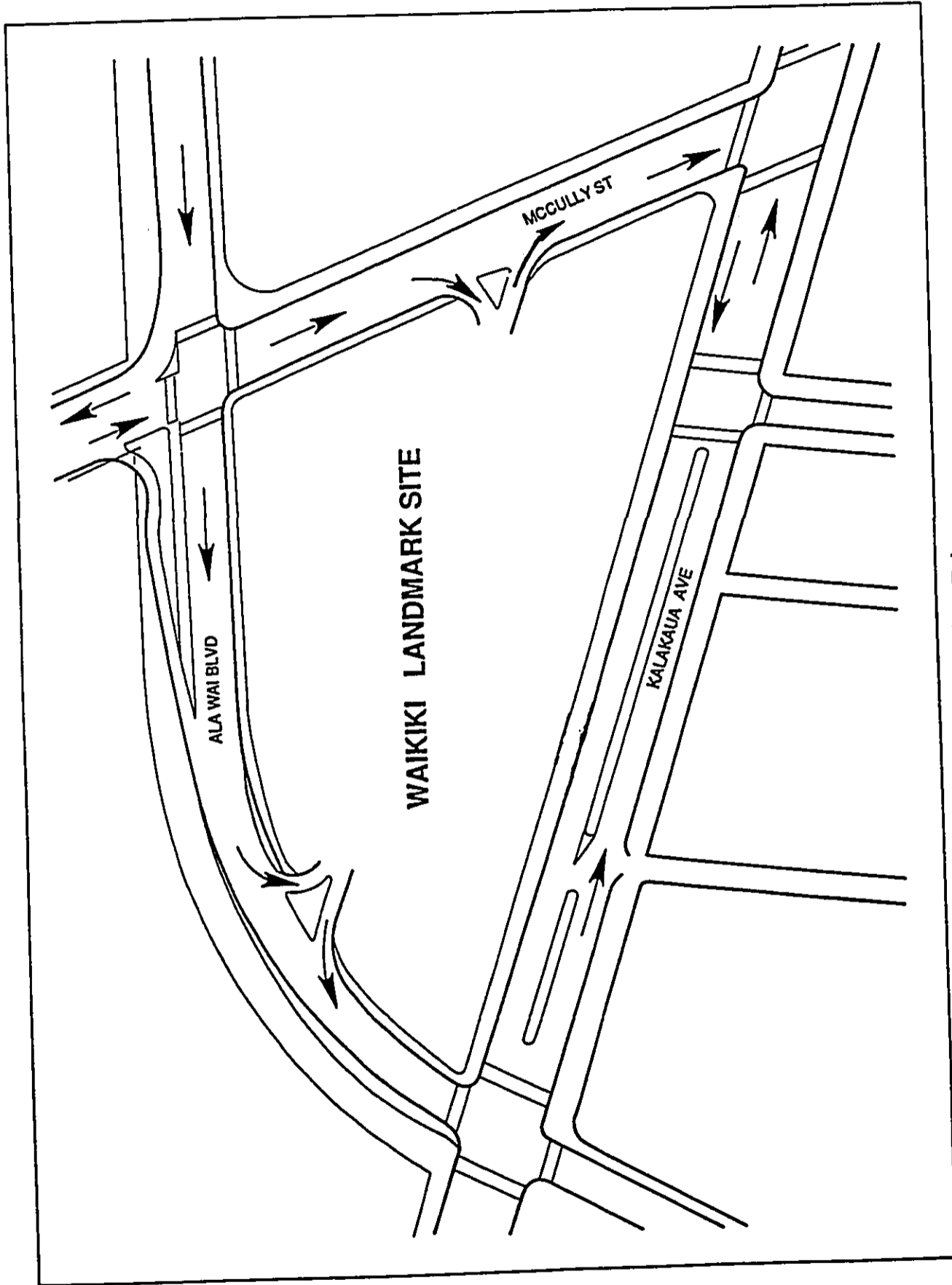
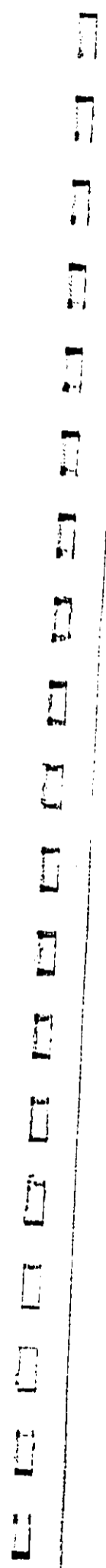


Figure 2. Project Driveways

During field counts, the weather was overcast but roadway pavement was dry. Volumes in this area are not as sensitive to holiday changes as are the other major commuting roadways. Manual counts were taken of passenger car, truck, bus, bicycle, motorcycle and pedestrian volumes by turning movements and approaches at the above-named four intersections during these periods. The survey was conducted to establish a baseline condition to compare against estimated future traffic.



TRAFFIC IMPACT ANALYSIS

A review of the general Waikiki existing roadway network and plans for future development were conducted in preparation for the traffic study. Existing traffic counts were obtained from State Department of Transportation and City and County of Honolulu, Department of Transportation Services. The weekday pm peak hour was selected for analysis as being most representative of the greatest impact on the traffic by the proposed Waikiki Landmark project.

Future traffic with and without the proposed development were estimated for 1991 when the mix use project is expected to be fully developed. Standard vehicle forecast methods of trip generation, distribution and assignment were used.

Annual traffic growth for Waikiki has been static over the recent past years. Growth of ambient traffic on these roadways is expected to be nominal to the year 1991.

Intersection capacity analysis at the four major signalized intersections was undertaken to assess the impact by comparing the traffic at the intersections with and without the development. Field counts were conducted during the pm peak hour. The data were compiled for intersection capacity analysis in accordance with the latest Highway Capacity Manual (HCM) analysis techniques (Special Report 209, 1985).

Trip Generation

Future traffic was forecast with and without the development. Vehicle trips generated by the project were based on average pm peak hour trip rates taken from the Trip Generation Report, 1982 (Third Edition), Institute of Transportation Engineers (ITE). Based on the types of uses to be provided at the proposed Landmark site, vehicle trip rates used in the analysis are for average conditions. The rates were reviewed for possible adjustments for local conditions and project aspects.

The rates are used to calculate vehicles entering and exiting the project during the pm peak hour. The analysis accounts for the mix use activities of the commercial and residential development project.

Table 1 lists the land use types, the trip generation rates, and the number of vehicle trips generated by the land use activities for the proposed Landmark project. The uses would primarily attract the Waikiki resident and visitors staying in Waikiki lodgings.

TABLE 1. VEHICLE TRIP GENERATION RATES

<u>Land Use Type</u>	<u>Units</u>	<u>Average Number of Vehicles Per Hour</u>			
		<u>AM Peak Hour</u>		<u>PM Peak Hour</u>	
		<u>Enter</u>	<u>Exit</u>	<u>Enter</u>	<u>Exit</u>
1. Commercial					
Specialty Retail	52,000 sq ft	1.99	1.99	2.25	2.25
Number of Trips		80	80	117	117
Restaurant	7,000 sq ft	10.1	5.5	13.0	9.2
Number of trips		100	55	91	65
2. Residential					
Condominium units	315	0.07	0.37	0.37	0.18
Number of Trips		26	139	117	57
Total Number of Trips		<u>206</u>	<u>274</u>	<u>325</u>	<u>239</u>

Trip Distribution

Trip distribution determines the predicted origins and destinations of traffic generated by the new development. In the analysis, percentages of the trips entering and exiting the project site are applied to the estimated vehicle trip ends for origins and destinations outside of the immediate area.

In general, it was estimated that the retail center would primarily draw vehicular traffic from Waikiki areas or tourists rather than outside or local resident shoppers. The condominium traffic would generally be headed to or coming from areas north or west of the site, represented by areas such as Downtown, Ala Moana Center, and Kapiolani Boulevard uses Ewa of the Kalakaua intersection. The percentages were used to then estimate vehicles bound for or coming from these general areas. With these estimates, vehicles generated by the proposed Landmark development were assigned to the roadway network as described below.

Traffic Assignment

Assignment of trips generated by the proposed Landmark project is based on the roadway network. Checks were made of the cognizant agencies to determine whether any major change is planned within 1991, or the time frame of this study.

An effort was made to account for potential difficulties motorists will encounter when attempting to exit from the project site. Field observations indicated congestion on Ala Wai Boulevard during the middle of the pm peak hour for an estimated 15 minute period. Drivers leaving the Landmark headed in the northerly or Downtown direction during the pm peak period will encounter some difficulty exiting left onto Ala Wai Boulevard and attempting to enter Ala Wai Boulevard's right turn lanes because of the congested lanes on the Ala Wai Boulevard approach to Kalakaua Avenue. However, the exit onto McCully can be used to travel west via Ala Moana Blvd., or to Ala Wai Blvd. via Kuhio Avenue.

Figures 3-10 show the 1991 forecast volumes for the four intersections studied without and with project traffic. The figures also show the intersection layout and regulatory controls in place during the pm peak hour.

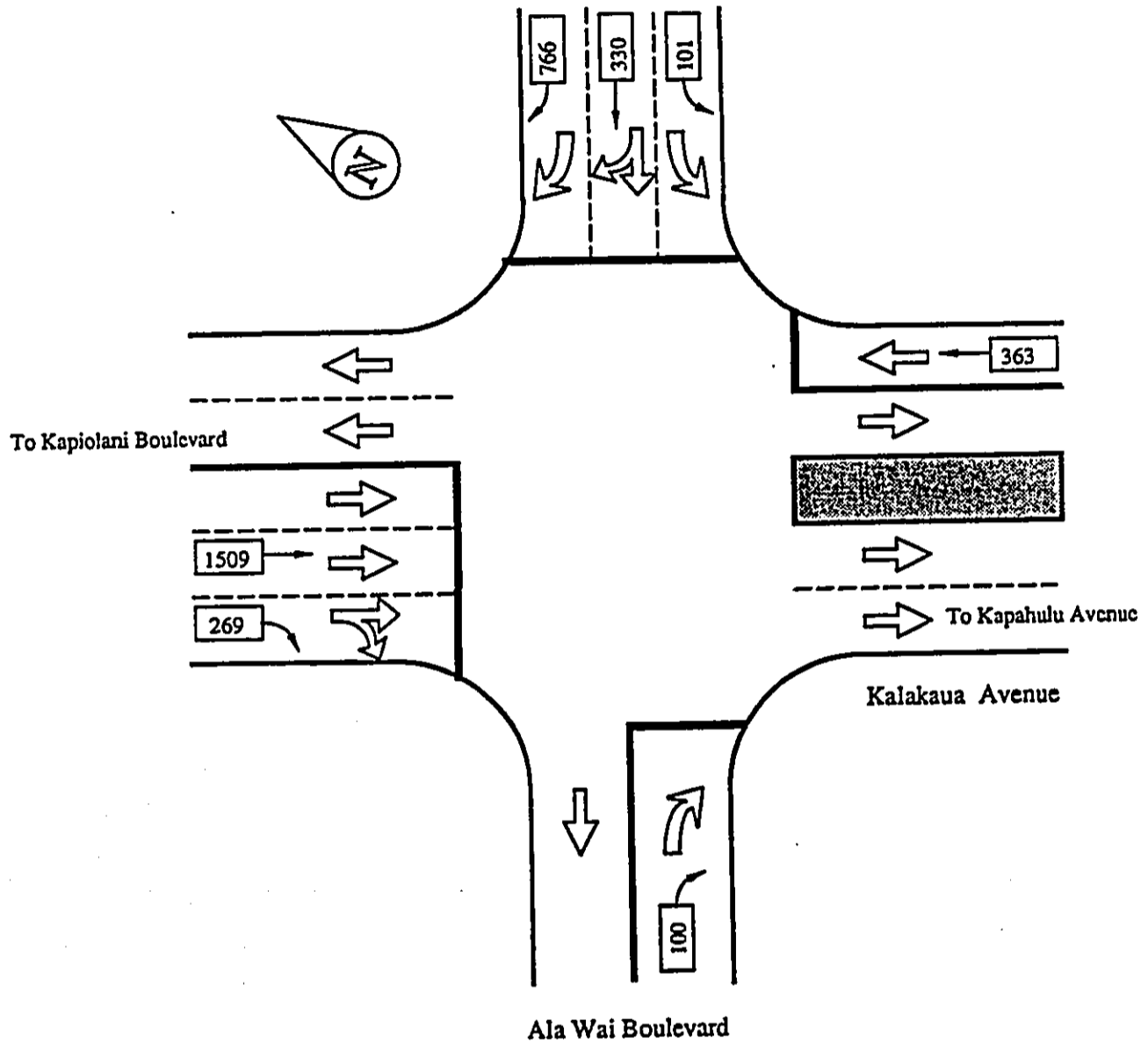


Figure 3. Kalakaua Avenue at Ala Wai Boulevard Without Project

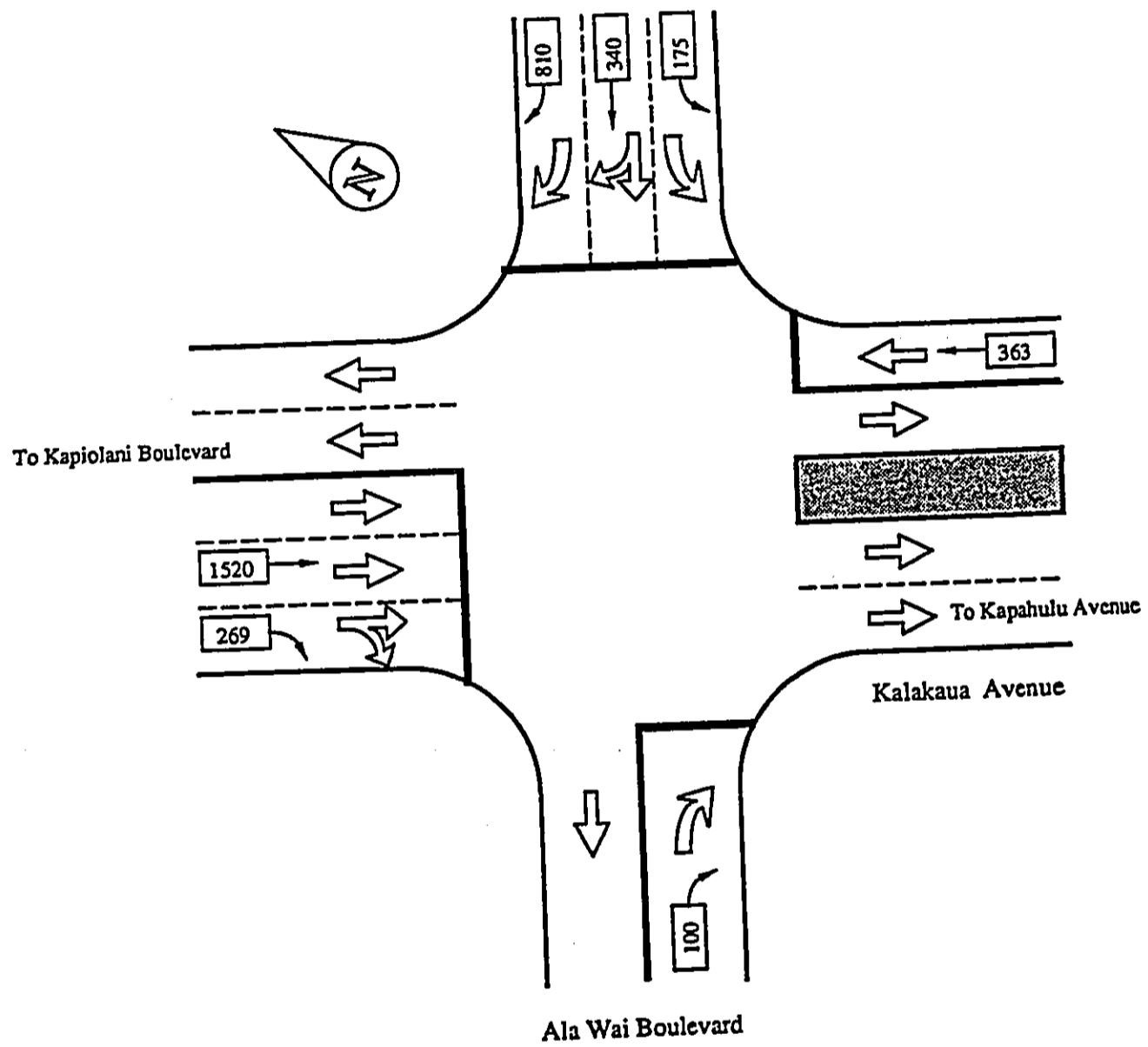


Figure 4. Kalakaua Avenue at Ala Wai Boulevard With Project

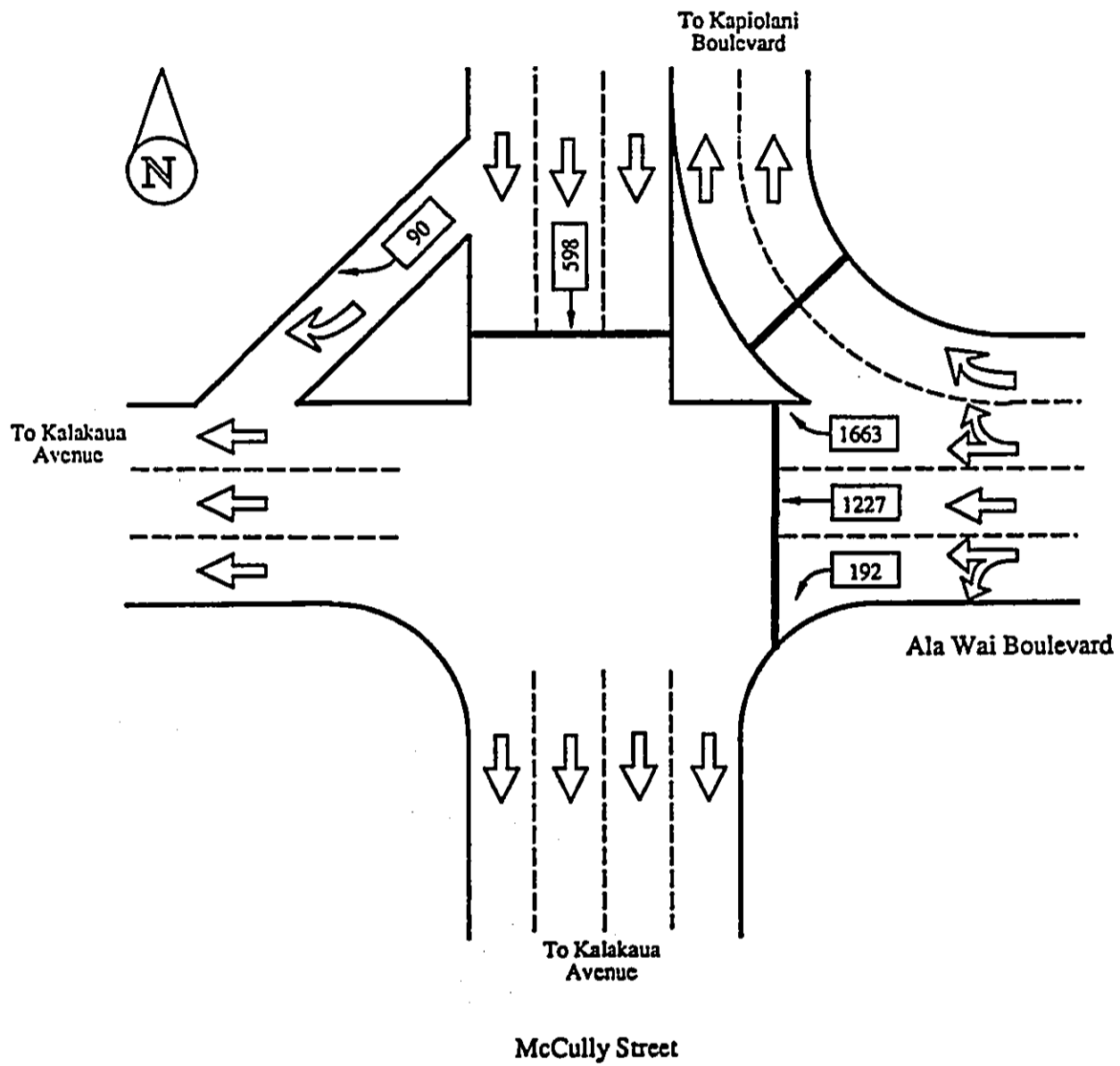


Figure 5. Ala Wai Boulevard at McCully Street Without Project

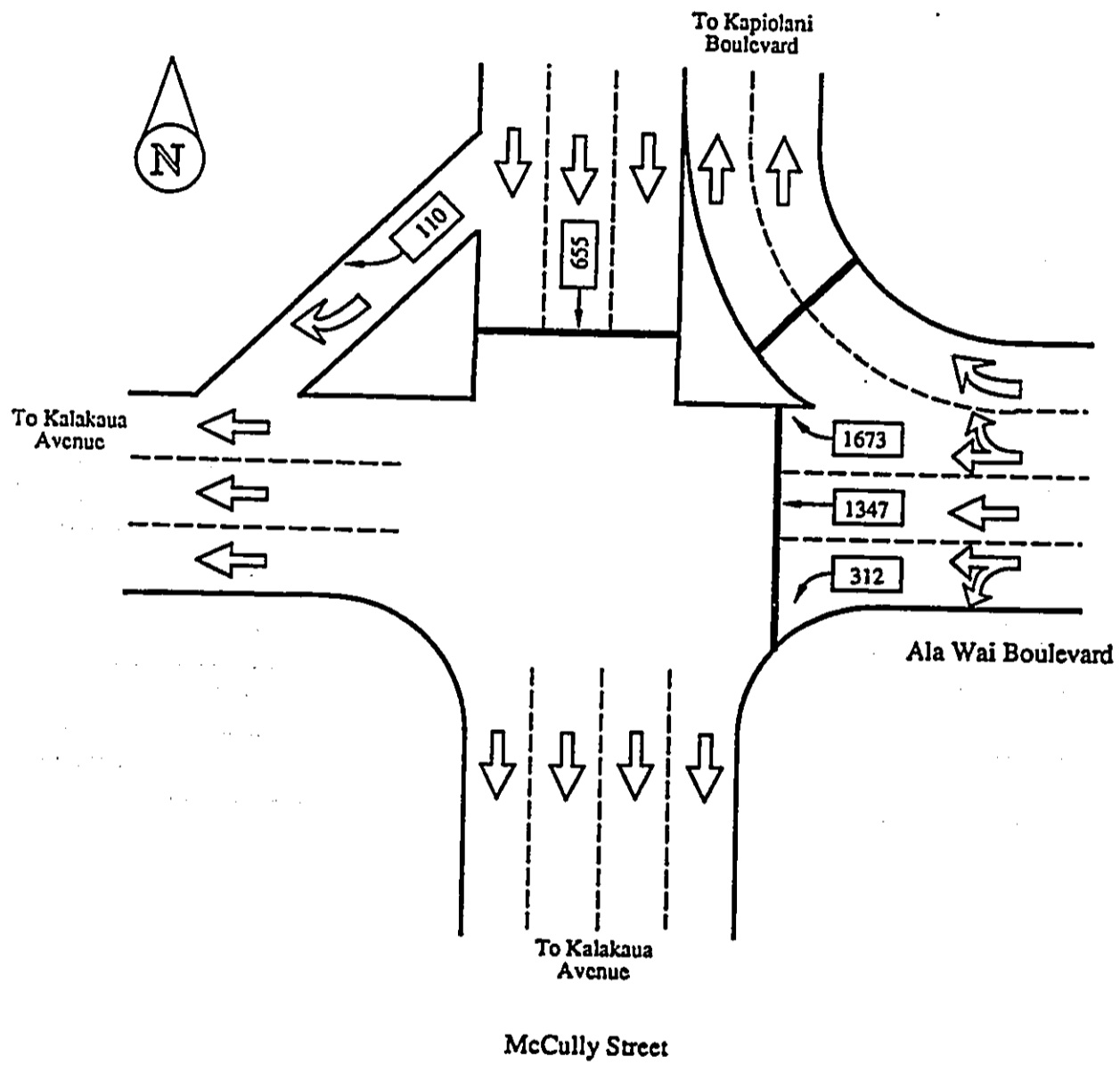


Figure 6. Ala Wai Boulevard at McCully Street With Project

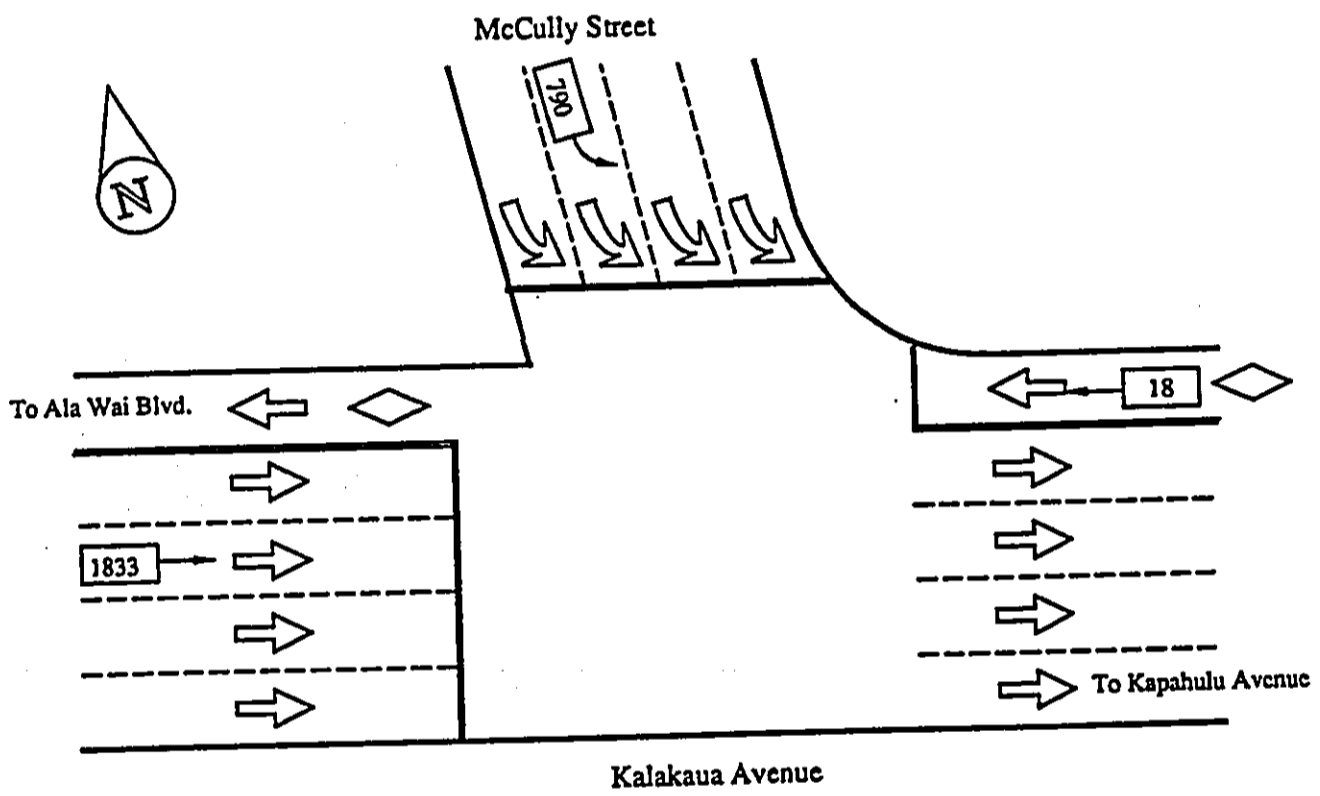


Figure 7. Kalakaua Avenue at McCully Street Without Project

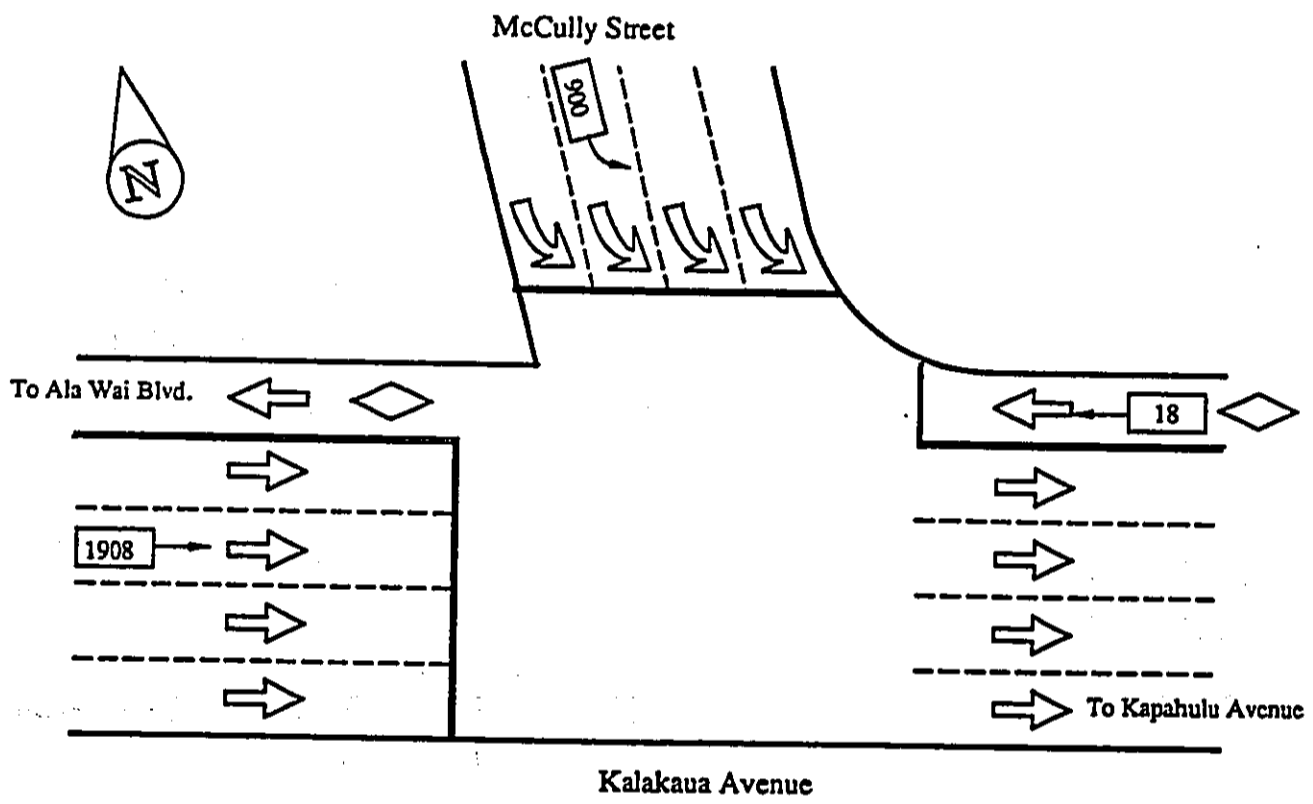


Figure 8. Kalakaua Avenue at McCully Street With Project

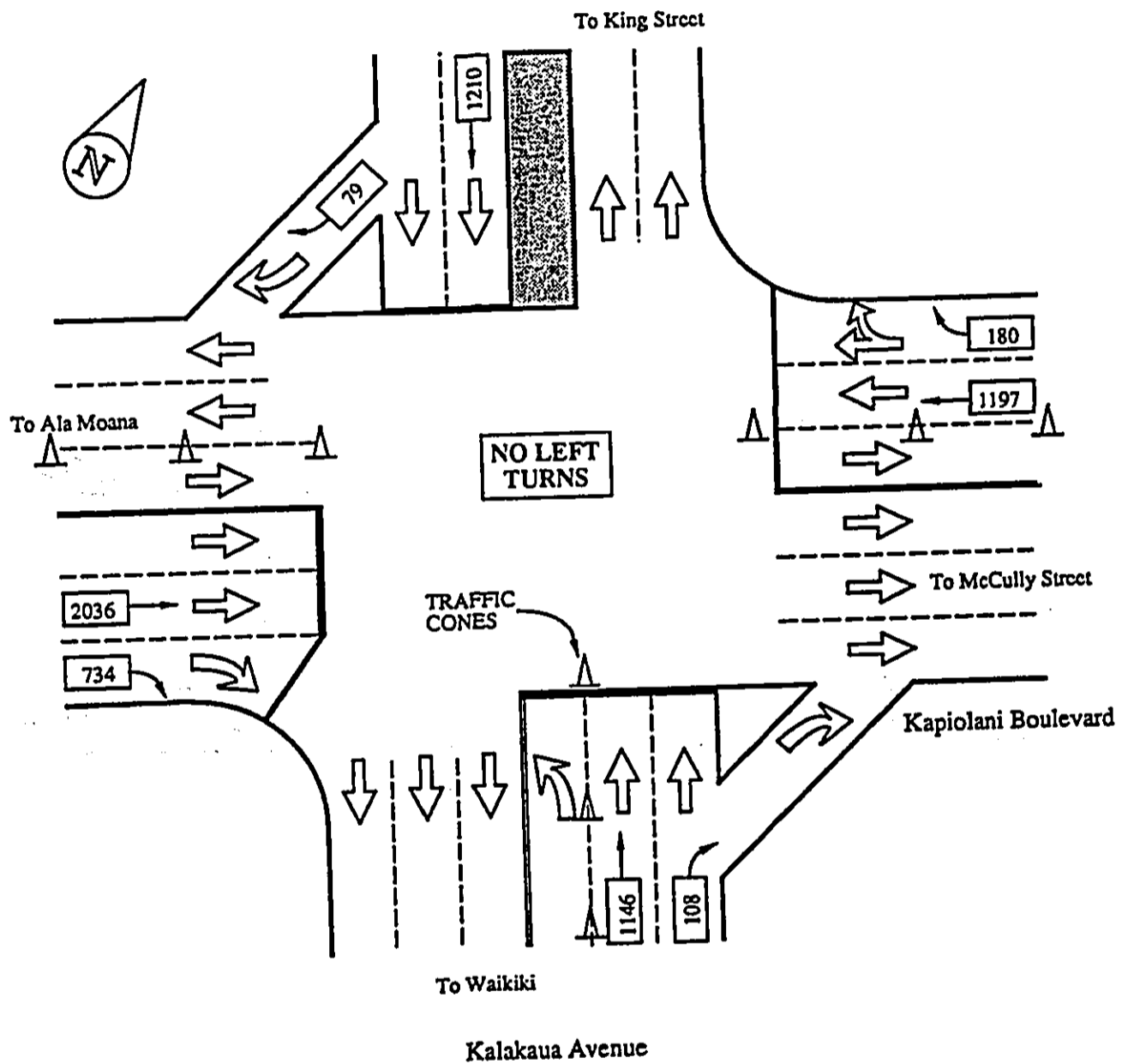


Figure 9. Kalakaua Avenue at Kapiolani Boulevard Without Project

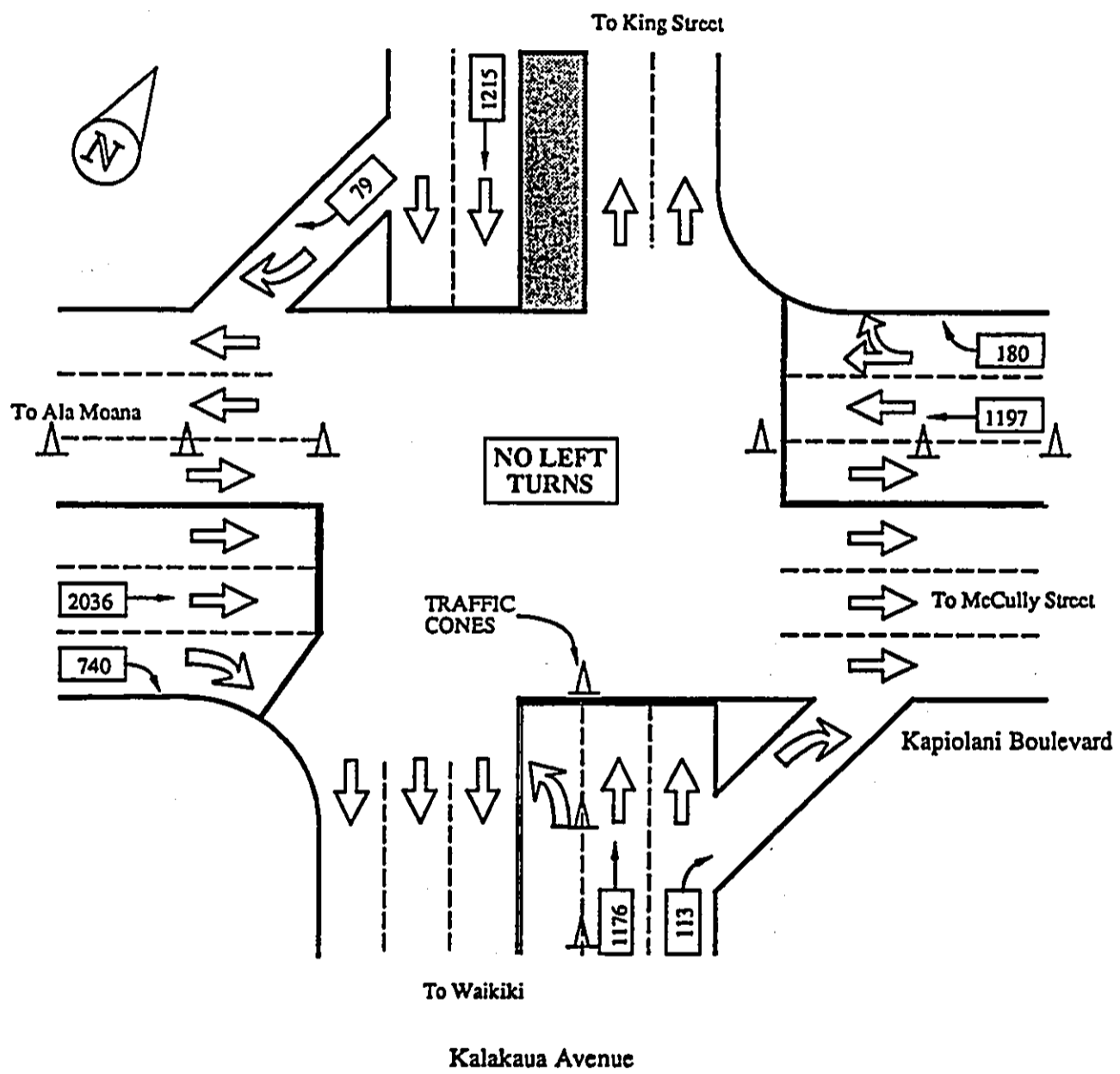


Figure 10. Kalakaua Avenue at Kapiolani Boulevard With Project

Traffic Impacts

Impacts on traffic resulting from the Landmark Project are measured by the change in Level-of-Service (LOS) or capacity level for a given intersection, or series of traffic movement. These impacts are estimated for the four intersections after completion and occupancy of the project and in 1991 without the project.

Table 2 below shows the LOS for the 1991 pm peak hour traffic at the major intersections impacted by the Landmark. Critical volume is a traffic impact variable in terms of vehicles per hour on opposing approaches that is used to estimate whether the intersection is operating over, near, or under capacity of the intersection.

TABLE 2. CRITICAL VOLUMES, CAPACITY LEVELS, AND LEVEL-OF-SERVICE--1991

1991 Without Landmark:

<u>Intersection</u>	<u>Capacity Level</u>	<u>Level-of-Service</u>
McCully St. at Ala Wai Blvd.	Under Capacity	B
Kalakaua Ave. at McCully St.	Under Capacity	B
Kalakaua Ave. at Ala Wai Blvd.	Under Capacity	B
Kalakaua Ave. at Kapiolani Blvd.	Near Capacity	D

1991 With Landmark:

<u>Intersection</u>	<u>Capacity Level</u>	<u>Level-of-Service</u>
McCully St. at Ala Wai Blvd.	Under Capacity	B
Kalakaua Ave. at McCully St.	Under Capacity	B
Kalakaua Ave. at Ala Wai Blvd.	Under Capacity	B
Kalakaua Ave. at Kapiolani Blvd.	Near Capacity	D

Impacts on traffic from the Waikiki Landmark were measured using the following measures: 1) Level-of-Service, and 2) capacity level. Intersections were analyzed for changes in LOS and whether the traffic exceeded the capacity of the intersection with and without the project. LOS for a given intersection is divided into six categories ranging from free-flow (LOS A) to congested flow (F). A detailed explanation of LOS is given in Appendix A.

The LOS for intersections were determined by use of the "Operational Analysis" calculation procedures contained in the Highway Capacity Manual (HCM), Special Report 209, 1985. This procedure provides the highest level of detailed analysis available for signalized intersections.

The analysis considers physical roadway elements, parking and other controls, signal timing, traffic volume and characteristics, and other variables. The LOS is determined by the expected amount of vehicle delay for various lane groups of the intersections under study. Each intersection is described by the estimated LOS and therefore relative impact by the traffic generated by the proposed Waikiki Landmark.

Table 2 indicates that all four major intersections studied will be under or near capacity, and at acceptable LOS during the pm peak hour during the pm peak hour even with the addition of the Waikiki Landmark.

CONCLUSIONS AND RECOMMENDATIONS

The result of the 1991 traffic forecast for the completed Waikiki Landmark project, indicate a nominal increase in traffic volumes along Kalakaua Avenue, McCully Street, and Ala Wai Boulevard during the pm peak period. The critical traffic flows are expected to occur during the afternoon peak hour, when both the ambient traffic and projected traffic are at a peak.

Based on the traffic capacity analysis results, it is concluded that Waikiki Landmark traffic will not exceed capacity levels at the intersections of:

1. Kalakaua Avenue at Ala Wai Boulevard,
2. Ala Wai Boulevard at McCully Street,
3. Kalakaua Avenue at McCully Street, and
4. Kalakaua Avenue at Kapiolani Boulevard.

The peak hour traffic at the intersection of Kalakaua Avenue and Kapiolani Boulevard is presently causing northbound or mauka traffic along Kalakaua Avenue between Kapiolani Boulevard and Ala Wai Boulevard to back into the Kalakaua Avenue/Ala Wai Boulevard intersection. This back-up in turn causes traffic along Ala Wai Boulevard to back into the McCully Street/Ala Wai Boulevard intersection during a 15 minute period during the middle of the pm peak hour.

The proposed Kalakaua Avenue improvement project by the City and County scheduled for completion by 1993 will alleviate much of the traffic congestion along Kalakaua Avenue. The project will add a third lane in both directions, between Ala Wai Blvd. and Phillip St., allowing for a substantial increase in the capacity of Kalakaua Ave. Short range improvements along Kalakaua include the construction of an additional lane fronting the recently completed Hard Rock Cafe IV under the provisions of Ordinance No. 2412. This lane will permit an exclusive right turn storage lane along Kalakaua and will therefore encourage better use of the lanes between Ala Wai Bridge and Kapiolani Blvd. Field observations indicated the left lane on the mauka leg of the Kalakaua

Avenue/Kapiolani Boulevard intersection is under-utilized by traffic avoiding the congested condition caused by left-turning vehicles at Kalakaua Avenue and Makaloa Street.

The proposed computer control signal system between Downtown Honolulu and Hawaii Kai including the Waikiki section will enhance the traffic flow along the major routes including Kalakaua Avenue, Ala Moana Boulevard, Kapiolani Boulevard, Ala Wai Boulevard, McCully Street, and Kuhio Avenue.

Level-of-Service analysis of all three major intersections surrounding the Waikiki Landmark project indicate that the traffic LOS levels B and D *do not change* with the added project traffic. Congestion resulting in a brief drop in LOS is the result of existing traffic congestion at the intersection of Kalakaua Avenue and Kapiolani Boulevard. With the completion of the Kalakaua Avenue Improvement Project and signal system improvements, the quality of traffic flow at the major intersections studied is expected to improve.

Our field review of the proposed driveways and roadway plans indicated little if any problems with sight distance. The traffic merging and exiting the project will be assisted somewhat by the signal light at the intersection of McCully and Ala Wai. Our analysis also indicates that already existing driveways will be reduced in number and location by the proposed site plan to two driveways. The net beneficial effect will be to isolate the impacts to already one-way multi-lane roadways -- McCully below Ala Wai Blvd. and Ala Wai Blvd.

APPENDIX A

LEVEL-OF-SERVICE DEFINITIONS
FOR SIGNALIZED INTERSECTIONS

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

DEFINITION OF LEVEL-OF-SERVICE

The concept of levels of service is defined as a qualitative measure describing operational conditions within a traffic stream, and their perception by motorists and/or passengers. A level of service definition generally describes these conditions in terms of such factors as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience, and safety. Six levels of service are defined for each type of facility for which analysis procedures are available. They are given letter designations, from A to F, with level-of-service A representing the best operating conditions and level-of-service F the worst.

Level of service for signalized intersections is defined in terms of delay. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Specifically, level-of-service criteria are stated in terms of the average stopped delay per vehicle for a 15-minute analysis period.

Level-of-Service A describes operations with very low delay, i.e., less than 5.0 sec per vehicle. This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

Level-of-Service B describes operations with delay in the range of 5.1 to 15.0 sec per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.

Level-of-Service C describes operations with delay in the range of 15.1 to 25.0 sec per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

Level-of-Service D describes operations with delay in the range of 25.1 to 40.0 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or a high v/c ratios (volume of cars to capacity of intersection). Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

Level-of-Service E describes operations with delay in the range of 40.1 to 60.0 sec per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle length, and high v/c ratios. Individual cycle failures are frequent occurrences.

Level-of-Service F describes operations with delay in excess of 60.0 sec per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

REFERENCE: Highway Capacity Manual (Special Report 209, 1985)

APPENDIX B

MANUAL TRAFFIC COUNT DATA

TRAFFIC DATA

McCULLY STREET AT ALA WAI BOULEVARD

<u>Time (pm)</u>	<u>McCully St.—Ewabound</u>			<u>Ala Wai Blvd.—Maukabound</u>		
	<u>LT</u>	<u>Through</u>	<u>RT</u>	<u>LT</u>	<u>Through</u>	<u>RT</u>
4:00 - 4:15	0	174	19	40	268	338
4:15 - 4:30	0	165	14	47	342	498
4:30 - 4:45	0	144	20	64	322	449
4:45 - 5:00	0	115	37	41	295	378

KALAKAUA AVENUE AT McCULLY STREET

<u>Time (pm)</u>	<u>Kalakaua Street</u>						<u>McCully Street</u>		
	<u>Diamond Head bound</u>			<u>Ewabound</u>			<u>Makaibound</u>		
	<u>LT</u>	<u>Through</u>	<u>RT</u>	<u>LT</u>	<u>Through</u>	<u>RT</u>	<u>LT</u>	<u>Through</u>	<u>RT</u>
4:00 - 4:15	0	485	0	0	4	0	214	0	0
4:15 - 4:30	0	391	0	0	5	0	212	0	0
4:30 - 4:45	0	463	0	0	5	0	208	0	0
4:45 - 5:00	0	494	0	0	4	0	156	0	0

KALAKAUA AVENUE AT ALA WAI BOULEVARD

<u>Kalakaua Ave.</u> <u>Time (pm)</u>	<u>Makaibound</u>			<u>Maukabound</u>		
	<u>LT</u>	<u>Through</u>	<u>RT</u>	<u>LT</u>	<u>Through</u>	<u>RT</u>
4:00 - 4:15	0	389	70	0	99	0
4:15 - 4:30	0	308	65	0	83	0
4:30 - 4:45	0	372	65	0	88	0
4:45 - 5:00	0	405	65	0	93	0

<u>Ala Wai Blvd.</u> <u>Time (pm)</u>	<u>Westbound</u>			<u>Eastbound</u>		
	<u>LT</u>	<u>Through</u>	<u>RT</u>	<u>LT</u>	<u>Through</u>	<u>RT</u>
4:00 - 4:15	22	74	186	0	0	28
4:15 - 4:30	33	86	208	0	0	13
4:30 - 4:45	23	96	198	0	0	24
4:45 - 5:00	23	74	173	0	0	19

KALAKAUA AVENUE AT KAPIOLANI BOULEVARD

<u>Kalakaua Ave.</u>	<u>Makaibound</u>			<u>Maukabound</u>		
	<u>LT</u>	<u>Through</u>	<u>RT</u>	<u>LT</u>	<u>Through</u>	<u>RT</u>
<u>Time (pm)</u>						
4:00 - 4:15	0	293	19	0	277	23
4:15 - 4:30	0	313	19	0	308	14
4:30 - 4:45	0	353	22	0	283	25
4:45 - 5:00	0	251	19	0	278	46

<u>Kapiolani Blvd.</u>	<u>Diamond Head bound</u>			<u>Ewabound</u>		
	<u>LT</u>	<u>Through</u>	<u>RT</u>	<u>LT</u>	<u>Through</u>	<u>RT</u>
<u>Time (pm)</u>						
4:00 - 4:15	0	546	202	0	303	45
4:15 - 4:30	0	435	187	0	274	40
4:30 - 4:45	0	500	176	0	293	49
4:45 - 5:00	0	555	169	0	297	36

Appendix D

AIR QUALITY ASSESSMENT REPORT
FOR THE PROPOSED WAIKIKI LANDMARK
Revision of January 1988 report

February 1989

Prepared for:
DHM, Inc.

Prepared by:
University Associates, Inc.
4336 Lanihale Place
Honolulu, Hawaii 96816

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I. INTRODUCTION

This report estimates the effect on the air quality that the proposed Waikiki Triangle development will have at its completion in 1991. Since traffic is the major source of pollutants in the area of the project, this report concentrates on carbon monoxide (CO), the major emission from traffic. It is also on this pollutant that the proposed project will have its main effect.

The report will first present one week of CO monitoring at the site, then compare these to simultaneous CO measurements at the Department of Health (DOH) long term site on Kalakaua Ave to estimate long term concentrations at the Waikiki Triangle project site. Concentration estimates for 1991 are then calculated as the product of:

- a) present long term concentration estimates for the site
- b) the ratio between estimated 1991 and 1987 traffic volumes with and without the proposed project
- c) the ratio between estimated average vehicular emissions for 1991 and 1987

The estimates are finally compared with State of Hawaii Ambient Air Quality Standards (AAQS) and conclusions drawn about the air quality at the site in 1991.

II. CO MONITORING AT THE SITE.

CO was monitored at the site for one week, Jan 6 - 13, 1988. The instrument was located in the parking attendant's booth along McCully Street about half way between Kalakaua Ave and Ala Wai Blvd.

The instrumentation consisted of an Ecolyzer model 2000 CO analyzer connected to a Campbell Research, Inc CR21X data logger. Hourly means based on one second samples were recorded.

The instrument was calibrated once a day for zero and span. The major source of error for this instrument is zero and span drift mainly due to temperature variations. It is estimated that the uncertainty due to this source can be as much as 5%. Errors due to non linearity in the instrument response is much smaller, at most 1% according to the

manufacturer. Thus following EPA's recommendations using several calibration points would not improve the accuracy of the readings significantly as non linearity is not the major source of uncertainty. It was therefore deemed unnecessary to calibrate at more than two points. The recording equipment had a very high input impedance and did not distort the readings.

The air intake to the instrument was mounted on a post two feet above the roof of the attendant's booth at a net height of about ten feet above the ground. A filter at the air intake hose removed particulates and an interference filter removed gases that could interfere with the CO measurements. A fast response anemometer was also mounted on the post about 4 feet above the air intake for the CO analyzer. Hourly mean wind speeds were recorded on the data logger based on one second samples. The anemometer was wind tunnel calibrated about six month previously.

CO readings are probably accurate to less than half a part per million by volume (ppm) and wind speeds to half a mile per hour.

Hourly mean diurnal wind speeds and CO concentrations are plotted in Fig. 1. Average CO was 1.8 ppm and the range 0.7 to 8.8 ppm.

As traffic increases in the morning, CO levels rise rapidly but as soon as the wind picks up, CO is rapidly diffused and concentrations reduce and remain almost constant at a level below 2 ppm. Responding to increasing traffic and decreasing winds, the concentrations increase in the evening up to about midnight and then decrease through out the night as traffic reaches a minimum.

On the day with the highest CO level, Jan 11, the winds remained close to zero for six hours allowing the CO to build up and reach a maximum of 8.8 ppm at 9 am but, as soon as the wind increased, the CO level went down rapidly.

The weather during the period was typical trades with speeds between 5 to 15 mph.

III. COMPARISON WITH DOH LONG TERM MEASUREMENTS

The State of Hawaii DOH maintains a CO monitoring site on Kalakaua Ave between Lewers and Beachwalk streets about half a mile from the Waikiki Triangle monitoring site. As CO levels have improved significantly throughout the last fifteen years as a result of vehicular emission control equipment, last year's record at the DOH site will be used rather than longer term data to estimate existing CO levels at the project site.

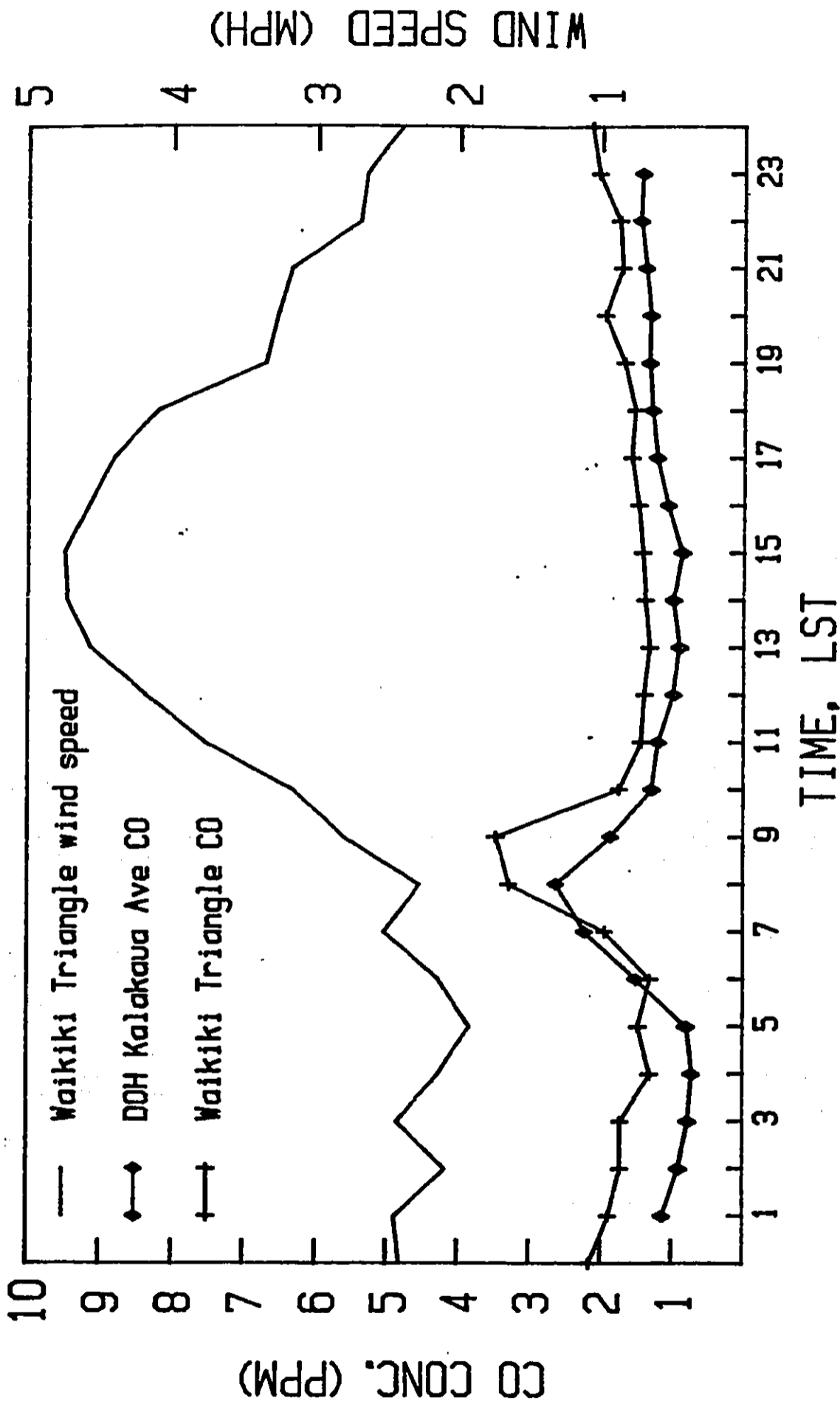


FIG. 1. MEAN DIURNAL WIND SPEED AT THE WAIKIKI TRIANGLE AND MEAN DIURNAL CARBON MONOXIDE CONCENTRATION AT THE WAIKIKI TRIANGLE AND AT THE DOH KALAKAUA AVE SITE 6 - 13 JAN 1988.

During 1987 the DOH site had a mean hourly concentration of 3.0 ppm and a range of 0.6 to 7.2 ppm. The second highest reading, which is regulated in the State AAQS for CO, was 6.8 ppm. The average eight hour mean value for the year was 1.6 ppm with a range from 0.3 to 3.9 ppm. The second highest value, also regulated by the State AAQS, was 3.6 ppm. Maximum concentrations occur during the winter months when wind speeds are lowest.

Mean diurnal concentrations at the sites during the survey period are plotted in Fig. 1. The correlation between individual hourly readings at the DOH site and those at the Waikiki Triangle site was poor ($R=0.1$) which excludes a regression analysis of the two data sets. Instead the ratio between the period mean concentration at DOH and that at the project site is used to make long term concentration estimates for the site. This ratio is 0.72.

The ratio is based on one week of measurements. The running mean of hourly ratios oscillated, as expected, in the beginning but soon became stable varying only within the error limit of the observations. Continued sampling would therefore probably not change the ratio significantly and the ratio was assumed representative of long term conditions. It is possible that the ratio would change with season, but this would not affect the results since maximum DOH readings extrapolated to the site occurred during winter months, when the ratio was calculated. The other option for make long term estimates is dispersion modeling using e.g. Caline-4. The accuracy of such estimates would in all likelihood be much less as input parameters such as the lowest annual hourly mean wind speed, stability wind direction and diffusion expressions are not known for the site. Such models should only be used where there are no nearby observation sites with approximately the same meteorological conditions as was the case for the two sites in this report.

If the 1987 annual figures for the DOH site is multiplied by above ratio, the annual hourly mean value for the project site is estimated at 4.2 ppm ($3.0/0.72$) and the second highest concentration at 9.4 ppm ($6.8/0.72$). The mean eight hour estimate becomes 2.2 ppm ($1.6/0.72$) and the second highest eight hour estimate 5.0 ppm ($3.6/0.72$). These estimates should be compared with the State AAQS for CO of 8.7 ppm (10 mg/cum) for the second highest one hour period per year and 4.35 ppm (5 mg/cum) for the second highest eight hour period. Thus presently the State AAQS for CO are probably exceeded at the site.

Present site long term CO concentration estimates:

One hour maximum: 9.4 ppm	State AAQS: 8.7 ppm
Eight hr maximum: 5.0 ppm	State AAQS: 4.4 ppm

IV. ESTIMATE OF 1991 CO LEVELS

Table 1 shows present traffic volumes at intersections around the project area and volumes estimated in 1991 with and without the project (1).

Intersection	1987 traffic	1991 traffic with project and ratio to 1987 traffic		1991 traffic w/o project and ratio to 1987 traffic	
-----	-----	-----	-----	-----	-----
Kalakaua and Kapiolani	6650	6657	1.001	6690	1.006
Kalakaua and McCully	2641	2826	1.070	2641	1.000
Kalakaua and Ala Wai	3382	3577	1.058	3438	0.984
McCully and Ala Wai	3770	4097	1.087	3770	1.000

Table 1. 1987 and estimated 1991 pm peak hour traffic volumes (vehicles per hour) and ratios to 1987 traffic volumes at intersections around the proposed project with and without the project.

As can be seen traffic is estimated to generally increase by 1991 when the project is to be completed. However, as more cars are fitted with better catalytic converters and old cars disappear, the average emission rate for cars will drop significantly as shown in Table 2 developed from EPA's Composite Emission Model, MOBILE3.

Car speed	1987 emissions	1991 emissions	Ratio
-----	-----	-----	-----
Idle	15.46 gr/min	12.91 gr/min	1.198
5 mph	201.8 gr/mi	133.9 gr/mi	1.501
10 mph	102.8 gr/mi	75.8 gr/mi	1.360
15 mph	69.9 gr/mi	54.4 gr/mi	1.286
20 mph	53.9 gr/mi	42.5 gr/mi	1.270
25 mph	43.4 gr/mi	33.9 gr/mi	1.281

Table 2. 1987 and estimated 1991 vehicular emission rates from EPA's Composite Emission Model, MOBILE3.

(1) Traffic Impact Analysis. Prepared for DHM, Inc. by Pacific Planning and Engineering, Inc, Nov 1988.

Project site 1991 CO concentration estimates are made by multiplying estimated present concentrations by traffic increase ratios from Table 1 and dividing them by the emission reduction ratios in Table 2.

The highest traffic increase ratios: 1.087 (McCully and Ala Wai) with the project and 1.009 (Kalakaua and Kapiolani) without the project and the mean reduction ratio for idle, 5 mph and 10 mph, which probably is representative for traffic conditions at the site, $1.353 \left(\frac{1.198 + 1.501 + 1.360}{3} \right)$ are used.

Thus using estimated present annual second highest one hour and eight hour concentrations at the site with and without the project yields:

Estimated 1991 second highest one hour concentration:

With project : $9.4 * 1.087 / 1.353 = 7.6$ ppm
W/o project : $9.4 * 1.009 / 1.353 = 7.0$ ppm
State of Hawaii one hour CO AAQS = 8.7 ppm

Estimated 1991 second highest eight hour concentration:

With project : $5.0 * 1.087 / 1.353 = 4.0$ ppm
W/o project : $5.0 * 1.009 / 1.353 = 3.7$ ppm
State of Hawaii eight hour CO AAQS = 4.4 ppm

Thus both the State one hour and eight hour AAQS will likely be met in 1991 both with and without the proposed project. If an exceedence would occur in 1991, it will probably only last for one to two years due to a continued rapid decrease in vehicular emissions projected by the EPA.

Appendix E



**DARBY
& ASSOCIATES**
ACOUSTICAL CONSULTANTS

#87-42
January 5, 1988

DHM, Inc.
1188 Bishop Street, Suite 2405
Honolulu, Hawaii 96813

Attention: Ms. Duk Hee Murabayashi

Subject: Noise Impact Evaluation for the Proposed Waikiki Landmark
Project, Waikiki, Oahu, Hawaii

Dear Ms. Murabayashi:

Following is the result of our noise impact study for the subject project:

I. Project Definition - Figure 1 shows the triangular shaped project site which is to have BMX zoning with 15% commercial and 85% condominium units. It is understood that the first two stories will be commercial consisting of retail shops and restaurants and that one or two centrally airconditioned towers with a maximum height of 320 feet will be involved for the condominium units. Also there will be parking spaces provided for about 650 vehicles.

II. Potentially Noise Sensitive Neighboring Locations - Figure 1 shows the closest neighboring locations that may experience noise impact during construction and from normal project operations. The most noise sensitive situations are single-loaded, high-rise apartment buildings designed to be naturally ventilated with lanais facing the project, e.g. the Royal Aloha and the Ala Wai Manor. The occupants of low-rise apartment buildings and centrally airconditioned high-rise buildings should experience considerably less noise impact from the project.

III. The Existing Noise Environment - The exterior noise levels at the neighboring buildings are primarily controlled by motor vehicles moving on Kalakaua Avenue; Ala Wai Boulevard, and McCully Street. Averaged noise level measurements made on January 4, 1988 in the mid-morning along the edge of the three roadways with the microphone about 6 feet above the ground ranged from 65 dBA to 70 dBA over a 10-minute period. Traffic counts including the mix of vehicles were also made during the noise

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E-1

DHM, Inc.
Attn: Duk Hee Murabayashi

January 5, 1988
Page 2

sample periods in order to validate the Federal Highway Administration's (FHWA) Traffic Noise Prediction Model (reference 1). Table I summarizes the comparison of the measured 10 minute Equivalent Noise Levels (L_{eq} [10 minutes]) with predicted hourly noise levels (L_{eq} [60 minutes]). The fact that the two values agree within about 2 dB for measurements made close to traffic that was not continuously flowing, and in the presence of reflecting surfaces, is considered acceptable. At the time of the measurements, there were no vehicles with sirens nor any caravans of tour buses moving on any of the three roadways as often happens from time-to-time in the project area.

Instrumentation used for the measurements included a Larson Davis Model 800B Sound Level Meter (SLM) and a General Radio Type 1562A SLM Calibrator.

Averaged noise levels over the same time period experienced by persons on the lanais of the high-rise buildings in the area would be somewhat greater due to more noise sources contributing with direct sound propagation paths to the listeners. For example, using the FHWA traffic noise model, it is predicted that during the noisiest hours of the day (the hours on each side of the p.m. peak when traffic can move freely) the average L_{eq} [60 minutes] on lanais in high-rises along Kalakaua Avenue will be about 70 dBA. Traffic noise levels from Ala Wai Boulevard on high-rises located across the canal are estimated as about L_{eq} [60 minutes] of 60 dBA during the noisiest hours. It is to be noted that traffic noise levels do not usually decrease at the lanais on the upper floors. The effect of longer propagation distances is offset by more traffic noise sources contributing directly without shielding to the total noise level at the listener's ears. In fact, studies (reference 2) have shown that traffic noise levels on the upper floors can be significantly greater than on the lower floors, sometimes increasing approximately 1 dB/floor up to about 18 floors.

Aircraft flyovers also contribute somewhat to the background noise in the area. During tradewind flight patterns from Honolulu International Airport (HIA) which occur about 95% of the time, there are typically about 100 propeller aircraft per day departing on flight tracks approximately

Table I
Comparisons of Predicted and Measured Traffic Noise Levels

Roadway	(feet) Distance to Center of Roadway	(dB) Measured L_{eq} [10 minutes]	(dB) Predicted L_{eq} [60 minutes]
Kalakaua Ave.	33	69.6	68.2
McCully Street	20	66.6	64.4
Ala Wai Blvd.	22	65.3	66.6

Note: Microphone was about 6' above the curb.
Measurements were made January 4, 1988;
8:30 a.m. to 10 a.m.

3,000 to 4,000 feet on either side of the project area. During times of Kona flight patterns (occurring about 5% of the time), a mix of heavy jet and propeller aircraft pass on approach flight tracks approximately 4,000 to 6,000 feet on either side of the project site. Although aircraft noise from HIA causes a day-night noise level (L_{dn}) of well less than 60 dB when averaged over a year at the project site; the noise from single aircraft events can often be heard during lulls in the traffic noise. Aircraft noise data is from reference 3.

Other noises heard in the project neighborhood were from people talking or shouting in the streets; mopeds and motorcycles; trash collection operations; loud amplified music from automobiles; and demolition/construction activities in the area.

IV. Traffic Noise Impact Caused by the Project - The project is predicted to cause an increase in traffic volumes on Kalakaua Avenue and McCully Street (reference 4). Table II shows the predicted ratios of the increased two-way traffic volumes caused by the project as well as the increase in traffic noise levels attributable to that traffic increase if the average vehicle speed and the mix of vehicles are the same upon project completion. From the table it can be seen that during the noisiest hours, the predicted traffic noise level increase is less than one decibel, except for about a two-decibel increase on the mauka portion of McCully Street.

Other considerations are that the proposed building (a.) will block (or shield) traffic noise from some of the distant roadways, and (b.) will tend to trap, or cause a reverberant noise buildup of sounds from the roadway in the space between an existing high-rise building and the new buildings. These effects are difficult to predict in detail and are dependent on the configuration of the new buildings. In general, it is believed that one effect may tend to counteract the other. For example, the FHWA traffic noise prediction model was used to predict the combined traffic noise levels on the 16th floor of the "Royal Aloha" from all three roadways. Presently, with the open space on the project site, it is estimated that the noisiest hour traffic noise level would be 65 dBA.

Table II

Predicted Two-Way Traffic Volume and Traffic Noise Level Increases *
Caused by the Project

Roadway	Two-Way Traffic Volume Increase Ratio	Traffic Noise Level Increase
Kalakaua Avenue	1.06	0.3 dB
McCully Street		
(a.) Mauka	1.54	1.8 dB
(b.) Makai	1.18	0.7 dB
Ala Wai Boulevard	1.0	0 dB

Note: Estimates for the noisiest hours of freely moving traffic before and after the p.m. peak.

Traffic mix assumptions: McCully and Ala Wai - Autos - 90%;
Medium Trucks - 6%; Heavy Trucks & Buses - 4%;
Kalakaua - Autos - 90%; Medium Trucks - 5%; Heavy Trucks
and Buses - 5%.

* These data are most applicable to listeners at ground level or on lanais at the 2nd to 3rd floors. The data do not take the effects of the new building structures into account.

In the future, the new high-rise development (using the hypothetical footprint as shown in Figure 1) would block noise from traffic on Kalakaua Avenue and Ala Wai Boulevard sufficiently that the noisiest hour traffic noise level would be 63 dB despite the increased traffic volumes.

However, this reduction in noise level may be overcome by the canyon-effect causing reverberant buildup of noise from McCully Street traffic. As cited in reference 5, it is presently beyond the state-of-the-art to reliably predict the urban noise problem. However, it is believed that the reverberant canyon-effect would probably add 2 to 3 dBA to the traffic noise levels - implying either none, or about one decibel, traffic noise increase at the "Royal Aloha" condominium. Thus, no significant traffic noise impacts should be caused by the project.

It is to be noted that many high-rise condo units facing the roads surrounding the project would be considered "Unacceptable" by the noise criteria of the Department of Housing and Urban Development (HUD) in reference 6 if naturally ventilated, second-floor bedrooms directly faced the traffic. The condo units in the new project will be centrally air-conditioned.

V. Equipment and Other Noises - The air-conditioning equipment; exhaust fans; the trash compactor; and any other stationary equipment on the project site will not exceed the allowable noise levels in references 7 and 8. Similarly, the design of the parking garage will be such that tire squeals and vehicle exhaust noises will not violate the regulations in reference 7.

VI. Noise from Commercial Tenant Operations - Trash pickup and delivery vehicles will be operated and scheduled to cause minimum disturbance to neighboring apartments if complaints arise. Minimally, these operations will meet the requirements in reference 7.

Proposed commercial uses will not cause "unreasonable" or "excessive" noise as defined in reference 7.

DHM, Inc.
Attn: Duk Hee Murabayashi

January 5, 1988
Page 5

VII. Noise Impact from Construction - Development of the project site will involve demolition, site preparation, and the construction of infrastructure and buildings. The various construction phases of a development project may generate significant amounts of noise; the actual amounts are dependent upon the methods employed during each stage of the process. Typical construction equipment noise ranges in dB(A) are shown on Figure 2. Pile-drivers; earthmoving equipment such as bulldozers; and diesel powered trucks will probably be the loudest equipment used during construction. Since it is anticipated that noise generated during construction will exceed allowable limits, in reference 7, a permit will be obtained from DOH. DOH may grant permits to operate vehicles, construction equipment, power tools, etc. which emit noise levels in excess of the allowable limits. Required permit conditions for construction activities are:

"No permit shall allow construction activities creating excessive noise...before 7:00 a.m. and after 6:00 p.m. of the same day."

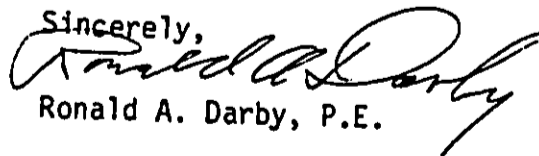
"No permit shall allow construction activities which emit noise in excess of ninety-five dB(A)...except between 9:00 a.m. and 5:30 p.m. of the same day."

"No permit shall allow construction activities which exceed the allowable noise levels on Sundays and on...[certain] holidays. Activities exceeding ninety-five dB(A) shall [also] be prohibited on Saturdays."

In addition, construction equipment and on-site vehicles or devices requiring an exhaust of gas or air must be equipped with mufflers. Also, construction vehicles using trafficways will satisfy the noise level requirements defined in reference 9.

VIII. Noise Mitigation Measures - The design of the facility will include noise mitigation measures in the planning of the location and orientation of the air-conditioning equipment, exhaust fans, the trash compactor and loading docks, such that local noise regulations (references 7 and 8) will be satisfied.

Encls.

Sincerely,

Ronald A. Darby, P.E.

		NOISE LEVEL (dBA) AT 50 FT					
		60	70	80	90	100	110
EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES	EARTH MOVING	COMPACTERS (ROLLERS)		H			
		FRONT LOADERS		—	—		
		BACKHOES		—	—	—	
		TRACTORS		—	—	—	
		SCRAPERS, GRADERS			—	—	
		PAVERS				H	
		TRUCKS			—	—	
EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES	MATERIALS HANDLING	CONCRETE MIXERS		—	—		
		CONCRETE PUMPS			H		
		CRANES (MOVABLE)		—	—		
		CRANES (DERRICK)				H	
EQUIPMENT POWERED BY INTERNAL COMBUSTION ENGINES	STATIONARY	PUMPS		H			
		GENERATORS		—	—		
		COMPRESSORS		—	—		
IMPACT EQUIPMENT		PNEUMATIC WRENCHES			—		
	JACK HAMMERS AND ROCK DRILLS			—	—		
	PILE DRIVERS (PEAKS)				—	—	
OTHER		VIBRATOR		—	—		
	SAWS		—	—			

Note: Based on Limited Available Data Samples

FIG. 2. CONSTRUCTION EQUIPMENT NOISE RANGES.
(from reference 9)

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2. "A Study of Noise in the Kalihi-Palama Area and Practical Sound Proofing for Housing", Prepared for the HCHA Model Cities Housing Development Corp., Honolulu, Hawaii, by Ronald A. Darby, March 26, 1971.
3. "Honolulu International Airport Master Plan Update and Noise Compatibility Program - Inventory of Existing Noise Mitigation Programs and Noise Map Information", Airports Division, State of Hawaii Department of Transportation, Draft, March 1987.
4. Phone conversation between R. Darby and H. Abe, December 28, 1987.
5. "Fundamentals and Abatement of Highway Traffic Noise", prepared for the Federal Highway Administration by Bolt Beranek and Newman, Inc., June 1973.
6. "Noise Abatement and Control", Department of Housing and Urban Development, 24 CFR 21, Part B, January 6, 1984.
7. "Chapter 43 - Community Noise Control for Oahu", Department of Health, State of Hawaii, Administrative Rules, Title 11, 1981.
8. "Section 3.100, Noise Regulations", Land Use Ordinance, City and County of Honolulu, October 22, 1986.
9. "Chapter 42 - Vehicular Noise Control for Oahu", Department of Health, State of Hawaii, Administrative Rules, Title 11, 1981.

Appendix F

WIND-TUNNEL TESTS:

**WAIKIKI LANDMARK
Honolulu, Hawaii**

**CPP Project
89-0585**

July 28, 1989

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LIST OF SYMBOLS

D	Characteristic dimension (building height, width, etc.)
n	Mean velocity profile power law exponent
q	Reference dynamic pressure, $\frac{1}{2}\rho U_R^2$
T_u	Turbulence intensity, U_{rms}/U
U	Local mean velocity
U_R	Reference velocity at height z_R
U_{rms}	Root-mean-square of fluctuating velocity
x, y	Horizontal coordinates
z	Height above surface
z_R	Reference height at which U_R is measured
ν	Kinematic viscosity of approach flow
ρ	Density of approach flow
$()_{max}$	Maximum value during data record
$()_{min}$	Minimum value during data record

Section 1
INTRODUCTION

Pedestrian acceptability of sidewalks, entrances, plazas, and terraces is often an important design parameter of interest to the building owner and architect. Assessment of the acceptability of the pedestrian-wind environment is desirable during the project design phase so that modifications can be made, if necessary, to improve areas found to be excessively windy. Analytical methods are not available, except in very simple geometries, to estimate the windiness in pedestrian areas.

Techniques have been developed which permit boundary-layer wind-tunnel modeling of proposed buildings to determine wind velocities in pedestrian areas. This report includes wind-tunnel test procedures, test results, and a discussion of test results obtained in the CERMAK PETERKA PETERSEN, INC. (CPP) Wind Engineering Laboratory shown in Figures 1 and 2.

Section 2

THE WIND-TUNNEL TEST

Modeling of the wind patterns around a structure requires special consideration of flow conditions to obtain similitude between the model and the prototype. A detailed discussion of the similarity requirements and their wind-tunnel implementation can be found in References 1, 2, and 3. In general, the requirements are that the model and prototype be geometrically similar, that the approach mean velocity at the model building site have a vertical profile shape similar to the full-scale flow, and that the Reynolds number for the model and prototype be equal.

These criteria are satisfied by constructing a scale model of the structure and its surroundings and performing the tests in a wind tunnel specifically designed to model atmospheric boundary-layer flows. Reynolds number similarity requires that the quantity UD/ν be similar for model and prototype. Since ν , the kinematic viscosity of air, is identical for both, Reynolds numbers cannot be made equal with reasonable wind velocity, for such a velocity would introduce unacceptable compressibility effects. However, for sufficiently high Reynolds number ($>2 \times 10^4$) the pressure coefficient at any location on the structure will be essentially constant for a large range of Reynolds numbers. Typical values encountered are $10^7 - 10^8$ for the prototype and $10^5 - 10^6$ for the model. In this range acceptable flow similarity is achieved without Reynolds number equality. All model tests reported herein were performed at a sufficiently high velocity to maintain Reynolds number independence.

The wind-tunnel test was performed in the boundary-layer wind tunnel shown in Figure 2. This wind tunnel has a 70-ft-long test section covered with roughness elements to reproduce at model scale the atmospheric wind characteristics required for the model test. The wind tunnel has a flexible roof, adjustable in height, to

maintain a zero pressure gradient along the test section and to minimize blockage effects.

A model of the building under study was constructed of styrofoam at a scale of 1:300 which was consistent with the modeled atmospheric flow and which was within wind-tunnel blockage limitations.

Other buildings or terrain features located nearby can have an important influence on wind pressure loads. Consequently, the surrounding area was modeled in detail to a radius of 1,400 ft using styrofoam and wood for buildings. The model and surrounding buildings were mounted on the turntable located near the downstream end of the wind-tunnel test section. The turntable permitted rotation of the modeled area for examination of velocities from many approach wind directions. The model installed in the wind tunnel is shown in Figure 3.

The wind-tunnel floor upstream from the modeled area was covered with roughness elements constructed from cubes. Different sized cubes represent various types of roughness upwind of the project site, so that different sets of roughness may be used for different approach wind directions. Spires and a low barrier were installed in the test section entrance to provide a thicker boundary layer than would otherwise be available, permitting a somewhat larger scale model. The spires, barrier and roughness were designed to provide a modeled atmospheric boundary layer approximately 4 ft thick, a mean velocity power law exponent similar to that expected to occur in the region approaching the modeled area for each wind direction (a number of wind directions may have the same approach roughness), and a turbulence structure in the modeled atmospheric boundary layer similar to that expected in the full-scale wind. The approach wind characteristics used for the model test are shown in Figure 4 and are explained more fully in Section 3.2.

At the beginning of the test, a flow visualization study was made using smoke to make the wind currents visible, to observe flow patterns, and to identify regions where local flow features might cause high pressures on the building curtainwall or

produce pedestrian discomfort. Photographs of flow visualization are presented in Figure 3 and are explained in more detail in Sections 3.1 and 4.1.

Velocity data was obtained in pedestrian areas and other locations of interest for 16 approach wind directions. Velocity data was processed in an on-line computer and combined with climatological wind records to predict local wind environment in pedestrian areas. Details for this procedure are provided in Sections 3.2.

Section 3

DATA ACQUISITION AND RESULTS

3.1 Flow Visualization

Observing air flow about the model using smoke is helpful in indicating area where pedestrian winds may be particularly high or low. Titanium dioxide smoke was released from sources on and near the model to make the flow lines visible to the eye and to make it possible to obtain photographic records of the tests. Several photographs of the flow visualization appear in Figure 3. A videotape of selected highlights was also made and sent to the sponsor separately from this report. Conclusions obtained from these smoke studies are discussed in Section 4.1.

3.2 Velocities

Velocity profile measurements were taken to verify that appropriate boundary layer flow approaching the site was established and to characterize the effect of surrounding buildings. Profile measurements are described below. Velocity measurements were also made to determine the climate around the test site that pedestrians are likely to experience. Pedestrian wind measurements and analysis are described in Section 3.2.2. All velocity measurements were made with the hot-film anemometer, which is discussed in Section 3.2.3.

3.2.1 Velocity Profiles. Vertical profiles of mean velocity and longitudinal turbulence intensity were measured upstream of the model to ensure that an approach boundary-layer flow appropriate to the site had been established. Profiles were also obtained at the building site with the test building removed to show the influences of surrounding buildings.

Mean velocity and turbulence intensity profiles for the boundary layer flow approaching the model and at the building site are shown in Figure 4. The mean velocity profile approaching the modeled area has the form

$$U/U_R = (z/z_R)^n$$

in which U is the mean velocity at height z , U_R is a reference wind speed at reference height z_R at which the Pitot-static probe was mounted in the wind tunnel, and n is a constant which depends on the characteristics of the upstream roughness.

Profiles of longitudinal turbulence intensity in the flow approaching the modeled area and at the building site are also shown in Figure 4. The turbulence intensities are appropriate for the approach mean velocity profile selected.

3.2.2 Pedestrian Winds. Wind speed measurements were made at a number of selected locations in order to evaluate pedestrian comfort around the project site. Mean (average) velocity and turbulence intensity measurements were made 5 to 7 ft (full-scale) above the surface for 16 wind directions each.

The measurement locations are shown in Figure 5. Locations were chosen to determine the degree of pedestrian comfort or discomfort at the building corners where relatively severe conditions frequently are found, near building entrances and on adjacent sidewalks with heavy pedestrian traffic, and in open plaza areas. One or more reference pedestrian positions, located near the project site, were also tested.

Velocity data obtained at each of the pedestrian measurement locations shown in Figure 5 are listed in Table 1 as mean velocity U normalized by the tunnel reference velocity U_R , as turbulence intensity (a measure of wind gustiness) U_{rms}/U , and as the largest normalized effective peak gust

$$T_U = U_{rms}/U$$

As an aid in identifying high velocity areas, the last page for each configuration of Table 1 shows the 15 largest values of the mean velocity ratio U/U_R , turbulence intensity U_{rms}/U_R , and effective peak gust U_{pk}/U_R measured during the pedestrian wind analysis. Also shown for comparison are typical values of mean, rms and peak velocities for an open-country environment such as an airport or large open field. Mean velocity percentages above 70 are quite high. High mean velocities for 3 to 5 or more approach wind azimuths for one location may indicate a highly windy environment. Values of U_{rms} are of concern if they are above 25 percent of U_R -- especially if accompanied by a large mean velocity. Peak gusts, represented by $(U + 3U_{rms})/U_R$, in Table 1 can be considered as very large if above 115-120 percent of U_R . Further comments on the data in Table 1 are presented in Section 4.2.

The mean and peak velocities relative to the tunnel reference velocity listed in Table 1 are plotted in polar form in Figure 6. The graphs show velocity magnitude and the approach wind direction for which that velocity was measured. The polar plots aid in visualization of the effects of the nearby structures.

To enable a quantitative assessment of the wind environment, the wind-tunnel data were combined with wind frequency and direction information obtained at a local airport. Table 2 shows wind frequency by direction and magnitude obtained from summaries published by the National Weather Service. These data, usually obtained at an elevation of about 20-40 ft, were combined statistically with the wind-tunnel data of Table 1 to obtain cumulative probability distributions of wind speed for the full-scale site at each pedestrian measurement location.

From the cumulative wind speed distributions, wind speeds at each location that are exceeded 10 percent and 1 percent of the time from all directions combined are shown in Figure 7. Both mean speeds U_R and effective peak gusts U_{pk} are shown. Interpretation of these wind levels can be aided by the description of the effects of wind of various magnitudes on people. The earliest quantitative description of wind effects was established by Sir Francis Beaufort in 1806 for use at sea and is still in use today [4]. The Beaufort scale from Reference 4 is based on mean velocity only and

is reproduced in Table 3 including qualitative descriptions of wind effects. Table 3 suggests that mean wind speeds below 12 mph are of minor concern and that mean wind speeds above 24 mph are definitely inconvenient.

Several recent investigators (Melbourne [5], Hunt *et al.* [6], Lawson and Penwarden [7], Penwarden and Wise [4] and Davenport [8]) have added to the knowledge of wind effects on pedestrians by suggesting criteria for acceptance. Because pedestrians will tolerate higher wind speeds for a smaller period of time than for lower wind speeds, these criteria provide a means of evaluating the overall acceptability of a pedestrian location. Also, a location can be evaluated for its intended use, such as for an outdoor cafe or a sidewalk.

Table 4, the major result of the pedestrian wind analysis, indicates the results of comparisons to the five sets of acceptability criteria [4-8] referenced above. Each set of criteria places a location into one of several categories, depending on the windiness of the location, as shown in the key of Table 4. Conclusions based on Table 4 are discussed in Section 4.2.

All of the criteria are subjective in nature, and no criteria has universal acceptability among practitioners. The criteria of Melbourne [5] tends to be more restrictive than the others, while those of Lawson and Penwarden [7] and Davenport [8] are more lenient. Penwarden and Wise [4], intend only to show when remedial action may be necessary to correct extreme situations and do not differentiate between walkways and plaza areas.

The use of mean and peak velocities varies among the five criteria. Penwarden and Wise [4] and Davenport [8] are based strictly on mean velocities, while Melbourne [5] specifies only peak gusts. Thus, the various criteria can reach different conclusions for a location depending on the relative level of gustiness. In addition, the exact definition of peak gusts differs among the criteria. For all criteria in Table 4, peak gusts were recalculated according to the original definitions of the criteria authors.

Because some pedestrian wind measurement positions are purposely chosen at sites where the smoke tests showed large velocities of small spatial extent, the general wind environment about the structure may be less severe than one might infer from an analysis only of Table 4. Discussion of the implications of Table 4 appears in Section 4.2.

3.2.3. Velocity Measurement Methods. Wind profile measurements were made using a single hot-film anemometer mounted on a computer-controlled vertical traverse, and oriented horizontally transverse to the flow. Velocity measurements were made with several hot-film anemometers which were mounted with their axes oriented vertically. The instruments used were TSI, Inc. constant-temperature anemometers (Model 1053b) with 0.002-inch diameter platinum-film sensing elements. Output was directed to the on-line data acquisition system for analysis.

Calibration of the hot-film anemometers was performed by comparing output with the Pitot-static probe in the wind tunnel. The calibration data were fit to a variable-exponent King's Law relationship. Turbulence intensities were calculated from

$$T_u = U_{rms}/U$$

For ease of interpretation, all turbulence measurements for pedestrian winds were divided by the tunnel reference mean velocity U_R near the top of the boundary layer. Turbulence intensity in velocity profile measurements, however, used the local mean velocity as a normalization reference for comparison against known field cases.

Section 4

DISCUSSION

The primary objectives of this investigation were the following:

1. Determination of changes in pedestrian-level wind climate over areas surrounding the **WAIKIKI LANDMARK** site
2. Determination of pedestrian-level wind climate at principal locations of pedestrian activity on the constructed **WAIKIKI LANDMARK** site
3. Evaluation of acceptability in terms of pedestrian comfort with recommendations for allocation of unacceptable wind speeds

These objectives were achieved by physical modeling in a wind tunnel using a 1:300 scale model of **WAIKIKI LANDMARK** and all buildings within a 1,400-ft radius of the site. Flow visualizations by injection of a chemical smoke with and without **WAIKIKI LANDMARK** in place were recorded on videotape to give a qualitative record of overall wind patterns before and after the project is constructed. Measurements of mean and peak gust wind speeds were made at 24 locations without **WAIKIKI LANDMARK** in place and at 39 locations with the **WAIKIKI LANDMARK** present. These data provide quantitative information which, when coordinated with meteorological data for Honolulu, enable all three objectives to be addressed.

4.1 Flow Visualization

The smoke visualized flow shows that wind speeds over *areas surrounding* the **WAIKIKI LANDMARK** will be affected primarily downwind of the building. Since the building presents an obstacle to the wind, flow is accelerated around the building to create a wake with winds of increased speeds and gustiness downwind from the corners. However, the leeward area downwind of the building is shielded and winds of lower speed and gustiness are observed.

At locations such as corners at ground level, garage roofs and balconies of the constructed project, wind speeds are seen to be greatest for wind directions in which accelerated flow around a corner or over a roof or balcony passes over a particular location. These flow features may be observed by viewing the videotape which complements this report.

4.2 Pedestrian Wind Measurements

Measurements of mean and peak gust wind speeds at a height of 5-7 ft above the surface were made at 39 locations with the WAIKIKI LANDMARK in place (Configuration A) as shown in Fig. 5a. Without the WAIKIKI LANDMARK in place (Configuration B) measurements were made at 24 locations which are identified by Fig. 5b. Figures 6a-g and 6h-k present polar plots of the mean and peak gust data (referenced to U_R the mean wind speed at 900 ft above ground over Honolulu) at each measurement location for Configuration A and B, respectively. These plots reveal the manner in which wind speed at a particular location varies with wind direction over the city. Data for these graphs are presented in Tables T1-1 through T1-13. Figures 7a-b and 7c integrate the meteorological data for Honolulu International Airport (see Table 2) with the wind-tunnel data to give mean and peak gust wind speeds that will be exceeded 1% and 10% of the time for Configurations A and B, respectively. These graphs provide the most useful data presentation for evaluating changes in wind climate for the surrounding area by construction of WAIKIKI LANDMARK as well as local wind climate on and near the WAIKIKI LANDMARK itself. Table 3 gives some typical wind effects on people for various increments of mean wind speed. Generally, mean wind speeds in excess of 30 mph will cause pedestrian discomfort. Various proposed criteria for evaluating the impact of wind on pedestrians are used in Table 4 to classify the wind climate for each location for Configuration A and B. For the warm climate of Honolulu CPP recommends classification in accordance with the criteria of Isyumov and Davenport (1975).

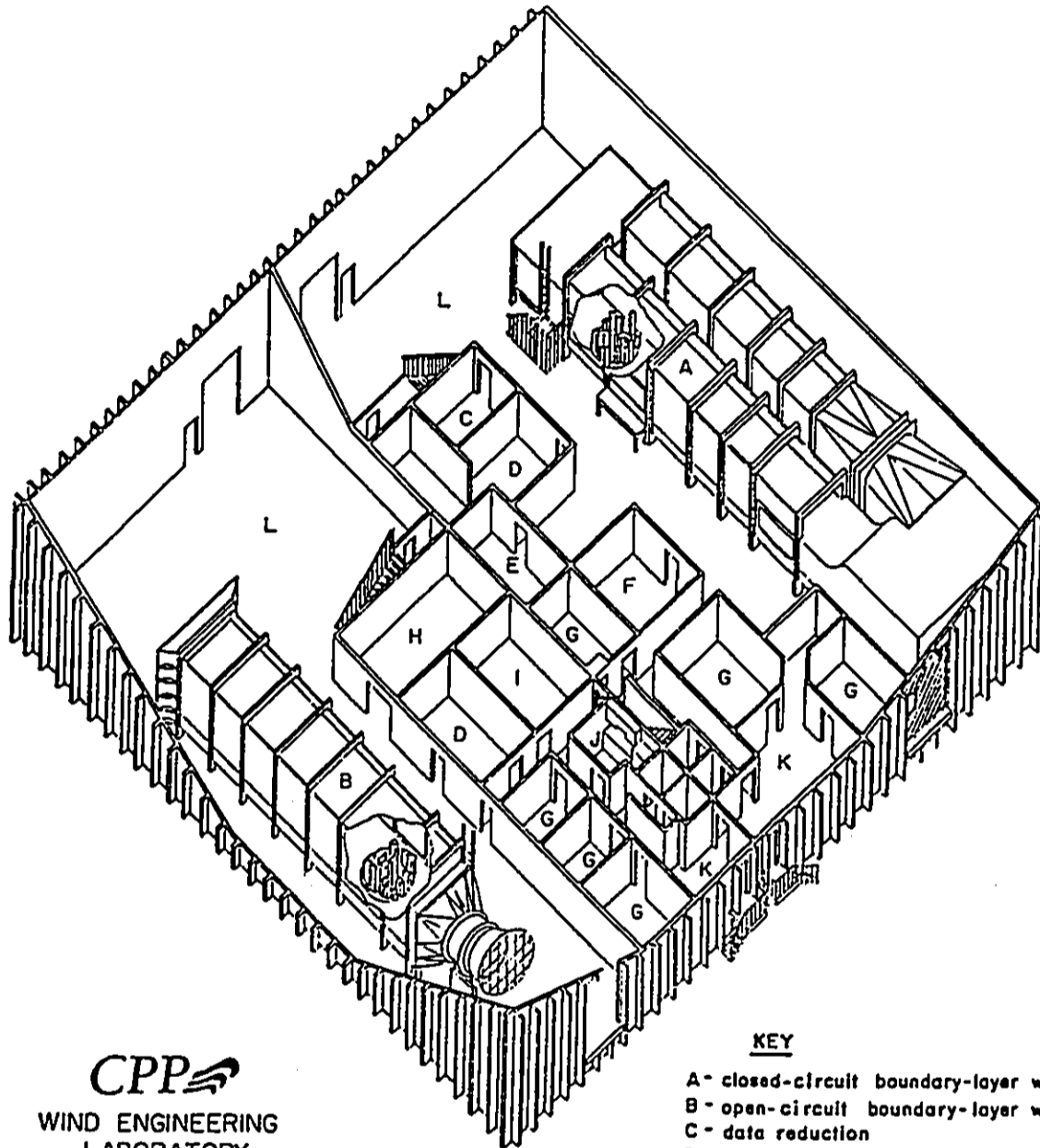
Evaluation of changes in pedestrian-level *wind speeds over areas surrounding the WAIKIKI LANDMARK* can be made by comparing wind speeds for locations 1-16 for Configurations A and B. Wind speed changes over the canal are given by data

for locations 1-6. Figures 7a and 7c show that wind speeds exceeded 1% of the time are essentially unchanged for locations 1-3 when the WAIKIKI LANDMARK is in place. On the other hand wind speeds exceeded 1% of the time show a modest increase at locations 4-6 when the WAIKIKI LANDMARK is in place—a maximum increase of 25% for the mean wind speed and 30% for the peak gust. However, Table 4 shows that the wind speeds at these locations are in the acceptable category according to the Isyumov-Davenport criteria. For the set of locations 8-16 wind speeds at only locations 10, 13 and 16 will be increased when the WAIKIKI LANDMARK is constructed. At location 10 Figures 7a and 7c show that the mean wind speed exceeded 1% of the time will be doubled and increased about 25% of the time for locations 13 and 16. The peak gust speed at locations 10, 13 and 16 will be increased by about 50%. The criteria of Isyumov and Davenport (Table 4) show these locations to be acceptable as walkways. For none of the locations 1-16 will a mean wind speed of 20 mph be exceeded more than 1% of the time. In summary, changes in wind speeds over surrounding areas will be acceptable when the WAIKIKI LANDMARK is constructed.

Examination of *pedestrian-level wind speeds over the WAIKIKI LANDMARK* reveals that four locations 30, 32, 33 and 36 have unacceptable wind speeds according to criteria of Isyumov and Davenport (Table 4). Of these locations, the area represented by location 33 is of greatest concern because of the intended use for swimming. Here the mean wind speed will exceed 31 mph 1% of the time and 22 mph 10% of the time. Peak gusts at this location will exceed 54 mph 1% of the time and 42 mph 10% of the time. Accordingly, remedial measures must be taken to permit satisfactory use of this area as planned. Previous experience of CPP in such cases suggests that the architectural addition of wind screens can provide an effective solution. Development of an effective wind-screen configuration will require wind-speed measurements for various configurations which are aesthetically and economically acceptable.

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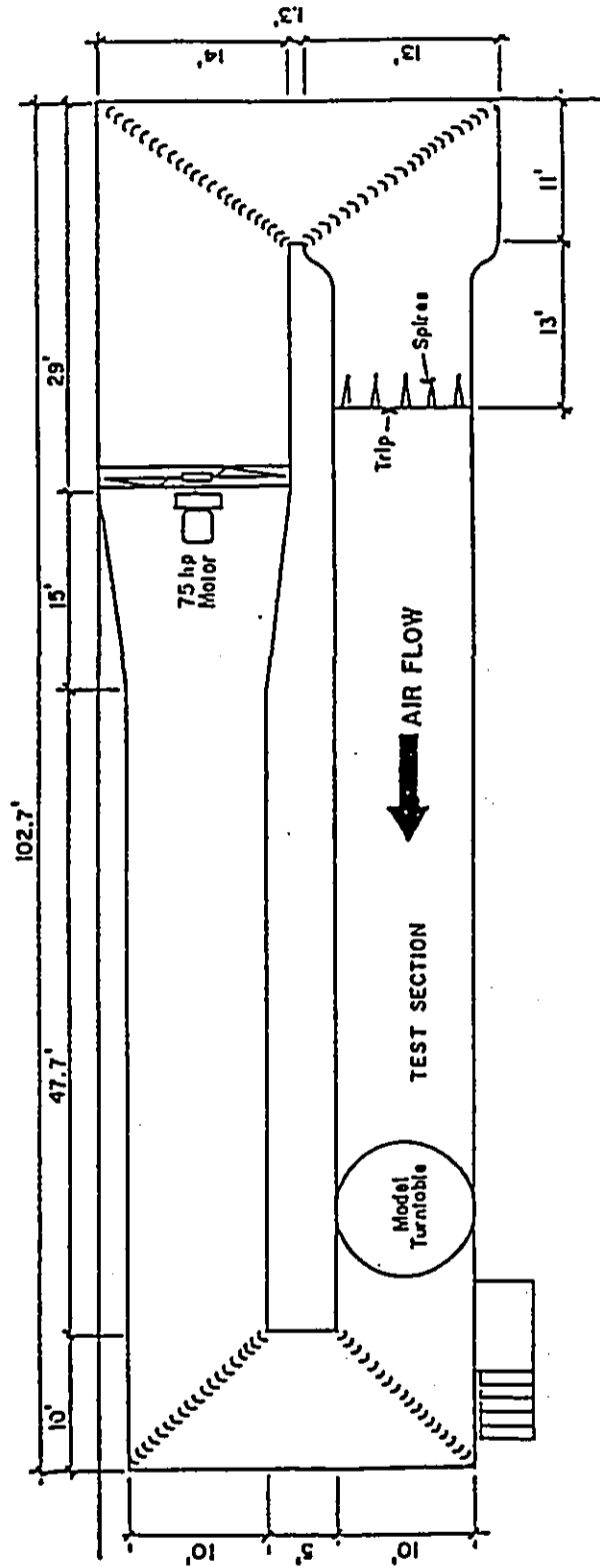


CPP
WIND ENGINEERING
LABORATORY

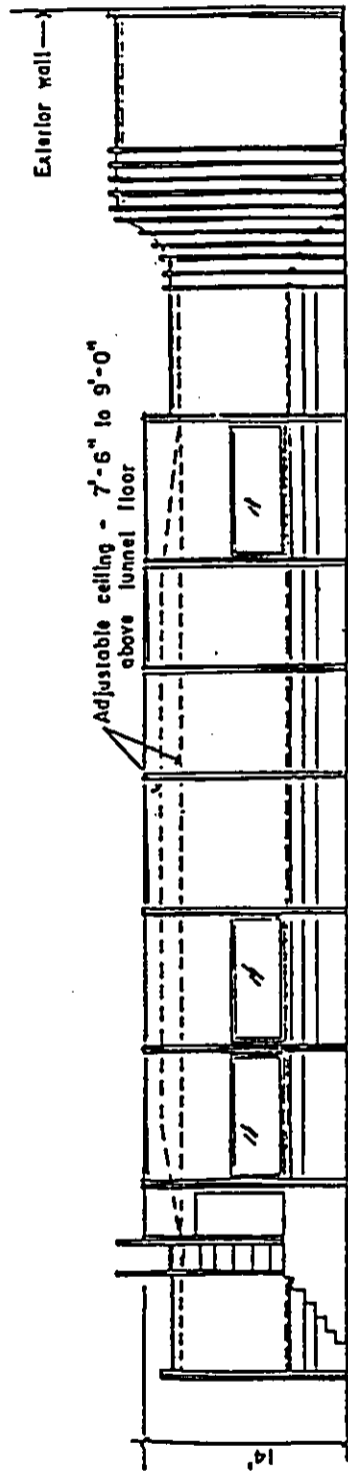
KEY

- A - closed-circuit boundary-layer wind tunnel
- B - open-circuit boundary-layer wind tunnel
- C - data reduction
- D - computer room
- E - instrumentation room
- F - model technicians
- G - office
- H - machine shop
- I - conference room
- J - lounge
- K - reception area
- L - work area

Figure 1 Wind-engineering Laboratory



Plan View



Elevation View

Figure 2 Closed-circuit Boundary-layer Wind Tunnel

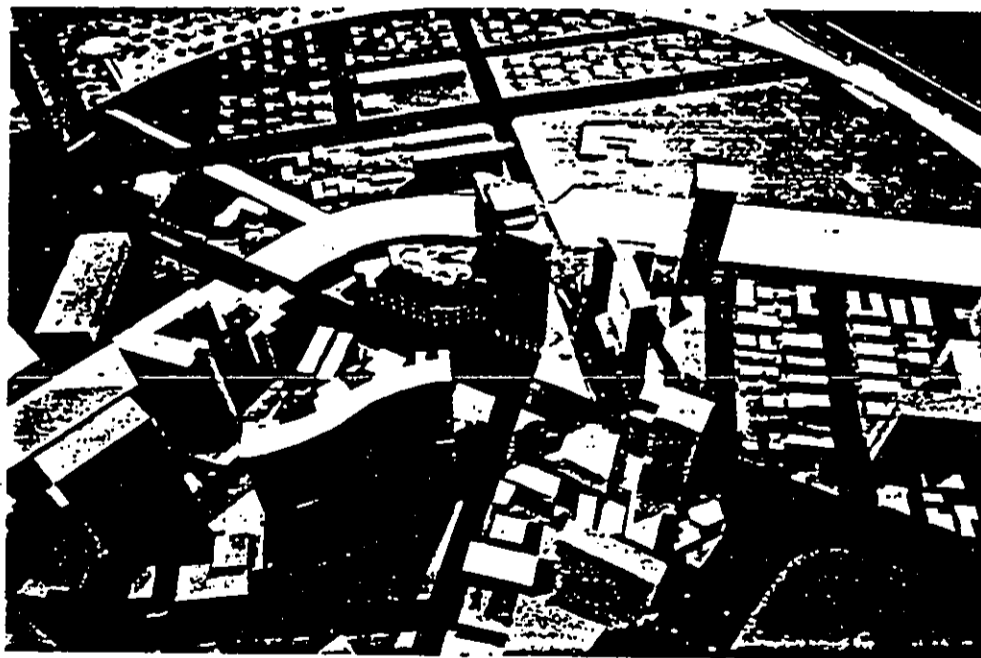
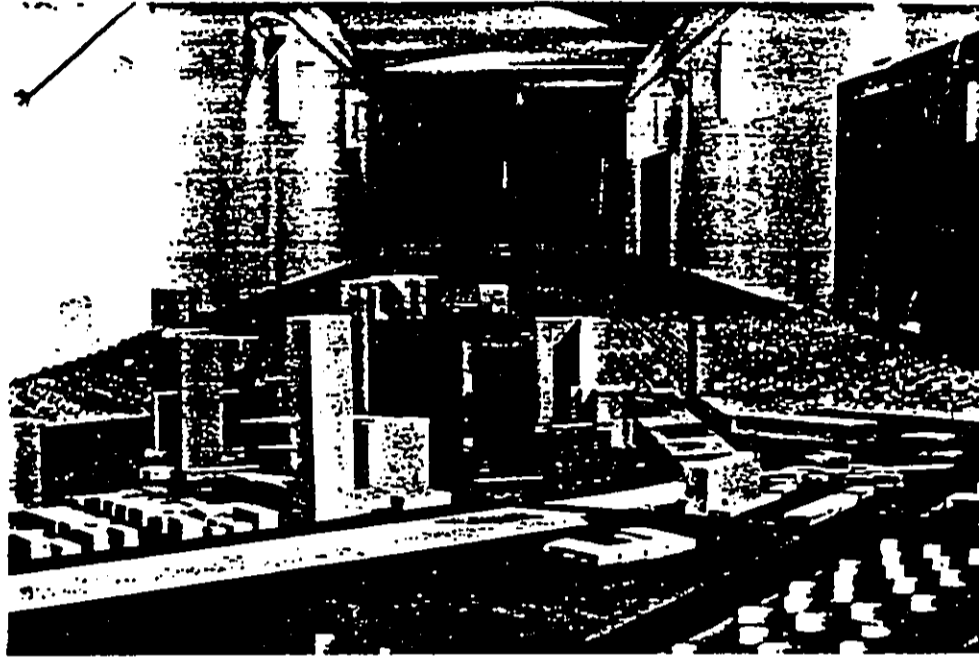


Figure 3 Completed Model in Wind Tunnel

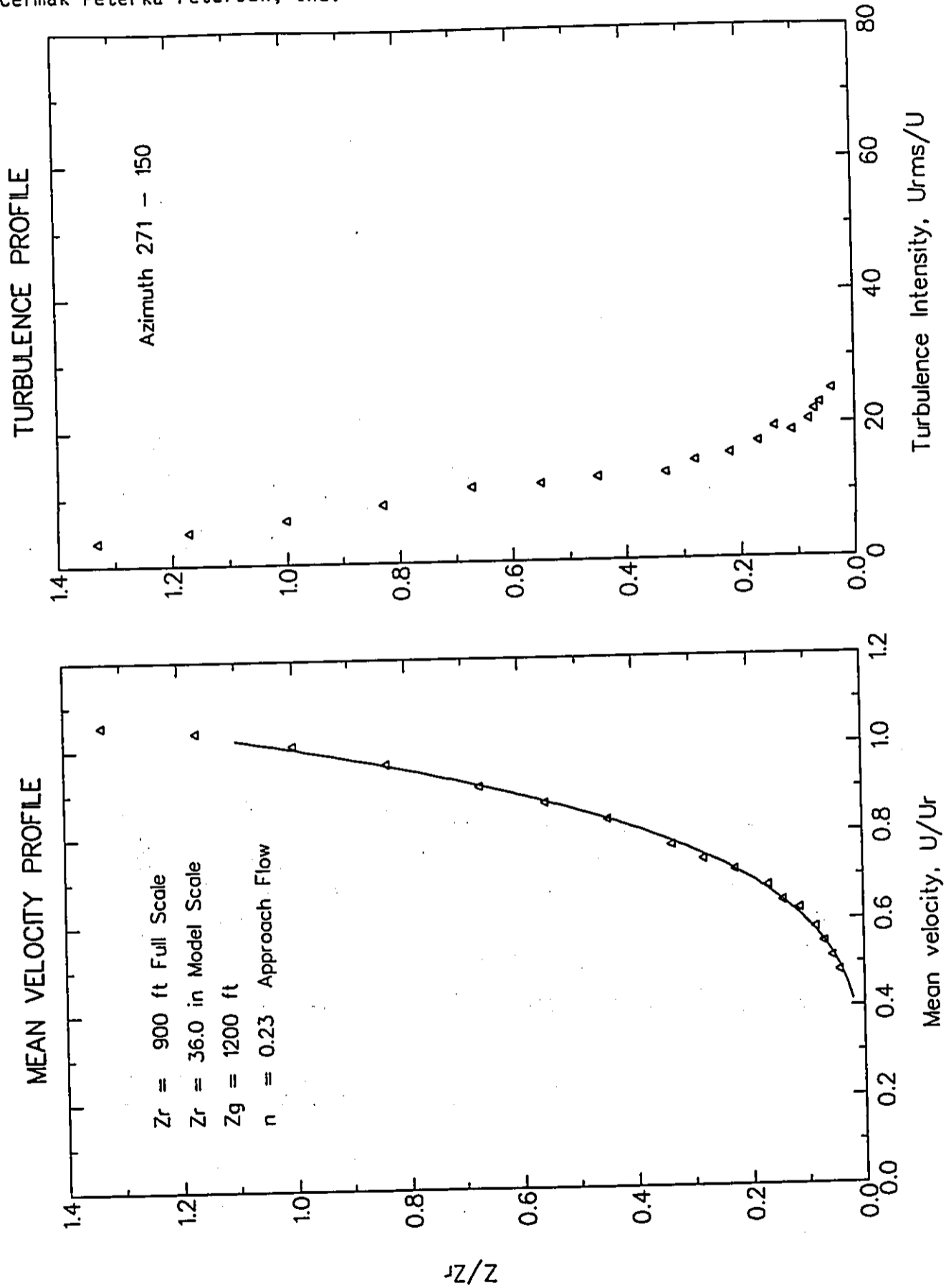


Figure 4a Mean Velocity and Turbulence Profiles Approaching the Model and at the Building Site

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

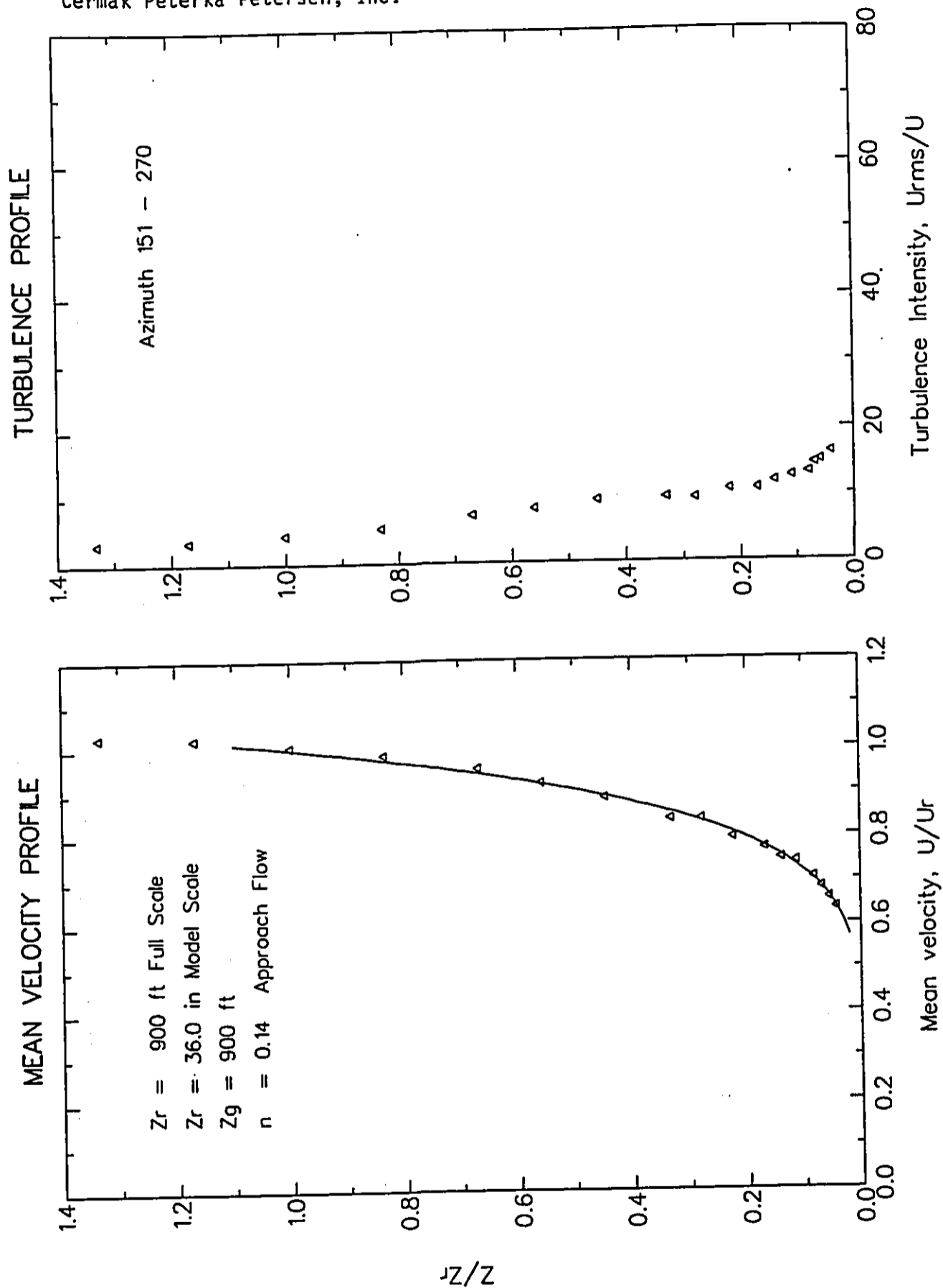


Figure 4b Mean Velocity and Turbulence Profiles Approaching the Model and at the Building Site

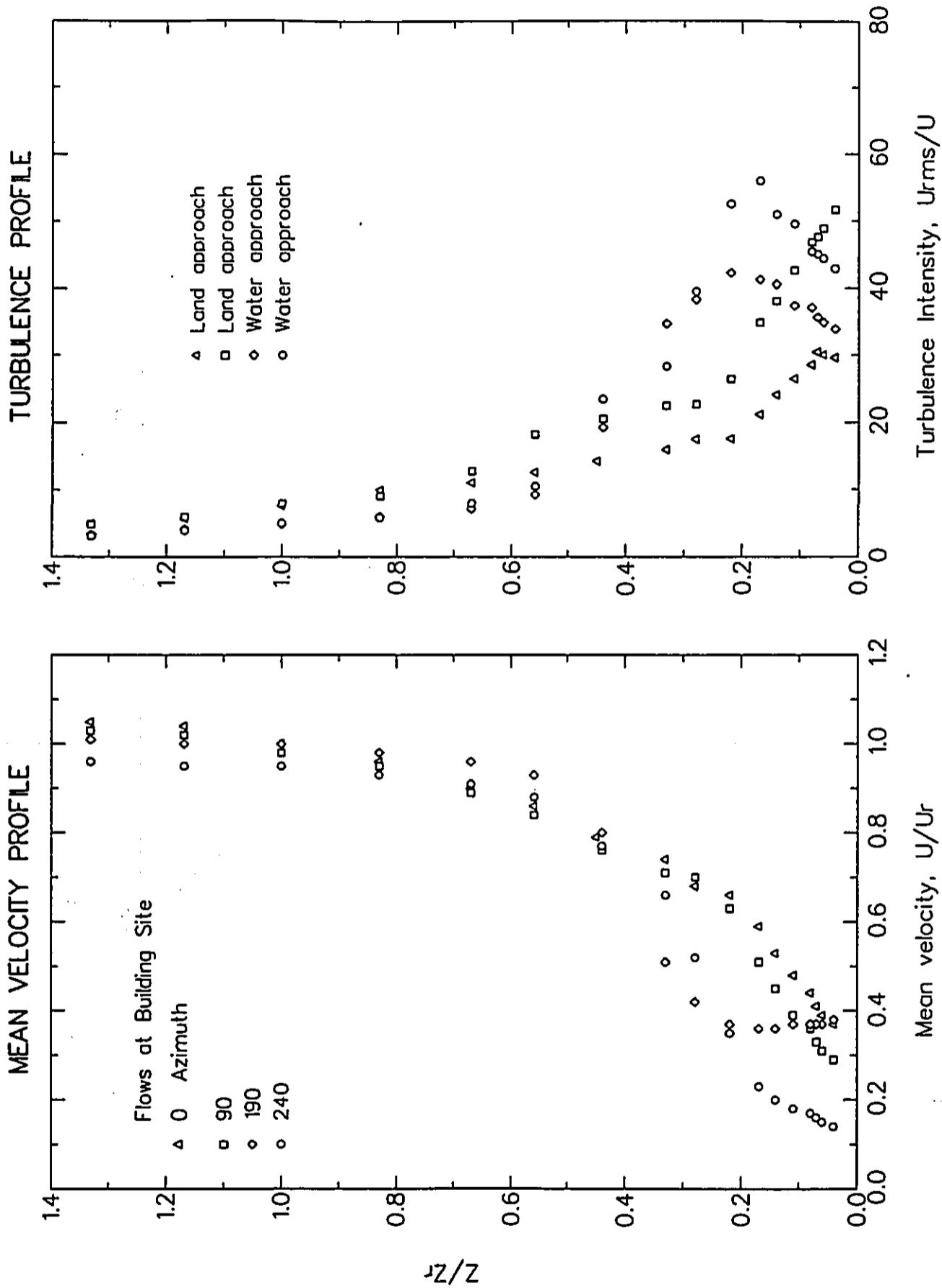


Figure 4c Mean Velocity and Turbulence Profiles Approaching the Model and at the Building Site

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

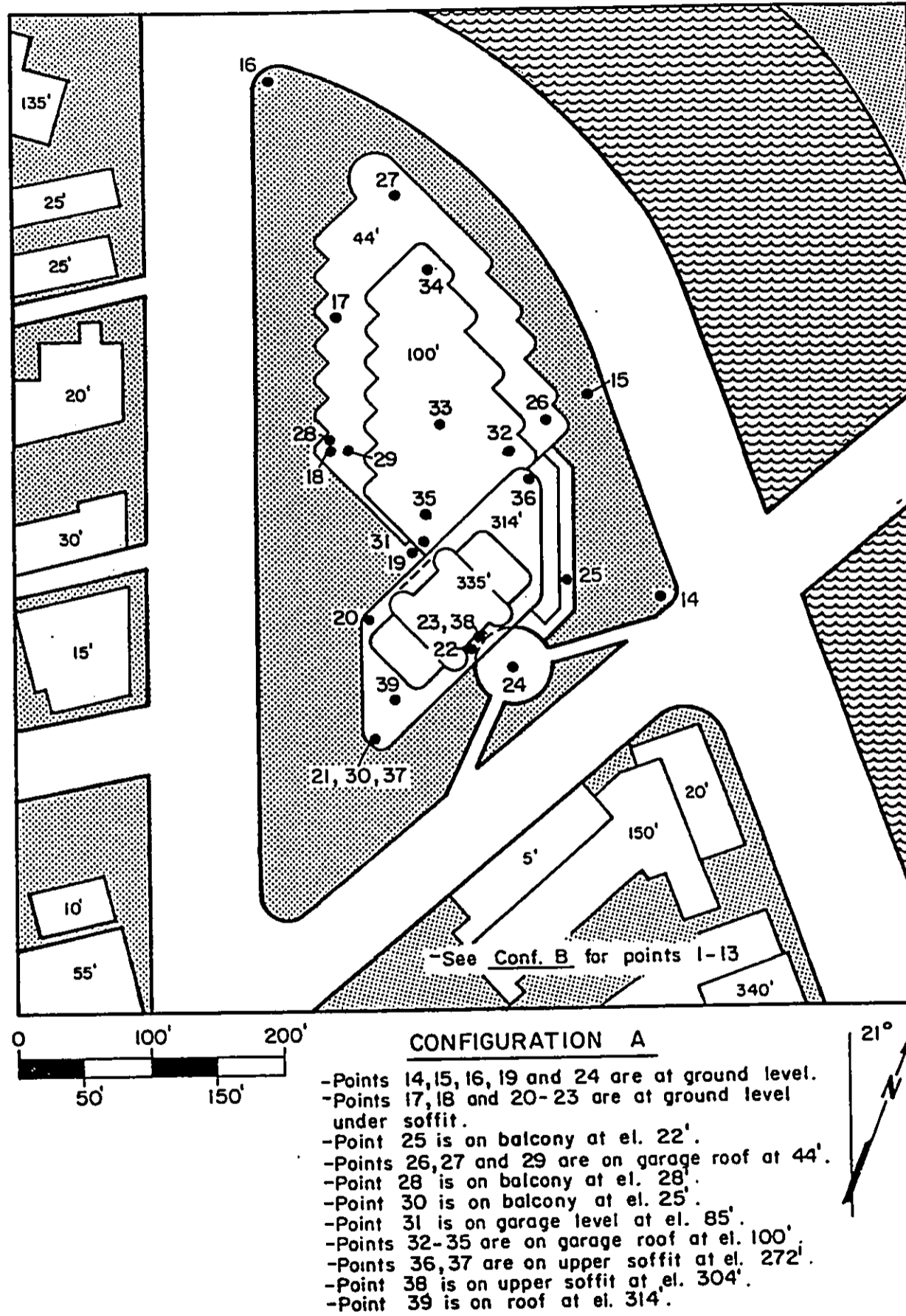


Figure 5a Building Locations and Pedestrian Wind Velocity Measurement Positions

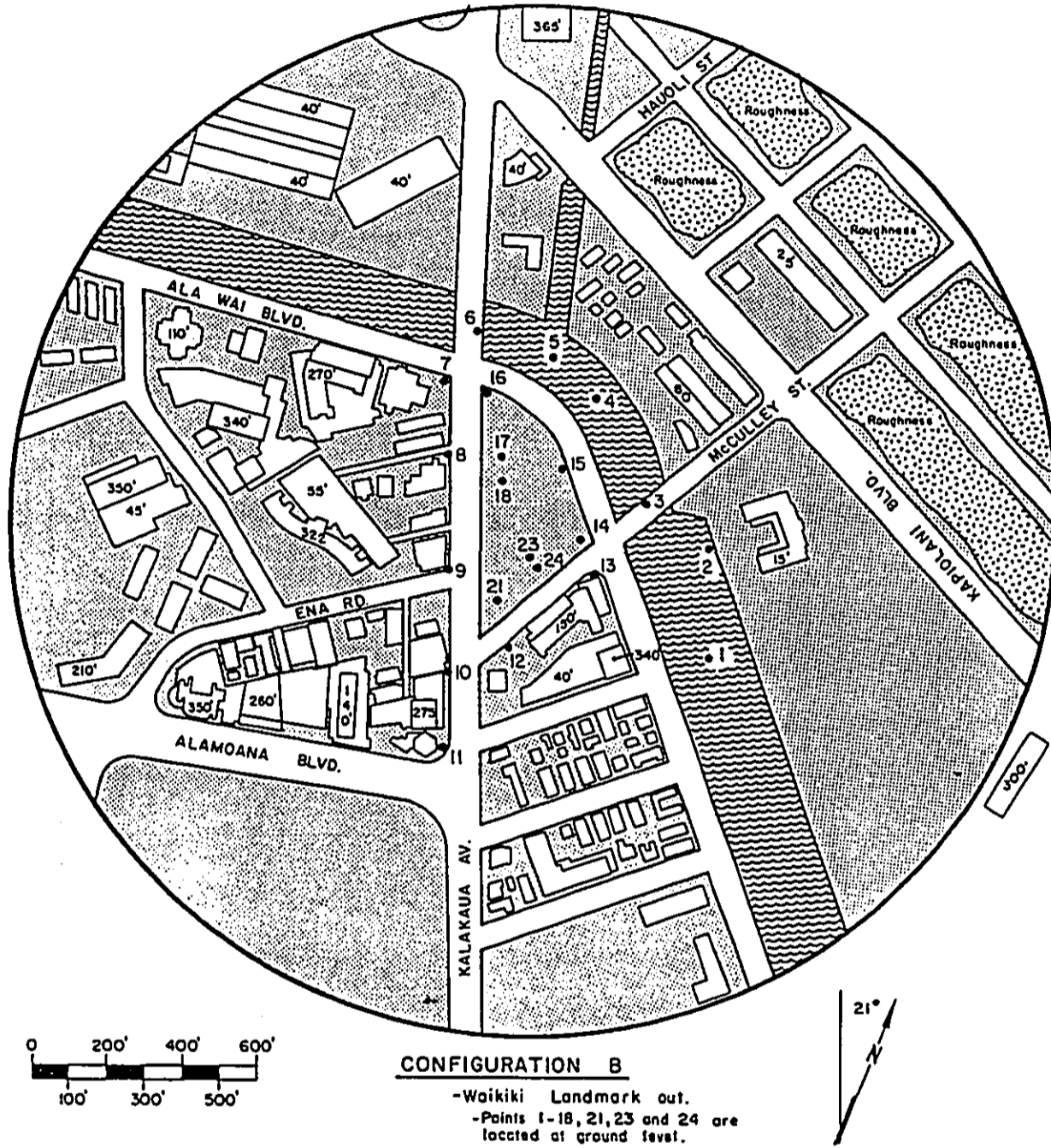


Figure 5b Building Locations and Pedestrian Wind Velocity Measurement Positions

Waikiki Landmark
Conf A - Waikiki Landmark in. with area model

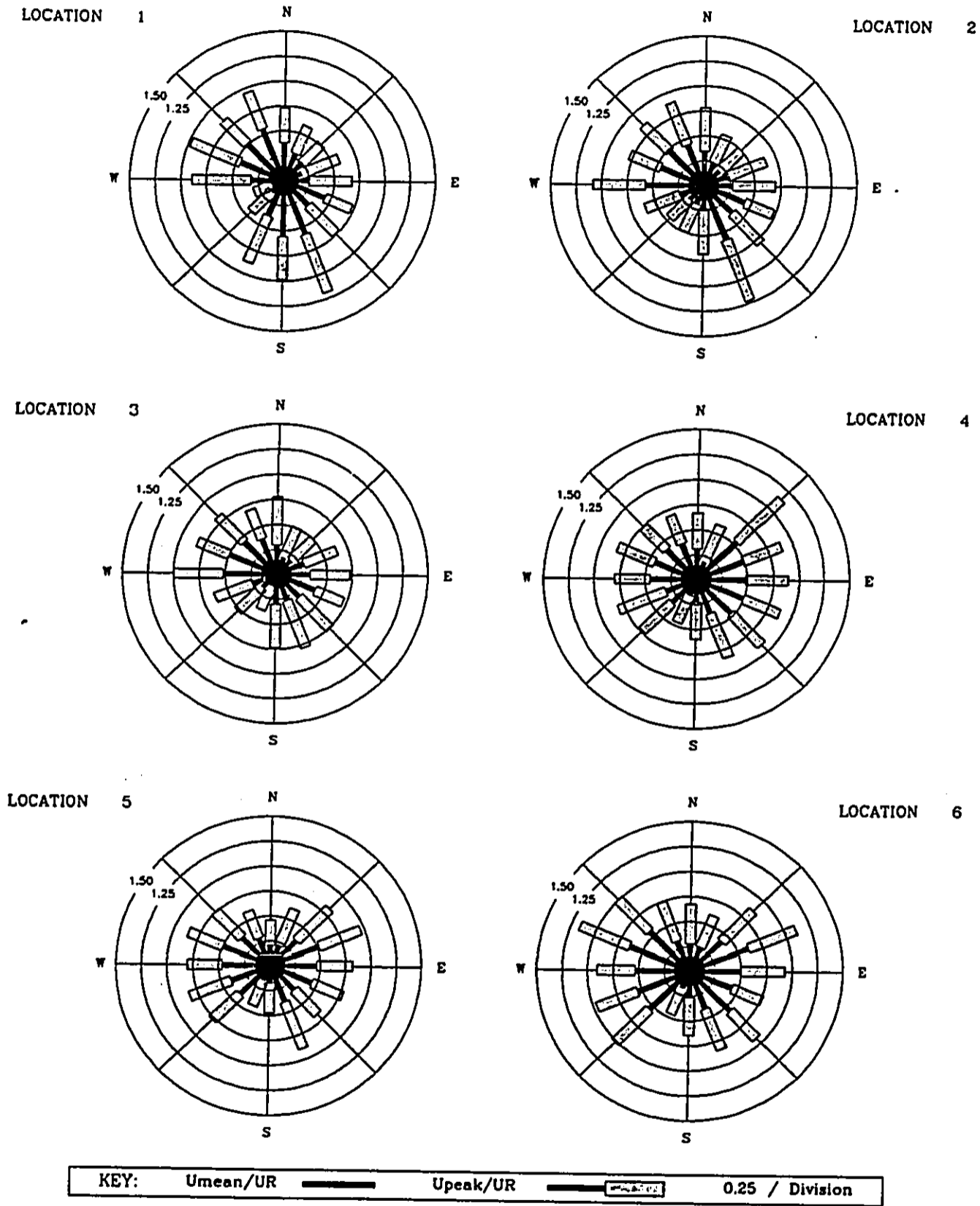


Figure 6a Non-dimensional Mean Velocities and Peak Gusts at Pedestrian Locations

Waikiki Landmark
Conf A - Waikiki Landmark in. with area model

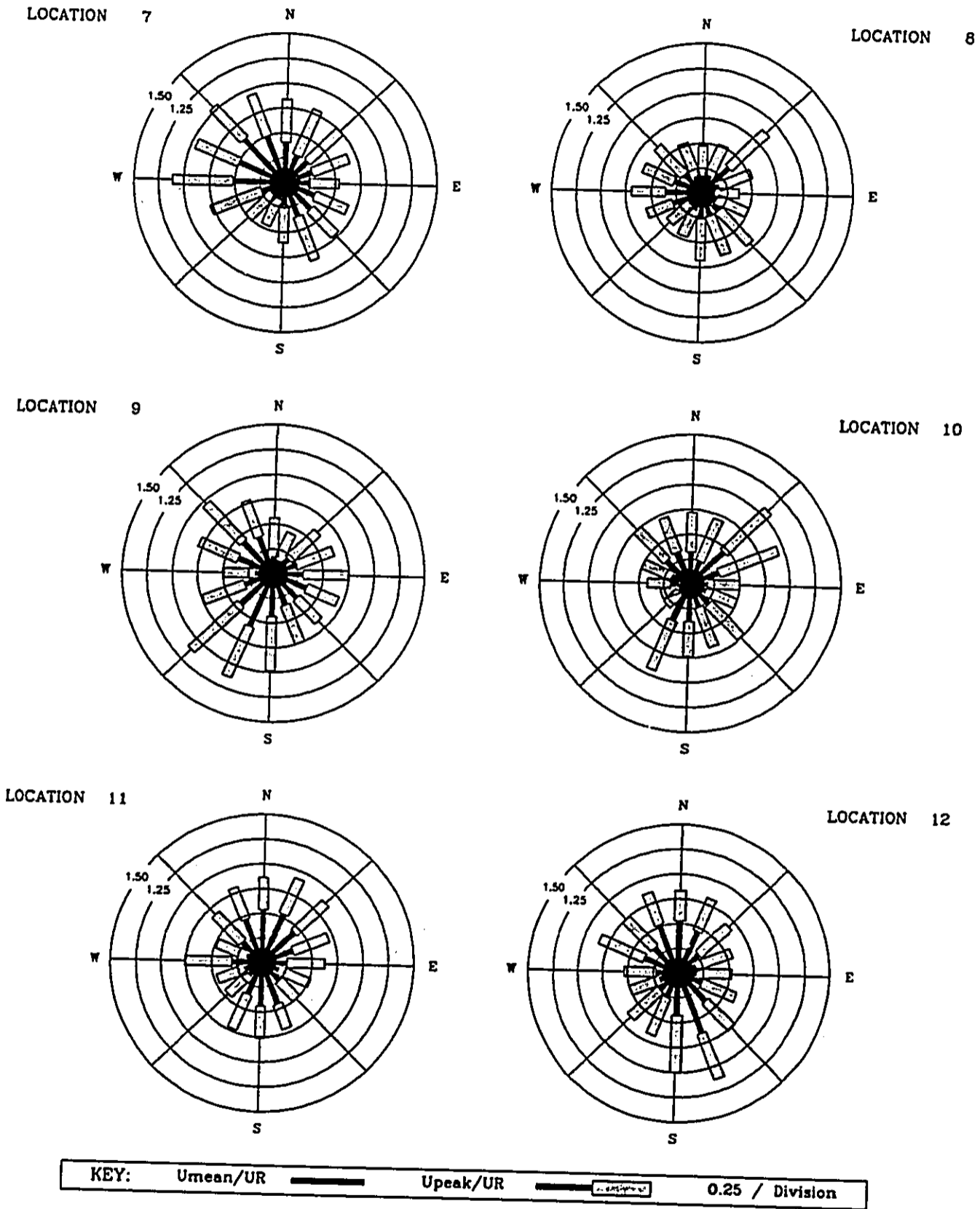


Figure 6b Non-dimensional Mean Velocities and Peak Gusts at Pedestrian Locations

Waikiki Landmark
Conf A - Waikiki Landmark In. with area model

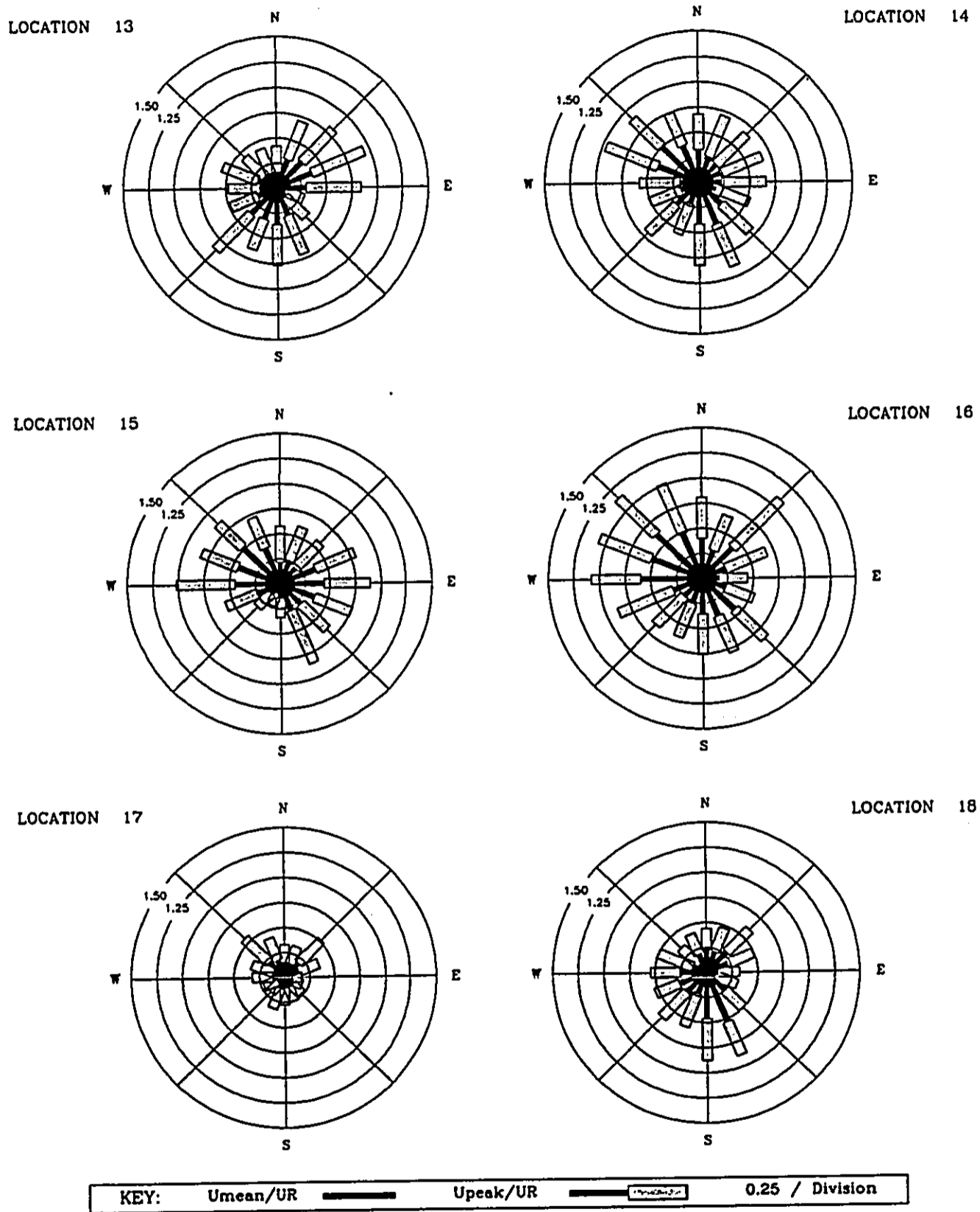


Figure 6c Non-dimensional Mean Velocities and Peak Gusts at Pedestrian Locations

Waikiki Landmark
Conf A - Waikiki Landmark in. with area model

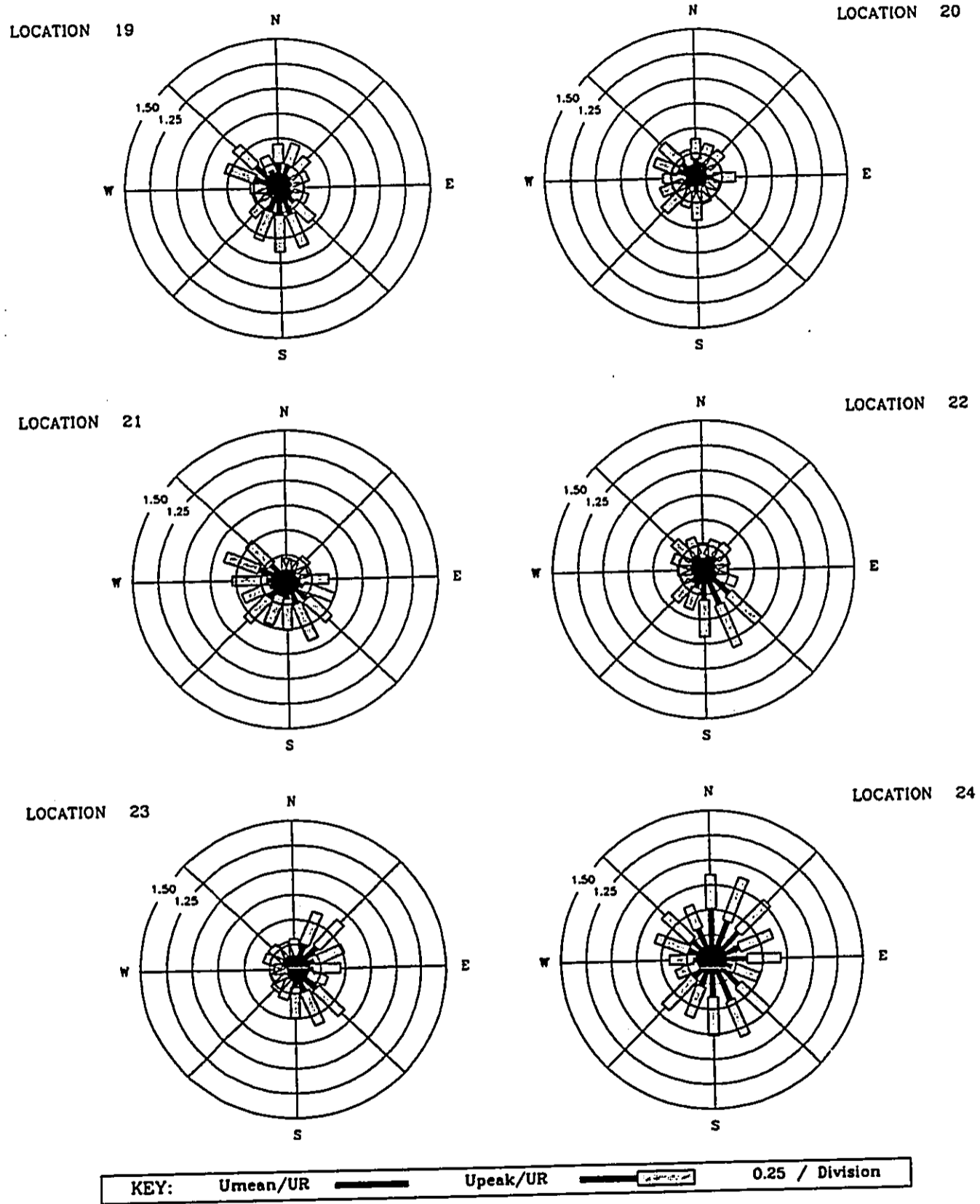


Figure 6d Non-dimensional Mean Velocities and Peak Gusts at Pedestrian Locations

Waikiki Landmark
Conf A - Waikiki Landmark in, with area model

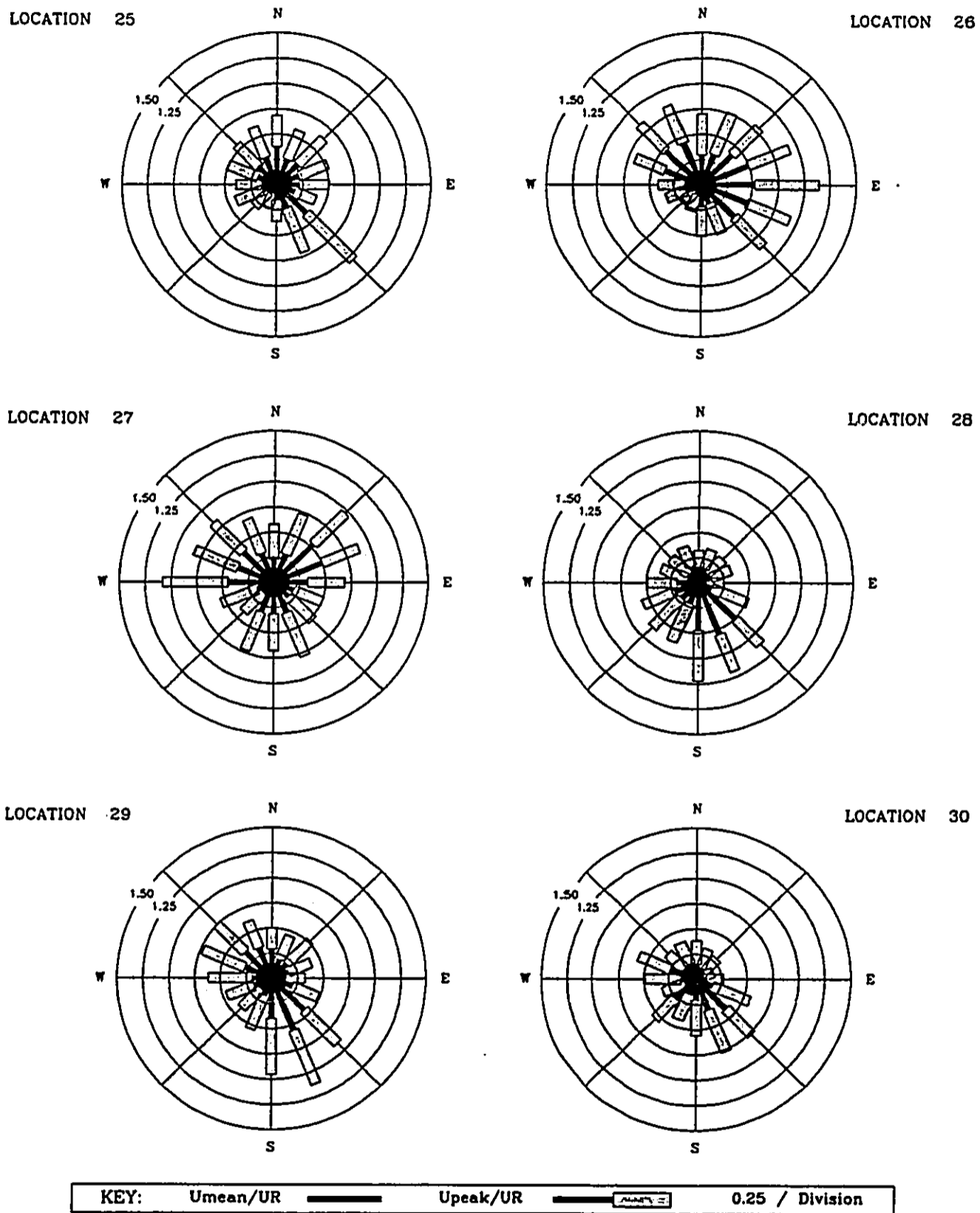


Figure 6e Non-dimensional Mean Velocities and Peak Gusts at Pedestrian Locations

Waikiki Landmark
Conf A - Waikiki Landmark in. with area model

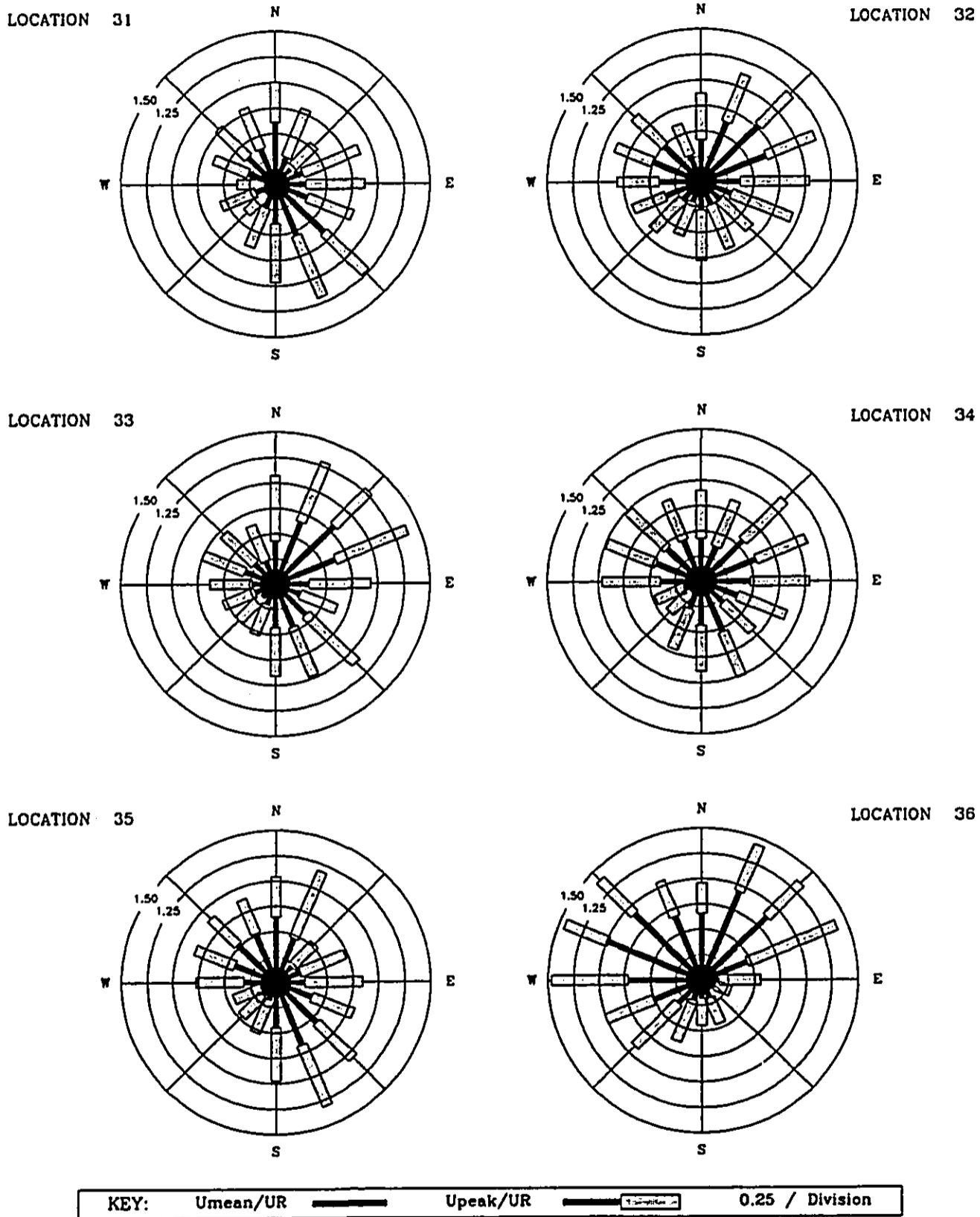
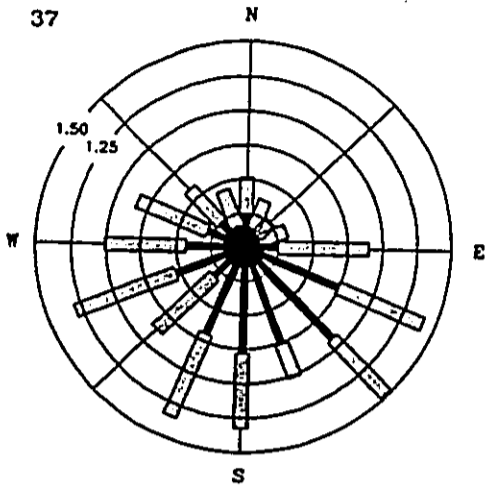


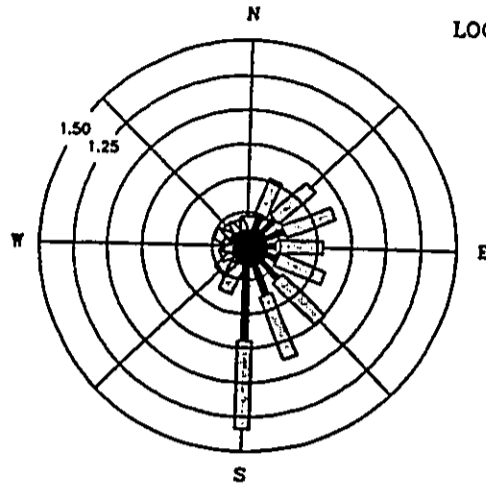
Figure 6f Non-dimensional Mean Velocities and Peak Gusts at Pedestrian Locations

Waikiki Landmark
Conf A - Waikiki Landmark in, with area model

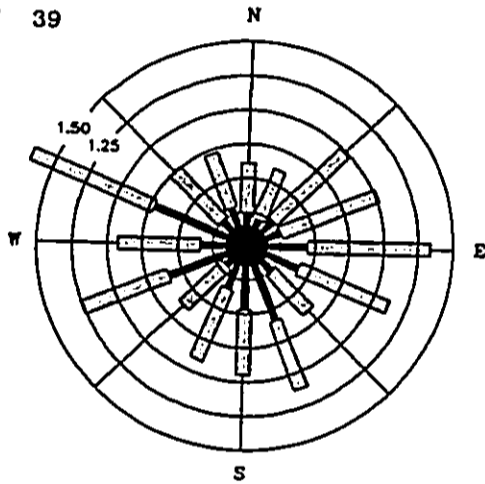
LOCATION 37



LOCATION 38



LOCATION 39



KEY: U_{mean}/UR ——— U_{peak}/UR - - - - - 0.25 / Division

Figure 6g Non-dimensional Mean Velocities and Peak Gusts at Pedestrian Locations

Waikiki Landmark
Conf B - Waikiki Landmark out. with area model

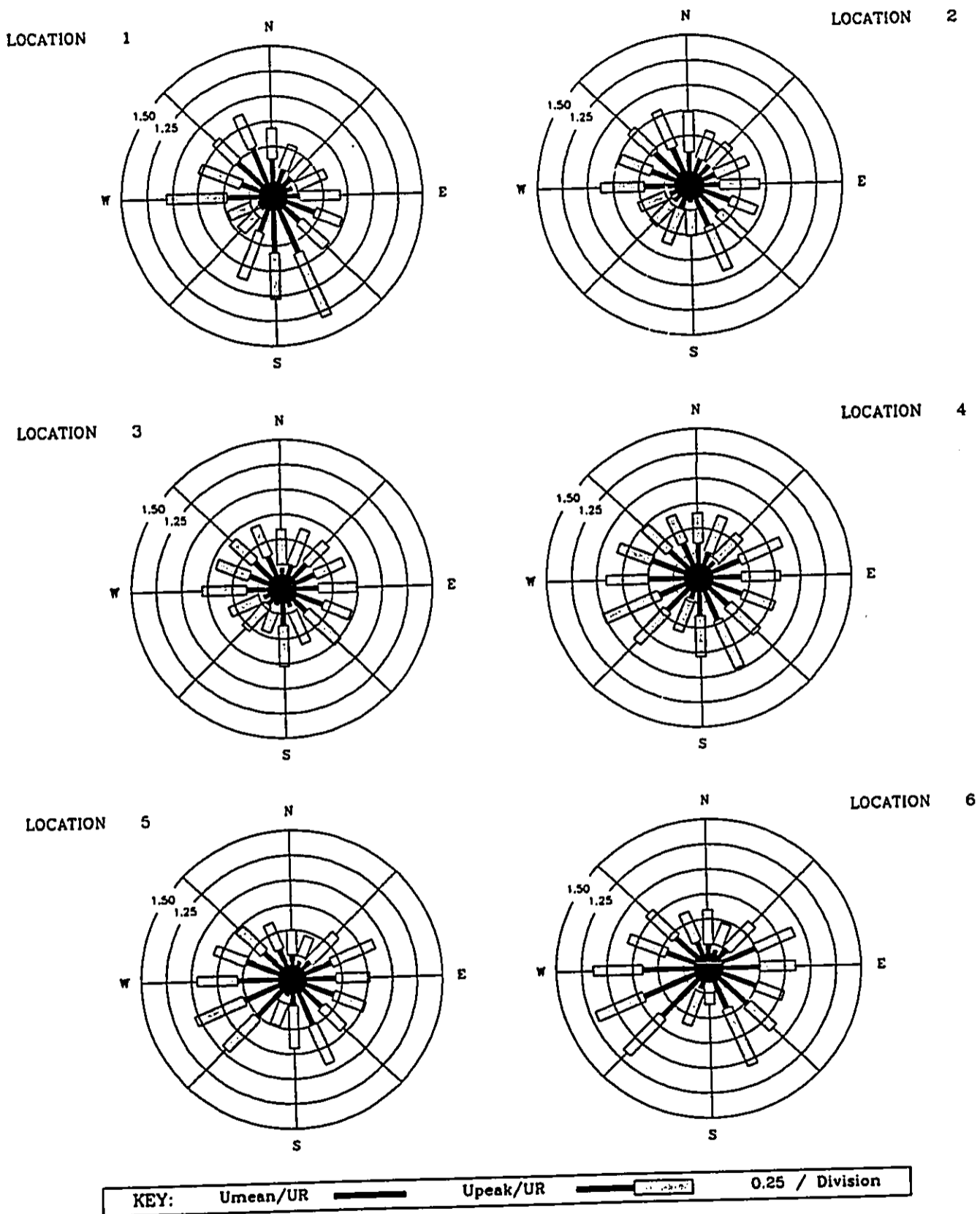


Figure 6h Non-dimensional Mean Velocities and Peak Gusts at Pedestrian Locations

Waikiki Landmark
 Conf B - Waikiki Landmark out, with area model

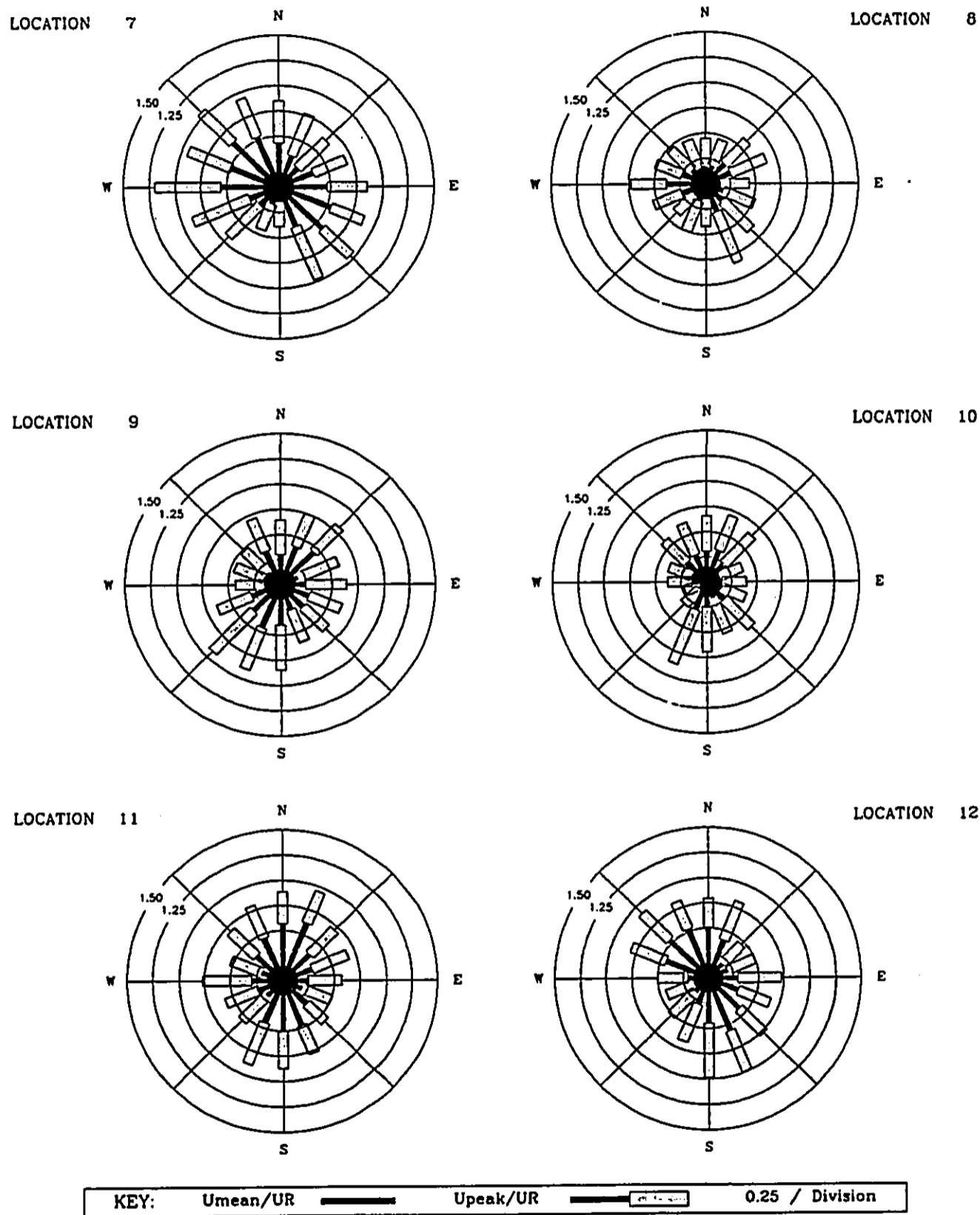


Figure 6i Non-dimensional Mean Velocities and Peak Gusts at Pedestrian Locations

Waikiki Landmark
Conf B - Waikiki Landmark out, with area model

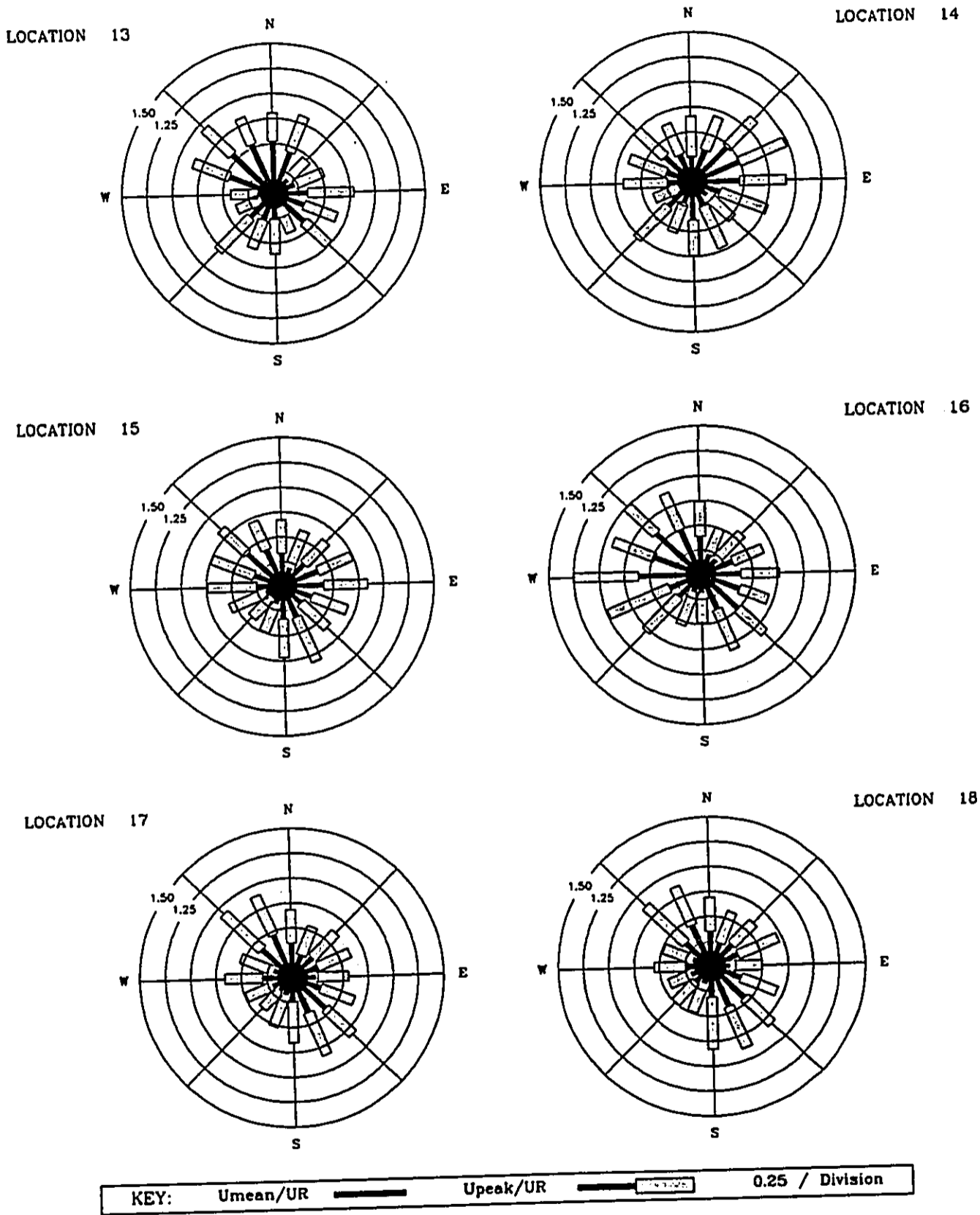
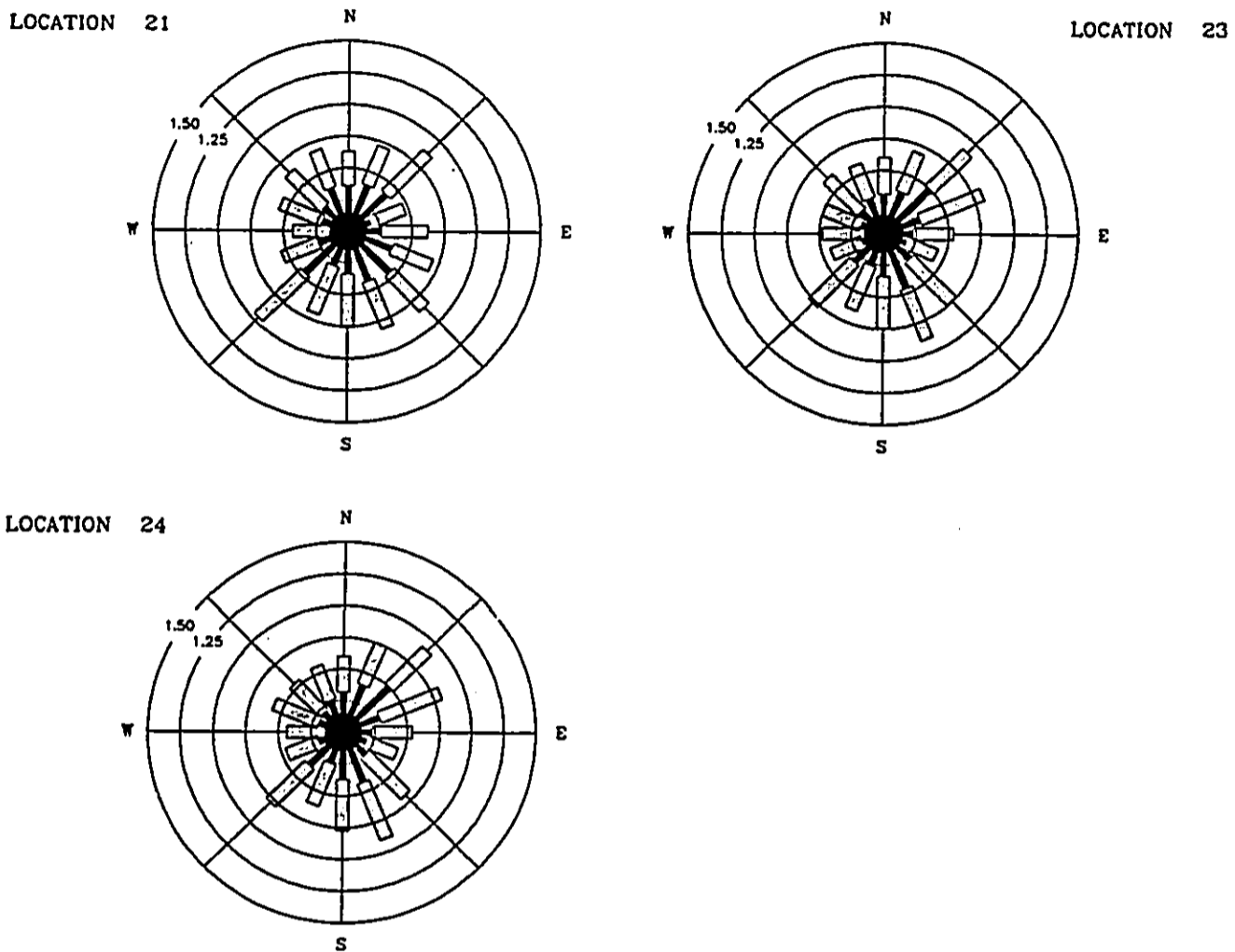


Figure 6j Non-dimensional Mean Velocities and Peak Gusts at Pedestrian Locations

Waikiki Landmark
Conf B - Waikiki Landmark out, with area model



KEY: U_{mean}/UR ——— U_{peak}/UR ——— 0.25 / Division

Figure 6k Non-dimensional Mean Velocities and Peak Gusts at Pedestrian Locations

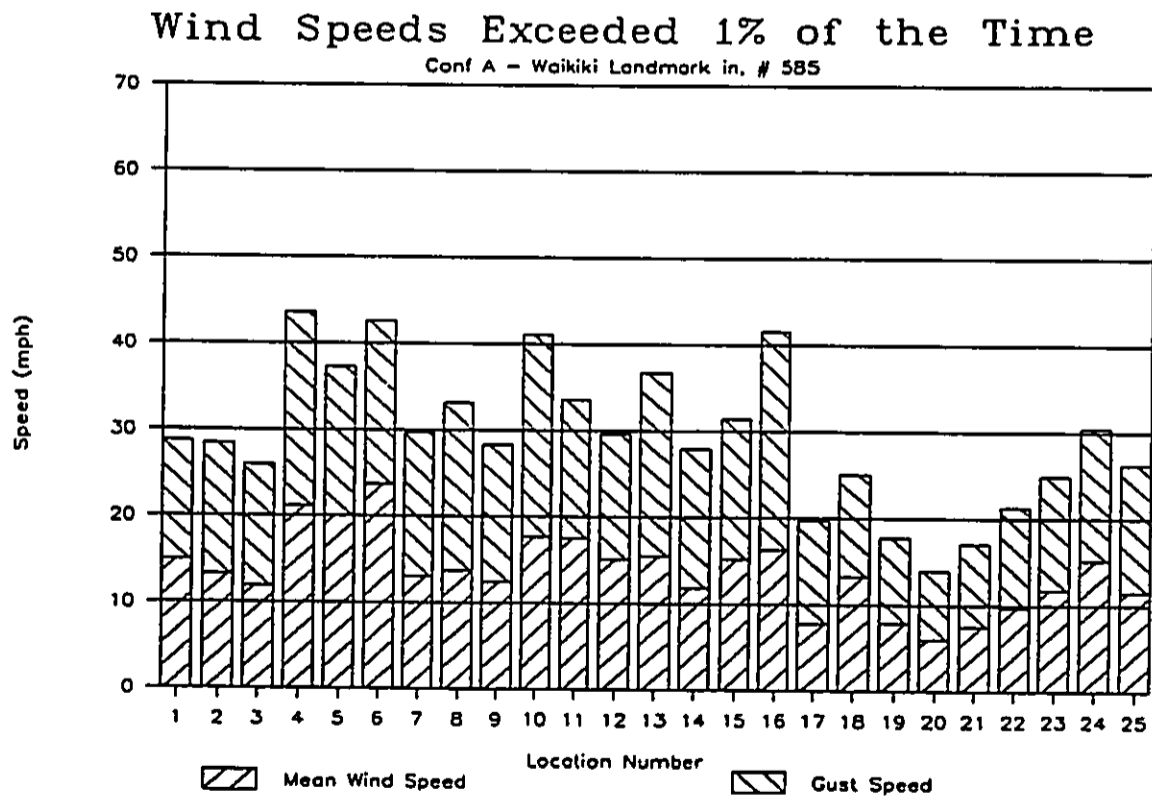
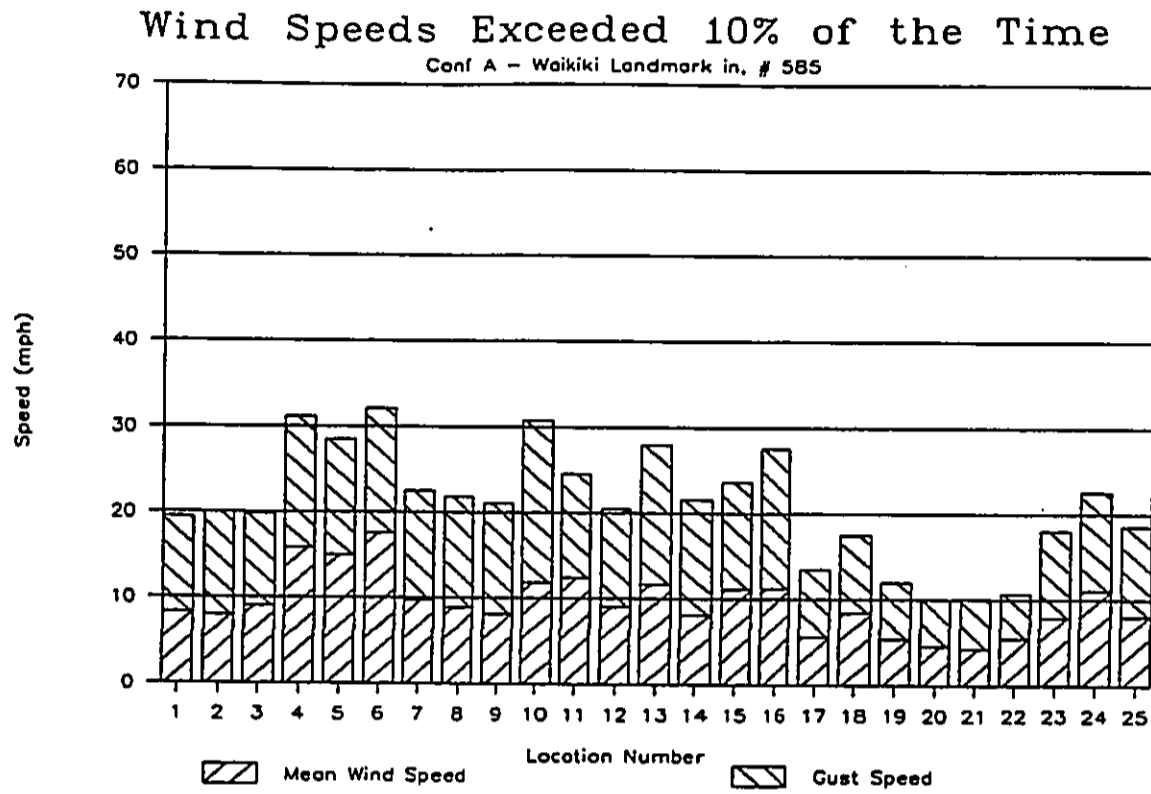


Figure 7a Wind Speeds Exceeded 10 Percent and 1 Percent of the Time

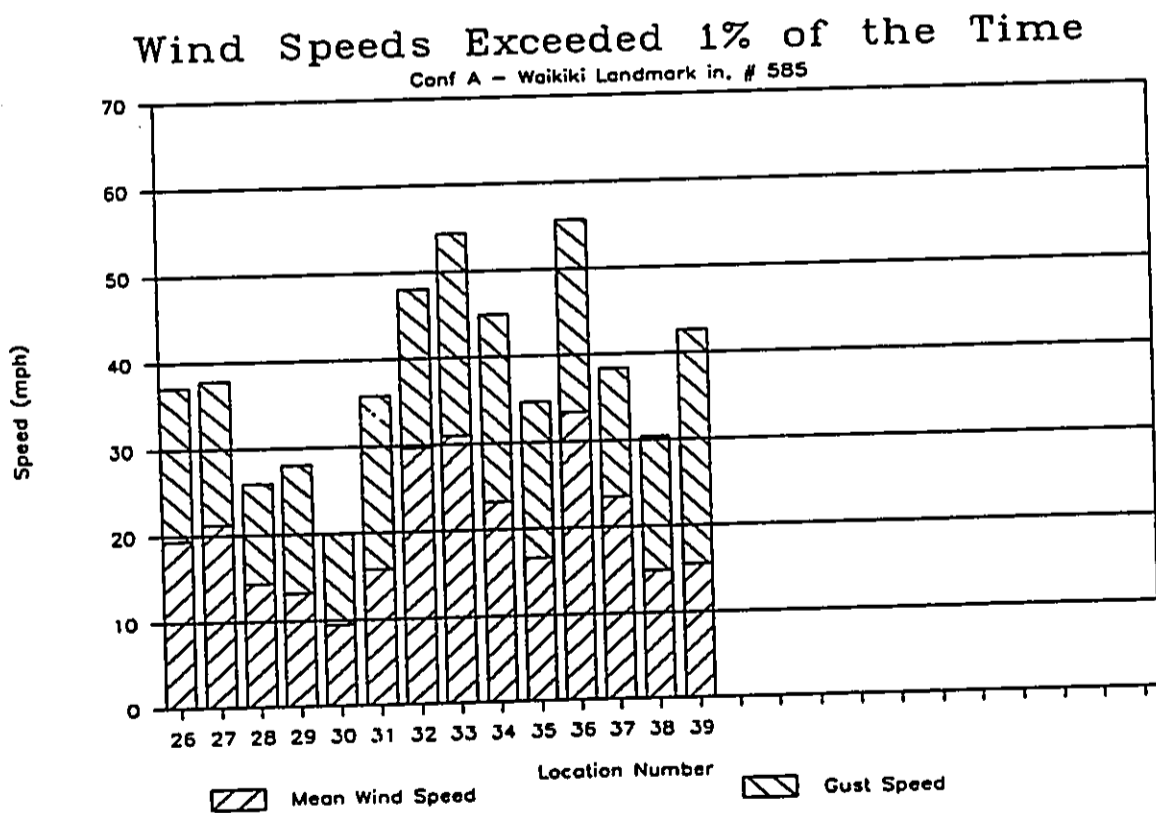
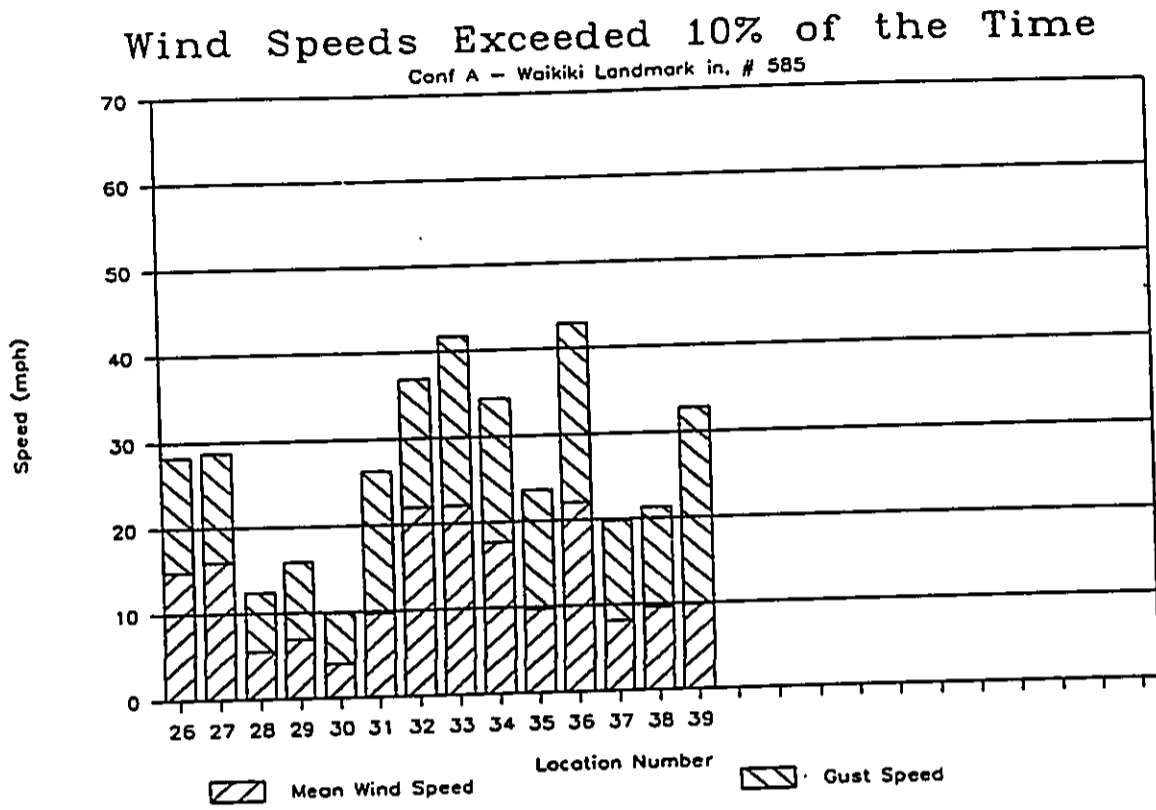


Figure 7b Wind Speeds Exceeded 10 Percent and 1 Percent of the Time

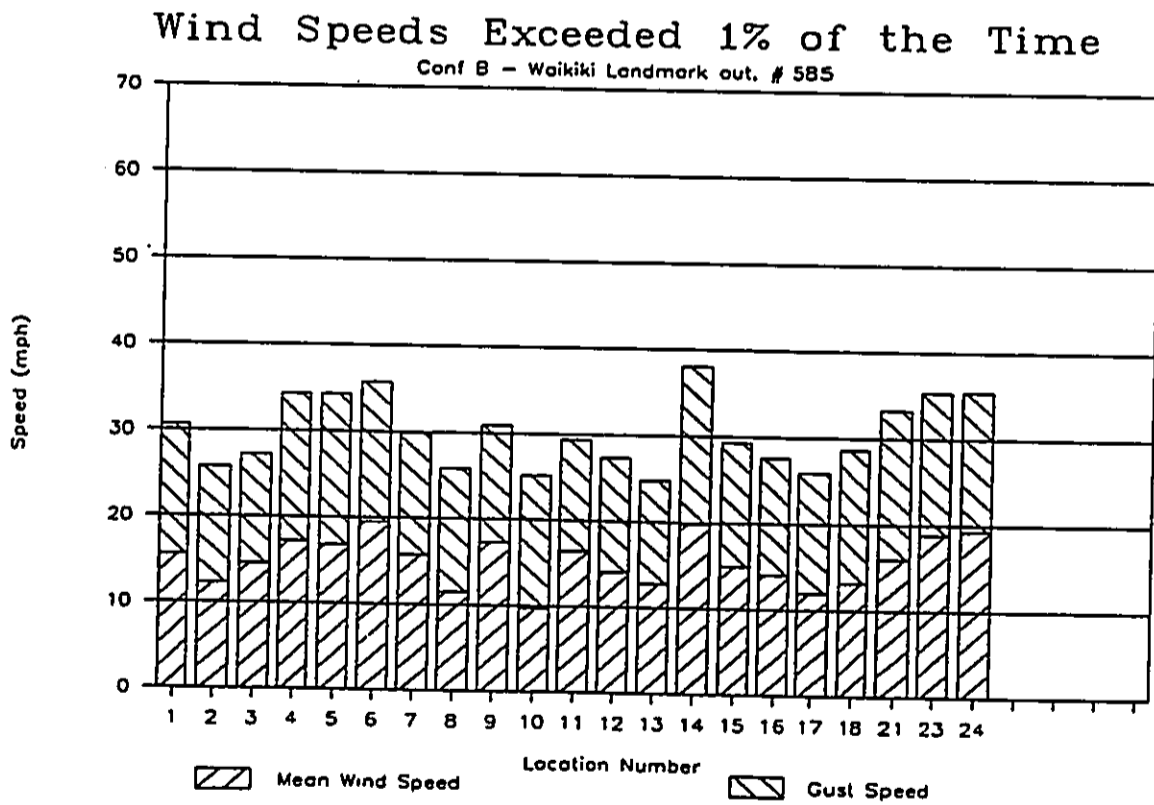
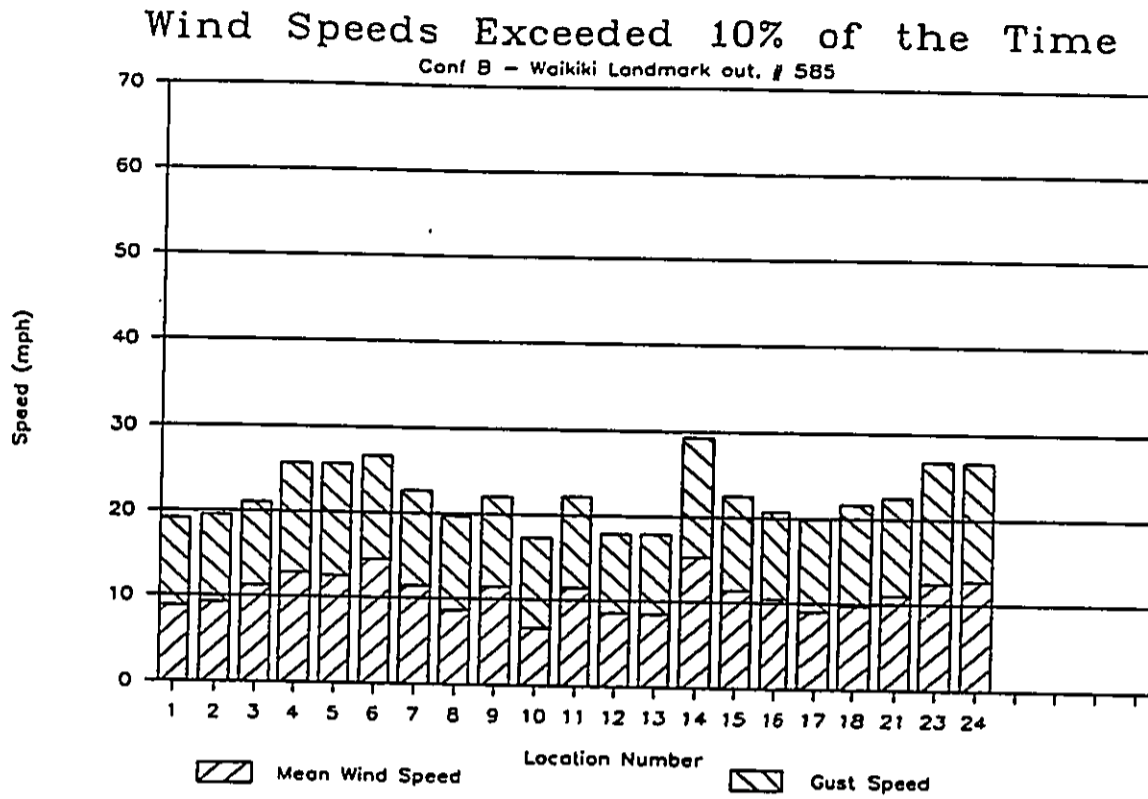


Figure 7c Wind Speeds Exceeded 10 Percent and 1 Percent of the Time

TABLE 1

NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS

Waikiki Landmark

Configuration A - Waikiki Landmark in place, with area model

Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Location 1				Location 2			
.0	38.1	11.5	72.7	.0	34.1	14.7	78.3
22.5	29.4	9.9	59.0	22.5	23.6	10.2	54.1
45.0	23.4	9.4	51.5	45.0	20.6	9.8	50.0
67.5	18.8	13.2	58.4	67.5	23.4	13.6	64.3
90.0	25.1	14.2	67.7	90.0	27.4	14.1	69.6
112.5	44.2	9.5	72.7	112.5	43.5	9.7	72.5
135.0	34.4	13.1	73.8	135.0	38.1	13.8	79.5
157.5	57.8	20.4	118.9	157.5	58.1	21.6	122.9
180.0	56.0	14.1	98.1	180.0	23.2	15.1	68.5
202.5	38.2	16.7	88.3	202.5	19.5	9.8	48.9
225.0	16.0	9.4	44.1	225.0	19.2	8.9	45.9
247.5	12.0	6.4	31.2	247.5	24.0	12.3	60.9
270.0	32.0	19.1	89.5	270.0	57.2	17.0	108.3
292.5	45.9	17.3	97.8	292.5	45.7	10.9	78.4
315.0	51.2	10.8	83.7	315.0	47.9	12.3	84.7
337.5	55.9	13.1	95.2	337.5	43.9	15.1	89.1
Location 3				Location 4			
.0	29.5	16.1	77.8	.0	30.8	11.9	66.6
22.5	17.9	10.9	50.6	22.5	19.1	13.2	58.8
45.0	19.9	10.2	50.5	45.0	53.9	20.3	114.8
67.5	28.9	11.7	64.1	67.5	48.3	13.5	88.9
90.0	33.2	13.3	73.0	90.0	47.9	13.8	89.3
112.5	41.5	10.1	71.8	112.5	49.3	12.8	87.8
135.0	31.9	14.7	76.0	135.0	47.5	14.6	91.3
157.5	28.1	16.7	78.2	157.5	36.5	15.6	83.3
180.0	30.2	14.4	73.4	180.0	22.7	12.4	59.9
202.5	12.4	8.5	38.0	202.5	17.2	9.8	46.6
225.0	18.6	11.2	52.3	225.0	32.8	13.3	72.8
247.5	25.4	12.6	63.1	247.5	31.8	16.5	81.5
270.0	51.9	15.9	99.6	270.0	45.1	11.6	79.9
292.5	50.2	10.9	82.8	292.5	44.4	13.0	83.4
315.0	45.1	11.9	80.8	315.0	41.9	10.7	74.0
337.5	37.9	10.6	69.8	337.5	38.5	10.2	69.1
Location 5				Location 6			
.0	20.4	8.6	46.2	.0	27.4	13.4	67.7
22.5	22.2	13.0	61.2	22.5	26.1	11.3	60.1
45.0	35.8	15.3	81.7	45.0	42.6	14.6	86.4
67.5	52.3	14.6	96.2	67.5	61.6	16.4	110.7
90.0	46.3	11.8	81.8	90.0	49.1	14.6	93.0
112.5	44.6	11.1	77.8	112.5	43.9	10.7	76.1
135.0	34.0	11.2	67.7	135.0	55.7	12.7	93.7
157.5	39.3	16.6	89.1	157.5	40.7	14.4	83.8
180.0	17.7	10.0	47.7	180.0	26.0	12.7	64.1
202.5	16.1	9.0	43.2	202.5	17.8	9.6	46.6
225.0	40.8	12.2	77.3	225.0	54.0	15.8	101.5
247.5	40.5	14.3	83.3	247.5	54.3	14.2	96.9
270.0	46.9	11.2	80.4	270.0	53.3	12.4	90.5
292.5	49.1	12.2	85.9	292.5	63.8	17.5	116.4
315.0	39.2	12.2	75.7	315.0	55.9	14.9	100.5
337.5	29.8	9.6	58.7	337.5	32.7	13.9	74.3

TABLE 1
 NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS
 Waikiki Landmark
 Configuration A - Waikiki Landmark in place, with area model

Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Location 7				Location 8			
.0	40.7	14.3	83.6	.0	17.3	10.2	47.9
22.5	29.9	16.4	79.2	22.5	18.4	11.1	51.7
45.0	30.3	14.9	75.0	45.0	35.9	17.1	87.3
67.5	29.0	12.7	67.2	67.5	18.1	11.6	52.8
90.0	23.4	10.1	53.6	90.0	13.9	7.8	37.3
112.5	32.2	11.6	67.1	112.5	16.6	11.0	49.5
135.0	36.9	11.9	72.4	135.0	24.2	15.3	70.1
157.5	36.1	15.7	83.1	157.5	23.7	14.1	66.0
180.0	22.8	12.5	60.4	180.0	26.0	14.0	68.0
202.5	17.5	9.6	46.4	202.5	18.4	9.5	47.0
225.0	16.7	11.3	50.7	225.0	16.3	8.5	41.8
247.5	24.5	17.7	77.6	247.5	29.2	9.3	57.2
270.0	52.1	19.8	111.4	270.0	35.1	11.2	68.8
292.5	49.3	15.4	95.6	292.5	28.7	11.2	62.2
315.0	59.5	14.6	103.3	315.0	25.1	12.8	63.5
337.5	49.3	15.0	94.2	337.5	17.5	11.7	52.7
Location 9				Location 10			
.0	17.3	13.0	56.4	.0	32.4	13.2	72.0
22.5	14.5	9.9	44.3	22.5	25.3	15.1	70.5
45.0	21.5	13.1	60.6	45.0	46.1	20.1	106.5
67.5	23.0	13.5	63.5	67.5	30.7	21.1	94.0
90.0	30.0	15.1	75.3	90.0	18.5	10.5	50.1
112.5	36.3	11.1	69.5	112.5	17.8	10.6	49.6
135.0	33.9	10.6	65.9	135.0	28.2	15.2	73.7
157.5	34.1	13.6	74.9	157.5	25.3	14.1	67.6
180.0	43.3	18.4	98.5	180.0	37.9	12.0	74.0
202.5	58.0	18.4	113.2	202.5	40.0	18.1	94.3
225.0	44.6	22.2	111.1	225.0	12.3	5.9	30.1
247.5	30.4	14.4	73.7	247.5	11.0	6.2	29.5
270.0	18.3	10.2	48.9	270.0	18.2	7.9	41.9
292.5	38.3	13.6	79.2	292.5	17.8	10.6	49.8
315.0	43.8	17.7	96.9	315.0	31.7	14.5	75.2
337.5	39.9	12.6	77.6	337.5	33.9	12.4	71.1
Location 11				Location 12			
.0	53.8	10.8	86.2	.0	52.8	10.2	83.4
22.5	53.6	12.8	92.1	22.5	45.9	11.9	81.5
45.0	44.4	14.3	87.2	45.0	27.3	13.5	67.7
67.5	33.2	12.5	70.8	67.5	17.7	12.6	55.4
90.0	25.8	12.4	62.9	90.0	17.7	11.6	52.4
112.5	18.1	11.2	51.8	112.5	25.1	11.9	60.9
135.0	25.3	8.3	50.4	135.0	39.1	12.1	75.5
157.5	44.9	8.5	70.5	157.5	64.9	16.0	113.0
180.0	44.5	10.6	76.3	180.0	42.7	19.1	99.9
202.5	35.2	12.5	72.6	202.5	26.7	13.6	67.5
225.0	18.0	9.4	46.3	225.0	23.9	13.4	64.2
247.5	18.4	9.5	46.9	247.5	19.0	10.3	50.0
270.0	30.1	15.4	76.2	270.0	22.4	10.3	53.3
292.5	17.0	10.4	48.3	292.5	36.8	15.9	84.4
315.0	28.8	12.8	67.3	315.0	34.4	13.3	74.5
337.5	46.7	11.2	80.4	337.5	52.2	11.2	85.9

TABLE 1

NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS

Waikiki Landmark

Configuration A - Waikiki Landmark in place, with area model

Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Location 13				Location 14			
.0	15.8	8.7	41.8	.0	32.7	11.8	67.9
22.5	30.3	13.5	70.8	22.5	27.1	14.5	70.5
45.0	36.3	14.9	80.9	45.0	24.4	14.1	66.7
67.5	37.9	18.8	94.4	67.5	23.0	14.6	66.6
90.0	29.6	18.2	84.2	90.0	22.9	14.3	65.7
112.5	9.4	6.5	28.8	112.5	18.0	11.6	52.7
135.0	12.2	9.5	40.8	135.0	31.0	12.8	69.5
157.5	29.2	13.8	70.6	157.5	44.7	15.0	89.7
180.0	36.1	13.5	76.6	180.0	41.4	13.6	82.2
202.5	33.0	10.6	65.0	202.5	22.9	10.5	54.5
225.0	35.2	16.6	85.1	225.0	30.6	13.1	70.0
247.5	20.0	9.4	48.3	247.5	18.8	10.5	50.4
270.0	16.6	10.3	47.6	270.0	18.0	13.2	57.7
292.5	19.7	12.4	56.9	292.5	42.2	18.2	96.7
315.0	16.7	9.0	43.8	315.0	50.9	13.0	90.0
337.5	15.9	8.6	41.8	337.5	39.5	11.5	74.1
Location 15				Location 16			
.0	21.9	11.9	57.5	.0	40.1	13.6	81.0
22.5	23.8	12.1	60.1	22.5	30.1	12.3	67.2
45.0	21.9	11.6	56.7	45.0	42.0	22.6	109.7
67.5	37.7	14.0	79.8	67.5	24.7	14.2	67.5
90.0	44.0	15.2	89.6	90.0	17.1	9.0	44.1
112.5	36.3	13.1	75.6	112.5	24.1	9.8	53.4
135.0	28.7	12.1	65.1	135.0	43.9	13.7	85.0
157.5	28.7	18.8	84.9	157.5	40.9	12.7	78.9
180.0	14.3	6.5	33.8	180.0	35.6	13.4	75.7
202.5	9.9	4.4	23.2	202.5	26.8	11.8	62.2
225.0	13.3	6.2	31.9	225.0	24.0	13.4	64.2
247.5	23.4	11.3	57.2	247.5	30.6	19.2	88.2
270.0	44.9	19.0	102.0	270.0	59.5	16.2	108.1
292.5	45.0	12.6	82.9	292.5	52.7	18.1	107.0
315.0	52.0	11.3	85.9	315.0	62.2	17.3	114.0
337.5	38.8	11.0	71.8	337.5	48.7	17.6	101.5
Location 17				Location 18			
.0	15.1	5.9	32.7	.0	22.7	7.0	43.7
22.5	14.9	6.1	33.1	22.5	22.1	8.4	47.3
45.0	19.9	10.6	51.8	45.0	28.2	10.5	59.7
67.5	15.8	6.8	36.3	67.5	22.2	8.9	48.8
90.0	8.4	2.9	17.2	90.0	11.4	7.0	32.5
112.5	8.8	3.3	18.8	112.5	9.8	7.4	31.9
135.0	10.5	4.3	23.4	135.0	25.4	8.0	49.3
157.5	10.1	5.2	25.8	157.5	53.2	11.7	88.5
180.0	10.6	5.7	27.6	180.0	46.3	13.8	87.7
202.5	11.7	7.2	33.2	202.5	22.8	11.6	57.7
225.0	7.6	4.2	20.1	225.0	27.2	11.7	62.4
247.5	8.4	4.6	22.4	247.5	28.3	8.3	53.3
270.0	12.1	6.6	31.8	270.0	25.9	9.5	54.4
292.5	12.9	7.2	34.4	292.5	14.5	12.1	50.7
315.0	21.9	11.2	55.6	315.0	10.2	8.1	34.4
337.5	18.3	7.9	42.0	337.5	19.8	7.2	41.4

TABLE 1

NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS

Waikiki Landmark

Configuration A - Waikiki Landmark in place, with area model

Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Location 19				Location 20			
.0	25.7	6.1	44.2	.0	19.0	6.7	39.2
22.5	24.4	7.5	47.0	22.5	15.9	6.6	35.6
45.0	15.0	8.5	40.4	45.0	15.0	6.6	34.7
67.5	12.7	6.1	31.0	67.5	11.2	4.8	25.5
90.0	11.4	4.7	25.6	90.0	16.9	7.4	39.2
112.5	14.2	5.2	29.8	112.5	10.4	4.3	23.2
135.0	20.4	8.3	45.2	135.0	11.2	4.3	24.0
157.5	28.6	11.4	62.8	157.5	8.6	6.0	26.7
180.0	26.9	12.3	63.7	180.0	13.9	9.5	42.5
202.5	24.1	10.2	54.6	202.5	9.4	7.1	30.8
225.0	12.2	8.5	37.7	225.0	13.1	10.7	45.1
247.5	10.7	5.3	26.7	247.5	12.8	8.1	37.0
270.0	11.3	5.8	28.7	270.0	10.4	7.4	32.7
292.5	25.5	9.7	54.7	292.5	19.5	8.2	44.0
315.0	31.1	9.0	58.1	315.0	20.6	8.8	47.1
337.5	18.8	5.1	34.1	337.5	13.7	5.2	29.3
Location 21				Location 22			
.0	9.9	3.9	21.5	.0	12.0	4.9	26.9
22.5	9.6	3.6	20.4	22.5	14.9	5.4	31.0
45.0	12.1	5.5	28.6	45.0	16.7	5.5	33.2
67.5	10.2	4.1	22.4	67.5	12.3	4.7	26.4
90.0	14.0	9.1	41.3	90.0	10.9	4.1	23.1
112.5	18.1	10.4	49.4	112.5	14.1	7.0	35.0
135.0	27.9	10.0	57.9	135.0	34.3	13.6	75.1
157.5	26.4	12.9	65.3	157.5	37.9	15.4	84.3
180.0	19.2	10.5	50.8	180.0	30.3	12.5	67.8
202.5	17.2	10.1	47.7	202.5	19.3	7.5	41.7
225.0	24.3	10.6	56.0	225.0	16.5	8.3	41.3
247.5	17.7	9.7	46.8	247.5	11.0	4.3	23.8
270.0	19.3	11.3	53.3	270.0	11.8	4.8	26.3
292.5	29.1	11.5	63.7	292.5	13.1	6.4	32.4
315.0	21.4	10.3	52.4	315.0	16.0	8.1	40.3
337.5	10.4	4.8	24.7	337.5	16.2	5.9	33.8
Location 23				Location 24			
.0	13.8	5.5	30.3	.0	51.5	11.3	85.3
22.5	27.0	11.2	60.6	22.5	41.3	15.2	87.0
45.0	30.3	11.5	64.7	45.0	38.0	13.4	78.3
67.5	20.2	10.5	51.6	67.5	29.8	11.5	64.2
90.0	18.0	9.0	45.1	90.0	35.2	11.1	68.5
112.5	14.0	6.4	33.2	112.5	20.4	9.6	49.1
135.0	28.3	11.9	64.0	135.0	36.8	12.7	75.0
157.5	23.9	12.1	60.3	157.5	45.1	12.6	83.0
180.0	18.4	10.5	49.8	180.0	38.3	12.8	76.6
202.5	11.2	7.0	32.1	202.5	28.9	10.9	61.5
225.0	9.8	6.2	28.5	225.0	25.0	13.7	66.3
247.5	7.8	5.2	23.5	247.5	14.4	7.9	38.0
270.0	7.2	4.4	20.5	270.0	18.1	8.0	42.0
292.5	13.4	6.1	31.6	292.5	24.7	11.5	59.1
315.0	13.5	6.0	31.5	315.0	27.4	12.2	64.1
337.5	14.0	4.9	28.6	337.5	33.5	8.3	58.3

TABLE 1

NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS

Waikiki Landmark

Configuration A - Waikiki Landmark in place, with area model

Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Location 25				Location 26			
.0	37.4	10.5	68.8	.0	29.7	13.4	69.8
22.5	26.8	10.1	57.1	22.5	32.1	14.6	76.0
45.0	28.2	11.9	63.9	45.0	41.3	12.5	78.9
67.5	22.6	10.0	52.6	67.5	49.2	14.4	92.4
90.0	21.7	9.5	50.3	90.0	52.1	20.7	114.3
112.5	18.5	7.3	40.4	112.5	47.7	15.1	92.9
135.0	40.2	21.5	104.6	135.0	45.1	13.5	85.6
157.5	25.5	15.3	71.5	157.5	20.3	10.4	51.4
180.0	15.4	6.9	36.1	180.0	22.1	9.6	50.9
202.5	9.3	4.8	23.7	202.5	10.8	5.5	27.3
225.0	10.7	6.4	30.0	225.0	9.0	4.4	22.3
247.5	14.4	9.4	42.4	247.5	15.7	6.4	34.7
270.0	14.4	8.4	39.5	270.0	15.6	8.6	41.2
292.5	19.7	10.2	50.4	292.5	36.6	10.5	68.1
315.0	23.1	10.7	55.2	315.0	47.0	12.2	83.5
337.5	28.7	10.8	61.0	337.5	44.5	13.2	84.1
Location 27				Location 28			
.0	22.7	11.8	58.2	.0	15.7	5.6	32.5
22.5	30.0	14.4	73.0	22.5	15.4	6.5	35.0
45.0	53.4	14.7	97.4	45.0	12.8	6.9	33.6
67.5	50.3	12.8	88.7	67.5	13.2	6.8	33.5
90.0	32.4	12.1	68.8	90.0	7.9	5.6	24.6
112.5	20.4	10.0	50.3	112.5	14.7	12.5	52.2
135.0	19.8	11.1	53.1	135.0	51.2	11.6	86.0
157.5	32.6	15.2	78.3	157.5	55.1	13.0	94.1
180.0	31.4	12.2	68.1	180.0	47.4	16.6	97.0
202.5	31.8	13.7	72.8	202.5	22.3	13.4	62.4
225.0	14.2	9.1	41.6	225.0	21.5	13.5	62.1
247.5	17.3	12.4	54.3	247.5	22.7	11.3	56.5
270.0	44.1	21.4	108.2	270.0	19.0	10.0	49.0
292.5	37.9	15.0	83.0	292.5	11.1	8.9	37.8
315.0	41.9	13.7	83.1	315.0	12.6	7.4	34.8
337.5	31.1	12.2	67.8	337.5	17.5	6.9	38.1
Location 29				Location 30			
.0	29.2	6.9	49.9	.0	15.1	7.7	38.2
22.5	20.2	8.5	45.5	22.5	12.2	6.6	32.1
45.0	20.2	10.6	51.8	45.0	10.8	6.0	28.9
67.5	16.9	7.9	40.5	67.5	7.8	3.5	18.3
90.0	13.9	6.1	32.1	90.0	10.3	5.4	26.5
112.5	21.1	9.1	48.4	112.5	17.8	12.9	56.5
135.0	44.2	15.4	90.5	135.0	40.9	12.1	77.1
157.5	55.7	19.1	112.9	157.5	32.5	14.8	77.0
180.0	39.9	18.4	95.2	180.0	20.9	11.5	55.5
202.5	18.0	12.1	54.3	202.5	15.9	8.9	42.5
225.0	14.7	8.9	41.5	225.0	26.0	9.6	54.9
247.5	18.6	9.2	46.3	247.5	11.3	7.2	32.8
270.0	19.0	14.2	61.7	270.0	14.0	11.7	49.1
292.5	28.3	14.7	72.4	292.5	24.7	11.4	59.0
315.0	36.8	12.9	75.4	315.0	15.2	6.9	36.0
337.5	32.3	9.5	60.9	337.5	15.8	7.7	38.8

TABLE 1

NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS

Waikiki Landmark

Configuration A - Waikiki Landmark in place, with area model

Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Location 31				Location 32			
.0	60.8	13.3	100.7	.0	41.6	15.1	86.9
22.5	28.7	16.8	79.2	22.5	63.4	16.5	112.7
45.0	21.2	10.7	53.3	45.0	77.4	14.4	120.6
67.5	29.3	19.5	87.7	67.5	66.3	16.8	116.8
90.0	30.3	18.8	86.8	90.0	37.6	21.9	103.1
112.5	34.2	15.6	81.1	112.5	30.9	21.0	93.9
135.0	66.7	18.7	122.7	135.0	23.3	13.9	65.1
157.5	54.6	21.6	119.3	157.5	24.1	15.6	70.8
180.0	38.9	19.2	96.7	180.0	28.0	16.3	77.0
202.5	24.1	13.9	65.7	202.5	21.4	11.6	56.1
225.0	12.6	8.8	39.0	225.0	25.0	13.7	66.1
247.5	20.7	11.8	56.0	247.5	36.5	11.4	70.6
270.0	11.0	8.6	36.9	270.0	40.8	13.6	81.5
292.5	28.3	11.8	63.8	292.5	50.9	12.7	89.0
315.0	37.3	13.4	77.4	315.0	48.5	13.7	89.8
337.5	37.4	14.3	80.2	337.5	28.1	10.8	60.5
Location 33				Location 34			
.0	42.9	21.3	107.0	.0	43.1	15.6	89.8
22.5	66.7	20.8	129.2	22.5	37.1	16.2	85.6
45.0	81.4	15.6	128.3	45.0	57.1	18.6	112.8
67.5	63.6	24.8	138.0	67.5	56.4	17.4	108.6
90.0	33.2	19.8	92.8	90.0	47.3	18.9	104.0
112.5	26.9	12.4	64.2	112.5	37.4	16.8	87.8
135.0	42.6	22.6	110.5	135.0	29.1	13.2	68.7
157.5	45.9	17.4	98.0	157.5	53.8	15.6	100.8
180.0	42.8	16.0	90.8	180.0	43.1	15.1	88.5
202.5	21.5	10.4	52.9	202.5	29.0	14.2	71.4
225.0	17.6	11.0	50.4	225.0	14.0	9.4	42.3
247.5	21.3	10.8	53.8	247.5	17.3	10.1	47.6
270.0	22.4	13.6	63.1	270.0	39.5	19.0	96.5
292.5	32.0	14.4	75.2	292.5	47.4	17.0	98.5
315.0	28.1	14.1	70.3	315.0	45.8	17.6	98.5
337.5	24.4	12.7	62.4	337.5	44.2	14.1	86.4
Location 35				Location 36			
.0	64.3	13.3	104.2	.0	65.6	10.0	95.6
22.5	46.8	23.7	118.0	22.5	94.3	16.3	143.2
45.0	21.7	10.5	53.1	45.0	87.3	15.6	134.0
67.5	26.2	15.5	72.6	67.5	46.8	30.9	139.6
90.0	28.5	18.5	84.0	90.0	16.2	13.0	55.1
112.5	37.7	14.5	81.1	112.5	13.4	5.1	28.7
135.0	55.9	16.8	106.3	135.0	12.4	4.1	24.7
157.5	67.1	21.2	130.7	157.5	19.1	9.0	46.0
180.0	44.7	17.6	97.5	180.0	18.1	8.9	44.8
202.5	18.6	11.5	53.1	202.5	21.6	14.2	64.2
225.0	17.7	9.8	47.1	225.0	31.9	19.9	91.6
247.5	15.8	9.3	43.7	247.5	51.2	16.4	100.5
270.0	31.3	15.4	77.6	270.0	71.5	25.1	146.7
292.5	43.3	13.6	84.2	292.5	98.1	15.4	144.5
315.0	52.6	12.1	88.9	315.0	91.7	15.9	139.5
337.5	52.0	12.0	88.0	337.5	67.4	12.7	105.4

TABLE 1

NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS

Waikiki Landmark

Configuration A - Waikiki Landmark in place, with area model

Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Location 37				Location 38			
.0	23.7	9.3	51.5	.0	11.3	3.6	22.0
22.5	14.6	7.4	36.9	22.5	22.8	9.8	52.1
45.0	12.3	4.8	26.8	45.0	28.5	11.2	62.2
67.5	11.5	6.9	32.3	67.5	29.1	12.5	66.7
90.0	25.4	21.6	90.1	90.0	21.9	10.9	54.4
112.5	73.7	22.3	140.7	112.5	23.5	12.0	59.4
135.0	93.0	18.5	148.3	135.0	33.3	14.1	75.5
157.5	76.5	8.4	101.7	157.5	38.6	16.3	87.6
180.0	78.3	18.0	132.4	180.0	69.8	21.4	134.0
202.5	69.8	21.5	134.4	202.5	13.9	7.6	36.8
225.0	30.6	18.9	87.2	225.0	11.6	5.0	26.6
247.5	53.6	25.5	130.1	247.5	9.5	3.2	19.0
270.0	42.9	19.3	100.9	270.0	8.4	2.4	15.7
292.5	29.7	17.9	83.3	292.5	12.2	3.9	23.8
315.0	23.7	11.5	58.2	315.0	11.1	3.2	20.6
337.5	16.7	9.2	44.2	337.5	11.2	2.8	19.7
Location 39							
.0	24.7	12.1	61.1				
22.5	21.1	13.1	60.3				
45.0	26.6	24.1	98.8				
67.5	27.1	24.8	101.6				
90.0	44.6	29.5	133.3				
112.5	41.5	23.4	111.7				
135.0	26.2	13.2	65.7				
157.5	58.8	17.7	111.9				
180.0	47.3	15.8	94.8				
202.5	34.2	18.7	90.5				
225.0	20.3	14.2	62.8				
247.5	59.7	22.0	125.9				
270.0	33.9	19.5	92.4				
292.5	72.1	31.7	167.2				
315.0	25.7	16.8	76.0				
337.5	30.1	13.9	72.0				

TABLE 1

NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS

Waikiki Landmark

Configuration A - Waikiki Landmark in place, with area model

>> GREATEST VALUES <<

Location	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Greatest Values of Umean/Uref				
36	292.5	98.1	15.4	144.5
36	22.5	94.3	16.3	143.2
37	135.0	93.0	18.5	148.3
36	315.0	91.7	15.9	139.5
36	45.0	87.3	15.6	134.0
33	45.0	81.4	15.6	128.3
37	180.0	78.3	18.0	132.4
32	45.0	77.4	14.4	120.6
37	157.5	76.5	8.4	101.7
37	112.5	73.7	22.3	140.7
39	292.5	72.1	31.7	167.2
36	270.0	71.5	25.1	146.7
38	180.0	69.8	21.4	134.0
37	202.5	69.8	21.5	134.4
36	337.5	67.4	12.7	105.4
Greatest Values of Urms/Uref				
39	292.5	72.1	31.7	167.2
36	67.5	46.8	30.9	139.6
39	90.0	44.6	29.5	133.3
37	247.5	53.6	25.5	130.1
36	270.0	71.5	25.1	146.7
39	67.5	27.1	24.8	101.6
33	67.5	63.6	24.8	138.0
39	45.0	26.6	24.1	98.8
35	22.5	46.8	23.7	118.0
39	112.5	41.5	23.4	111.7
33	135.0	42.6	22.6	110.5
16	45.0	42.0	22.6	109.7
37	112.5	73.7	22.3	140.7
9	225.0	44.6	22.2	111.1
39	247.5	59.7	22.0	125.9
Greatest Values of Upeak/Uref				
39	292.5	72.1	31.7	167.2
37	135.0	93.0	18.5	148.3
36	270.0	71.5	25.1	146.7
36	292.5	98.1	15.4	144.5
36	22.5	94.3	16.3	143.2
37	112.5	73.7	22.3	140.7
36	67.5	46.8	30.9	139.6
36	315.0	91.7	15.9	139.5
33	67.5	63.6	24.8	138.0
37	202.5	69.8	21.5	134.4
36	45.0	87.3	15.6	134.0
38	180.0	69.8	21.4	134.0
39	90.0	44.6	29.5	133.3
37	180.0	78.3	18.0	132.4
35	157.5	67.1	21.2	130.7

Typical Values For An Open-Country Site

- Umean/Uref = 45-50 %
- Urms/Uref = 10-12 %
- Upeak/Uref = 75-85 %

TABLE 1

NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS

Waikiki Landmark

Configuration B - Waikiki Landmark out, with area model

Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Location 1				Location 2			
.0	37.4	10.3	68.2	.0	34.0	13.1	73.4
22.5	28.6	8.5	54.2	22.5	28.1	9.6	57.0
45.0	25.6	8.2	50.2	45.0	27.4	9.4	55.5
67.5	20.8	12.0	56.9	67.5	27.2	11.5	61.6
90.0	26.7	13.4	66.9	90.0	29.5	13.0	68.7
112.5	45.0	9.3	72.9	112.5	42.3	9.3	70.1
135.0	36.4	12.0	72.4	135.0	39.4	11.8	74.7
157.5	61.9	23.0	131.0	157.5	45.0	15.8	92.4
180.0	57.1	15.3	103.0	180.0	16.9	11.3	50.8
202.5	38.1	16.6	88.0	202.5	25.2	12.4	62.3
225.0	17.3	9.8	46.6	225.0	21.1	10.3	52.1
247.5	16.8	10.5	48.2	247.5	20.6	11.0	53.6
270.0	46.5	20.0	106.3	270.0	44.8	14.1	87.1
292.5	34.4	14.6	78.1	292.5	40.2	11.0	73.3
315.0	48.9	10.4	80.1	315.0	47.1	10.7	79.3
337.5	52.8	11.6	87.8	337.5	41.1	13.2	80.7
Location 3				Location 4			
.0	21.6	12.7	59.9	.0	35.3	10.0	65.3
22.5	25.9	12.5	63.5	22.5	27.6	12.7	65.6
45.0	34.3	9.3	62.3	45.0	21.8	11.9	57.5
67.5	35.7	10.4	66.9	67.5	43.7	14.9	88.3
90.0	35.7	12.6	73.6	90.0	42.1	12.7	80.3
112.5	43.2	9.8	72.6	112.5	45.4	11.1	78.9
135.0	32.4	14.7	76.5	135.0	39.6	12.9	78.3
157.5	19.1	13.3	59.0	157.5	46.4	17.2	98.1
180.0	36.9	13.6	77.8	180.0	37.9	13.8	79.2
202.5	17.2	9.5	45.6	202.5	22.0	11.6	56.9
225.0	21.2	10.9	53.9	225.0	44.8	14.5	88.2
247.5	19.9	12.3	56.8	247.5	42.0	19.6	100.8
270.0	36.8	14.4	80.0	270.0	49.3	13.9	91.0
292.5	36.1	11.3	69.9	292.5	48.6	12.0	84.6
315.0	39.2	9.8	68.5	315.0	39.5	11.2	73.1
337.5	36.1	10.7	68.3	337.5	38.0	9.9	67.8
Location 5				Location 6			
.0	25.1	8.4	50.2	.0	24.0	11.7	59.0
22.5	19.4	8.9	46.1	22.5	19.8	9.3	47.6
45.0	24.7	12.5	62.1	45.0	26.2	11.6	60.9
67.5	42.0	15.5	88.5	67.5	48.9	13.9	90.6
90.0	43.3	11.3	77.3	90.0	49.0	12.1	85.2
112.5	43.7	11.1	77.0	112.5	49.1	9.6	78.0
135.0	40.2	10.0	70.2	135.0	52.2	11.4	86.3
157.5	49.3	14.1	91.7	157.5	43.9	20.6	105.7
180.0	26.8	14.1	69.2	180.0	14.5	7.3	36.4
202.5	17.3	10.4	48.4	202.5	21.8	12.8	60.4
225.0	52.0	14.7	96.1	225.0	66.3	16.9	117.0
247.5	52.5	17.0	103.7	247.5	69.6	16.7	119.7
270.0	54.6	13.3	94.3	270.0	65.2	16.1	113.4
292.5	49.6	11.1	82.8	292.5	44.2	13.3	84.1
315.0	39.3	11.3	73.2	315.0	44.6	12.2	81.1
337.5	33.0	9.2	60.7	337.5	29.1	10.6	60.9

TABLE 1

NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS

Waikiki Landmark

Configuration B - Waikiki Landmark out, with area model

Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Location 7				Location 8			
.0	43.3	13.8	84.7	.0	17.0	9.2	44.7
22.5	32.8	14.7	77.0	22.5	18.9	9.0	45.9
45.0	26.2	12.7	64.3	45.0	27.1	10.6	58.9
67.5	35.7	11.1	68.9	67.5	27.0	12.5	64.5
90.0	46.5	13.2	86.1	90.0	15.8	9.4	43.9
112.5	53.9	11.3	88.0	112.5	19.0	11.1	52.2
135.0	58.3	12.6	96.1	135.0	23.5	13.3	63.5
157.5	42.4	18.5	98.0	157.5	30.1	17.9	83.7
180.0	14.9	8.0	39.0	180.0	15.4	8.8	41.9
202.5	18.2	8.8	44.6	202.5	18.2	10.6	50.0
225.0	24.4	14.5	68.0	225.0	15.5	7.9	39.4
247.5	29.7	19.7	88.9	247.5	24.0	10.1	54.2
270.0	56.0	20.9	118.8	270.0	37.9	11.6	72.7
292.5	48.3	15.1	93.5	292.5	24.0	9.3	51.9
315.0	61.7	14.2	104.2	315.0	18.7	9.5	47.3
337.5	52.9	13.6	93.6	337.5	16.4	9.9	46.1
Location 9				Location 10			
.0	30.2	11.4	64.3	.0	30.7	11.7	65.8
22.5	40.7	11.4	74.8	22.5	33.7	12.2	70.3
45.0	45.4	11.7	80.3	45.0	23.0	13.8	64.5
67.5	18.4	13.8	59.9	67.5	14.3	8.0	38.1
90.0	24.2	13.1	63.5	90.0	15.8	8.1	40.0
112.5	29.3	10.9	62.1	112.5	16.3	8.5	41.8
135.0	30.9	10.2	61.6	135.0	24.8	12.7	63.0
157.5	26.6	11.2	60.2	157.5	17.0	12.4	54.1
180.0	39.8	14.9	84.6	180.0	25.1	14.7	69.3
202.5	45.6	14.7	89.8	202.5	29.5	19.1	86.7
225.0	35.9	18.9	92.5	225.0	10.4	6.7	30.6
247.5	29.3	11.9	64.9	247.5	7.3	5.2	22.8
270.0	15.1	9.2	42.7	270.0	14.6	7.7	37.9
292.5	16.6	9.9	46.2	292.5	16.1	7.7	39.2
315.0	16.6	10.5	48.1	315.0	27.2	10.2	57.8
337.5	35.8	11.7	70.8	337.5	29.1	11.1	62.5
Location 11				Location 12			
.0	56.7	10.7	88.6	.0	50.5	9.7	79.7
22.5	61.7	11.2	95.3	22.5	40.9	13.5	81.3
45.0	36.8	11.4	71.0	45.0	19.7	9.0	46.8
67.5	30.2	12.4	67.2	67.5	20.5	9.6	49.3
90.0	23.3	11.1	56.7	90.0	29.7	14.3	72.5
112.5	20.2	10.1	50.5	112.5	31.9	11.2	65.4
135.0	32.3	8.1	56.7	135.0	42.6	11.4	76.9
157.5	48.1	9.8	77.4	157.5	56.4	14.3	99.4
180.0	50.4	12.2	87.0	180.0	44.6	18.0	98.7
202.5	44.9	14.6	88.7	202.5	27.9	13.1	67.1
225.0	20.5	11.4	54.7	225.0	18.7	11.0	51.8
247.5	22.9	11.7	58.1	247.5	15.4	9.4	43.7
270.0	29.3	15.8	76.7	270.0	20.4	9.7	49.4
292.5	21.0	10.6	52.7	292.5	44.9	12.1	81.1
315.0	34.7	11.7	69.7	315.0	53.4	12.6	91.2
337.5	45.7	11.4	79.9	337.5	52.5	9.8	82.0

TABLE 1

NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS

Waikiki Landmark

Configuration B - Waikiki Landmark out, with area model

Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Location 13				Location 14			
.0	52.5	9.3	80.4	.0	26.0	13.2	65.5
22.5	44.3	12.6	82.2	22.5	34.1	11.6	68.8
45.0	19.1	9.0	46.3	45.0	47.7	12.7	85.7
67.5	22.4	10.1	52.6	67.5	49.0	16.3	98.0
90.0	33.4	15.0	78.5	90.0	45.5	15.2	91.0
112.5	31.9	11.4	66.0	112.5	28.1	16.4	77.3
135.0	41.0	11.2	74.7	135.0	18.6	11.4	52.9
157.5	14.7	9.2	42.3	157.5	26.5	15.2	72.0
180.0	26.3	11.5	61.0	180.0	38.5	12.1	74.8
202.5	28.1	10.2	58.7	202.5	22.7	10.4	53.7
225.0	32.7	15.5	79.2	225.0	33.4	14.9	78.1
247.5	13.5	8.6	39.2	247.5	14.1	8.5	39.6
270.0	15.7	8.9	42.4	270.0	24.0	14.4	67.2
292.5	46.6	12.6	84.5	292.5	27.0	12.9	65.7
315.0	56.5	12.5	93.9	315.0	36.8	12.5	74.4
337.5	53.5	9.5	82.0	337.5	30.1	10.9	62.9
Location 15				Location 16			
.0	33.4	11.2	67.0	.0	39.1	11.5	73.6
22.5	19.6	13.2	59.3	22.5	21.7	9.3	49.5
45.0	30.5	10.4	61.7	45.0	20.3	12.3	57.1
67.5	37.6	12.0	73.7	67.5	33.4	10.5	65.0
90.0	40.5	14.4	83.7	90.0	39.2	12.5	76.7
112.5	30.4	12.3	67.4	112.5	40.4	9.7	69.5
135.0	25.1	11.6	60.0	135.0	49.7	11.7	84.9
157.5	33.9	16.0	82.0	157.5	38.3	14.4	81.6
180.0	33.4	12.9	72.1	180.0	18.1	10.2	48.7
202.5	18.4	10.2	48.9	202.5	18.4	11.7	53.6
225.0	15.5	9.0	42.5	225.0	30.7	15.7	77.8
247.5	17.6	12.6	55.4	247.5	32.9	21.9	98.5
270.0	25.2	16.2	73.7	270.0	61.6	21.2	125.3
292.5	29.3	14.9	74.0	292.5	47.9	14.7	91.9
315.0	47.6	11.9	83.3	315.0	60.2	13.1	99.5
337.5	40.0	10.3	71.0	337.5	48.8	13.5	89.3
Location 17				Location 18			
.0	35.2	11.0	68.3	.0	35.1	11.3	68.9
22.5	23.8	10.1	53.9	22.5	25.1	10.9	57.8
45.0	27.8	11.3	61.8	45.0	29.8	10.0	59.7
67.5	26.5	11.6	61.3	67.5	29.4	14.0	71.4
90.0	22.3	11.0	55.2	90.0	18.5	10.5	49.9
112.5	29.5	11.6	64.2	112.5	31.7	12.4	69.1
135.0	44.9	12.3	81.9	135.0	45.2	12.5	82.7
157.5	38.4	15.2	83.9	157.5	43.6	14.9	88.1
180.0	23.6	13.9	65.3	180.0	31.1	17.3	82.9
202.5	17.8	11.4	51.9	202.5	17.9	10.2	48.5
225.0	17.8	8.0	41.7	225.0	21.1	9.4	49.3
247.5	20.5	9.4	48.5	247.5	20.0	7.8	43.5
270.0	29.1	12.4	66.3	270.0	23.4	10.5	54.8
292.5	19.3	11.5	53.8	292.5	17.8	10.3	48.7
315.0	40.9	17.3	92.9	315.0	33.4	17.9	87.2
337.5	47.0	14.1	89.4	337.5	44.8	13.9	86.6

TABLE 1

NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS

Waikiki Landmark

Configuration B - Waikiki Landmark out, with area model

Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Location 21				Location 23			
.0	36.0	9.0	62.9	.0	31.5	9.5	60.0
22.5	39.4	10.8	71.7	22.5	35.5	11.3	69.3
45.0	41.4	15.1	86.9	45.0	49.1	13.8	90.4
67.5	19.0	9.3	46.7	67.5	30.0	17.4	82.1
90.0	26.1	11.9	61.7	90.0	22.6	10.3	53.4
112.5	36.6	11.0	69.7	112.5	18.2	8.4	43.6
135.0	45.9	12.9	84.6	135.0	28.1	15.5	74.5
157.5	42.4	13.0	81.5	157.5	46.2	14.4	89.3
180.0	34.0	13.9	75.6	180.0	34.0	13.5	74.6
202.5	29.2	13.4	69.5	202.5	26.7	12.4	63.8
225.0	47.0	16.4	96.3	225.0	31.5	15.1	76.8
247.5	23.8	10.1	54.1	247.5	17.4	8.4	42.6
270.0	14.3	9.6	43.0	270.0	14.7	11.0	47.8
292.5	21.6	11.5	56.2	292.5	18.4	10.5	49.8
315.0	26.5	12.6	64.4	315.0	24.9	12.3	61.7
337.5	36.8	10.3	67.9	337.5	30.0	9.4	58.3
Location 24							
.0	31.7	9.4	59.9				
22.5	40.4	11.5	74.7				
45.0	50.5	13.7	91.5				
67.5	30.6	16.8	80.9				
90.0	22.7	10.4	53.8				
112.5	19.5	8.3	44.4				
135.0	24.5	14.9	69.1				
157.5	42.4	15.7	89.5				
180.0	37.1	13.3	77.1				
202.5	26.3	11.5	60.8				
225.0	36.5	13.7	77.7				
247.5	20.0	8.8	46.3				
270.0	13.7	9.9	43.3				
292.5	20.0	12.4	57.2				
315.0	21.6	10.6	53.5				
337.5	26.8	9.6	55.5				

TABLE 1

NON-DIMENSIONAL PEDESTRIAN WIND VELOCITIES AND PEAK GUSTS

Waikiki Landmark

Configuration B - Waikiki Landmark out, with area model

>> GREATEST VALUES <<

Location	Azimuth (deg)	Umean/Uref (%)	Urms/Uref (%)	Upeak/Uref (%)
Greatest Values of Umean/Uref				
6	247.5	69.6	16.7	119.7
6	225.0	66.3	16.9	117.0
6	270.0	65.2	16.1	113.4
1	157.5	61.9	23.0	131.0
7	315.0	61.7	14.2	104.2
11	22.5	61.7	11.2	95.3
16	270.0	61.6	21.2	125.3
16	315.0	60.2	13.1	99.5
7	135.0	58.3	12.6	96.1
1	180.0	57.1	15.3	103.0
11	.0	56.7	10.7	88.6
13	315.0	56.5	12.5	93.9
12	157.5	56.4	14.3	99.4
7	270.0	56.0	20.9	118.8
5	270.0	54.6	13.3	94.3
Greatest Values of Urms/Uref				
1	157.5	61.9	23.0	131.0
16	247.5	32.9	21.9	98.5
16	270.0	61.6	21.2	125.3
7	270.0	56.0	20.9	118.8
6	157.5	43.9	20.6	105.7
1	270.0	46.5	20.0	106.3
7	247.5	29.7	19.7	88.9
4	247.5	42.0	19.6	100.8
10	202.5	29.5	19.1	86.7
9	225.0	35.9	18.9	92.5
7	157.5	42.4	18.5	98.0
12	180.0	44.6	18.0	98.7
18	315.0	33.4	17.9	87.2
8	157.5	30.1	17.9	83.7
23	67.5	30.0	17.4	82.1
Greatest Values of Upeak/Uref				
1	157.5	61.9	23.0	131.0
16	270.0	61.6	21.2	125.3
6	247.5	69.6	16.7	119.7
7	270.0	56.0	20.9	118.8
6	225.0	66.3	16.9	117.0
6	270.0	65.2	16.1	113.4
1	270.0	46.5	20.0	106.3
6	157.5	43.9	20.6	105.7
7	315.0	61.7	14.2	104.2
5	247.5	52.5	17.0	103.7
1	180.0	57.1	15.3	103.0
4	247.5	42.0	19.6	100.8
16	315.0	60.2	13.1	99.5
12	157.5	56.4	14.3	99.4
12	180.0	44.6	18.0	98.7

Typical Values for An Open-Country Site

Umean/Uref = 45-50 %

Urms/Uref = 10-12 %

Upeak/Uref = 75-85 %

TABLE 2
 PERCENTAGE FREQUENCY OF WIND DIRECTION AND SPEED
 Honolulu, Hawaii
 Honolulu International Airport 1965-1974
 Season: Annual
 Number of Observations: 29215 Height of Measurement: 25 ft

AZIMUTH	0-3 mph	4-7 mph	8-12 mph	13-18 mph	19-24 mph	25-31 mph	>32 mph	TOTAL
N	0.5	2.5	1.3	0.5	0.0	---	---	4.8
NNE	0.3	1.2	1.6	1.5	0.2	0.0	---	4.7
NE	0.3	2.1	6.1	11.0	3.2	0.3	0.0	23.0
ENE	0.2	2.5	10.9	16.6	4.1	0.3	0.0	34.7
E	0.1	1.0	2.5	2.8	0.5	0.0	---	7.0
ESE	0.0	0.3	0.4	0.3	0.0	0.0	---	1.1
SE	0.0	0.3	0.8	1.0	0.1	0.0	---	2.2
SSE	0.1	0.4	1.2	0.7	0.1	---	---	2.4
S	0.1	0.5	1.4	0.6	0.1	0.0	---	2.7
SSW	0.0	0.3	0.8	0.3	0.0	---	---	1.5
SW	0.0	0.2	0.8	0.4	0.0	0.0	---	1.5
WSW	0.0	0.3	0.5	0.4	0.0	---	---	1.2
W	0.1	0.5	0.2	0.2	---	---	---	1.1
WNW	0.2	1.4	0.3	0.1	0.0	---	---	2.0
NW	0.4	2.3	0.8	0.1	0.0	0.0	---	3.8
NNW	0.5	2.3	0.8	0.2	0.0	---	---	3.8
CALM	2.5	---	---	---	---	---	---	2.5
TOTAL	5.4	18.3	30.6	36.5	8.5	0.7	0.0	100.00

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TABLE 3
SUMMARY OF WIND EFFECTS ON PEOPLE

Description	Beaufort Number	Speed (mph)	Effects
Calm, light air	0,1	0-3	Calm, no noticeable wind.
Light breeze	2	4-7	Wind felt on face.
Gentle breeze	3	8-12	Wind extends light flag. Hair is disturbed. Clothing flaps.
Moderate breeze	4	13-18	Raises dust, dry soil, and loose paper. Hair disarranged.
Fresh breeze	5	19-24	Force of wind felt on body. Drifting snow becomes airborne. Limit of agreeable wind on land.
Strong breeze	6	25-31	Umbrellas used with difficulty. Hair blown straight. Difficult to walk steadily. Wind noise on ears unpleasant Windborne snow above head height (blizzard).
Near gale	7	32-38	Inconvenience felt when walking.
Gale	8	39-46	Generally impedes progress. Great difficulty with balance in gusts.
Strong gale	9	47-54	People blown over by gusts.

NOTE: Table from Penwarden and Wise, 1975.

TABLE 4
COMPARISONS OF WIND SPEEDS TO PEDESTRIAN COMFORT CRITERIA

Waikiki Landmark

Conf A - Waikiki Landmark in place, with area model

Location	Criteria of Melbourne (1978)					Criteria of Hunt, Poulton Mumford (1976)				Criteria of Lawson and Penwarden (1975)					Criteria of Penward & Wise (1975)		Criteria of Isyumov and Davenport (1975)					
	Lng	Sht	Wlk	Ucf	Uac	Lng	Plz	Wlk	Uac	Cov	Std	Wlk	Ucf	Uac	NRm	Rem	Lng	Sht	Str	Wlk	Ucf	Uac
1																						
2																						
3																						
4																						
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KEY

Lng - acceptable for long duration activities
 Cov - acceptable for covered areas
 Sht - acceptable for short duration activities
 Std - acceptable for standing areas
 Plz - acceptable for plazas
 Str - acceptable for strolling

Wlk - acceptable for walkways
 Ucf - uncomfortable for walkways.
 Uac - unacceptable or dangerous
 NRm - no remedial action necessary
 Rem - remedial action recommended

• - indicates Conf A criteria
 ○ - indicates Conf B criteria, where different

TABLE 4
COMPARISONS OF WIND SPEEDS TO PEDESTRIAN COMFORT CRITERIA
Waikiki Landmark

Conf B - Waikiki Landmark out, with area model

Loca tion	Criteria of Melbourne (1978)					Criteria of Hunt, Poulton Mumford (1976)				Criteria of Lawson and Penwarden (1975)					Criter of Penward & Wise (1975)		Criteria of Isyumov and Davenport (1975)					
	Lng	Sht	Wlk	Ucf	Uac	Lng	Plz	Wlk	Uac	Cov	Std	Wlk	Ucf	Uac	NRm	Rem	Lng	Sht	Str	Wlk	Ucf	Uac
1																						
2																						
3																						
4																						
5																						
6																						
7																						
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15																						
16																						
17																						
18																						
21																						
23																						
24																						

KEY

- Lng - acceptable for long duration activities
- Cov - acceptable for covered areas
- Sht - acceptable for short duration activities
- Std - acceptable for standing areas
- Plz - acceptable for plazas
- Str - acceptable for strolling
- Wlk - acceptable for walkways
- Ucf - uncomfortable for walkways
- Uac - unacceptable or dangerous
- NRm - no remedial action necessary
- Rem - remedial action recommended

TABLE 5
CONFIGURATIONS FOR DATA ACQUISITION

Configuration A:

- Geometry** - **WAIKIKI LANDMARK, Honolulu, Hawaii, in place, with surrounding area model.**
- Velocities** - **Pedestrian winds measured for 16 wind directions, in 22.5-degree increments from 0, for locations 1 - 39 (see Figure 5 for details).**

Configuration B:

- Geometry** - **WAIKIKI LANDMARK out (flat site), with area model.**
- Velocities** - **Pedestrian winds measured for 16 wind directions, in 22.5-degree increments from 0, for locations 1 - 18, 21, and 23 - 24 (see Figure 5 for details).**

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Appendix G

WAIKIKI LANDMARK
SHADOW STUDY
ARCHITECTS HAWAII LTD.

- 1.0 **PURPOSE:** The purpose of this study was to determine the impact of shadows cast on surrounding properties by the proposed Waikiki Landmark Project.
- 2.0 **DESCRIPTION:** The project site is triangular and bordered by three streets: McCully Street, Kalaukua Avenue and Ala Wai Boulevard. The area considered is shown in Attachment A. Three site conditions were considered in the study: 1) the existing conditions; 2) the proposed project scheme with two towers linked at the top, situated toward McCully Street (Scheme 1); and 3) the proposed project scheme with two independent towers situated toward Ala Wai Boulevard (Scheme 2).
- 3.0 **PROCEDURE:** Shadows cast by scale models of the two proposed designs were photographed on a model of the site (scale 1" = 50'-0"). Since the existing buildings on the site are two-story or less and do not cast significant shadows, the existing conditions were modeled as a flat, empty site. This allowed the shadows cast by surrounding buildings to be seen clearly.

The site model was positioned for the months and times of day indicated, using a sun path indicator manufactured by the Crowther Solar Group. The shadows for each condition were photographed for the 21st day of each month at two hour increments (6 AM, 8 AM, 10 AM, 12 Noon, 2 PM, 4 PM and 6 PM). As the sun's path is symmetrical in the fall and spring, seven months were photographed to represent a complete year. The photographs were examined to determine the shadow patterns created by the two proposed building schemes as well as the prevailing shadow patterns created by the existing conditions surrounding the site.

- 4.0 **CRITERIA:** Shadows reaching the sidewalk on the opposite side of a street from the project were judged to have an impact to be recorded. The depth to which the shadows reached into the properties opposite the project was not considered. The same impact was judged whether a shadow merely touched the sidewalk or extended deeply into the properties, since it was felt that the additional variable would make the study difficult to quantify. Shadows that did not reach the opposite sidewalk or remained on the project site were judged not to have an impact.

When a shadow reached the sidewalk opposite the site, the percentage of length of the sidewalk in shadow was estimated and recorded numerically. Note that this shadow length included the shadows from both the proposed and existing buildings.

5.0 RESULTS:

The results of the study are shown photographically at Attachment B and numerically at Attachment C. The numbers in the numerical chart represent the fraction of the full sidewalk length of each street which is in shadow at the hour indicated, for the individual months noted and as an average of those monthly fractions for the entire year. Note that the shadows at 6 AM and 6 PM, although photographed, were not evaluated since they were found to be so long, due to extremely low sun angles, that the results were meaningless.

In general, there is no shadow impact on McCully Street from the buildings in the proposed project until after 12 noon, since the sun is in the east and casting shadows to the west, although shadows are cast on the street from the surrounding buildings. Similarly, there is no impact on Kalakaua Avenue from the project after 12 noon, since the sun is then in the west and casting shadows to the east. There is an impact on Ala Wai Boulevard throughout the day, but generally only during the later months of the year when the sun at noon is at a low angle.

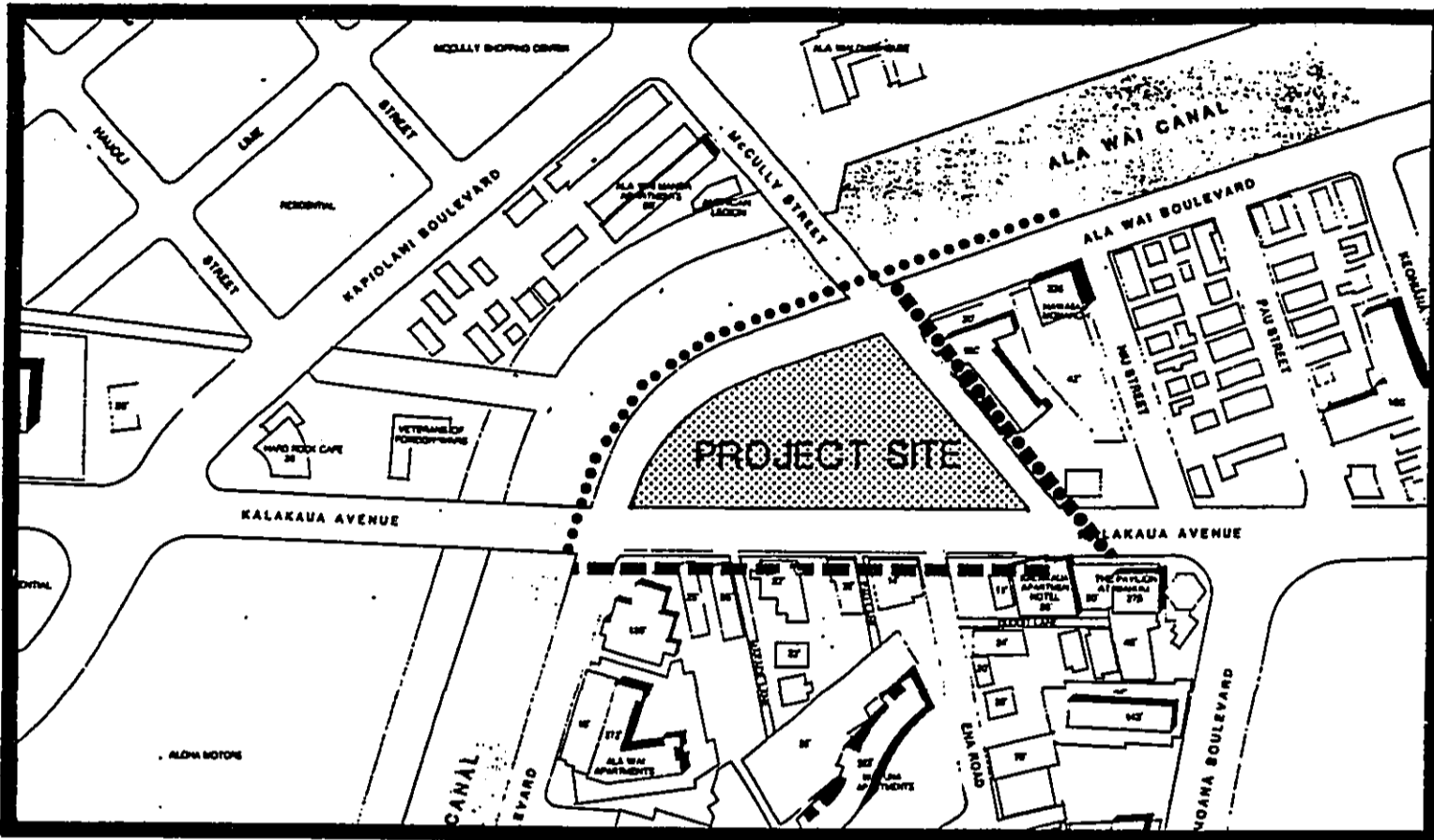
McCully Street was found to be in shadow from existing buildings for 54% of its length throughout the year at 8 AM and for 41% at 10 AM. Scheme 1 creates an average of 4% more shadow at 2 PM throughout the year than does Scheme 2. However, Scheme 2 creates 4% more shadow at 4 PM than does Scheme 1. The maximum impact occurs with Scheme 2 at 4 PM, increasing shadow from 19% to 56% for a 37% increase (vs a 33% increase for Scheme 1).

Kalakaua Avenue was found to be in shadow from existing buildings for 9% of its length at 2 PM and 48% at 4 PM. Scheme 1 creates an average of 6% more shadow at 8 AM than does Scheme 2, and at 5% more at 10 AM. However, the total shadow cast by all buildings at 10 AM is only 6%. The maximum impact occurs with Scheme 1 at 8 AM, increasing shadow from 24% to 50% for a 26% increase (vs a 20% increase for Scheme 2).

Ala Wai Boulevard is impacted by both schemes throughout the day. Scheme 2 consistently casts greater shadows than Scheme 1: 17% vs 14% at 10 AM, 19% vs 13% at 12 noon, and 36% vs 32% at 2 PM, except that at 4 PM Scheme 1 casts a 66% shadow vs 56% for Scheme 2. The maximum impact occurs with Scheme 1 at 4 PM, increasing shadow from 46% to 66% for a 20% increase (vs a 10% increase for Scheme 2).

6.0 CONCLUSION:

There can be no clear conclusion drawn that either scheme creates a significantly greater shadow impact than the other for all three streets throughout the year. It can be found that one scheme creates a greater impact on any one street during a particular month than does the other, and in general Scheme 1 has a somewhat greater impact on McCully Street and on Kalakaua Avenue than does Scheme 2, but Scheme 2 has a similarly greater impact on Ala Wai Boulevard than does Scheme 1.



VICINITY MAP

STUDY AREAS

- KALAKAUA AVENUE**
- MC CULLY STREET**
- ALA WAI BOULEVARD**

NUMERICAL SHADOW ANALYSIS

JUNE	8AM	10AM	12NOON	2PM	4PM
	MKA	MKA	MKA	MKA	MKA
EXISTING	.5.1 -	.1 - -	- - -	- - -	.1 - .15.1
SCHEME 1	.5.2 -	.1.2 -	- - -	.3 - .15	.4.15.4
SCHEME 2	.5.2 -	.1 - -	- - -	.05 - .25	.5.15.3
JUL/MAY					
EXISTING	.5.2 -	.1 - -	- - -	- - -	.1.3.3
1	.5.4 -	.1.1 -	- - -	.2 -	.3.3.3
2	.5.5 -	.1.05 -	- - -	.5 -	.5.3.5
AUG/APR					
EXISTING	.0.2 -	.4 - -	- - -	- - -	.1.1.4.3
1	.0.0 -	.4.1 -	- - -	.3 - .3	.6.4.4
2	.0.0 -	.4.05 -	- - -	- - -	.3.7.4.5
SEP/MAR					
EXISTING	.5.4 -	.5 - -	- - -	.1 - -	.1.7.3
1	.5.0 -	.5 - -	- - -	.2.1 -	.4.4.7.8
2	.5.0 -	.5 - .1	- - -	.3 - -	.4.5.7.8

LEGEND

M = McCULLY STREET
 K = KALAKAUA AVENUE
 A = ALA WAI BOULEVARD
 .S = 50% OF SIDEWALK IN SHADOW

	8 AM	10 AM	12 NOON	2 PM	4 PM
OCT/FEB	M K A	M K A	M K A	M K A	M K A
EXISTING	.6 .5 - .6	- - -	- - - .1	- .1 .2	.3 .6 .6
SCHEME 1	.6 .7 .1	.6 - -	- - - .2	- .1 .3	.6 .6 .9
SCHEME 2	.6 .6 .1	.6 - .1	- - - .3	- .1 .4	.4 .6 .9
NOV/JAN					
EXISTING	.6 .3 .1	.6 - .2	- .1 .1	- .2 .2	.4 .6 .8
1	.6 .6 .15	.6 - .5	- .1 .2	- .2 .4	.8 .6 .9
2	.6 .3 .15	.6 - .5	- .1 .3	- .2 .4	.7 .6 .9
DEC					
EXISTING	.5 - .1	.6 - .3	.1 .1 .2	- .3 .3	.3 .6 .8
1	.5 .4 .2	.6 - .5	.1 .1 .3	- .3 .5	.8 .6 .9
2	.5 .3 .2	.6 - .5	.1 .1 .4	- .3 .5	.6 .6 .8
ANNUAL					
EXISTING	.51 .24 .03 .41	- .07 .01 .03 .07	- .09 .16 .19 .48 .46		
1	.54 .54 .06 .41 .00 .14	.01 .03 .13 .13 .09 .32	.52 .48 .66		
2	.54 .44 .06 .41 .01 .17	.01 .03 .19	.07 .09 .36 .56 .48 .50		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31

Appendix H

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

830 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96843



RSI
DM ✓
APPENDIX F

FRANK F. FASI, Mayor

DONNA B. GOTH, Chairman
ERNEST A. WATARI, Vice Chairman
MILTON J. AGADER
SISTER M. DAVILYN AH CHICK, O.S.F.
EDWARD Y. HIRATA
ALFRED J. THIEDE
JOHN K. TSUI

KAZU HAYASHIDA
Manager and Chief Engineer

January 21, 1988

Mr. Daniel S. Miyasato
Richard M. Sato & Associates, Inc.
2065 South King Street, Room 303
Honolulu, Hawaii 96826

Dear Mr. Miyasato:

Subject: Your Letter of January 8, 1988 Concerning the
Proposed Waikiki Landmark Project on Kalakaua
Avenue, TMK: 2-6-14: 39, 41, 43, 44, 49-56, and 59

Thank you for your letter concerning the proposed Waikiki
Landmark project.

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

The availability of water will be determined when the
building permit application is submitted for our review and
approval. If your development plan requires action by the
City Department of Land Utilization, the plan should be
approved by that department before we take action on the
proposed development. If water is made available, the
applicant will be required to pay our Water System Facilities
Charges for source-transmission and daily storage.

If a three-inch or larger meter is required for the proposed
development, construction drawings showing the installation
of the meter should be submitted for our review and approval.

If you have any questions, please contact Albert Koga at
527-6123.

Very truly yours,

KAZU HAYASHIDA
Manager and Chief Engineer

RECEIVED
JAN 25 1988

H-1

RICHARD M. SATO & ASSOC., INC.

Appendix I

DIVISION OF WASTEWATER MANAGEMENT
City and County of Honolulu

APPLICATION FOR SEWER CONNECTION
(Allow at least three weeks for processing of application)

PART A - TO BE FILLED BY APPLICANT

RECEIVED
JAN 21 1988

1. Project Name: WAIKIKI LANDMARK
2. Address or Location: Parcels at Ala Wai Blvd. - McCully Street - Kalakata Avenue
3. Tax Map Key: 2-6-14: 39, 41, 43, 44, 49, 50, 51, 52, 53, 54; 55, 56, & 59
4. Type Development: PD-H Cluster Subdiv.
Apt. Other: Commercial
5. Total No. of Units 375 (Give breakdown below)
Studio 37 1 Bdrm. 37 2 Bdrm. 301 3 Bdrm.
4 Bdrm. Other: Comm. = 10,000 SF; Retail = 40,000 SF
6. Sewer Connection Work Desired: (Give length, size, depth, etc.)
Connection to existing sewer mains within the roadways.
7. Approximate Date Connection is Required: December 1988
8. Number and Type of Existing Structures on Property: 5 buildings for office and commercial uses.
(Check One: Structures to Remain 0 To be Demolished 5)
9. Remarks: _____
10. Information provided By:
Name: Daniel S. Miyasato Date: January 8, 1988
Firm: Richard M. Sato & Assoc., Inc. Phone: 955-4441
Address: 20 65 So. King St., #303 Honolulu 96826
Street City Zip Code

PART B - TO BE FILLED BY DIVISION OF WASTEWATER MANAGEMENT

1. Present Zoning: _____ General Plan: _____
2. Sewers: Adequate Inadequate Not Available
Other: _____
3. Charges: Yes No
a. Sewer Assessment Rate 44 X 124,419 sq. ft.... \$ 4,976.76
Area
b. Sewer Connection \$ _____
c. Total Estimated Charge \$ 4,976.76
4. Remarks: _____
5. Application:
Approved: *Richard M. Sato* Date 1/11/88
(Valid for One Year After Date of Approval)
Not Approved: _____ Date _____