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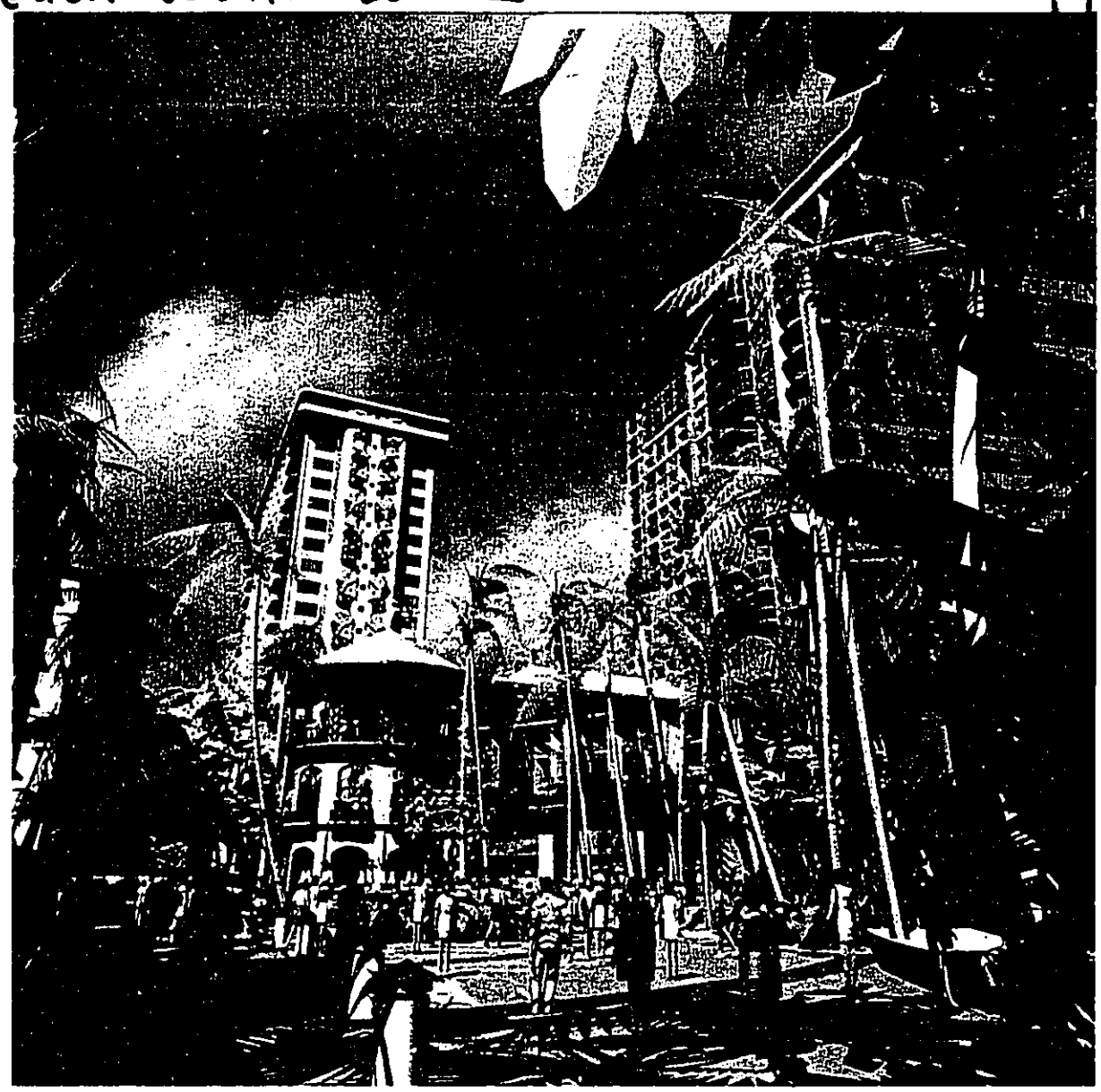

Waikīkī Beach Walk

Waikīkī, O'ahu, Hawai'i

Final Environmental Impact Statement

VOLUME II - TECHNICAL APPENDICES

January 2002

Waikīkī Beach Walk

Waikīkī, Island of O'ahu, Hawai'i

TMK 2-6-002: 015,016
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Final Environmental Impact Statement
Volume II - Technical Appendices

Applicant:

Outrigger Enterprises, Inc.
2375 Kūhiō Avenue
Honolulu, Hawai'i 96815

Accepting Authority:

City and County of Honolulu
Department of Planning and Permitting
650 South King Street
Honolulu, Hawai'i 96813

Prepared By:

GROUP 70

Group 70 International, Inc.
Architecture • Planning • Interior Design • Environmental Services
Honolulu, Hawai'i

This environmental document is prepared pursuant to Chapter 200 of Title 11, Administrative Rules, Department of Health, "Environmental Impact Statement Rules."

January 2002

VOLUME II. TECHNICAL APPENDICES

A. A Traditional and Cultural Practices Assessment for a Proposed Outrigger Hotels Hawai'i Property Redevelopment in Waikīkī, Kona District, Island of O'ahu. (Cultural Surveys Hawai'i, September 2001).

B. Archaeological Assessment Study: Waikīkī Beach Walk Project, Redevelopment of Outrigger Enterprises, Inc. Properties in the Lewers-Kālia Area. (PHRI, Inc., September 2001).

C. Pedestrian Wind Assessment for the Proposed Waikīkī Beach Walk, Honolulu, Hawai'i (RWDI, October 2001).

D. Impact on Surface and Groundwater Resources of the Proposed Waikīkī Beach Walk Redevelopment. (Tom Nance Water Resource Engineering, September 2001).

E. Waikīkī Beach Walk Existing Landscape Inventory. (Walters, Kimura, Motoda, Inc., August 2001).

F. An Assessment of Potential Effects to Water Quality and Marine Communities from Proposed Redevelopments of Outrigger Properties in the Lewers-Kālia Area, Waikīkī, O'ahu, Hawai'i. (Marine Research Consultants, September 2001).

G. Acoustic Study for the Waikīkī Beach Walk Development (Y Ebisu & Associates, October 2001).

H. Air Quality Impact Report (AQIR), Waikīkī Beach Walk, Honolulu, HI (J W Morrow, October 2001).

I. Environmental Review- Outrigger Waikīkī Beach Walk Project. (J.R. Herold & Associates, August 2001).

J. Infrastructure Assessment- Waikīkī Beach Walk Outrigger Redevelopment. (Wilson Okamoto & Associates, August 2001).

K. Traffic Study for the Waikīkī Beach Walk EIS. (Kaku Associates, October 2001).

L. Parking and Loading Management Plan- Outrigger Waikīkī Beach Walk Planned Development. (TDA, Inc., September 2001).

M. Waikīkī Beach Walk Social Impact Assessment.(Earthplan, September 2001).

N. Market and Economic/Fiscal Impact Assessment- Waikīkī Beach Walk. (Hospitality Advisors, October 2001).

APPENDIX A

A Traditional and Cultural Practices Assessment for a Proposed Outrigger Hotels Hawaii Property Redevelopment in Waikīkī, Kona District, Island of O'ahu

Cultural Surveys Hawai'i

September 2001

A Traditional and Cultural Practices Assessment for a Proposed Outrigger Hotels Hawai'i Property Redevelopment in Waikīkī, Kona District, Island of O'ahu (TMK: 2-6-02:15 &16; 2-6-03:1, 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 21, 32, 34, 35, 39, 52, 56 (por.), 57; 2-6-04:10)

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Group 70 International, Inc.

Cultural Surveys Hawai'i
September, 2001

ABSTRACT

A Traditional and Cultural Practices Assessment for the proposed Waikīkī Beach Walk (Outrigger properties renovations) project was requested by Group 70 International, Inc. The proposed project area, comprised of 22 parcels(TMK: 2-6-02:15 and 16; 2-6-03:1, 2, 3, 4, 6, 7, 8, 9, 10,11, 12, 21, 32, 34, 35, 39, 52, 56 (por.), 57; 2-6-04:10), is located along Lewers Street, Beach Walk, Kālia Road and Saratoga Road in Waikīkī. The project area consists of approximately 7.9 acres situated in Kawehewehe, Kālia in the 'Ewa portion of Waikīkī.

The thrust of this cultural assessment was: (1) historic research, (2) documentation of cultural practices – both traditional and historic, (3) consultation, (4) identification of cultural concerns and potential negative impacts to native Hawaiian culture, and (4) recommendations.

Oral interviews with four *kūpuna* were conducted as part of this study. The focus of the interviews was to document Hawaiian cultural practices – both past and present, within the project area. Full transcripts of the interviews are appended to this report.

Due to the developed and urbanized nature of the project area, no current cultural practices were identified for the area between Saratoga and Lewers Street – *ma kai* of Kalākaua to the shoreline. However, because the shoreline has basically remained unchanged for years and access to the beach was not prohibited, cultural practices – both past and present – were identified in relation to (1) gathering marine resources for cultural and subsistence purposes, and (2) a religious practice related to spiritual and physical healing.

No known burials were identified within the boundaries of the project area. However, previous archaeological research identified burials in close proximity to the project area. Consultations with lineal and cultural descendants for Waikīkī identified the potential of inadvertent burial discovery as the primary cultural concern. Other concerns raised were in regard to (1) potential historic properties within the project area, and (2) recreating a "Hawaiian sense of place".

Because of the high concern expressed by the Waikīkī lineal and cultural descendants, cultural monitoring is being recommended for all subsurface work conducted within the project area.

Note: Throughout this report the spelling of Hawaiian vocabulary and place names has been standardized to present orthography, except for Hawaiian words used in quotes.

ACKNOWLEDGMENTS

Cultural Surveys Hawai'i wishes to acknowledge, first and foremost, the *kūpuna* who willingly took the time to be interviewed and granted their interviews to be used for this Cultural Assessment study: Peter Akimo Jr., who sat through five hours of interviewing, only to have to repeat the long and tedious process when, to the dismay of the interviewer, the tapes did not record and were blank; Florence Kamaka Clark Miyamoto, who granted an interview while recovering from an illness; Robert Paoa; and Betty Dyer Sorensen who took the time to respond in the midst of tragedy (the bombing of the World Trade Center in New York) so that we could meet our report deadline. Acknowledgments also go to Warren Nishimoto at the Center for Oral History, University of Hawai'i at Mānoa who was instrumental in providing initial contacts and names of Kālia families; and to Pila Kikuchi who was the cultural resources contact for Outrigger Enterprises, Inc. And, lastly we wish to acknowledge everyone who provided input for this cultural study.

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I. INTRODUCTION

A. Project Background

At the request of Group 70 International, Inc., Cultural Surveys Hawai'i conducted a Traditional and Cultural Practices Assessment for the proposed redevelopment of the Outrigger properties along Lewers Street, Beach Walk, Kālia Road and Saratoga Road in Waikīkī (Figure 1). The project includes the existing Outrigger Reef and Islander Hotels; a major resort retail complex; parking facilities; as well as additional ancillary uses and public open space. The proposed redevelopment is being planned to revitalize its properties in the Lewers-Kālia area. The project area is *ma kai* of Kalākaua Avenue and extends to the Outrigger Reef property on the beach, and is demarcated by Saratoga Road on the 'Ewa side and Lewers Street on the Diamond Head side.

The purpose of this Traditional Practices Assessment is to consider the effects the proposed redevelopment may have on native Hawaiians as it pertains to the culture and their right to practice traditional customs. The Hawai'i State Constitution, Article XII, Section 7 protects "all rights" of native Hawaiians that are "customarily and traditionally exercised for subsistence, cultural and religious purposes".

The suggested "Guidelines for Assessing Cultural Impacts" issued by the Office of Environmental and Quality Control (OEQC) discuss the types of cultural practices and beliefs that might be assessed. The Guidelines read:

> The types of cultural practices and beliefs subject to assessment may include subsistence, commercial, residential, agricultural, access-related, recreational, and religious and spiritual customs. The types of cultural resources subject to assessment may include traditional cultural properties or other types of historic sites, both man-made and natural, including submerged cultural resources, which support such cultural practices and beliefs

The project area being studied is unusual in that it consists of already developed properties within a highly urbanized area. Most often, cultural assessments are conducted for properties that are undeveloped or have undergone few changes over a span of time. The cultural integrity and natural setting of the environment within the project area was compromised long ago before such guidelines were written or cultural assessments were ever thought of. The traditional lifestyle that no doubt existed here at one time was overtaken by changes beyond the control of native Hawaiians at the time: the decimation of the native Hawaiian population through diseases introduced by foreign visitors, a changing economy, the privatization of land, and the "Reclamation Project" which forever altered the landscape and traditional lifestyle of native Hawaiians. Because of the highly urban nature of the properties slated for redevelopment, the focus of this study has been primarily historical research. An effort was also made to conduct interviews with *kūpuna* who were knowledgeable of the project area and cultural practices within the general Kālia area.

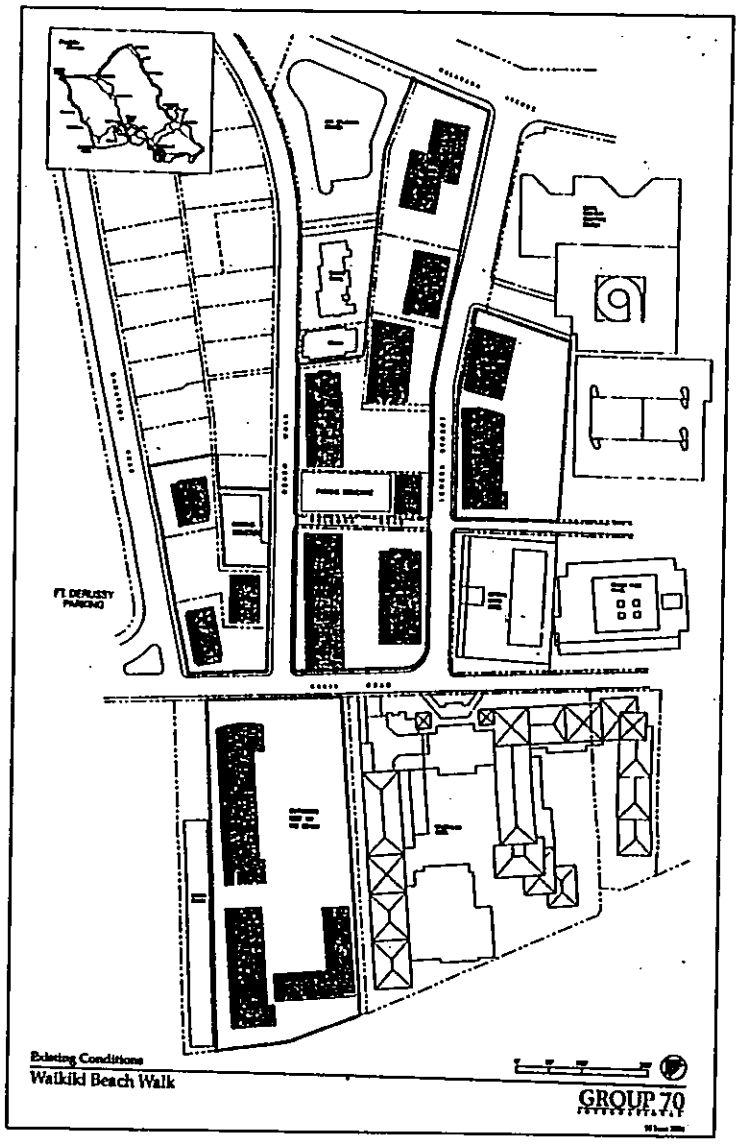

Figure 1 Outrigger Waikīkī project area (map provided by Group 70 International)

B. Scope of Work

The following Scope of Work (SOW) was proposed for satisfying requirements related to Hawaiian customary and traditional rights and their applicability to the project area.

1) Examination of historical documents, Land Commission Awards and historic maps, with the specific purpose of identifying traditional Hawaiian activities including gathering of plant, animal and other resources, burial patterns, and places of particular cultural import as may be indicated in the historic record.

2) A review of the existing archaeological information pertaining to any sites on the property as this may allow us to reconstruct traditional land use activities and identify and describe the cultural resources, practices and beliefs associated with the parcel and identify present uses. A major focus will be the identification of burial patterns and the development of recommendations of how to respond in the event that burials are encountered.

3) Conduct 3 - 4 oral interviews with persons knowledgeable about the historic and traditional practices in the project area and region. In addition, conduct more informal interviews plus coordination with a number of individuals and organizations associated with Waikīkī.

4) Preparation of a report on items 1-3 summarizing the information gathered related to traditional practices and land use. The report will assess the impact of the proposed action on the cultural practices and features identified in the project area.

C. Methodology

Historical documents, maps and photographs were researched at the Hawai'i State Archives, Hawai'i State Survey Office, Hawai'i State Library, Bernice Pauahi Bishop Museum archives and library, Hamilton Library at the University of Hawai'i at Mānoa, the State Historic Preservation Division (SHPD) library, and the library of Cultural Surveys Hawai'i. Also, reviewed were the life history interviews conducted by the Center for Oral History at the University of Hawai'i at Mānoa which document Waikīkī from 1900-1985.

Hawaiian organizations, agencies, community members and cultural and lineal descendants with ties to Waikīkī were contacted to: (1) identify potentially knowledgeable individuals with cultural expertise and knowledge of the project area and the surrounding vicinity, and (2) identify cultural concerns and potential negative impacts relative to the project. An effort was made to locate informants who either grew up in Kālia or who, in the past, used the area for traditional and cultural purposes. In addition, informal talk-story with community members familiar with the project area was on-going throughout the consultation period. The organizations consulted were the State Historic Preservation Division, O'ahu Island Burial Council, Office of Hawaiian Affairs, Hui Mālama i Nā Kūpuna o Hawai'i Nei,

O'ahu Council of Hawaiian Civic Clubs, Waikīkī Neighborhood Board, as well as lineal and cultural descendants with ties to Waikīkī. A discussion of the consultation process is found in Section VII of this report.

D. Identification of Knowledgeable Interview Informants

Based on recommendations from the above mentioned organizations and the community, five *kūpuna* were identified and four interviews were conducted. An effort was made to identify *kūpuna* with genealogical ties to Kālia and *kūpuna* who lived in the Kālia area prior to 1951 when the first Outrigger Hotel – the Edgewater – was built within the project area. It was hoped that information on history, traditional cultural practices, and the general lifestyle of Hawaiians living in Kālia prior to the acquisition of the Outrigger properties could be documented through this effort.

The consultation process identified five individuals as potential informants. The individuals identified were: Peter Akimo, Kamaka Clark Miyamoto, Fred Paoa, Robert Paoa and Betty Dyer Sorensen. Of the five individuals identified, one declined an interview, three were formally interviewed and one chose to submit a written account in answer to questions sent to her, rather than be formally interviewed.

Fred Paoa is 96 years old and was interviewed by the staff of the Center for Oral History (University of Hawai'i at Mānoa) in 1985. The Paoa family has a long history of residence at Kālia, which dates back more than 150 years. Due to Mr. Paoa's age and health, his family declined on his behalf to grant an interview.

The ages of the four *kūpuna* informants ranged from 67 to 79 years. This would place them growing up in Kālia in the 1920s, 1930s and 1940s. One *kūpuna* lived in Kālia until 1968. The other three lived in Kālia until either just before or after WWII. Three of the *kūpuna* are of native Hawaiian ancestry. Two *kūpuna* have lineal ties to the *'āina* (land) of Kālia and are also the niece and nephew of Fred Paoa.

Betty Dyer Sorensen presently resides in the continental United States and it took some time to locate her. Through an intermediary, Mrs. Sorensen requested to communicate via fax only and she declined a telephone interview. Mrs. Sorensen was contacted because she grew up very near the project area on the corner of Beach Walk and Kalākaua Avenue. Her self-written account is in Appendix D of this report.

Mr. Peter Akimo, Mrs. Kamaka Clark Miyamoto and Mr. Robert Paoa were formally interviewed for this project. Please see Section V for a biographical sketch and interview synopsis of each informant. The full transcript of all the interviews are in the "Appendices" section of this report.

E. The Interview Process

Once the potential participants were identified, they were contacted and a pre-interview was conducted either over the phone or in person. Based on the success of the pre-interview session, the *kūpuna*'s knowledge of the project area and his/her consent to continue the talks, a determination was made whether to formally interview the potential participant or not. Once selected, an appointment was scheduled with the participant in which he/she was formally interviewed at a location of their choosing (excluding Mrs. Sorensen). The interview was also transcribed. All participants who consented to being formally interviewed were given the opportunity to review the typed transcript for corrections, editing and to approve the final transcript. All participants signed a "Authorization for Release" form giving permission for the interview to be used as part of this study.

II. WAIKĪKĪ AND THE PROJECT AREA: CULTURAL AND HISTORICAL DOCUMENTATION

This section begins with a review of the available documentary evidence for the general character of the area presently identified as Waikīkī as it had evolved in the years before western contact in the later 18th century. The development of Waikīkī lands adjacent to and including the present project area during the 19th century and into the early 20th century was recorded in increasingly detailed documentation – including photographs, maps and government records. Finally, during subsequent decades of the 20th century, abundant documentation of Waikīkī allows a more precise focus on the changes within the project area itself up to the 1950s, when construction started on the first of the hotel buildings present currently in the project area.

A. Pre-contact to Early 1800s

Waikīkī, by the time of the arrival of Europeans in the Hawaiian Islands during the late eighteenth century, had long been a center of population and political power on O'ahu. According to Martha Beckwith (1940), by the end of the fourteenth century Waikīkī had become "the ruling seat of the chiefs of Oahu." The preeminence of Waikīkī continued into the eighteenth century and is betokened by Kamehameha's decision to reside there upon wresting control of O'ahu by defeating the island's chief, Kalanikūpule. The 19th-century Hawaiian historian John Papa 'Ī'ī, himself a member of the *ali'i*, described the king's Waikīkī residence:

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

'Ī'ī further noted that the "place had long been a residence of chiefs. It is said that it had been Kekuapoi's home, through her husband Kahahana, since the time of Kahekili" (*Ibid.*).

Chiefly residences, however, were only one element of a complex of features – sustaining a large population – that characterized Waikīkī up to pre-contact times. Beginning in the fifteenth century, a vast system of irrigated taro fields was constructed, extending across the littoral plain from Waikīkī to lower Mānoa and Pālolo valleys. This field system – an impressive feat of engineering the design of which is traditionally attributed to the chief Kalamakua – took advantage of streams descending from Makiki, Mānoa and Pālolo valleys which also provided ample fresh water for the Hawaiians living in the *ahupua'a*. Water was also available from springs in nearby Mō'ili'ili and Punahou. Closer to the Waikīkī shoreline, coconut groves and fishponds dotted the landscape. A sizeable population developed amidst this Hawaiian-engineered abundance. Captain George Vancouver, arriving at "Whyteete" in 1792, captured something of this profusion in his journals:

> On shores, the villages appeared numerous, large, and in good repair; and the surrounding country pleasingly interspersed with deep, though not extensive

> valleys; which, with the plains near the sea-side, presented a high degree of cultivation and fertility.
>
> [Our] guides led us to the northward through the village, to an exceedingly well-made causeway, about twelve feet broad, with a ditch on each side.
>
> This opened our view to a spacious plain, which, in the immediate vicinity of the village, had the appearance of the open common fields in England; but, on advancing, the major part appeared to be divided into fields of irregular shape and figure, which were separated from each other by low stone walls, and were in a very high state of cultivation. These several portions of land were planted with the eddo or *taro* root, in different stages of inundation; none being perfectly dry, and some from three to six or seven inches under water. The causeway led us near a mile from the beach, at the end of which was the water we were in quest of. It was a rivulet five or six feet wide, and about two or three feet deep, well banked up, and nearly motionless; some small rills only, finding a passage through the dams that checked the sluggish stream, by which a constant supply was afforded to the *taro* plantations.
>
> [We] found the plain in a high state of cultivation, mostly under immediate crops of *taro*; and abounding with a variety of wild fowl, chiefly of the duck kind . . . The sides of the hills, which were at some distance, seemed rocky and barren; the intermediate vallies, which were all inhabited, produced some large trees, and made a pleasing appearance. The plain, however, if we may judge from the labour bestowed on their cultivation, seemed to afford the principal proportion of the different vegetable productions on which the inhabitants depend for their subsistence. (Vancouver, 1798: I, 161-164)

Further details of the exuberant life that must have characterized the Hawaiians use of the lands that included the *ahupua'a* of Waikīkī are given by Archibald Menzies, a naturalist accompanying Vancouver's expedition:

> The verge of the shore was planted with a large grove of coconnut palms, affording a delightful shade to the scattered habitations of the natives. Some of those near the beach were raised a few feet from the ground upon a kind of stage, so as to admit the surf to wash underneath them. We pursued a pleasing path back to the plantation, which was nearly level and very extensive, and laid out with great neatness into little fields planted with taro, yams, sweet potatoes and the cloth plant. These, in many cases, were divided by little banks on which grew the sugar cane and a species of *Draecena* without the aid of much cultivation, and the whole was watered in a most ingenious manner by dividing the general stream into little aqueducts leading in various directions so as to be able to supply the most distant fields at pleasure, and the soil seemed to repay the labour and industry of these people by the luxuriancy of its productions. Here and there we met with ponds of considerable size, and besides being well

> stocked with fish, they swarmed with water fowl of various kinds such as ducks, coots, water hens, bitterns, plovers and curlews. (Menzies 1920:23-24)

However, the traditional Hawaiian focus on Waikīkī as a center of chiefly and agricultural activities on southeastern O'ahu was soon to change – disrupted by the same Euro-American contact which produced the first documentation (including the records cited above) of that traditional life. The *ahupua'a* of Honolulu - with the only sheltered harbor on O'ahu - became the center for trade with visiting foreign vessels, drawing increasing numbers of Hawaiians away from their traditional environments. Kamehameha himself moved his residence from Waikīkī to the coast near Honolulu harbor, likely in order to maintain his control of the lucrative trade in sandalwood that had developed. By 1828, the missionary Levi Chamberlain, describing a journey into Waikīkī, would note:

> Our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now overgrown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the natives respecting this present neglected state. They ascribed it to the decrease of population. (Chamberlain 1957:26)

Tragically, the depopulation of Waikīkī was not simply a result of the attractions of Honolulu (where, by the 1820s, the population was estimated at 6,000 to 7,000) but also of the European diseases that had devastating effects upon the Hawaiian populace.

B. Mid-Nineteenth Century and the *Māhele*

The depopulation of Waikiki, however, was not total and the *ahupua'a* continued to sustain Hawaiians living traditionally into the mid-19th century. Land Commission Award records associated with the mid-19th century *Māhele* document awardees continuing to maintain fishponds and irrigated and dry-land agricultural plots though on a greatly reduced scale than had been possible previously with adequate manpower.

Toward the mid-19th century, the Organic Acts of 1845 and 1846 initiated the process of the *Māhele* – the division of Hawaiian lands – which introduced private property into Hawaiian society. In 1848 the crown, the Hawaiian government, and the *ali'i* (royalty) received their land titles. Subsequently in the *Māhele*, Land Commission Awards (LCAs) were given to commoners and others who could prove residency on and use of the parcels they claimed.

A 1881 Hawaiian Government survey map by S.E. Bishop – with locations of LCA parcels indicated – provides a detailed record of the physical landscape of Waikīkī before the transformations of the 20th century. When the map was copied in 1922, additional material from subsequent government surveys was added, including locations of road corridors not present in 1881. A portion of the 1922 copy shows the fish ponds and LCA parcels (with

awardees indicated) within and adjacent to the present project area which can be located by the routes of Kalākaua Avenue, Saratoga Road, Kālia Road, and Lewers Road (Figure 2).

The Kālia fish ponds, comprising 71.70 acres, were awarded to Mataio Kekūanaō'a in Land Commission Award 104-FL (Fort Lands). Kekūanaō'a, born in Hilo on Hawai'i Island in the 1790s, was governor of O'ahu at the time of the *Māhele*. He was the father of Alexander Liholiho (King Kamehameha IV), Lot Kamehameha (King Kamehameha V), Princess Victoria Kamāmalu, Princess Ruth Ke'elikolani, and Moses Kekuaiwa. Following his death in November 1868 his lands were inherited by his daughter, Princess Ruth.

The 1881 map shows two fishponds – both identified as Loko Ka'ohai – in the *ma uka* portion of the project area. The map also identifies Loko O'o in the southeast portion of the project area (on the Diamond Head side of the future Lewers St.). However, the outline of Loko O'o is not indicated, suggesting that by the 1880s the pond was not in working order. It may have been abandoned even earlier as it it not mentioned in the *Māhele* documents claiming ownership of fishponds in Waikīkī.

Two Land Commission Award (LCA) parcels are identified in the *ma kai* portion of the project area, within the grounds of the present Outrigger Reef on the Beach: LCA 1436, parcel 1, awarded to Kaleipaopao; and LCA 1513, parcel 1 awarded to Wailehua. *Māhele* records of these awards provide an insight into traditional Hawaiian utilization of the *ma kai* portion of the project area up to the middle of the 19th century.

Land Commission Award 1436 was awarded to a woman named Kalaipaopao (not "Kaleipaopao" as recorded on the 1881 map). Her own testimony reveals the extent of her land holdings in Waikīkī (Native Register, vol. 3, pg.110-111):

> To the Land Commissioners, Greetings:
> I hereby tell of my claim for two *lo'i* in the *'ili* of Kanuku, named Aula, of the *Ahupua'a* of Waikiki, and some rows of taro hills from Kaahumanu I and two sections of stream gotten at the same time. Two *lo'i* were from Nalaweha, and a small houselot here at Kawehewehe and a stream called Kawehewehe. The length of my occupation of this house site and the sections of stream and the rows of [taro] hills in Hohe, is from Kaahumanu I, and the acquisition of a stream was after the work of Kīna'u at Kaipuni. That was when my *makuakane*, Ahia, acquired them. I was his *kaikamahine*. There were two of us by Ahia – myself, Kalaipaopao, a female, also a male; however, I inherited all of it. I also have some lands on Hawai'i at Waimea, called Pauahi, and in Kohala, called Paoo, yet, perhaps the proper procedure in the dividing of the *Mo'i* is yet to be done. This is my claim presented by me, in accordance with the good which you are doing, and it is the truth which has been told. I am, with thanks,
>
> KALAIPAOPAO
>
> Waikiki, Oahu
> December 9, 1847

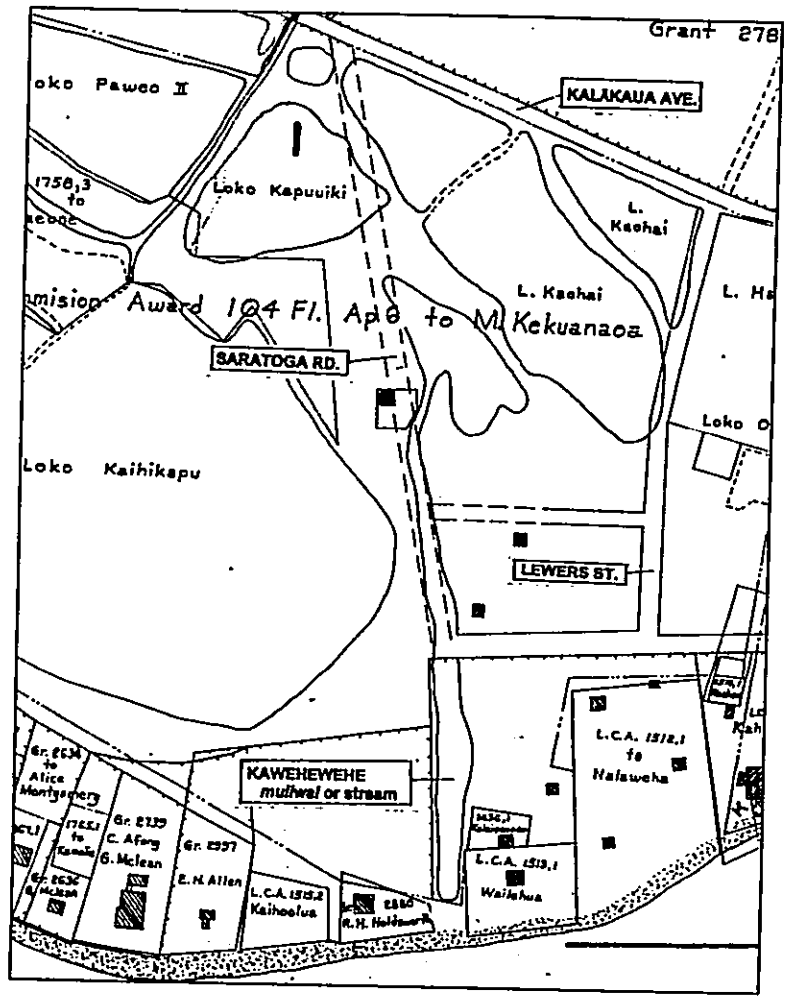

Figure 2 Portion of 1881 Hawaiian Government survey map by S.E. Bishop

The parcel shown on the 1881 map is Kalaipaopao's house lot. Her testimony identifies this area as Kawehewehe, which also names the stream shown on the west side of her house lot. The full 1881 map shows her taro *lo'i* parcels "in the *'ili* of Kanuku" were located within the bounds of the present-day Ala Wai Golf Course. Her testimony also indicates that her occupancy on these lands dates back at least to the 1820s and the regency of Ka'ahumanu. The mention of also having lands on Hawai'i Island at Waimea and Kohala suggests that Kalaipaopao or her family, while not themselves *ali'i* (royalty), may have had some association with chiefly figures who had granted them their lands.

Land Commission Award 1513 was awarded to a man named Wailehua who identifies his Waikīkī land holdings (Native Register, vol. 3, pg. 140):

> To the Land Commissioners, Greetings:
>
> I hereby tell of my land claim at Pahupahuapuaa in Waikiki, island of Oahu, consisting of eight *lo'i*, one houselot, one *kula*; that is what i tell you.
>
> WAILEHUA
>
> Kawehewehe at Waikiki, Dec. 4, 1847

The parcel shown on the 1881 map is Wailehua's house lot. The full 1881 map shows that Wailehua's taro *lo'i* parcels were located within the bounds of the present-day Ala Wai Golf Course. A witness for Wailehua named Nalaueha gave further details on the claimant and his claim ((Native Testimony, vol.3, pg. 397):

> Wailehua's land is from Kaahumanu I: he has been konohiki from the time of Kaahumanu to the present time under V. Kamamalu. One patch had been objected because there were no men doing prison detail. It had been Kinolu's patch and upon his death, it was acquired by Kamaukoli.

Wailehua is revealed to have been the *konohiki* or headman of the *ahupua'a* who received his lands directly from Ka'ahumanu.

These *Māhele* documents – along with those for adjacent parcels -- suggest that, up to the early historic period, this portion of the Waikīkī coastline was the location of house lots for Hawaiians who were not themselves *ali'i* but may have had some association with chiefly figures. The Hawaiians living here typically had taro *lo'i* further *ma uka* in areas presently known as McCully, Mō'ili'ili, and Kapahulu and most likely utilized the shoreline for marine resources.

C. The Waikīkī Trail and Kawehewehe

In *Fragments of Hawaiian History* John Papa 'Ī'ī described the "Honolulu trails of about 1810" (1959: 89), including the trail from Honolulu to Waikīkī:

> The trail from Kawaiahao which led to lower Waikiki went along Kaananiau,

> into the coconut grove at Pawaa, the coconut grove of Kuakuaka, then down to Piinaio; along the upper side of Kahanaumaikai's coconut grove, along the border of Kaihikapu pond, into Kawehewehe; then through the center of Helumoa of Puaaliilii, down to the mouth of the Apuakehau stream . . . (*Ibid.*: 92)

The 1881 map (see Figure 2 above) shows Ka'ihikapu pond immediately to the west of the present project area. In the *Māhele* records cited above, Kalaipaopao identifies the *ma kai* portion of the present project area as Kawehewehe.

Based on 'Ī'ī's description, the trail from Honolulu to Waikīkī in 1810 coursed through the *ma kai* side of the present Ft. DeRussy grounds and cut through some portion of the present project area in the vicinity of Kālia Road and continued Diamond Head into Helumoa, which is adjacent to Kawehewehe. It is likely that this trail was a long-established traditional route through Waikīkī.

The place name Kawehewehe noted by 'Ī'ī and in the *Māhele* records is also of note. It does not only identify a land area in Waikīkī; according to Hawaiian scholars, it also names:

> [The] Reef entrance and channel off Grey's Beach, just east of the Hale-kū-lani Hotel, Wai-kīkī, Honolulu. The sick were bathed here as treatment. The patient might wear a seaweed (*limu-kala*) lei and leave it in the water as a request that his sins be forgiven, the lei being a symbol. *Lit.*, the removal. (Pukui *et al.*, 1974: 99)

D. Later-Nineteenth Century

As the 19th century progressed, Waikīkī was becoming a popular site among foreigners – mostly American – who had settled on O'ahu; an 1865 article in the Pacific Commercial Advertiser mentioned a small community that had developed along the beach. The area continued to be popular with the *ali'i* – the Hawaiian royalty – and several notables had residences there. A visitor to O'ahu in 1873 described Waikīkī as "a hamlet of plain cottages, whither the people of Honolulu go to revel in bathing clothes, mosquitoes and solitude, at odd times of the year" (Bliss, 1873).

Other developments during the second half of the 19th century – prefiguring the changes that would alter the landscape of Waikīkī during this century – include the improvement of the road connecting Waikīkī to Honolulu (the route of the present Kalākaua Ave.), the building of a tram line between the two areas, and the opening of Kapiolani Park on June 11, 1877. Also in the late 1800s, the Saratoga Baths opened "at the approximate location of today's Reef Hotel . . . it remained in operation for most of the 1890s, and, more than likely, bestowed its name upon Saratoga Street, the main thoroughfare between the baths and the tramway stop on Waikīkī Road [*i.e.*, the present Kalākaua Avenue]" (Hibbard and Franzen, 1989: 54).

As shown in the 1881 map (see Figure 2 above), there were buildings – likely houses – standing within and in the vicinity of the present project area. Whether these were the residences of the Hawaiian land claimants of the *Māhele* or their families is uncertain.

It is more certain that traditional land-uses in Waikīkī were abandoned or modified. By the end of the 19th century most of the fish ponds that had previously proliferated had been neglected and allowed to deteriorate. The remaining taro fields were planted in rice to supply the growing numbers of immigrant laborers imported from China and Japan, and for shipment to the west coast of the United States.

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

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

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

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

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

In addition to leasing and buying lands for rice farming, Chinese immigrants during the second half of the 19th century leased Hawaiian fish ponds for raising fish – including *'ama'ama* (mullet), *awa* (milkfish), and goldfish – and ducks. In the 1890s, ponds in the Kālia area were being leased to and managed by Chinese named Ah Kaiu and Leong Fook (Kanahele, 1996: 128). While they no longer operated the Kālia fishponds, several Hawaiian fishermen were recorded as living in the Kālia area of Waikiki in the last decade of the 19th

century; among those listed in the *Directory of the Hawaiian Kingdom* in 1890 were: George Ainoa, Kahananui, Kainoa, Kalaau, Kamanoulu, Kaua, Kanoho, Liuiwaa, Paahao, Puke, Kepa, and Nakooko (*Ibid.*: 151).

Two historic photographs from the 1890s reveal the character of the Waikīkī landscape in the vicinity of the project area. Figure 3 is a view of the Kālia fishponds, looking toward Leahi Crater (Diamond Head). Coordinating the features shown in the photograph – including the buildings and configuration of the ponds – with those indicated on the 1881 map, it is likely that the photograph shows the southeast end of the Kālia pond field. Directly beyond the ponds is the present project area, upon which some residential structures have been built – likely the same ones shown on the 1881 map. Figure 4 shows the Waikīkī coastline, apparently in the vicinity of the present Hālekūlani Hotel grounds. The photograph indicates the area occupied by closely-packed wooden structures – again, likely the same ones indicated in this area on the 1881 map.

E. 1900 to 1920

During the first decade of the 20th century, the U.S. War Department acquired more than 70 acres in the Kālia portion of Waikīkī for the establishment of a military reservation called Fort DeRussy, named in honor of Brig. Gen. R.E. DeRussy of the Army Corps of Engineers.

> On 12 November 1908, a detachment of the 1st Battalion of Engineers from Fort Mason, California, occupied the new post...
>
> Between 1909 and 1911 the engineers were primarily occupied with mapping the island of O'ahu. At DeRussy other activities also had to be attended to - especially the filling of a portion of the fish ponds which covered most of the Fort. This task fell to the Quartermaster Corps, and they accomplished it through the use of an hydraulic dredger which pumped fill from the ocean continuously for nearly a year in order to build up an area on which permanent structures could be built. Thus the Army began the transformation of Waikīkī from wetlands to solid ground. (Hibbard and Franzen, 1986:79)

All the fishponds were filled by 1928.

The U.S. military was not alone in the effort to fill in the fish ponds of Kālia during the early decades of the 20th century. The growing population of Honolulu was creating a demand for housing in the surrounding neighborhoods. The realtor Percy Pond undertook to transform two fish ponds – Loko Ka`ohai – that occupied the *ma uka* portion of the present project area:

> Pond's involvement with Waikīkī began in 1911, when he purchased the Loko Ka`ohai fish pond, as well as a parcel on Diamond Head. He took land from the latter to fill the former, which he subdivided as the Beach Walk tract. The six-acre fishpond cost $3,250, or 1.5¢/square foot, to acquire, and when filled the

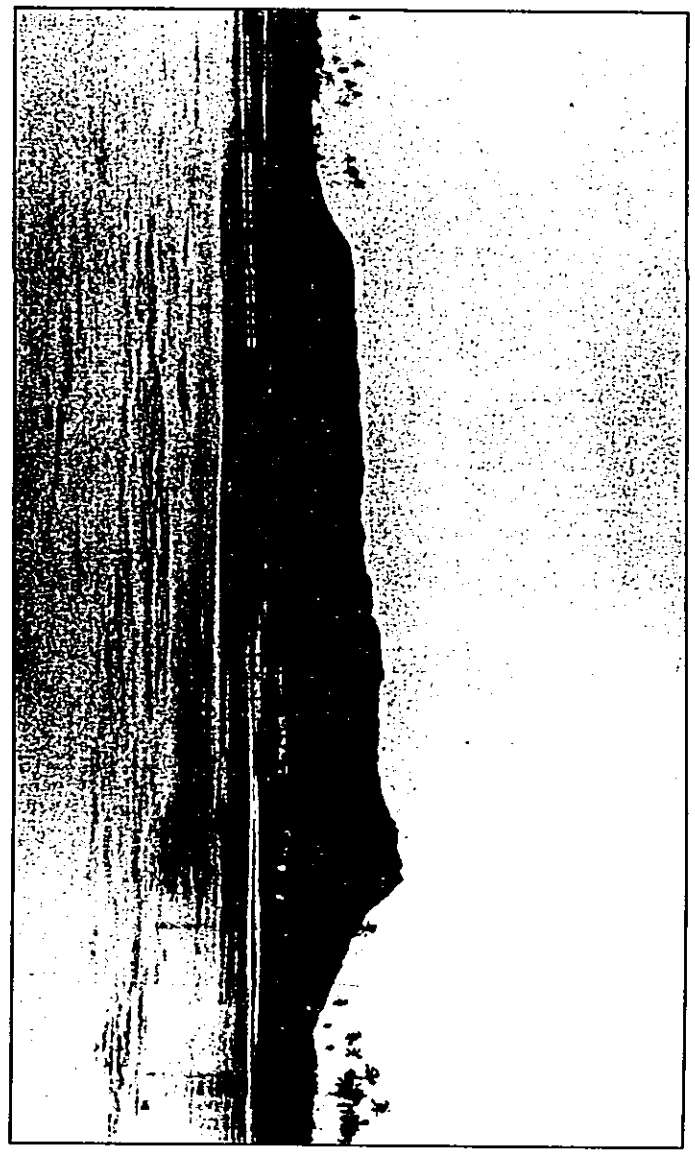

Figure 3 Kālia fishponds, ca. 1890s (Bishop Museum Archives)

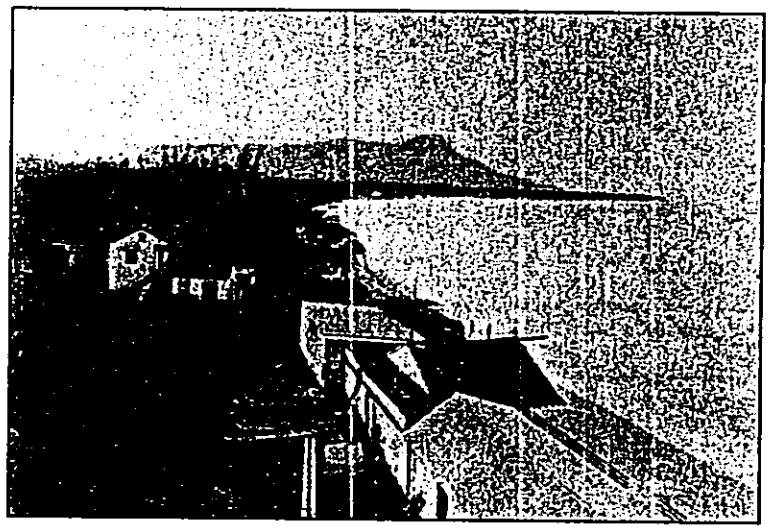

Figure 4 Waikīkī shoreline, *ca.* 1890s (Bishop Museum Archives)

subdivision lots sold for 10¢ to 15¢/square foot. By 1927, land in this area was valued at approximately $2/square foot. (Hibbard and Franzen, 1986: 104)

A fire insurance map of 1914 indicates that the structures then standing within the present project area were located *ma uka* of Kālia Road, between Saratoga Road and Lewers Road (Figure 5). All the structures shown are single-story residential dwellings of varied shapes and sizes. Adjacent to the two large houses within the block bounded by Beach Walk, Kālia Road, Lewers Road, and Helumoa Road are two smaller buildings identified as "servants room" and "auto"– suggesting that the owners of these properties could afford servants and shelter for their automobiles. Apparently, house construction in the area had not yet reached Waikīkī Road (i.e., the present Kalākaua Avenue) but the map shows that the land had been subdivided into uniform parcels – probably the lots of Pond's Beach Walk tract.

Another fire insurance map shows that the present project area was one of five areas in Waikīkī where residential and commercial structures were concentrated in the early 20th century (Figure 6). The others were located: near the intersection of Ena Road and Kalākaua Avenue; *ma kai* of Kālia Road on the east side of Ft. DeRussy; clustered around the Moana Hotel on Kalākaua Avenue; and in Kapahulu on the *'ewa* side of Makee Road (the present Kapahulu Avenue). The fire insurance map also reveals the relative isolation of Waikīkī, in the early 20th century, from the encroaching grid of modern Honolulu streets.

F. 1920s to 1930s

Not only were the present project area and the adjacent Ft. DeRussy military reservation transformed in the 20th century. Great changes were taking place just offshore. The reef off Ft. DeRussy was dynamited to create a channel through which 14-inch guns were floated to their emplacements at DeRussy (Figure 7). Kīna'u Wilder, in her reminiscences of her family's life in Waikīkī, recorded the devastating effects of this action:

> And then the Army brought in an eighteen inch gun to Fort de Russey [*sic*], right next to the old Lewers place which is now the famous Halekulani Hotel. Why the gun could not have been brought in by land I will never know. They brought it by barge instead. In order to reach the emplacement, it was necessary to break through the reef just beyond the spot where our raft floated. This completely changed the pattern of the currents. The beach at Waikiki was never the same. Instead of the reef holding the sands of the beach and preventing them from being carried out by the changing tides, the sand was swept through the hole in the reef, never to return. What had been a glorious sandy beach – which no other beach on earth could touch – was nothing. Property owners lost anywhere from ten to thirty feet of their ocean frontage. Everyone was forced to put up seawalls to keep from losing their houses as well. Instead of running from the grass right on out to the ocean, we had to go downslippery steps to a miserable little strip of sand which, during certain months, was non-existent. At times I could jump from our seawall right into the water. (Wilder, 1978: 72)

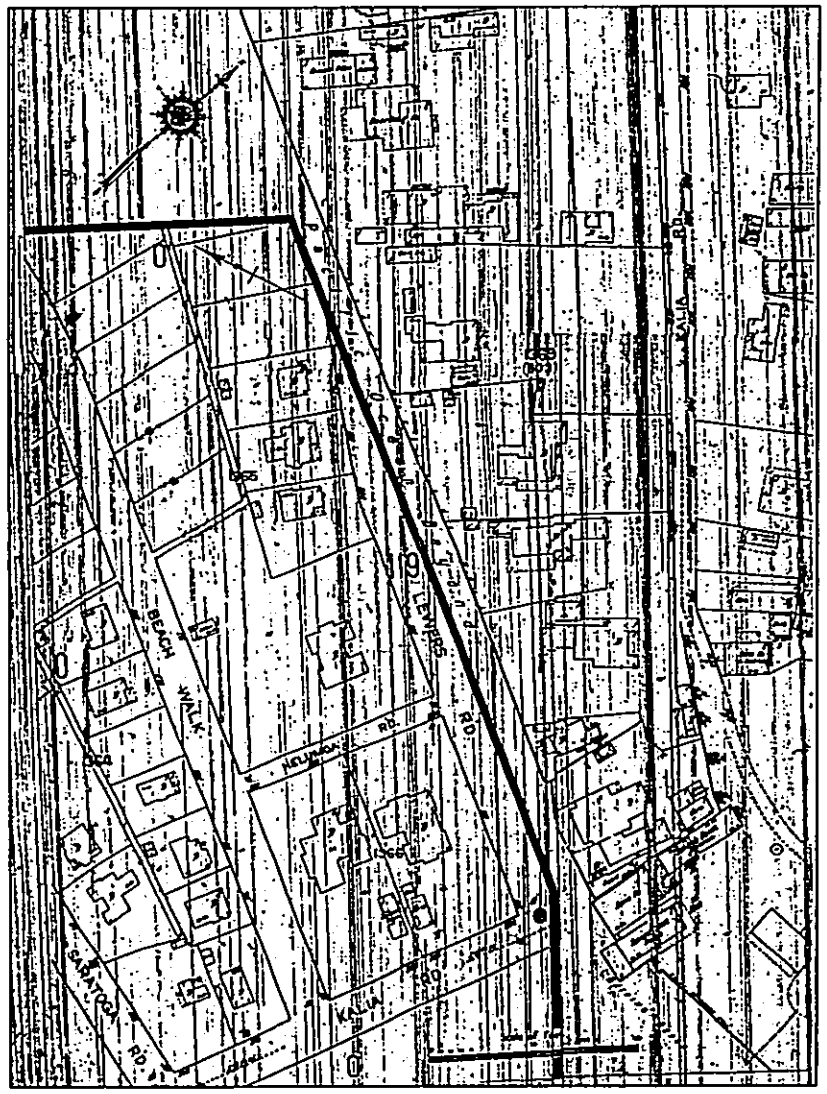

Figure 5 1914 fire insurance map showing residential structures *ma uka* of Kālia Rd.

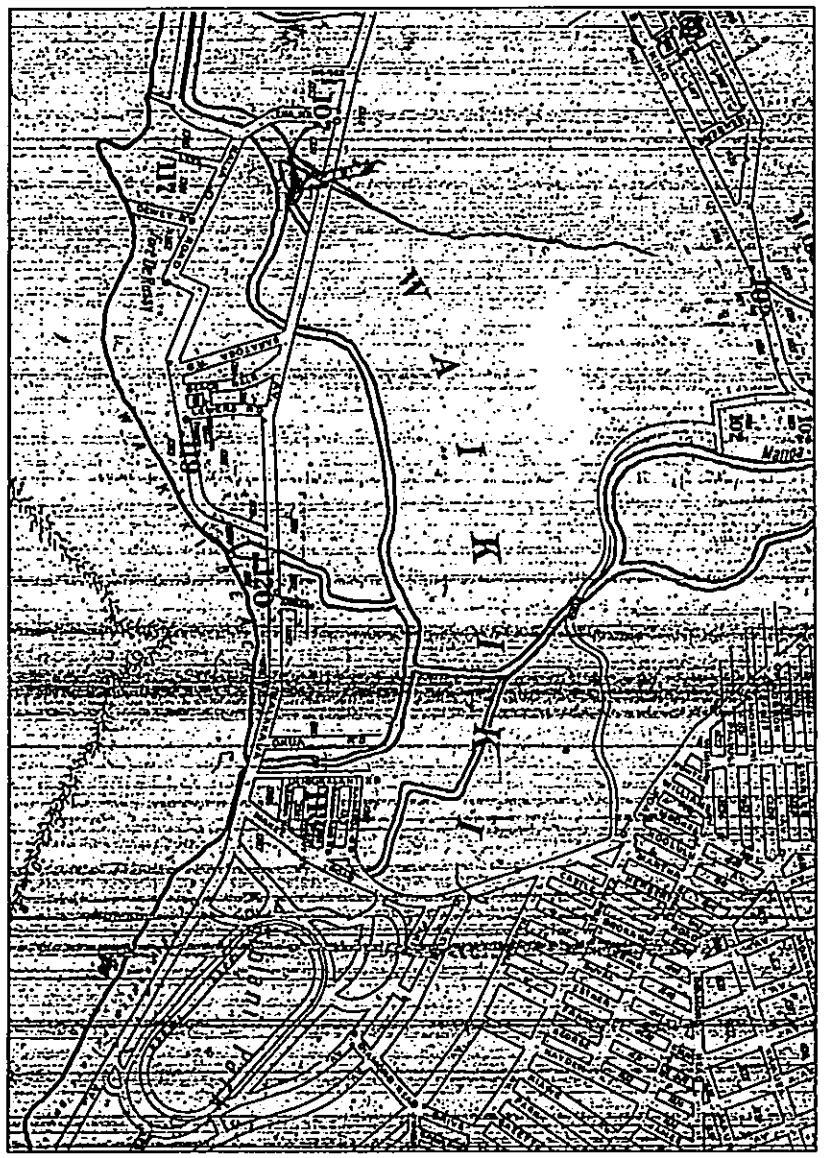

Figure 6 1914 fire insurance map of Waikīkī

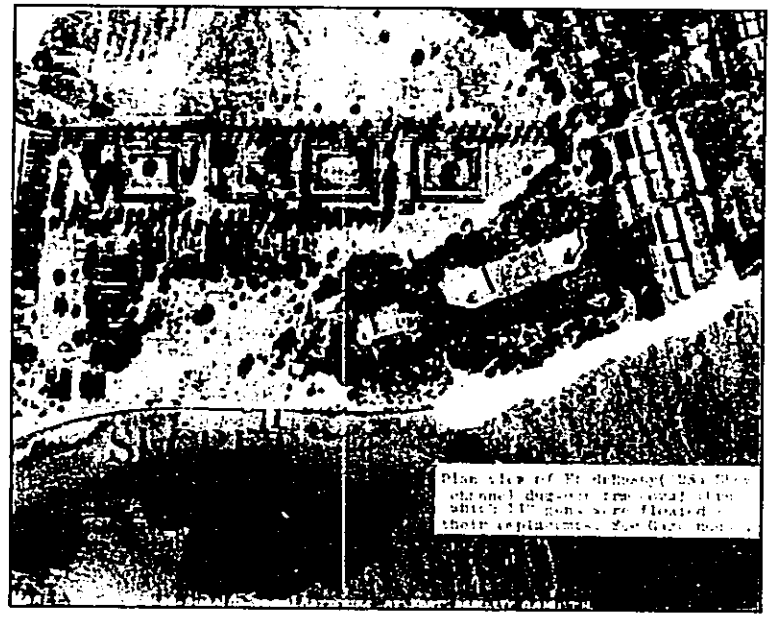

Figure 7 1928 aerial view of Ft. DeRussy (U.S. Army Museum – Ft. DeRussy)

An article in the *Honolulu Star-Bulletin* of September 2, 1933 (section 3, pg.1) confirms the loss of beach space:

> Much of the broad beach which existed in 1913 has also disappeared. It used to be possible to dive into the breakers from the porch of the bathhouse in Merlon Emmans' back yard, but even that is no longer being done.

An insight into life this section of Waikīkī in the 1920s and 1930s is provided by Betty Dyer Sorensen whose family lived at the corner of Kalākaua Avenue and Beach Walk. Her parents, John and Mabel Dyer, had bought a 7055-square-foot lot at 290 Beach Walk for $1500 in 1918. Mrs. Sorensen describes the house her parents built there, in which she lived following her birth in 1922 until her marriage in 1946:

> The front porch was on the *mauka* (mountain) side, and it caught the mountain breezes. It was painted buff with white trim and was in the Twenties bungalow style. (Sorensen, 1995: 30-31)

In the 1920s, Wakīkī was a small neighborhood

> . . . with little cottages, inexpensive apartments and a few nice houses. People liked to live there because it was so close to the ocean and to transportation. The streetcars went down Kalakaua Avenue, Waikiki's main thoroughfare, all the way from Diamond head to the business section of downtown Honolulu, three miles away. The few tourists who visited either stayed with friends for at least a month or they rented a cottage. (*Ibid.*:1)

Mrs. Sorensen recalls that there were "lots of apartments on Beach Walk" rented by people who worked in downtown Honolulu (*Ibid.*: 34). However, remnants of the former Waikīkī landscape also remained near Beach Walk:

> Across the street from our house, on the corner of Beach Walk and Kalakaua Avenue, was a large swampy area known as the duck ponds. It was a several block area consisting of coral with water on the surface. It was whitish from the coral. We could dig down in our own back yard and reach the water level in less than two feet. (*Ibid.*: 54)

Mrs. Sorensen summarizes the types of Waikīkī tourists and their accommodations she remembers during her childhood:

> The Waikiki of my growing-up years in the 1920's and 30's consisted of the Moana Hotel, the Halekulani Hotel, the Royal Hawaiian Hotel, and the Niumalu Hotel, plus several boarding-type hotels and many small cottages. Wealthy tourists came out from Chicago and other snowy areas to spend the entire winter. Some even brought their own car and their own driver, and maid. It was the talk of the town when one family from Chicago even brought a French maid. (*Ibid.*: 55)

The project area and the surrounding neighborhood during the period Mrs. Sorensen recalls are shown in fire insurance maps of 1927 (Figures 8 & 9). Where in 1914 only a portion of the area had been developed, structures now fill the entire landscape. Confirming Mrs. Sorensen's description, the neighborhood is shown to be an enclave of cottages and apartment buildings. While individual dwellings predominate, apartments, inns, and a boarding house are also present. At the intersection of Board Walk and Kalākaua Avenue is The Louidor, a boarding house near Mrs. Sorensen's family's home. *Ma kai* of Kālia Road is the Edgewater Beach Apartments complex (on the site of the present Outrigger Reef on the Beach). On the Diamond Head side of Lewers Road is the Waikiki Court apartments (on the site of the present 'Ohana Reef Towers). The block on the *ma uka* side of Kālia Road, where two larger buildings were located in 1914, is now the site of the Willard Inn. It appears that one of the buildings has been moved and both buildings have been divided into triplexes. The servants room and the auto garage have been converted into individual dwellings, and additional structures have been constructed. A 1922 photograph shows a typical rental cottage of the period on Lewers Street (Figure 10).

During the 1920s Waikīkī landscape would be transformed when the construction of the Ala Wai Drainage Canal – begun in 1921 and completed in 1928 – resulted in the draining and filling in of the remaining ponds and irrigated fields of Waikīkī, including the "duck ponds" recalled by Mrs. Sorensen. The canal was one element of a plan (the Waikīkī Reclamation Project) to urbanize Waikīkī and the surrounding districts:

> The [Honolulu city] planning commission began by submitting street layout plans for a Waikiki reclamation district. In January 1922 a Waikiki improvement commission resubmitted these plans to the board of supervisors, which, in turn, approved them a year later. From this grew a wider plan that eventually reached the Kapahulu, Moiliili, and McCully districts, as well as lower Makiki and Manoa . . .
>
> The standard plan for new neighborhoods, with allowances for local terrain, was to be that of a grid, with 80-foot-wide streets crossing 70-foot-wide avenues at right angles so as to leave blocks of house lots about 260 by 620 feet. Allowing for a 10-foot-wide sidewalk and a 10-foot right-of-way [alley] down the center of each block, there would be twenty house lots, each about 60 by 120 feet, in each block. (Johnson 1991:311)

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

> The expansion of apartment and private residence construction is no secret. Examination of building permits will show that more projects have been completed during the past year, and more are now underway in this area, than in any other section of the territory.

Figure 8 1927 fire insurance map showing project area *ma uka* of Kālia Rd.

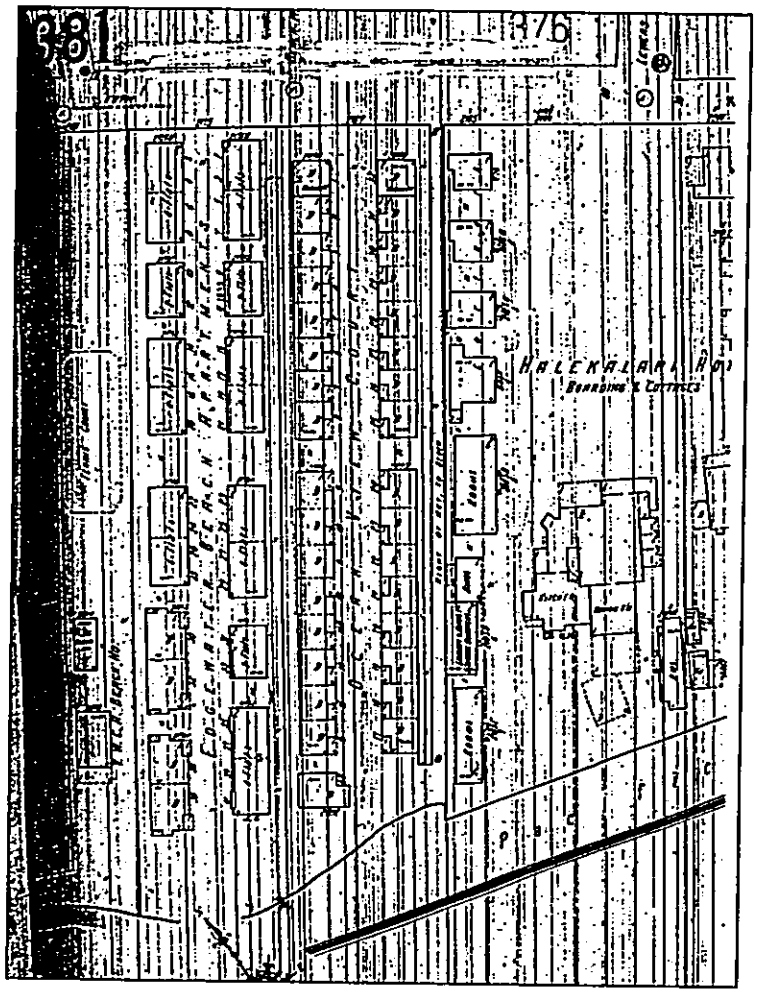

Figure 9 1927 fire insurance map showing project area *ma kai* of Kālia Rd.

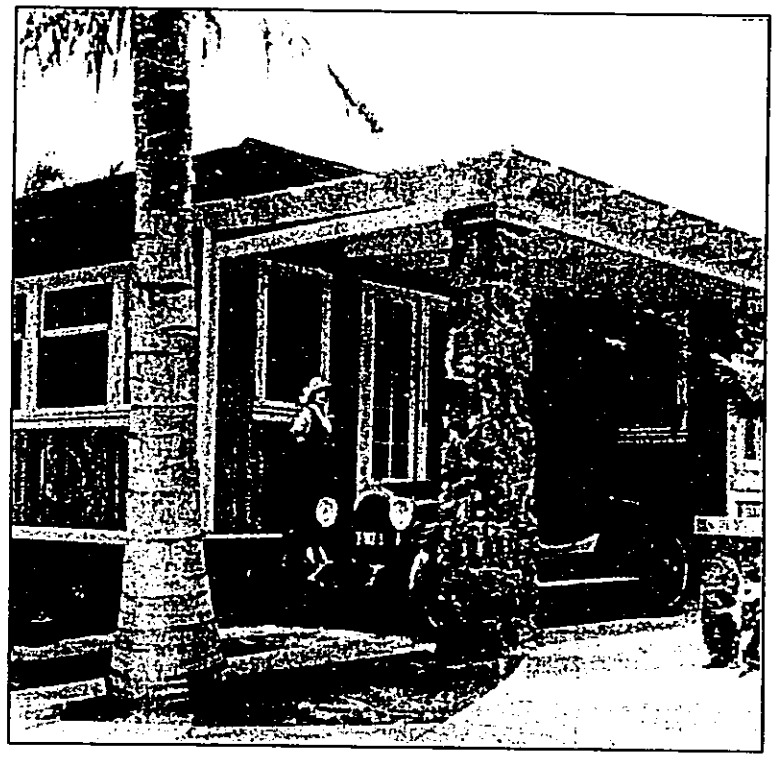

Figure 10 Typical cottage on Lewers Street in 1920s (Bishop Museum Archives)

> These developments are being made by island residents who have recognized the fact that Waikiki presents the unparalleled possibility for safe investment with excellent return. (Newton, 1938: 10)

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

A U.S. Army aerial photograph of 1935 shows the agglomeration of apartment buildings and private residences that completely filled the present project area and its surroundings (Figure 11). Coconut tree-lined Lewers Street courses through a pleasant neighborhood in a 1937 photograph (Figure 12).

G. 1940s

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

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

One of those establishments was the Willard Inn – at the corner of Kālia Rd. and Lewers St. – which was used as an officers' club (Figure 13).

In August 1943, four cases of dengue fever – transmitted by the bite of infected Aedes mosquitoes – were reported in Waikīkī. During the epidemic that ensued, more than 1000 people were afflicted. On August 8, 1943, the military declared "out-of-bounds" the portion of Waikīkī bordered by the ocean, the Ala Wai Canal, and Ka'iulani Avenue. "Without servicemen or tourists, Waikiki district seemed a deserted village" (Hodge and Ferris, 1950:55).

Nearing the war's end, concerns began arising over the future of Waikīkī. An article in the *Honolulu Advertiser* of July 16, 1945 (sec. 1, pg.1) decried "honky-tonks" that had sprung up in Waikīkī during the course of the war, and asked: "Can anyone look at present-day Kalākaua Ave. – lined with makeshift curio shops, noisy 'recreation' centers, eyesores that pass under the name of lunchrooms and miscellany of 'joints' – and hope that Waikiki can stage a comeback [as a tourist destination]?"

Among the entrepreneurs banking on Waikīkī's post-war future was Roy Kelley who purchased the Edgewater Apartments (site of the present Outrigger Reef on the Beach) in the

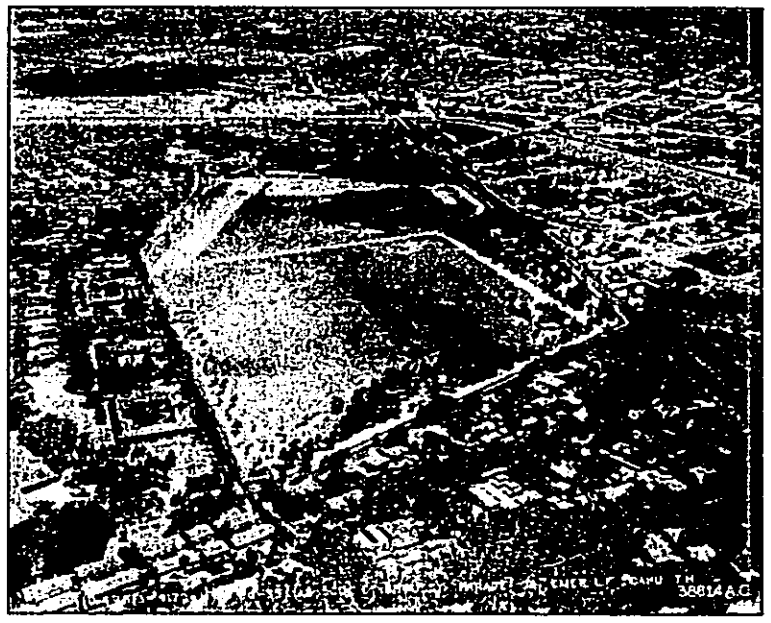

Figure 11 1935 aerial view of project area (U.S. Army Museum – Ft. DeRussy)

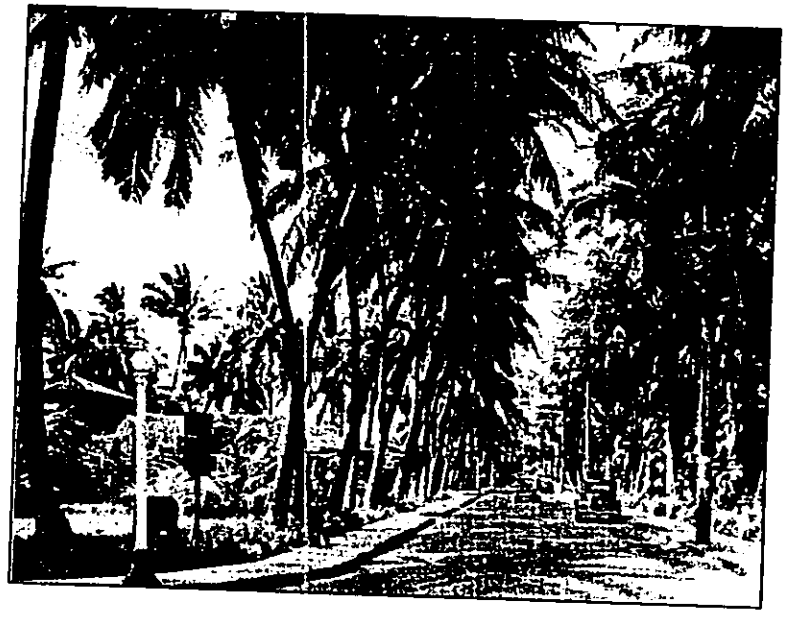

Figure 12 Lewers Street *ma uka* from Kālia Rd. in 1937 (Bishop Museum Archives)

Figure 13 Willard Inn during the 1940s (U.S. Army Museum – Ft. DeRussy)

mid-1940s from the Alton J. Cohen Estate. Kingie Kimball, then owner of the Halekūlani Hotel recalls that the Edgewater Apartments had been

> ". . . built on three beach lots between my Halekulani Hotel and the YWCA beach house next to Fort DeRussy" . . . One reason the Cohen Estate wanted to sell the apartments was because the firing of the 14-inch naval guns from Battery Randolph in the adjacent Fort DeRussy had severely damaged some of the apartments in the two-story wooden building. (McDermott 1990:37-38)

As a result of public outcry, test firings of the guns were discontinued. The apartment buildings, which had been deteriorating, were repaired and put out for rent (McDermott, 1990: 38).

Kelley's second purchase in the 1940s of a property within the present project area was the Willard Inn parcel in 1947, located at Beach Walk and Kālia Road across the street from the Edgewater Apartments (*Ibid.*: 40). This parcel would become the site of the present ʻOhana Edgewater in 1951 and the ʻOhana Waikiki Tower in 1978.

H. 1950s

Fire insurance maps of 1951 reveal changes throughout the present project area and the surrounding properties since the neighborhood was documented on the 1927 map (Figure 14 & 15). Retail establishments now fill the parcels along Kalākaua Avenue. Rooming houses and apartments appear on parcels along Saratoga Road, Beach Walk, and Lewers Road. Many of the houses shown on the 1927 map have now been divided into duplexes and triplexes.

By the mid-1950s there were more than fifty hotels and apartments from the Kālia area to the Diamond Head end of Kapiʻolani Park. Located within and in the vicinity of the present project area were the Reef Hotel and Edgewater Hotel on Kālia Road, the ʻĀinahau apartments at 260 Lewers Road, the Breakers apartment-hotel at 250 Beachwalk, the Coconut Grove at 205 Lewers Rd., the Hawaiʻiana Hotel at 260 Beachwalk, the Leialoha Hotel at 233 Beachwalk, the Malihini Hotel at 217 Saratoga Rd., the Marjo apartment-hotel at 342 Lewers Rd., the Polynesian Hotel at 314 Beachwalk, and the Polynesian apartment-hotel at 339 Saratoga Road.

Development of hotel properties in Waikīkī during the 1950s raised concern over public rights of way for access to the Waikīkī beach which, like all of Hawaiʻi's beaches, is public from the ocean to the high water mark. An article in the *Honolulu Star-Bulletin* of January 16, 1957 (pg.10) noted that there were no public rights of way to the beach for "nearly a half mile strip in the heart of Waikiki" from "the Diamond Head side of the SurfRider Hotel to the Ewa side of the Halekulani Hotel." Charles Ahlo, a native Hawaiian born in 1924 who frequented Waikīkī since the mid-1930s lamented that many of the old public right of ways to the beach no longer exist (Pers. Comm. to K. Mc Guire; 8/20/01).

The lack of public access ways to the beach was of real concern since the Waikīkī population, by the mid-1950s, was not limited to transient tourists but also included 11,000

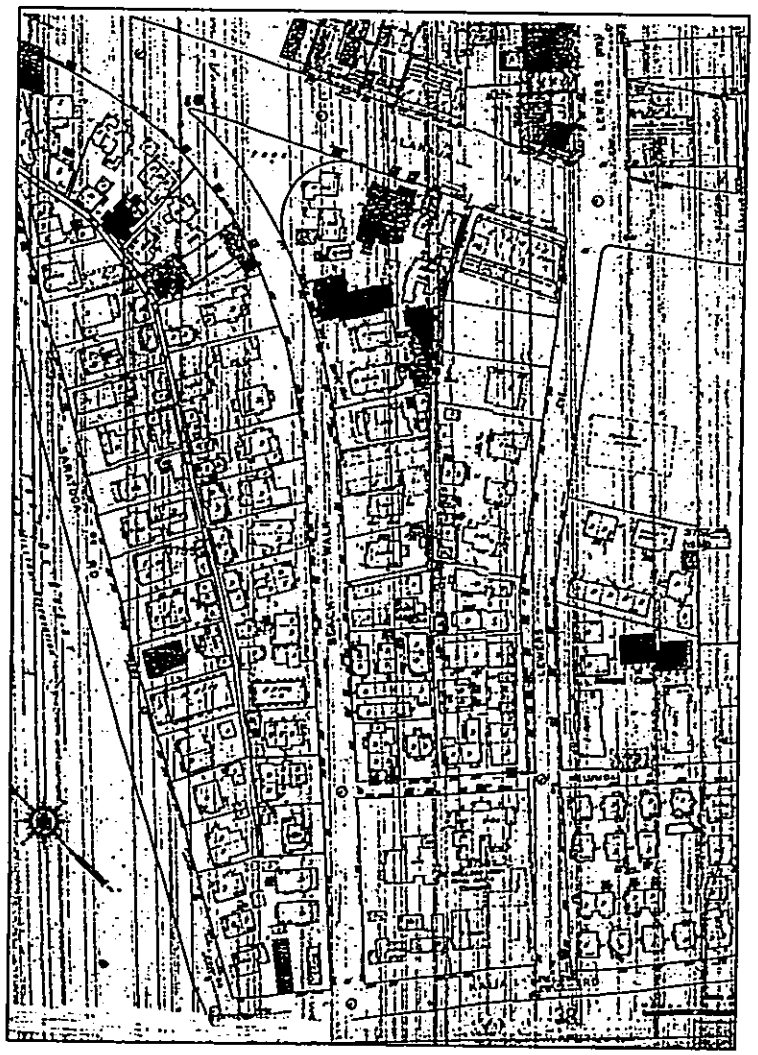

Figure 14 1951 fire insurance map showing project area *ma uka* of Kālia Rd.

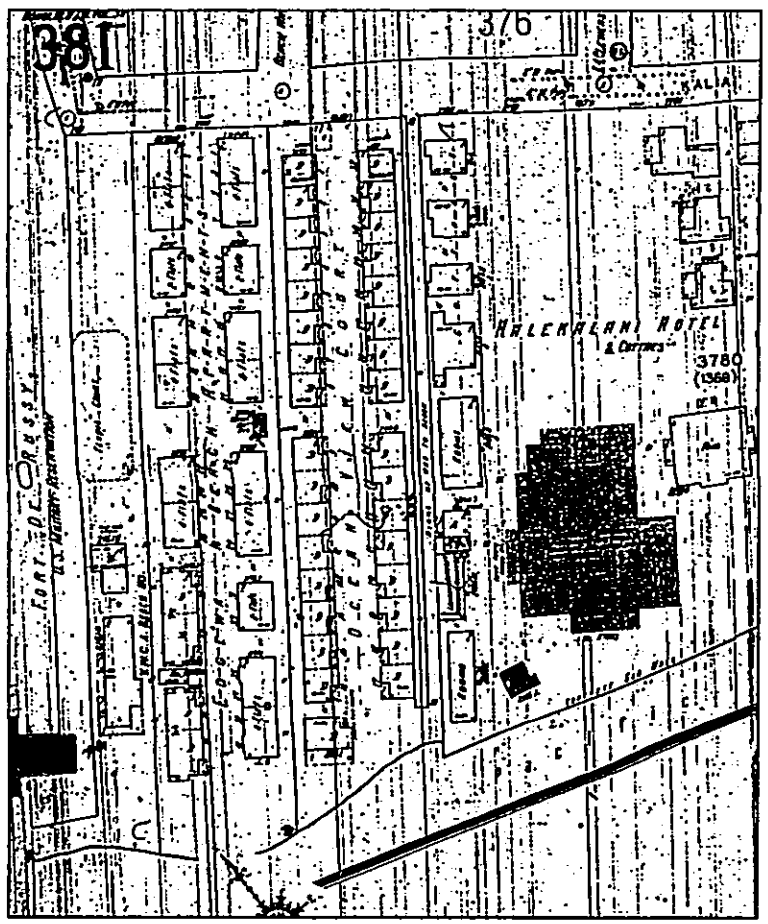

Figure 15 1951 fire insurance map showing project area *ma kai* of Kālia Rd.

permanent residents living in 4,000 apartments in stucco or frame buildings. As the 1951 fire insurance map indicates, many of these apartment buildings were located in and around the present project area.

I. Summary

Historical documentation indicates that, at the mid-19th century, within the *ma uka* portion of the present project area were two fishponds – Loko Kaʻohai – that were part of the royal fishpond complex of the Kālia area. The *ma kai* portion of the project area comprised house lots for Hawaiians who had some association with the *aliʻi* (Hawaiian royalty) but who were not themselves *aliʻi*. The residents of these house lots worked taro *loʻi* (ponded fields) located *ma uka* within the area of the present Ala Wai Golf Course. It is likely that coastal residence and associated inland agricultural activity reflects a pattern that had been long established by Hawaiians living in Kālia.

III. ARCHAEOLOGICAL AND OTHER SCIENTIFIC INVESTIGATIONS IN THE VICINITY OF THE PROJECT AREA

As reported in the previous section of this study, by the end of the 1920s, surface traces of any of traditional Hawaiian practices and activities in the project area had been obliterated by the urbanization of Waikīkī and its development as a tourist destination. Thus the primary modern documentation of physical evidence of these practices and activities is found in reports of various subsurface investigations that have been conducted in the vicinity of the project area since the second half of the 20th century. Results of these investigations that may give clues to traditional practices and activities within the project area are presented below.

A. Soil and Geologic Studies

According to the O'ahu soil survey, the project area – and most of coastal Waikīkī is underlain by Jaucus Sands (JaC) which are characterized as well-drained calcareous soils developed from coral and seashells found on coastal plains near the ocean (Foote *et al.*, 1972). On several Hawaiian islands – and indeed throughout Waikīkī – Jaucus sands have been documented to contain traditional Hawaiian burials. Archaeological investigations that have reported such burials in the vicinity of the project area are discussed below in Section B.

Subsurface borings since the 1950s at construction sites for medium- and high-rise structures have clarified the geology of Honolulu. In a 1976 master's thesis, Charles C. Ferrall, Jr. synthesized the data gathered from borings in Waikīkī, Mo'ili'ili, and Kaka'ako in order to "produce a description of the subsurface conditions in [his] project area, and from this description, to develop a better understanding of the geologic history and engineering geology of the area (Ferrall, 1976: 5-6). Based on data collected in Waikīkī, Ferrall suggests that the ancient Manoa Stream channel coursed through Waikīkī in the approximate area between Saratoga Road and Lewers Road, flowing into the ocean in the area of the present Halekūlani Hotel grounds (*Ibid.*: Plate II). Ferrall identifies the stream route in Waikīkī as the Launiu Channel and describes the data evidencing the presence of the channel within the present project area:

> Additional control on this channel is available on Kalia Road, near the existing shoreline. One boring between Beach Walk and Lewers Road encountered fill (four feet thick) over beach sand (four feet thick) over lagoonal deposits to -45 feet. Fine grained sand extends from -45 to -94 feet, followed by sand and coralline debris to -107, alluvium to -118, and sand from -118 to at least -123 feet. No coral ledge was found here, and it is likely this entire section is composed of deposits related to the Launiu Channel. About 400 feet east of Lewers, on Kalia Road, one boring encountered similar conditions with no coral ledge found at elevations above -95 feet.
>
> On the west side of Saratoga Road, roughly 250 feet south of Kalakaua Avenue, 10 borings describe coral at about -40 feet. The coral is overlain by lagoonal deposits and about five feet of alluvium immediately over the coral. In general, this ledge is about five feet thick and includes some zones of coralline debris.

> The coral is underlain by coralline debris and sand with a few pockets of alluvium to at least -64 feet. (*Ibid.*: 94)

The channel Ferrall describes may represent the original Manoa Stream route into Waikīkī before the development of the vast complex of fishponds, taro *lo'i*, *'auwai*, and coconut groves that the Hawaiians engineered in Waikīkī.

More relevant to understanding Hawaiian occupation within the present project area may be an alluvial channel that Ferrall locates adjacent to the Launiu Channel:

> In the southwest corner of this quad, at the extreme southeast corner of Fort DeRussy about 100 feet west of the line of Saratoga Road, the upper coral ledge is missing in two borings and occurs at levels ranging from -49 to -57 feet in three other borings. The upper materials over both areas include about five feet of fill/beach sand and lagoonal deposits from sea level to about -35 feet. In these borings, the coral has been displaced by brown alluvial silt with coral gravel which extends as deep as -95 feet. It appears that this alluvium was deposited in a minor stream channel which cut the reef here. This channel probably related to the Launiu Channel which is defined further east. (*Ibid.*: 94-95)

This "minor stream channel" may be the Kawehewehe stream or *muliwai* noted on a 19th century map and in *Māhele* records, approximately located on the route of the present-day Saratoga Road.

B. Archaeological Investigations

In 1961 a human burial and a nineteenth century trash pit were unearthed during construction on Saratoga Road adjacent to Fort DeRussy. These findings were documented by the Bishop Museum.

The remains of six burials - five of apparent prehistoric or early historic age and one of more recent date - were unearthed in 1976 during construction of the Hale Koa Hotel adjacent to the Hilton Hawaiian Village Hotel.

In 1980, three burials were exposed at the Hilton Hawaiian Village itself during construction of the hotel's Tapa Tower. Earl Neller of the (then named) State Historic Preservation Program was called in upon discovery of the burials and conducted fieldwork limited to three brief inspections of the project area. Neller's (1980) report noted:

> The bones from three Hawaiian burials were partially recovered; one belonged to a young adult male, one a young adult female, and one was represented by a single bone. An old map showed that rapid shoreline accretion had occurred in the area during the 1800s, and that the beach in the construction area was not very old. It is possible the burials date back to the smallpox epidemic of

1853. It is likely that burials will continue to be found in the area. It is also possible that early Hawaiian sites exist farther inland, beneath Moiliili, adjacent to where the shoreline would have been 1000 years ago. (Neller 1980:5)

Neller also documented the presence of trash pits, including one from the 1890s which contained "a large percentage of luxury items, including porcelain tablewares imported from China, Japan, the United States, and Europe" (*ibid*:5). He further notes:

> It is suspected that other important historic archaeological sites exist in the highly developed concrete jungle of Waikiki, with discrete, dateable trash deposits related to the different ethnic and social groups that occupied Waikiki over the last 200 years. (*ibid*:5)

Between December 1981 and February 1982, archaeologists from the Bishop Museum led by Bertell Davis conducted a program of excavations and monitoring during construction of the new Halekūlani Hotel (Davis 1984). Six human burials were recovered along with "animal burials [and] cultural refuse from prehistoric Hawaiian firepits, and a large collection of bottles, ceramics, and other materials from trash pits and privies dating to the late 19th century" (*ibid.*:i). Age analysis of volcanic glass recovered from the site led Davis to conclude: "For the first time we can now empirically date...settlement in Waikīkī to no later than the mid-1600s" (*ibid.*:i). Just as significant to Davis was the collection of historic era material at the Halekūlani site; he states:

> [The] Halekūlani excavations clearly demonstrate...that there is a definite need to consider historic-period archaeology as a legitimate avenue of inquiry in Hawaiian research. Furthermore, archaeology in the urban context can yield results every bit as significant as in less developed areas. Development in the 19th and early 20th centuries clearly has not destroyed all archaeological resources in Waikīkī, Honolulu, or in any of the other urbanized areas of Hawai`i. (*ibid.*:i)

Davis' (1989, 1991) excavation and monitoring work at Fort DeRussy documented substantial subsurface archaeological deposits--prehistoric, historic, and modern. These deposits included buried fishpond sediments, *`auwai* sediments, midden and artifact enriched sediments, structural remains such as post holes and fire pits, historic trash pits, and a human burial. Davis' (1991) report documents human activity in the Fort DeRussy beach front area from the 16th century to the present.

The work at Fort DeRussy continued in 1992 when BioSystems researchers built upon Davis' work (Simmons 1995). BioSystems research documents the development and expansion of the fishpond and *`auwai* (ditch) system in this area. The *`auwai* system was entered on the State Inventory of Historic Places (SIHP) as State Site 50-80-14-4970. Remains of the fishpond and *`auwai* deposits, as well as habitation deposits were documented below modern fill deposits.

The realignment of Kālia Road at Fort DeRussy in 1993 uncovered approximately 40 human burials. A large majority of these remains were recovered in a large communal burial feature (Carlson *et. al.* 1994). The monitoring and excavations associated with this realignment uncovered a cultural enriched layer which contained post holes.

C. Summary

Investigations in the vicinity of the project area have documented the presence of traditional Hawaiian cultural deposits, historic trash deposits, and, most notably, human burials. Based on this evidence, it is likely that similar subsurface properties are present in the project area itself.

Evidence from nineteenth-century documents (the writings of John Papa `Ī`ī, *Māhele* records, and an 1881 map) indicate that a trail from Honolulu to Waikīkī and beyond coursed through some portion of the present project area in the vicinity of the present Kālia Road. It is likely that this trail was the traditional Hawaiian route through Waikīkī.

During the second half of the 19th century the Kālia fishponds, including Loko Ka`ohai, were leased to and operated by Chinese immigrants. An early augury of Waikīkī's future, at the *ma kai* end of the project area the Saratoga Baths opened on the site of the present Outrigger Reef on the Beach. Despite these changes, the Hawaiians of the Kālia area apparently were not completely displaced during the latter 1800s since several Hawaiian fishermen were recorded as living in Kālia during the 1890s.

Within the first decades of the 20th century, the *ma uka* portion of the project area would be among the first developed lands of Waikīkī when the two Loko Ka`ohai were filled to create the Beach Walk tract in 1911. During subsequent decades, the project area comprised an enclave of individual residences – typically cottages – and apartment complexes. In the 1950s construction began on the first large hotel structures which are present today in the project area.

IV. DATA PERTAINING TO HUMAN BURIALS IN WAIKĪKĪ FROM TRADITIONAL SOURCES

Death at Waikīkī is documented in a number of traditional accounts including accounts of human sacrifice, accounts of fighting in Waikīkī in the wars of Kahekili and Kamehameha and from mid-nineteenth century Land Commission Award records.

A. Accounts of Human Sacrifice at Waikīkī

Hawaiian authors in the nineteenth and twentieth centuries have emphasized that victims for sacrifice were "criminals", "wrongdoers," or "individuals who had broken tabu, or rendered themselves obnoxious to the chiefs" (Kanahele 1986:116). Another major category of human sacrifice victims were the "*kauwā*." Pukui (Pukui and Elbert, 1971: 128) translates *kauwā* as "Untouchable, outcast, pariah: a cast which lived apart and was drawn on for sacrificial victims."

Waikīkī was one of several places known for the drowning of *kauwā*. From this practice comes the saying '*Moe mālie i ke kai o ko haku*' ('Lie still in the waters of your superior') used for *kauwā* drowning at Kawailumaluma'i, Kewalo and Kualoa. An account of sacrificial drowning of *kauwā* at Waikīkī appeared in the Hawaiian language Newspaper *Ka Loea Kālai'āina*:

> *A penei na'e i kauwā loa [sic. "loa'a"] ai. Aia a mana'o ke Ali'i Nui (Mō'ī) e 'au'au kai i Waikīkī. Eia ka nīnau a ke Ali'i Nui i ke ali'i ma lalo iho ona, "Pehea āu mau wahi lepo kanu o Pu'u Ku'ua? 'A'ole paha he mau wahi pōhuli?"*
>
> *Eia ka pane a ke ali'i ma lalo iho ona, "He Pōhuli nō. 'O ke kauoha ia akula nō ia e ki'i.*
>
> *'Oiai ko kāne me ka wahine e nanea ana me nā keiki, a hiki 'ana ke ki'i i mau keiki. 'O ke kū a'ela nō ia o ka makuakāne a lawe 'ana i kāna mau keiki a hiki i Waikīkī.*
>
> *Aia ho'i a hiki i ka wāa ke Ali'i e hele ai i ka 'au'au kai, a laila, hoouna 'ia mai ke kahu e ki'i mai i ua keiki a lawe aku ia ma kahi pāpa'u o ke kai, ma kahi a ke Ali'i nui e hele kū 'ana, a laila kau nā lima o ka Mō'ī luna o kahi keiki a me kahi keiki, ma nā 'ā'Io nā keiki a pa'a ai.*
>
> *'O ka hua 'ōlelo ma ka waha o ke Ali'i nui e 'ōlelo ai, "'A'ole pau ku'u loa! 'A'ole pau ku'u loa!" 'Oiai 'o ia e 'au ana me ka pa'a nō o nā lima i nā keiki a hiki i ka umauma ke kai o ke ali'i.*
>
> *Ua lana a'ela nā keiki i luna o ka 'ilikai, aia ke alo i lalo. Eia ho'i ka 'ōlelo a ka makuakāne ma kula aku nei, "Moe mālie i ke kai o ko Haku," a pēlā aku.*

> *'O ke kai o Waikīkī ke kai i 'ōlelo 'ia he kai lumaluma'i kanaka o ka lua, aia i Kualoa.*

Translation:

> When the ruling chief wished to go to Waikīkī for sea bathing he asked the chief just below him in rank, "How are my planting places at Pu'u Ku'ua, [a place in the Wai'anae Range famous as a kauwā residence and place of mixed caste] have they not produced young suckers?" The chief next to him answered, "There are some suckers," and sent someone for them. When the men, women and children least expected it, the messenger came to get some of the children. The father stood up and took his sons to Waikīkī.
>
> Then, when the ruling chief went sea bathing, he sent an attendant to get the boys and take them to a shallow place where the ruling chief would come. Then the ruler placed a hand on each of the boys, holding them by the necks. The words he uttered were, "My height has not been reached! My height has not been reached!" He advanced and held onto the boys until the sea was up to his chest. The boys floated on the water face down. The father on shore called out, "Lie still in the sea of your Lord," and so on.
>
> The Sea of Waikīkī is said to have been used to kill men in and the other place is Kualoa.

No specific location at Waikīkī is indicated as the sacrificial site.

Regrettably much uncertainty also remains regarding the exact location of the four Waikīkī *heiau* associated with human sacrifice. Papa'ena'ena, certainly the most famous, was located at the foot of Diamond Head crater in the environs of the present Hawai'i School for Girls. Papa'ena'ena *heiau* is traditionally associated with Kamehameha I who was said to have visited the *heiau* before setting off to battle for Ni'ihau and Kaua'i in 1804. Five years later, according to John Papa 'Ī'ī , Kamehameha placed at Papa'ena'ena the remains of an adulterer - "all prepared in the customary manner of that time" ('Ī'ī 1959:50-51). This would have been one of the last human sacrifices in the kingdom.

Regarding the death of the famous prophet Ka'ōpulupulu by Kahahana, Thrum (1913) writes: "After a while the body of the priest was placed on a double canoe and brought to Waikīkī and placed high in the cocoanut trees at Kukaeunahi [sic, Kuekaunahi] the place of the temple, for several ten-day periods (*he mau anahulu*) without decomposition and falling off of the flesh to the sands of Waikīkī." [Note: Kahahana's place of residence at Waikīkī was Ulukou, the present site of the Moana Hotel which was built in 1901.]

The *heiau* associated with sacrifice are listed below:

Table 1: Sites Associated with Human Sacrifice in Waikīkī

Place Name	Location	Grounds for believing associated with human sacrifice	Source
Papaenaena *Heiau* (Le`ahi)	Waikīkī (La Pietra)	*"Heiau po`okanaka"*	Thrum 1906:44
Kapua *Heiau*	Waikīkī (Kapi`olani Park – inland of the Natatorium)	*"Heiau po`okanaka"*, place of sacrifice of Kaolohaka	Thrum 1906:44
Helumoa *Heiau* (also called: `Āpuakēhau)	Waikīkī (Grounds of the Royal Hawaiian)	"*Po`okanaka*, the place of sacrifice of Kauhi-a-Kama"	Thrum 1906:44
Shallow sea of Waikīkī	Waikīkī	Account of *kauwā* drowning	*Ka Loea Kalaiaina*, 7/8/1899
Kūpalaha *Heiau*	Waikīkī Kapi`olani Park – Cunhas)	Account of near sacrifice of Kapo`i there	Kamakau 1991:23

Kuku`i akula a lohe ke ali`i `o Kākuhihewa, e noho ana i Waikīkī, me ka `ōlelo `ia aku, ua kapu mai nei kekahi kanaka i ka heiau o kona akua, a ua noa. He kānāwai kapu; inā e kūkulu kekahi ali`i a kanaka paha i ka heiau, a kapu ē ma mua , a noa, `a`ole na`e i noa ke kapu heiau a ke ali`i `ai moku, a laila, he kipi `ia a ho`okahi ona hope `o ka make.

News spread and reached the chief, Kākuhihewa, who was living in Waikīkī, that a man had dedicated a *heiau* to his god and had freed the *kapu*. A law had been decreed that if a chief or any man built a *heiau* and dedicated and freed it before the paramount chief had freed his consecrated *heiau*, it would be unlawful which would result in death.

So, Kapo`i, a criminal, was sent for and led to Waikīkī to the *heiau* of Kūpalaha.

B. Accounts of Battles at Waikīkī

Kahekili's Invasion of O`ahu Circa 1783

In 1867, Samuel M. Kamakau wrote the following account of the invasion of the island of O`ahu by the Maui ruling chief, Kahekili:

I ka pae `ana o Kahekili a me nā `au wa`a kaua o nā li`i o Maui, ma Waikīkī, e noho ana nō ka Mō`ī Kahahana ma Kawānanakoa, ma Nu`uanu, ma uka o Honolulu. I ka lohe `ana o Kahahana, ua hiki mai `o Kahekili me nā `au wa`a i lako i nā mea kaua. Ua piha ho`i mai Ka`alāwai a hiki i Kawehewehe ka pa`a i nā wa`a kaua o Kahekili mai Maui, Moloka`i a me Lāna`i mai, no laila, maka`u honua `ēwale ihola nō `o Kahahana, a ho`ākoakoa a`ela i kona po`e ali`i a me nā koa . . . `ewalu ko lākou nui i hele i ke kaua. Ua komo loa kēia po`e `ewalu i loko o `Āpuakēhau, i laila kahi i kaua ai me ke koa launa `ole, a ua ho`opuni `ia mai lākou a puni e nā koa o Maui, a laila, wāhi a`ela kēia po`e `ewalu i loko o ka puoko o ke kaua , a nahā a`ela ka po`e i ho`opuni ai iā lākou nei. I ko lākou luli `ana a`e na`e e ho`i mai, ua piha loa `o mua i nā koa, `a`ohe wahi ka`awale o Kawehewehe, e hiolo ana nā pololū e like me nā paka ua, akā, `a`ohe na`e he wahi mea a pō`ino `o kēia po`e `ahi kananā, akā, `o kēlā po`e koa o Maui ua pau i ka make. I ka hiki `ana i kuāuna o Punalu`u, e iho mai ai i Luahinewai, e hiki mai ai i nā niu a Kuakuaaka . . . `Ekolu ho`ouka kaua `ana o nā `ao`ao `elua, a ua make like nō.

I ka malama o Ianuari 1, o ka A. D. 1783, ua `ākoakoa nā ali`i a me nā pūkaua, nā pū`ali a me nā koa o Kahekili, a māhele `ia ihola `elua po`e kaua. Mahele 1. `O Kahekili ka pūkaua. Mahele 2. `O Hū`eu ka pūkaua. `O kā Hū`eu po`e kaua, ma uka o Kānelāau a me Kapopakōlea, ma uka o Pūowaina. `O ka māhele mua, ma luna o Hekili a hiki i Kahēhuna a me `Auwaiolimu. `O Kaheiki ke kahua kaua.

Ma kēia ho`ouka kaua `ana, ua lilo ka wai o ke kahawai o Kaheiki i koko, no ke āhau lālā kukui o ka heana i ka wai, no ka mea ua kūmano `ia ke kahawai i ke kino o nā kānaka i make i ke kaua. `O ke kaua ma luna iho o ka haiau `o Kaheiki ke kaua i he`e ai, no ka mea, ua pi`i a`ela kekahi kaua ma ke kualapa pili o Pauoa, a iho ma Kapena, a ululō`a a`ela ka ho`ouka `ana o ke kaua . . . Lilo ihola ke aupuni o O`ahu a me Moloka`i . . . (Kū`oko`a, 3/30/1867)

Translation:

Kahahana, [ruling chief of O`ahu] who was then living at Kawānanakoa in Nu`uanu, back of Honolulu, was filled with consternation when he heard that Kahekili had come with a fleet of war canoes that reached from Ka`alāwai to Kawehewehe, and he rallied his warriors about him [but] eight of the warriors . . . went to `Āpuakēhau and fought against the whole host, and when they found themselves surrounded by the Maui warriors they broke through the

front lines, only to find their way of retreat bristling with more warriors and no way to turn in all of Kawehewehe. Spears fell upon them like rain, but it was they who slew the warriors of Maui. At the border of Punalu`u, on the way down to Luahinewai and the coconut grove of Kuakuaaka [there was fighting] . . . Three times both sides attacked, and three times both were defeated. In January 1783, a decisive battle was fought with Kaheiki as the battlefield. Kahekili's forces were divided into two companies, one under Hū`eu's leadership stationed at Kānelā`au and Kapapakōlea back of Pūowaina and the other under his own command stationed from above Hekili to Kahēhuna and `Auwaiolimu. In this battle the waters of the stream of Kaheiki ran red with blood from the heaps of broken corpses . . . on the ridge facing Pauoa and from thence down to Kapena another attack was made against the defense stationed back of the heiau of Kaheiki . . . thus O`ahu and Molokai were taken . . . (Kamakau 1992: 135-137)

A reconstruction of Kamakau's account of Kahekili's attack (Figure 16) definitely suggests battle casualties in Waikīkī. Of interesting note given in the account is that the war fleet stretched along the majority of the Waikīkī coast, beginning from Ka`alāwai at Diamond Head all the way to Kawehewehe, which is the ancient name for the land section where the project area is located. Not only is Kawehewehe the name for an old stream which ran through the project area, but it is also the name for the "Reef entrance and channel off Grey's Beach, just east of the Hale-kū-lani Hotel (Pukui *et al.*, 1974: 99). This reef channel, no doubt, was used by Kahekili's warriors to land their canoes at Kawehewehe. From Kawehewehe, the battle moved toward the coconut grove of Kuakuaaka in the northwest. Kamakau's account places a major battle within the project area and the surrounding vicinity.

Account of the Invasion of Kamehameha Circa 1795

In 1867, Samuel M. Kamakau wrote the following account of the invasion of the island of O`ahu by the ruling chief, Kamehameha:

Holo akula ho`i ka `au wa`a kaua o Kamehameha a pae i Waikīkī, a ua pani `ia mai Wai`alae a Waikīkī e nā `au wa`a kaua o Kamehameha.

`O Kalanikūpule ho`i a me kona mau ali`i, e noho ana lākou ma Nu`uanu, Kanoneakapueo, Kahapa`akai, Luakaha, Kawānakoa, Kaukahōkū, Kapaeli, Kaumuohena a me Pū`iwa nā kahua kaua. (Kū`oko`a, 6/8/1867)

Translation:

Kamehameha's war fleet sailed to Waikīkī where it landed and the beaches from Wai`alae to Waikīkī were covered with the war canoes of Kamehameha.

Kalanikūpule and his chiefs were stationed at Nu`uanu, Kanoneakapueo, Kahapa`akai, Luakaha, Kawānakoa, Kaukahōkū, Kapaeli, Kaumuohena a me Pū`iwa, the battlefields (where the main fighting took place).

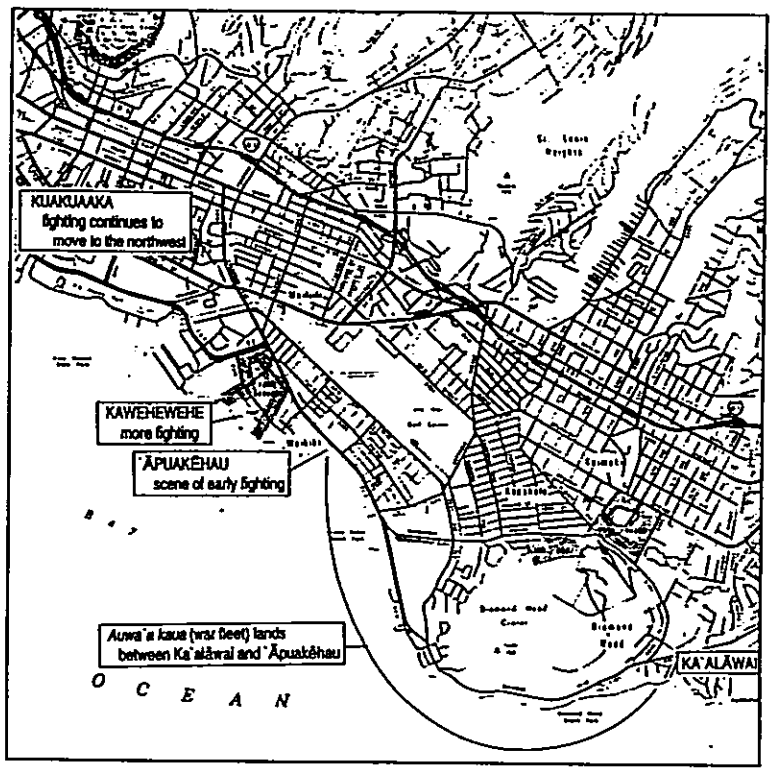

Figure 16 Reconstruction of Kahekili's invasion of O`ahu, circa 1783

This account once again places the landing of the war fleet in Waikīkī, but it emphasizes that the main fighting started in the uplands. Fighting at Waikīkī is certainly not to be ruled out. It is probable that minor skirmishes occurred along the way.

Another historical account depicting the famous battle of Nu`uanu in which Kamehameha I unifies the islands, was taken from *He Buke `Oia`i`o Kū`auhau Ali`i* (p. 131). The "Battle of Nu`uanu" chant was examined in the hopes it would provide clues to where fighting occurred and possible burials as a result of the battle.

The chant is prefaced by the following explanation: [This is] "A chant of the battle of Nu`uanu waged by Kamehameha the Great in the month of April, 1795. Composed by Kala`ikūahulu and transcribed by G. M. Keola, Dec. 15, 1880."

Kala`ikūahulu, was a skilled orator, genealogist and *kahuna* (priest) during the time of Kamehameha. He was also selected to be a member of Kamehameha's advisory counsel (Kamakau 1992:173, 175). Samuel Kamakau (1992:394), noted historian, writes "Kala`ikūahulu was the composer who glorified the names of the chiefs of Hawai`i in chant."

A very brief analysis of the chant is provided here. The chant is divided into two parts, *Māhele 1* and *Māhele 2*. The *Māhele 1* of the chant makes numerous references to genealogy which seemingly connect the Hawai`i chiefs to those of Maui, O`ahu and Kaua`i. Kamakau makes reference to this and says,

> After the battle of Nu`uanu he [Kala`ikūahulu] included the chiefs of Hawai`i with those of Maui, O`ahu, and Kaua`i, at which time he composed the chant "Seeking the single-masted canoe" (*`O uiui a wa`a kialoa*) as the ancestral path of Keaulumoku. But those skilled in the genealogies of Kaua`i were indignant because the relationships he traced were connecting lines merely and not those of direct descent. (Kamakau 1992:394)

The chant basically sets up the sequence of the Nu`uanu Battle and gives a vivid description of the intensity of the fighting that occurred. The chant begins by affirming Kamehameha's lineage and makes a connection to the O`ahu, Moloka`i and Maui chiefs and ends by saying, "You are the chief born on Lā`aukūkahi."

It is interesting to note that the first twelve lines of *Māhele 1* of the Nu`uanu chant are very similar (with only slight variations) to an earlier chant, written by Keaulumoku, a "celebrated man of Kalani`opu`u's day" who was another noted orator and composer of "war chants, chants of praise, love chants, prophetic chants, and genealogical chants" (Kamakau 1992:89-90; 112). It is likely that Kala`ikūahulu incorporated Keaulumoku's use of genealogy into his own chant which recounts the sequence of the famous Nu`uanu battle. Keaulumoku died in Hilo around 1784, 11 years prior to the decisive battle of Nu`uanu (Kamakau 1992:126).

Part 2 of the chant basically chronicles the story from the time Kamehameha's war fleet leaves the shores of Moloka`i (after its conquest), crosses the Moloka`i Channel and enters the

papa (reef flats) off O`ahu. From the chant, we know that *Lopakapū*, Kamehameha's cannon is on board one of the canoes, as well as his war god, Kūka`ilimoku. Poetic references are made to Kamehameha, comparing him to the long, sharp spines of the *wana*, the *nohu* — a poisonous fish, the *palani* known for its sharp barb which snags and the *kōkala kū* — the porcupine fish whose body is covered with long spines that inflict pain. In the chant, Kamehameha is declared the victor even before he has landed on the sands of Kākuhihewa, at Hononunu (the site of the War Memorial) in Waikīkī.

From the locations of the place names listed in the chant, it seems that indeed, as Kamakau wrote (*Kū`oko`a*, 6/8/1867), the coastline was covered with Kamehameha's war fleet from Wai`alae Bay to Waikīkī and on to Kou (Honolulu Harbor). In this account, no specific mention is made of Kawehewehe though it is very likely that canoes landed here due to the channel of the same name. One estimate puts Kamehameha's war fleet at 1,200 double canoes carrying 10,000 warriors (Holmes 1981:118). With a fleet this large, all available channels and landing places along the coast of Waikīkī would have been utilized.

Very quickly, the battle moves out of Waikīkī toward Kou (downtown Honolulu) and up toward Pūowaina (Punchbowl). Kamehameha splits his troops into two divisions. One moving up toward Pūowaina and Nu`uanu and the other going through Makiki and coming around the back side of Pūowaina. The chant creates a vivid picture of the intensity and fierceness of the fighting which occurred. A description is given of the general populace fleeing wildly through the taro fields in Makiki. The battle intensifies at Kānelā`au on the east slopes of Punchbowl, where Kalanikūpule's forces are trapped and surrounded. Kamehameha has the advantage of his canon, Lopaka, commanded by Hū`eo (Isaac Davis). The O`ahu battalions are forced to flee. Some, escape the heat of the battle and try to make their way back toward Waikīkī, probably in a last ditch effort to escape via canoe, while others flee toward `Ewa. However, the majority of the forces head toward Nu`uanu and the *pali* with Kamehameha's men in fast pursuit. The O`ahu forces became adept at jumping feet-first off cliffs, rolling and diving head first, somersaulting (*"akamai i ka lele kawa, aia lā ke iamo ola, lele po`o, kuala po`e"*) to make their escape to death.

Line 94 of the chant is perplexing in that it makes mention of "numerous [people] being killed at Kuamo`o" (*make lehulehu i Kuamo`o*). It is not clear whether this is a reference to Kuamo`o, O`ahu, Kuamo`o on Hawai`i or possibly an obscure reference to a different Kuamo`o location in close proximity to the place names mentioned in the chant.

The locality of Kuamo`o on O`ahu is spoken of by Kamakau in relation to the 1794 battle of Kuki`iahu, between Ka`eokūlani of Maui and Kalanikūpule of O`ahu. Mention is made of "The heights of Kuamo`o, Kalauao, and Aiea" and that Ka`eo's men were "cut off . . . between Kalauao and Kuamo`o (Kamakau 1992:169). This Kuamo`o is clearly the one located in the `Ewa District, far outside the boundaries where the Nu`uanu battle took place.

The famous battle of Kuamo`o at Kailua, Kona took place in 1819, after Kamehameha's death, over the upheaval of the *`ai kapu* (the religious taboo system). It seems odd that a chant written to commemorate Kamehameha and the Nu`uanu battle would make reference to a battle which occurred 24 years later and after the death of Kamehameha. It is even more

odd to find a reference to either of the Kuamo`o battles within the sequence of Waikīkī place names given.

It seems the chant is clearly recounting the various place names in their order along the coast of Waikīkī. Regardless, both known Kuamo`o locations are nowhere near the vicinity of Waikīkī or the Punchbowl-Nu`uanu areas. The present day Kuamo`o Street in Waikīkī, situated between Kūhiō Avenue and Ala Wai Boulevard, is said to have been named for Mary Kuamo`o Ka`oana`ena, the sister of Kekuaokalani who was killed at the Kuamo`o battle of 1819 (PN:119).

Line 144 once again mentions the place name Kuamo`o and is prefaced by the preceding line: "The people of O'ahu ask, who is this facing us? Who is the warrior at Kuamo`o?" The chant seems to be referring to a specific place name within the area of the battle zone but, this cannot be for certain. Research into place names and 19th century maps did not reveal any additional information regarding another "Kuamo`o location" on O'ahu.

In summary, the main reason for studying this Nu`uanu Battle chant was to get an idea of where the fighting occurred and to determine areas of density for possible burials related to this particular war. From the chant, it is clear that the battle moved out of Waikīkī proper very quickly. Granted, there were skirmishes along the way, but the main fighting occurred near the eastern slopes of Punchbowl and ended at Nu`uanu Pali. No mention is made of Kawehewehe in this account.

C. Land Commission Award Testimony

There are approximately 14,500 records associated with Land Commission Award claims during the *Māhele* of 1847-1853. Of these records, 428 are for claims both awarded and unawarded in Waikīkī. Among these 428 claims, there is only one mention of a graveyard or burial place and it is in Claim 613 (to Kuluwailehua) which is not awarded (*Māhele* database 1998, waihona.com). Though uncertain where the reported burial ground is located, based on the boundaries given in the testimony (Native Register, Vol. 2: 299-300), it is speculated that it might be adjacent to the former location of Waikīkī Church near Ka`iulani Avenue, well away from the project area.

D. Analysis

It seems the circumstance of the burials discovered in the surrounding vicinity of the project area is much more mundane than battle deaths or human sacrifices - namely that the vast majority of the deceased were the common people of Kālia. Withington (1953:16), probably referring to the *`oku`u* plague [circa 1804], says: "A few years of peace settled over the Islands. Kamehameha and other warring chiefs took this opportunity to re-establish their forces, which had been greatly reduced through war and disease. A terrible epidemic of measles had attacked the people of the islands. It is claimed that more than three hundred bodies were carried out to sea from Waikīkī in one day" (Withington: 1953: 16). It is possible that some of the Kālia burials discovered to date reflect such early depopulation by introduced diseases.

Rank seems to have had profound influences on places available for disposal. A king's body, or those of his attendants, could be placed within the district of the king's authority. Many geographical features were available. Fewer were available to lesser chiefs and their attendants, who were presumably limited to their own districts. The number of geographical features available for disposal seems to have decreased as rank decreased. Disposal for members of an extended family living in an *`ili* was restricted to those geographical features located within the land unit, whether broken lava flats, lava tubes, earth plains, or sand dunes (Bowen 1961: 21).

According to Bowen (*Ibid.*), most Hawaiians in the precontact period belonged to the *maka`āinana* or commoner class and their bones were usually buried in no other area than their particular *`ili* (land division within an *ahupua`a*).

Burials are commonly reported from clean, consolidated sand deposits and was clearly a common method of interment practiced by Hawaiians (Cleghorn 1987:42). One of the earliest reference to burial was made by Urey Lisiansky, who visited Hawai'i in June, 1804. He notes: "The poor are buried anywhere along the beach . . . " (1814: 122).

Commenting on the nature of burial areas and body positions used in burial, William Ellis (1827: 361-363) says: "The common people committed their dead to the earth in a most singular manner." The body was flexed, bound with cord, wrapped in a coarse mat, and buried one or two days after death. Graves were ". . . either simply pits dug in the earth, or large enclosures . . . Occasionally they buried their dead in sequestered places at a short distance from their habitations, but frequently in their gardens and sometimes in their houses. Their graves were not deep and the bodies were usually placed in them in a sitting posture" (*Ibid.*).

It seems likely that the remains thus far documented in the surrounding vicinity of the project area – Sartoga Road, Fort DeRussy and the Hilton Hawaiian Village – relate to common mortuary practices.

V. SYNOPSES OF ORAL INTERVIEWS

Following is a brief biographical sketch of each person interviewed (listed in alphabetical order by last name), along with a short interview synopsis which incorporates excerpts from the interviews and highlights key points of the interview, especially in relation to cultural practices.

Peter Ahoe Akimo Jr.

Biographical Sketch:

Mr. Akimo was born in 1927 and is 74 years old. He is of native Hawaiian ancestry. He grew up in the family home, where his sister now lives, on Mo'oheau Avenue in Kapahulu. As a young boy growing up in Kapahulu, Mr. Akimo spent much of his free time at the beach in Waikīkī. He reminisces,

> Everyday I was swimming. As soon as I knew how to swim, my mom couldn't catch me. As soon as I came home from school, I looked around, grabbed my shorts, and away I went. And I never came back until dark.

Mr. Akimo learned to fish from his uncles and his father who were originally from Ka`ū on the island of Hawai'i. Mr. Akimo was selected for his knowledge of ocean resources and fishing along the Waikīkī coast, from Black Point to Ala Moana, during the years of 1935 to 1945. In 1945, Mr. Akimo was drafted into the military. He returned to the family home in Kapahulu in 1950, and he resumed fishing along the Waikīkī shores. In 1960, Mr. Akimo relocated permanently to the Windward side of the island. Today, he occasionally returns to Waikīkī to fish, but he most often frequents the Waimānalo – Kailua coast which is closer to his home in Kailua, where he currently resides. Mr. Akimo spent most of his working years employed as an Operations Manager for a moving company. He has since retired, but occasionally drives the shuttle bus for the Hawai'i Prince Hotel on an on-call basis. Mr. Akimo was interviewed at his home in Pōhākupu, Kailua on the island of O`ahu.

Interview Synopsis:

For the Akimo family fishing was a necessary means of providing food for their large family. Mr. Akimo relates: "We had seven kids in our family and my grandfather lived with us, too. That's why we went fishing. It was a way to feed and support the family. Quite often, relatives who needed a place to stay would live with us for several months at a time. We had to feed them, too."

Mr. Akimo attributes much of what he knows – his knowledge of fishing, learning to make *kālua* pig, etc. – to his uncles who didn't have children of their own. He provided a glimpse of his childhood and the responsibilities he had as a young boy growing up in the 1930s:

> And, whenever they needed something done they used to come to my house to take me. You gotta figure, I'm eight, nine years old. And I'd go up there, help

> them move rocks, dig. Like I told you, I had one uncle that I *kālua* pig and everything. I made the *imu*. I did everything! I cut the wood, hauled the wood over, split the wood, put 'em on – and, I'm not eighteen, nineteen years old, you know. I'm nine, ten years old, and I'm doing all this kind stuff. And then another uncle comes, "Oh, can you come? I gotta dig one hole I gotta plant one tree." Stuff like that. And my mom would say, "Yeah, take him." And, then all the work in my house. We got five girls, two boys. Before, we no more water heater. So outside every night I gotta cook hot water. And, so I get one fifty-five-gallon drum, cut in half. And I fill 'em half up with water. And then we get one cover. Every evening I gotta light the fire about four o'clock, make 'em hot, and make sure that everybody get hot water for take a bath. And that was my job. Plus, clean the yard.
>
> Now, like I said, they want to go fishing. Okay, we all go fishing. My uncle them come pick me up. I go with them. Then I go with the other one. "Oh, I need somebody." I say, "Yeah, okay." And it wasn't a matter of, "Do you know how to do this?" They told me how to do it and, hell, I just did it. And so it became part of me. And, like I said, they tell you, "Okay, you take the net" – they standing by me. "You take the net. Swim across the channel and then you drop the net." I figure, well, eh, everybody does that. Yeah, everybody done it, but they do it with a tube and they get floaters and stuff like that. I mean, they just tell me swim across – I never did it before. So I swim – halfway across I ready for drown. [*Laughs.*] If I drown, who going pick up the net? [*Laughs.*] So, you talk about experience. You see, in the olden days it wasn't a matter of – they never taught you how. They just said do it. And if you don't open your eyes and watch what they're doing you're lost in the shuffle.

Mr. Akimo relates that his uncles were "superstitious" and they ". . . went fishing by the stars, the moon – and everything else – they planted by the moon." But he quickly added that he never learned those kinds of techniques from his uncles. Speaking of his father, he says, ". . . he left all the old Hawaiian truths – he never believed in them. He never wanted to. He wanted us to grow up Americanized . . .". This attitude echoed the sentiment of the time – a time when Hawaiian language was not freely spoken or taught to children and a western-style of education was considered more important than learning and following traditional pathways. When asked about specific traditions his uncles did in relation to fishing or planting, Mr. Akimo explained:

> If you say something out of the ordinary like, "Oh, okay we going fishing now." Forget it. Everything is going back in the trunk and we not going. You remember I told you that they go at night – two, three o'clock in the morning – they come pick me up. That's because so nobody ask them where they going, what they going do. When they come pick me up, maybe my mother knew. I never knew. They just come pick me up. "Come on, we're going." And that's it. You don't ask questions . . . we never took banana to the beach...

These traditions are still followed by many Hawaiian fishermen today. Bananas are believed to be unlucky. And, one never talks out loud about going fishing because the fish might overhear your conversation and they will turn around and swim away – making it an unlucky day to go fishing. Instead, one might say, "*hele i uka*" (I'm going to the mountains). The common phrase heard today is that one is going "*holoholo*" (to go here and there, with no specific destination in mind; a play on the word "*holo*" which means "to run" and "*holoholo*" also means "a net into which fish run" (Pukui & Elbert 1986: 77).

Mr. Akimo relates another tradition about planting banana trees by the moon:

> . . . I remember planting banana at my uncle's house. And I dug the holes and I was ready to plant banana. Then my cousin came home with the kids. It was a moonlight night. He made the younger one take off his clothes and plant the banana tree. And I don't know what that had to do with the banana growing, bearing fruit. But, that was kinda weird to me. And, so had to be a moonlight night. So everything was all in order for this. You see, I dug the hole and I put all kind leaves and everything inside there. Then we went get cow manure and I soak the hole and everything. I thought I was going plant 'em. Uh-uh, I never plant 'em. But, when the tree gave fruit . . . I look at the fruit and I go, "Wow!" You know the fruit was very full and, if you ever plant bananas or anything like that, you can tell the difference between one tree and another . . . I see the difference in this particular tree that these people went plant from among the other trees around the neighborhood. But, this was unreal! So, I thought that it was because of the way they did it.

Mr. Akimo shared his thoughts about fishing and the tradition of sharing your catch – something which is still done today by Mr. Akimo.

> . . . if you go fish, you gotta give 'em away. You don't go catch fish just for the sake of fishing. You go catch fish for eat . . . you don't go fish and then you put 'em in the icebox or you put 'em in the freezer. Forget it. You lose a couple of things in that process. The taste of the fish wanes. And, then when you give 'em to somebody else, you not giving 'em fresh fish. And, to me, if you're not giving fresh fish, then no give . . . And that's why lot of times when I go fishing, I come back, I get plenty, I give 'em away quick. I come back home I call somebody, "Hey, I get fresh fish." And you give 'em. And you know that they getting fresh fish. I don't care if they like fresh fish or not. But I'm not going give them old fish. I shame! And I also learned that from my dad. Because when we were young, if we ever went fishing and we came home, you know, we get one big tub of fish. And he'd get one package or whatever container, "Here, take this for mister so-and-so. Take this for mister –" What we had left was what we going eat. In other words, he take the ones that he going eat. And, doesn't necessarily have to be the best fish. But that's the kind he like eat now. And, sometimes you say, "Wow, one good cut of fish going next door. Wow, how come they get the good fish?" [*Laughs.*] He don't want to eat that. And, that's the way he was. Consequently, every once in a while, people come up the house,

> if the fruit is ripe or somebody get star fruit or whatever. You see one package. Or mister so-and-so come up, "Oh, this is from my tree." You know this is in payment for the fish that my dad gave. And, it was a constant because we always had too much fish!

From a Hawaiian perspective, fishing was never done just for pleasure or for the "thrill of the catch". One went fishing because there was a need for the fish. Fishing had a basic, practical purpose – it provided sustenance – a means to feed the family and the extended community. In turn, this fostered good social relations through exchange and reciprocation.

The method of fishing Mr. Akimo commonly used was called "*paipai*". He described how this was done.

> PA: What we do is just walk along the shoreline. And . . . if you can see a fish then you go in the water. What we did was, if you walking – two men walking along the shoreline – and you split the net in two. We used to call this *paipai*. What we used to do is one guy goes out here, and he takes part of the net. As you go out you pull this guy's net with you. Then you go until his net is all out and you're holding the end. And then you drop your end and you make a loop. You make a circle, sort of a half-moon, going back to the shore. And, then what you do is come together and then one would go on the inside, with his net, drag the net all the way on the inside.
>
> **CSH: And the other goes on the outside?**
>
> PA: Yeah.
>
> **CSH: So, you have a complete circle.**
>
> PA: Yeah. But, then you keep on going from here. You keep on going in. What you doing, you hitting the water and you chasing the fish – all the way out – go in – all the way out to the end – until you no more room for walk. Until you come right to the end. And then you going have one small pocket where all the fish is collected. Then, you hit the water with your hand and you pick up the lead. Meantime, both of you are together. But, you keep on going around – you going come back again . . . So two guys grab whatever is in the net and you walk straight up to the shore. 'Cause you right at the shore.

Mr. Akimo went on to explain that almost any kind of fish could be caught this way. Some of the fish he named were: *manini, weke, moi, ʻŌ io, pāpio, uhu, kūmū, ʻāholehole* and mullet. All of these fish were caught along the Waikīkī shoreline. Besides *paipai*, Mr. Akimo sometimes

would go torch fishing at night during low tide. But, his preferred method of fishing was *paipai*.

When asked about fishing along the shore in front of the Outrigger Reef, he replied:

> I never went over there fishing daytime because – early in the morning – people down the beach. But, at night was no problem. Like I say, at night you catch anything down there. Like I said, the whole shoreline in Waikīkī, at anytime you go catch any one of those – all that type of fish over there.

Mr. Akimo says he's fished all along the Waikīkī shoreline and would walk the coast, following the current, from Diamond Head to Ala Moana. Even though he occasionally fished down at the Halekūlani -Outrigger Reef end of the shore, he preferred to fish between Diamond Head and the Kapahulu Groin because the fish were more plentiful there and it was not as crowded during the day. The area in front of the natatorium was especially good. This sentiment was also echoed by several others who fished in Waikīkī (Pers. Comm., Cy Harris to K. Mc Guire, 9/10/01; Pers. Comm., Gabby Makalena to K. McGuire, 9/04/01).

Mr. Akimo talked about accessing Grey's Beach (just east of the Halekūlani Hotel) to pick *limu* (seaweed). He would get to the shoreline by using the access between Ft. DeRussy and what is today the Waikīkī Shores (adjacent to the Outrigger Reef) or he would enter from Kūhiō Beach and walk along the shore to the Ft. DeRussy end. He recollects there was a time when the Ft. DeRussy beach area was off-limits to civilians. However, the area fronting the Royal Hawaiian and all the way down to Grey's Beach and the Halekūlani was a good place to pick *līpoa, manauea, wāwae`iole,* and *līpēpē*. Mr. Akimo explained that if he was fishing and he spotted a patch of *limu* along the way, he would pick it for his mother who loved the delicacy. But, picking *limu* was usually done by the women in the family and it was an opportunity for women to socialize and catch up on gossip.

Mr. Akimo remembered that, in the 1930s and 1940s, there were cottages "down the street on Lewers Road, on the *ma kai* side." The corner of Beachwalk and Kalākaua (where Planet Hollywood is now) was an open park area. He comments, "It wasn't one popular neighborhood . . . I don't think you had too many Hawaiians living over there." He went on to say that he didn't remember any Hawaiians living there then. During that time, the popular Hawaiian neighborhoods were "Right on Paoakalani, in that area, and right in the back of Niumalu Hotel, Kālia Road and that area right there." The draw to the Paoakalani end of Waikīkī was Lalani Hawaiian Village, which was run by the Mossman family. This information was consistent with the historic research conducted for this study.

World War II (WWII) brought changes to Waikīkī. Security was very tight especially at the beginning of the war. The beaches were barbed wired off and access was restricted. Fishing was not allowed at night, but Mr. Akimo remembers sneaking under the barbed wire to go fishing. He explained:

> Oh yeah. We just went underneath the wire. [*Laughs.*] Night time, you see, they wouldn't allow you to go down the beach at night. During the day time,

> you could go fishing. But, at night, you couldn't stay on the beach. We used to live on the beach. You just sneak underneath the barbed wire . . . Just don't make noise on the beach. All you had to do was keep quiet and you had no problem on the beach. They couldn't have cared less. What they were more concerned about was the lights . . . Then, after that, they relaxed it. They never took it out, they just relaxed it. So, as far as fishing goes, the only problem was, a lot of times, in certain areas, they put the barbed wire right in the water. So, you can see the fish in the water, but you no can catch 'em because the barbed wire is right there. So, the fish used to hide in the barbed wire. And, when we wanted fish, we had to fish outside of the barbed wire or wait until they came in.

So, for Mr. Akimo, the war was not a deterrent from fishing or accessing the shoreline, as it was for others (see Paoa Interview below).

Mr. Akimo ended the interview by espousing on the concept of *aloha*. In his opinion, "Waikīkī is not as friendly as it's all made out to be. A lot of people who are there are phonies. They smile because they're getting paid to smile. They don't smile because they want to, because they enjoy it. To them, their job is monetary. It has nothing to do with what they feel on the inside . . . if you don't know when to give [*aloha*], if you don't know what it's all about, then you're in the wrong business. You go in the computer business or something. No go into the *aloha* business. *Aloha* business is for people who understand *aloha*. And, I know it. I feel it."

Florence Kamaka`ōpiopio Clark Miyamoto

Biographical Sketch:

Born in 1928, Florence Kamaka`ōpiopio Clark Miyamoto is the daughter of the late Herman Kahikiena Clark and Anne Aulani Paoa Clark. She is a native Hawaiian and has genealogical ties to the Kālia area through her ancestors, Kalaeone, Nākōkō and Paoa, which date back to at least the time of the *Māhele*. But, it is likely that her family lived in the Kālia area long before the *Māhele* occurred. Her family " . . . owned large portions, tracts of land there in Kālia where the Ala Moana Boulevard meets Kālia and John `Ena Road." *Māhele* Land Commission Awards (LCAs) indicate that Kalaeone and Nākōkō also owned land in the Fort DeRussy area, in close proximity to the study area.

Part of the Paoa, Kahanamoku and Harbottle clans, Kamaka, as she likes to be called, grew up on family lands where the Hilton Hawaiian Village is situated today. "Our home was located right there on the corner of Ala Moana Boulevard, Kālia and John `Ena Road. They called it the 'corner house'." She has many fond memories of Kālia and says, "Being together – family" are the fondest memories of all. She explains,

> . . . the Paoas had twelve children, the Kahanamokus had nine and, I believe, the Harbottles had eight . . . it was wonderful because we always had playmates to play with. It was absolutely wonderful. My uncles and aunts took special

care of us and made time to do things for us.

Kamaka lived in Kālia from 1928 until just before the war – 1941, when the family house was torn down and they moved away from the area. She was selected to be interviewed because of her family ties to Kālia. Kamaka was kind enough to grant an interview in spite of her recovering from a recent bout of bronchitis. She was interviewed at her home in Kāne`ohe, O`ahu, where she resides. Despite living away from Kālia for the past 60 years, she still considers Kālia home.

Interview Synopsis:

When listening to Kamaka talk about her grandparents, it is evident that they lived a Hawaiian life-style in many ways. They planted taro and made *poi*, picked *limu*, fished, celebrated with *lū`au*, spoke Hawaiian, etc. But, it is also evident that, as with most other Hawaiian families of that time, Western impact wrought changes to this traditional lifestyle within the short period of two generations – between grandparent and grandchild. For one, Kamaka's grandparents had both passed away by the time she was born so she did not have the advantage of being raised around them and learning from them. Her memories stem from photographs and stories she's been told by her parents, uncles and aunties.

Kamaka had fond memories of the family home and growing up in Kālia. With 17 other cousins living close by, one can just imagine the many happy moments shared with family. She provided the following description of their single-story home which was "set back on the lot":

> . . . Our home was located right there on the corner of Ala Moana Boulevard, Kālia and John `Ena Road. They called it the "corner house" . . . the house was huge. It housed twelve children and it was a typical Hawaiian-type house, huge, with a balcony around the front. And, in the back of the kitchen, there was an enclosed area where my grandmother could hang clothes to dry in case it rained. Then, we had a shower and an outside toilet there in the yard. But, the yard was just huge.

Kamaka also remembered that the yard was full of coconut trees which her "grandfather planted . . . there for every child that was born. There were at least twelve trees there, you know, for the twelve children."

Childhood activities included lots of swimming in the canal down by the `Ilikai. "We went fishing, we caught crabs, we played in the yard. There was a big *hau* tree in the front of the corner yard that we climbed and it became the pirate ship and all of that. It was amazing. We didn't go to summer school. My parents provided for us. We really appreciated nature."

When asked about fishing, she reminisced that her brother Jimmy was a great fisherman – "spearing, laying nets, all kinds, and it was plentiful." He used to catch mullet, *`ōpelu, aku, kala, akule, manini*" and all kinds of other fish. She also remembers: ". . . my

mother took great delight with her lady friends, spending the day picking *limu*, catching crabs, then having a fabulous lunch on the beach under the tree in Kālia." By the time Kamaka was born, the Ala Wai Canal had been dredged and Pi`inaio Stream was filled in. But, she recalls her mother speaking of getting *`o`opu* and shrimp (*`ōpae*) from the stream.

When Kamaka was growing up, she remembered walking from Kālia, past the Halekūlani and over to where the Outrigger Canoe Club used to be to go surfing. She did not recall any Hawaiians living in the neighborhood of Lewers Street.

In the following excerpt, Kamaka talks about some burials that were found on Paoa family land. She shares what happened from her perspective and her views on what should be done with the *iwi* when they are found.

CSH: What about burials in Waikīkī? Have you ever heard anything about burials being found in our project area

KCM: No. Well, my feelings are, if they're found, put 'em back. I can't see all this hoop-dee-doo about taking 'em out and where the heck are you going to put 'em? I mean, they were there before everybody else. I know when we found ours, my uncle said, "You're in charge." I was in my twenties. I said, "Put 'em back." The Hawaiian men went nuts.

CSH: What did they want to do with it?

KCM: They wanted to take 'em out and put 'em somewhere else. I said, "Where? When they were buried, this was their land and you people have taken it away from them by condemnation. Put 'em back. Let 'em go."

CSH: So, you're talking about the burial that was found on your family land where you grew up – the Hawaiian Village area?

KCM: Yes. Well, it was actually under the Ala Moana Boulevard and that was part of the Paoa land . . . But, I should just keep my mouth shut. I feel that's where they were buried, let 'em go . . .

CSH: Have you heard anything else about other burials in the Kālia area?

KCM: No, but I'm sure that they're there.

These burials were known burials to the Paoa family who are lineal descendants to the land in more than one portion of Kālia and greater Waikīkī. Kamaka acknowledged the practice of burying family members on *kuleana* land.

KCM: . . . And, then my aunt, Mrs. Kahanamoku, had a Bible that listed those people who were buried there. It's now at the archives.

CSH: The Bible or the list?

KCM: The Bible and the list . . . You will find that on most *kuleana* you have these burials and they were buried within the property of the family.

In regard to family *lū'au*, Kamaka says the big one was always on New Years. This was the one time of year when everyone came home. Her uncles would prepare the *'imu* and the *kālua* pig. Her aunties would bake cakes and the family "gathered most of the fish and raw stuff from the beach." Everyone would sit around and sing and play the *'ukulele*.

Kālia holds many happy memories for Kamaka and, despite living away for the past 60 years and the family house being gone, she still considers Kālia home.

Robert Clarke Paoa

Biographical Sketch:

The youngest of the four *kūpuna* interviewed, Robert "Bob" Paoa was born in 1937. He is of native Hawaiian ancestry. Bob is the son of Malcolm Paoa and Ellen Clarke and, also a first cousin to Kamaka Clark Miyamoto. They are related through the Paoa line. His grandfather (on his father's side), Ho'olae Paoa, was born in Kālia. His mother's family moved to Kālia "probably in the very early 1920s or maybe before that." Like the rest of the Paoas, Bob was raised in Kālia. The first three years of his young childhood were spent at his family home which was located on the present site of the 'Ilikai Hotel. In 1940, the family moved to a home up the street where the Kobe Steakhouse is presently situated. Bob has a special interest in history and genealogy and even though he is seven years younger than his cousin, Kamaka Clark Miyamoto, he still had a lot of stories and information to share which he had gleaned from his parents, aunties and uncles while growing up. Bob lived in Kālia until 1968. He relates, "So, I think we were some of the last of the old-timers to move out of the area." Bob spent most of his working years employed as a gun repairman at Fort Ruger and, later, as an inspector for the Army National Guard. He is presently retired and resides in Moanalua. Mr. Paoa was interviewed on the grounds of the Bernice Pauahi Bishop Museum, where he volunteers at the archives several days a week.

Interview Synopsis:

By 1937, when Mr. Paoa was born, the three streams that fed Waikīkī had already been diverted by the dredging of the Ala Wai Canal in the 1920s. This included Pi'inaio Stream which was close to the family home. So, in Bob's opinion, he missed out on experiences he'd heard his parents tell stories about – looking for *'alamihi* crabs in the mud flats and catching *'o'opu* and *'ōpae* in the stream.

At the age of four years, another unforseen event occurred – World War II. As a result, Mr. Paoa expressed he did not have the same opportunities and experiences as his older cousins. Coming from a family of fishermen, he explains why he never learned to fish.

> For the most part, my early childhood was just spent around the house because there was a war and the beaches were off-limits. So everybody stayed right in that immediate area. It's hard for our younger people to imagine, but we never had baseballs and bats and footballs and that . . . there were no Christmas trees, no Halloween stuff, nothing – because of the war . . . it was just the way life was . . .
>
> When I started school (1st grade) in 1943, I carried my gas mask everyday. Everyone carried one. We had a bomb shelter in our yard. I attended Thomas Jefferson and our campus had bomb shelters all over it.

He further adds that, in his opinion, the war had a negative impact on Hawaiian culture:

> Well, like I said, during the war, the beaches were off-limits. So, we lost a lot, I think, there. In many ways, the war contributed to the loss of cultural practice because we were not allowed to use the beaches. As a result, I never really learned how to fish. And by the time the war was over, I never cared to learn.

During the war, *poi* was rationed. As a result, his family switched over to eating rice because it was easier to get. Because his family could not access the beach for food resources, most foods were store bought – usually canned goods. "Of course, good meat was a real treat." Families were encouraged to plant gardens, and they raised chickens for eggs as well as for the meat. Mr. Paoa feels things definitely would have been different were it not for the war.

The Fort DeRussy area near the shore consisted of beach cottages for the officers. Mr. Paoa remembered that there was a deck with a slide, a diving board and a raft you could swim out to. However, in the late 1940s to early 1950s, this area was strictly for military families.

An old photograph of the Ft. DeRussy area, depicting a flag pole, brought back a childhood memory.

> Here's something I remember. Here's a flag pole in the picture. A real tall one. Everyday at five 'o clock, they'd play the bugle and they'd fire a gun and they'd bring the flag down. That's five 'o clock. So, for all the kids here, five 'o clock was time to get home 'cuz you going eat dinner. It's not like now – you eat when you want. So, as soon as the kids heard that or they looked and the flag wasn't flying, they'd bee-line home because you'd better be home! [*Laughs.*]

Even though Bob missed out on first-hand experiences, he was able to share a bit about Hawaiian cultural resources and practices, which he gleaned from stories he'd heard his *kūpuna* talk about. Pi'inaio Stream once ran through the area of the Waikikian and "emptied

into the ocean just Ewa of the Duke Kahanamoku Lagoon" (Acson 1983: 16). With such a large family to feed, Bob's father and grandfather before him depended on the stream to provide subsistence in the form of edible seaweeds, crabs, fresh water fish (*ʻoʻopu*) and shrimp (*ʻōpae*). The stream was a valuable cultural resource for his family. He describes some of the resources they utilized:

> And, then down here, where the stream emptied, there was lots of *limu ʻeleʻele*. *ʻEleʻele* grows where the water is brackish. Lots of crabs – *ʻalamihi*. Kālia is famous for *ʻalamihi* crabs . . . Now, my dad and my uncle said, "Oh, there was a lot of *ʻoʻopu* in there" – fresh water fish. They'd also get shrimp, *ʻōpae*. That was a source of food. And, there were lots of mudhens, the *ʻalae* – a lot of that, the *ʻaukuʻu* – the heron [in nearby ponds].

Piʻinaio Stream and the ponds have since been filled in and the mud flats where the *ʻalamihi* were once so plentiful no longer exist.

Mr. Paoa recalled that when his aunties wanted *limu līpoa*, they'd usually go in front of the Halekūlani. He explains: "You know how Hawaiian ladies get *limu*, yeah? They wear these big *muʻumuʻu* – they're kind of modest, yeah – and they sort of half-float with their big bag of *limu* and they talk story. It's *limu* gathering and gossip at the same time."

Mr. Paoa grew up hearing stories of how his grandfather fished and maintained a canoe and fishing gear. Because his grandfather worked during the week, he usually fished on weekends to support his family of twelve. Says Mr. Paoa, ". . . my uncles and all of them said he made some fantastic catches of fish . . . But, he never sold any fish. He didn't believe in selling fish. So, what he brought ashore, he'd just lay it out. And, all the people in that area there, they'd come and take just what they need. He never sold." Mr. Paoa was also gracious enough to share this family story about his grandfather:

> The story I heard was that he had a good friend. I forgot his name, but he was a Hawaiian guy. When my grandfather died, this guy took all the nets, all the fishing gear, put them in the canoe, filled the canoe with kerosene and burned everything. Gone! And, some people condemned him for doing it. I'm prone to think that he did it with my grandfather's approval or telling him to do it. Why? Well, you know, if this was something special to a Hawaiian fisherman who revered his equipment and took care of it and everything – and, probably he saw changes coming and he figured, you know, my sons are not going to take care of this, times are changing, they gotta move on – so better to just let it go. You know, Hawaiians did things with a purpose. Maybe that was the reason, maybe not.

Speaking of the project area and what he knew about it, Mr. Paoa related what he heard from one of his uncles:

> . . . you know, my uncle told me that area there [pointing to map showing Outrigger Hotel locations between Saratoga Road and Lewers Street] was home

> to many, many Hawaiians. They all had little cottages there. He used to go to Waikīkī School where the Kaʻiulani Hotel is. He walked through here. He said had all neat little cottages. A lot of them made leis, *ʻōkoleʻoiʻoi* (marigold) and all of that. All in there had Hawaiian families. He doesn't know what happened but they all got pushed out.

Mr. Paoa remembered that the bus route to Thomas Jefferson School use to go up Lewers Street to the Ala Wai (in those days it was a two-way street). He recollects, "They had all cottages. They had coconut trees, *lauaʻe*, nice little residences". The cottages are the singular memory everyone seems to have of the project area prior to the development of hotels and the Edgewater.

Mr. Paoa goes on to say that the adjacent area of Helumoa, where relatives lived, was also populated by Hawaiians at one time. He continues:

> I also know that over here, we had family here – the Piʻikoi's, David Piʻikoi. They had two daughters, I remember them both. One was Mrs. Harbottle and one was Miss Piʻikoi. And there was Kanae in there. They're related to Piʻikoi . . . Yeah. All in that area. Now, Piʻikoi sold out to Sheraton or Matson or whoever. Yeah, this area had a lot of Hawaiians, you know.

Mr. Paoa indicated he'd heard stories from his mother and other relatives about many Hawaiians being displaced from Kālia and particularly from within the project area. It was rumored that many of these Hawaiian families became "beholden" to a particular individual and they turned over their land, either in exchange for debts paid or sold out for a nominal fee. "But it's not something people talked about much because they were "*hilahila*" (ashamed)" (Pers. Comm. to K. Mc Guire 9/11/01). Bob's understanding is that many of these displaced Hawaiian families moved to "Squattersville" – first in the present Ala Moana park area, which used to be the City's dumping grounds. Later, the City relocated the homeless families to a second "Squattersville" location in the tract over by John ʻEna Road and Kalākaua Avenue. Eventually, he heard many of these same families moved to Papakōlea Homestead, he thinks, some time after WWII. Bob's feeling is that people didn't move around too much once the war started. It was too difficult to find a place to live. So, if you didn't move before the war began, you stayed in one place until the war was over.

Mr. Paoa also remembered the different Hawaiian enclaves within Kālia where Hawaiian families lived, as well as some of the names of the Hawaiian families who lived in the area.

> **CSH: Do you remember any of the Hawaiian families that lived around you, your neighbors?**
>
> RP: Oh yeah. I remember a lot of them. Our immediate neighbor was Mary Manohā. I think she was a widow. She had two sons and they lived right next to us.

CSH: Was that at the Kobe Steakhouse location or the other one?

RP: No, that's at the 'Ilikai. Then, there was the Harbottle family who are blood relatives of the Paoas. They lived where part of the Waikikian Hotel was. Then, up the road was the Kahanamokus – also blood relatives of the Paoas. And, then the Paoa family. Most of the older Hawaiian families lived in Hobron Lane. There was the Kauhā family – I think Gabby Pahinui's wife is from there – Hobron Lane. Big family. Emily Kauhā was Gabby's wife. And, she had some brothers. There was the Kalauokalani family (also related to the Hobrons) in Hobron Lane. I think they're all relatives of the Espindas. Mostly hapa-haole. And, then up just below Kalākaua was quite a few Hawaiian families. There was this guy they called "Tough Bill" – the Keaweamahi family. I don't know them too much, but I know they lived there. Back between 'Ena Road and Ala Wai was all swampy area. There were some Hawaiian families living there. Not too many. Most of them eventually moved up to Papakōlea – the homesteads. But, by the time I grew up there, I think most of the Hawaiian families were gone, the old-time Hawaiian families. Then, across the 'Ilikai was the Kapule family who are relatives of mine. There was Mrs. Kapule, her husband and she had a daughter Edith Titcomb and a son they nicknamed "Major". They all lived in there. Next to them was a Hawaiian lady, Kahana Williams. I remember her. And, then of course, there were a lot of Japanese and mixed, part-Hawaiian, some haole families, all in that area.

CSH: When you say just below Kalākaua, what do you mean by that? What can you relate it to today that I'm familiar with?

RP: Oh, everything's gone over there now.

CSH: In the Fort DeRussy area?

RP: Oh no. This is the corner of 'Ena Road and Kalākaua, on the 'Ewa side. Back in there. In there was all Japanese Camp and there were Hawaiians in there. There was also on 'Ena Road and Kalākaua corner, on the Diamond Head corner, was Ray Jerome Baker's studio, the photographer. And, just below him was a Hawaiian lady, Helen Dudoit. She had a big green house. There's a lane there named after her or her family, Dudoit Lane.

This fits in with information learned from 20th century fire insurance maps depicting the development of Kālia. The Hawaiian neighborhoods developed around the Hawaiian Village complex - 'Ilikai and Hobron Lane, John 'Ena Road (near Kalākaua Ave.), Kawehewehe (Saratoga - Lewers St.), the Moana Hotel and Paoakalani Ave. and Lemon Road (Lalani Hawaiian Village).

Mr. Paoa indicated that "Kawehewehe" was the old name for the area where the project is situated. An excerpt from his interview reads:

RP: You know, my father's cousin, who was way older than my dad, told me that this place was called Kawehewehe. And, apparently there was a spring here with ponds and she mentioned something that she heard – I don't know if they did it when she was young – but, they went to this water for spiritual cleansing and, maybe, physical cleansing, too.

CSH: Do you remember anything else she said about it?

RP: No. She just said that there were Hawaiians who went there and bathed in that water for spiritual cleansing. [Though not positive, Mr. Paoa thinks this cultural practice did not occur after 1900.]

CSH: Is your feeling that the spring was in the ocean?

RP: I don't think so.

CSH: What is your feeling about it?

RP: She said it was up where Saratoga Road is – somewhere in there [pointing to map] – that thing came down. It probably started here and flowed down to the ocean. I don't really know the specifics about it.

Mr. Paoa was making reference to an unnamed pond (thought to be Kawehewehe Pond) just southwest of Loko Ka'ohai on Bishop's 1881 map.

When asked about knowledge of burials in the project area, the only burials he knew of were the ones found on Paoa lands (on Hilton Hawaiian Village grounds) when Ala Moana Boulevard was widened into four lanes in 1951. He had not heard of any burials in the project area.

During Mr. Paoa's time, *lū'au* were not as common. He recollects only a couple of *lū'au* – one in particular for his aunty's 50th birthday – in 1945 or so. He thought *lū'au* were more common when his dad was growing up. As part of the preparation, the family would kill the pig and make the *'imu*, etc. He also recalled making *laulau* on several other occasions, which were usually cooked in the *'imu* rather than being steamed on top of a stove.

Mr. Paoa recalled a time when one of his aunties smashed her toe and she was taken to see a renowned *kahuna* who lived in Kapahulu. Her name was Kimokeo and Bob relates that "she healed it in very short order." But, Mr. Paoa says that by the time he came along, if anyone got sick, they went to see the "Western doctor."

Thinking back, Mr. Paoa says, "We were quite proud to say we came from Kālia. People would say, 'You from Waikīkī?' 'No. We're from Kālia.' You made the distinction. Now, people say, 'Kālia? Where's Kālia?' And, you just say, 'Waikīkī."

Betty Dyer Sorensen

Biographical Sketch:

Born in 1922, Mrs. Betty Dyer Sorensen is 79 years old and was the oldest *kūpuna* informally interviewed for this study. Mrs. Sorensen is the author of *Born and Raised in Waikiki* which includes memories of her childhood in the 1920s and 1930s in her family home. Her parents bought their corner Beach Walk parcel for $1500 in 1918 from "an old spinster" named Alice Knapp. Ms. Knapp had acquired the parcel three years earlier for $850. The two-story home was ". . . built to their design" on the corner of Beach Walk and Kalākaua Avenue (Sorensen 1995:2). The house, which no longer stands today, was home to Betty until 1946 when she moved out of the family residence to begin married life with her new husband.

Though Mrs. Sorensen is not a native Hawaiian, her account is valuable because it served to provide details about the neighborhood and to clarify what the historical research implied – that at least by the 1920s, and probably much earlier, there were none or very few native Hawaiians living in the project area: between Saratoga Road and Lewers Street and *ma kai* of Kalākaua Avenue. She could only remember one Hawaiian classmate whom she thought might have lived in the neighborhood in the 1920s. Although the Hawaiian population had moved away from this section of Kālia, her account confirms that cultural practices still occurred – at least in regard to the gathering of resources along the shoreline such as torch fishing and picking edible *limu* (seaweed). Her account also gives a description of the general project area in the 1920s and 1930s, prior to the development of the area for hotels – which began in the 1940s. Mrs. Sorensen is retired and currently resides at least part-time outside the State of Hawai`i but it is clear from her book and her account that she has many fond memories of Kālia and Waikīkī as she knew it.

Interview Synopsis:

Mrs. Sorensen remembered well the neighborhocd where she grew up. She wrote:

> . . . I have mined my memory and can not [*sic*] recall any Hawaiians living in the immediate area . . . i.e. Lewers Rd., Kalia Rd., Saratoga Rd. and Beach Walk . . .

> As for individual Hawaiians living in the Beach Walk, Lewers Rd. area, the only one I recall is Sammy Amalu . . . a dear friend with whom I went to school. Sammy was probably 5 years older that I . . . I didn't hang out with him, but I think he might have lived in the neighborhood.
>
> But try as I have, I can not picture any Hawaiians living in our neighborhood in the 20's and 30's. By there, it was all young office workers who wanted to live in the little apts [apartments] and be handy to the beach.

Mrs. Sorensen's recollection of Hawaiians no longer living in the project area neighborhood is consistent with that of the other *kūpuna* who were interviewed.

Mrs. Sorensen described the immediate project area, between Saratoga Road and Lewers Street as she knew it in the 1920s:

> . . . the area was mostly small cottages and duplexes . . . my own mother in 1926 built a 3 unit apt [apartment] house on Saratoga Rd . . . Fronting the ocean were several large houses on very large pieces of land . . . there were two distinct cottage courts fronting the ocean . . . I used to walk to the beach by trespassing through them.

Of the vicinity surrounding the project area, she noted:

> The duck ponds were on the *mauka* [italics added] side of Kalakaua . . . the duck ponds were swampy but I don't recall any farming going on there. The Ft. DeRussy grounds were always clear and available for military parades.

And speaking of the Halekūlani Hotel, she adds that:

> . . . it is where it is today ever since I can remember . . . altho it didn't look like it looks now . . .back then it was low rise and it included some cottages on the Diamond Head side of the main building.

Mrs. Sorensen gave her recollection of Hawaiian women picking *limu* at the beach. She wrote:

> One definite memory is of the Hawaiian ladies going into the ocean in front of the Halekulani Hotel and harvesting limu . . . they wore long sleeved and long skirted cotton gowns which completely covered their arms and bodies . . . the gowns were usually black or white . . . I don't think I recall the Hawaiian women wearing bathing suits . . . they held a white cloth bag in their hands and they came at low tide and seemed to have all the time in the world to harvest the limu. The little kids played in the water nearby . . . naked, of course. It was a very happy scene.

In regard to beach access, Mrs. Sorensen wrote:

> As you probably know if you have tried to get on the sand in front of the hotels, there is only one way unless you dare to walk thru the lobbies of the hotel . . . YOU WALK DOWN THE CONCRETE WALKWAY WHICH IS LABELED "right of way to the beach" . . . this right of way has been there for as long as I can remember. Literally hundreds of thousands of beach goers have walked that walk. If I try, I can hear the feet shuffling on the sandy walkway. It is located on Kalia Road next to the Halekulani on the town side.

This is the same access route used today, between the Halekūlani and the Outrigger Reef on the Beach.

Mrs. Sorensen also recollected that the when the tide was right, the Hawaiians went torch fishing in front of the Haleūkulani and that end of Waikīkī Beach. She added, "I have not seen any torch fishing in that part of Waikiki in many many years."

In regard to any agricultural or farming activities, Mrs. Sorensen did not recall any such activities occurring in the project area. Rather, she thought that ". . . most of the farming was done in the Waialae area and Kapahulu." This is consistent with information provided by Mr. Akimo who commented that there were several dairies and farmers in the Kapahulu area. He believes they eventually relocated to Waiāhole and Wai'anae (Pers. Comm. to K. Mc Guire, 9/12/01).

Mrs. Sorensen noted that ". . . the only Hawaiians I saw on the beach were the beach boys . . . making lauhala hats and playing the ukulele." She also recalled a Christmas Eve tradition: the "Hawaiian beach boys" would go around the neighborhood serenading the "locals". "They would come to our house on Beach Walk around two in the morning and sing all the favorite Christmas hymns in beautiful harmony. It was magic."

Mrs. Sorensen ended by writing, ". . . we had hundreds of young office workers who liked to live in Waikiki . . . by then the Hawaiians may have moved on." Her impression is that "the Hawaiians were struggling to make a living." Some worked as stevedores on the docks. Then, there were the young Hawaiian boys who dove for quarters – "for a dime they'd just ignore you. . . had to be [a] quarter or fifty cents."

VI. HAWAIIAN CULTURAL PRACTICES – PAST AND PRESENT

Because the project area has been extensively developed – consisting of apartments, hotels, and shops with no open or green space to think of, the usual traditional and cultural practices studied in an assessment such as this one (i.e., gathering rights for cultural and religious purposes, plant resources, water rights, access issues related to gathering) were found to be virtually non-existent. However, a focus of this study has always been to document past Hawaiian cultural practices within the study area and the surrounding vicinity through oral history and, where possible, identify cultural practices which have transcended into this 21st century. If one applies the Hawaiian concept of *ahupua'a*, one will understand that the *ahupua'a* boundaries do not end on the beach at the *'ae kai* (waters edge). Rather, the boundaries extend out into the sea to include the shallow waters and reefs. Because the Outrigger Reef on the Beach fronts the beach at Kawehewehe, ocean resources were included as part the cultural resources pertaining to this project.

The following cultural practices within the immediate project area and surrounding vicinity and previously existing cultural landscape features were studied.

A. Burials

The discovery of burials in the Waikikī area during recent construction projects have been a cause for concern over the last few years. As indicated by the previous section on previous "Scientific Investigations" and the discussion of "Burials in Waikikī from Traditional Sources", a special attempt was made to identify burials in and surrounding the immediate project area, as well as study burial patterns within the greater Waikikī area.

A review of the historic and archaeological record indicate that, to date, no burials have been identified within the immediate project area, from the Diamond Head side of Saratoga Road to Lewers Road and between Kalākaua Avenue and Kālia Road (Figure 17). However, it must be noted that the development and major construction of the buildings in the project area occurred long before NAGPRA (1990) and the State of Hawai'i burial laws (1990) were instituted. Prior to the burial laws, when a burial was inadvertently discovered on a construction site, quite often the common practice of the construction workers was to bundle the *iwi* (bones) together, wrap them in cloth or ti leaf and rebury them in a corner of the hole or trench. Burials were not necessarily reported and no documentation or records were required to be filed or kept. This makes it much more difficult to assess with any certainty whether burials are or are not present within the project area. If there are burials in the project area, it is very possible that they have been previously disturbed by prior construction.

Previous research of archaeological reports indicated a human burial was found during the construction of Saratoga Road adjacent to the project area (B.P. Bishop Museum 1961). Six human burials, as well as animal burials, were found during the construction of the new Halekūlani Hotel (Davis 1984) also adjacent to the project area, but *ma kai* of Kālia Road and slightly Diamond Head of Lewers Street. The research also indicated burials were found in the Fort DeRussy and Hilton Hawaiian Village areas. Of special note, forty human burials

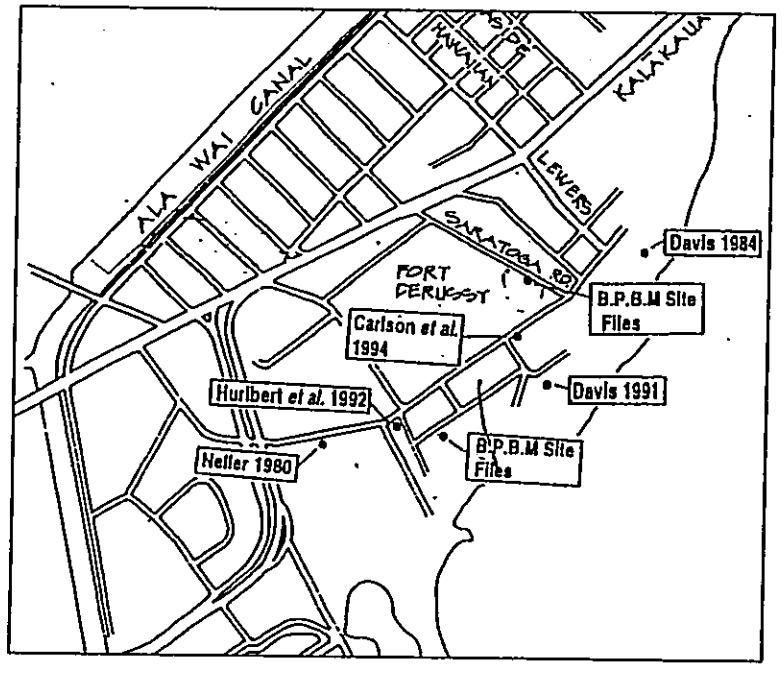

Figure 17 Locations of previously recorded burials in the vicinity of the project area

were discovered during the realignment of Kālia Road at Fort DeRussy, near the *ma kai*/Diamond Head corner of Paoa Place and Kālia Road (Carlson, *et al.*, 1994).

Both Bob Paoa and Kamaka Clark Miyamoto, who were interviewed for this project, remembered that bones were found on Paoa lands in the Hilton Hawaiian Village area. Bob related the account as follows:

> Well, you know, in 1951, they widened Ala Moana Boulevard into four lanes. And, they condemned over half of this Paoa property here [pointing to map]. And, when they came in and started digging, in front of our house, they dug up some bones – human bones. But, someone from the City or the State came and said, "Well, they're old." You know, it was obvious they were very old. And, they kind of didn't know what to do. So, I think my dad said, "Just put 'em back. Dig down and put 'em back in our property." Nobody made a big thing of it.

In her interview, Kamaka Clark Miyamoto acknowledged the practice of burying family members on *kuleana* land. These burials were known burials to the Paoa family who were lineal descendants to the land in more than one portion of Kālia and greater Waikīkī. In this particular case, the Paoas had a written record of these burials recorded in their family bible. As indicated by Kamaka, it was a common practice for Hawaiians, especially of the *maka'āinana* class, to bury the dead within their *kuleana* (i.e., house lot, property) or on ancestral land within the same *'ili*. Hawaiians placed significance on the *iwi* which were regarded as a lasting physical manifestation of the departed person and spirit. "The bones of the dead were guarded, respected, treasured, venerated, loved or even deified by relatives; coveted and despoiled by enemies" (Pukui *et al.*, 1972:107).

Consultation with many of the lineal and cultural descendants for Waikīkī did not provide any specific information about burials within the project area. In other words, no lineal or cultural descendant could say with certainty that they knew of a previously identified burial within the boundaries of the project area. However, Mapuana Schneider, a former manager of the Hawai'iana Hotel (not an Outrigger property) from 1960 to approximately 1990, related the following incident: [*Paraphrased account*]

> The front part of the Hawai'ana (facing Beach Walk) was built in 1955 on land owned by an affluent *haole* family – the Strong family. Somewhere between 1957-1959, the owner, Harry Meyer, added on to the hotel by building the back extension which is close to Saratoga Road. While building this extension, they found bones there. (Pers. Comm. to K. Mc Guire; 9/10/01)

Ms. Schneider was uncertain as to the number of burials discovered. Mr. Meyer has long since sold the hotel and moved to the continental United States and was unable to be contacted.

Māhele records indicate there were two Hawaiian *kuleana* (house lots) located in the *ma kai* portion of the project area, near the shore. Based on what we know about Hawaiian interment practices, that Hawaiians buried their dead on ancestral land, often in the same *'ili*

and in close proximity to habitation sites, there is a good possibility that burials may exist within the project area. Other supporting factors to be considered are the proximity to the coast (Jaucus Sands), the presence of known burials near the project area and the surrounding vicinity and, information from traditional literature which places a major battle at Kawehewehe.

B. Hawaiian Trails

John Papa ʻIʻĪ's account of the ancient trail leading from Honolulu into "lower Waikīkī" places the trail within Kālia and the lower portion of the project area, " . . . down to Piinaio; along the upper side of Kahanaumaikai's coconut grove, along the border of Kaihikapu Pond, into Kawehewehe; then through the center of Helumoa of Punaliiili, down to the mouth of the Apuakehau stream . . . (1959:92). Part of the coastal trail system, there are no visible trail remnants to speak of today.

C. Loko Kaʻohai

At one time, Waikīkī was a network of thriving *loʻi* (taro) fields and fish ponds. Kālia was especially known for its large inland ponds (*loko puʻuone*) and its abundant stock of fish. The Hawaiian historian, Samuel Kamakau wrote that, "The *puʻuone* ponds near the sea, (*loko kai puʻuone*) were much desired by farmers, and these ponds they stocked (*hoʻoholo*) with fish. *Puʻuone* ponds were close to shore ponds, *loko kuapā*, or to the seashore, and next to the mouths (*nuku*) of streams (1976:49). During traditional times, the ponds were used to farm fish – usually for the Hawaiian *aliʻi* (royalty). The *ʻamaʻama* (mullet) and the *awa* (milkfish) were the two types of fish traditionally raised.

No doubt, these ponds were critical in feeding the large armies that landed in Waikīkī during times of war, as well as feeding the large retinue associated with chiefly residences in nearby Helumoa.

John ʻIʻī mentions an incident where a particularly large catch of fish was given as tribute to Kīnaʻu – Kamehameha's son. The fish came from the nearby pond of Moehonua in Kālia (1959:49).

The ponds were also home to the *kōloa* (native duck) and other native water fowl – such as the *ʻaukuʻu* (heron), *ʻalae ʻula* (mudhen), *ʻalae kea / ʻalae keʻokeʻo* (coot),and the *aeʻo* (stilt) (Kanahele 1995: 129; Paoa Interview: Appendix C).

As early as 1828 (50 years after contact), foreign visitors (Duhaut-Cilly; Chamberlain) commented on the state of decline and disrepair of the fish ponds and taro fields in Waikīkī. The French navigator, Auguste Duhaut-Cilly, attributed this decline to the missionaries who coerced the Hawaiians to spend most of their time in school reading the bible rather than working in their fields, and to the sandalwood trade. Hawaiian author, George Kanahele, credits the deterioration of the Waikīkī fish ponds to several negative impacts: introduced diseases which decimated, not only the ponds' caretakers, but the general laborer class who maintained the ponds; and the *Māhele* which altered the land tenure system and diminished

the power of the *konohiki* (land manager) to control "*corvee* labor" (1995: 126). No doubt, all of these reasons contributed to a continual decline.

Motivated by business, in the late 1880s, Chinese farmers began leasing the ponds from Hawaiians to raise fish and ducks and the taro fields were converted to rice fields. The interim fate of Loko Kaʻohai is not known prior to the pond being filled in.

In 1911, Loko Kaʻohai was filled in by realtor, Percy Pond, to create the Beach Walk Tract. Other nearby ponds in Kālia were likewise filled when Fort DeRussy was built and when the Ala Wai Canal was dredged in the 1920s. Earl Vida, whose father supervised the construction of the Ala Wai, related that Dillingham had a dual-purpose scheme, not only to build the canal, but to fill in the ponds. "We don't need the ponds. We need the land" (Earl Vida interview, COH-UHM: 597). The filling in of the ponds (and the taro fields) had dramatic implications for future generations of Hawaiians: it forever altered the traditional landscape and it prevented Hawaiians from being able to return to this traditional way of life in Waikīkī.

An overlay of Bishop's 1881 map (Figure 18) over the project area indicates Loko Kaʻohai was situated in the vicinity of the Outrigger Islander Waikīkī, the Edgewater Lānais and the ʻOhana Coral Seas.

D. Kawehewehe - a *Wahi Pana* (legendary place) of Spiritual Healing

Kawehewehe, the older Hawaiian name for the overall area where the project is situated, is associated with a healing tradition. The waters of Kawehewehe were believed to have special healing qualities. As a treatment for illness and defilement, the sick were brought here to bathe in the healing waters of the ocean. As part of the healing ritual, many might wear a *lei* woven from the *limu kala*. After bathing in the ocean, the patient ducks under the water, releasing the *lei* from around his neck, letting the *lei kala* float out to sea. Upon turning around to return to shore, the custom is to never look back, symbolizing the *ʻoki* (to sever or end) and putting an end to the illness. Leaving the *lei* in the ocean also symbolizes forgiveness (*kala*) and the leaving of anything negative behind.

Kawehewehe takes its meaning from the root word, "*wehe*" which mean "to remove" (Pukui & Elbert 1986: 383). Thus, as the name implies, Kawehewehe was a traditional place where people went to be cured of all types of illnesses – both physical and spiritual. It is uncertain if the tradition of Kawehewehe as a healing place originated hundreds of years ago in Hawaiian history or whether it began after the introduction of foreign diseases and epidemics which decimated thousands of Hawaiians.

As a young child, John ʻIʻī, was trained to be an attendant in the courts of the *aliʻi* (chiefs). He relates the story of how his relatives arrived on Oʻahu, making Kawehewehe their first home.

> . . . John Papa Ii, first appeared amongst the chiefs when but a small child, at Kawehewehe in Waikiki, Oahu. His uncle, Papa Ii, and most of their people were there at that time, for that was their first residence when the company

arrived from Lahaina at the time of the coming of Kamehameha with his great *peleleu* fleet of canoes intended for the invasion of Kauai. (1959:17)

Not only was Kawehewehe a healing place, but it was also a desired place to live because it was situated close to the chiefly residences (Pua`ali`ili`i) and beloved *ali`i* whom `Ī`ī's family served.

Land Commission Award 1436 to Kalaipaopao also identifies Kawehewehe as the name of the *muliwai* or stream on the west side of her house lot. Information provided from Robert Paoa's interview suggests that Kawehewehe might also have been the name of a spring connected to the ponds near Saratoga Road.

Bishop's 1881 map (see Figure 2 above) shows an unnamed body of water just southwest of Loko Ka`ohai with a *muliwai*, also named Kawehewehe, leading to the ocean. One of the Waikīkī lineal descendants referred to the unidentified pond as Kawehewehe Pond. The spring, ponds and stream have since been filled in. The 1881 map indicates Kawehewehe Stream once flowed from this pond down the lower half of Saratoga Road and emptied out to the sea. The overlay of Bishop's 1881 over the project area map (Figure 18) indicates part of Kawehewehe Stream may have flowed through a small portion of the project area along the `Ewa boundaries of the `Ohana Reef Lānai, the `Ohana Royal Islander and the Outrigger Reef on the Beach. Kawehewehe Pond itself lies outside of the project area.

Perhaps the original place name of Kawehewehe first took its name from a spring in Kawehewehe Pond which might have also had healing qualities. In Hawaiian legends, many springs had healing powers. Over time, this reputation might have been expanded to include the waters fronting the beach at Kawehewehe.

Traditionally, *mo`o* (water spirits) are associated with fish ponds, springs and water resource areas which they guard and protect. *Mo`o* are known to take on more than one form (*kino lau*), many times taking on the form of a part-human or human. Often, ponds were associated with a particular named *mo`o* who was worshiped and to whom offerings were made. Kamehameha promised one of his *akua* (gods), Kihawahine ,he would build her a *hale puaniu* – a house where offerings were made with *`awa* (Kamakau 1964: 85-86). There are no known legends regarding *mo`o* in relation to Loko Ka`ohai or Kawehewehe Pond.

E. Stream Resources

Before the Ala Wai Canal was built and the streams diverted, the streams feeding into Waikīkī were once abundant in *`o`opu* and *`ōpae*. Bob Paoa and Kamaka Clark Miyamoto both attest that by the time they were born these two resources were no longer available. But, stories passed down by their elders and parents indicated the stream was once an important cultural resource for them. Kawehewehe Stream might have been home to the *`o`opu* and the *`ōpae*. Sadly, these two cultural resources are no longer found in Waikīkī today.

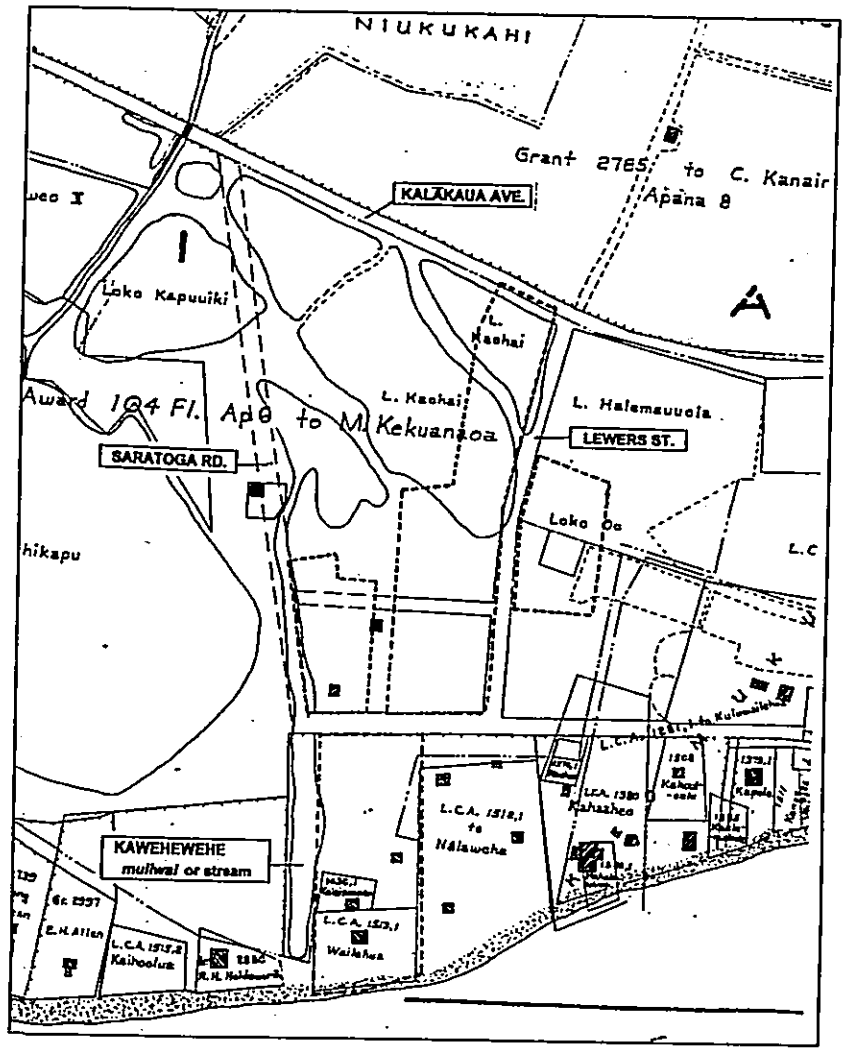

Figure 18 1881 map of Waikīkī with locations of four project area parcels indicated (dotted lines)

F. Marine Resources

The ocean was just as important a gathering place as the land. A study of ocean resources indicated that although all of the coastline along Kālia and Waikīkī was utilized for gathering and subsistence, particular spots seemed richer in certain resources than others. Generally, the whole coastline of Waikīkī was accessed because certain fish are known to frequent certain areas and an experienced fisherman knows where the holes or spots are if he wants to catch a particular fish. Where one chooses to fish might also depend on the crowds at the beach and time of day. In Waikīkī, especially due to the high volume of people on the beaches, many fishermen these days go fishing at night. The more favorable fishing grounds were in front of the old Niumalu Hotel (Hilton Hawaiian Village), the Royal Hawaiian and Halekūlani, and the area fronting the Natatorium. Specifically, the area between Diamond Head and the Kapahulu Groin was considered better fishing grounds than the Outrigger Reef on the Beach/Ft. DeRussy portion of the shoreline. Likewise, the squid grounds are located between the Kapahulu groin and Diamond Head.

Oral information passed down to Bob Paoa from his elders indicated many of the people dwelling along the coast of Kālia were fishermen. The 1890 *Directory of the Kingdom* listed the names of twelve fishermen living in Kālia and six fishermen living in Kawehewehe. Three of the names listed are relatives to Bob Paoa and Kamaka Clarke Miyamoto.

Kālia was renowned for the fragrant *limu līpoa*, as well as several other varieties of seaweed such as *manauea, wāwae'iole, 'ele'ele, kala* and some *kohu*. The area between the Royal Hawaiian and the Halekūlani was the area where *limu līpoa* was traditionally gathered.

The *'ele'ele* existed in relation to Pi'inaio Stream and the two other streams feeding into Waikīkī. It seems this resource is no longer found in Waikīkī today – especially because the streams no longer flow to the sea. *'Ele'ele* normally grows in areas where there is freshwater intrusion, such as where freshwater streams enter the ocean (Abbott 1974: 10).

In relation to the healing waters of Kawehewehe, the *limu kala* is a traditional *lei* that many wear when performing religious ceremonies in the ocean. The *limu kala* is symbolic of "letting go" and "release" such as in the "letting go of an illness". The key word is "*kala*" which means to "forgive" or "release". The *limu kala* is also used as bait to catch the *kala* fish (Pers. Comm., Peter Akimo to K. Mc Guire 9/12/01).

The oral interviews confirmed that the Waikīkī shoreline was abundant in many varieties of fish and *limu*, certain varieties of crab and lobster, as well as being good squid grounds. Talk-story with fishermen who presently use the Waikīkī coast confirm, for the most part, this is still true today.

G. *Kalo*, the Staff of Life

Kalo or taro, from which *poi* is made, was a major food staple in the traditional Hawaiian diet. Evidence from the *Māhele* Land Commission Awards indicate that *kalo* was cultivated on *kuleana* land in Kawehewehe. Both Kawehewehe awardees indicated they

maintained *lo'i* on their land. Kalaipaopao (LCA 1436) claimed two *lo'i* and Wailehua (LCA #1513) claimed 8 *lo'i*. Of particular interest is Kalaipaopao's claim to two sections of Kawehewehe Stream. Often, *kalo* was planted along the edges of streams (Handy 1940: 10).

In relation to *kalo* there are also many associated religious and cultural beliefs. In brief, *kalo* is associated with the god Kāne. There are specific rituals and prayers related to the planting of *kalo*. Hawaiians also believe they are descendants from Hāloanaka, the first *kalo* plant or the elder brother, and from Hāloa – the younger brother. There is a dual relationship between the *kalo* plant and fish in the ocean when making ritual offerings. For example, the red-stalked *kūmū* taro might be substituted for the red kūmū fish. These are only a few of the religious beliefs associated with *kalo*.

The 1890 *Directory and Handbook of the Kingdom* lists the names of twelve taro planters for the *ahupua'a* of Waikīkī. One was listed for Kawehewehe and one was listed for the adjacent *'ili* of Helumoa. The planter in Kawehewehe is a relative to Bob Paoa and Kamaka Clark Miyamoto.

VII. RESULTS OF COMMUNITY CONSULTATIONS

Consultation was conducted with the Department of Land and Natural Resources/State Historic Preservation Division (DLNR/SHPD) – Culture and History Branch, Office of Hawaiian Affairs, O'ahu Island Burial Council (OIBC), O'ahu Council of Civic Clubs, Hui Mālama i Nā Kūpuna o Hawai'i Nei, the Waikīkī Neighborhood Board, and known lineal and cultural descendants (Table 2). Everyone who was contacted was asked to comment on this proposed project – specifically to identify any cultural concerns or negative impacts and to identify people who might be knowledgeable about the project area.

As part of the effort, an attempt was made to identify and contact as many of the known lineal and cultural descendants for the *ahupua'a* of Waikīkī. It should be noted that the Paoa-Kahanamoku families are lineal descendants to the area of Kālia through Paoa, Kalaeone and Nākōkō; however, they are not officially recognized by the DLNR/SHPD. To be recognized, a descendant must go before the DLNR/SHPD and the OIBC to testify and show their genealogical connection to a specific land section. If a descendant is able to do this, they become acknowledged as such. There is no doubt that the Paoas and the Kahanamokus are lineal descendants to Kālia. It is only that they have never gone through the formal process of being recognized as lineal descendants by the DLNR/SHPD and the OIBC.

The following cultural concerns were identified through the consultation process.

A. Burials

As the previous research indicated, to date, no known burials have been identified within the boundaries of the project area. Consultation with Hawaiian organizations and the lineal and cultural descendants for Waikīkī identified the potential of inadvertent burial discoveries as the primary concern when doing subsurface work in the project area. None of the lineal and cultural descendants had any specific knowledge of burials in the project area, but raised it as a concern in light of the many recent burials finds in other areas of Waikīkī and the knowledge that Waikīkī was once an important habitation place for Hawaiians.

B. Loko Ka'ohai and Kawehewehe Pond

The concern was raised that an attempt be made to relocate Loko Ka'ohai and Kawehewehe Pond when doing subsurface work in the hopes that it might be partially or fully restored and built into the overall design and master plan of the renovations.

C. Muliwai o Kawehewehe (Kawehewehe Stream)

The question of whether Kawehewehe Stream still flows under the surface was raised. A storm drain grating can be seen near the intersection of Kālia and Saratoga Road. Observers have noticed that during high tide, ocean water can be seen flowing out of the grating indicating there is some kind of underground channel or connection between Kālia Road and the ocean (Pers. Comm., Mark Tang to R. Chiogioji 9/12/01). It leaves the question of whether there is a connection between this out take and a fresh water source such as a

possible spring or pond just as Mr. Paoa mentioned in his interview. When comparing the location of the stream channel with Bishop's 1881 map, the map indicates the channel ran down the lower portion of Saratoga Road out to the sea (Figure 18).

D. Cultural artifacts

Several of the Waikīkī lineal descendants were concerned about cultural artifacts that might be unearthed when doing subsurface work in the project area and questioned the final disposition of the artifacts (i.e., what would happen to them, will they be displayed or used in interpretive planning or for educational purposes, would lineal descendants be notified of such finds).

E. Possible Heiau

One of the Waikīkī lineal descendants indicated a *heiau* location was once present within the project area during traditional times. According to research of the traditional literature, the closest possible *heiau* to the project area would be Helumoa which is thought to have been on the grounds of the Royal Hawaiian Hotel and possibly *'ewa* of the current hotel site. The person consulted implied her family knew with certainty that the *heiau* site was located within the project area; however, she did not wish to disclose specific information about the site. Based on the historical research available, there is no indication of a *heiau* site within the project area.

F. Hawaiian Sense of Place

The concern was raised that Waikīkī has lost its "Hawaiianess". To the visitor and the *kama'āina*, Waikīkī does not exude a Hawaiian presence. Questions were asked regarding how the architecture and landscaping would contribute to restoring a "Hawaiian feeling", making the properties more appealing and inviting to tourists, *kama'āina* and Hawaiians alike. As part of this, would there be any efforts to educate visitors regarding the history of Waikīkī and its importance as a Hawaiian place.

TABLE 2: Results of Community Consultations

Key:

Affiliation
L/CD = recognized lineal or cultural descendant for Waikīkī by SHPD
OIBC = O'ahu Island Burial Council
OHA = Office of Hawaiian Affairs
SHPD = State Historic Preservation Division

Y = Yes
N = No
S = Some knowledge of project area
A = Attempted (at least 3 attempts were made to contact individual, with no response)
U = unable to contact, i.e., no known phone number or forwarding address

Name	Affiliation	Contacted (Y/N/A)	Personal Knowledge (Y/N/S)	Referral(s)	Comments
Ahlo, Charles	L/CD	Y	S	N	knowledge of mid-1930s to present; knowledge of Lalani Hawaiian Village; inadvertent discovery of Hawaiian burials; the damage has already been done (the culture is "already destroyed") when it was first developed; sense of loss of a "Hawaiian" place; feeling of not being "welcome" in Waikīkī; no longer a place for Hawaiians – caters to tourist/visitor industry
Apaka, Jeff	Waikīkī Community Ctr; Waikīkī Neighbor-hood Board	Y	Y	Y	knowledge of mid-1950s to present; no specific cultural concerns raised by Waikīkī Neighborhood Board; personal concern: inadvertent discovery of Hawaiian burials & cultural artifacts
Ayau, Haleaioha	Hui Mālama i Nā Kupuna o Hawai'i Nei	Y	S	N	No knowledge of any burials in the project area, but concerned that burials might be present based on the fact that burials have been discovered near the project area
Battle, Cherie	L/CD	Y	N	N	"No specific cultural concerns"

Name	Affiliation	Contacted (Y/N/A)	Personal Knowledge (Y/N/S)	Referral(s)	Comments
Diamond, A. Van Horn	OIBC Chair & Kona Represen-tative & L/CD	Y	Y	Y	inadvertent discovery of Hawaiian burials
Gora, Amelia	L/CD	Y	S	N	Spokesperson for the Gora family; in "opposition to the project" because she is a "sovereign descendant of John Kapena through Kekūanaō'a; "jurisdiction was not granted to a foreign enterprise"; Cultural concern: "there's a huge *heiau* in the area"; cultural monioring
Hanohano, Kamealoha	KCC Interpret Hawai'i Program	Y	S	N	inadvertent discovery of Hawaiian burials; education re: Waikīkī's Hawaiian history & the Reclamation Project; recreating/restoring a Hawaiian sense of place
Harris, Cy Kamuela	L/CD	Y	S	N	inadvertent discovery of Hawaiian burials; some fishing knowledge & ocean resources; better fishing/squiding/*limu* between Diamond Head & Kapahulu groin; Natatorium: plenty *uhu* (parrot fish); Queen's Beach: *limu kohu, wāwae'iole*
Hodge, Peggy Hickok	Author – "Growing Up Barefoot in Hawai'i"	Y	S	N	lived @ Ft. Derussy in 1941 for apx. 6 mos. before moving to Mānoa; currently resides in Kailua, O'ahu
Kane, Shad	O'ahu Council of Hawaiian Civic Clubs	Y	S	N	inadvertent discovery of Hawaiian burials; no other specific cultural concerns at this time
Keala, Jalna	OHA – O'ahu Island Community Resource Coordinator	Y	–	–	referred to Colin Kippin's office at OHA
Keohokalole, Adrian	L/CD	Y	S	Y	inadvertent discovery of Hawaiian burials; cultural monitoring

Name	Affiliation	Contacted (Y/N/A)	Personal Knowledge (Y/N/S)	Referral(s)	Comments
Keohokalole, Emalia	L/CD	Y	S	Y	inadvertent discovery of Hawaiian burials; Kawehewehe Pond – if located, would like to see it restored; cultural monitoring
Keohokalole, Jeanine	L/CD	A	–	–	
Keohokalole, Joseph	L/CD	Y	–	–	"No comment"
Kikuchi, Pila	Outrigger contact for cultural resources	Y	S	N	Kawehewehe Stream: restoration if still flowing underground or if channel is found; inadvertent discovery of Hawaiian burials
Kippen, Collin	OHA-Native Rights Div.	Y	–	Y	no official comment given re: cultural concerns; gave referrals
Kuhea, G. Kealoha	L/CD	A	–	–	
McEldowney, Holly	SHPD, Culture & History	Y	–	Y	importance of doing additional oral interviews (aside from the 4 interviews done for this project) to help with long-term management planning and interpretation of Kālia as a Hawaiian community in the not too distant past
McKinzie, Edith	cultural specialist	Y	S	N	no specific cultural concerns; no additional knowledge of Kawehewehe
Markell, Kai	SHPD Burial Staff	Y	N	Y	re: possible burials – defer to archaeology staff @ SHPD
Meyer, Maile	Owner, Native Books	Y	S	Y	dad owned the Hawai'iana Hotel on Beach Walk by the Breakers; gave referrals
Miyamoto, Kamaka	grew up in Kālia; interviewed	Y	Y	Y	inadvertent discovery of Hawaiian burials;
Napoka, Nathan	SHPD, History & Culture Branch Chief	Y	S	Y	See: McEldowney, Holly

Name	Affiliation	Contacted (Y/N/A)	Personal Knowledge (Y/N/S)	Referral(s)	Comments
Native Haw'n Hospitality Assoc.	Dorian McClellan	A	–	–	
Nishimoto, Warren	UHM-Ctr. for Oral History	Y	S	Y	Contacted re: Waikiki interviews & possible contacts for Kālia area
Olds, Nalani	L/CD	Y	S	N	inadvertent discovery of Hawaiian burials; wants to be informed if cultural artifacts or anything of Hawaiian importance is found during any excavations
Paoa, Fred	Raised in Kālia; previously interviewed by Center for Oral History	Y	Y	N	on his behalf, family declined an interview due to age (96 yrs.) and health
Paoa, Robert	Raised in Kālia; interviewed	Y	Y	N	inadvertent discovery of Hawaiian burials
Schneider, Mapuana	former manager of Hawai'iana Hotel	Y	S	N	inadvertent discovery of Hawaiian burials;
Sorensen, Betty	Author: *Born and Raised in Waikiki*	Y	Y	N	asked to comment on recollections of the project area;
Sterling, Joanne	D. Kahana-moku Founda-tion; Paoa-Kahana-moku descendant	Y	Y	N	No specific concerns other than possibility of burials being found

VIII. SUMMARY, RECOMMENDATIONS AND CONCLUSION

A. Summary

The prehistory of Waikīkī indicates that as early as the 14th century, Waikīkī was the seat of power and favorite residence of the *ali`i* (chiefs). Under their guidance, the plains of Waikīkī were transformed into a vast system of irrigated *lo`i kalo* (taro fields) and *loko i`a* (fish ponds). The traditional lifestyle continued after Western contact and into the 19th century.

The historic research and oral interviews revealed that Kawehewehe, the ancient name for the project area, was associated with a healing tradition, possibly related to a spring and pond of the same name. Also, Kawehewehe was once home to retainers who served the chiefly class in adjacent Helumoa, and to fishermen who lived along the coast, some of which maintained the royal ponds in Kālia. Research of the two Land Commission Award claims located within the project area indicated that a traditional lifestyle was still being maintained at the time of the *Māhele* (*circa* 1850). But, by 1890, only a handful of Hawaiians were living in Kawehewhe, most of them fishermen living in small dwellings along the beach. By the late 1920s the traditional landscape was totally transformed by the Reclamation Project. The Ala Wai Canal was dredged and the dredged materials used to fill in the fish ponds and taro fields in an effort to meet the demand for usable land for housing developments.

The lack of early 20th century recollections of Hawaiians in the project area seems astounding. The historic record is silent on what happened to the Hawaiians during the period of 1890 to the early 1920s. The fate of the last few remaining Hawaiians living in Kawehewehe is not known. What is known is that by the very early 1920s, testimony indicates there were few or no Hawaiians living in Kawehewehe. Ka`ohai Pond was filled in 1911 and soon after the Beach Walk Tract was developed and transformed into cottages and single-dwellings.

In the 1940s, Roy Kelly began his legacy in the hotel business by purchasing the Edgewater Apartments (site of the present Outrigger Reef on the Beach). By the mid-1950s, the project area had become home to a host of apartment-like hotels.

Along with the departure of Hawaiian families from Kawehewehe went the associated cultural practices. Although past cultural practices were identified, no current cultural practices were found to exist in the project area *ma uka* of the shoreline. Despite the permanent alteration of the traditional Hawaiian landscape and Hawaiians moving away from Kawehewehe, ocean-related cultural practices continued to survive. Since the shoreline was never restricted to the Hawaiians, it was the one area they continued to utilize up until the present for recreation, subsistence, and spiritual practices.

B. Recommendations

The following recommendations are suggested to mitigate cultural concerns identified by this assessment. In light of the high degree of concern expressed by the Waikīkī lineal and cultural descendants regarding the potential for the inadvertent discovery of burials, it is recommended that cultural monitoring be conducted during all subsurface work in the project area.

The following recommendations are specific to the Scope of Work (SOW) and the development of recommendations on how to respond in the event that burials are encountered during subsurface work in the project area.

Regarding the discovery of burials, State law (Chapter 6E, Hawai`i Revised Statutes) requires the following:

1. Stop all disturbing activity in the immediate area
2. Leave all remains in place
3. Immediately notify the State Department of Land and Natural Resources, Historic Preservation Division (DLNR/SHPD), at 692-8026 and the County Police Department.

The following recommendations speak to cultural concerns the Hawaiian community has regarding proper handling of *`iwi* (bones), consultation with appropriate parties and final disposition of any burial, should they be encountered within the project area. It is stressed that utmost sensitivity, caring and understanding be employed when dealing with burial issues and the *`iwi*.

1. If, for some reason, the *`iwi* must be moved or touched, it is highly recommended this be done by a cultural monitor, a lineal/cultural descendant or someone of Hawaiian ancestry.
2. Notify the Waikīkī lineal and cultural descendants of any burial discovery.
3. Consult with appropriate agencies and organizations: State Department of Land and Natural Resources, Historic Preservation Division (DLNR/SHPD), SHPD Burial staff, the O`ahu Island Burial Council (OIBC), the Office of Hawaiian Affairs (OHA), Hui Mālama I Nā Kūpuna o Hawai`i Nei, other interested Hawaiian organizations.
4. Consult with all likely lineal and/or cultural descendants.
5. Prepare and implement a Burial Treatment Plan to be developed in consultation with the above agencies, the appropriate organizations and parties wishing to be consulted, including lineal and/or cultural descendants.

In regard to other concerns raised by the Hawaiian community, it is recommended that Outrigger Enterprises, Inc. seriously look at and consider the secondary concerns raised by those consulted for this study – especially in relation to recreating a "Hawaiian sense of place". In a very broad context, this has been a cultural concern of many in the Hawaiian community for a long time. The feeling is that the "Hawaiian" element has been long gone from Waikīkī. Many of those consulted view this project as an opportunity for Outrigger Enterprises, Inc. to mitigate past negative impacts by the visitor industry through sensitive and well-thought out planning. Some of the ways this might be achieved is through such means as design, landscaping with native Hawaiian plants and implementation of educational and cultural activities for tourist and *kama`āina* alike.

Lastly, it is recommended that Outrigger Enterprises, Inc. pursue the development of a long-range interpretive plan to be used for educational purposes and to help preserve the history of Kawehewehe as a Hawaiian place. The oral history interviews conducted by the Center for Oral History - University of Hawai`i at Mānoa, as well as the interviews conducted for this study are valuable resources that would help in development of such a plan.

C. Conclusion

The *kūpuna* of long ago left an invisible imprint on the landscape. Even though all traces of a physical imprint has seemingly been obliterated by development and urbanization, it is suggested that a spiritual imprint remains in the form of *mana* that is still felt by Hawaiians who visit Kawehewehe today. In the not too distant past, Kawehewehe was a very special place for Hawaiians, a place where the physically and spiritually ill came for healing. It can still be a special and sacred place – a place of healing for all who come here.

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X. APPENDICES

Preface to the Interview Transcriptions

As part of this project, 3 formal interviews, conducted by Ka'ohulani Mc Guire for Cultural Surveys Hawai'i, were taped and transcribed. In addition, a fourth informant submitted a self-written account of her memories of the study area and Kālia. The authorized interview transcripts and the written account are included below.

The reader is reminded that the information shared in the interviews are the express opinions and views of the informants, much of which relates to their personal experiences, knowledge and family traditions. These are their words, their experiences and their stories. Please respect them by not using portions of the interviews out of context or quoting from the interviews without giving proper credit to the interviewees. These interviews may not be used in their entirety in any publications unless the written authorization of the interviewee is obtained.

Cultural Surveys Hawai'i is very grateful to all of the *kūpuna* interviewed for sharing their thoughts and for giving so willingly of their time. It is hoped that the value of documenting their *mana'o* (thoughts) will be understood and appreciated by future generations of Hawaiians who seek to know and understand the history, the cultural practices and lifestyles of native Hawaiians who once lived in Kālia and throughout Waikīkī. It is also hoped that the interviews will provide valuable historical information to Outrigger Enterprises, Inc. to help in the implementation of long-range interpretive planning for this project. For clearly, Kālia and, for that matter, all of Waikīkī was, at one time in the not so distant past, a very Hawaiian place representing Hawaiian values and traditional pathways. For many Hawaiians today, the question that remains to be answered, is whether that Hawaiian sense of place and the true feeling of "*aloha*" can be restored and maintained with integrity in this 21st century – in the midst of tourism and economic development.

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APPENDIX A: PETER AKIMO JR. TRANSCRIPT

Project: Outrigger Waikīkī Properties Renovation
Interviewee: Peter Akimo Jr.
Interviewer: Ka'ohulani Mc Guire for Cultural Surveys Hawai'i
Date: 9/07/01

[NOTE: Mr. Akimo was originally interviewed on 9/3/01. Due to a malfunction or, possibly, human error, the tape recorder did not record. Mr. Akimo graciously consented to redo the interview on 9/7/01.]

CSH: Can you begin by telling me your full birth name and when you were born?

PA: Peter Ahoe Akimo Jr. is my name. Born May 21st, 1927 – Honolulu, Hawai'i. I was born and raised in Kapahulu, up until the age of about 18. Then, I went into the Army. I came back and started my life.

CSH: What street did you live on in Kapahulu?

PA: 3326 Mo'oheau Avenue which is about two blocks above Kapahulu Avenue, going *ma uka*. We had seven kids in our family and my grandfather lived with us, too. That's why we went fishing. It was a way to feed and support the family. Quite often, relatives who needed a place to stay would live with us for several months at a time. We had to feed them, too.

CSH: So, you spent most of your childhood and young adult years growing up in Kapahulu and using the Waikīkī area?

PA: Right. Well, you have to understand me. I did not live an automated life. I was a wanderer. I decide to leave home, I leave home. Live with anybody I could think of. As long as I made a friend, I'll go! But, during the school years, young school years, we didn't have any choice but to stay home.

CSH: Can you tell me anything about your family background? Who your parents were and who your grandparents were.

PA: My grandfather came from China and he settled down in Ka'ū, in a town called Wai'ōhinu. My dad was one of three boys. They grew up in Ka'ū. I guess when they were in high school, they migrated to Honolulu. My dad came down when he went into the Navy. World War II, he went into the Navy. Then, when he came back from the Navy, he went and got my grandfather and brought my grandfather down to Honolulu. His two brothers were – one was

William. William was working at Young Brothers. He was the chief clerk down there. The other one was James Akimo who later became a – he was just about to be – he was a minister, in fact. He was about to become a professor at University of Hawai`i. And he died, around 1936. He and Mary Kawena Pukui collaborated on a couple of books. Hawai`iana history back on the Big Island. He was about to become a full professor at the university and he died. And that was the sorry part because my dad only had three boys. And, the other one was adopted by the Kai family – William Kai. But they all lived on O`ahu.

CSH: Can you tell me the names of your grandfather and father?

PA: My grandfather's name was Mau and that is the only name that we go by. Somehow, in the genealogy, I came out with a Mau Akimo. I don't know how my dad got the name Akimo. Just knowing that – before when they took inventory or census, how the people pronounced their name is how they spelt it. I don't know where we got Mau Akimo but my grandfather's name became Mau Akimo on his death certificate. And, I became a "Jr." But, I have no recollection of any grandmother. When my dad came back and he married my mother, my grandfather stayed with us all his life. So, growing up, I remember my grandfather living with us. He spoke Hawaiian and Chinese. He couldn't speak English. But, he spoke fluent Hawaiian. My parents – both of them spoke fluent Hawaiian. But they never made us speak Hawaiian. The fact is, at the turn of the century there was some kind of law that prohibited the Hawaiians in the city from speaking. People out in the country, because nobody was out there monitoring them. But, in the city my parents never spoke Hawaiian. Whenever we had *haoles* around, there was never a Hawaiian word spoken. It was, "Hey, if you want to go out in the world and get a job, you better speak English." And, that was constant. We all graduated from public schools. Except I had one brother, he graduated from Kamehameha. He went just a couple of years. And, then they went on to college. Seven in my family. Three sisters, my brother, and then two more below us. But, we all grew up in the same place in Kapahulu. And eventually everybody migrated to the continental United States. My brother, after he got out of the Coast Guard, he went to USC, graduated from USC, and then he stayed and taught school up in California. My sister – the husband did likewise. He got out of the Navy. He went through the GI Bill to USC. And they migrated to California and they stayed up there. And I had a younger sister – she went in the Navy – likewise found it better up there, went up there, met some guy from there, married, lived up there. A couple more started families down here and then migrated up there. There was only two of us left here. One still lives in the house in Kapahulu where we grew up. I live in Kailua. There's one more in California. The rest have all passed on.

CSH: What about your mom's side of the family?

PA: My mom's side of the family came from Kaua`i. Her name was Nakea. From Kaua`i, they came here and I think they all lived here except maybe one of them went back to Kaua`i and started a family. My mom's family was large, had twelve or thirteen in the family. They scattered all over. I never knew all of them. Fact is, some of them died before I was born. Then, when we were young, I guess sicknesses

and stuff like that, they weren't healthy, whatever. But, the majority of them died young. Fact is, my mom and all of her family have all gone on. Her whole family, the men and, likewise, my dad.

CSH: Where did you attend school?

PA: I went to Kaimukī High. Graduated from Kaimukī High.

CSH: What about grade school?

PA: Grade school in Liholiho – Liholiho Grade School, Lili`uokalani Middle School, and Kaimukī Intermediate and Kaimukī High. I graduated in 1945. Actually I didn't graduate in '45 but after I went into the Army – I got drafted – I went into the Army. I was supposed to come back post-graduate. When I went in the Army, I got enough credits. So, when I came back, I just went down to the school and – no problem. I just took whatever paperwork I had. You know, when you come back and you stay away from this place for five years and you stay only with *haoles*, you talk like one *haole* when you come back. And, that's the way I was when I came back.. I couldn't believe it. Even my sister told me, "Aw, you talk like one *haole*." I couldn't hear myself – you know all the years that I'm talking, I'm not hearing myself talk like one *haole*. But I couldn't imagine that. Then I hear everybody else talking: "Yeah, he becoming *haole*-fied." That kinda irked me. [*Laughs.*] 'Cause I never was one for the King's English. [*Laughs.*] Talk about pidgin: I thought I started it. [*Laughs.*] I enjoyed growing up. 'Cause I did what a lot of people wish they I just never – like I said, when I went to school, I enjoyed school. I mean, I wasn't the brightest kid in school but I enjoyed school. Because it was away from home. At home – my mother was strict. My mother was the enforcer in the house. So staying away at school, I would stay away as long as I could. [*Laughs.*] When I was in elementary school, the teachers – I had a teacher named Mrs. Abreu. And she spoke Hawaiian, fluent. And my mother – these two – collaborated. And, my mother gave her authority to spank me whenever I was naughty. So it kind of seemed like I was at home when I was in school. [*Laughs.*] As soon as I heard that voice, oh, I caught already. [*Laughs.*] And I did everything wrong in school, you know. And they couldn't – I think they wanted to kick me out of school – really! But, they couldn't because I would do whatever they told me. At those times you cleaned the room, you cleaned the

windows and stuff, at least when I went to school. Especially elementary school, you wipe the blackboard, you close the windows, sweep, pick up all the rubbish, stuff like that. Teachers had no problem with me that way. And all through school, the pressure kept on. From first to the sixth grade. Now, don't forget, I had three sisters before me. And here I come and I screw up the whole works! [*Laughs.*] I blew it. [*Laughs.*] And I enjoyed doing it. I think I had more lickings from the principal than anybody in school! Every time I turned around, "Oh, wow Pete, what? You went office again today?" [*Laughs.*] But I enjoyed it. I enjoyed school life. Maybe the teachers didn't appreciate me being in school. They probably said I could have done better in reform school. [*Laughs.*] But I didn't care.

CSH: As a young boy, how did you spend your free time in Waikīkī?

PA: Everyday I was swimming. As soon as I knew how to swim, my mom couldn't catch me. As soon as I came home from school, I looked around, grabbed my shorts, and away I went. And I never came back until dark. And, some Sundays, maybe we'd walk – from home we'd walk down Waikīkī. We'd go to church in the morning. We'd come back. And then we'd walk to Waikīkī to listen to the band concerts. In Waikīkī, the Royal Hawaiian Band played every Sunday at the Waikīkī Bandstand. So I don't know if you remember the old one that they had.

CSH: Yeah, I do.

PA: Okay. Well, the bandstand was facing Waikīkī. On the area outside of the bandstand they had plenty benches and stuff like that. But they had fishponds. Maybe about twenty feet by twenty feet. They had about four fishponds. Two on each side. And in the center they had a big water fountain. But, in those ponds they had lily pads. And inside there they had all kind fish, crayfish, and everything like that. So, while everybody's listening to the music, we'd sneak off. See, the Royal Hawaiian Band – they played concert music, they played long hair music. And then in the other portion of the show they play Hawaiian music. And beautiful music, you know. And you had beautiful singers like Lena Machado, Theresa Malani. Oh, Miriam Leilani. It was beautiful and I loved that type of music! I didn't care for the long hair stuff, you know. So, we'd go down there. And then I'd disappear. And I never wore shoes. I don't care where I went, I never wore shoes. You see one kid down there with a white shirt tucked in, khaki pants, and no shoes. All my sisters had shoes. I insist on not wearing shoes. But anyway that was part of growing up. And that's right across the street from the beach. We would never go to the beach. Never ever did we go down there and go swimming. We went down there to the beach and came home. If we went by the beach, we never went in.

CSH: Was this because you had your nice church clothes on?

PA: Yeah. We never went down there for picnic, you know. We just went to listen to the Royal Hawaiian Band because we all went to church. So, when church *pau*, ten o'clock, we went home, eat, then we walked down. 'Cause, before, the bus never run, you know. So everybody walked down. And, if my dad was working, he had the car. We only had one car. And even when he wasn't working, we leave the car home and walk down – took a nice stroll. But, seven kids. We had the most kids in the block. [*Laughs.*] They thought my mom was running one pre-school. But, for my life, for my family's life, we all got along together. But, I was mostly – you know my uncles never had children – quite a few of them. And, whenever they needed something done they used to come to my house to take me. You gotta figure, I'm eight, nine years old. And I'd go up there, help them move rocks, dig. Like I told you, I had one uncle that I *kālua* pig and everything. I made the *imu*. I did everything! I cut the wood, hauled the wood over, split the wood, put 'em on – and, I'm not eighteen, nineteen years old, you know. I'm nine, ten years old, and I'm doing all this kind stuff. And then another uncle comes, "Oh, can you come? I gotta dig one hole I gotta plant one tree." Stuff like that. And my mom would say, "Yeah, take him." And, then all the work in my house. We got five girls, two boys. Before, we no more water heater. So outside every night I gotta cook hot water. And, so I get one fifty-five-gallon drum, cut in half. And I fill 'em half up with water. And then we get one cover. Every evening I gotta light the fire about four o'clock, make 'em hot, and make sure that everybody get hot water for take a bath. And that was my job. Plus, clean the yard. I had to do all that. And every plant that was ever planted in Kapahulu, I planted. I dug the hole. You know, Kaimukī get plenty rock. You put the pick in one time, the buggah bounce. Not like over here [in Kailua], you dig, it's a pleasure. Not up there. Now, like I said, they want to go fishing. Okay, we all go fishing. My uncle them come pick me up. I go with them. Then I go with the other one. "Oh, I need somebody." I say, "Yeah, okay." And it wasn't a matter of, "Do you know how to do this?" They told me how to do it and, hell, I just did it. And so it became part of me. And, like I said, they tell you, "Okay, you take the net" – they standing by me. "You take the net. Swim across the channel and then you drop the net." I figure, well, eh, everybody does that. Yeah, everybody done it, but they do it with a tube and they get floaters and stuff like that. I mean, they just tell me swim across – I never did it before. So I swim – halfway across I ready for drown. [*Laughs.*] If I drown, who going pick up the net? [*Laughs.*] So, you talk about experience. You see, in the olden days it wasn't a matter of – they never taught you how. They just said do it. And if you don't open your eyes and watch what they're doing you're lost in the shuffle. And a lot of times I find out that they don't show. If you blink your eye you lost one trick. [*Laughs.*] Like, sometimes they make your net and I'm trying to find out how to connect one part to the other part. I look , I try. And you watch them making a net. Or they patching. So you go over there, you try. You miss out on the trick that they have. And, then you try your own. See,

you get five guys that fish. Five different uncles. So, when they come back, some of them as soon as they come back they fix up their net. Let 'em dry, clean 'em up, you wash the net. You fix 'em tomorrow or whenever you get time. But you don't know nothing about that. But, as the years went along, you learn how to handle the net, how to pick up the net, how to wash the net.

CSH: At what age did you start learning how to fish? And, who taught you how to fish?

PA: Oh, I had two uncles and my dad – they taught me how to fish. And, I think my dad was the most informative of all. My dad was in the fire department and my dad had patience like nobody else had patience. So, consequently, when my dad was home, I was his right hand. Because I never let him get out of my sight. My dad and I were very close. And he was instrumental in teaching me how to throw net. And, more or less, when you go diving and stuff like that. The other two uncles taught me on how to surround net, you know. 'Cause there's different types of net – and different size eye for different type fish. So fishing came from three people. And even from the neighbors or their friends. Like, say, my uncle – if my dad went fishing, if he went with somebody else and they needed one more guy, my dad would take me. And, then you find out how the other guys fish. And, another thing, when my dad went fishing, he never looked for all different kind signs and stuff like that. My other two uncles were superstitious. If you say something out of the ordinary like, "Oh, okay we going fishing now." Forget it. Everything is going back in the trunk and we not going. You remember I told you that they go at night – two, three o'clock in the morning – they come pick me up. That's because so nobody ask them where they going, what they going do. When they come pick me up, maybe my mother knew. I never knew. They just come pick me up. "Come on, we're going." And that's it. You don't ask questions. Over the years I learned to shut your mouth, don't say anything. And, then when they go, they have wine in the car. And before they go in the water they pour one big glass. And, like I said, this is two, three o'clock in the morning. One good swig – ah, the body all warm. [*Laughs.*] And, then they'd go in the water. However, my dad was kind of – he left all the old Hawaiian truths – he never believed in them. He never wanted to. He wanted us to grow up Americanized, you know. He always mentioned the fact, if you don't get an education, you don't get a job. You don't get a job, you not going have money to support your family, stuff like that. So that always stuck in my craw. In my whole family, everyone of us eventually got a job and earned our own way. But, my other uncles, when they went fishing they went by the stars, the moon – and everything else – they planted by the moon.

CSH: Do you remember any specific things they did in relation to fishing or planting?

PA: Well, we never took banana to the beach. And I remember planting banana at my uncle's house. And I dug the holes and I was ready to plant banana. Then my cousin came home with the kids. It was a moonlight night. He made the younger one take off his clothes and plant the banana tree. And I don't know what that had to do with the banana growing, bearing fruit. But, that was kinda weird to me. And so – and had to be a moonlight night. So everything was all in order for this. You see, I dug the hole and I put all kind leaves and everything inside there. Then we went get cow manure and I soak the hole and everything. I thought I was going plant 'em. Uh-uh, I never plant 'em. But, when the tree gave fruit – you know banana take almost about maybe one year to grow. I look at the fruit and I go, "Wow!" You know the fruit was very full and, if you ever plant bananas or anything like that, you can tell the difference between one tree and another. One give you one full – I seen bananas like – Williams banana, which is a hybrid. But, before we only had Pākē, apple, and bluefield. And, the bluefield, you need one aerial ladder for get the bluefield banana. But, I see the difference in this particular tree that these people went plant from among the other trees around the neighborhood. Because, before, in Kapahulu, everybody had banana tree, papaya tree, pear, mango, you name it. Everybody had one of those growing. But, this was unreal! So, I thought that it was because of the way they did it. And Hawaiians – everything is by the calendar. They have a calendar of events – full moon, low tide, high tide – all these different things come into being when you do anything. I never was one for that. Whenever I went fishing, I went fishing because I had the time. I worked eight hours a day. If I go fishing, I go at night. Or Saturday, Sunday, whenever I'm off. And, when I go, I felt like I wanted to eat fish. If I don't want to eat fish, I ain't going fishing. But, if you go fish, you gotta give 'em away. You don't go catch fish just for the sake of fishing. You go catch fish for eat. And, if you don't catch fish – I mean, you don't go fish and then you put 'em in the icebox or you put 'em in the freezer. Forget it. You lose a couple of things in that process. The taste of the fish wanes. And, then when you give 'em to somebody else, you not giving 'em fresh fish. And, to me, if you're not giving fresh fish, then no give. Unless you going dry or whatever – you make dried fish, you make dried squid, you make *pipikaula*. Okay, now, when you make that, you make it with – and again, you make 'em with fresh fish. You don't make 'em with old fish. But, lot of times – like *aku*, say if I get *aku*, maybe I make deep-fry, maybe eat raw, *lomi*, whatever. As soon as *pau*, no put 'em in the freezer – put Hawaiian salt and dry 'em. Because, that, you can eat anytime. You can put 'em on the table right now. Two years later and the *aku* still good. And that's why lot of times when I go fishing, I come back, I get plenty, I give 'em away quick. I come back home I call somebody, "Hey, I get fresh fish." And you give 'em. And you know that they getting fresh fish. I don't care if they like fresh fish or not. But I'm not going give them old fish. I shame! Even when you cooking, you make

kālua pig or something like that. As soon as *pau*, give 'em away. You keep some for the freezer and stuff like that. But, if you make 'em – if I *kālua* pig over here and the smell go down there, you know everybody smell the *kālua* pig. If I no give 'em, they say, "Wow, what a tight ass." [*Laughs.*] No, but that's the way I feel. And I also learned that from my dad. Because when we were young, if we ever went fishing and we came home, you know, we get one big tub of fish. And he'd get one package or whatever container, "Here, take this for mister so-and-so. Take this for mister –" What we had left was what we going eat. In other words, he take the ones that he going eat. And, doesn't necessarily have to be the best fish. But that's the kind he like eat now. And, sometimes you say, "Wow, one good cut of fish going next door. Wow, how come they get the good fish?" [*Laughs.*] He don't want to eat that. And, that's the way he was. Consequently, every once in a while, people come up the house, if the fruit is ripe or somebody get star fruit or whatever. You see one package. Or mister so-and-so come up, "Oh, this is from my tree." You know this is in payment for the fish that my dad gave. And, it was a constant because we always had too much fish!

My dad was a squid man. If you told him to go out and go get squid, he'd ask, "Oh, how many you need?" You say six. He going out – he get the squid – and that's all you getting. He ain't catching no more than six. And I seen this happen time and time again. He never – if somebody told my mother, "Tell Peter I need six squid." My mother would tell my dad. "Oh, when they need 'em?" He'd go out and get six squid and come back. "Oh, tell so-and-so I have the squid ready." "Oh, and how many you catch for us?" "You didn't say you wanted squid. Now, if you told me you wanted squid I would have brought." And, that's the way he was. You not going find one squid around the house wasted because, "Oh, why, I never told you to go catch squid." Uh- uh! Because that's the way he was. If you're going spearing, that's another thing. If you going spearing, you know what you're going get. But, if you go with a net, you know what type of fish you going catch, but you don't know what amount. Because when you beat that water and the fish is in that school and you surround – sometimes you no can pick up the net, you know. But, this is just a point of interest because of him. He was the type. And he had one good eye for squid! And that's why they called him – anybody. Even my uncle.

CSH: Where were some of the places in Waikīkī he would go squidding?

PA: Waikīkī – right off the Kapahulu Groin. Right there! That was a good place. And the other place was Kahala, right by – I don't know if you know where Duke Kahanamoku's house is – right inside there. There's a place where you go down there. It's right at the foot of Black Point. You know, from Black Point you come back, and there's a bunch of black rocks right in the water. Over there was good for squidding.

CSH: Is there a name for that place?

PA: We just call 'em that Black Point area. But, it was right off Royal Circle. That's where Duke Kahanamoku was – after years, not the early part. But, when we were young – we'd go from there, the whole Kahala Avenue and all the way down to the Wai`alae Golf Course – there was squid all over there.

CSH: Can you talk about the beach area at Kapahulu Groin? How that's changed?

PA: That has changed considerably! If you go along that wall, from the groin down to Public Bath, that whole area had gone out from the wall maybe twenty yards to the ocean. And, that has been added with sand. That was all reef. The reef ran along the whole coast line of Waikīkī. Outside of the Royal Hawaiian, Moana Hotel, Halekūlani – all that area there– hasn't changed that much. But, the other area – that was all filled in – from before `Ōhua Street – they kept on adding sand, adding sand. Then they added that groin. They brought the groin in and then they closed it off with that wall. That groin goes all the way back up Kapahulu Avenue, all the way up to Date Street.

CSH: Under the road?

PA: Yeah, under the road. I'd say that area underneath where that river runs down is maybe about six feet wide. And at least six feet deep. And it's just below the ground. Now I think they got a sidewalk on the inside of that – right around the same area. But, that comes down all the way down from, I think, the Chinese rice field.

CSH: So, before, the reef used to come right up to almost where the sidewalk is today?

PA: Up to the sidewalk. That's where the reef was. Up to the sidewalk. Whatever sand is there now was brought it. The sand shifts. Sometimes you see the little groin of sand up on one side. Then next time you go, you'll see that during different parts of the year the sand will shift. It's because of the currents and the tides. But this was a constant all the time we were growing up. We knew that it would change. Even outside in the water. The sand from the shoreline would go right – and you could see the outline of the sandbar. Because of the currents, you could see the bar. And you could walk on that. You could just about walk out to the ocean. Out to the deepest part. That's why you see a lot of people – they're swimming and you see the other person standing up right next to him – and they're standing on the sandbar. And the sandbar – it moves. Sometimes it comes even right next to where the police station is now.

CSH: That far down?

PA: Yeah, sometimes you see the sand will shift right. Yeah.

CSH: That's by Kūhiō Beach.

PA: Yeah, right exactly there. That's why sometimes the guys get up in the water. Eh, wow – all of a sudden the sand is shifting. And even in front of the hotels too. Sometimes you see the *limu* is way inside and you can see the reef. Then, other times the reef is all covered with sand. The reef never change. The height of the reef never change, but now it's all covered with sand.

This happen all over the island. There's certain areas that will never change, because of the waves probably. But ,if you have the area in Waikīkī where sometimes the water is so flat – and when Waikīkī is low tide – that's why I say, when the tide is really low and you follow the sandbar, you can go way out. Fact is, sometimes you can just see the sandbar sticking out. If you get minus three, minus four tide, you going see that sandbar sticking out. And that particular sandbar, I don't think it's changed over the years. It gets higher and lower. But, I think, if I went out there today I would still follow the same thing. In fact, a lot of guys use that when they go fishing. They follow the sandbar because it's shallow and then you can whip your pole. Occasionally, in the early morning or in the late evening, you can see guys that go out there, if the tide is low – given the correct tide, you can go out there to fish. And, sometimes, like I say, squid is all over the place. And they have 'em out there in the deep – just before the water turns blue – thirty, forty feet of water.

CSH: How old were you when you started fishing?

PA: Oh, eight or nine years old. As long as I could walk in the water.

CSH: The other day you mentioned that your one uncle with the *mūmū* leg was a fisherman before?

PA: Yeah, and he lived right next to door to me. He was the one that made my nets. I watched him and helped him – stretch the nets. Before they make 'em out of linen cords, stuff like that. And, then the floaters, they made 'em out of redwood and *hau*. And redwood, they come in square logs. So, now you gotta make 'em round. And, no more lathe. Before, that's all hand-planed. You gotta shave 'em down until she come round So you get the four corners – shave 'em down, shave 'em down. And then you get one long piece – you shave 'em – and then you cut 'em. Cut 'em the size of the float. Drill holes. That's work. So, that's the way it was. So making the net and putting 'em together wasn't an easy task in those days. You watch how the Hawaiians made their nets before then. And even the lead – we used to make our own lead. We make the mold and stuff like that. And everything was made by hand. I look at 'em, I

say, "Wow!" It's very tedious work. And, then you go get the lead and then every time we passed the Hawaiian Telephone, Hawaiian Electric or the guys who working, we'd ask, "Hey, you folks get extra lead?" Cock-a-roach stuff from them. When you get enough, then you make the fire – because you not going make the fire until you get everything and you can complete one whole set. And the lead is not always the same size. They get different sizes. And when you make one throw net, they have different types of lead, how you make the lead and stuff like that. And the molds that you made were not always the same. You have to take your time when you boil the lead and make things all clean and stuff like that. So making it all and putting it together was a chore. And everything was by hand. And sometimes you don't have one torch. You gotta make one open fire, open pit fire, and then you put your big pot that you would make the lead in. And we used to get old lead – like old nets that had seen their time already – then you reheat 'em up, melt 'em again, and then you pour 'em into the mold. But, everything was hand-made.

CSH: Now, would you buy the redwood? Because it's not a native wood.

PA: Yeah, that's the only place you going buy 'em. You go down the lumberyard. At that time we had Theo H. Davies and Lewers and Cook.

CSH: It wasn't easier to get *hau* – because *hau* grows here?

PA: Uh-uh [No]. It was easier for my uncle them to get the redwood.

CSH: Was it expensive to buy?

PA: I don't know. But, the *hau*, you have to strip the wood. Have you ever seen them make the rope?

CSH: I have. I've actually made it myself. So did you dye your own nets too?

PA: Only the throw net. I never did dye. My uncle did. They used the banana stump. But I never did dye my nets. I made a couple – but I never did dye. Only the throw net.

CSH: So, when you went fishing, what method did you usually use the most often?

PA: I don't know how to describe it. What we do is just walk along the shoreline. And you look and you see if there's – if you can see a fish then you go in the water. What we did was, if you walking – two men walking along the shoreline – and you split the net in two. We used to call this *paipai*. What we used to do is one guy goes out here, and he takes part of the net. As you go out you pull this guy's net with you. Then you go until his net is all out and you're holding the end. And then you drop your end and you make a loop. You make

a circle, sort of a half-moon, going back to the shore. And, then what you do is come together and then one would go on the inside, with his net, drag the net all the way on the inside –

CSH: And the other goes on the outside?

PA: Yeah.

CSH: So, you have a complete circle.

PA: Yeah. But, then you keep on going from here. You keep on going in. What you doing, you hitting the water and you chasing the fish – all the way out – go in – all the way out to the end – until you no more room for walk. Until you come right to the end. And then you going have one small pocket where all the fish is collected. Then, you hit the water with your hand and you pick up the lead. Meantime, both of you are together. But, you keep on going around – you going come back again.

CSH: Right.

PA: So two guys grab whatever is in the net and you walk straight up to the shore. 'Cause you right at the shore. And this is one way of doing it. Either that or we do the same thing but we'll pull the net all the way up to the shore and then hit the water. Then the fish will go right into the net. Depending on what kind fish – some they just go right through – if they're too small, they go right through. Depending on what size eye you want, you see. When I grew up, inch and a half was the smallest size you could use. But, eventually over the years, they went from inch and a half to two inch to – right now, I think it's two and three-quarter inches.

CSH: You're talking about the legal size?

PA: Yeah.

CSH: So they cannot go smaller than two and three-quarters?

PA: No. You could use a two-inch net now but you have do like we do it. You have to be working the net. But, if you were going to just put it down in the water – we call it *moemoe* – and leave it for any length of time – before, we could leave it overnight. But, then you'd go check, maybe, ten o'clock, twelve o'clock, two o'clock, whatever. And whatever fish is in there you take out. But you could leave your net overnight in one place. Now, they changed the laws. After every four hours you have to move it. Which I think is good now because there's so many people fishing. Now, I find that lot of foreigners – and namely Vietnamese, Filipinos – they come down here and they just put their net in the water and they take everything. There's nothing that they send back.

CSH: So, when you were little, if the fish were too small you put them back?

PA: You have to. Because you not looking for that type of fish. If I wanted to – the small type of fish – I could easily get it. We didn't need that. We were looking for certain types of fish. And, basically, that's why. You look out for certain types of fish, you try to disregard all the others and just look for that one type.

CSH: What kinds of fish would you catch when you did *paipai*-style?

PA: Actually, any kind. *Paipai* – you might catch one school of *manini, weke.* Shoreline, inside the shore – you might catch *moi,* mullet. *Manini* is normally in a rocky area. If you see *manini,* they normally don't school like the *moi. Moi* is kind of a free-running fish. It goes in sandy areas and stuff and they open – you know, they not in rocky shores. *Manini* is rocky – it's in a rocky shore and where the waves are constantly breaking. In fact, if you sit down at the shoreline and you look outside and you see the wave breaking, you going see all *manini. Manini* – when we caught 'em, I would just about say that the best time to catch 'em is when you take a throw net and you can see 'em in the wave. When the wave breaks right over the reef, you just throw right into the reef. So when the wave comes down, you cover all the *papa,* you know. [*Laughs.*] All you gotta do is pick up the net and go home.

CSH: So *manini, weke, moi,* mullet – what else?

PA: Shoreline. You catch an occasional *ʻōʻio* or *pāpio,* and your *awa ʻawa.* Now, you gotta understand, before, the *awa* was plentiful. I think the *awa* was about the first one that left the shorelines, even in Waikīkī. After a while we never caught *awa* that much. But, get *weke.* I even caught *uhu* and *uhu* normally is not – you don't catch 'em in that area. *Kūmū, āholehole* – because of the reef and non-reef – the sandbars and stuff like that. If we coming right up and you get one sandbar and stuff like that, then that's when we going catch the *moi.* And, if we get the reef, we walk into the reefy area and the *manini* all going be inside. So, we surround, hit the water – we slap 'em – they spook and they go out toward the ocean. When they go out toward the ocean, right in the net. The bigger the net, the bigger eye, the easier to catch the wide fish like *moi,* mullet. *ʻŌʻio* – they so small that if you get one two-inch eye that *ʻōʻio* gotta be little bit good size before she lock in. Otherwise, she go in the net, she eat little bit [a natural cycle: the little fish feed on *limu* and the big fish feed on the little fish], and they wiggle their way out. Mullet – mullet is about the smallest fish out. And mullet, they find one hole in the net – or, if for some reason, there's a loop in the net – one mullet finds 'em then the whole school follow.

CSH: How often did you fish outside the reef?

PA: Not too much. Mostly was inside. I didn't have the equipment and stuff like that. Most guys that go outside the reef, they usually in a boat.

CSH: Were there certain areas around Waikīkī that were better for fishing than others?

PA: [Pauses to think about the question.]

CSH: Or did you only catch certain fish in certain areas?

PA: You know, that's what I mean. I couldn't say that one was better than the other. If one spot is crowded, you go to the next spot. But, normally you try to go to the easiest place you can get from your car to the ocean. Otherwise you gotta walk along the beach all the way down. And, say if you go from Ft. DeRussy and you walking all the way down, you cannot go back to your car until you get all the way down to Waikīkī Beach. Otherwise that's the only place you can park. Otherwise, like I say, somebody gotta drop you off and then go home and come back in two hours. You tell 'em, "Two hours, come back and pick me up over there." That's what we used to do. Because, like I say, you only get one car. But, after that, sometimes when you grow old and you go certain areas to fish, you take a couple of cars. You get one over here. The other car, go down park five miles down. And you just walk along the shoreline. If I like to fish, and in my good days of fishing, I go five miles and not even blink an eye. And all I do is take my throw net, take my bag. And I'd walk – walk, walk, walk. Sometimes you see one, two fish but not what you want. Then you'd walk, walk. And, then you'd see one school. And you think, "Is this worth while?" Then you look ahead where you can catch 'em. Because if they go out, they going come in. And you're walking along the shoreline. So you look. Then you lose 'em. Pretty soon you know – outside there you can see the – pretty soon they come back in. So, when they come back in, all you gotta do is sit down, wait until they come back in. Like I say, as long as they don't see your shadow, you in good shape. The minute they see your shadow, they spook, big time.

CSH: What about the beach down towards the Halekūlani side and in front of the Outrigger Reef?

PA: I never went over there fishing daytime because – early in the morning, people down the beach. But, at night was no problem. Like I say, at night you catch anything down there. Like I said, the whole shoreline in Waikīkī, at anytime you go catch any one of those – all that type of fish over there. Unless you get maybe one school of mullet traveling the whole island – mullet – then the season open, stuff like that. Then the whole beach going be talking about 'em,

"Eh, you see the school?" And word get around. Guys who are not fishermen, only the lifeguards and stuff like that, the lifeguards, they stay sitting on the stand, falling asleep half of the time. But, I tell them, "Eh, you guys saw any fish over here?" They tell you, "Got one mullet school up the other side." But, any kind fish, if there's one school running – like *weke*, mullet, once in a while they see the *āholehole* school or the *halalū* might come in. Any time you see any big amount like that running, everybody down the beach know. The word get out. If you come down with your net, they tell you where the stuff. [*Laughs.*] "Yeah, I just saw one school out there."

CSH: What about crabbing?

PA: Not in Waikīkī. You going find the white crab and the red crab non-existent in Waikīkī, unless you go out in the deep water. If you going out in the deep water with deep nets, then you going get the white crab, not necessarily the red one. You see, hat's the *mo'ala* and the *kūhonu*. But, the *'alamihi* – as long as you have one rocky area, even on the stone wall, you going find 'em in Waikīkī. In fact, every now and then, you'll see 'em dry on the rocks down in Waikīkī. But, if I was to go catch crab, I wouldn't go over there. I would go by Doris Duke's and by Black Point. They all over there. You saw how they catch 'em? With the bamboo and the string.

CSH: Yeah. Is that how you used to catch them back then?

PA: Uh-uh. What we used to do was make hole in the sand and then just put *aku* head or whatever inside. Before, they used to have the square can or the cracker can. Cracker used to come in 'em and oil. Just get 'em enough so we can bury 'em in the sand. Otherwise, we catch 'em by hand. [*Laughs.*] Just watch 'em. But you gotta stay over there and you gotta get enough patience. But, with the bamboo, you can catch 'em even where they're down below.

CSH: What about lobster?

PA: I was never good at lobster. 'Cause you gotta go down and go in the hole. To tell you the truth, I scared stick my hand in the hole. If I no can see in the hole, if all I can see is the lobster, I ain't sticking my hand in! You watch. When the lobster come out, the eel going be inside. I had eel bite one time. That was it! Never again! [*Laughs.*] And I stepped on the eel.

CSH: Do other people fish for lobster in Waikīkī?

PA: I never did fish for 'em.

CSH: What about your friends? Did you know anyone else that fished for lobster or just no more?

PA: Oh, no, no, no. They had lobster. When they go diving they get lobster. You know, if you go Waikīkī and you tell somebody where the lobster hole stay, forget it! All of his friends know. And pretty soon you go over there, no more nothing! They wipe out the hole! And, they know that, when get eggs, you not supposed to take 'em, and if they baby you not supposed to take 'em. They take 'em all. And that's where half of the guys down at the beach – I used to see guys that lived down the beach and fished down there, at Natatorium. They had guys down there that fished. Now, those guys were fishermen. And they – I not going say they lived down the beach but a lot of them never went home. [*Laughs.*] But, they had their own corner in Public Bath. They get all their fishing nets, tools, they get poles and everything right over there, you know. So they kind of, more or less, lived down there. And lot of them were bachelors. And lot of people would call them bums. But yeah, the guy no work. You go down the beach, all you see is them bumming around. But, they get family and home. I don't know if they work nighttime or whatever. But, I knew quite a few of them. I didn't think they worked either. But, if you wanted your net to be patched, you take 'em down there, they patch 'em for you. I never had money for pay them for patch for me. So, I go over there and I have to pay 'em in fish. And them, they can fish their own. And not only that. Over there is good fishing ground.

CSH: The Natatorium side.

PA: Yeah! You know right in front of Public Bath, when the tide is really low, the reef sticks out over there. Not so with Queen's and down Populars, down at the Moana – not down that side. Down this side, when the tide is low, that reef stick out. And a lot of the surfers – if you come in, and it's high tide and you surfing down there, if you don't know where all the reefs are, you going wind up in one of those rocks. You know how big the reef is, eh? So, if you don't know how to go right or left, you get caught in there, you wonder, "Eh, how come I'm getting cut by all this coral?" Because it's all reef in the front of the Public Bath. Straight out – all reef. From Kūhio Beach you could see 'em. When the tide is low, you could see 'em down there. And you look, nobody down there surfing. The only guys down there is the die-hards who know where the rocks are and then they can skirt 'em. They come in so far and then they go back out. But, when it's high tide you can fly right in. But, that's the only bunch of fishermen that I ever saw down in Waikīkī Beach, over there. But, on Kahalawai side, they had a few but, over there, all *haoles*, eh. So, if guys stay down the beach, the *haoles* eventually run 'em all out.

CSH: So, you pretty much fished the whole Waikīkī coastline, all the way down to –

PA: We walked.

CSH: Would you say all the way to Kālia, where the ʻIlikai is now?

PA: Oh, before. 'Cause, before that, the reef over there, before that. I even went down to Ala Moana but I didn't like it out there.

CSH: Why not?

PA: It was all reef. Before they even had the channel. But right in the front of where the Hawai'i Prince is now, that reef went all the way out. You know, it came all the way in. That was all dredged. The Ala Moana Shopping Center, all that coral went into the shopping center. Because that reef came all the way out. You could go outside of the tea house. You know, had tea house over there, stuff like that. You could walk in the water, walk in the reef. You go torching and stuff like that, you could torch right there. But, when they came in and dredged the whole thing out – and that's right where the Niumalu Hotel was, right there.

CSH: So how often did you used to go fishing down that side?

PA: Like I said, not as often because the water was different. Over there was kind of murky. You know why? The water came right out of the canal. You know Ala Wai Canal? The sediment went over there. And that Ala Wai Canal, oh, that's the dirtiest water out. Eh, you look. You know when you go in the canal, if you go up stream, oh, dead cows, cattle, they throw everything inside there. If you went all the way up the river, you find beds and refrigerators and everything. And then when get one big storm, a lot of people keep their horses down around the canal because eat plenty grass and everything like that. When the water come, *make*. You see the horses floating down and then they gotta get the crane and pick 'em up. But the canal is murky. As people kept moving more up Palolo Valley, St. Louis Heights, stuff like that – that's where the rivers come from. And the water became more and more polluted.

CSH: Did you do much torch fishing?

PA: Not as much as I would like to have. The torch fishing – and not only that, you no can go every night. You gotta wait until that tide is minus. And then you gotta look the whole area – It's beautiful! You ever went torch?

CSH: When I was little.

PA: You know, when you walk, you cannot see the hole. If you walk, the water look good. The water look just like the reef. So, when you walk, you step in one hole and sometimes the hole is as deep as your legs. It's hard. The only thing dangerous about that is when the *puhi* inside there. The fish, they stay like that (motions with hands to indicate fish are just below surface of water). When we go torching, what we took was a 3-pronged spear. And, you no need one long one –just your height. Because, the water, if the fish in the water, the water is this deep. How you going miss the fish? With squid, all you need is one small piece of wire. You see the squid, all you have to do is go like that (motions with his hands) and the squid crawl right up the wire and you put 'em in your bag. Like I told you before, you bite the eye and throw 'em in your bag. One small hole, forget it, the squid gone. But, torching was fun for children. But, for graduate fishing, it was productive. [*Laughs*].

CSH: What about *limu* in Waikīkī?

PA: Right in front the Royal Hawaiian, you had *līpoa, manauea, wāwae'iole,* and *līpēpē.* I think, still to this day, if you go over there, you going see one big mat of *limu* right in that area, right in front the Royal Hawaiian and the Moana, all the way back to the Halekūlani and right by Grey's Beach, the YMCA, right there. That's one of the spots we used to go all the time too, because had the right of way. Because we couldn't go in through Fort DeRussy. There was a certain time there that they wouldn't let you go in to Fort DeRussy.

CSH: So, you would go in through –

PA: Either Fort DeRussy or come in through Kūhiō Beach. Once you get on the shoreline, you can just walk down.

CSH: Who usually picked the limu in your family?

PA: My mother. My mother was Hawaiian, as far as Hawaiian food and all the preparation of the food, and stuff like that. My mother was good at that. She did all the cleaning. She knew how to clean all the different types of seaweed, how to put them together – which *limu* go good together. She cleaned it and she gave it away. Whatever *limu* that I knew I could take home – and lot of times, if you pick *limu* and it's really dirty – I've done this. "What? You want me stay here all night trying to clean this *limu*? You see how dirty it is?" So, I got to the point where, sometimes you have three or four different types of *limu* all growing in one area and they're all intermixed. And, some of them is all rubbish. So, if you want one, you gotta pick the whole thing. But, for the person who going clean 'em, she just as soon not get 'em because it takes too much work to clean. And then, when you sit down and you hear this explained to you, you think to yourself, "Gee, I'm doing them a favor by getting this

limu." But, it's not necessarily [a favor] in their mind because of the work that goes into it. It's not worth it. And, yet you can see why because you go a certain place, you pick up this *limu* and its more rubbish than anything. So, consequently, as the years went on, I became all the more wiser for that. But, I am aware of the different types of *limu* when I go fishing. So, while I'm fishing, I see the seaweed. When I go fishing, I always take another bag for *limu*. If I see a good amount of certain types of *limu*, I put 'em in the bag. Lot of guys I go fishing with, they don't know. Certain types of *limu*, and I found this to be true over the whole course of my life, if the *limu* you see here today, you come back maybe four or five months – it's all covered with sand. Then, after the sand washes away, you know, different cycles and stuff like that, then you see and it's exposed again. It's always there, but you not going see it all the time. This is true because I've seen it time and time again. You go to one place and you say, "Wow, this place was loaded last year." You come back – nothing. I for one, if I see a good patch of *limu* and I pick, when I come out of that water, I know who it's going to. Because I no more time for clean, so I know who wants this type of *limu*. So, I take one can of sea water and I take one bag of *limu* and I take 'em to my family's house or friends or whoever I know that enjoys this type of *limu*. See, not everybody enjoys it. They like eating it but not
everybody enjoys cleaning it. There's certain people that I take to, if nobody's home, when they come home, they look and see the *limu*. Bum-bye, somebody come with one case of beer or whatever.

CSH: So, you take the sea water from the ocean so they can clean the *limu* in the sea water?

PA: Yeah. They like it that way. My mother used to do that. So, every time I used to come home with *limu*, she'd say, "Where's the water?" I'd have to jump in the car and go back down to the beach. So, after that, I learned. Everytime I go, "Here's the water." They like to do it that way.

CSH: You were telling me the other day about when the women folk would go pick *limu* and what they wore. Can you tell me about that again?

PA: Oh, that's a sight! They wore bloomers. It's like long pants or panties – like swent pants, only thing, the leg is not that long. It comes just below the knees. It was made out of muslin or something like that, some dark material. And, of course, they had a *mu'umu'u* or a short dress on. When they sat down in the water like that, that's it. And, not only one. About four of my aunties and, of course, my mother, when we all went down the beach, we went to look for *limu*. *Limu* was the first thing. So, while we looking for *limu*, the fish come around. But, the minute you get the *limu*, you take 'em right in and the ladies sitting right on the beach in the water. Right in the beginning you clean out one area, take out all the rocks and make it comfortable for them. Once they say, "Okay, pau." Then you can go fishing.

As soon as you hitting the water, right there, that's where the *limu* patch start. And, like I said, this is Kahala. My mother knew exactly where it was. The whole area was all the different types of *limu*. So, we all go. Whoever the men in the family are, the kids. You watch those ladies clean 'em and they also ran the government from there. They ran families from that gathering. [*Laughs.*] You gotta understand that they don't get together all that often. Before, telephone wasn't like now. If you no more money, you no more telephone. The telephone was a modern convenience. I don't think we had a telephone in our house until maybe 1936 – about the same time we got a refrigerator. That was basically, remember, I told you we gave away all the fish? That was basically one more reason. You no more place for store fish. You no more freezer or stuff like that.

CSH: So, the women would get together and pick *limu*?

PA: And talk and talk and talk – but the hands always moving. [*Laughs.*] What's that old Hawaiian saying? *"Hana ka lima, pa`a ka waha."* If you wanted to know what happened during the year, you had to join one of those sessions. And, it was all in Hawaiian – because, if it was secret, the kids didn't know. And, like I told you, to us, everything was English. They did not speak Hawaiian to us. But, among themselves, all the gossip, if you wanted to know who was *hāpai* and who wasn't married and all this kind stuff, that's where you found this out. And, then after the aunties all left, then my dad would know who was what. [*Laughs.*] But, watching them clean *limu*, it's a tedious job if you wanted to do it right. Because if you ever put *limu* on the table and you watch them eat and all of a sudden you hear them say, "Who the hell went clean this?" [*Laughs.*] And, if they know one auntie no clean the *limu* as good, when she say, "Okay, I'm all pau." The one who know that she sloppy going grab that *limu* and clean 'em again. Rather than tell her she did one sloppy job, they clean 'em again. And, for some reason if we went to look for *limu kohu* – *limu kohu* get fine sand. You not going clean 'em just by rinsing. She gotta set, you know, how they lift 'em up. That *limu* has a flower and in that flower get all this fine sand. Picking it is easy. The cleaning is the hard part and it's time consuming. That's why, say if I like *limu kohu* and one of my friends go pick 'em up and he says, "Pete, you like *limu kohu*?" I say, "Are you going to clean it?" If he says, "No", then I don't want it. I don't know how to clean it. I don't have the patience or the know how to clean *limu kohu*. I could make an attempt at it, but you may not like it when I clean it. If you clean it all the time, I would go get it and give it to you. But, I would not attempt to clean it. I don't want to. Like *manauea, līpēpē*, you can see. But the *limu kohu*, that sand, you cannot see.

CSH: What about *`ele`ele*?

PA: No more too much over here. *`Ele`ele* is another one too. But, if I saw it in the water, I would pick it and my mother would clean 'em. I would not even

attempt to clean that. But, the fact is, most of the *limu `ele`ele* comes down here from either Molokai or Kaua`i.

CSH: How often would you folks do *lūʻau* when you were growing up?

PA: Oh, at least once a year. Sometimes, two or three times. But, *kālua* pig, I might do it maybe four or five times a year, depending. Cooking the pig is easy. It's a job that's repetitious. But, getting the wood, getting the stones, and doing all this kine stuff, people have no idea how much work it is. I cut wood all my life. I don't want to do it for somebody else. I did 'cause of my uncle. As I go around the island, if I see guys cutting *kiawe* tree, I load 'em up, come home, stack 'em up my house, my cousin's house or wherever. Nowadays, the wood is the hardest thing to get. No more *kiawe* wood now.

CSH: So, when you were young, where did you get your wood from?

PA: Oh, across the street. Nobody lived across the street. Then, after the war, they started knocking down the trees and building houses. Now, Kapahulu no more empty lots. After I started working and started my own family like that, if I see people cutting wood – and right after one big storm – and now, I use any kine, but before, I used strictly *kiawe* wood even though I could use different types of wood. *Kiawe* and guava, I knew definitely that I could use it. But, as the years went along, I found out I could use pine tree, ironwood and whatever trees are available. But, when after get one big storm, I like to go look for wood from trees that fell down in the storm. Now, if I was on Hawai`i, Maui, Kaua`i or Molokai for that matter, get plenty. But, not in Honolulu. Pretty soon they going have to import if you going make barbeque or something like that. It adds a little flavor. There's that taste from the *kiawe* wood.

CSH: When you were growing up, do you remember the part of the project area where the Outrigger hotels are now, between Saratoga and Lewers Road on the *ma kai* side of Kalākaua? Do you remember anything about that area?

PA: Not really that much about that part of Waikīkī. Lewers and Kalākaua, I think you had a popular coffee shop right around there. I can't think of the name of it. There was a drugstore. This was in the thirties and forties, on Lewers on the Diamond Head corner. And, across the street was that place called "Gumps". And, Watamull had one shop right around in that area.

CSH: Do you remember any cottages there?

PA: Cottages were down the street on Lewers Road, on the *ma kai* side. You had one big park over there. You know when you going on Beachwalk, you look, over there get one empty spot, right by the corner.

CSH: By Planet Hollywood?

PA: Yeah. That was all open. That was one park. It wasn't one popular neighborhood.

CSH: Do you mean for Hawaiians?

PA: I don't think you had too many Hawaiians living over there.

CSH: Do you remember any Hawaiians living over there then?

PA: No.

CSH: Where were the Hawaiians living in Waikīkī?

PA: Right on Paoakalani, in that area, and right in the back of Niumalu Hotel, Kālia Road and that area right there. But, you know, at the beginning of the Ala Wai Canal, way down in Kapahulu, they had a Hawaiian Village that lived right on the water side. They lived in these shanties, right alongside the Ala Wai Canal. They lived there up until 1939, until before WWII. But, they lived up where Kapahulu library is – across the fire station. You know, at the beginning of the canal, when you're going into the Ala Wai Golf Course, on the left-hand side, right at the beginning of the canal, they had these, just like "boat people".

CSH: They were living on boats?

PA: No. They were living on land. They just built little shacks. In fact, I know, one of my cousins was living there. Well, we're related, but I don't know how we're related. I think we're cousins. And, he came from Moloka'i too. I think his last name was Kame'ekua. Try ask mom if she knows that name.

CSH: Do you remember anything about Lalani Hawaiian Village?

PA: No. Just that it was owned by old lady Mossman. And, Sterling Mossman – that whole family – was in there. I know she used to teach *hula*. And, this was what this village was for – was for Hawaiians. And, they made all their own instruments. I don't know if it was the husband or whatever who made all those instruments. And, they used to sell *hula* skirts, *'ulī'ulī* and all those Hawaiian musical instruments. They had a store there where they sold these things. But, basically, she taught *hula* and whatever other practices they had there. But, she had a store right in the front there where they sold Hawaiian things. They had that whole lot, almost from the corner of Kapahulu and Kalākaua, where the service station was there. Right on the other side of the service station, from there and down to the first lane, I don't remember if it was Lemon Road or whatever – to the first street down, but she owned all that

property. That was why they called it Lalani Hawaiian Village, because she taught Hawaiian. I'm trying to think if they had *lūau* there or if they had parties. But, she taught *hula*, I know that much. I used to watch the girls dancing *hula* over there. But, it was kind of rickety. It wasn't a modern building. It was more like a shanty. And, for the kind of money, if you're living down there – they had Hawaiians living down there and on the Kapahulu side of that street – some of the houses were old. I mentioned the DeFries family – John DeFries, they lived right there. And, this kid Kaui, Zulu, I think they had family that lived right next to the service station. I forget the names of the families that were there. But, there were quite a few Hawaiian families inside there. Then, they had some Japanese. And, then they had apartments, then the *Haoles* owned the building. But, had quite a few Hawaiians that lived down there at that time. And, then they sold and moved out. Either that or they sold and just wasted their money. There was a time when, I don't know if big business was buying all the properties around there. But, when you look at one whole block and all of a sudden you see one hotel inside there, they must have bought all the Hawaiians out, from Kalākaua Avenue, down Paoakalani, and all the way down to the Ala Wai. Had quite a few. You had a Hawaiian village there and Lalani Hawaiian Village was just part of that. Had some Japanese families that were intermingled in there, too. Like I said, their families made money on the property or they were like living on lease land. You see, a lot of times, the leases that were given to other people were as long as you live, the land is yours. But, when you die, it don't go to your children. It goes back to the original owner. And, in a lot of these cases, it was the big land holders. And, I think that's what happened to Waikīkī.

CSH: So, down in the area between Saratoga and Lewers, you don't remember Hawaiians living there in the 1930s and 1940s, when you were growing up?

PA: Not Hawaiians. I don't remember Hawaiians living there. But, there were local people there, maybe Portuguese, who owned property there and eventually they sold to old man Kelly. I know for a fact one Portuguese family sold to old man Kelly.

CSH: When were you drafted into the army?

PA: 1945.

CSH: So, that's when you left Waikiki?

PA: Yeah.

CSH: You were born in 1927, you lived in Waikīkī 'til 1945, then you went away. What was it like during the war years?

PA: During the war, that place was locked up tight as a drum.

CSH: Could you still go fishing?

PA: Oh yeah. We just went underneath the wire. [*Laughs.*] Night time, you see, they wouldn't allow you to go down the beach at night. During the day time, you could go fishing. But, at night, you couldn't stay on the beach. We used to live on the beach. You just sneak underneath the barbed wire. At night, we used to roam Waikīkī and Kaimukī. But, when we went down to the beach, they had patrols, military patrols that patrol the beach and the whole island. You had block wardens and everything like that during the war. But, there were plenty places that we could go. And, the military wasn't that strict where you couldn't go down the beach. But, we'd just sneak underneath the barbed wire. Just don't make noise on the beach. All you had to do was keep quiet and you had no problem on the beach. They couldn't have cared less. What they were more concerned about was the lights. So, every night, there was an airplane that went completely around the island, with a ship to shore contact. Anytime they spotted a light – this was basically to keep the enemy away, so they didn't know where land was. Then, after that, they relaxed it. They never took it out, they just relaxed it. So, as far as fishing goes, the only problem was, a lot of times, in certain areas, they put the barbed wire right in the water. So, you can see the fish in the water, but you no can catch 'em because the barbed wire is right there. So, the fish used to hide in the barbed wire. And, when we wanted fish, we had to fish outside of the barbed wire or wait until they came in.

CSH: Do you think you did less fishing during the war? Less than usual?

PA: Not really. As I said, the fishing wasn't that much of a problem. The areas where they barbed wired the reef, those are the areas that were the problem. But, other than that, the fishing wasn't restricted. They restricted the boats and stuff like that. And, lot of Japanese fishermen had boats – *aku* boats and stuff like that. And, they were locked in. They couldn't go out in the ocean. At the beginning of the war, security was unreal. They suspected everybody.

CSH: When did you get out of the army and come home?

PA: 1950. I stayed with my parents for a couple of years. Then, I was a thorn in their side. I was a bum. They kicked me out. So, I thought, I'd better get out of here.

CSH: When did you move to the Windward side of the island?

PA: In 1953. I lived at Kihapai Place. Then, I got married and I was renting a place right next to my mother's house. Then, in 1959, my in-laws moved out here. In 1960, I moved to Kailua and I stayed on this side. I tried not to go back to Waikīkī. On occasion, I'd go back and go fishing but, like I say, if you go down there during the day time, you cannot go fishing. You gotta go night time.

CSH: When you were growing up, did you ever heardanything about burials in Waikīkī?

PA: No. I never say any in Waikīkī. So, if they buried in Waikīkī, it had to be before I was even thought of. In fact, I think if you dig up any grave over there, I don't think you going find any from after 1930. I doubt if there's any after 1925. You know, I got a good picture of Waikīkī when I was very young. Kalākaua Avenue was there. And, we had the street cars. The street cars came right up to Kapahulu Avenue and that was it. Then, they went back. You see, the street car went up Kalākaua Avenue, went to McCully, from McCully, it went up to King Street, turn left, and then it went all the way to North King Street. And, the ones up that side went to Kaimukī and they stopped right up Koko Head Avenue, right close to Lili'uokalani School. And, that was the only one.

CSH: So, if you went shopping downtown, say, Chinatown, that's how you went?

PA: Right. You had to go street car. Either that or walk. But, the one drastic change that came, had to be after 1953 or 1954 or 1955. Right during that era is when that whole area, like the 'Ilikai, they started building the 'Ilikai. Then, they built the Hilton Hawaiian Village, then they built Kaiser Hospital. Because Henry J. Kaiser developed Hilton Hawaiian Village. He was instrumental in developing Kaiser Hospital under a different franchise because he had ships. His ships brought in cement and stuff like that. All that contributed to him building Hilton Hawaiian Village and, then, getting into construction with Hawai'i Kai.

CSH: Do you have any other memories of Waikīkī that you want to share?

PA: Nothing.

CSH: Are there any Hawaiian things you did that we didn't talk about or that you saw other Hawaiian people doing?

PA: You know, as far as fishing goes, I never saw any other people fishing. I think we were the only ones that went to lay net. Of course, I saw one other guy that

was my dad's friend. He was a caretaker for the Kūhiō. His last name was Hema, Mr. Hema. He was the groundskeeper for Kūhiō Beach. But, the father used to fish. Somehow, he and my dad might have come from the same place in Ka'ū. Because, when I seen them talking, they went 240. When they talk, you just stand by and listen to them talking. He used to tell my father, "Oh, go over here, go over there." Because he's down the beach all day long. But, he was the only one. Like I said, I never saw anybody else fish the same way we did. Like I say, when we went, it was never during the day. It was in the evening or early in the morning before people went on the beach. I never saw anybody else on the beach. Not even picking *limu*.

CSH: What about community *hukilau*-type activities?

PA: They never had it down there. But, they were never that clannish. If you did have a *hukilau*, you would have to hold it right there where the beach boys hang out, where they teach surfing on the beach. But, they were basically making their own money and taking care of the tourists.

Sometimes, I'm sorry to say this, but Waikīkī is not as friendly as it's all made out to be. A lot of people who are there are phonies. They smile because they're getting paid to smile. They don't smile because they want to, because they enjoy it. To them, their job is monetary. It has nothing to do with what they feel on the inside. When you see somebody and you talk to somebody, your main interest is their well-being and stuff like that. And, lot of times, I see that this is not so. You know, when you have your *mo'opuna* come and you hold them, the feeling is transported because you have that much *aloha* in you and it comes out. In Waikīkī, everything is false. I don't say all of it is. But, a lot of people, they go out there with the feeling of monetary gain rather than the *aloha* spirit that it is given. I think this, because I do it. When I see an old lady getting out of the car, automatically I go over there and I assist her out of the car because I am afraid that if she falls down, she's going to hurt herself. Another person would watch her get out and just watch until she ready to fall down and then think to themselves, "I don't think it's my job." I work at the Hawai'i Prince Hotel. I drive the shuttle bus that they have there – I'm on call. When they call me, I go. But, I do it. So, when I park my bus, I help the guys take the people out of the cars and stuff like that. And, when it's time for my bus to leave, I open the door and announce that the bus is leaving now for Waikīkī. But, when I see old ladies, or anybody for that matter, I try to assist them in or out of the car because that is where a lot of people hurt their back. And, a lot of times, I see them coming up, just like they going forward and nobody is there to assist them. So, the minute you put your hand there, they automatically clamp onto your arm. And, then you hear the sigh of relief, "Oh, I have somebody that I can lean on. And, this is what you want them to think. That they have somebody to lean on, and that they can depend on you. "Do you know where there's a good restaurant?" Or, "Can you tell me where I can find this thing?" And, old folks, when they talk to you, I can understand. I may not

understand what they say, but I know where I can help 'em. A lot of times, I'll tell them, "Okay, you hold my arm." And, I'll take them to the concierge because the concierge can speak Japanese. You know how the Japanese are. They bow and all that kine stuff. I bow too. So, I can feel. A lot of people down there, they don't. They do it just like it's a habit. And, I don't think you should do it because it's a habit. I think you should do it because you feel it. That's why, anytime, even when they're going away. For instance, I see a lady going away and she's going catch a taxi. Somebody bought her one *lei*. Sometimes, she's waiting for somebody to put it on her or sometimes, just before somebody gets to put it on her – and lot of times, I see this. They just put 'em on and they're gone. You suppose to *honi* [kiss]. And that's why I tell them, "Eh, give the kiss that goes with it." Sometimes, I'll sing in their ear, "For you a *lei* . . . " [*singing*], because I feel like it and this lady is going away and nobody is seeing her off. There are times when I even pick plumeria and I take couple needles down. Sometimes I see a lady and maybe she have a couple of children and she's trying to keep them busy. I say, "Do you know how to make a lei?" She says, "No." I say, "Well, are you interested? Are you going be here for a while?" I try figure if she going be there for half an hour or so. "Well, could I interest you in a *lei* making ceremony?" She says, "Oh, yes." I give her the needle and say, "This is how you make it." Then before you know it, the kids get interested. I say, "I'm going to show it to you, but I have to go when my bus gets ready to leave." So, I'll make the *lei* and show her how to do it. But, then I go. I tell her, "You know, when you're done, the *lei* is yours. Just leave the rest over here and leave it at the Bell Desk. Just tell the girl I'll pick it up. "Oh, how much is this?" I say, "There's no cost to you. I just wanted you to know how to make something before you left the island and that you're happy that at least I taught you." And, lots of times, I go, and the people, they leave money. Money is not what I'm interested in. Sometimes, only the wife come and she have her two children. Or, if he comes, the wife is not here. I say, "Eh, take this back to your wife."

CSH: So, when you were growing up there, the *aloha* was different than it is now?

PA: I think so. I think now it's more , shall I say, "false", and I think now it's being done more for the money than anything else. There is not that feeling that I can see. And, there's a reason for that. Before, you had plenty taxi drivers that were local. If you find one local guy in Waikīkī driving taxi now, I don't think there's even 10% of the drivers in Waikīkī that are local. Most of them are foreigners.

Getting back to the feeling of *aloha* getting out to the people that are coming in, if you don't know when to give, if you don't know what it's all about, then you're in the wrong business. You go in the computer business or something. No go into the *aloha* business. *Aloha* business is for people who understand *aloha*. And, I know it. I feel it.

I think of all Hawai'i has meant to me. I owe these people that much. I can feel what I give. I think, when I say good-bye to someone, I think they know that I mean it. I have seen instances where people have said good-bye and not meant it. I see it all the time. Everybody is looking for the almighty dollar. Now, if you get the dollar, you alright. And, if I get it, I going give it away anyway. They tip you for this and you tip the other people for that or you go to the store or go eat lunch or whatever.

CSH: Do you have any thoughts or any advice about how the Outrigger can bring back and maintain that *aloha* spirit? How do you teach that to people?

PA: You know, I keep thinking about that. I think by example. They have to watch you do it. You cannot teach it. It's by experience. And, when you talk to the younger ones, the younger ones are full of exact words. They know all the meaning of the long words and they know everything. But, they don't know that between two people, there's an electricity that goes between two people. If you can connect those two poles between the person you talking to and yourself, then you got it made. I don't know. It's in you. That is *aloha*. You can say *aloha* a million ways, but if you don't communicate between two people – I don't care if you're a hundred years old or you're two years old. If the electricity goes between two people, it'll click. You'll see it. Sometimes, when people are going away, it brings tears to my eyes when I see certain things happening and I see the people going away. You say, "*aloha*" and you see all the tears roll down. And, in the same respect, you watch other people that say "Good-bye." "*Aloha!*" There's a song, "If *aloha* means I love you, then I'm happy, but if it means good-bye, how sad I'll be . . ." [*singing*], it's an old song. But, that's the way it's supposed to be. When you're coming in, I cry because you came back. If you're going away, I cry because you're leaving and I don't know when I'm going to see you again. But, that's not the only thing holds true for you. This is because it's personal. When it's impersonal, the feeling, the *aloha* is still there, with a different concept, but the meaning is the same – "I'm going to miss you," even if you don't know that. While you were here, you spent your money. The money that you spent here went for the livelihood of everybody. So, when someone goes, you cannot be selfish and say, "Oh, good riddens! We got your money." That's the way a lot of people look at it. They look at it in a monetary way. But, that should not be on your mind when you see people come in and they go. That, business people take care of that. They know that the money you came in with, you spent it here. Your job is to see that the feeling they go out with is little more different than what they came in with. They came in with something that they didn't know. Then, when they went out, they went out with the knowledge that because these people taught me and because they gave of themselves, I'm a wiser person now that I'm going home. Like I say, *aloha* is something you got to feel. If you ain't got it, you ain't got it. You're a bum! You're like the rest of the world. You're waiting for the next guy's quarter. Eh, give 'em a quarter. I no care. I deserve what I get

because I understand. I deserve *aloha* from somebody else because I give *aloha*. I don't expect to give you *aloha* and you in turn give me all the heartaches and headaches. When people come and go, the thought of business is not in their mind. They're leaving and the thoughts of leaving, the feeling that you had when you were here, all that you learned, all that you were taught, all the pictures that you took, these are all memories. The *aloha*. When the *aloha* goes, when you get back on the other side and you sit down and you reminisce the days that you spent on O'ahu or the other Hawaiian islands, on the people that you associated with – I don't care if it's the maid or who. But, if everybody contributes one ounce of *aloha*, when that person leaves here, put yourself in his place. When you leave, what thoughts do you have? A lot of people, the minute they're leaving, they're writing a note. They get on the plane – and I've seen this – "I'm on this plane and I'm just writing to thank-you for all the good things that happened to me on O'ahu." And especially whoever went out of their way to make his or her stay more enjoyable than it would have been otherwise. And, you know what you did was contribute your share of *aloha*.

CSH: Thank-you so much for sharing your thoughts and your experiences about fishing in Waikiki.

[END OF INTERVIEW]

APPENDIX B: KAMAKA CLARK MIYAMOTO TRANSCRIPT

Project: Outrigger Waikīkī Properties Renovation
Interviewee: Kamaka Clark Miyamoto
Interviewer: Ka`ohulani Mc Guire for Cultural Surveys Hawai`i (CSH)
Place of Interview: Kāne`ohe, O`ahu
Date of Interview: August 31, 2001

CSH: Why don't we begin by you telling me your full birth name, when you were born and tell me a little bit about yourself.

KCM: I am Florence Kamaka`ōpiopio Clark Miyamoto. Since the statue [Duke Kahanamoku's statue at Kūhiō Beach], I go by Kamaka Clark Miyamoto. They said it was important to mention the maiden name to give the link. I was born here in Hawai`i on April 26, 1928. My father is the late Herman Kahikiena Clark who was born in Yokohama, Japan and raised in Halawa Valley [Molokai]. His mother's family was the first owners of Pu`u o Hoku Ranch. That is where the Pi`ikea comes from – from that segment of the family.

CSH: And, your mother?

KCM: My mother was Anne Aulani Paoa Clark. She was born and raised in Kālia. Her father was Ho`olae Paoa. Her mother was Florence Kamaka`ōpiopio Bridges Paoa. And, they owned large portions, tracts of land there in Kālia where the Ala Moana Boulevard meets Kālia and John `Ena Road.

CSH: How did your family come by their land in Kālia?

KCM: I'm not sure, but it was always there. Some people say from the great Māhele, but I don't think so. I think we had it long before that. See, we call it Paoa [Pa-oa] here, but throughout Polynesia, it's called Paoa [Pao-a]. And the Duke is named Paoa [Pao-a]. He's the oldest grandchild. In fact, getting back to the Paoas, there were three of them. My grandfather was the son, his sister was Julia Pa`akania Paoa Kahanamoku – the Duke's mother. Then, there was another sister, Kamaolipua Paoa Pi`ikoi. Through that family, one of her daughters married Isaac Harbottle who was the eleven-year old child who was sent to Japan to study their culture and their language during Meiji's time. So, they were the three Paoas. And, of course, during that period, my grandfather being the only boy, inherited all the land. But, he took care of his sisters.

CSH: What was it like growing up in Kālia?

KCM: Well, with the three different families, the Paoas had twelve children, the Kahanamokus had nine and I believe the Harbottles had eight, that first

segment was very close. They all played together. We were the second segment and we were closer. But, my mother and Sam Kahanamoku were like brother and sister for all of their lives. They were very close. They were very clicky. But, it was wonderful because we always had playmates to play with. It was absolutely wonderful. My uncles and aunts took special care of us and made the time to do things for us. As I look back, now that I'm older, I realize that we had no grandparents. So, they made up the void for us. But, we swam everyday. There was always someone there supervising, even though we may not have seen them. Kālia was a very open and safe place for us in those days. As I said, my uncles and aunts always made the time to be with us. One uncle attended McKinley Highschool, George Paoa, and he graduated from Harvard University. He never let anybody forget it. [*Laughter.*] But, when he came home, he was single, and he created activities for us to learn. He would make reservations for us to eat lunch at the Royal Hawaiian Hotel so that we would have opportunities for audience participation, for eating out and using the right fork. [*Laughter.*] And, when we were naughty, my brother was just something, he'd give him a whack. But, Friday nights, he took us all up to this place called Mrs. Malt's Shop where we had the best malts you could eat. But, they made the time for us. They listened, they talked to us. You don't see that today.

CSH: Where was your family home in Kālia?

KCM: Our home was located right there on the corner of Ala Moana Boulevard, Kālia and John `Ena Road. They called it the "corner house".

CSH: Where the Hilton Hawaiian Village complex is today?

KCM: Well, that new building there is about where it was. That was Paoa land.

CSH: Were you born at home?

KCM: No, in the hospital.

CSH: Did you learn to speak Hawaiian when you grew up?

KCM: No. My parents wanted me to learn English, even though they spoke Hawaiian fluently. I had a grandfather who lived in Halawa who spoke it beautifully. It was pure joy listening to him speak.

CSH: Where did you folks go swimming?

KCM: Down by the end by the `Ilikai. There was a canal there at the time. That's where Duke swam. But, they dug all of that up and they put the Hawaiian Village in there. In fact, they wanted that beach to be named "Paoa Beach", but my aunt refused. She did not want it to be that. From Paoa Lane, it would

have been 'Ewa of that. Now, the house was set back on the lot. It was a beautiful, huge lot. My grandfather planted coconut trees there for every child that was born. There were at least twelve trees there, you know, for the twelve children. And, my grandparents were very humble. They raised taro, he fished and he fed his children.

CSH: Did he also have an occupation or job he went to every day?

KCM: Yeah, but I don't know what it was. People say all kind of stuff, but I don't know what it was.

CSH: What do you know about fishing in Kālia?

KCM: It's fantastic.

CSH: What kinds of fish did your family catch there?

KCM: Kala and everything you could think of. We used to go. My brother Jim had become quite a fisherman, spearing, laying nets, all kinds, and it was plentiful. A lot of seaweed.

CSH: What kinds of seaweed?

KCM: Oh, I can't think of it right now.

CSH: I know that *līpoa* was plentiful in Waikīkī.

KCM: Not *līpoa* so much there, but it was there. *Līpoa* was more by the Royal Hawaiian. But, then there was one that was hot and peppery and it was delicious in stews. All the seaweeds you can think of, they had it there.

CSH: So, you grew up eating all different kinds of seaweed?

KCM: Yes. Now, there was a mud flat there and I was a champion – with the old ladies, they'd wear these big old loose dresses – they'd go pick *limu* and crabs. I would catch crabs with them. The *'alamihi* were right where the Hawaiian Village is, but, you see, they dug up all of that reef there. But, it was quite a delicacy – the *'alamihi*. My mother loved that. My mother was a traditional Hawaiian.

CSH: So, did you eat a lot of traditional Hawaiian foods when you were growing up?

KCM: Yeah. But, no, I didn't eat any raw stuff. My dad did not want us to eat raw stuff because of the bacteria count. But, my mother ate it and my brother Jimmy ate it.

CSH: That's interesting that they were worried about bacteria back then.

KCM: Oh yeah, he was a health inspector for the Department of Health. Incidentally, my father is known as Hawai'i's greatest lineman. He was a football player. Even 'til today, they talk about him. And, my two brothers were NFL players. And, I think they were the first two brothers to play for the NFL – they walked in his footsteps. But, when he shopped, he shopped strictly steak and tomatoes. [*Laughter.*]

CSH: What kinds of fish do you remember eating when you were growing up?

KCM: Mullet, *'ōpelu, aku, kala, akule, manini.* Wherever you find *līpoa*, you find *kala*. It's that unicorn fish.

CSH: That all came from the Kālia area?

KCM: Yes. And, my mother took great delight with her lady friends, spending the day picking *limu*, catching crabs, then having a fabulous lunch on the beach under the tree in Kālia. It's all gone now.

CSH: What about lobster?

KCM: Yes. But, it's seasonal.

CSH: Did you folks lay traps?

KCM. Yes, my uncle did.

CSH: What about *puhi*?

KCM: Yes, but I never did eat it. But, we always got a lot of squid. And, we would dry it. Oh, it was my passion. And, then we'd go to other spots of the island too, to gather different fish and squid and stuff.

CSH: You mentioned taro.

KCM: My grandmother raised it, but there was none during my time. Now, we had a huge *hau* tree there on the corner lot. You see, we had my grandfather's house on the corner lot, then right next to it, my uncle George got a portion of it, then next to that was the Kahanamoku house and then all the way down here was the Harbottle house, then the 'Ilikai and the Waikikian Hotel. I had one cousin, Wayne Sterling, who would leave home – they were living next to the corner house at one time. Oh, he was just the cutest little boy, chubby as ever. And, he would go from one house to the other and eat all day. The aunts would cook him whatever he wanted. And, he would eat. Then, the mother

would say, "You know, I don't know what's the matter with this kid. He's not eating and, yet he's not losing weight." Then she found out he was going from one aunt to the other. [*Laughter.*]

CSH: What about fishing at night, torch fishing?

KCM: We did, on the reef. One of my aunts would take us and we would catch fish. It was fun. Now, right next to us was the Niumalu Hotel. That is now the Hawaiian Village.

CSH: Can you tell me anything about the Kawehwehe area?

KCM: I don't know anything about it. Maybe it was called another name. I don't recognize it.

CSH: Kawehewehe is supposed to be where our project area is between Saratoga and Lewers Road. They say there used to be a spring or healing waters in the ocean where people would go and bathe for healing.

KCM: No, I don't know anything about that. But, there was a spring there in Kālia where Hawaiian Village is. And, that's when it was a coral reef. And, then it would bubble up. If we had problems finding it, we would simply look for the shrimp and the mullet and it would be there.

CSH: Pi`inaio Stream was the closest stream to you folks?

KCM: Yeah, but it wasn't running when we were there.

CSH: Right. You were born after the Ala Wai Canal was built.

KCM: Yeah, the corner house was here and that stream was here. [Looking at map.] But, they used to get *`o`opu* and shrimp from there. My mother spoke of it.

CSH: Did they get anything else from that stream?

KCM: No.

CSH: What about *hīhīwai*?

KCM: No.

CSH: Maybe it was too muddy. What was the landscape like in Kālia when you grew up there?

KCM: Well, the house was huge. It housed twelve children and it was a typical Hawaiian-type house, huge, with a balcony around the front. And, in the back of the kitchen, there was an enclosed area where my grandmother could hang clothes to dry in case it rained. Then, we had a shower and an outside toilet there in the yard. But, the yard was just huge.

CSH: Was it a two-story house?

KCM: No. One story with a balcony surrounding it.

CSH: What church did your family go to?

KCM: The Reorganized Latter-Day Saints Church. It's located right below Roosevelt Highschool.

CSH: Where did you go to school?

KCM: Well, the Clarks went to Punahou School. I chose not to because I wanted to remain with my friends. So, I finished at Roosevelt, at the English Standard School. But, my brothers went to Punahou.

CSH: What about grade school?

KCM: Well, we started off first at Lunalilo, which was close to our home, then we transferred over to Thomas Jefferson because of the English Standard Schooling. And, 'til the day I die, I will be grateful for it. Because, everytime I applied for college entrance, I would inevitably be called in by the dean, no matter what school I applied for, because my tests were so high in English. They couldn't see how come this kid from Hawai`i could score so high, in literature too. And, I'm very grateful for that.

CSH: Do you have any family stories that have been passed down in your family about Hawaiian kinds of things like hula, crafts, etc.

KCM: Well, my family is very artistic and musical. They can create something from nothing. They have composed songs, they played the piano, the guitar, the *`ukulele*. They are very musical. I am not musical but, I am artistic in that I sew, I design clothes. But, I never did play music. My dad wanted me to focus mostly on school. He was very strict about that.

CSH: Now, I understand your grandfather had some fishing canoes. Do remember hearing anything about that?

KCM: No. He had canoes, but I don't remember much about them. You know, he had twelve children. Very little time for play.

CSH: I'm like to show you this old map that I have of the Kālia area and Waikīkī. It was done in 1881 and it has a lot of the old family names on it.

KCM: You know, my aunt depended upon me very much. I mean, Sargeant and Louie and she chose me to be the spokesperson for them. This is Nadine Kahanamoku. And, I was honored.

CSH: I was wondering if you remembered some of the Hawaiian families who lived in Kālia when you were growing up?

KCM: Yeah. You'll see land there down in Waikīkī and then up by the Royal [Hawaiian Hotel] where my aunt, Ms. Pi'ikoi lived. The Kapule name, we come from that source. They've traced that family all the way back to Kekaulike, the chief in Maui.

CSH: I was wondering if the Kapule family was related to Kanikapule who lived in Waikīkī in the late 1700s?

KCM: Well, the Kapule that they were interested in was a chief. And it is from that line that we get our ancestry. My grandmother Paoa is related to them. She spoke very little of *ali'i* and all that guff. And for many years, she had a genealogy of her family which was put together by her cousin, Edward Lilikalani, who did the genealogy for Kalākaua and Lili'u. He was quite a man in Hawaiian history. We finally got a copy of it and it was quite an eye opener. But, she never told her children that she came from a good line. She hid it. We have the Kapules, the Simersons were there too. The Kapules also own land in the Hobron Lane area. And I think they sold quite a bit of their land for $300. Captain Hobron's first wife was a Paoa. My grandfather, Ho'olae, owned property from Ala Moana Boulevard over to the Ala Wai. See, there were two facets of Paoas. He came from the second Paoa family. From the first Paoa family came Kalaeone. He owned a lot of the land in the Fort DeRussy area. Is he there?

CSH: Yes, his name is right here in the Fort DeRussy area.

KCM: You see, when they condemned that property, they condemned it for a fort. That's how they were allowed to get it. But, it was never used as a fort and for years, I wanted the family to sue because they never used it as a fort. But, I

think, in the long run, they were going to use it for a hotel, which they did. I would say most of the Fort DeRussy was his property and they confiscated it.

But, I suspect, and I'm the only one that says this. The Paoas did not get their land from the *Māhele*. When I went to Tahiti, I went through terrible experiences in that we were going from Raiatea to Teha'a, from one island to the other. And, the shark appeared and followed our boat. My Uncle Malcolm, Clarke's [Bob Paoa], father was with us. And, the Tahitians went nuts. They came and they pulled back, they came and they pulled back. But, when I looked at this island, I felt I'd been there before. I mean, I knew that when we went here there would be a curve and I really honestly felt I had been there before. So, when I came back, I went to see Dr. Emory. And he told me, "Of course you've been there before. Don't you know that the man that brought them from there was Paoa, your ancestor?" And, I just about died. I didn't know. He said, "You've been there. He was the one that brought them from Raiatea to Hawai'i." Well, in those days, Raiatea wasn't known at all. It is now, today. But, we were down there in the Pacific. We had no plan to stop and visit an island and we did. When we got there, they knew we were coming and they asked for Paoa [Pao-a]. It was spooky. But, that's how the Hawaiian and the Polynesian works. So, I feel that the Kālia land there came really through my ancestor who was a navigator. But, you know, nothing is known about anything so today they'll all say the great *Māhele*.

CSH: So, you don't think your family got the land there through their *ali'i* connection?

KCM: Well, it could be. But, the Paoas always played it down. They never made an issue of it. They're very humble. My family never discussed it. They interviewed my grandfather and all he could say was, "I don't know. I lived here all this time, the coconut tree is here, the coconut tree is there." I felt so much *aloha* for him. He was so naive, so trusting. But, I do believe that land came from the navigator, way back.

CSH: Do you know anything about your ancestor, Kalaeone? Was he a fisherman?

KCM: I don't know. I knew that he was a big land owner. And, there was a place where they'd all go and drink – a bar down there on Kalākaua Avenue – Uncle Sargeant and all of them. That property was his property originally.

CSH: Do you remember any other families who lived in Kālia?

KCM: There were the Vidas. The McKinney's. One of the daughters owns Hilo Hatties. A lot of the beachboys – "Tough Bill" lived up there. So many of them that we all knew. Keaweamahi.

CSH: And the Moehonua family?

KCM: No.

CSH: What about Nākōkō?

KCM: Oh yeah, I think that goes into my family. I'm sorry. I could go back further, but this bronchitis rally threw me for a loop. When it hits, it hits.

CSH: Do you have your family genealogy available so I could look at to compare some of the names on this map?

KCM: Not available now. I put away so much and I can't find a lot of it. Well, to my knowledge, just Kapule because that genealogy comes from George Bridges, my grandmother's side – not the Paoa. Very little is know about the Paoa side. It's almost secretive and many, many people have done research. They can't find it.

CSH: When you think back to your childhood and the time when you grew up there, did it seem like a very Hawaiian place to you?

KCM: You know, "Hawaiian" was never part of the language. We just thought of it as such. It was just being together. I can remember when there were times when my mother made something for dinner and I wasn't too keen about it. So, I was *ono* for saimin and I went up to the corner. It would cost me ten cents for a bowl. And, then Kam Look store over by Hobron Lane.

CSH: What do you remember about the area we're researching – the area between Saratoga Road and Lewers Road *ma kai* of Kalākaua? Do you remember what was there before the hotels were built?

KCM: No, but I remember the area very well – the Halekūlani. There were small cottages, wooden cottages.

CSH: What kind of people lived there? Were they Hawaiians or local people?

KCM: They were *Haole* who'd been here many years and who were very protective about Hawai'i. There may have been Hawaiians, but right off-hand, I can't remember. It's so cluttered now – Lewers Street. I'm glad they're going to clear it away.

When we were children, we used to walk from Kālia, all the way past Halekūlani, and Mrs. Young's home was there, and over to Waikīkī where the Outrigger Canoe Club was, and we'd go surfing.

CSH: So, what are some of the surf spots out there?

KCM: Right off-hand, I can't remember. But, if I hear them, I know them. All the well-known spots. First Break and stuff like that.

CSH: Where was the end of Kālia, if you were going toward Diamond Head?

KCM: I would say by Lewers Road.

CSH: When you were growing up, what kinds of things did you do?

KCM: We swam a lot. We went fishing, we caught crabs, we played in the yard. There was a big *hau* tree in the front of the corner yard that we climbed and it became the pirate ship and all of that. It was amazing. We didn't go to summer school. My parents provided for us. We really appreciated nature.

CSH: What kinds of things do you remember your aunties and uncles doing? Like, what did they do during the day?

KCM: Well, when we were growing up, they were home. My mother made *kapa* [quilts]. But, most of them stayed home. In those days, the man provided. But, as we got older, a few of them did go to work. But, in general, they stayed home.

CSH: Who did your mom learn how to make *kapa* from?

KCM: Mrs. Baker. She's well-known today.

CSH: Any relation to the photograper, Ray Jerome Baker?

KCM: No. He was one block above, though. And, we would go and listen to him. Ray Baker had a shop there on Kalākaua Avenue and 'Ena Road. I could just see us now lining up and walking up there, carrying canvas and army blankets – that was before the *tatami* mat was popular. And, we would go and sit and enjoy it. It was quite fascinating. And, you got to learn a lot too about old Hawai'i. But, Lynn Davis said, "It's a shame because you guys were just a block from him and you had the whole family there and they were never photographed.

CSH: I'm surprised he didn't.

KCM: But, I see in my life, everything has turned back to the Hawaiian, to the *kama'āina*. Not only the Hawaiian, but the *kama'āina*. But, boy, that make-over of Waikīkī is something. [Speaking of the Waikīkī Improvement Project and the new Bandstand at Kapi'olani park.]

CSH: What about burials in Waikīkī? Have you ever heard anything about burials being found in our project area?

KCM: No. Well, my feelings are, if they're found, put 'em back. I can't see all this hoop-dee-doo about taking 'em out and where the heck are you going to put 'em? I mean, they were there before everybody else. I know when we found ours, my uncle said, "You're in charge." I was in my twenties. I said, "Put 'em back." The Hawaiian men went nuts.

CSH: What did they want to do with it?

KCM: They wanted to take 'em out and put 'em somewhere else. I said, "Where? When they were buried, this was their land and you people have taken it away from them by condemnation. Put 'em back. Let 'em go."

CSH: So, you're talking about the burial that was found on your family land where you grew up – the Hawaiian Village area?

KCM: Yes. Well, it was actually under the Ala Moana Boulevard and that was part of the Paoa land. And, then my aunt, Mrs. Kahanamoku, had a bible that listed those people who were buried there. It's now at the archives.

CSH: The bible or the list?

KCM: The bible and the list. But, I should just keep my mouth shut. I feel that's where they were buried, let 'em go. You will find that on most *kuleana* you have these burials and they were buried within the property of the family.

CSH: Have you heard anything else about other burials in the Kālia area?

KCM: No, but I'm sure that they're there.

CSH: So, you never heard anything about the area we're talking about today, between Saratoga and Lewers Road?

KCM: No. But, that place there where Café whatchamacallit was where my aunt, Ms. Pi'ikoi lived [Waikīkī Park Hotel]. That was her home there. And, they didn't think she'd live that long. But, she gave them an option that when she died, they could buy it – the Royal Hawaiian. She was a principal and it's a good thing she had foresight. So, she had her huge house there, then she built little cottages in the back and rented them out. She rented them out to *Haole* people.

CSH: What was it like during the war years? How old were you when the war started?

KCM: I'd say twelve or thirteen. No different really than it was during our everyday life. We had to carry the gas mask, we had to be in at a certain hour – curfew. But, we were a different bunch of kids. We were obedient. We listened to our parents. Today, it's horrible.

CSH: Did your family have a garden when you were growing up?

KCM: I always had a garden. All my life. I did it because I liked it.

CSH: Is there anything else you want to say about the Kālia area?

KCM: I loved it. Growing up there was one of the most beautiful times of my life.

CSH: What are your fondest memories of?

KCM: Being together – family. You know, we never used the word "*'ohana*". It was always the "family". We were very close and they always came back on New Year's Eve. Then, on New Year's Day, we always had a *lūʻau* there in the corner yard and gathered there. My Aunty Edna would make the biggest old peach cake that you ever saw.

CSH: Tell me more about your family *lūʻau*. What was it like?

KCM: Well, they gathered most of the fish and raw stuff from the beach. The mean came down in the morning and killed the pig there. I hated it. Scared the hell out of me. Then, they cooked it. It was an all-day affair.

CSH: So, they made their own *imu*?

KCM: Uh-huh

CSH: Did they raise the pig there or did they buy it?

KCM: No, they bought it. At one time though, they did raise it. It was wonderful. But, as I said, there were twelve Paoa children and my aunts and uncles all treated us like their own.

CSH: So, back to your family *lūʻau*, they'd make the *imu*, kill the pig. What other kind of –

KCM: They played music.

CSH: What other kind of food did you have?

KCM: Basically Hawaiian food.

CSH: What about *poi*? Did you folks make your own *poi* for *lūʻau*?

KCM: No. Strictly Hawaiian food. And, then New Year's Eve, we always got up and did something. We ate and shot off fire crackers. It was a beautiful time to grow up – where families were families and church was church. Our family have strong values – very strong values. And, always a vision to live up to. I know when I went away to college, my aunt, Ms. Piʻikoi came to the church with my *leis* and an envelope and she said, "Baby I know I don't have to tell you this, but I'm going to. That when you leave these isles, you represent the family, not only Hawaiʻi. And, don't you forget it." There was a deep respect there and it showed. The family had their own values.

CSH: How often did your family do *lūʻau*?

KCM: Once a year – New Year's Day was the big one. Or one-year old *lūʻau* for children. But, by then, when I was grown up, that was *pau*.

CSH: What about birthdays? Did you do lūʻau for birthdays?

KCM: Yeah, but not big, big ones. But, I do know my typical family – you don't see it anymore – when the boys played in different sports, everybody went. Boy, that old stadium was something. They all went, boy, and participated. And, a game is a wonderful opportunity for backing.

CSH: Did you folks make *leis* when you were growing up? Did you make *leis* for *lūʻau*?

KCM: Yeah, but not to the extent that they do now. Mostly, we made *leis* just to make 'em – plumeria, ginger.

CSH: How long did you actually live in Kālia?

KCM: Most of my young life, until just before the war. Then they knocked the house down when the road [Ala Moana Boulevard] came through. Cook Trust was in charge of the families' properties and they put up three little houses in there. My uncles rented it and lived here.

CSH: Then, you folks moved out from there then?

KCM: Yeah. We had moved out from there and we lived on Punahou Street.

CSH: So, you moved out of there just before the war?

KCM: Yeah, but we kept in touch. We always went back. But, it had changed.

CSH: But, do you still consider Kālia home?

KCM: Oh yeah. We all do.

CSH: What about the Fort DeRussy area? Do you remember the cannons being fired when you were young?

KCM: I'm not sure. I remember the cannons being on the beach in Kālia.

CSH: So, when you were growing up did you spend most of your time in Kālia? Did you go down to the other end of Waikīkī very often?

KCM: Oh, we did. Quite a bit. We went down by the Outrigger, all the time. In fact, as I grew up, I was a member at the Outrigger and I would paddle for them. But, I can also remember going down there and going surfing. I used the Duke's board and it as so damned heavy I had to drag it. But, the beach boys always ran to help me. You know, that damned thing was like a barge – so heavy. The beach boys were first class. I got to know all of them growing up, crawling on their backs.

CSH: Well, I think that about covers what I wanted to ask you. Mahalo for having me over to talk-story with you.

[END OF INTERVIEW]

APPENDIX C: ROBERT PAOA TRANSCRIPT

Project: Outrigger Waikīkī Properties Renovation
Interviewee: Robert "Bob" Pauoa (RP)
Interviewer: Ka'ohulani Mc Guire for Cultural Surveys Hawai'i (CSH)
Place of Interview: Bernice P. Bishop Museum grounds
Date: August 23, 2001

CSH: Bob, can you tell me about yourself – your full birth name, when you were born and a little bit about your family and your connection to Waikīkī?

RP: Okay. My name is Robert Clarke Paoa. My family always called me "Clarke" – my family, friends and, in school, I went by "Clarke". After I started work, I worked for the military, they used my first name, Robert or Bob. I was born in Kālia, October 5, 1937. Our home was on the site of the present 'Ilikai Hotel. I lived there for, not quite three years, and then we moved up to where my father's family lived. That's the present site of the Kobe Steakhouse now. That's where our family home was. We moved there in 1940 and we moved out of there in 1968. So, I think we were some of the last of the old-timers to move out of the area.

CSH: Can you tell me a little bit more about your parents and your grandparents?

RP: My father was Malcolm Paoa. He's the tenth of twelve children. There were six sisters and five brothers. His father was Ho'olae Paoa, also born in Kālia. His mother was Florence Kamaka'ōpiopio Bridges, who spent most of her life in Waikīkī. My mom was Ellen Clarke. She had an older brother and two younger brothers. Her father was Robert Clarke, part-Hawaiian. Her mom was Priscilla Sullivan who was more Irish/English and she had a little bit of Tahitian, we found out. They moved to Kālia, I guess when my mom was quite young. Probably in the very early 1920s or maybe before that. So, she grew up and spent most of her life in Kālia.

CSH: Do you remember any of the Hawaiian families that lived around you, your neighbors?

RP: Oh yeah. I remember a lot of them. Our immediate neighbor was Mary Manohā. I think she was a widow. She had two sons and they lived right next to us.

CSH: Was that at the Kobe Steakhouse location or the other one?

RP: No, that's at the 'Ilikai. Then, there was the Harbottle family who are blood relatives of the Paoas. They lived where part of the Waikikian Hotel was. Then, up the road was the Kahanamokus – also blood relatives of the Paoas. And, then the Paoa family. Most of the older Hawaiian families lived in Hobron Lane. There was the Kauhā family – I think Gabby Pahinui's wife is from there – Hobron Lane. Big family. Emily Kauhā was Gabby's wife. And, she had some brothers. There was the Kalauokalani family (also related to the Hobrons) in Hobron Lane. I think they're all relatives of the Espindas. Mostly *hapa-haole*. And, then up just below Kalākaua was quite a few Hawaiian families. There was this guy they called "Tough Bill" – the Keaweamahi family. I don't know them too much, but I know they lived there. Back between 'Ena Road and Ala Wai was all swampy area. There were some Hawaiian families living there. Not too many. Most of them eventually moved up to Papakōlea – the homesteads. But, by the time I grew up there, I think most of the Hawaiian families were gone, the old-time Hawaiian families. Then, across the 'Ilikai was the Kapule family who are relatives of mine. There was Mrs. Kapule, her husband and she had a daughter Edith Titcomb and a son they nicknamed "Major". They all lived in there. Next to them was a Hawaiian lady, Kahana Williams. I remember her. And, then of course, there were a lot of Japanese and mixed, part-Hawaiian, some *haole* families, all in that area.

CSH: When you say just below Kalākaua, what do you mean by that? What can you relate it to today that I'm familiar with?

RP: Oh, everything's gone over there now.

CSH: In the Fort DeRussy area?

RP: Oh no. This is the corner of 'Ena Road and Kalākaua, on the 'Ewa side. Back in there. In there was all Japanese Camp and there were Hawaiians in there. There was also on 'Ena Road and Kalākaua corner, on the Diamond Head corner, was Ray Jerome Baker's studio, the photographer. And, just below him was a Hawaiian lady, Helen Dudoit. She had a big green house. There's a lane there named after her or her family, Dudoit Lane.

You know, after WWII, the place changed rapidly. So, some of these, I'm picking my brain – the late 1930s or early 1940s. Just before the war and during the war, there was a big influx of defense workers. They [the military] brought a lot of defense workers from the mainland who moved here. There were a lot of cottages back there on the 'Ena estate. They moved in there. And, of course, when the war ended, they all left, most of them. So, there was a big turn-over there. By the mid 1950s, Henry Kaiser bought the place and leveled the whole thing.

CSH: So, when you talk about the cottages, were those cottages built for the defense workers or were they there already?

RP: No. They were there already. That was part of the ʻEna estate. Where the Hawaiian Village is, where part of the [Hilton] Hawaiian Village is now, there were three roads that ran through there. Gee, I don't remember how many homes were in there. There were a lot of them. Dozens and dozens. With local families and, then you had defense workers, you had quite a turn-over.

CSH: Can I show you an old map I have of Waikīkī? It's a 1881 Hawaiian Government Survey map done by S. E. Bishop.

RP: Sure.

CSH: This has the LCAs [Land Commission Awards] on it with the family names.

RP: I remember Keaweamahi. Keaweamahis – that's the area I was talking about. This is ʻEna Road, this is Kalākaua. In here, Keaweamahis and all of them [indicates location on map]. I met a Keaweamahi once in Hilo and she said they were related to Moehonua. You have his name here [on the map].

But, the ʻEna estate I'm talking about is here [indicates where on map]. There were three roads in here. Three narrow lanes came down there, Nano Way, Luhi Way and Kau Way. That's where all the homes were located.

And, then this is *Māhele* land that my great-grandfather got [LCA #1775, I].

CSH: You said that ʻEna Road is over here?

RP: Yeah, this is ʻEna Road. And, then they had Hobron Lane. Gee, this [map] is too old. Hobron came in here and it hit Beach Road – now, they named it Ala Moana [Boulevard].

CSH: The Beach Road was the old coastal trail?

RP: Yeah. It came from town, Honolulu.

CSH: Can you show me how the Beach Road connected to the rest of Waikīkī?

RP: It's right here [shows me on map]. You see that there? It came from Ala Moana Park up here and at this corner, it connected with ʻEna. No, I'm sorry. ʻEna went here and Kālia went here – Kālia Road.

CSH: Do you remember how the Beach Road went past Saratoga Road into the rest of Waikīkī?

RP: No, I don't remember that. That's way before my time. But, you know, my uncle told me that area there [pointing to map showing Outrigger hotel locations between Saratoga Road and Lewers Street] was home to many, many Hawaiians. They all had little cottages there. He used to go to Waikīkī School where the Kaʻiulani Hotel is. He walked through here. He said had all neat little cottages. A lot of them made leis, *ʻōkoleʻoiʻoi* (marigold) and all of that. All in there had Hawaiian families. He doesn't know what happened but they all got pushed out. I also know that over here,
we had family here – the Piʻikoi's, David Piʻikoi. They had two daughters, I remember them both. One was Mrs. Harbottle and one was Miss Piʻikoi. And there was Kanae in there. They're related to Piʻikoi.

CSH: In here [pointing to map]?

RP: Yeah. All in that area. Now, Piʻikoi sold out to Sheraton or Matson or whoever. Yeah, this area had a lot of Hawaiians, you know.

CSH: When you talked about making *lei*, what other kinds of materials or flowers did they use?

RP: I don't know.

CSH: Do you know if they made them to sell to tourists?

RP: Could be. I don't know. Or they just sold the flowers, maybe. I don't know.

CSH: But, they grew their own flowers in their yards?

RP: Yeah. And, then a lot of these people here, the men folk were fishermen. You know, Waikīkī is known for *līpoa – limu, limu līpoa*. And, then down here, where the [Piʻinaio] stream emptied, there was lots of *limu ʻeleʻele. ʻEleʻele* grows where the water is brackish. Lots of crabs – *ʻalamihi*. Kālia is famous for *ʻalamihi* crabs. Lots of *kala* out here – the fish. So, they fished a lot. My grandfather fished a lot.

CSH: What other kinds of fish did they catch?

RP: Oh, mullet, reef fish – *manini* and all of that.

CSH: Piʻinaio is the name of the stream?

RP: Yes, Piʻinaio Stream. Now, my dad and my uncle said, "Oh, there was a lot of *ʻoʻopu* in there" – fresh water fish. They'd also get shrimp *ʻōpae*. That was a

source of food. And, there were lots of mudhens, the *ʻalae* – a lot of that, the *ʻauku`u* – the heron. And, then the Chinese, they used a lot of these ponds and also raised ducks. You know, after the depopulation and, I guess, the Hawaiians died off, the Chinese kinda moved in there and took over a lot of the ponds. [Mr. Paoa was not aware of any Hawaiian cultural use of the various birds.]

CSH: I know they grew rice in the ponds, too.

RP: Yeah, rice and taro. The big cultural thing I remember before the war was they made *kapa* [Hawaiian quilts]. My mom had a lot more *haole*, but she loved *kapa*. So, this Mary Manohā and this Mrs. Mary Kapule were kind of her tutors. They'd sit with the women and they'd make *kapa*, they'd spend hours on the floor cutting and stitching. You see, at that time, most of the women that did that were elderly. And my mother was relatively young. She said, no, she wanted to learn how and make it while she's young. So, she did. I have one, my sister has one, my brother has one, my dad has one and she had quite a few.

CSH: So, those quilts must be 60 or 70 years old!

RP: Yeah, heirlooms. But, after the war, that ended it. No more *kapa*.

CSH: Can you tell me a little bit about your childhood and what it was like growing up and what kind of things you folks did, where you went to play, etc?

RP: Well, we played right in the neighborhood. The beach wasn't far away. We could go swimming. Of course, the water fronting the lagoon was muddy, dirty. So, we used to go over to where Niumalu Hotel was, where the Hawaiian Village beach is now. The water there was a little cleaner. We swam. What you gotta understand is, this was during the war. Gee, I was four when the war started. By the time it ended, I was eight. For the most part, my early childhood was just spent around the house because there was a war and the beaches were off-limits. So, everybody stayed right in that immediate area. It's hard for our younger people to imagine, but we never had baseballs and bats and footballs and that. Even in school, everything went to the military. There were no Christmas trees, no Halloween stuff, nothing – because of the war. But, I didn't know anything else, so I didn't miss these things. Now, the kids older than me, I'm sure they missed all of that. But, I didn't. It was just the way life was. So, what did we play with? Well, if we found a rope, you'd make a lasso. Maybe somebody had a tennis ball. I remember, the girls – my cousins, they liked to play jacks. They'd find a golf ball or any kind of beat up ball and then they'd go get stones for the jacks. We just made do with what we had. And, my mom would make bean bags for them. You couldn't buy any of those things. No toys. We liked to collect spools, thread spools, or bigger spools. We'd put a rubber band in there with

a match stick on each side, wind it up and let it go. We'd make cars or whatever. Sometimes we'd make kites, but you'd have to get tissue paper – if you could find tissue paper, and some light bamboo or something to make the kite. We liked to play baseball, so we'd get a 2 x 4, and use a hatchet to round off one end. And, if somebody had a tennis ball, that was our baseball. We didn't have gloves. We didn't start getting these things to play with until maybe 1947. It took a year or two after the war for the industry to gear up so you could get these things. So, we'd play hide-and-seek or tag or cowboys and Indians with wooden guns, whatever. Oh, we played marbles. Everybody had marbles – just the regular kid games.

CSH: As kids, did you folks help the family gather *limu* or fish or anything like that?

RP: Well, like I said, during the war, the beaches were off-limits. So, we lost a lot, I think, there. In many ways, the war contributed to the loss of cultural practice because we were not allowed to use the beaches. As a result, I never really learned how to fish. And by the time the war was over, I never cared to learn.

When I started school (1st grade) in 1943, I carried my gas mask everyday. Everyone carried one. We had a bomb shelter in our yard. I attended Thomas Jefferson and our campus had bomb shelters all over it.

CSH: When the war was over, how old were you?

RP: I was just about eight.

CSH: And, by that time, you think a lot of the Hawaiian families were gone already?

RP: The ones that I remember, the older ones were passing on fast. A lot of them were moving away from the area.

CSH: So, do you think they started moving away when the defense workers started coming in or after the war?

RP: Probably after the war. Because, it was hard to get homes during the war. So, most of them hung on there and they gradually moved out.

CSH: And, you think a lot of them moved to Papakōlea?

RP: Well, the Hawaiians. A lot of the Hawaiians moved to Papakōlea. I don't know where else because there were no big subdivisions then. And, then this whole area got developed.

CSH: What do you mean by "the whole area"? Where the fish ponds are?

RP: Yep. Well, these fish ponds here, that's part of Fort DeRussy. I can't remember when they started Fort DeRussy – maybe in the early 1900s. But, what the Federal Government did, they condemned all this land and then they just paid all these people what they thought it was worth. And, then they filled in everything and built a fort. And, they had a nice beach there – Fort DeRussy did. They had a raft, they had a slide and everything. But, local kids couldn't go there. It was off-limits. In fact, they had a barbed-wire fence to keep everybody out of the area and off the beach. It was exclusively for the military. And, that never opened up until maybe, the 1950s.

You know, they dug the Ala Wai in the late 1920s and then they cut off all these streams here. So, all of this was gone when I was growing up. None of these streams were here.

CSH: So, the three main streams were Pi'inaio, 'Āpuakēhau and Kukaunahi.

RP: Yeah. They were gone. And, all the ponds were gone. The only place that had marsh was *ma uka* of Kapi'olani where KGMB's radio station is – Pagoda. That was a huge pond. I remember during the war and after the war, the Chinese had ducks there – thousands of ducks! And, over on one side, there was a Chinese man that raised taro. And, he still had a water buffalo there. But, I think by 1950, that place just changed radically. They filled it all in and where the Ala Moana Shopping Center is, there was still some water there – marsh. And, about the same time, they filled that in. So, all this was filled in.

CSH: When you say the Chinese used to raise ducks, what did they do with the ducks?

RP: They sold the eggs and they sold the ducks. I think they took 'em down the market to Mauna Kea Street, China Town.

CSH: This fish pond here [Loko Ka'ohai] goes into our project area. This is Saratoga Road and this is Lewers Street [pointing to map].

RP: You know, my father's cousin, who was way older than my dad, told me that this place was called Kawehewehe. And, apparently there was a spring here with ponds and she mentioned something that she heard – I don't know if they did it when she was young – but, they went to this water for spiritual cleansing and, maybe, physical cleansing, too.

CSH: Do you remember anything else she said about it?

RP: No. She just said that there were Hawaiians who went there and bathed in that water for spiritual cleansing. [Though not positive, Mr. Paoa thinks this cultural practice did not occur after 1900.]

CSH: Is your feeling that the spring was in the ocean?

RP: I don't think so.

CSH: What is your feeling about it?

RP: She said it was up where Saratoga Road is – somewhere in there [pointing to map] – that thing came down. It probably started here and flowed down to the ocean. I don't really know the specifics about it.

CSH: Do you recall any other stories about the area? Maybe stories about *'uhane* or night marchers or anything like that?

RP: No.

CSH: What about burials?

RP: Well, you know, in 1951, they widened Ala Moana Boulevard into four lanes. And, they condemned over half of this Paoa property here [pointing to map]. And, when they came in and started digging, in front of our house, they dug up some bones – human bones. But, someone from the City or the State came and said, "Well, they're old." You know, it was obvious they were very old. And, they kind of didn't know what to do. So, I think my dad said, "Just put 'em back. Dig down and put 'em back in our property." Nobody made a big thing of it.

You see, my great-grandfather's name was Paoa. And, this Kalaeone [LCA 1758,3] was his brother. So, you know, there's blood ties in here. But, it's kinda hard. My grandfather, Ho'olae, his sister was Mrs. Kahanamoku – Duke's mother. And, the other sister was Lu'ukin. She married Pi'ikoi and from them come the Harbottles, the Isaac Harbottle family.

CSH: Do you recognize any other names on this 1881 map that you can tell me about?

RP: Of course, this Kana'ina is Lunalilo's father. Kekuana'oa is the father of Kamehameha IV and V. So, it's obvious that they had a lot of land holdings here. Moehonua was a colonel or major on Kalākaua's staff. Keaweamahi family lived up here. But, I think they were landless by the time I remember them. I think they were renting a place.

CSH: What about any of these LCA names down here along the beach, right in front of the project area or the Fort DeRussy area?

RP: You know, this Nākōkō might be some kind of relative to my grandfather. I'm not sure. I remember "Nāko`oko`o". See, this is also Paoa land here [pointing to map]. This, I think my grandfather sold it much later. Because I think the Ala Wai kind of came and chopped some of it off. I'm looking for a name – Kawaihāpai. Supposedly they had land here, but just where, I don't know. There's dozens of names here. See how they got little pieces -- now you see Kalaeone way up here and Wailehua up there and they're down here. You know what I think it was, they had ag lands up there, maybe taro or whatever, and down here was where they fished or lived. See, there's Pahau up there. My grandmother's sister married a Pahau and I think that's family. They were big landowners downtown and lost it all. I don't know how.

CSH: How did your family, the Paoas, come by their land in Waikīkī?

RP: This was from the *Māhele* – 1848.

CSH: Did they have ties to *ali`i*?

RP: Well, they never said it. They would never claim that. I don't know. But, there are people who said, "Yes, there's a tie." I still have to find that. Because when I do genealogy and I get to my great grandfather Paoa, I hit a dead end. I don't know anything. There's nothing beyond that.

CSH: You only know him as Paoa? Or is there a longer name?

RP: Just that name. And, he couldn't read or write so when he signed for this land, he signed with an "X".

CSH: So, you've looked at the *Māhele* records for Paoa?

RP: No. I think I got copies from somebody. But, in that record, it said something about Paoa inheriting the land from his mother and they mentioned that the mother had a tie to Kīna`u, the Premier. Then, somebody wrote a chant for Duke Kahanamoku and in it they go down and they mention Konia, Pauahi's mother. But, it's vague. Now, Duke was born at Bernice Pauahi's home, Haleakalā, downtown. I understand Duke's father and mother worked there, which kind of tells you, you know – Hawaiian, everybody that worked for the *ali`i* was a blood relative. And, that's where he was born. Of course, Bernice Pauahi had already died. So, if there's a tie, I don't know how. And, then Duke's sister was named Bernice Pauahi.

CSH: Who would be the oldest Kahanamoku still alive today?

RP: They all died. In my generation, there's Joanne Sterling in Kona and there's Barbara – she married a beachboy. She lives in Waikīkī, I think, somewhere. I just saw her about a year ago. She's about five or six years older than me. But, I don't know that she lived in Kālia very much.

CSH: Can you tell me anything more about the Kawehewehe area where our project is located? Do you have any idea where the boundaries for Kawehewehe are?

RP: No. Because the way the story was told, they said, "Oh, it's by Saratoga Road." Just general. [Talking about the spring mentioned earlier.]

CSH: What about food? How much of it was store-bought and how much of it did you guys grow or get from the ocean?

RP: Well, from what my mother said, we used to eat a lot of *poi*. But, when the war broke out, they rationed *poi* and you had to stand in line. It was easier to buy rice, so we switched over and became rice eaters. And, like I said, during the war you couldn't fish, you couldn't get *limu*. So, everything was store-bought. Of course, good meat was a treat. When the war broke out, they encouraged people to make gardens. So, we had a big vegetable garden. And, then my father built a big chicken coop. We bought chicks. We had chickens for eggs and we ate the chickens. Yeah, they encouraged people to do that. Even in the schools. When I was in elementary school, several hours a week, our whole class would – our school had a huge garden. We'd go and dig weeds and water and all that.

CSH: What kinds of vegetables did you grow?

RP: Oh, we had lettuce, carrots, tomatoes, beets. More fast-growing stuff. That also supplied the cafeterias. 'Cuz, you know, I was thinking about it. It was so bad that we never even have milk in school. They had this condensed milk. They watered it down and put a strawberry flavor. That's what we drank and a graham cracker. And, we had no fresh fruits. We had all dried apples and apricots and peaches. When I think about it, we were deprived. [Laughs.]

CSH: Did you eat a lot of cannned goods?

RP: I imagine we did. They'd doctor it up. Corned beef and onions, sardines, pork and beans, canned salmon, tuna. But, that's all I knew so it didn't bother me.

CSH: What about plants? What kinds of plants and trees do you remember growing in people's yards?

RP: Well, we had coconut, *laua'e*, hibiscus. You know, that area is sandy so you can't have exotic plants. Like gingers and that didn't do well at all. Too sandy. I remember in our yard, you know how kids like to dig. We'd dig and, at that young

age, I could dig and I could hit water -- couple feet, eighteen inches, two feet -- you'd hit water. And, it was brackish. So, you really couldn't grow too many different kinds of plants.

CSH: So, after the war, the Hawaiians started moving out. What do you remember about the period after the war and the early 1950s?

RP: Well, Ala Moana was upgraded to a major highway. And, then they built Kapi'olani Drive-in across the street from us. And, all of that, they put up apartment buildings -- lots of apartment buildings. Not really hotels. Niumalu was the hotel there, where Hawaiian Village is. That was all cottages, though. Then it seemed like Kaiser made a bid and bought the 'Ena estate and the Niumalu Hotel. And some of the Paoa lands, he leased.

CSH: What did Kaiser do with the land?

RP: First, he leased it. So, my two uncles and my aunty and their families moved out [in 1954]. That left us. Then, Duke Kahanamoku had already rented out his place [in 1942] to people. See, my grandfather had sold some of this off to family and then it passed into other hands. Down here, was the Waikikian Hotel which they leased out to this guy, Daily, who built the Waikikian Hotel. And, all over here became apartments and hotels real fast. And, then up between Kalākaua and the Ala Wai became all apartments.

CSH: That was in the 1950s when you were growing up there?

RP: Yeah.

CSH: Do you remember anything about the project area *ma kai* of Kalākaua between Saratoga and Lewers?

RP: Well, I remember going to school. I went to Jefferson. We'd catch the bus here and the bus would turn and go up Ala Moana and go right on Kālia and go all the way to Lewers. The bus went up Lewers to Ala Wai and then over to where Waikikī fire station is and it did a loop there. That's where the school was. I remember catching the bus and I think it was the Edgewater Hotel -- it was one of the first here. I kinda remember them building that hotel. Traffic was restricted through Fort DeRussy during WWII so everyone had to use

Kalākaua Avenue. Toward the end of the war, DeRussy was reopened to traffic.

CSH: Do you remember what was there before that?

RP: Cottages. They had all cottages. They had coconut trees, *laua'e*, nice little residences.

CSH: I don't know if you remember hearing anything about when they blasted the reef to put in the two cannons at Fort DeRussy? [Looking at aerial photo of Fort Derussy coastline.]

RP: Oh, that's before my time. My uncle told me about it. He said they blasted the reef and they brought these cannons in by barge and they mounted them near the beach.

And, where Magic Island is now, that channel didn't come out there. You had to go all the way to Kewalo Basin to get out of the reef. So, all the yachts came in at Kewalo Basin and they swung over and went Diamond Head to get to the Ala Wai Yacht Harbor. That was the only entrance and exit. And, in the late 1950s, they dug the channel out where Magic Island is.

And, then Fort DeRussy, all these cottages here were all for officers. They all had beach cottages. And, here, you can see they had a deck, a slide, a diving board and they had a raft here. You could swim out to the raft. But, in the late 1940s, early part of the 1950s, this was restricted to military families.

CSH: This is another aerial view of Waikīkī, showing our project area. [Looking at 1938 photograph showing project area.]

RP: This is Niumalu Hotel.

CSH: Oh, the point.

RP: And the channel -- you see, you had to come in Kewalo and the yachts had to come all the way down here to anchor in here or go up the Ala Wai. Now, they dug a channel out here. But, they couldn't do that before. And, then what they did was, they ruined the beach here -- between the old Kaiser Hospital and the 'Ilikai. They dumped coral here. All coral. And, then all of that coral that got ground up became mud and it smelled.

CSH: What time period are you talking about? When did they dump the coral there?

RP: After they dug the Ala Wai. About 1927 or 1928.

CSH: In the 1920s.

RP: Yeah.

CSH: Do you know what this is here? It looks like maybe a track or something.

RP: Let's see, what is this? 1938? It's probably something the army put there. This is all DeRussy. This is Kālia Road and this is Kalākaua Avenue. This is Ala Moana coming here. When it hit here, it split. You couldn't go to Kalākaua on Ala Moana, now. You had to go left on 'Ena or right on Kālia and then get back on Kalākaua. Ala Moana was just a narrow two-lane road. This is where the Pi'inaio Stream ran. They filled that in with coral. Niumalu had a pier going out that they called Pier Point. And, before they dug the channel here, this pier went way out. There was a big sandy area where people would go out on the pier and they could swim.

CSH: It went further out than in that [referring to photo]?

RP: Oh, yeah. It went three or four times this. And, then when they dug the channel, they cut the pier off.. So, this is where we went swimming. We'd go down there and you could dive in the deep water and go swimming. Well, all that depended. Sometimes, Niumalu Hotel would barricade it. That was their pier and you couldn't use it. Although it was Government land, they barred us from using it. There were a lot of restrictions then.

CSH: Was that because of the war?

RP: No. Even after the war. They wanted it strictly for their hotel guests.

Here's something I remember. Here's a flag pole in the picture. A real tall one. Everyday at five 'o clock, they'd play the bugle and they'd fire a gun and they'd bring the flag down. That's five 'o clock. So, for all the kids here, five 'o clock was time to get home 'cuz you going eat dinner. It's not like now -- you eat when you want. So, as soon as the kids heard that or they looked and the flag wasn't flying, they'd bee-line home because you'd better be home! [*Laughs.*]

Also, during the war, there was curfew. I think at seven 'o clock, everybody was off the streets. You couldn't drive and there was black-out. Our house, my dad had to go and black out all the windows because you couldn't have any lights showing from the house. So, what did you do? When you think about it, there were two radio stations – KGU and KGMB. There was no television. What did you do? But, we didn't feel left out or anything.

CSH: Well, you probably went to sleep early.

RP: Yeah. And, they had radio programs that we liked to listen to. They had some cowboy stuff and the "Green Hornet" and "The Shadow". We listened to all of that. Usually, by eight 'o clock, we went to bed. And, then the adults would stay up. They'd play cards or do something like that. But, when you think about it, I think people today would just go crazy not knowing what to do.

CSH: What did your parents do for jobs?

RP: My dad worked at Pearl Harbor so, fortunately, he had a good job during the war. My mom was like most moms. They were mothers and housewives. They didn't work. They stayed at home and took care of the kids and the house. Most women did. I think the only women that really had jobs were nurses, secretaries, clerks. Now, women can be anything they want.

CSH: This is another photo. The caption says, "Description of Diamond Head from Waikīkī Annex Pond". Do you know where the Annex Pond was? Have you ever heard of the Annex Pond?

RP: No. You see, my grandfather, my father's father, had one or two fishing canoes. And, he had nets and he had the squid lures. He had everything you needed for fishing. My father said his mom used to go squidding, too. She was good at it. But, during those days, they never had glass box. They'd take a piece of dry coconut. They'd chew it and then they'd spit it on the water. And, the oil from the coconut kinda helped them see what was below. That's how she did her squidding. My grandfather worked for the immigration station down on Ala Moana. I guess he was a "handy Andy" or janitor or something. But, on week-ends, he'd go fishing because he had twelve kids. And, my uncles and all of them said he made some fantastic catches of fish.

CSH: Do you remember hearing what kind of fish?

RP: Well, you're talking about a lot – was usually *kala*, off Waikīkī. But, he never sold any fish. He didn't believe in selling fish. So, what he brought ashore, he'd just lay it out. And, all the people in that area there, they'd come and take just what they need. He never sold.

CSH: Do you remember hearing where he kept his canoes?

RP: That's part of the lagoon now, the Hilton Lagoon. That was open before but, they closed it in. He kept his canoes there, his nets.

CSH: What about *lūʻau*?

RP: You know, I only remember one *lūʻau*. It was about 1945 or so. It was my father's older sister. I think it was for her, probably her 50th birthday or so, and they made a *lūʻau* over there. They killed the pig, prepped it, dug the *imu* and they had a big *lūʻau*. It was all family. And, then after that, I remember they made *laulau*, one time. And, lots of times, before, when they made *laulau*, instead of putting 'em in the barrel and steaming 'em, they put 'em in the *imu* 'cuz it was easier. You just put 'em in there, let 'em cook and take 'em out. But, after the war, there were only a couple of *lūʻau* and then that stopped. But, I think when my dad was growing up, *lūʻau* was pretty common. I think every New Years they had a *lūʻau* and cook the pig for the family.

CSH: Did you folks raise pigs at all?

RP: No. By that time, you couldn't. Chickens, you could have, dogs, cats. But, I think pigs were out. But, I also remember during the war and that, quite a few people still had horses. And, they'd have 'em tied. Across the street from us, there was a guy who had a horse. And, where I went to school at Jefferson, all up in there people had horses tied.

CSH: Do you mean they used the horses as transportation or more for pleasure?

RP: No. I think it was more pleasure by then.

CSH: What about horse racing?

RP: No. They had the race track at Kapiʻolani Park. I remember asking my mother how come they don't have races. She said, "Oh, it's against the law now. You can't have horse races."

CSH: What about healing or *lāʻau lapaʻau* or *kahuna*-type things? Who did you guys go see when you got sick?

RP: Western doctor.

CSH: No one in your family did any kind of *lāʻau*?

RP: No. I think a lot of the Hawaiians here were very westernized already. My grandparents spoke Hawaiian, but none of the kids did. When they went to school, they were discouraged.

CSH: So, your grandparents spoke Hawaiian, but your parents didn't speak Hawaiian by that time?

RP: No. That was a "no-no". You know, I had six aunties and none of them danced the *hula*.

CSH: Not at all?

RP: No.

CSH: They weren't allowed to dance *hula* or they never learned?

RP: They never learned maybe. I don't know if they were never allowed to. You see, my grandmother, my father's mom, was orphaned at a young age. And, then she attended Kawaihaʻo Seminary like a lot of other Hawaiian girls. And, that instilled something into them in some way. Although I'm sure she was Hawaiian in many ways, there were certain things that she didn't do.

There was a lady in Kapahulu, they referred to her as "Kimokeo". She had another name. I can't remember it. She lived on Lakimau Sreet. She did that – the healing. Because, my father's older sister told me, one time she dropped something and smashed her toe bad. So, one of my uncles or some family member took her to see this lady and she healed it in very short order.

CSH: So, do you think she went to Kapahulu because there was no one in Kālia your family knew about?

RP: Yeah, probably not. This same lady, I read she also tended to Francis Brown. He was in a horrible automobile accident. They got that same lady to treat him. I think she was renowned throughout Waikīkī. Kimokeo. She had another name, you know.

CSH: Did your family make their own fishnets? Your grandfather?

RP: I'm sure he did. But, it's funny. The story I heard was that he had a good friend. I forgot his name, but he was a Hawaiian guy. When my grandfather died, this guy took all the nets, all the fishing gear, put them in the canoe, filled the canoe with kerosene and burned everything. Gone! And, some people condemned the guy for doing it. I'm prone to think that he did it with my grandfather's approval or telling him to do it. Why? Well, you know, if this was something special to a Hawaiian fisherman who revered his equipment and took care of it and everything – and, probably he saw changes coming and he figured, you know, my sons are not going to take care of this, times are changing, they gotta move on – so better to just let it go. You know, Hawaiians did things with a purpose. Maybe that was the reason, maybe not. I don't know. It's kinda interesting.

CSH: What kind of stories do you remember being passed down through the family about growing up in Kālia or about Kālia and Waikīkī in general?

RP: Well, they all attended Waikīkī School which is where the Princess Ka'iulani Hotel is. Near the present site of Ka'iulani Hotel was a church and cemetery, as well as Waikīkī School – long before my time. And, there was also a branch of Kawaiaha'o Church there and a cemetery. So, initially, my great-grandparents were all buried there. And, then I think the land was sold and they exhumed all the graves and they moved 'em to Kawaiaha'o Cemetery. And, gradually, the school was moved out to Kapahulu. Then, my dad and the younger ones all went to Ka'ahumanu School.

You see, when I grew up, we had two school systems here. We had a English Standard school system and like a district school. To get into a English Standard school, you had to pass an oral test or you wouldn't get in. Normally, most of the kids in our district would go to Lunalilo and then to Washington and then to McKinley. We started Jefferson – Thomas Jefferson [School] as it was known. What they did was they started schools mostly for the *haole* kids who couldn't afford private school, Punahou and others. So, you had elementary schools like Kapālama, which people say was made for the Shafter kids, and you had Lincoln, Jefferson and maybe one or two others. Those schools fed into Stevenson and then to Roosevelt Highschool. So, my older brother got into Jefferson and a lot of the other kids here got into Jefferson. From Jefferson to Stevenson to Roosevelt Highschool. And, then by the late 1950s, it was unconstitutional, huh? They did away with it. But, I went to English Standard all my life. So, most of the teachers at the English Standard schools were a lot of mainland *haole* teachers, and a lot of part-Hawaiian and Portuguese teachers. Not too many orientals.

CSH: But, no one spoke Hawaiian in school?

RP: No. In fact, my father had a cousin. See, what they did, because they could foresee a shortage of teachers, they formed that "Normal School" and they had to qualify to teach school. I don't think they had any kind of certificate or anything. But, my father had a cousin that went there – Hawaiian. I remember her saying that when she went to teach at school, they were warned time and again, "Don't use Hawaiian words!" You'd get fired! None of that. It seems odd yeah? Because all the other races had their language schools. But, somehow, they zeroed in on Hawaiians.

CSH: What do you remember about the 1960s? You left in 1968 so by the 1950s most of the Hawaiians were going out or were gone and the

defense people moved out after the war. What happened to all those cottages?

RP: Well, when Kaiser bought the place, he demolished the whole area. There must have been 70 or 80 cottages in there. It's just a wild guess.

CSH: In the 'Ena estate?

RP: Yeah. He demolished them and they began building for the hotel. So, that was a drastic change. All our friends and everybody left. And, we were kind of like isolated there. Families gone, friends are gone and it became hotels. Then, our home in the early 1960s, there were termites. Oh, boy the termites were raising heck there. So, under the zoning law, you couldn't replace a single family dwelling. It was zoned hotel or business. So, that excluded – you could repair but you couldn't rebuild. So, my parents were forced to build a small apartment building – six units. The bottom floor was two-bedrooms. My sister had one and then my mom and dad & I had one. We lived in that apartment complex from 1963 to 1968. By then, my moms nerves were worn to a frazzle because of the noise and commotion. She said, "We gotta get out of here." They were getting on in age, so they leased the place to Budget and they bought a home up Pearl City. I think we were the last on that block.

CSH: Were the Kahanamokus gone by then?

RP: Gone. Gone way before us. Then, in Hobron Lane, you still had a few – the Kapule family – a few of them, a few Chinese and Kalauokalani, maybe, and gradually they moved out. It became all business and hotels. So drastic, drastic changes. People ask me, "Don't you want to go back to Waikīkī?" What for? Unless I have a wedding reception or something, I don't go. The ties are all broken.

CSH: How do you feel about all the changes in Waikīkī now, when you see it?

RP: It's kind of sad. But, what can you do? Although, I think Hawaiian Village is making an effort to do something about perpetuating some of that.

You know, when you think about it, are there that many Hawaiians left today? Really, I mean, with 50% or more blood. I don't have 50%. And, they become more Westernized.

CSH: Do you have any advice or *mana'o* about the Outrigger renovations about how to make it more Hawaiian?

RP: Well, I don't think they can do it, though. They gotta ease back on the traffic. The traffic is horrendous through there. Parking is a problem. That's one

reason why I don't go there. By the time you find a parking space, you're ready to go home. Fortunately, I'm retired from the National Guard so I get to park in the Halekoa at a big discount. Sometime, my wife and I, we park there and we go walk through Waikīkī, have lunch and walk back. But, not everyone can do that.

CSH: I have a question about the beach in front of the Outrigger Reef Hotel and the Halekūlani. Did it used to be wider?

RP: I don't remember it as a very wide beach because you have the wall there in front of the Halekūlani.

CSH: The wall was there before you were born?

RP: Yes, it was there before I was born. So, people go just a little beyond to Grey's beach. It's a sand beach just beyond Halekūlani where the sand is still there because the wall doesn't extend that far down. If you notice, where there's no wall, you have beach.

CSH: I think by the time you were born, the beach had already started changing. They said when they blasted the reef, that changed everything. They said the beach on that end used to be much wider.

RP: I know my father's sisters, my aunties and them, if they wanted *limu*, they'd go off the Halekūlani. You know how Hawaiian ladies get *limu*, yeah? They wear these big *mu'umu'u* – they're kind of modest, yeah – and they sort of half-float with their big bag of *limu* and they talk story. It's *limu* gathering and gossip at the same time.

CSH: So, in front of Halekūlani, they would get *limu* –

RP: I don't know if they got *manauea*, but they got *līpoa*. I kind of forget. But, *līpoa* is that strong-smelling one. No *kohu*. You need rough water for that.

CSH: What about surfing spots? Did you guys surf?

RP: I surfed a little. You know, we had bounds as far as where we could or couldn't go. So, we never went beyond DeRussy. But, outside there, outside of Hawaiian Village, well not now, there was a pretty good surfing area. Very few people could afford a surfboard. And, there were no light weight boards. There were no balsa boards or foam boards. You had these big planks. You try and lug one down to the beach. Man, that was a job! So, not much surfing.

CSH: Do you remember any Hawaiian names of surf spots in Waikīkī that maybe we don't use today?

RP: No. But, yeah, they're substituting all the Hawaiian names with – I call 'em "ritzy names". Instead of 'Ewa, they call 'em "Soda Creek" and "Pearl Highlands". I guess they're good to help sell land. But, the Hawaiian name – Pearl Ridge – they don't call it Waimalu or Kalauao anymore. And, a lot of these names are being lost. Fortunately, we still use Kālia. You know, it's funny. We were quite proud to say we came from Kālia. People would say, "You from Waikīkī?" "No. We're from Kālia." You made the distinction. Now, people say, Kālia? Where's Kālia? And, you just say, "Waikīkī". And, I think they used to use the names, the sub-names, a little more –like Helumoa, Kawehewehe and places like that. My father's cousin said that Niumalu, before that, they went in there and planted all these coconut trees, and they called it "Kaniuhou", the new coconut. And, when the trees got matured, they called it "Niumalu".

CSH: On this map, Niumalu is –

RP: Niumalu is where "Green" is [Grant 2869]. And, then Kaiser bought that and then he encompassed his hold here. And, what is this "Umi"? [Referring to name on the 1881 map.]

CSH: It's the name of an awardee from LCA claim #2033.

RP: Oh. These people all got bought out or pushed out or whatever.

CSH: Do any of these names sound familiar?

RP: No. Ena was part-Hawaiian, you know. Ena was a director or some whip with the inter-island steamship company. Chinese, he was part-Chinese. And, some people pronounce his name Ena [short "e-sound" rather than a long "e-sound"]. They think it's Hawaiian. It's a corruption of Ina or Ing or something of that nature.

CSH: So, the actual name is not Hawaiian?

RP: No, it was Chinese. And, that's why it's still pronounced Ena [long "e-sound"], John Ena. And, when he died, he had a daughter, Mabel Ena. She was the heir. She owned that. She became old and senile and, whatever trust company was handling the estate, decided that they should sell it to Henry Kaiser. See,

my mom and them talk about this area as a big amusement park here. Aloha Park, which burned down I think.

CSH: Where the ponds are?

RP: Yeah. I guess they spent a lot of time there. There was like a dance hall, rides and stuff. When I came along, that was all empty lots. And, right here on the corner here, [Can you put location on map?] there was a little hot-dog place called "Swanky Franky". It was a concrete building shaped like a mushroom. And, up the road there were Japanese stores. Maybe three Japanese stores, a barber shop and later came an Okazu place. And, down here by Ala Moana was a Chinese store – Kam Look. It was a real mom-and-pop thing. All basic goods, bread, matches, soap, can goods, no fresh meats, a few vegetables and stuff. And, when I was growing up, they still had the old gas pump – you pumped by hand. It's a big glass case on the top and it's all graduated by gallons. So, when you got there it was empty. If you wanted five gallons, you pumped until the gas came up to five gallons and it would gravity-flow into your gas tank. And, they sold kerosene. A lot of people still had kerosene stoves. In the back, I remember they had chickens, ducks, geese and stuff.

CSH: Where did you guys do your grocery shopping?

RP: My mom would go there to Kam Look's. And, then up on King Street – King and Sheridan – was a Chinese supermarket of its time, K. T. Kwai. She'd go there for fresh meats and stuff like that. Sometimes, she'd go to Metropolitan Meat Market. Metropolitan, I remember, was downtown. They had all fresh meats.

CSH: Wasn't that far for you guys to go?

RP: Yeah, that was far. There was Piggley Wiggley. They had one up Beretania and one up Nu'unnu, Kaimukī. Waikīkī and Kūhiō had a Piggley Wiggley. That's where you did your shopping. During the war, the Japanese stores up on 'Ena Road began carrying fresh meats and stuff, so my mom would go there. Then, when I went to intermediate school, Stevenson, I'd walk up from here to Kalākaua and catch the trolley buses, the electric buses. I'd catch the bus to where Thomas Square is, get off and then we'd have to walk up to Stevenson. Stevenson was up on one of those streets up by Lusitana. And, then later, they moved over to across of Roosevelt Highschool.

I have many fond memories of my childhood days in Kālia, precious and memorable. There were lots of extended family and friends. We thought nothing of walking to Waikīkī Theater to see a movie (ca. 1950) or Pawa'a Theater or to the zoo. We would use the bus fare to buy candy or some other treat.

CSH: Well, *mahalo* for sharing your memories of growing up in Kālia with me. I loved hearing about your experiences. Thank-you very much.

[END OF INTERVIEW]

APPENDIX D: BETTY DYER SORENSEN ACCOUNT

Mrs. Betty Dyer Sorensen is the author of *Born and Raised in Waikiki* which includes memories of her childhood in the 1920s and 1930s in her family's home on Beach Walk. Passages from Mrs. Sorensen's book that are relevant to the project area are cited in "Section II" of this study.

Mrs. Sorensen was contacted by Cultural Surveys Hawai'i for additional recollections pertinent to traditional Hawaiian cultural practices in the project area. The following questions were sent to Mrs. Sorensen, who was away from Hawai'i at the time of this study's preparation:

> In your book you mentioned a "large swampy area known as the duck ponds" across the street from your house. Was this on the *ma uka* side of Kalākaua Avenue or across Saratoga Road within the Ft. DeRussy grounds? Were there any people making use of these ponds for duck farming or agriculture at that time? Or had the ponds been abandoned by then? Was there any farming at all happening in Waikīkī at that time and, if so, were any Hawaiian people involved?
>
> Do you recall any Hawaiian individuals or families living within the Beach Walk, Lewers Road and Saratoga Road area during the 1920s and 1930s? If there were, do you recall any plants or flowers growing in their yards and do you recall if there were any family *lū'au* happening in the area then?
>
> Were there any areas of Waikīkī where you recall Hawaiian families were living in the 1920s and 1930s?
>
> Did you hear of any Hawaiian legends or traditions related to the area of Waikīkī in which you lived?
>
> Do you recall any ocean activities in the area – like surfing, canoeing, fishing, seaweed gathering? Were there any Hawaiian people involved in these activities?
>
> As you may know, a major cultural concern in the news these days is the ongoing discovery of Hawaiian burials in the Waikīkī area. Did you hear of any inadvertent discoveries of burials in your area of Waikīkī when you were growing up?
>
> Do you have any other recollections of your area of Waikīkī that might help us understand Hawaiian cultural practices in the 1920s and 1930s?

Mrs. Sorensen prepared the following written account on September 11, 2001. The account is presented in full – all ellipses (. . .) are Mrs. Sorensen's. [Note: The account was transcribed exactly as Mrs. Sorensen sent it; therefore, abbreviated words were not spelled out in full and Hawaiian diacritical marks were not inserted.]

> Under the circumstances with today being the day the demons left hell and invaded the earth [the bombing of the World Trade Center in New York] . . . I will struggle to remind myself that writing to you about old time Waikiki is NORMAL. . . As you know from reading Born and Raised in Waikiki I was born in 1922 . . . and we lived in a nice two story house on Beach Walk . . . right where it joins Kalakaua . . . I have mined my memory and can not recall any Hawaiians living in the immediate area . . . i.e. Lewers Rd., Kalia Rd., Saratoga Rd. and Beach Walk . . . when I was little in the 20's, the area was mostly small cottages and duplexes . . . my own mother in 1926 built a 3 unit apt house on Saratoga Rd . . . Fronting the ocean were several large houses on very large pieces of land . . . the Wilder family lived in one where the Sheraton Hotel is now . . . there were two distinct cottage courts fronting the ocean . . . I used to walk to the beach by trespassing through them. The Halekulani Hotel has been where it is today ever since I can remember . . . altho it didn't look like it looks now . . . back then it was low rise and it included some cottages on the Diamond Head side of the main building. To the best of my recollection there were no Hawaiians living anywhere in the neighborhood. The Hawaiians I was aware of lived more down in the area near St. Augustine church. There were also people referred to as "squatters" who lived along the Ala Moana Rd . . . this was before Roosevelt built the Ala Moana Beach Park in the 30's and before the Ala Moana Shopping Center was built . . . There were always squatters living in the area . . . lots of cars parked around and a makeshift dwelling . . . I can not say if they were Hawaiians or not.
>
> One definite memory is of the Hawaiian ladies going into the ocean in front of the Halekulani Hotel and harvesting limu . . . they wore long sleeved and long skirted cotton gowns which completely covered their arms and bodies . . . the gowns were usually black or white . . . I don't think I recall the Hawaiian women wearing bathing suits . . . they held a white cloth bag in their hands and they came at low tide and seemed to have all the time in the world to harvest the limu. The little kids played in the water nearby . . . naked, of course. It was a very happy scene. As you probably know if you have tried to get on the sand in front of the hotels, there is only one way unless you dare to walk thru the lobbies of the hotel . . . YOU WALK DOWN THE CONCRETE WALKWAY WHICH IS LABELED "right of way to the beach" . . . this right of way has been there for as long as I can remember. Literally hundreds of thousands of beach goers have walked that walk. If I try, I can hear the feet shuffling on the sandy walkway. It is located on Kalia Road next to the Halekulani on the town side.

APPENDIX B

Archaeological Assessment Study: Waikīkī Beach Walk Project, Redevelopment of Outrigger Enterprises, Inc. Properties in the Lewers-Kālia Area

PHRI, Inc.

September 2001

Archaeological Assessment Study

Waikiki Beach Walk Project

Redevelopment of Outrigger Enterprises, Inc. Properties in the Lewers-Kalia Area

Land of Waikiki, Honolulu (Kona) District Island of O'ahu

Technical Report for Environmental Impact Study

PHRI

Paul H. Rosendahl, Ph.D., Inc.
Archaeological • Historical • Cultural Resource Management Studies & Services

Report 2173-090101

Archaeological Assessment Study

Waikiki Beach Walk Project

Redevelopment of Outrigger Enterprises, Inc. Properties in the Lewers-Kalia Area

Land of Waikiki, Honolulu (Kona) District Island of O'ahu (TMK:2-6-002, 003, 004)

Technical Report for Environmental Impact Study

BY

PHRI (Paul H. Rosendahl, Ph.D., Inc.)

WITH

Pacific Legacy, Inc.

PREPARED FOR

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SEPTEMBER 2001

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SUMMARY

At the request of Group 70 International, and on behalf of their client, Outrigger Enterprises, Inc. , Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted an archaeological assessment study for the Waikiki Beach Walk Project, which is located in the Land of Waikiki, Honolulu (Kona) District, on the Island of O'ahu Hawai'i (TMK:2-6-002, 003, 004). This assessment study was done in connection with the preparation of a *Chapter 343 (Haw.Rev.Stat.)* Environmental Impact Statement (EIS) being prepared by Group 70 for the redevelopment of Outrigger Enterprises, Inc. properties located in Waikiki in the area of Lewers Street and Kālia Road *(Figure 2)*. The basic objective of this study was to provide information appropriate to and sufficient for (a) preparation of the EIS, and (b) general compliance with historic preservation regulatory review requirements of the Hawai'i State Historic Preservation Division (SHPD) and the Department of Land Utilization-City and County of Honolulu (DLU). Overall, this study has been prepared in general accordance with the guidance and standards provided by the current historic preservation regulatory review draft rules of the Department of Land and Natural Resources-State Historic Preservation Division.

The level of archaeological investigation generally conducted in conjunction with the preparation of an EIS is that referred to as an inventory survey. The basic purpose of an inventory survey is to identify all sites and features of potential archaeological significance present within a specified project area. Implicit within the scope of an inventory survey is the exploration for previously unidentified subsurface cultural remains–habitation deposits with portable artifacts and midden materials, and features such as firepits, hearths, ovens, postholes, pavements, trash pits, and graves–by means of hand and/or machine dug test excavations. Given the existing, fully developed condition of the proposed redevelopment project area, the conduct of generally appropriate test excavations would be impractical, if not difficult or impossible. Instead, it is proposed that monitoring of demolition work, in concert with concurrent test excavations, would be conducted once redevelopment work is underway, and that any necessary or appropriate mitigation work would be conducted as part of a pre-construction program of data recovery excavations.

Based on the findings of the historical documentary research, several inferences, or predictions, can be made regarding the nature and distribution of potentially significant archaeological and historical resources that might possibly be present in the project area. These inferences are tentative, and subject to the qualification that any such resources that might have once been present may have been subsequently disturbed, substantially destroyed, and/or removed by construction activities undertaken in the course of the extensive commercial and residential development that occurred within and adjacent to the current project area during the last 50 years.

Historic maps and previous archaeological investigations indicate that several fishponds were once present within and immediately adjacent to the current project area. Human burial and cultural deposits related to both precontact and historic period occupations have been recovered both to the east and west of the current project area. Thus it is likely that the coastal portion of the current project area may contain human burials as well as other potentially significant cultural deposits.

While earlier construction of buildings that contain basements or underground facilities such as parking garages more than likely displaced or destroyed any cultural remains that may have once been present, intact cultural remains, such as occupation features and deposits, as well as burials, possibly could have survived and be present beneath any buildings that do not have basements or other extensive subsurface elements. Archaeological testing should take place beneath these buildings in conjunction with demolition to determine if intact cultural remains were present. If intact cultural remains were identified, it is likely that mitigation in the form of data recovery excavations would be appropriate and/or required. If human remains were identified, a burial treatment plan would need to be prepared to address any other remains that may be encountered. At a minimum, all ground altering activities in the current project area should be archaeologically monitored.

Based on the findings of the historical documentary and archaeological background research, the predictive model for the nature and distribution of potentially significant archaeological and historical resources that might possibly be present in the project area, consultations with SHPD staff archaeologists, and familiarity with current regulatory review requirements as contained in the draft SHPD administrative rules, an adequate and appropriate scope of work and specific tasks for subsurface inventory survey and related activities during demolition work has been proposed for the subsurface inventory survey and related activities to be conducted during demolition work for the Waikiki Beach Walk Project.

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INTRODUCTION

At the request of Group 70 International, and on behalf of their client, Outrigger Enterprises, Inc., Paul H. Rosendahl, Ph.D., Inc. (PHRI) conducted an archaeological assessment study for the Waikiki Beach Walk Project, which is located in the Land of Waikiki, Honolulu (Kona) District, on the Island of O'ahu Hawai'i (TMK:2-6-002, 003, 004) (*Figure 1*). This assessment study was done in connection with the preparation of a *Chapter 343 (Haw.Rev.Stat.)* Environmental Impact Statement (EIS) being prepared by Group 70 for the redevelopment of Outrigger Enterprises, Inc. properties located in Waikiki in the area of Lewers Street and Kālia Road *(Figure 2)*. The basic objective of this study was to provide information appropriate to and sufficient for (a) preparation of the EIS, and (b) general compliance with historic preservation regulatory review requirements of the Hawai'i State Historic Preservation Division (SHPD) and the Department of Land Utilization-City and County of Honolulu (DLU). Overall, this study has been prepared in general accordance with the guidance and standards provided by the current historic preservation regulatory review draft rules of the Department of Land and Natural Resources–State Historic Preservation Division (DLNR 2001).

SCOPE OF WORK

Archaeological work conducted in Waikiki over the last several decades in connection with various development projects has demonstrated the unexpected presence of substantial archaeological or cultural remains that have survived in spite of extensive earlier construction and other land modification activities. The basic purpose of the assessment study would be to predict, on the basis of existing archaeological and historical documentary literatures, (a) the probable presence or absence of potentially significant archaeological or historical resources that might be present within the redevelopment project area, (b) how any such resources might be impacted by the proposed project, and (c) what measures might be appropriate or required to mitigate any adverse impacts of the proposed development upon significant archaeological or historical resources.

The level of archaeological investigation generally conducted in conjunction with the preparation of an EIS is that referred to as an inventory survey. The basic purpose of an inventory survey is to identify all sites and features of potential archaeological significance present within a specified project area. An inventory survey generally comprises the initial level of archaeological investigation, and is conducted to determine the presence or absence of archaeological resources. It indicates the general nature and variety of archaeological remains present, and the general distribution and density of such remains. Finally, it permits a general significance assessment of the archaeological resources, and facilitates formulation of realistic recommendations and estimates for any subsequent mitigation work–such as preservation, data recovery excavations, or construction monitoring–that might be necessary or appropriate.

The specific objectives of an inventory survey are four-fold: (a) to identify all potentially significant archaeological remains present within the project area; (b) to collect information sufficient to evaluate and document the potential significance of all identified remains; (c) to evaluate the potential impacts of any proposed development upon any identified significant remains; and (d) to recommend appropriate measures that would mitigate any adverse impacts upon identified significant remains. Implicit within the scope of an inventory survey is the exploration for previously unidentified subsurface cultural remains–habitation deposits with portable artifacts and midden materials, and features such as firepits, hearths, ovens, postholes, pavements, trash pits, and graves–by means of hand and/or machine dug test excavations. Given the existing, fully developed condition of the proposed redevelopment project area, the conduct of generally appropriate test excavations would be impractical, if not difficult or impossible. Instead, it is proposed that monitoring of demolition work, in concert with concurrent test excavations, would be conducted once redevelopment work is underway, and that any necessary or appropriate data recovery work would be conducted as part of mitigation work would be conducted as part of a pre-construction program of data recovery exceavations. This strategy, of course would need the approval of SHPD and DLU.

Based on a review of readily available background literature, our familiarity with both the general project area and the current regulatory review requirements of pertinent State and County review authorities, consultations with Dr. Sara L. Collins–SHPD Staff Archaeologist for Oahu and with Dr. Holly McEldowney–SHPD Culture and History Specialist, and discussion of project specifications and

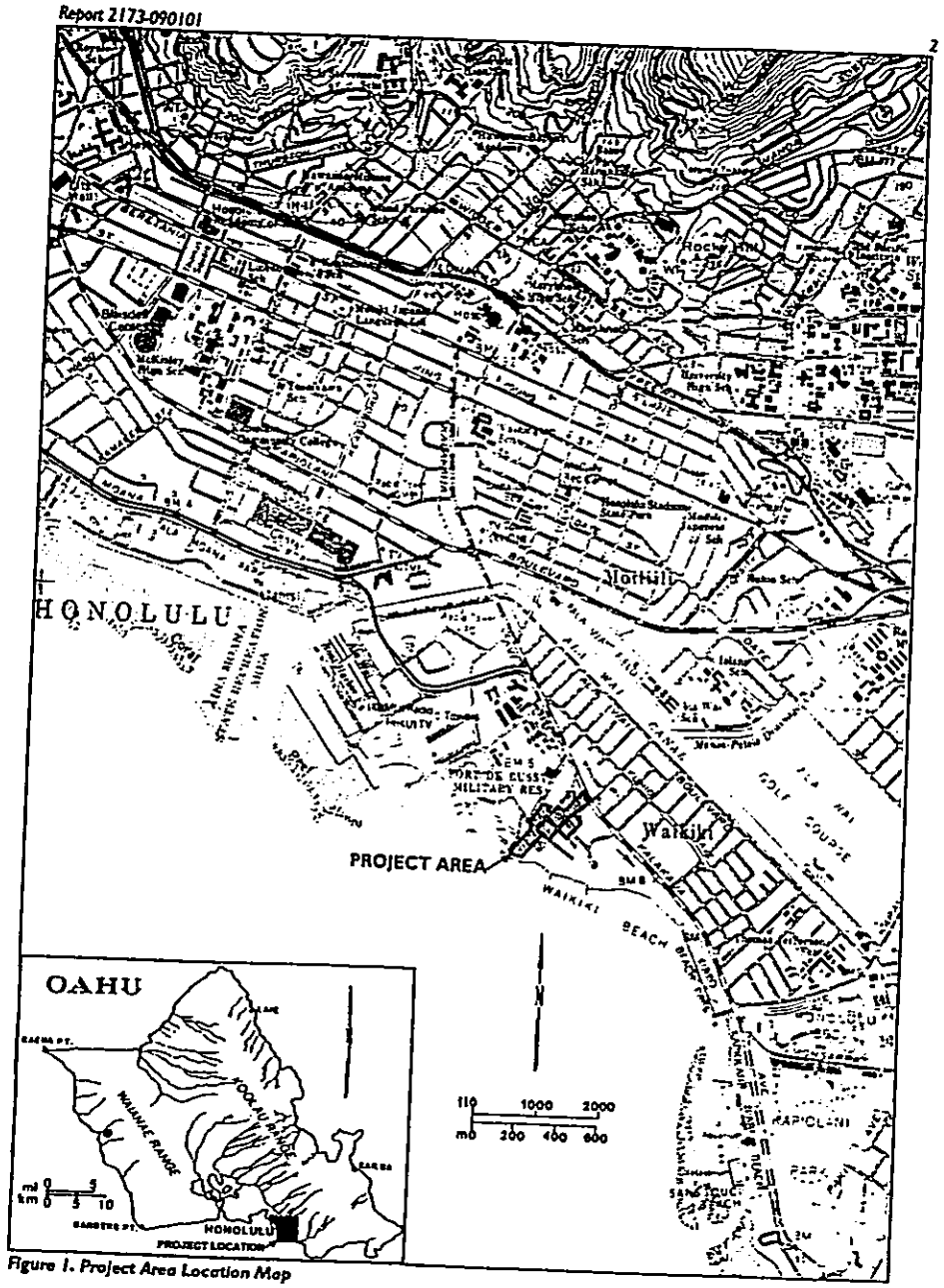

Figure 1. Project Area Location Map

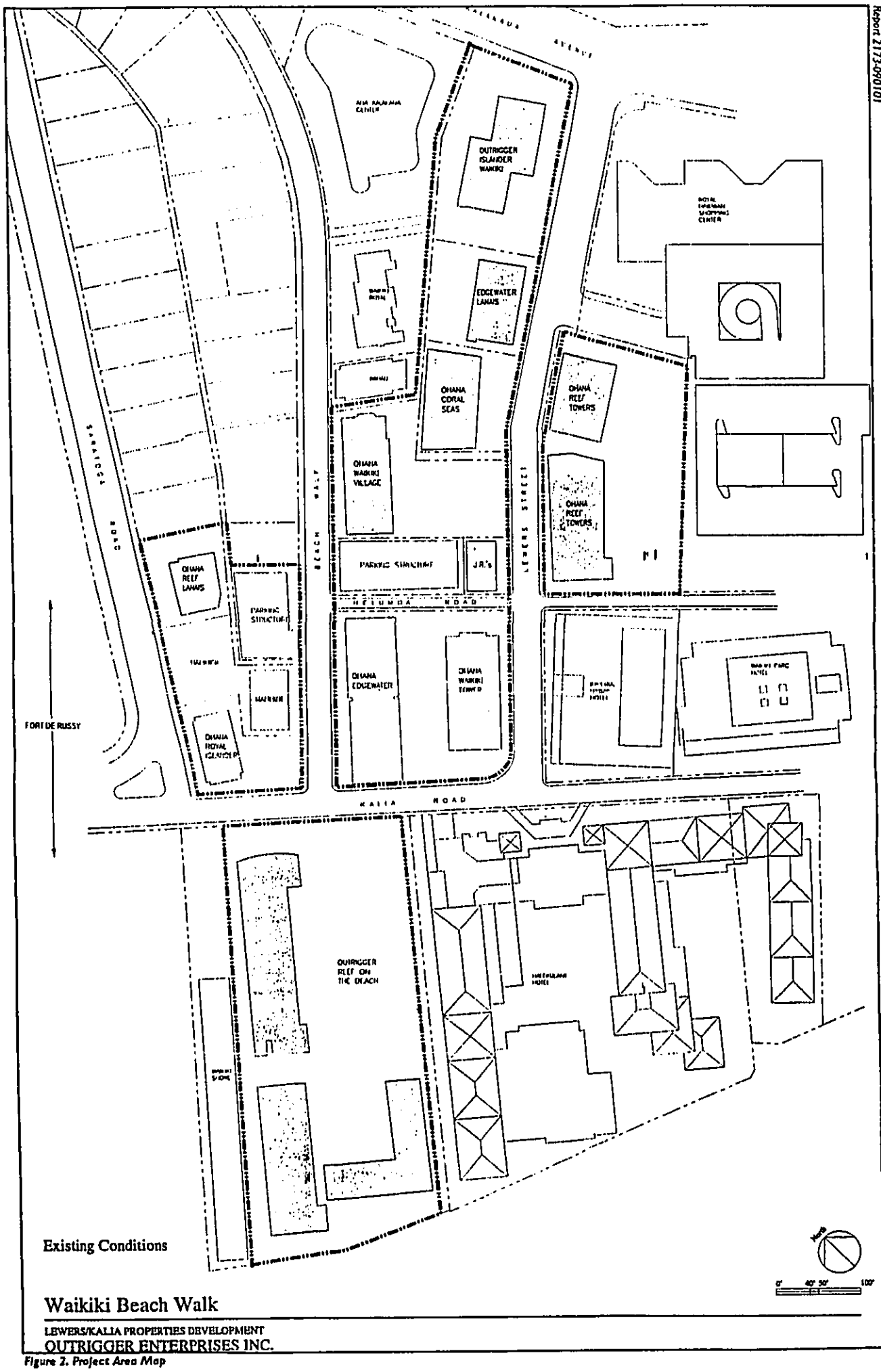

Figure 2. Project Area Map

requirements with Mr. Overton of Group 70, the following specific tasks were determined to constitute an adequate and appropriate scope of work for the archaeological assessment study:

1. Develop a scope of work that would meet with the approval of SHPD;
2. Conduct background review and research of existing archaeological and historical documentary literature on the redevelopment project area and its immediate vicinity;
3. Analyze and synthesize data from background review and research, and prepare a predictive model for the nature and distribution of any archaeological or historical resources that might likely be present within the project area;
4. Prepare an appropriate written final report that would summarize all background review and research, data analysis and synthesis, and the predictive model. The final report would also include a detailed scope of work for any appropriate further work to be carried out during demolition within the project area; and
5. Coordinate and consult with client, client representatives, and regulatory agency staff as appropriate and/or necessary.

PROJECT AREA

The approximately 7.9 acre redevelopment project area consists of 22 TMK parcels within TMK:2-6-002, 003, 004, and includes Outrigger Enterprises, Inc. properties *makai* of Kalākaua Avenue and along Lewers Street, Kālia Road, Beach Walk, and Saratoga Road *(Figures 1 and 2)*. The project area is about 1-2 meters above mean sea level, and extends from the shoreline to about 455 meters (1500 ft) inland. The project area has been essentially fully developed for many years, and the ground surface–for all intents and purposes–has been entirely modified. The terrain in the project area is flat, and portions lacking structural improvements are mostly asphalt or concrete pavement and fill. Vegetation consists primarily of maintained ornamentals. The average minimum temperature in the project area is 63 degrees F, and the annual maximum temperature is 88 degrees F (Armstrong 1983). Rainfall in the project area averages 20 inches per year (Armstrong 1983).

PROJECT DESCRIPTION

As indicated previously, Outrigger Enterprises, Inc. proposes to undertake a substantial redevelopment project to revitalize its commercial properties in Waikīkī in the fully developed area of Lewers Street and Kālia Road. The existing hotels and other facilities within the redevelopment project area were constructed between 1953 and 1980; several are becoming obsolete, while others have increasing maintenance and repair costs associated with aging structures. Furthermore, the hotels and other facilities, as well as the existing urban environment in the area, are inadequate to meet current visitor market expectations and demands.

The proposed two-phase redevelopment project would upgrade five existing hotels, demolish six older hotels, and redevelop the available areas with new facilities, including an entertainment complex, a hotel, enhanced public spaces, and both on-site and off-site parking. In terms of implementation, Phase I of the proposed two-phase redevelopment project would involve the properties between Lewers Street and Beach Walk, while Phase II would involve the remaining properties–including those bound by Beach Walk, Kālia Road, and Saratoga Road *(see Figure 2)*.

HISTORICAL DOCUMENTARY RESEARCH

Historical documentary research and the review of previous archaeological work for the project area was prepared for PHRI by Pacific Legacy, Inc. of Honolulu (*Appendix A*), and is summarized below.

Historical Background

The *ahupua'a* of Waikīkī has a long and colorful past, and was once the favored locale for the ruling chiefs of O'ahu. This may have begun as early as the fourteenth century, when the *ali'i nui Mailikukahi*

transferred the seat of government to Waikīkī (Handy and Handy 1972:480). It remained the seat of government until Kamehameha briefly transferred the government, after unifying the islands, to Kailua-Kona on the Island of Hawai'i. Much of early Waikīkī, through the time of the *ali'i* Mailikukahi in the 14th century, was a plantation of irrigated agricultural fields covered in taro and fishponds. This area extended as far inland as Makiki, Mānoa, and Pālolo valleys. At the time of European contact, Waikīkī was one of the richest and most densely populated areas on O'ahu (Davis 1989:8).

Beginning after western contact, after AD 1778, the increasing arrivals of Europeans and Americans greatly increased development and construction in Waikīkī. This led to the disappearance of agricultural lands and the numerous fishponds that once dotted the landscape. Not long after, ordered by city ordinance, the remaining fishponds were filled in. In 1921 the Waikīkī Reclamation Project began, and between 1921–29, the Dillingham Construction Company dredged the entire length of the Ala Wai Canal. The dredged material was used to fill a large portion of Waikīkī, mainly the many ponds and terraces. The filling allowed the land to be used by the United States military (for the construction of Fort DeRussy), and by others for commercial and residential development and use (Nakamura 1979). It is uncertain if any of the dredged fill from the Ala Wai was used in the current project area.

Land Commission Awards

A review of the currently available information indicated that four Land Commission Awards (LCA) were awarded within the current project area *(see Appendix A, Figure 4)*. Descriptions of the LCA were obtained from the Native Register, Native Testimony, and Foreign Testimony on file at the Hawai'i State Archives, and summaries of each are contained in *Appendix A*. The four award parcels were LCA 104 FL (Fort Lands), to Mataio Kekuanaoa; LCA 1408, to Kaua; LCA 1436, to Kalaipaopao; and LCA 1513, to Wailehua. With the exception of LCA 104–which was situated in the northern portion of the current project area and incorporated the two ponds *(loko)* named Loko Kaohai and Loko Halemauuoia, the remaining three LCA were situated *makai* of the present Kālia Road *(see Appendix A, Figures 4 and 7)*.

Historic Period Development

The current project area has seen much change over a relatively short period of time. At European contact, the area of Waikīkī was under intense agricultural and aquacultural use, with the northern portion of the project area containing and irrigated pondfields *(lo'i)* and fishponds *(loko i'a)*. The native Hawaiians that worked the ponds likely had houses in the same area closer to the shoreline to the south. They took advantage of the dunes of Waikīkī to bury their dead, and the ocean fronting Waikīkī supported many people with its productive reefs used for collecting and readily available deepwater fishing.

With Western influence, the fishponds and irrigated *lo'i* were eventually abandoned, and the once highly productive Waikīkī became an eyesore and a health hazard. The *Mahele* (land division of 1848) brought about a change in land ownership and different approaches to land use. With the dredging and subsequent filling of the many ponds–including those on the north side of the current project area, a large amount of land became available for commercial and residential use. Bishop's 1881 map (*Appendix A, Figure 4)* shows four structures located between the track that would become Kālia Road and the ocean, and two other structure *mauka* of the same track.

The increase in development within the current project area between 1914 and 1927 *(see Appendix A, Figures 5 and 6)* coincided with the changing landscape throughout Waikīkī. Prior to 1914, very little development had occurred within and immediately adjacent to the current project area. Less than 20 structures were present between Kālia Road and Kalākaua Avenue, and most of them were single-story wooden dwellings. The area south of Kālia Road and west of the existing Halekūlani Hotel was not recorded on the Sanborn Fire Insurance maps for the period *(see Appendix A, Figures 5 and 6)*, suggesting that for at least that portion of the current project area most likely there were no structures on the property prior to 1914.

By 1927 it is apparent that the current project area had become nearly completely developed and few of the original structures that appeared on the 1914 Sanborn map were still present. The area between Kālia Road and Kalākaua Avenue was nearly completely covered with structures, most of which were single-story wooden structures with several two and three-story buildings scattered throughout the area. The most evident change was between Kālia Road and the ocean, where two apartment developments had been constructed: In a relatively short time period, Waikīkī had been transformed from a productive agricultural complex to a developed urban area.

PREVIOUS ARCHAEOLOGICAL WORK

Most archaeological investigations undertaken in the Waikīkī area have occurred during the last 20 years. However, archaeological reports associated with the Waikīkī *ahupua'a* extend back a century ago, when human remains were first discovered in 1901 in the vicinity of the current Elks Club, near Kapi'olani Park when, during improvement excavations on the James B. Castle property, the skeletal remains of four adults were uncovered along with whale teeth and glass beads (Emerson 1902:19). Given the extensive archaeological literature associated with such a large *ahupua'a* as Waikīkī, the following will provide only a summary of the archaeology of Waikīkī and focus on the immediate area surrounding the current project area. (See *Appendix A* for a more detailed review.)

In 1930, J. Gilbert McAllister conducted an island-wide survey of O'ahu (McAllister 1933). He reported a total of four *heiau* (or temple) sites within the vicinity of Waikīkī, the largest of which was Papaenaena (Site 58), located at the base of Diamond Head in the area of present Hawaii School for Girls at La Pietra. This *luakini heiau* was used for human sacrifice and was reportedly associated with Kamehameha I. Kenneth P. Emory of the Bishop Museum attempted to identify the *heiau* foundation in 1968 when the La Pietra property was being developed, but results were inconclusive (Davis 1989:20).

While excavating for the Hale Koa Hotel at Fort DeRussy to the west of the current project area in 1976, Bishop Museum recovered five human burials (Kimble 1976). The remains were reported to be prehistoric or early historic bundle burials (Site 50-80-14-9500). A sixth human burial was also recovered from immediately below the road and was believed to be of later interment.

In 1980, Earl Neller conducted emergency excavations at the Hilton Hawaiian Village Tapa Tower site (Neller 1980). The remains of three individuals were recovered along with nearby trash pits (Site 50-80-14-2870). Due to ongoing construction activity, Neller was unfortunately unable to conduct any controlled excavations at the site; however, using historic documents, Neller was able reconstruct the historic shoreline and determined that the burials were likely interred after 1850.

In 1981, Neller conducted an archaeological reconnaissance and emergency recovery at the site of the then new Halekūlani Hotel (Site 50-80-14-9957), located immediately to the east of the current project area, along the coastline (Neller 1981). The State Historic Preservation Office had been notified that human remains were unearthed during construction. Neller investigated the site and determined that there were four distinct individual burials, three located to the northwest of the project site and one located along the shoreline on the east side. There were also a number of bottles and historic trash pits that also had been disturbed during construction. Although he could not locate any undisturbed remains (they having all been disturbed prior to notification), Neller was able to make several determinations regarding the remains and their context. First, he determined that the burials were likely native Hawaiian, and likely interred in the 1800s. Second, the historic artifacts recovered from the site also dated from the late 1800s and early 1900s. Although there was a lack of intact archaeological deposits, the available evidence points to a historic site located along this portion of Waikīkī, and Neller recommended archaeological investigations, including monitoring, be conducted at the property.

In 1984, Bishop Museum conducted archaeological and historical investigations at the Halekūlani Hotel (Davis 1984). Bert Davis excavated a series of test pits and trenches in an attempt to isolate intact cultural deposits. While most of the area has been heavily impacted by recent construction, an area along the beach and an isolated area in the center of the property remained relatively intact. Excavations uncovered 32 features, including human skeletal remains, a dog burial, postholes, trash pits, privies, and several unidentified pits. Most of the trash pits contained historic bottles, ceramics, and metal. Davis concluded that while the area had been heavily disturbed by the recent construction, significant cultural materials that dated to the late 1800s had remained intact.

Between 1985 and 1987, Paul H. Rosendahl, Inc. (PHRI) conducted archaeological monitoring of construction excavations associated with the Mechanical Loop Project at the Hilton Hawaiian Village (Hurlbett et al. 1992). The project identified 15 features-most from the northeast end of the project area near Kālia Road-associated with historic use of the area, and 3,819 artifacts consisting of household (glassware and tableware) and architectural (nails, glass, etc.) items. Based on the artifact assemblage, the majority of the items recovered dated between 1870 and 1930.

Extensive archaeological work has been conducted in the area of Kālia Road and the Fort DeRussy property. Beginning in 1989, a series of test excavations, data recovery and monitoring projects were undertaken for the area. In July of 1989, PHRI (Rosendahl 1989) conducted a limited subsurface inventory

survey for a proposed *lū'au* facility located at the Hale Koa Hotel. Test excavations identified a buried cultural layer and associated historic artifacts in the area of the proposed *lū'au* facility. Based on the disturbance of the cultural layer and the lack of midden remains, Rosendahl concluded that the area had been disturbed and the historic artifacts were in a secondary context. As a result, archaeological monitoring of construction activities was recommended.

Between February and April of 1989, Bert Davis conducted a subsurface reconnaissance survey and historical research at Fort DeRussy (Davis 1989). Archaeological testing attempted to confirm archival data suggesting that the area contained evidence of buried fishponds and *'auwai* (irrigation ditches) and associated habitation remains. The testing confirmed the presence of intact subsurface cultural deposits with individual features (*'auwai* and fishpond walls), as well as historic deposits. The historic land filling episodes that occurred at Fort DeRussy had filled in the ponds and *'auwai*, but had not destroyed them. Furthermore, historic deposits located along the beachfront contained glass and ceramics that dated from the 19th century.

In April and June 1992, BioSystems Analysis, Inc., conducted archaeological data recovery excavations in connection with the construction of new recreational facilities at Fort DeRussy (Simmons et al. 1995). Excavations in an area that was previously identified as containing buried fishpond and habitation deposits by Davis (1989), uncovered information regarding the construction and structure of the fishponds and the *'auwai* system that fed the ponds. Also identified were a habitation deposit that indicated continual use of the area.

Between January and September 1993, BioSystems Analysis, Inc. conducted archaeological monitoring during Phase I activities for the Kālia Road Realignment, which was associated with the construction of a new tower for the Hale Koa Hotel (Carlson et al. 1995). The monitoring uncovered the remains of Loko Paweo, a fishpond (Site 50-80-14-4574), and two other sites (4570 and 4966) containing historic trash pits, features, an occupation layer and numerous human remains (Carlson et al 1994) including several sets located directly in front of the U.S. Army Museum.

In 1996, Pacific Legacy, Inc. conducted an archaeological inventory survey with subsurface testing at the site of the proposed Kalākaua Plaza, situated on the *mauka* side of Kalākaua Avenue, directly across from Fort DeRussy. Archival research indicated the probability of encountering fishpond deposits or other cultural resources associated with the intensive cultivation in Waikīkī (Cleghorn 1996). No cultural deposits were identified, and the area was determined to be extremely wet or marshy and "not conducive for traditional economic practices" (Cleghorn 1996: 15).

In 1999, Cultural Surveys Hawaii (Hammatt and McDermott 1999) recovered the remains of two human burials (Site 50-80-14-5744-1 and 2) found along Kalākaua Avenue, near 'Ena Road. The remains were uncovered between 1.2 and 1.5 m below surface within a beige sand matrix during the placement of anti-crime lighting in Waikīkī.

In 2000, Cultural Surveys Hawaii, (LeSuer et al. 2000) conducted an archaeological subsurface inventory survey on a proposed development parcel directly across Kalākaua Avenue from the Fort DeRussy tennis courts and across Kālaimoku Street from where Pacific Legacy, Inc. had worked (Cleghorn 1996). The subsurface testing identified the major *'auwai* (Site 50-80-14-4970) that fed the fishponds of Waikīkī. Also identified were a historic period wetland that appears to have been used for agricultural purposes (site 50-80-14-5796), and abundant micro-strata interpreted as fill episodes from the dredging of the Ala Wai Canal.

In April 2001, PHRI conducted a subsurface inventory survey of the Hilton Waikikian property situated immediately adjacent to the northwest of the existing Hilton Hawaiian Village Complex (Corbin 2001). A series of backhoe trenches revealed that the area had been extensively disturbed by historic period land modification activities. While recent historic materials were recovered, no evidence of earlier archaeological remains was encountered.

PREDICTIVE MODEL: IMPLICATIONS OF PREVIOUS RESEARCH

Based on the findings of the historical documentary research, several inferences can be made regarding the nature and distribution of potentially significant archaeological and historical resources that might possibly be present in the project area. These inferences are tentative, and subject to the qualification that any such resources that might have once been present may have been subsequently disturbed, substantially destroyed, and/or removed by construction activities undertaken in the course of the extensive commercial and residential development that occurred within and adjacent to the current project area during the last 50 years.

Historic maps of the area indicate that several fishponds were once present within and immediately adjacent to the current project area. Loko Kaohai (Site 4578) and Loko Halemauuola (Site 5479) were situated on the northern edge of the project area. Previous investigations at nearby Fort DeRussy revealed subsurface evidence of fishponds, and it is likely that demolition or construction excavation in this general area may well encounter buried fishpond deposits along with associated cultural remains. Furthermore, the *muliwai* that once existed along the western edge of the project area may still contain subsurface vestiges of *lo'i* that were known to be present.

Human burial and cultural deposits related to both precontact and historic period occupations have been recovered both to the east and west of the current project area. Excavations at the Halekūlani Hotel (Neller 1981, Davis 1984) encountered both intact and disturbed human burials, as well as historic deposits, on the property. Excavations conducted to the immediate west at Fort DeRussy and the Hale Koa Hotel (Kimble 1976, Carlson et al. 1994) also encountered intact human remains. Thus it is likely that the coastal portion of the current project area may contain human burials, as well as other potentially significant cultural remains–habitation deposits with portable artifacts and midden materials, and features such as firepits, hearths, ovens, postholes, pavements, and trash pits. Archaeological testing and monitoring undertaken in conjunction with demolition of existing structures and other improvements in this area would determine if human burials and/or other potentially significant cultural remains are still present.

The construction of buildings that contain basements or underground facilities such as parking garages more than likely displaced or destroyed any cultural remains that may have once been present. As a result, cultural remains in these areas are most probably absent and not anticipated, and no testing would likely be warranted in these locations.

Intact cultural remains, such as occupation features and deposits, as well as burials, possibly could have survived and be present beneath any buildings that do not have basements or other extensive subsurface elements. Archaeological testing should take place beneath these buildings in conjunction with demolition to determine if intact cultural remains were present. If intact cultural remains were identified, it is likely that mitigation in the form of data recovery excavations would be appropriate and/or required. If human remains were identified, a burial treatment plan would need to be prepared to address any other remains that may be encountered. At a minimum, all ground altering activities in the current project area should be archaeologically monitored.

Archaeological data recovery may need to be conducted where significant archaeological remains have been found. Archaeological monitoring may be appropriate regardless of whether the presence or absence of cultural deposits was established by demolition-related testing. There is always a potential for isolated human remains or cultural features to be uncovered. Any earth moving activities should be archaeologically monitored to ensure that if any human remains were to be encountered they would be handled in accordance with existing the State law and administrative rules.

The current project area may also contain historic buildings (i.e., 50+ years old). The significance of each structure should be assessed and evaluated prior to demolition to determine if the structures themselves are eligible for inclusion on the State or National Register of Historic Places. Structures that are more than 50 years old need to be evaluated for potential historic significance according to the appropriate State or National Register criteria. Staff specialists in the Architecture Branch of SHPD should be consulted regarding the question of assessment and evaluation of historic buildings that might be present within the current project area.

CONCLUSION

DISCUSSION

The level of archaeological investigation generally conducted in conjunction with the preparation of an EIS is that referred to as an inventory survey. The basic purpose of an inventory survey is to identify all sites and features of potential archaeological significance present within a specified project area. Implicit within the scope of an inventory survey is the exploration for previously unidentified subsurface cultural remains–habitation deposits with portable artifacts and midden materials, and features such as firepits, hearths, ovens, postholes, pavements, trash pits, and graves–by means of hand and/or machine dug test excavations. Given the existing, fully developed condition of the proposed redevelopment project area, the conduct of generally appropriate test excavations would be impractical, if not difficult or impossible. Instead, it is proposed that monitoring of demolition work, in concert with concurrent test excavations, would be conducted once redevelopment work is underway, and that any necessary or appropriate mitigation work would be conducted as part of a pre-construction program of data recovery excavations.

Based on the findings of the historical documentary research, several inferences, or predictions, can be made regarding the nature and distribution of potentially significant archaeological and historical resources that might possibly be present in the project area. These inferences are tentative, and subject to the qualification that any such resources that might have once been present may have been subsequently disturbed, substantially destroyed, and/or removed by construction activities undertaken in the course of the extensive commercial and residential development that occurred within and adjacent to the current project area during the last 50 years.

Historic maps and previous archaeological investigations indicate that several fishponds were once present within and immediately adjacent to the current project area. Human burial and cultural deposits related to both precontact and historic period occupations have been recovered both to the east and west of the current project area. Thus it is likely that the coastal portion of the current project area may contain human burials as well as other potentially significant cultural deposits.

While earlier construction of buildings that contain basements or underground facilities such as parking garages more than likely displaced or destroyed any cultural remains that may have once been present, intact cultural remains, such as occupation features and deposits, as well as burials, possibly could have survived and be present beneath any buildings that do not have basements or other extensive subsurface elements. Archaeological testing should take place beneath these buildings in conjunction with demolition to determine if intact cultural remains were present. If intact cultural remains were identified, it is likely that mitigation in the form of data recovery excavations would be appropriate and/or required. If human remains were identified, a burial treatment plan would need to be prepared to address any other remains that may be encountered. At a minimum, all ground altering activities in the current project area should be archaeologically monitored.

Based on the findings of the historical documentary and archaeological background research, the predictive model for the nature and distribution of potentially significant archaeological and historical resources that might possibly be present in the project area, consultations with SHPD staff archaeologists, and familiarity with current regulatory review requirements as contained in the draft SHPD administrative rules, an adequate and appropriate scope of work and specific tasks for subsurface inventory survey and related activities during demolition work can be proposed for the subsurface inventory survey and related activities to be conducted during demolition work for the Waikiki Beach Walk Project.

SCOPE OF WORK FOR SUBSURFACE INVENTORY SURVEY AND RELATED ACTIVITIES DURING DEMOLITION WORK

Based on the findings of the historical documentary and archaeological background research, the predictive model for the nature and distribution of potentially significant archaeological and historical resources that might possibly be present in the project area (derived from the background research), consultations with SHPD staff archaeologists, and familiarity with current regulatory review requirements as contained in the draft SHPD administrative rules, the following specific tasks have been determined to constitute an adequate and appropriate scope of work for the subsurface inventory survey and related activities to be conducted during demolition work for the Waikiki Beach Walk Project:

1. Prepare a contingency Burial Treatment Plan (BTP), in general accordance with the current Hawaii Administrative Rules for the treatment of burial sites and human remains (DLNR 1996: Sections 33 and 34) for review and approval of SHPD and–if appropriate– the O'ahu Island Burial Council;
2. Prepare an Archaeological Monitoring Plan (AMP), in general accordance with the SHPD draft administrative rules governing standards for archaeological monitoring studies and reports (DLNR 2001: Chapter 279), for SHPD review and approval. This AMP would address the procedures to be following for the monitoring of both (a) on-site demolition and subsequent construction work, and (b) off-site improvements (e.g., installation of underground utilities);
3. Based on (a) review of the final demolition plan and schedule, and (b) consultation with appropriate engineering and construction personnel, prepare a detailed Work Plan for the conduct of subsurface inventory testing concurrent with actual demolition work;
4. Conduct subsurface inventory testing concurrent with actual demolition work. So far as possible, the inventory survey work would be carried out in general accordance with the SHPD draft administrative rules governing standards for archaeological inventory survey and reports (DLNR 2001: Chapter 276);
5. Prepare, upon completion of subsurface inventory testing, an appropriate Summary Report that addresses the project background and methodology, testing results, initial significance assessments, and any recommendations for any subsequent mitigation work (i.e., data recovery excavations) that might be appropriate before construction. Upon completion, this Summary Report would be submitted to SHPD for review and approval;
6. Prepare–if appropriate–a Data Recovery Plan (DRP), in general accordance with the SHPD draft administrative rules governing standards for archaeological data recovery studies and reports (DLNR 2001: Chapter 278), and submit the DRP to SHPD for review and approval;
7. If, based on the results of the subsurface testing, a determination is made that subsequent mitigation work (i.e., data recovery excavations) before construction was not necessary or appropriate, analysis of all inventory survey testing data would be completed and an appropriate final report would be prepared and submitted to SHPD for review and approval;
8. If, based on the results of the subsurface testing, a determination is made that subsequent mitigation work (i.e., data recovery excavations) before construction was necessary or appropriate, inventory survey testing data would be incorporated into the subsequent data analysis and report preparation done for the mitigation work. Upon completion, this report would be submitted to SHPD for review and approval; and
9. Coordinate and consult with client, client representatives, engineering and construction personnel, and regulatory agency staff–especially the SHPD Staff Archaeologist for O'ahu Island–as appropriate and/or necessary.

The significance of cultural remains (i.e., "historic properties") identified during the subsurface inventory testing would be assessed in accordance with the evaluation process and criteria contained in the SHPD draft administrative rules governing procedures for historic preservation review to comment on non-State projects (DLNR 2001: Chapter 284), which are utilized by SHPD. According to this evaluation process, "[t]o be significant, a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criterion:

1. Criterion "a". Be associated with events that have made an important contribution to the broad patterns of out history;
2. Criterion "b". Be associated with the lives of persons important in our past;
3. Criterion "c". Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;

4. Criterion "d". Have yielded, or is likely to yield, information important for research on prehistory or history; or
5. Criterion "e". Have an important value to the native Hawaiian people or to another ethnic group of the State due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts–these associations being important to the group's history and cultural identity (DLNR 2001: Chapter 284-6).

Upon completion of subsurface inventory testing, an appropriate Summary Report would be prepared and submitted to SHPD for review and approval. This report would address the project background and methodology, and summarize the findings of the testing. The report would also, in accordance with the processes and criteria contained in the SHPD draft administrative rules governing procedures for historic preservation review to comment on non-State projects, (a) provide initial significance assessments for identified cultural resources, (b) determine the likely effects of the redevelopment project upon significant cultural resources, and (c) propose appropriate forms of subsequent pre-construction mitigation treatment (e.g., data recovery excavations) for significant cultural remains that might potentially be harmed by the likely effects of the redevelopment project (DLNR 2001: Chapter 284-6, 7, 8). While the report will provide initial significance assessments and effect determinations, and recommend appropriate mitigation treatments, it is important to note that these assessments, determinations, and recommendations are tentative in nature, and subject to SHPD review and concurrence before significance is finalized and mitigation commitments approved.

SHPD CONSULTATIONS

During the background research for and preparation of the present archaeological assessment study report, professional staff in the State Historic Preservation Division (SHPD) were consulted several times regarding matters such as the appropriate scope for the present study, and approach for the identification of potentially significant cultural remains that might still be present within the current project area. Specific relevant consultations are summarized below.

On May 2, 2001, PHRI Principal Archaeologist Dr. Paul H. Rosendahl consulted with Dr. Sara L. Collins, SHPD Staff Archaeologist for O'ahu Island (pers. comm.). Dr. Collins reaffirmed SHPD approval of the proposed approach to the identification of potentially significant cultural remains that might still be present within the current project area. This approach, which was initially proposed to and approved by Dr. Collins on March 29, 2000, involved several steps: (a) appropriate background research focused on historical documentary sources and previous archaeological investigations; (b) preparation of a simple predictive model for the nature and distribution of buried cultural remains that might be anticipated to be, or have once been, present within the project area; (c) inventory-level subsurface testing to be conducted in conjunction with demolition of existing structures; (d) any appropriate mitigation work (i.e., data recovery excavations) to be conducted after demolition and before construction; and (e) any appropriate archaeological monitoring of new construction excavations and related utilities installations to be conducted. Dr. Collins also noted precedent for this approach had been established for prior projects done in downtown Honolulu in recent years.

On August 20, 2001, Dr. Rosendahl consulted with Ms. Elaine Jourdane, SHPD Assistant Staff Archaeologist for O'ahu Island regarding SHPD comments on the EIS Preparation Notice for the Waikiki Beach Walk Project contained in the SHPD letter of August 6, 2001 (LOG NO: 27949; DOC No: 0107EJ33) *(Appendix B)* that seemed to imply that archaeological inventory survey should be carried out in connection with the preparation of the EIS for the project, rather than with demolition and before construction. Ms. Jourdane reaffirmed SHPD approval of the proposed approach to the identification of potentially significant cultural remains that might still be present within the current project area; i.e., the conduct of subsurface inventory testing concurrent with demolition and prior to construction, and indicated that a letter of clarification would be issued by SHPD. The matter was subsequently clarified in the SHPD letter of September 7, 2001 (LOG NO 28143; DOC NO: 0109EJ05) *(Appendix B)*.

On September 17, 2001, Dr. Rosendahl consulted with Dr. Collins regarding the proposed scope of work and specific tasks for subsurface inventory survey and related activities during demolition work (pers. comm.). Dr. Collins indicated that she believed the proposed scope and specific tasks to be both adequate and appropriate for dealing with the historic preservation review concerns of SHPD in the context of the Waikiki Beach Walk Project.

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APPENDICES

A: HISTORICAL DOCUMENTARY RESEARCH (PACIFIC LEGACY, INC.)

B: STATE HISTORIC PRESERVATION DIVISION CORRESPONDENCE

SHPD Letter of August 6, 2001

SHPD Letter of September 7, 2001

APPENDIX A: HISTORICAL DOCUMENTARY RESEARCH

Prepared by Pacific Legacy, Inc.

THE PROJECT AREA

The project comprises 7.9 acres in Waikiki, Island of O'ahu, Hawai'i (TMK: 2-6-002: 15, 16; 2-6-003: 01, 02, 03, 04, 06, 07, 08, 09, 10, 11, 12, 21, 32, 34, 35, 39, 52, 56, 57; 2-6- 004: 10) and is bounded to the north by Kalakaua Avenue, to the south by the Pacific Ocean, to the east by Lewers Street and commercial high-rise buildings, and to the west by Saratoga Road and commercial businesses (*Figures 1-3*). The entire project area has been subject to urban development and commercial development for some eighty years.

METHODS

Archival research on the background of the subject parcel was performed at the State Historic Preservation Division (SHPD) Library in Kapolei, the State Surveyors Office, the Bureau of Conveyances, and the Hawaii State Library.

Correlation of historic maps was undertaken in an attempt to determine where the original shoreline was located prior to historic land filling. The SHPD Geographic Information System was accessed to determine extent of shoreline and location of previously recorded archaeological sites in the vicinity.

HISTORIC BACKGROUND

The *ahupua'a* of Waikiki has a rich and colorful past. Waikiki was once the favored spot for ruling chiefs of O'ahu. In the fourteenth century, "the new *ali'i nui*, Mailikukahi, transferred the seat of government to Waikiki" (Handy and Handy 1972: 480). Under his line, Waikiki became rich and developed. Beckwith writes:

> . . .with Mailikukahi, Waikiki became the ruling seat of chiefs of Oahu. He carried out strict laws marked out land boundaries, and took the firstborn son of each family to be educated in his own household. He honored the priests, built heiaus[sic], and discountenanced human sacrifice (Beckwith 1940: 383-384).

Kamehameha I kept a residence in Waikiki after his conquest of O'ahu. John Papa I'i writes:

> This place had long been a residence of chiefs. It is said that it had been Kekuapoi's home, through her husband Kahahana, since the time of Kahekiki (I'i 1959:17).

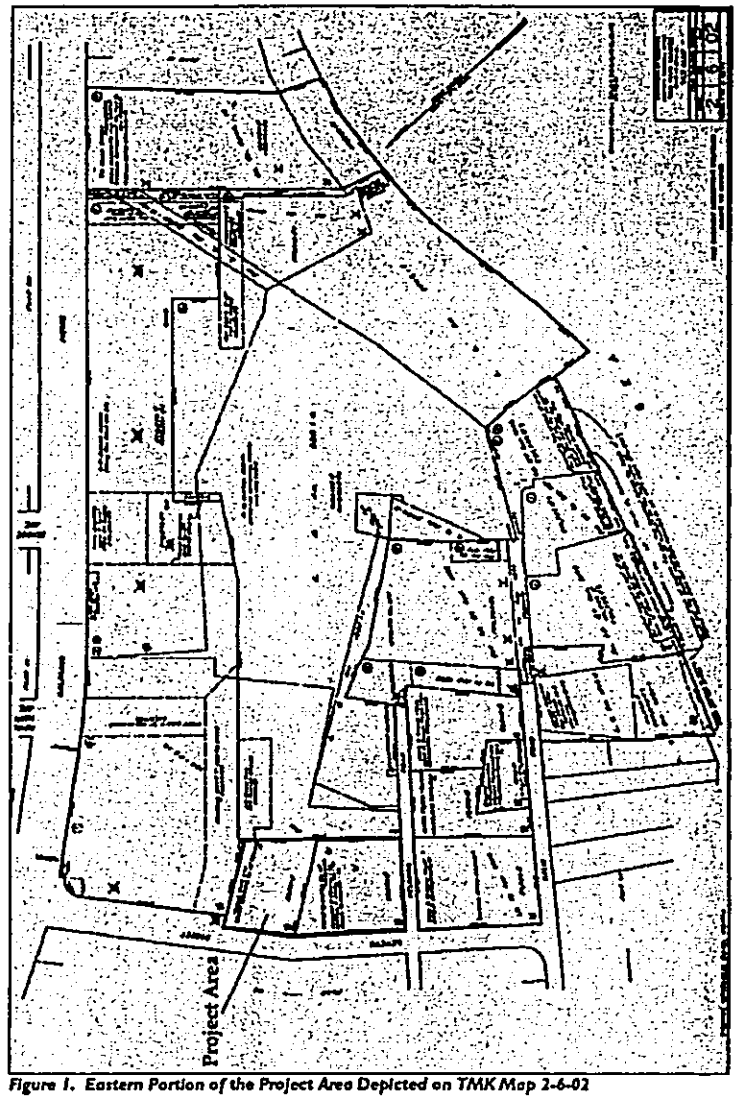

Figure 1. Eastern Portion of the Project Area Depicted on TMK Map 2-6-02

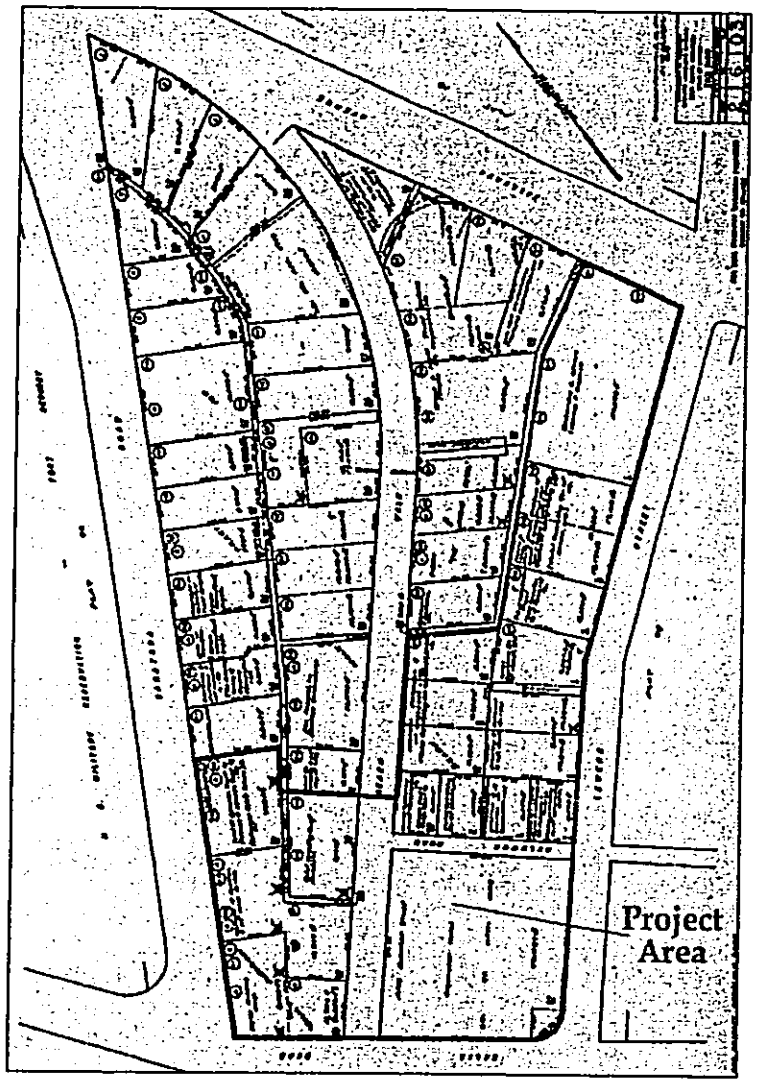

Figure 2. Central Portion of the Project Area Depicted on TMK Map 2-6-03

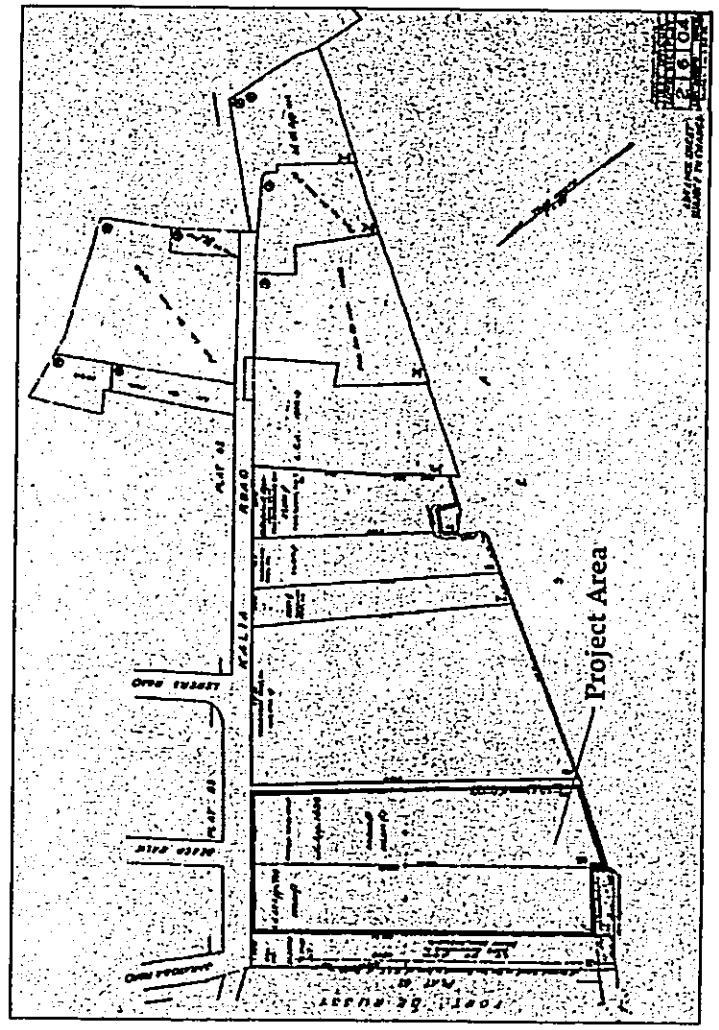

Figure 3. Southern Portion of the Project Area Depicted on TMK Map 2-6-04

Much of the west side of Waikīkī (between Mō'ili'ili and Fort DeRussy) formerly contained numerous irrigated agricultural fields for taro (*kalo*), and fishponds. This area extended as far inland into Makiki, Mānoa, and Pālolo. The two streams that primarily fed these fields and ponds were from Mānoa and Pālolo Valleys. The Waikīkī area was noted for this intensive agriculture and aquaculture and was developed into a plantation-like region. "This plantation was developed by one of the early *ali'i* of O'ahu, Kalamakua" (Handy and Handy 1972: 481). In 1778, at the time of European contact, Waikīkī was one of the richest and most densely populated areas on O'ahu (Davis 1989:8).

One of the first accounts from the European visitors comes from Captain George Vancouver who arrived in Hawai'i in 1792. He describes Waikīkī as:

> . . . The situation occupied by us in this bay, which the natives call Whyteete [sic] seemed nearly as eligible as most of the anchoring places these islands are generally found to afford. . .On the shores, the villages appeared numerous, large, and in good repair; and the surrounding country pleasingly deep...with the plains near the sea-side, presented a high degree of cultivation and fertility. . .Several portions of land were planted with eddo or taro root, in different stages of inundation; none being perfectly dry, and some under three to six or seven inches under water... In this excursion we found the land in a high state of cultivation, mostly under immediate crops of taro; and abounding with a variety of wild fowl, chiefly of the duck kind. . .(Vancouver 1798: Vol. I 161-164)

Another westerner who focused on the fishponds of Waikīkī was Andrew Bloxam who arrived in Hawai'i in 1825 aboard the *Blonde*. Bloxam wrote:

> . . .The whole distance to the village of Whyteete [sic] is taken up with artificial fishponds extending a mile inland from the shore, in these fish taken by nets in the sea are put, and though most of the ponds are fresh water, yet the fish seem to thrive and fatten. Most of these fish belong to the chiefs, and are caught as wanted. . .(Bloxam 1925: 35).

The increased arrival of Europeans and Americans to Hawai'i brought much change to Waikīkī. A growing population meant an increase in development, and new construction began in the area. The numerous ponds that once dotted the landscape soon fell out of cultivation and into disrepair as described by Levi Chamberlain in 1828:

> Our path led us along the borders of extensive plats of marshy ground, having raised banks on one or more sides, and which were once filled with water, and replenished abundantly with esculent fish; but now overgrown with tall rushes waving in the wind. The land all around for several miles has the appearance of having once been under cultivation. I entered into conversation with the natives respecting this present neglected state. They ascribed it to the decrease of population (Chamberlain 1957: 26).

The once beautiful and impressive system of irrigation had become an eyesore and a possible health hazard.

In the 1870's the influence of westerners on Waikīkī was apparent. With the growing trade and tourism a number of westerners saw the need and potential for the development of hotels and permanent residences (Davis 1984). It was around this time that the first formal development likely occurred in the project area.

Soon, something had to be done about the poor condition of the old ponds. In 1896, Act 61 (of the session Laws) was passed; it required landowners of wetlands to create dry landscapes in the interest of public health (Simmons et al. 1995:6). Not long after, the idea of in-filling the ponds and fields of Waikīkī began to take shape.

The 1900's saw a new face put on Waikīkī. In 1921, the Waikīkī Reclamation Project began. Between 1921 and 1929, the Dillingham Construction Company worked on the Waikīkī Reclamation Project. It consisted of dredging the entire length of the Ala Wai Canal. The dredged material was then used as fill over a large portion of Waikīkī but was mainly used to fill in the many ponds and terraces thus making the previous "swamp land" usable to the United States Military (for Fort DeRussy) and others for commercial use (Nakamura 1979).

LAND COMMISSION AWARD (LCA)

A review of the currently available information determined that four LCA's were awarded within the project area (*Figure 4*). The descriptions of the LCA's are obtained from the Native Register, Native Testimony, and Foreign Testimony on file at the State Archives. The LCA's are detailed below.

LCA 104 FL (Fort Lands) was awarded to Mataio Kekuanaoa. Kekuanaoa became the governor of O'ahu in 1839 (Day 1984) and was the caretaker at the fort (located at the base of Fort Street) in Honolulu. Claiming land at the fort as well as land in Waikīkī and numerous other properties around O'ahu, Kekuanaoa obtained a large amount of property. His claims for Waikīkī include: two *lo'i*, five fishponds and a *muliwai* (river or estuary). Much of this land would eventually become Fort DeRussy.

LCA 1408 was awarded to Kaua. He claimed two *lo'i*, and a houselot in Waikīkī. Nalaweha (who was supervising *konohiki)* states that he had given this land to Kaua in the time of Kaahumanu I because of his service to the *konohiki*.

LCA 1436 was awarded to Kalaipaopao. She inherited the land from her father, Ahia, who obtained the land from his parents, who was given the land from Kaahumanu I. Her claim was for two *lo'i* in the *'ili* of Kanuku, two sections of stream, and a houselot at Kawehewehe (near the stream).

LCA 1513 was awarded to Wailehua. His claim was for eight *lo'i*, a houselot and a *kula* (pasture). Nalaueha testified on behalf of Wailehua and states that the land had been given to him by Kaahumanu and that Wailehua was *konohiki* under V. (Victoria) Kamamalu.

With the exception of LCA 104, the remaining three LCA's are located *makai* of the current Kalia Road. LCA 104 is located in the northern portion of the project area and incorporates Loko Kaohai and Loko Halemauuola.

Figure 4. A Portion of S.E. Bishop's 1881 Map of the Project Area

Figure 4. A Portion of S.E. Bishop's 1881 Map of the Project Area

POST MAHELE DEVELOPMENT

The proposed project area has seen much change over a short period of time. At the time of European contact, the area of Waikiki was under intense agricultural and aquaculture use. The northern portion of the project area contained fishponds and *lo'i*. The Native Hawaiians that worked in the ponds most likely had houses in the same area to the south. The ocean fronting Waikiki was able to support a large population with its productive reefs used for collecting and available deepwater fishing. Likewise they took advantage of the dunes of Waikiki to bury their dead.

With Western influence, the fishponds and irrigated *lo'i* were eventually abandoned. The once highly productive Waikiki became an eyesore and a health hazard. The Mahele brought about a change in land ownership and different approaches to land use. With the dredging and subsequent filling of the ponds, (including those on the north side of the project area), a large amount of land became available for commercial and residential use. Bishop's 1881 map (*Figure 4*) shows four structures located between what would become Kalia Road and the ocean and two other structure *mauka* of Kalia (Bishop 1981).

The Sanborn Fire Insurance Maps (*Figures 5 and 6*) illustrate the increase in development within the project area between 1914 and 1927 (Sanborn Map Company 1914, 1927). This coincides with the changing landscape throughout Waikiki at the time. Prior to 1914, very little development had occurred on the property. Less than 20 structures were present between Kalia Road and Kalakaua Avenue. Most of these were single-story wooden dwellings. The area south of Kalia Road and west of the Halekulani Hotel is not recorded on the Sanborn Map. The fact that there is no map for this portion of the project area most likely means that there were no structures on the property prior to 1914.

By 1927 we can see that the project area is nearly completely developed and few of the original structures that appeared on the 1914 Sanborn map are still present. The area between Kalia Road and Kalakaua Avenue is nearly completely covered with structures. Most of these are single-story wood structures with several two- and three-story buildings scattered throughout the area. The most evident change is to the south, between Kalia Road and the ocean. Two apartment developments have been constructed: Ocean View Court and The Edgewater Beach Apartments. The Ocean View Court is a series of single-story wood frame apartments, while the Edgewater Beach Apartments is a series of two-story wooden frame flats. In a relatively short time period Waikiki was transformed from a former agricultural complex to a booming urban center.

PREVIOUS ARCHAEOLOGY

Given the vast amount of literature associated with such a large *ahupua'a* as Waikiki, this document will provide only a cursory review of the overall archaeology of Waikiki and focus on the immediate project area. *Figure 7* shows the location of documented archaeological sites in the vicinity of the current project area.

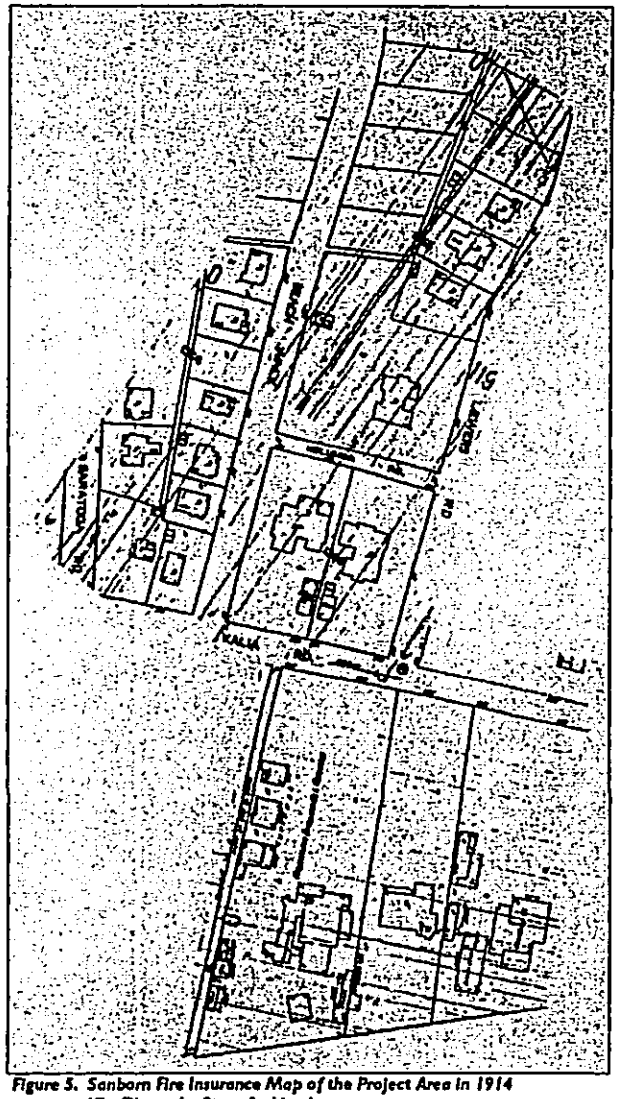

Figure 5. Sanborn Fire Insurance Map of the Project Area in 1914
(On File at the State Archives)

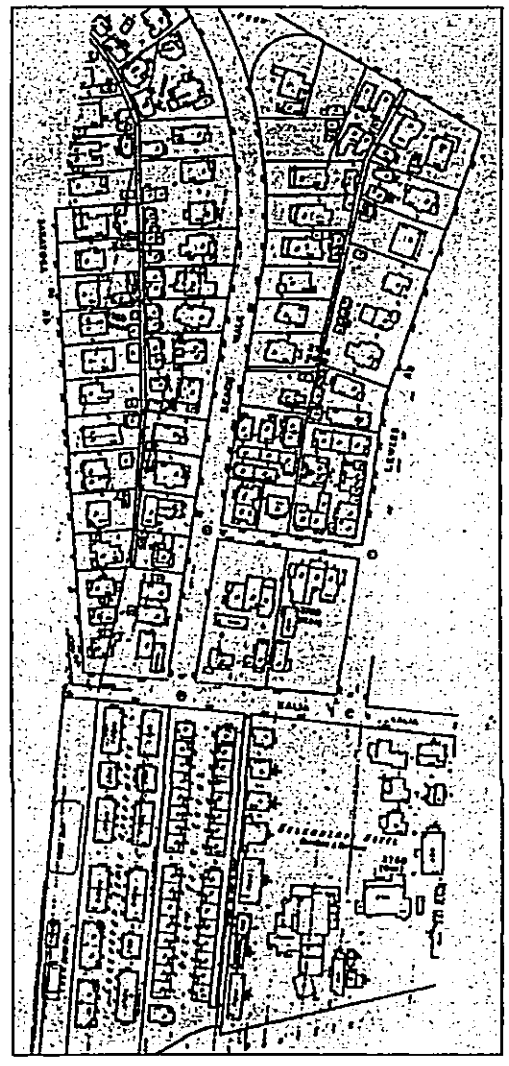

Figure 6. Sanborn Fire Insurance Map of the Project Area in 1927
(On File at the State Archives)

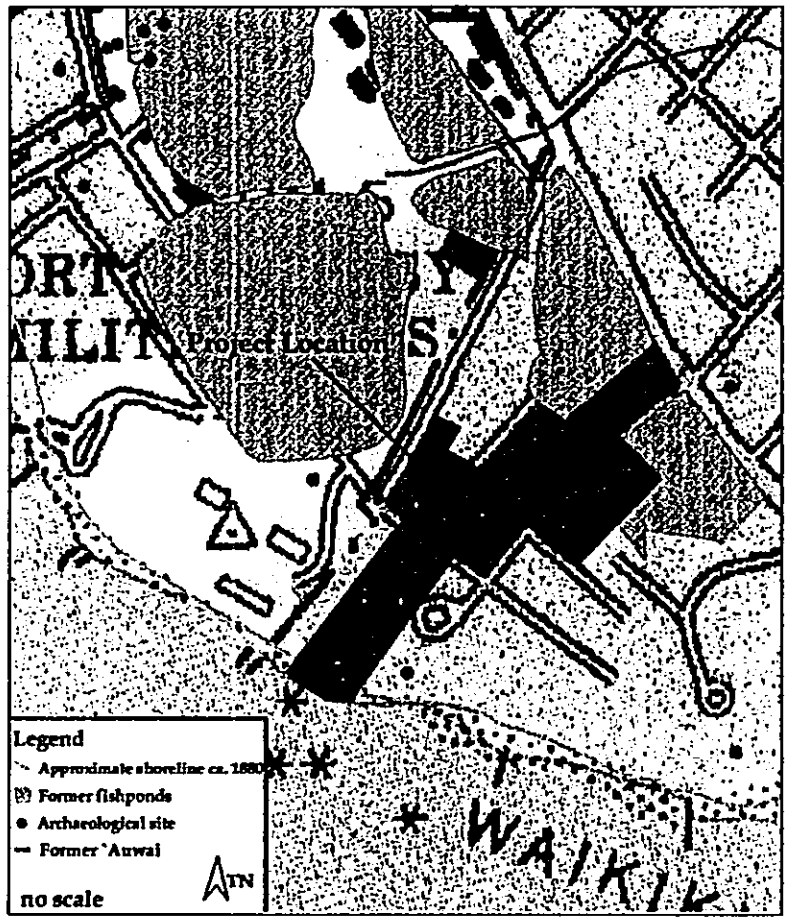

Figure 7. Project Area in relation to previously recorded archaeological sites and features. Map courtesy State Historic Preservation Division, July 2001.

Most of the archaeological studies that have been undertaken in the Waikīkī area have occurred over the last 20 years. However, archaeological reports associated with Waikīkī *ahupua'a* extend back a century. Emerson reported human remains discovered in Waikīkī in 1901, in the vicinity of the current Elks Club, near Kapiolani Park (Emerson 1902:19). Four adults along with whale teeth and glass beads were uncovered while excavating for improvements to James B. Castle property.

In 1930, J. Gilbert McAllister conducted an island-wide survey of O'ahu. He reported four *heiau* (or temple) within the vicinity of Waikīkī (McAllister 1933). The largest was Papaenaena (Site 58), located at the base of Diamond Head, in the area of Hawaii School for Girls at La Pietra. This *luakini heiau* was used for human sacrifice and was reportedly associated with Kamehameha I. Kenneth Emory of the Bishop Museum attempted to identify the foundation of the *heiau* in 1968 when the La Pietra property was being developed, but the results were inconclusive (Davis 1989: 20). Kukaoʻo Heiau (Site 64), located on a small rise in Mānoa Valley, was reportedly constructed by the *menehune*. This site is on the property of Sam and Mary Cook and has been recently restored (Cleghorn 1992).

While excavating for the Hale Koa Hotel (located east of the Hilton property) in 1976, five human burials were recovered by the Bishop Museum (Kimble 1976). The remains were reported to be prehistoric or early historic bundle burials (Site 50-80-14-9500). A sixth human burial was recovered from immediately below the road and was believed to be a later interment.

In 1980, Earl Neller conducted emergency excavations for the Hilton Hawaiian Village's Tapa Tower (Neller 1980). The remains of three individuals were recovered along with nearby trash pits (Site 50-80-14-2870). Unfortunately, Neller was deterred from conducting any controlled excavations at the site. However, using historic documents, Neller was able reconstruct the historic shoreline. Based on his results, he determined that the burials were likely interred after 1850.

In 1981, Neller conducted an archaeological reconnaissance and emergency recovery at the site of the then new Halekulani Hotel (State Site No 50-80-14-9957). This area is immediately east of the current project area, along the coastline. The State Historic Preservation Office had been notified that human remains were unearthed during construction. Neller investigated the site and determined that there were four distinct individual burials, three northwest of the project site and one along the shoreline on the east side. There were also a number of bottles and historic trash pits that were disturbed during construction. Although Neller was unable to locate any *in situ*, remains (they were all disturbed prior to his being notified) he was able to make several determinations regarding the remains and their context. First, he determined that the burials were likely Hawaiian based upon the "rocker jaw" and dental condition, and were likely interred in the 1800's. Second, the historic artifacts (bottles and ceramics) recovered from the site also date from the late 1800's and early 1900's. Although there was a lack of intact archaeological deposits, the evidence pointed to a historic site located along this portion of Waikīkī. Neller recommended archaeological investigations be conducted at the property and that an archaeologist monitor future work.

In 1984, Bert Davis (1984) of the Bishop Museum conducted archaeological and historical investigations at the Halekulani Hotel (TMK:2-6-004:6-8)(Site 50-80-14-9957). The investigations grew out of the previous work conducted by Neller (1981) and his recommendations for further work on the site. Davis excavated a series of test pits and trenches in an attempt to isolate intact cultural deposits. Most of the area has been heavily disturbed during the course of recent construction; only an area along the beach and an isolated area in the center of the property remained relatively intact. The excavations uncovered 32 features including human remains, a dog burial, postholes, trash pits, privies, and several unidentified pits. Most of the trash pits contained historic bottles, ceramics, and metal. Davis concluded that the area, despite having been heavily disturbed by recent construction, contained significant cultural material that dated to the late 1800's.

Between 1985 and 1987, Paul H. Rosendahl, Inc. (PHRI) conducted archaeological monitoring of construction excavations associated with the Mechanical Loop Project at the Hilton Hawaiian Village (Hurlbett et al. 1992). The project identified 15 features associated with historic land use of the area. The majority of the features were in the northeast end of the project area, near Kalia Road. A total of 3,819 artifacts comprising household (glassware and tableware) and architectural artifacts (nails, glass, etc.) were recovered. The majority of the artifacts dated between 1870 and 1930.

A vast amount of work has been conducted in the area of Kalia Road and the Fort DeRussy property. Beginning in 1989, a series of test excavations, data recovery and monitoring projects were undertaken.

In July of 1989, PHRI (Rosendahl 1989) conducted a limited subsurface inventory survey for the then proposed luau facility at Hale Koa Hotel. The test excavations, consisting of 11 backhoe trenches and three hand-excavated test units, identified a buried cultural layer and associated historic artifacts in the area of the proposed luau facility. Based on the disturbance of the cultural layer and the lack of midden deposits Rosendahl concluded that the area had been disturbed and the historic artifacts were in a secondary context. As a result, archaeological monitoring was recommended during construction activities.

Between February and April of 1989, Bert Davis conducted a subsurface reconnaissance survey and historical research at Fort DeRussy (Davis 1989). Davis conducted archaeological testing at Fort DeRussy in an attempt to confirm archival data suggesting that the Fort DeRussy area contained evidence of buried fishponds and *'auwai*, along with associated habitation remains. The testing confirmed that intact subsurface cultural deposits along with individual features (*'auwai* and fishpond walls) as well as historic deposits were still present at Fort DeRussy. The historic filling episodes that occurred at Fort DeRussy had filled-in the ponds and *'auwai* but had not destroyed them. Further, historic deposits located along the beachfront contained glass and ceramics that dated from the 19th century.

In April and June of 1992, BioSystems Analysis, Inc., conducted archaeological data recovery operations to mitigate effects on cultural resources during construction of new recreational facilities at Fort DeRussy (Simmons et al. 1995). During the investigation, five backhoe trenches and seventeen controlled test units were excavated in an area that had been previously identified by Davis as containing buried fishpond and habitation deposits (Davis 1989). Fieldwork uncovered information regarding the construction and structure of the fishponds

and the *'auwai* system that fed the ponds. Also identified were a habitation deposit that exhibited continual use of the area and a paleo-beach deposit.

Between January and September 1993, BioSystems Analysis, Inc. conducted archaeological monitoring during Phase I activities for the Kalia Road Realignment, associated with the construction of a new tower for the Hale Koa Hotel (Carlson et al. 1995). The monitoring uncovered the remains of Loko Paweo I, a fishpond (Site 50-80-14-4574), and two other sites (4570 and 4966) containing historic trash pits, features, occupation layer and numerous human remains (Carlson et al. 1994), including several sets located directly in front of the U.S. Army Museum.

In 1996, Pacific Legacy, Inc. conducted an archaeological inventory survey with subsurface testing for the then proposed Kalakaua Plaza, located on the *mauka* side of Kalakaua Avenue, directly across from Fort DeRussy. Archival research indicated that there was a probability of encountering fishpond deposits or other cultural resources associated with the intensive cultivation in Waikiki (Cleghorn 1996). A total of seven backhoe trenches were excavated during the course of field investigations. No cultural deposits were identified. The area was found to be extremely wet or marshy and was "not conducive for traditional economic practices" (Cleghorn 1996: 15).

In 1999, Hammatt and McDermott (1999) recovered the remains of two human burials (Site 50-80-14-5744-1 and 2) located along Kalakaua Avenue near Ena Road. The remains were uncovered during the placement of anti-crime lighting in Waikiki. The remains were located between 1.2 and 1.5 m below surface within a beige sand matrix.

In 2000, Cultural Surveys Hawaii (LeSuer et al. 2000) conducted an archaeological subsurface inventory survey of a parcel directly across Kalakaua Avenue from the Fort DeRussy tennis courts, and across Kalaimoku Street, where Cleghorn (1996) conducted his investigation. The subsurface testing located the *'auwai* (Site 50-80-14-4970) or irrigation ditch that fed the fishponds of Waikiki. Also identified was a historic period wetland that appears to have been used for agricultural purposes (Site 50-80-14-5796). LeSuer also identified abundant micro-strata that have been interpreted as fill episodes from the dredging of the Ala Wai Canal.

SITE PREDICTABILITY AND RECOMMENDATIONS

Based on the current background research, several conclusions can be made regarding the cultural resources that may be present within the project area.

In reviewing historic maps of the area, it has been determined that several fishponds were located within and around the immediate project area. Loko Kaohai (Site 4578) and Loko Halemauuola (Site 5479) were located on the northern edge of the project area. Because previous investigations at nearby Fort DeRussy resulted in finding the preserved remains of fishponds, it is probable that any excavation in this area will uncover these fishpond deposits along with associated cultural remains. Further, the *muliwai* that was once located along the west edge of the project area may still contain vestiges of *lo'i* that were known to be present.

There is a separate but equally important concern along the coastal portion of the project area. Human remains and historic deposits have been recovered both to the east and west of the current project area. Excavations at the Halekulani Hotel (Neller 1981 and Davis 1984) encountered both intact and disturbed human burials along with historic deposits. Likewise, excavations conducted

to the immediate west at Fort DeRussy and the Hale Koa Hotel (Carlson et al. 1994 and Kimble 1976) also encountered intact human remains. It is likely that this coastal area may contain human burials as well as other potentially significant cultural deposits. Archaeological testing should be undertaken in this area to determine if human remains or other potentially significant cultural deposits are present. If remains are located, a burial treatment plan will need to be prepared to address any other remains that may be encountered. At a minimum, all ground altering activities in this area must be archaeologically monitored.

The project area undoubtedly contains historic buildings (i.e., 50+ years old). The significance of each structure should be assessed and evaluated prior to demolition to determine if the structures themselves are eligible for inclusion to the national or state Registers of Historic Places. Structures that are more than 50 years old need to be evaluated for potential cultural significance based on the criterion below.

Under the Hawai'i Administrative Rules §13-275-6, the significance of a historic property shall possess integrity of location, design, setting, materials, workmanship, feeling, and association and shall meet one or more of the following criterion:

(1) Criterion "a". Be associated with events that have made an important contribution to the broad patterns of out history;

(2) Criterion "b". Be associated with the lives of persons important in our past;

(3) Criterion "c". Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; or possess high artistic value;

(4) Criterion "d". Have yielded, or is likely to yield, information important for research on prehistory or history; or

(5) Criterion "e". Have an important value to the native Hawaiian people or to another ethnic group of the State due to associations with cultural practices once carried out, or still carried out, at the property or due to associations with traditional beliefs, events or oral accounts-these associations being important to the group's history and cultural identity.

Furthermore, any buildings that do not contain basements or subsurface features could contain cultural deposits. Archaeological testing should take place beneath these buildings after they are demolished to determine if intact cultural resources are present. If such deposits are found, they should be treated in an appropriate manner, which will probably entail data recovery investigations.

The areas of buildings that contain basements or underground parking garages have undergone so much subsurface disturbance in constructing the subsurface structures that it is highly likely that the disturbance has displaced or destroyed any cultural remains that may have been present in the area. As a result, cultural resources in these areas are most probably absent and not expected. No testing is warranted in these locations.

Archaeological data recovery may need to be conducted where significant archaeological resources have been found. Archaeological monitoring is recommended regardless of the

presence or absence of cultural deposits during the testing phase. There is a potential for isolated human remains or cultural features to be uncovered. Any earth moving activities should be archaeologically monitored to ensure that if any human remains are encountered they will be dealt with in accordance with the State of Hawai'i Administrative Rules §6E-43.

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APPENDIX B:
STATE HISTORIC PRESERVATION DIVISION CORRESPONDENCE

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

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

WILLIAM E. CHILDS-ARIAAMU, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT

FILE
273

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

August 6, 2001

Ardis Shaw-Kim
Department of Planning and Permitting
City & County of Honolulu
650 South King Street
Honolulu, Hawaii 96813

LOG NO: 27949
DOC NO: 0107EJ33

Dear Mr. Fujiki:

SUBJECT: Chapter 6E-42 Historic Preservation Review – Waikiki Beach Walk: Environmental Impact Statement Notice of Preparation
Waikiki, Kona, O'ahu
TMK: 2-6-002:015, 016; 2-6-003:001-004, 006-012, 021,032, 034-035, 052, 056 por.057

Thank you for the opportunity to comment on the proposed Waikiki Beach Walk EISPN. Our review is based on historic reports, maps, and aerial photographs maintained at the State Historic Preservation Division, no field inspection was made of the project areas.

Outrigger Enterprises, Inc. is undertaking a project to revitalize its properties in the Lewers-Saratoga area of Waikiki. The project will upgrade existing hotels, demolish older hotels and redevelop the area with a new entertainment retail complex, a new hotel and enhanced public areas.

The subject parcels have not undergone an archaeological inventory survey, so it is uncertain if subsurface historic properties are present. Based on archeological investigations conducted in nearby parcels, such as at Fort DeRussy, the Halekulani Hotel, and the King Kalakaua Plaza Phase II project it is likely that significant historic sites, such as subsurface deposits associated with fishponds cultivation, or habitations (including associated human burials), may be present in soils beneath the more recent fill soils which cover the project site. Such sites can contain important information on the history of Waikiki and be culturally sensitive for native Hawaiians. As such, any construction at these parcels may have an "adverse effect" on any significant historic sites which may be present.

Given the adverse effect future development may have on significant historic site, we believe that an archaeological inventory survey using subsurface testing should be conducted prior to construction in order to locate and identify any significant historic sites which may be present. An acceptable report documenting the results of the survey shall be submitted to the State Historic Preservation Division. If significant historic sites are present, an acceptable archaeological mitigation plan (scope of work) shall be prepared for review and approval by the State Historic Preservation Division. The mitigation plan shall be implemented prior to construction taking place. An acceptable report documenting the results of archaeological mitigation shall be prepared and submitted to the State Historic Preservation Division for review and approval. We caution you that ample time should be left before the start of construction for the archaeological survey work, because if significant sites are found, then mitigation (quite probably archaeological data recovery) will be needed and this could take several weeks, depending on the nature of any sites that might be present. This mitigation fieldwork would need to be completed prior to beginning construction.

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

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

EJ:jk

c: Christine Ruotola Group 70 International Inc. 925 Bethel Street, Fifth Floor, Honolulu, HI 96813
Harry Yada, Acting Administrator, DLNR, Land Division
Mr. A. Van Horn Diamond, Chair, O'ahu Island Burial Council
Mr. Kai Markell, Director, Burial Sites Program

- The mitigation plan shall be implemented prior to construction taking place. An acceptable report documenting the results of archaeological mitigation shall be prepared and submitted to the State Historic Preservation Division for review and approval.

We caution you and your client that ample time should be left before the start of construction for the execution of archaeological survey and mitigation work, all of which need to be completed prior to beginning construction.

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

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

EJ:jk

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Harry Yada, Acting Administrator, DLNR, Land Division
Mr. A. Van Horn Diamond, Chair, O'ahu Island Burial Council
Mr. Kai Markell, Director, Burial Sites Program
Ardis Shaw-Kim, Department of Planning and Permitting, City & County of Honolulu, 650 South King Street, Honolulu, Hawaii 96813

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Ardis Shaw-Kim, Department of Planning and Permitting, City & County of Honolulu, 650 South King Street, Honolulu, Hawaii 96813

APPENDIX C

Pedestrian Wind Assessment for the Proposed Waikīkī Beach Walk, Honolulu, Hawai'i

RWDI

October 2001

PEDESTRIAN WIND ASSESSMENT
FOR THE PROPOSED
WAIKIKI BEACH WALK
HONOLULU, HAWAII

Project Number: 02-1095
Date: October 9, 2001
Project Team: Rowan Williams Davies & Irwin, Inc.
Project Engineer - Hanqing Wu, Ph.D., P.Eng.
Project Manager - Will W. Kochanski, P. Eng.
Project Director - Bill F. Waechter, CET, Associate

Submitted To: Group 70 International, Inc.

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1. INTRODUCTION

Rowan Williams Davies & Irwin Inc. (RWDI) was requested by Group 70 International, Inc. to assess wind effects on public pedestrian areas around the proposed Waikiki Beach Walk Development in Honolulu, Hawaii. This assessment is based on information on the local wind climate, site photographs and schematic design drawings provided by Group 70 International Inc., and our experience of wind tunnel modelling of similar developments, including a recent project in the Waikiki area.

Computational methods, using software developed by RWDI to evaluate wind flow around general building forms, were used in combination with regional wind data to estimate the potential pedestrian wind conditions. This technique is not based on a scale model test of this specific development in a wind tunnel.

2. SITE INFORMATION

This assessment considers wind conditions in publicly accessible areas (e.g., sidewalks, plazas and laneways) for three site configurations: existing site; Phase I; and Phase II of the proposed development. Figure 1 shows the building layout for the existing site conditions with major buildings on and around the development site identified. Areas subject to redevelopment in Phases I and II are also identified in Figure 1.

The development site is exposed to the northwest by the open and landscaped site of Fort De Russy and to the southeast through west directions by open water. Many tall hotel and office buildings are situated to the north through southeast, which will have a sheltering effect.

Fifty-one years of long-term wind data, gathered from the Honolulu International Airport, were analysed to determine the wind directions that prevail at the site. The wind roses in Figure 2 display the frequency of wind directions for the summer (May through October) and winter (November through April). Winds from the east-northeast, northeast and east directions are

dominant in both seasons. These wind directions are considered to be most important in the analysis of pedestrian wind conditions, although the northeast and east wind directions have also been considered.

3. WIND COMFORT CRITERIA

Pedestrian wind comfort criteria developed at RWDI were used in this assessment and are categorized by three typical pedestrian activities:

- **Sitting:** Low wind speeds when one could read a newspaper without having it blown away. Suitable for outdoor cafes and other sitting areas - typically gust speeds up to 11 mph at the pedestrian level.

- **Standing:** Slightly higher wind speeds that would be strong enough to rustle leaves. These winds speeds are typically comfortable at building entrances, bus stops or other areas where people may want to linger but not necessarily sit for extended periods of time - gust speeds up to 16 mph.

- **Walking:** Winds that would lift leaves, cause movement to litter, hair and loose clothing. Appropriate for sidewalks, plazas, parks or playing fields where people are more likely to be active and receptive to some wind activity - gust speeds up to 20 mph.

Wind conditions are considered suitable for sitting, standing or walking if the wind speeds are within the ranges for at least 4 out of 5 days (80% of the time). An **uncomfortable** designation means that the criterion for walking is not satisfied. **Safety** is also considered by the criteria. Excessive gust wind speeds greater than 55 mph can adversely affect a pedestrian's balance and footing. If winds sufficient to affect a person's balance occur more than 3 times per year, the wind conditions are considered severe. Wind control measures are typically required at locations where winds are rated as uncomfortable or severe.

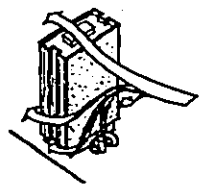
These guidelines represent an average of wind tolerance. Regional differences in wind climate and variations in age, health, clothing, etc. can affect people's perception of wind climate. With the warm climate in Hawaii, higher wind speeds may be tolerated as the cooling effect of the wind would be considered pleasant.

4. ASSESSMENT OF WIND CONDITIONS

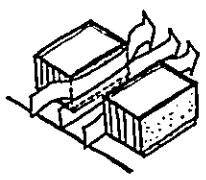
4.1 General

Predicting wind speeds and occurrence frequencies is complicated, involving building geometry, dimensions, orientation, surrounding buildings, upstream terrain and local wind climate. Over the years, RWDI has conducted more than 1000 wind tunnel model studies on pedestrian winds around buildings yielding a broad knowledge base. This allows, in many situations, for a screening level computerized estimation of pedestrian wind conditions without wind tunnel testing.

Buildings tend to intercept the stronger winds at higher elevations and redirect them down to ground level. Such a *downwashing flow* is the main cause for the pedestrian-level wind acceleration around buildings. Secondly, when two buildings are situated side by side, wind flow tends to accelerate through the gap between the buildings due to the *channelling effect*. When these building/wind combinations occur for prevailing winds, there is an increased potential for higher wind activity.



downwashing flow



channelling effect

Generally, wind conditions suitable for walking are appropriate for sidewalks and parking lots; wind speeds comfortable for standing are preferred for building entrances and pick-up/drop-off areas; and lower wind speeds comfortable for sitting are desired for seating areas, such as outdoor cafes, plazas and terraces.

4.2 Predicted Existing Wind Conditions

As mentioned in Section 2, the development site is surrounded by dense, tall buildings to the prevailing wind directions, (i.e., east-northeast, northeast and east). These buildings offer some protection for the site from the prevailing winds. Most buildings on the site have their narrower facades exposed to the prevailing wind directions, which will reduce the potential for a downwashing wind flow. Several existing hotel towers, situated on large podiums, also reduce the potential for downwashing winds from affecting the street level. As a result of these positive building aerodynamic conditions, the overall existing wind activity on and around the development site is expected to be comfortable for standing in both summer and winter seasons. Wind speeds in the summer would be slightly higher due to the local wind climate, but are unlikely to be problematic for most pedestrian activities in the area.

Localized acceleration of wind flow may be experienced on and around the existing site. For example, the prevailing winds may accelerate between the Outrigger Islander Waikiki Hotel and the Royal Hawaiian Shopping Center (Area A in Figure 3), as well as at the north corner of the ANA Kalakaua Center (Area B). The arrows in Figure 3 represent an estimate of the general flow pattern of prevailing winds in the area. Accelerated wind activity associated with the Edgewater Lanais Hotel and Ohana Reef Towers is expected at Area C. Wind activity along Lewers Street is likely to be higher than that along Beach Walk, due to the street orientation and building heights on both sides of the streets. In addition, large existing buildings to the immediate southeast of the study area, including the Waikiki Parc Hotel, the Sheraton Waikiki Hotel and others, are predicted to direct the prevailing winds towards the development site. The Ohana Reef Towers and the Imperial Hawaii Hotel are expected to channel this wind flow onto Kalia Road in front of Halekulani Hotel (Area D), where increased wind activity is predicted at the pedestrian level. These are sidewalk areas where pedestrians are unlikely to remain in the same place for prolonged periods of the time. Therefore,

the wind conditions predicted in Areas A, B, C and D may be perceived as too windy for more passive activities, such as sitting and standing, but would be considered acceptable for pedestrian walking for both summer and winter seasons.

4.3 Predicted Wind Conditions for Phase I

Several buildings for the proposed Phase I Development (shown in Figure 1) will be demolished from the area between Beach Walk and Lewers Street. In addition, the middle part of Lewers Street is being redeveloped into an open entertainment plaza, as shown in Figure 4. After the Phase I Development, the potential wind conditions in Areas A, B and D as shown in Figure 3, are predicted to be the same as those that exist, as there is no change to the buildings adjacent to these areas. Wind conditions comfortable for walking are expected to prevail through most of the year.

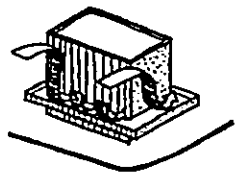
Possible changes in local wind activity that may be caused by the proposed development are illustrated by the flow patterns in Figure 4. Wind speeds along Lewers Street (Area C in Figure 3) would be reduced after replacing the Edgewater Lanais Hotel (8 stories) and the Ohana Coral Seas Hotel (11 stories) with the proposed two-story retail buildings and the landscaped entertainment plaza. This is a positive design change. Dense landscaping can be planned strategically along Lewers Street, in the vicinity of Area E, and in the new plaza (Area F) to control winds deflected by the Ohana Reef Towers. In our opinion, a wind environment comfortable for sitting or standing can be achieved in the plaza area with the use of landscaping.

It is understood that the intersection of Kalia Road and Beach Walk (Area G in Figure 4) is a focal point of the proposed development. The new entrance to the Ohana Waikiki Village and Ohana Waikiki Tower will be sheltered by the proposed four-level podium. The sidewalks adjacent to the podium will also be protected from the prevailing winds, due to the replacement of the Ohana Edgewater Hotel by the proposed lower podium. Wind conditions on sidewalks in Area G, after the Phase I Development is complete, are likely to be improved from the existing conditions, which currently are predicted as being suitable for pedestrians.

4.4 Predicted Wind Conditions for Phase II

In Phase II, several buildings north of Kalia Road between Saratoga Road and Beach Walk (Figure 1) will be replaced by a new 27 story hotel tower (see Figure 4). This area is located downwind, relative to other buildings in this development, for the prevailing winds. In addition, the shortest dimension of the tower faces the prevailing winds, which is a positive design feature. Therefore, the wind impact of this Phase II Development is expected to be localized.

The proposed 27 storey hotel tower is much taller than the pool deck on the east side of Beach Walk and, as a result, it may intercept the wind flowing over the deck and deflect it down to the street level. Increased wind activity at the corner of the proposed Phase II Hotel (Area G in Figure 4) would be expected. Given the importance of the Kalia Road and Beach Walk intersection, the potential for increased wind activity needs further investigation. For example, the use of wind control measures such as a podium, canopy, trellis, or landscaping should be considered. A podium, canopy or trellis may prevent the downwashing wind flow from reaching the street level. Landscaping along streets, as proposed, would also be a positive measure for wind reduction. A combination of these design features may be required in order to reduce the expected wind activity in this area.



podium / canopy

Wind speeds in Area H (Figure 4) may also increase slightly due to the construction of the Phase II Hotel. The existing landscaping on both sides of Saratoga Road will assist in limiting the wind speed increase, and the resulting wind conditions on the Saratoga Road sidewalks (Area H) are likely to be acceptable for walking.

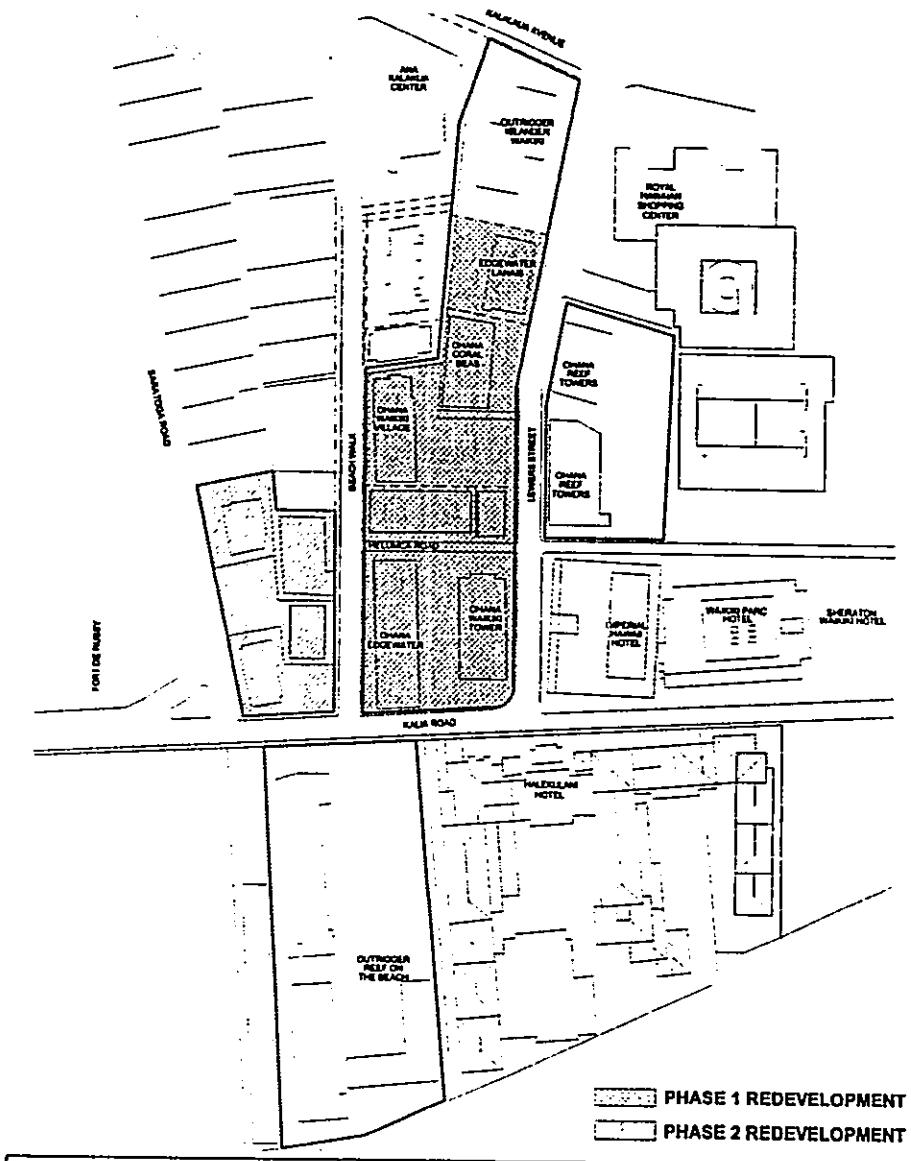
We predict that the main entrance along Saratoga Road for the 27 storey hotel will be sheltered by the proposed Phase II Development.

Wind conditions in other areas on and around the development site are not expected to change from those predicted with the Phase I Development.

5. SUMMARY

Wind conditions for the Waikiki Beach Walk Development were assessed in the public areas for the existing, the proposed Phase I and Phase II Development configurations, based on design information dated between May through August 2001. We predict that the proposed development will not alter the general wind conditions on and around a majority of the development site. Suitable wind conditions can be expected along a majority of the sidewalks and laneways. The Phase I Development was predicted to improve wind conditions along Lewers Street. A suitable wind environment for sitting or standing can be achieved at the proposed entertainment plaza on Lewers Street through the strategic use of landscaping.

The proposed podium between the Ohana Waikiki Village and Ohana Waikiki Tower is expected to shelter the new hotel entrance and adjacent pedestrian areas on Kalia Road and Beach Walk from the prevailing winds after Phase I is constructed. The proposed Phase II Hotel is predicted to deflect prevailing winds down to ground level, causing increased wind activity at the intersection of Beach Walk and Kalia Road. A large podium, canopy, trellis and landscaping are examples of various features that can be considered further as a means to improve this anticipated condition. The orientation of the 27 storey tower on this Phase II site is appropriate and desirable for wind control. The hotel main entrance along Saratoga Road is expected to be a relatively wind-sheltered area.



SITE PLAN

Waikiki Beach Walk - Honolulu, Hawaii

Project #02-1095

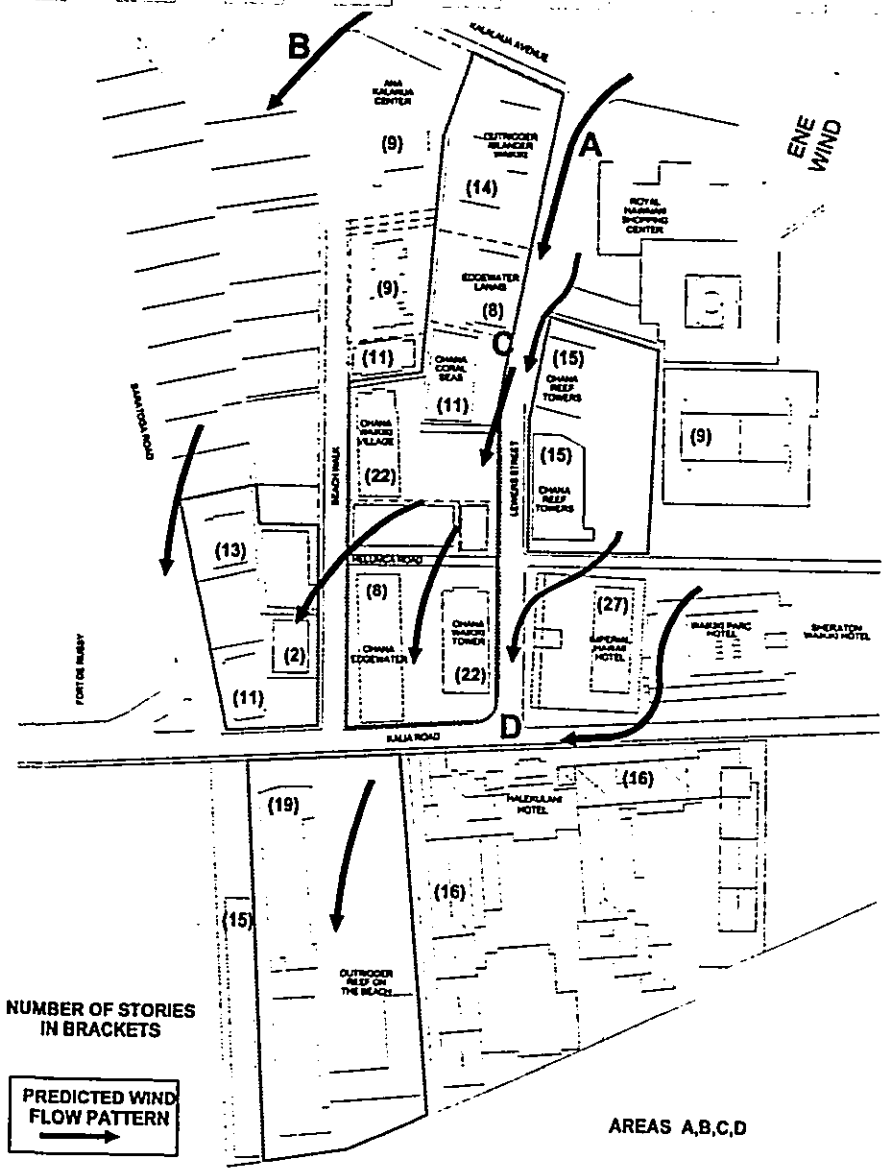
True North

Drawn by: CTS | Figure: 1

Approx. Scale: NTS

Date Revised: Oct. 4, 2001

RWDI



NUMBER OF STORIES IN BRACKETS

PREDICTED WIND FLOW PATTERN

AREAS A,B,C,D

Existing Site Plan and General Flow Pattern for Prevailing Winds

Waikiki Beach Walk - Honolulu, Hawaii

Project #02-1095

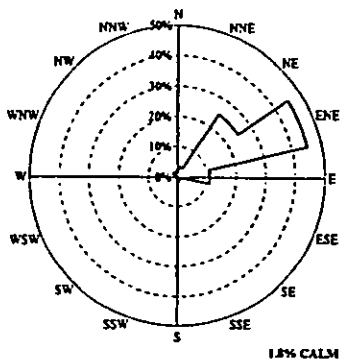
True North

Drawn by: CTS | Figure: 3

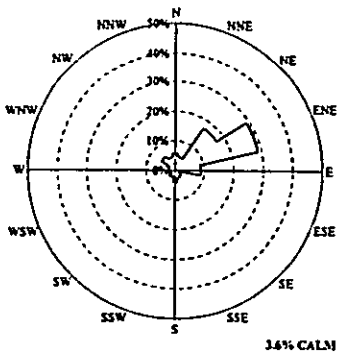
Approx. Scale: NTS

Date Revised: Oct. 4, 2001

RWDI

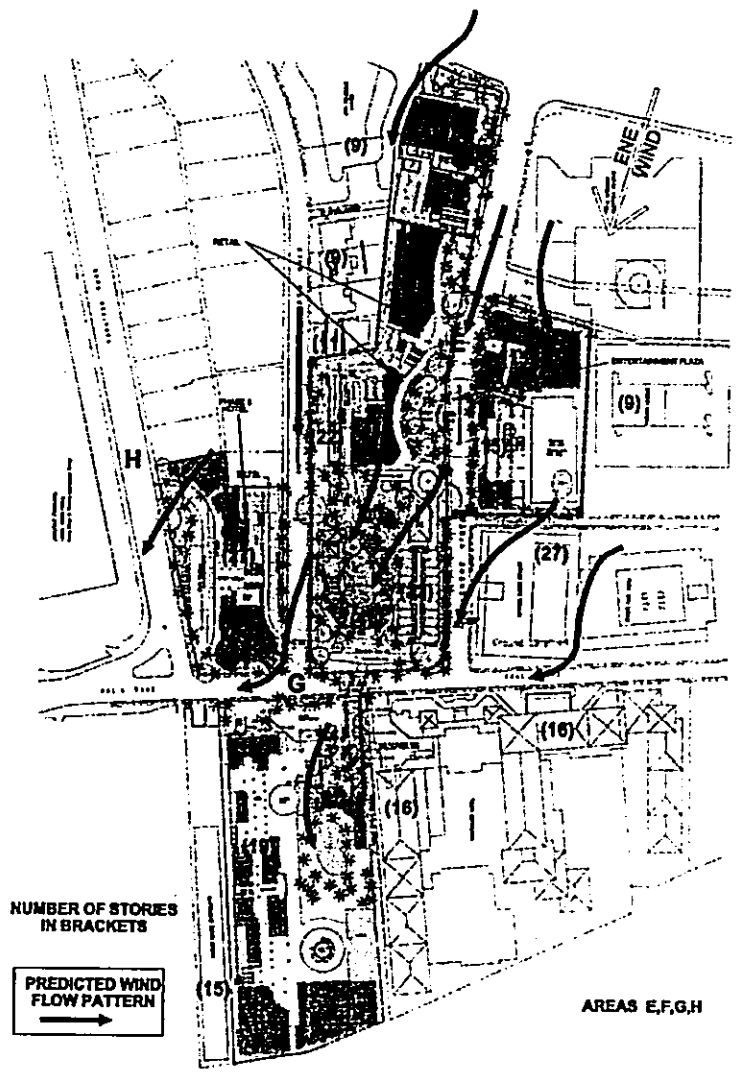


ALL SUMMER WINDS



ALL WINTER WINDS

Directional Distribution (%) of Winds (Blowing From) Honolulu International Airport, Hawaii (1949 - 1999)	Figure No. 2	RWDI
Waikiki Beach Walk — Project #02-1095	Date: October 4, 2001	



Wind Flow Pattern Affected by the Proposed Development Waikiki Beach Walk - Honolulu, Hawaii — Project #02-1095	True North	Drawn by: CTS — Figure: 4 Approx. Scale: NTS Date Revised: Oct. 4, 2001	RWDI

APPENDIX D

Impact on Surface and Groundwater Resources of the Proposed Waikīkī Beach Walk Redevelopment

Tom Nance Water Resource Engineering

September 2001

Impact on Surface and Groundwater Resources of the Proposed Waikiki Beachwalk Redevelopment

Prepared for:

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Honolulu, Hawaii 96813

September 2001

Introduction

Outrigger Enterprises, Inc. is proposing to redevelop the 7.9 acres of its Lewers/Kalia properties outlined on Figure 1. A ground level depiction of the proposed redevelopment is shown on Figure 2. In terms of ground cover by the various land uses, the redevelopment will not create a significant change:

Ground Cover Before and After the Lewers/Kalia Redevelopment

Land Use / Ground Cover	Existing Site		After Redevelopment	
	Area (Square Feet)	Percent of Site	Area (Square Feet)	Percent of Site
Buildings	302,900	88	292,600	85
Ground Level Pavement	27,500	8	34,400	10
Landscaping	13,800	4	17,200	5
Total	344,200	100	344,200	100

Note: Figures provided by Group 70 International, Inc.

This report assesses the potential impact to surface and groundwater resources that the redevelopment may cause. It begins with a general description of surface and groundwater in the vicinity of the project, then describes the drainage system that would be used, and finally discusses the potential impacts.

Overview of Hydro-Geologic Conditions

Underlying Geology. The project site sits on a thick coastal caprock formation comprised of marine (calcareous) sediments, some of which have been imported to fill marshes and other local depressions. Based on the logs of the nearest deep wells which are about one-half mile east of the project site (State Nos. 1649-07 to 09, Old Nos. 22, 19, and 23), the caprock is on the order of 700 to 800 feet thick. Groundwater in the Koolau volcanics which lie beneath the calcareous sedimentary layers is brackish to saline. These deep wells were drilled around the turn of the century and were sealed in the 1920s.

Due to the heterogeneous nature of the sedimentary layers, permeability varies substantially. Toward the Diamond Head end of Waikiki, clean reef deposits with high permeability can yield large quantities of saltwater to drilled wells. Within the boundaries of the project site, three shallow monitor wells were drilled for this assessment (their locations are shown on Figure 1). At least to the depths these reached (10 to 15 feet below sea level), the formation is comprised of silty sands with decomposing organics which are generally poorly permeable.

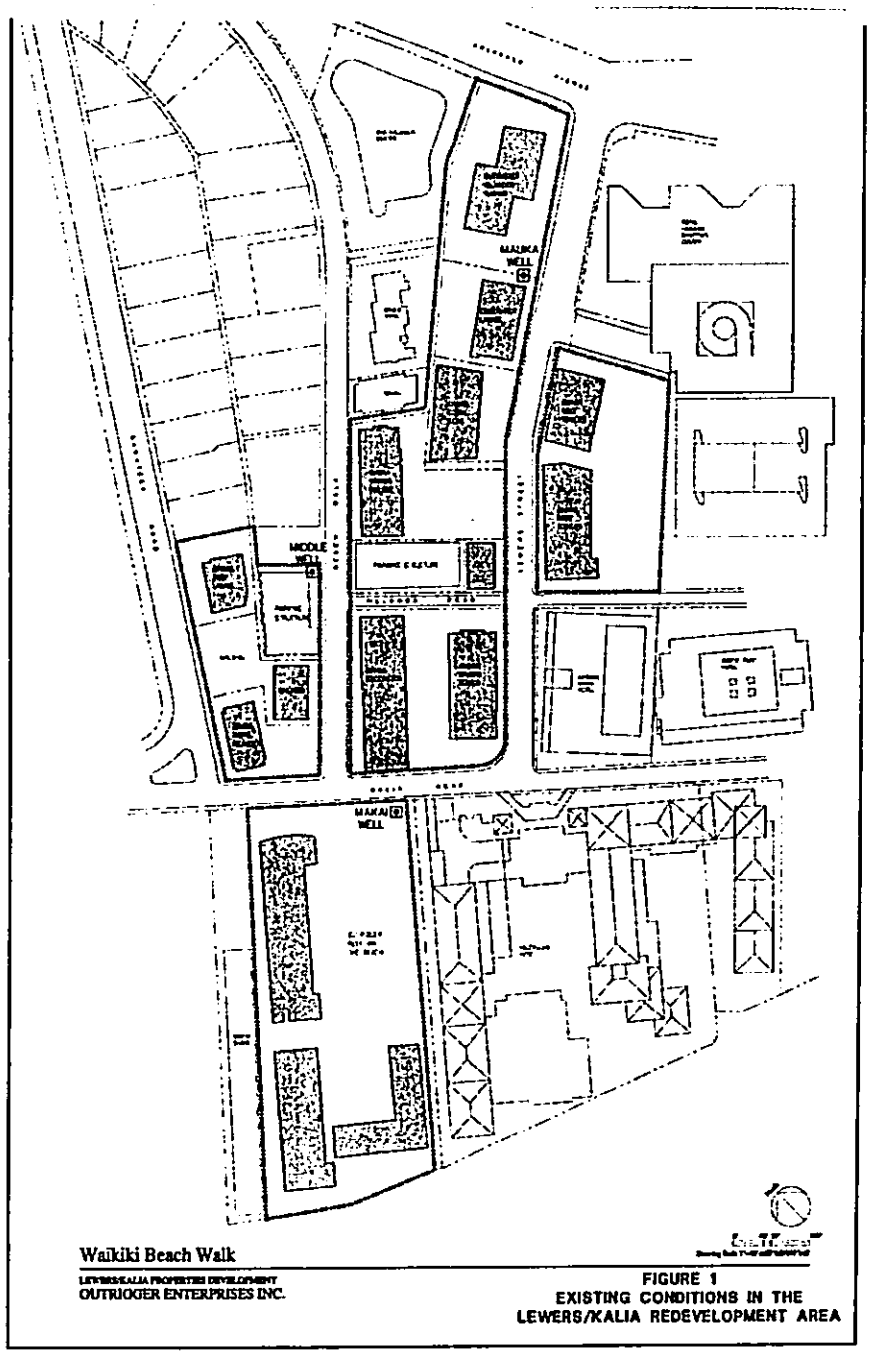


FIGURE 1
EXISTING CONDITIONS IN THE
LEWERS/KALIA REDEVELOPMENT AREA

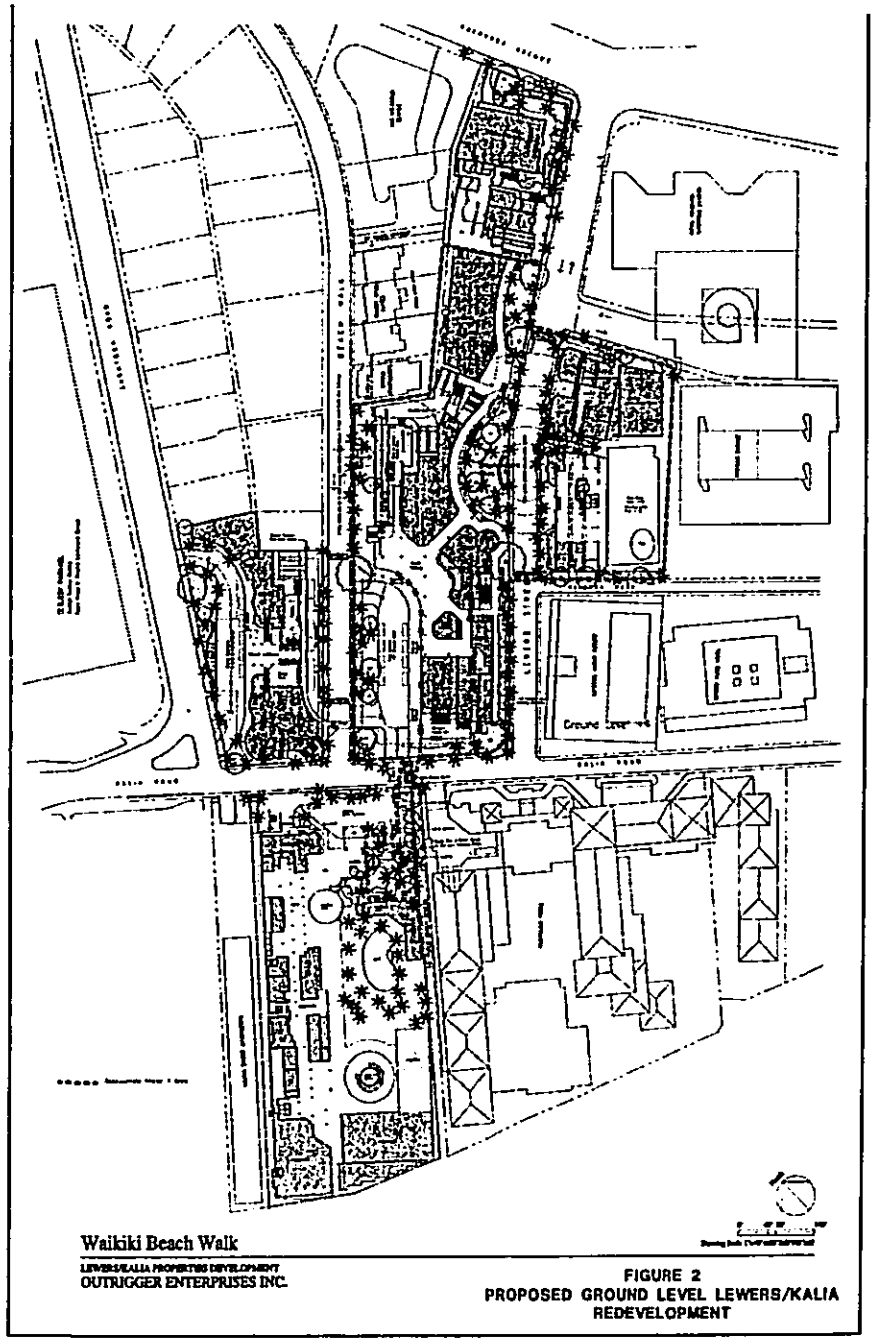


FIGURE 2
PROPOSED GROUND LEVEL LEWERS/KALIA
REDEVELOPMENT

Shallow Basal Groundwater Occurrence. Basal groundwater does exist in the calcareous sedimentary formation. As shown by the salinity profiles through the water columns of the three monitor wells on Figure 3, there is at least the form of a sigmoid-shaped salinity curve, most pronounced in the well closest to the shoreline. Clearly all the water is very saline, ranging from 24 to 33 PPT or about 70 to 95 percent seawater. As far as is known, there are no active wells which utilize this shallow groundwater.

Figure 4 presents the recorded water levels in the three monitor wells in comparison to the ocean tide (as measured in the box drain which runs to the shoreline between the Waikiki Shore Apartments and Fort DeRussy). Three aspects are immediately obvious. First, there is very little tidal response in the wells despite their close proximity to the shoreline, a clear demonstration of the limited permeability of the silty sands the wells penetrate. Second, all the water levels in the wells are below sea level. Third, these water levels are progressively lower with distance from the shoreline.

The reason the levels are below sea level and that there is a reverse gradient from the shoreline is that all the hotels and other buildings with parking or habitable floors below sea level have one or more sump pumps for dewatering. The Reef and Edgewater Hotels, for example, have six and two such sump pumping facilities, respectively. These go on and off automatically with the water level in the sump. Figure 5 illustrates the operation of one of these in the Reef Hotel basement near the Engineering Office. Over this particular 24-hour period, there were six pumping cycles. Although the instantaneous pumping rates are high (because pumps are sized to handle wet weather runoff from roof and deck drains), the rate of seepage into the sump was very small, ranging from 0.2 to 0.4 GPM. This low rate is another demonstration of the limited permeability of the silty sand formation.

Basal Groundwater Quality. Table 1 presents the nutrient concentrations and salinity of samples from the three monitor wells. Salinities are comparable to the profiles on Figure 3. High ammonia in the wells suggest some organic contamination, either as a natural occurrence in the sediments or as leakage from the sewerage systems.

Surface Water and Drainage. The Ala Wai Canal effectively intercepts all surface runoff from the watersheds inland of Waikiki, so surface water is limited to locally generated rainfall runoff from the impervious surfaces of the site and near vicinity. This runoff is handled by the system depicted on Figure 6. It consists of roadside catch basins, manholes, pipe drains, box drains, and the single ocean outlet along the boundary between the Waikiki Shores and Fort DeRussy. Because the series of sump pumps throughout the project area pull the groundwater below sea level and because all of these discharge into catch basins or manholes of the surface drainage system, the single ocean outlet next to the Reef Hotel is the sole discharge point for both surface and groundwater.

In dry weather, intermittent sump pump discharge of groundwater is the only discharge at the ocean outlet. To get a qualitative idea of whether or not the combined volume of this discharge is significant, salinity measurements were made in the drain system on falling and rising tides on August 16 and 17, 2001. On a falling tide, salinities as low as 15 PPT along Kalia Road and further inland were measured. Through the box drain alongside the Waikiki Shores, salinities progressively increased from 21 to 34.6 PPT, the latter being essentially equivalent to seawater. On a rising tide, salinities inland

FIGURE 3. SALINITY PROFILES OF THE THREE WAIKIKI BEACHWALK MONITOR WELLS

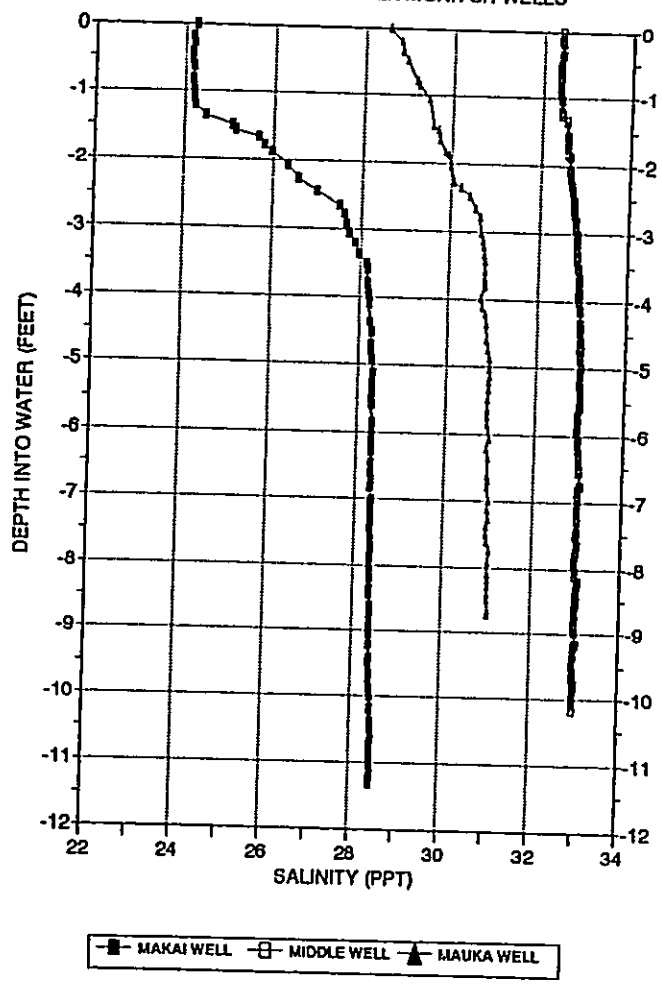


FIGURE 4. WATER LEVELS IN THE MONITOR WELLS AND OCEAN, AUGUST 2 TO 7, 2001

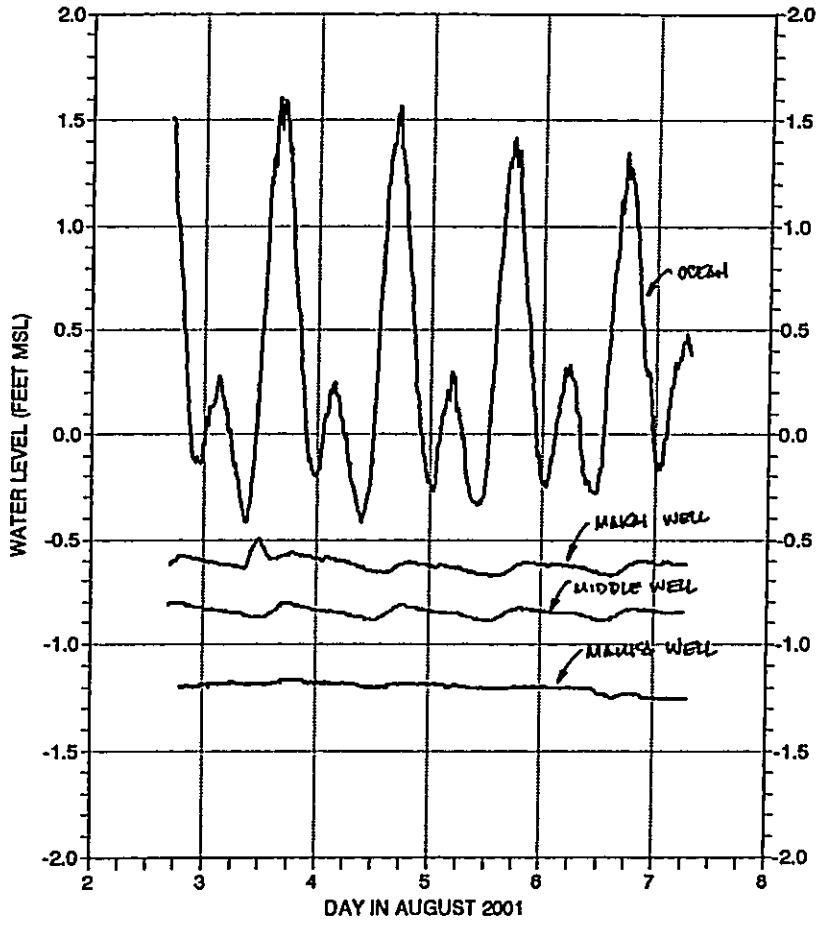


FIGURE 5. WATER LEVEL IN THE PUMP SUMP AT THE REEF HOTEL, AUG. 30 TO 31, 2001

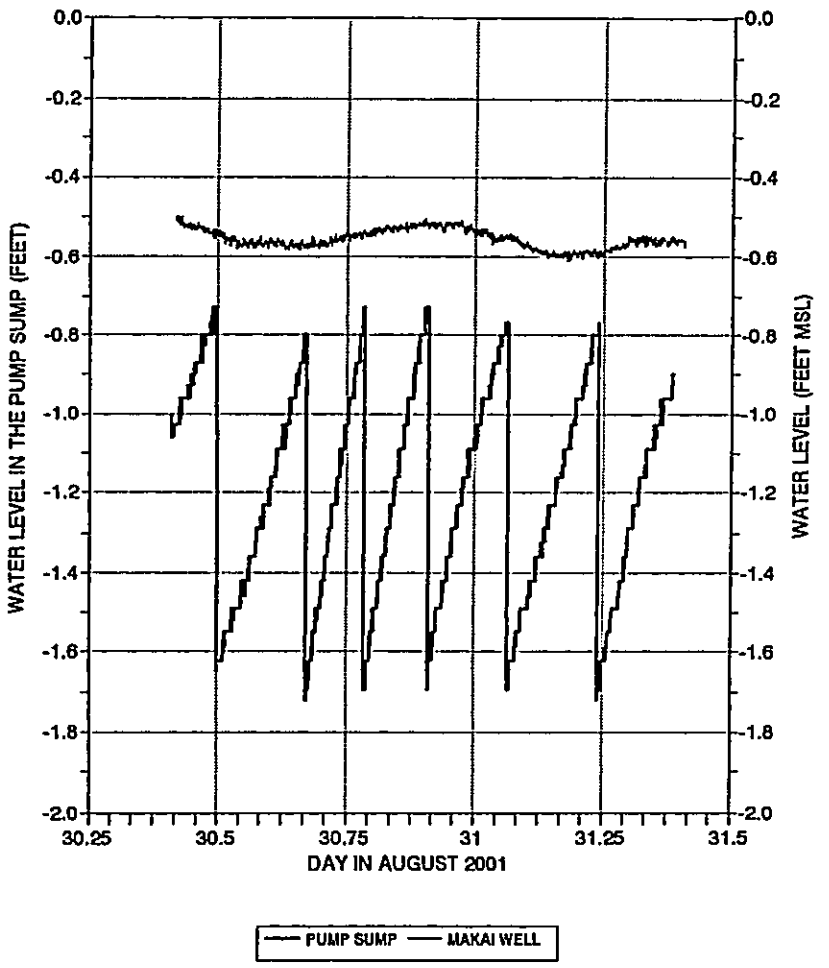


Table 1

Water Quality of Samples Collected on August 2, 2001

Parameter	Unit	Location of Sample			
		Makai Monitor Well	Middle Monitor Well	Mauka Monitor Well	Catch Basin at Kalia/Saratoga Roads
Nitrate-Nitrogen	µM	0.76	10.63	38.36	5.20
Ammonium-Nitrogen	µM	16.60	25.20	80.12	0.68
Dissolved Organic Nitrogen	µM	5.36	3.08	6.60	7.20
Total Nitrogen	µM	22.92	38.92	125.08	13.08
Phosphate Phosphorus	µM	4.84	3.48	1.32	0.68
Dissolved Organic Phosphorus	µM	0.08	0.08	0.44	0.48
Total Phosphorus	µM	4.92	3.56	1.76	1.16
pH	pH Units	7.49	7.53	7.56	7.98
Salinity	PPT	25.16	33.13	27.29	32.33
Silica	µM	275	190	244	63.3

Notes: 1. Samples were collected on a rising tide on August 2, 2001.
2. Samples were analyzed by Marine Analytical Laboratory.

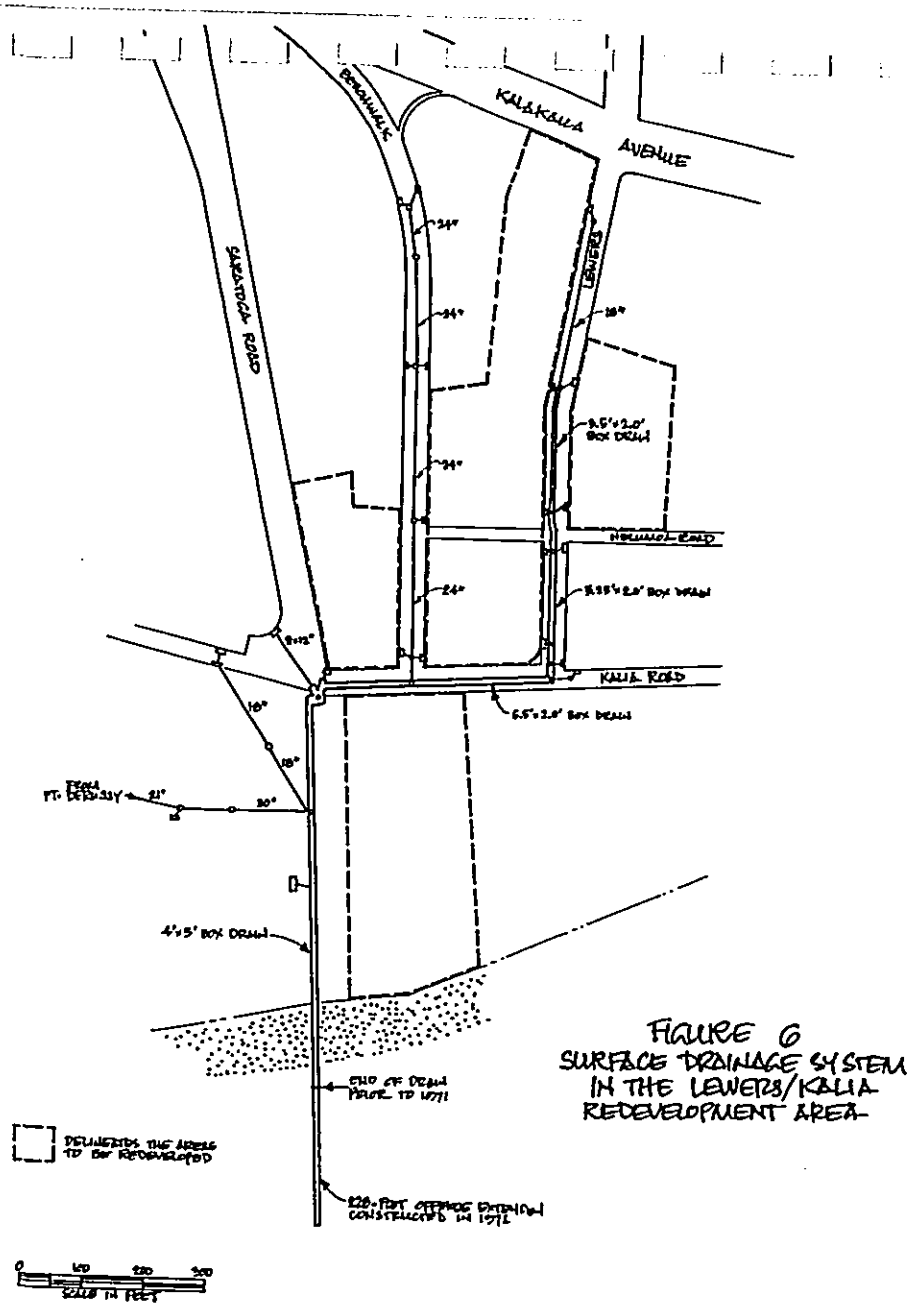


FIGURE 6
SURFACE DRAINAGE SYSTEM IN THE LEWERS/KALIA REDEVELOPMENT AREA

of Kalia were 25 to 26 PPT and from 26 to 29 PPT along Kalia Road itself. Salinities along almost the entire length of the box drain next to the Reef Hotel were essentially seawater. In other words, inflow on a rising tide exceeds the combined rate of sump pump discharge. It is clear that only a modest combined rate of pumping is necessary to lower the groundwater table below sea level throughout the site.

Changes to the Surface and Groundwater Drainage System Resulting From Redevelopment of the Lewers/Kalia Properties

The surface water drainage system, which also serves as the discharge system for sump-pumped groundwater, will remain intact and be utilized as-is by the redeveloped properties. As seen in the pre- and post-redevelopment depictions on Figures 1 and 2, Helumoa Road between Beachwalk and Lewers would be cut off. However, it contains none of the catch basins or conduits which comprise the drainage system (refer back to Figure 6).

The redeveloped project will contain an unspecified number of sump pumping facilities sufficient to keep groundwater levels at about the same depth below sea level as they are held at present. All of these sump pumping systems will utilize the drain system for disposal, essentially duplicating the present practice for which all surface and groundwater is discharged to the shoreline via the structure between the Waikiki Shores and Fort DeRussy.

Potential Impact to Surface and Groundwater Resources

The type of resort-related land uses, pre- and post-development, will be essentially the same. The ground cover, expressed as impervious surfaces versus landscaped areas, will be changed only modestly (refer to the comparison in the introduction to this report). Both surface runoff and groundwater will continue to be discharged via the same ocean outlet. As such, the impact on surface and groundwater resources due to the redevelopment will not be significant.

If it is assumed that surface runoff will be equivalent to 20 inches per year over the total area of the impervious surfaces of buildings and ground level pavement given previously, the pre- and post-development annual runoff volumes would be 5.15 and 5.10 million gallons, respectively. The decrease is on the order of one percent of a volume that is very small (ie. it is equivalent to less than 10 gallons per minute on a continuous basis). Relative to the mixing capacity of the receiving water at the shoreline, this change in volume will be insignificant. Further no significant change in the quality of this runoff is expectable because the land uses will be essentially the same.

The impact to shallow groundwater will occur primarily in the landscaped areas. Assuming an irrigation rate of 1.5 inches per week over the landscaped areas and that 20 percent of this would percolate to groundwater, the slightly greater landscaped area for redevelopment would increase the average percolation rate over the 7.9-acre site from 0.26 to 0.32 gallons per minute. The quantities are not significant and, as indicated previously, all of the percolate would eventually be picked up by sump pumps and discharged into the surface drainage system. No change in the quality of the percolate is expectable since cultivation practices for the landscaping are not likely to change.

APPENDIX E

Waikīkī Beach Walk Existing Landscape Inventory

Walters, Kimura, Motoda, Inc.

August 2001

OUTRIGGER REEF ON THE BEACH
POOL AND LOBBY AREA
EXISTING TREE/PALM SURVEY

NO.	COMMON NAME	HEIGHT	SPREAD	CALIPER	REMARKS
1	FAN PALM	6'	.	.	POTTED
2	FAN PALM	6'	.	.	POTTED
3	COCONUT PALM	40'	.	.	.
4	ARECA PALM CLUSTER	12'	.	.	POTTED
5	ARECA PALM CLUSTER	12'	.	.	POTTED
6	ARECA PALM CLUSTER	12'	.	.	POTTED
7	ARECA PALM CLUSTER	12'	.	.	POTTED
8	ARECA PALM CLUSTER	12'	.	.	POTTED
9	MANILA PALM	7'	.	.	.
10	DWARF PHOENIX PALM	3'	.	.	.
11	MANILA PALM	8'	.	.	.
12	MANILA PALM	8'	.	.	.
13	DWARF PHOENIX PALM	4'	.	.	.
14	DWARF PHOENIX PALM	4'	.	.	.
15	DWARF PHOENIX PALM	6'	.	.	.
16	DWARF PHOENIX PALM	6'	.	.	.
17	DWARF PHOENIX PALM	6'	.	.	.
18	DWARF PHOENIX PALM	6'	.	.	.
19	DWARF PHOENIX PALM	6'	.	.	.
20	DWARF PHOENIX PALM	6'	.	.	.
21	DWARF PHOENIX PALM	6'	.	.	.
22	MANILA PALM	10'	.	.	.
23	DWARF PHOENIX PALM	6'	.	.	.
24	DWARF PHOENIX PALM	6'	.	.	.
25	MANILA PALM	10'	.	.	.
26	DWARF PHOENIX PALM	6'	.	.	.
27	MANILA PALM	10'	.	.	.
28	DWARF PHOENIX PALM	6'	.	.	.
29	DWARF PHOENIX PALM	6'	.	.	.
30	DWARF PHOENIX PALM	6'	.	.	.
31	COCONUT PALM	70'	.	.	.
32	COCONUT PALM	70'	.	.	.
33	DWARF PHOENIX PALM	6'	.	.	.
34	DWARF PHOENIX PALM	6'	.	.	.
35	DWARF PHOENIX PALM	6'	.	.	.
36	DWARF PHOENIX PALM	6'	.	.	.
37	DWARF PHOENIX PALM	6'			.
38	DWARF PHOENIX PALM	6'			.
39	DWARF PHOENIX PALM	6'			REMOVE
40	DWARF PHOENIX PALM	6'			REMOVE
41	DWARF PHOENIX PALM	6'			
42	MANILA PALM	15'	.	.	.
43	MANILA PALM	15'	.	.	.
44	MANILA PALM	15'	.	.	.
45	SINGAPORE PLUMERIA	15'	15'	8"	
46	SINGAPORE PLUMERIA	15'	15'	8"	
47	SINGAPORE PLUMERIA	15'	15'	8"	
48	MANILA PALM	7'			
49	MANILA PALM	7'			
50	MANILA PALM	7'			

OUTRIGGER ISLANDER WAIKIKI
EXISTING TREE/PALM SURVEY

NO.	COMMON NAME	HEIGHT	SPREAD	CALIPER	REMARKS
1	SHOWER TREE	20'	15'	18"	.
2	MANILA PALM	6'	.	.	.
3	PALM	5'	.	.	.
4	MACARTHUR PALM	6'	.	.	.
5	PALM	5'	.	.	.
6	GOLD TREE	40'	20'	18"	.
7	SINGAPORE PLUMERIA	20'	15'	12"	.
8	SINGAPORE PLUMERIA	20'	15'	12"	.
9	COCONUT PALM	70'	.	.	.
10	MANILA PALM	6'	.	.	.
11	MANILA PALM	6'	.	.	.
12	MANILA PALM	6'	.	.	.
13	PLUMERIA	20'	20'	12"	.
14	MACARTHUR PALM	15'	.	.	SINGLE CANE
15	MACARTHUR PALM	15'	.	.	SINGLE CANE
16	MACARTHUR PALM	15'	.	.	SINGLE CANE
17	MACARTHUR PALM	15'	.	.	SINGLE CANE
18	MACARTHUR PALM	15'	.	.	SINGLE CANE
19	MACARTHUR PALM	15'	.	.	SINGLE CANE
20	FISHTAIL PALM	20'	.	.	.
21	FISHTAIL PALM	8'	.	.	.
22	FISHTAIL PALM	8'	.	.	.
23	MACARTHUR PALM	8'	.	.	.
24	PALM	5'	.	.	.
25	PALM	5'	.	.	.
26	PALM	5'	.	.	.
27	MACARTHUR PALM	8'	.	.	.

OUTRIGGER REEF ON THE BEACH
FRONT ENTRY AND LANAI AREA
EXISTING TREE/PALM SURVEY

47	MANILA PALM	10'			POTTED
48	MANILA PALM	10'			POTTED
49	MANILA PALM	10'			POTTED
50	MANILA PALM	10'			POTTED
51	MANILA PALM	10'			POTTED
52	MANILA PALM	10'			POTTED
53	MANILA PALM	10'			POTTED
54	MANILA PALM	10'			POTTED
55	MANILA PALM	10'			POTTED
56	MANILA PALM	10'			POTTED
57	MANILA PALM	10'			POTTED
58	MANILA PALM	10'			POTTED
59	MANILA PALM	10'			POTTED
60	MANILA PALM	10'			POTTED
61	MANILA PALM	4'			3 CLUSTER, POTTED
62	MANILA PALM	4'			3 CLUSTER, POTTED
63	DWARF PHOENIX PALM	3'	.	.	POTTED
64	DWARF PHOENIX PALM	3'			POTTED
65	DWARF PHOENIX PALM	3'			POTTED
66	DWARF PHOENIX PALM	3'			POTTED
67	DWARF PHOENIX PALM	3'			POTTED
68	DWARF PHOENIX PALM	3'			POTTED
69	COCONUT PALM	30'			.
70	COCONUT PALM	35'			.
71	COCONUT PALM	25'			.
72	COCONUT PALM	40'			.
73	COCONUT PALM	35'	.	.	.
74	COCONUT PALM	20'			.
75	COCONUT PALM	25'			.
76	COCONUT PALM	30'			.
77	COCONUT PALM	25'			.
78	COCONUT PALM	30'			.
79	SAGO PALM	3'			.
80	DWARF PHOENIX PALM	7'			.
81	MANILA PALM	10'			.
82	COCONUT PALM	35'	.	.	.
83	COCONUT PALM	45'			.
84	COCONUT PALM	40'			.
85	COCONUT PALM	35'			.
86	SEAGRAPE TREE	20'	20'	12"	.
87	SEAGRAPE TREE	20'	20'	12"	.
88	SEAGRAPE TREE	20'	20'	12"	.
89	SEAGRAPE TREE	20'	20'	12"	.
90	SEAGRAPE TREE	20'	20'	12"	.
91	SEAGRAPE TREE	20'	20'	12"	.
92	SEAGRAPE TREE	20'	20'	12"	.
93	SEAGRAPE TREE	20'	20'	12"	.

OUTRIGGER REEF ON THE BEACH
FRONT ENTRY AND LANAI AREA
EXISTING TREE/PALM SURVEY

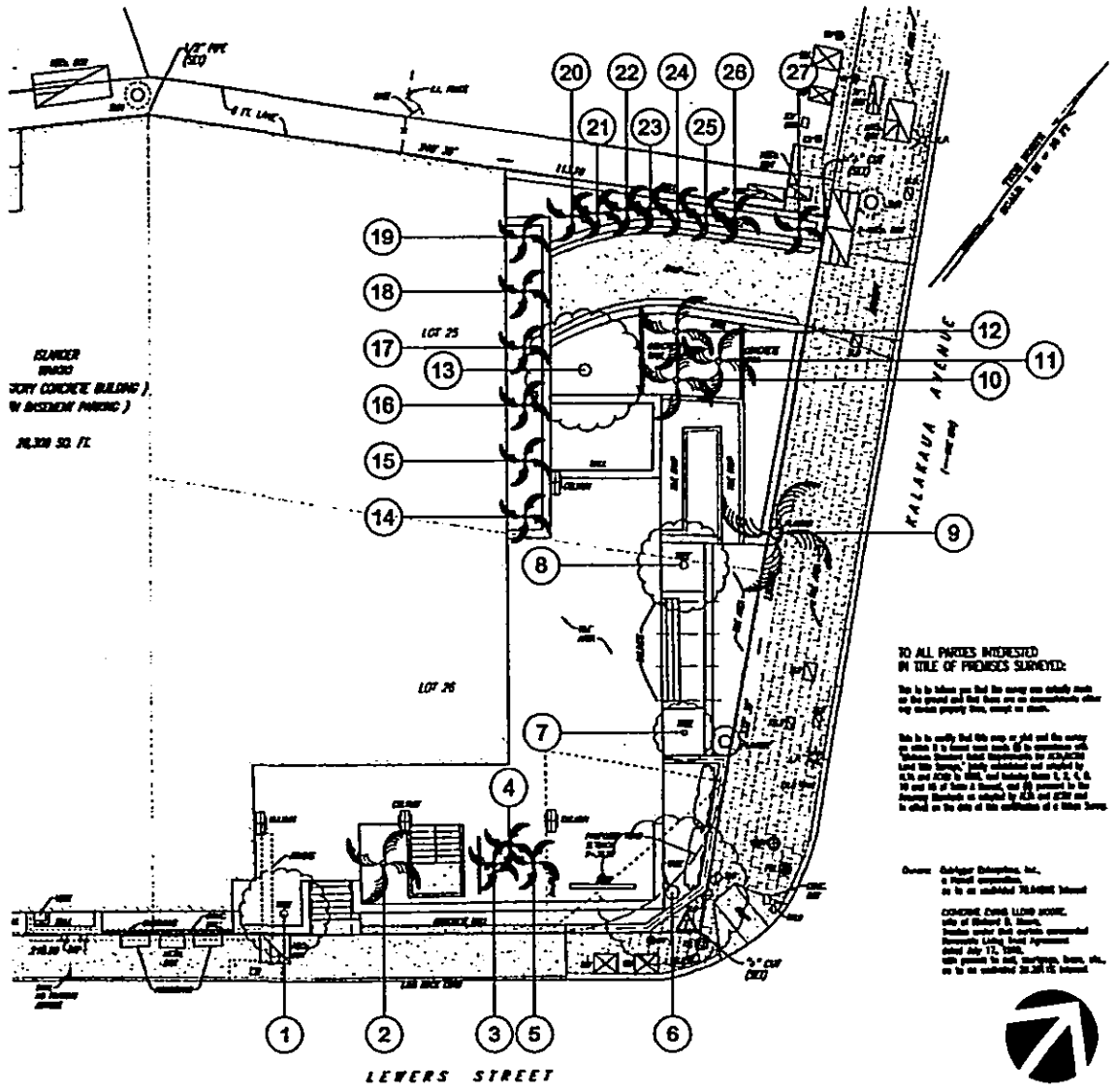
NO.	COMMON NAME	HEIGHT	SPREAD	CALIPER	REMARKS
1	TREE STUMP	10'	.	.	REMOVE
2	COCONUT PALM	40'	.	.	BENT
3	TREE STUMP	8'			REMOVE
4	COCONUT PALM	35'	.	.	.
5	COCONUT PALM	35'	.	.	.
6	COCONUT PALM	35'	.	.	.
7	COCONUT PALM	30'	.	.	
8	COCONUT PALM	30'			.
9	COCONUT PALM	30'			.
10	COCONUT PALM	30'	.	.	.
11	HALA TREE	25'	25'	8"	4 CLUSTER
12	SINGAPORE PLUMERIA	10'	8'	6"	.
13	STRAWBERRY GUAVA	8'	6'	3"	.
14	PINK TECOMA	40'	25'	12"	.
15	BRASSAIA	10'	7'	4"	.
16	BRASSAIA	10'	7'	4"	.
17	BRASSAIA	10'	7'	4"	.
18	BRASSAIA	10'	7'	4"	.
19	BRASSAIA	10'	7'	4"	.
20	BRASSAIA	10'	7'	4"	.
21	BRASSAIA	10'	7'	4"	.
22	BRASSAIA	10'	7'	4"	.
23	BRASSAIA	10'	7'	4"	.
24	BRASSAIA	10'	7'	4"	.
25	BRASSAIA	10'	7'	4"	
26	BRASSAIA	10'	7'	4"	.
27	BRASSAIA	10'	7'	4"	.
28	BRASSAIA	10'	7'	4"	.
29	BRASSAIA	10'	7'	4"	.
30	BRASSAIA	10'	7'	4"	.
31	BRASSAIA	10'	7'	4"	.
32	COCONUT PALM	50'	.	.	.
33	VERTICAL WILIWILI	30'	10'	6"	.
34	VERTICAL WILIWILI	30'	10'	6"	.
35	VERTICAL WILIWILI	30'	10'	6"	.
36	VERTICAL WILIWILI	30'	10'	6"	
37	VERTICAL WILIWILI	30'	10'	6"	.
38	VERTICAL WILIWILI	30'	10'	6"	.
39	VERTICAL WILIWILI	30'	10'	6"	.
40	VERTICAL WILIWILI	30'	10'	6"	.
41	VERTICAL WILIWILI	30'	10'	6"	
42	VERTICAL WILIWILI	30'	10'	6"	.
43	MANILA PALM	10'	.	.	POTTED
44	MANILA PALM	10'			POTTED
45	MANILA PALM	10'			POTTED
46	MANILA PALM	10'			POTTED

OHANA REEF TOWERS HOTEL
EXISTING TREE/PALM SURVEY

NO.	COMMON NAME	HEIGHT	SPREAD	CALIPER	REMARKS
1	VERTICAL WILIWILI	35'	12'	14"	.
2	VERTICAL WILIWILI	35'	12'	14"	.
3	VERTICAL WILIWILI	35'	12'	14"	.
4	VERTICAL WILIWILI	35'	12'	14"	.
5	VERTICAL WILIWILI	35'	12'	14"	.
6	VERTICAL WILIWILI	35'	12'	14"	.
7	VERTICAL WILIWILI	35'	12'	14"	.
8	VERTICAL WILIWILI	35'	12'	14"	.
9	VERTICAL WILIWILI	35'	12'	14"	.
10	VERTICAL WILIWILI	35'	12'	14"	.
11	VERTICAL WILIWILI	35'	12'	14"	.
12	VERTICAL WILIWILI	35'	12'	14"	.
13	VERTICAL WILIWILI	35'	12'	14"	.
14	COCONUT PALM	60'	.	.	.
15	COCONUT PALM	60'	.	.	.
16	COCONUT PALM	60'			BENT
17	COCONUT PALM	60'	.	.	.
18	COCONUT PALM	60'	.	.	BENT
19	COCONUT PALM	25'			.
20	COCONUT PALM	50'			.
21	COCONUT PALM	50'			.
22	COCONUT PALM	35'			.
23	KUKUI NUT TREE	30'	20'	14"	.
24	COCONUT PALM	45'			BENT
25	COCONUT PALM	30'			
26	COCONUT PALM	50'			REMOVE
27	COCONUT PALM	25'			.
28	BRASSAIA	16'	12'	12"	REMOVE
29	COCONUT PALM	60'			.
30	COCONUT PALM	60'			.
31	COCONUT PALM	60'	.	.	.
32	BRASSAIA	10'	8'	2"	REMOVE
33	COCONUT PALM	60'	.	.	REMOVE
34	COCONUT PALM	45'	.	.	.
35	ARECA PALM	15'	.	.	.
36	ARECA PALM	15'	.	.	
37	ARECA PALM	15'			.
38	BRASSAIA	15'	8'	2"	REMOVE
39	ARECA PALM	15'	.	.	.
40	ARECA PALM	15'	.	.	.
41	COCONUT PALM	20'			
42	COCONUT PALM	20'	.	.	.
43	TREE	20'	20'	4"	.
44	FAN PALM	6'			.
45	BRASSAIA	14'	12'	2"	
46	SAGO PALM	6'			.
47	COCONUT PALM	40'			.
48	SAGO PALM	6'			.
49	SAGO PALM	6'			.
50	BRASSAIA	14'	12'	3"	.
51	DRACAENA	14'	12'	2"	.
52	BRASSAIA	14'	12'	2"	.
53	BRASSAIA	14'	12'	2"	
54	BRASSAIA	7'	6'	2"	.
55	COCONUT PALM	40'	.	.	.
56	COCONUT PALM	40'	.	.	
57	DATE PALM	25'	.	.	.
58	COCONUT PALM	40'			
59	COCONUT PALM	60'			CUT OUT SKYLIGHT
60	COCONUT PALM	60'			CUT OUT SKYLIGHT

OUTRIGGER ISLANDER WAIKIKI
EXISTING TREE/PALM SURVEY

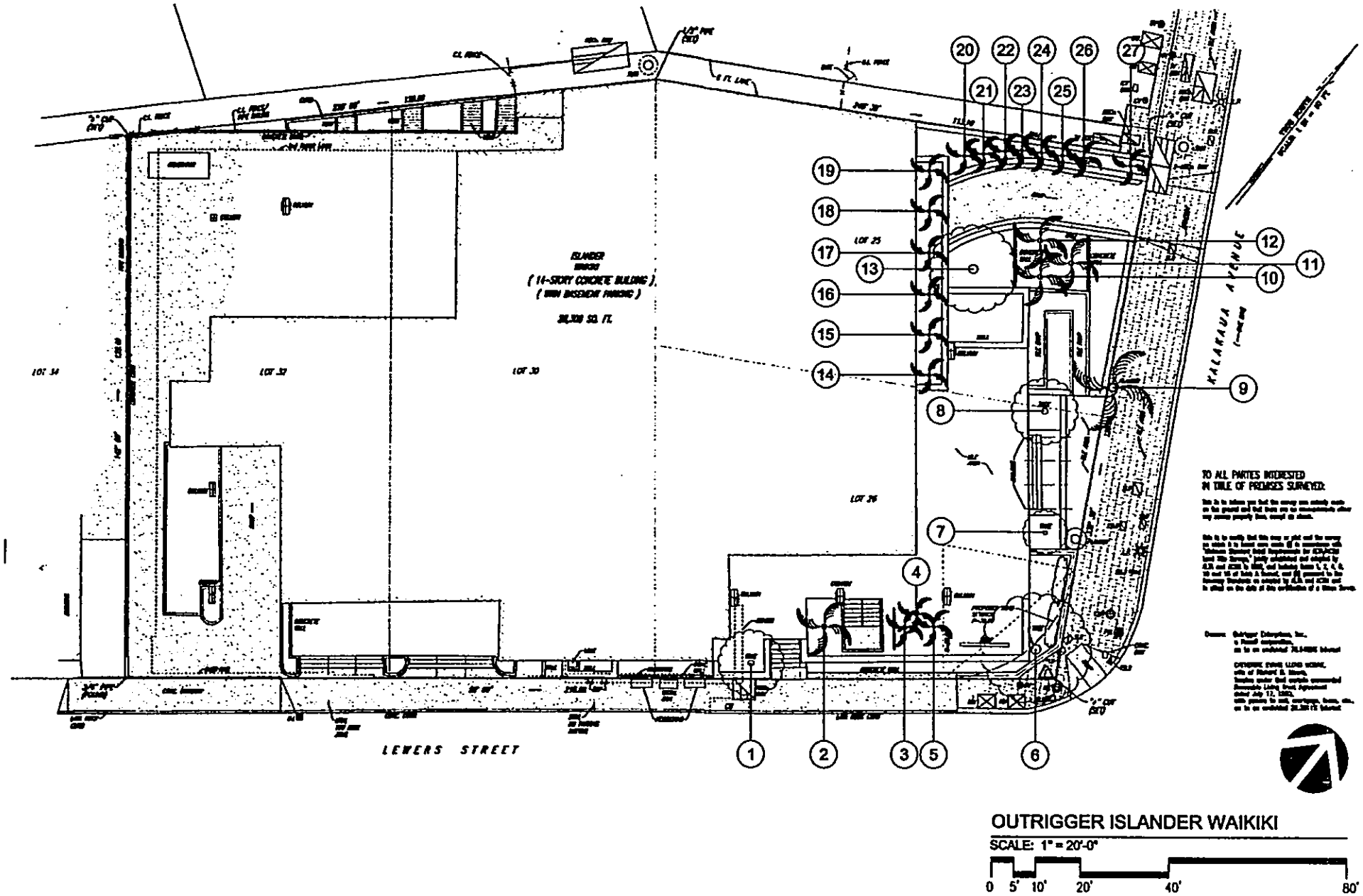
NO.	COMMON NAME	HEIGHT	SPREAD	CALIPER	REMARKS
1	SHOWER TREE	20'	15'	18"	.
2	MANILA PALM	6'	.	.	.
3	PALM	5'	.	.	.
4	MACARTHUR PALM	6'	.	.	.
5	PALM	5'	.	.	.
6	GOLD TREE	40'	20'	18"	.
7	SINGAPORE PLUMERIA	20'	15'	12"	.
8	SINGAPORE PLUMERIA	20'	15'	12"	.
9	COCONUT PALM	70'	.	.	.
10	MANILA PALM	6'	.	.	.
11	MANILA PALM	6'	.	.	.
12	MANILA PALM	6'	.	.	.
13	PLUMERIA	20'	20'	12"	.
14	MACARTHUR PALM	15'	.	.	SINGLE CANE
15	MACARTHUR PALM	15'	.	.	SINGLE CANE
16	MACARTHUR PALM	15'	.	.	SINGLE CANE
17	MACARTHUR PALM	15'	.	.	SINGLE CANE
18	MACARTHUR PALM	15'	.	.	SINGLE CANE
19	MACARTHUR PALM	15'	.	.	SINGLE CANE
20	FISHTAIL PALM	20'	.	.	.
21	FISHTAIL PALM	8'	.	.	.
22	FISHTAIL PALM	8'	.	.	.
23	MACARTHUR PALM	8'	.	.	.
24	PALM	5'	.	.	.
25	PALM	5'	.	.	.
26	PALM	5'	.	.	.
27	MACARTHUR PALM	8'	.	.	.

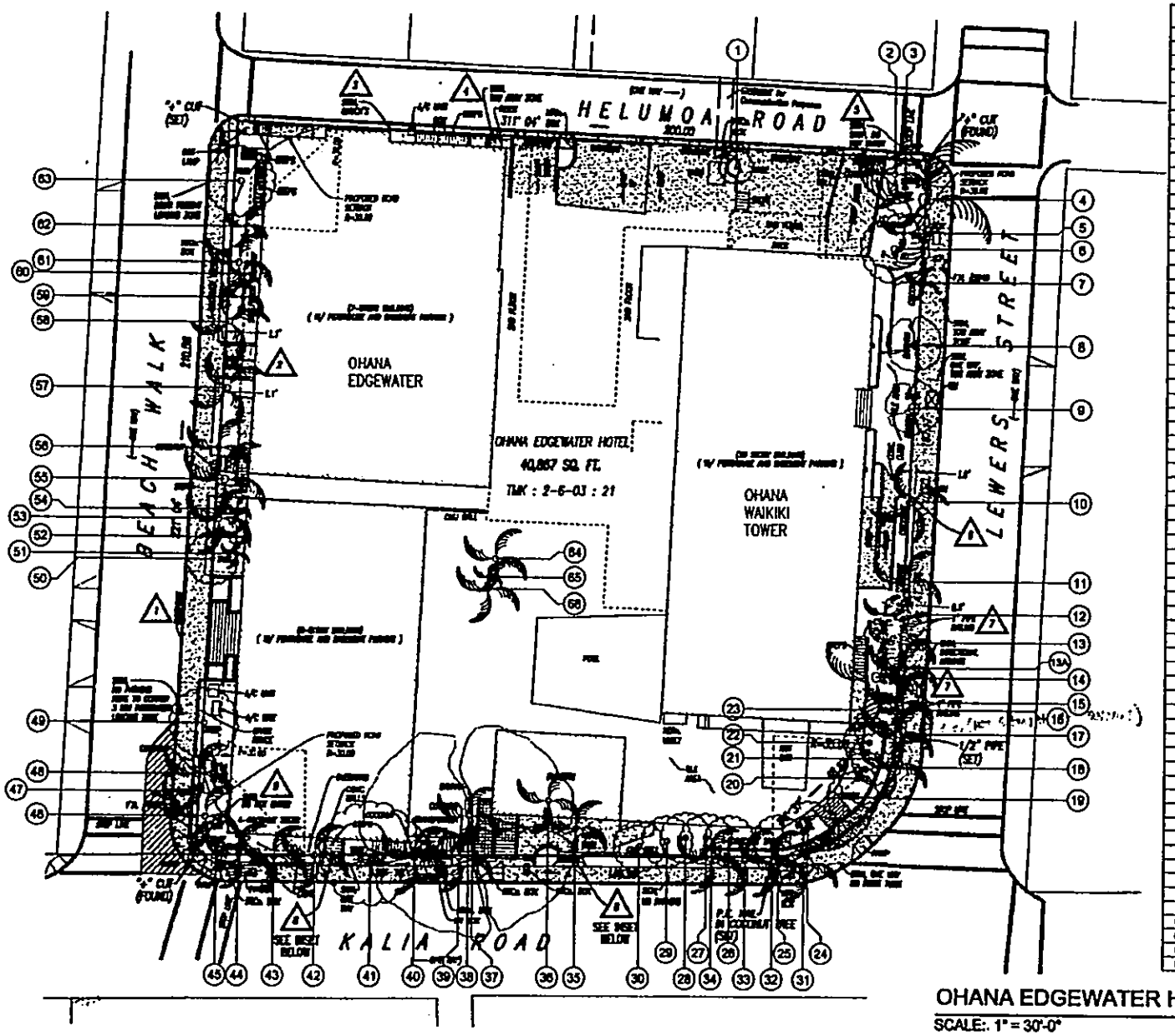


OUTRIGGER ISLANDER WAIKIKI

SCALE: 1" = 20'-0"

0 5' 10' 20' 40' 80'


ISLANDER
(11-STORY CONCRETE BUILDING)
(WITH BASEMENT PARKING)
LOT 34
LOT 32
LOT 30
LOT 25
LOT 26
KALAKAUA AVENUE
LEWERS STREET
TO ALL PARTIES INTERESTED
IN TRUE OF PROMISES SURVEYED:
OUTRIGGER ISLANDER WAIKIKI
SCALE: 1" = 20'-0"
0 5' 10' 20' 40' 80'

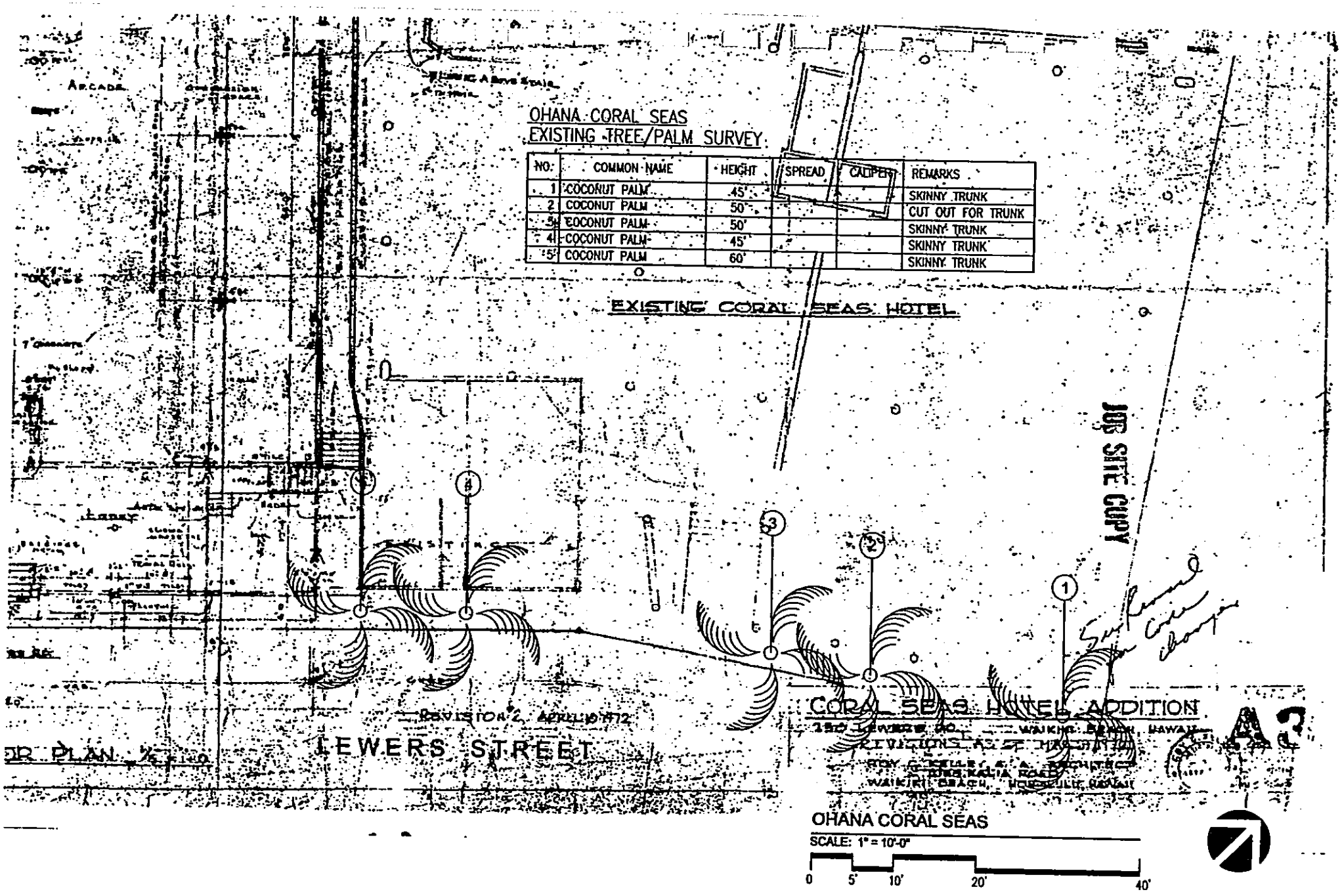


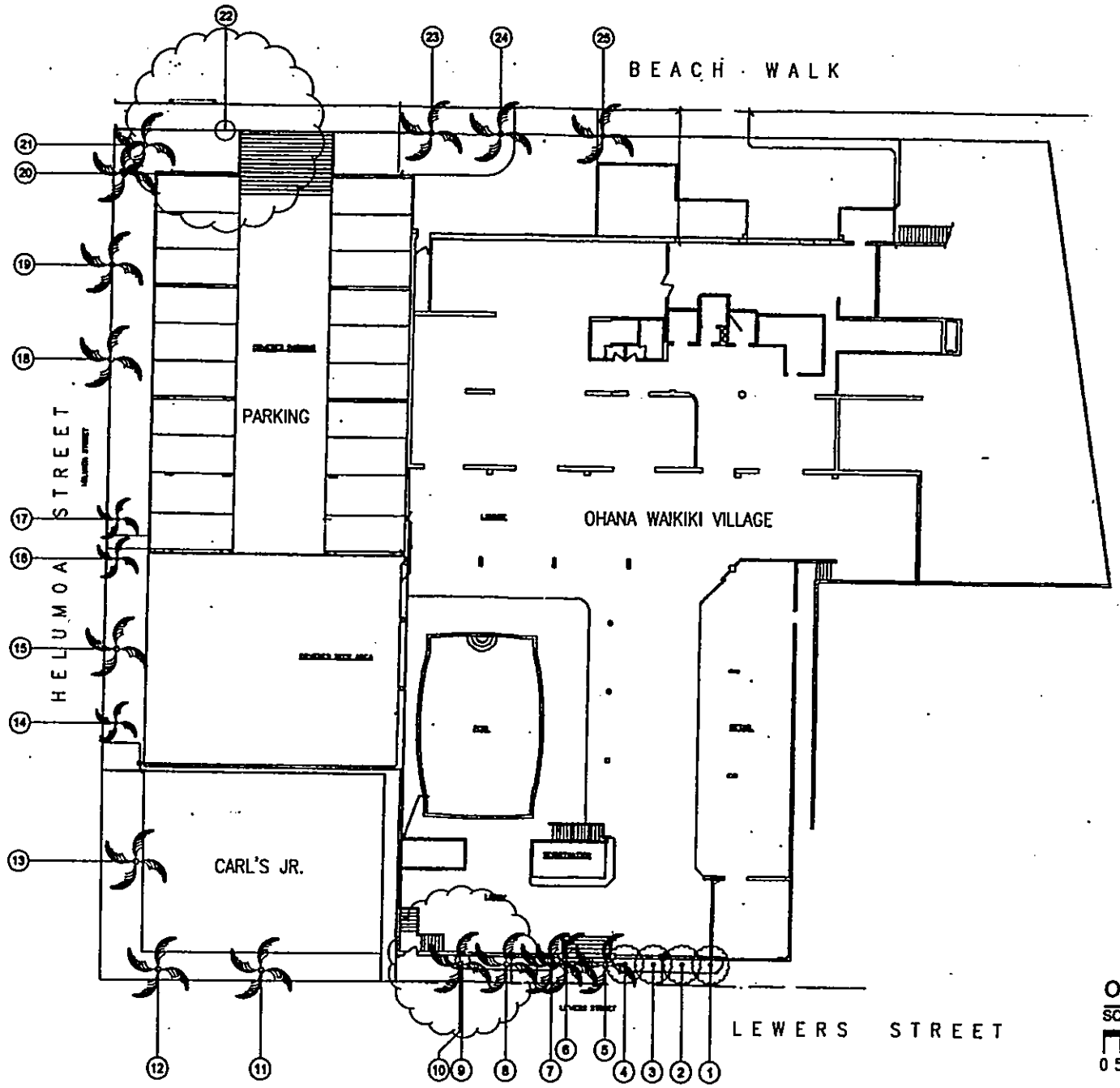
OHANA EDGEWATER HOTEL/OHANA WAIKIKI TOWER
EXISTING TREE/PALM SURVEY

NO.	COMMON NAME	HEIGHT	SPREAD	CALIPER	REMARKS
1	DOES NOT EXIST	-	-	-	-
2	COCONUT PALM	60'	-	-	-
3	BRASSAIA	20'	20'	8"	-
4	COCONUT PALM	55'	-	-	-
5	LOULU FAN PALM	15'	-	-	-
6	DRACAENA	15'	-	-	(2) CLUMPS
7	COCONUT PALM	50'	-	-	SMALL CROWN
8	BANYAN TREE	20'	20'	12"	-
9	BANYAN TREE	20'	20'	12"	-
10	COCONUT PALM	70'	-	-	-
11	COCONUT PALM	70'	-	-	-
12	MANILA PALM	15'	-	-	-
13	COCONUT PALM	70'	-	-	-
13A	COCONUT PALM	70'	-	-	-
14	COCONUT PALM	30'	-	-	-
15	COCONUT PALM	70'	-	-	-
16	BRASSAIA	25'	20'	8"	-
17	COCONUT PALM	70'	-	-	-
18	COCONUT PALM	70'	-	-	-
19	BRASSAIA	25'	15'	12"	-
20	BRASSAIA	25'	15'	12"	-
21	BRASSAIA	25'	15'	12"	-
22	BRASSAIA	25'	15'	12"	-
23	BRASSAIA	25'	15'	12"	-
24	BRASSAIA	30'	15'	12"	-
25	NORFOLK PINE	40'	-	3'	DEMOLISH
26	BRASSAIA	30'	15'	18"	-
27	BRASSAIA	30'	15'	18"	-
28	BRASSAIA	30'	15'	18"	-
29	BRASSAIA	30'	15'	18"	-
30	BRASSAIA	30'	15'	18"	-
31	COCONUT PALM	70'	-	-	-
32	COCONUT PALM	70'	-	-	-
33	COCONUT PALM	70'	-	-	-
34	COCONUT PALM	70'	-	-	-
35	COCONUT PALM	70'	-	-	-
36	COCONUT PALM	70'	-	-	CUT-OUT IN ROOF
37	BANYAN TREE	50'	60'	4"	-
38	COCONUT PALM	65'	-	-	-
39	COCONUT PALM	70'	-	-	-
40	COCONUT PALM	70'	-	-	-
41	FALSE KAMANI	50'	30'	2'	LEANS ACROSS ROAD
42	COCONUT PALM	70'	-	-	-
43	COCONUT PALM	70'	-	-	-
44	COCONUT PALM	70'	-	-	-
45	SINAPORE PLUMERIA	20'	20'	6"	-
46	COCONUT PALM	70'	-	-	-
47	TRUE KAMANI	40'	25'	2'	-
48	COCONUT PALM	70'	-	-	-
49	BRASSAIA	25'	25'	12"	-
50	BRASSAIA	30'	20'	2'	-
51	ARECA PALM	20'	-	-	-
52	ARECA PALM	20'	-	-	-
53	COCONUT PALM	40'	-	-	LARGE BEND
54	ARECA PALM	20'	-	-	-
55	COCONUT PALM	65'	-	-	-
56	COCONUT PALM	-	-	-	REMOVE STUMP
57	COCONUT PALM	45'	-	-	-
58	COCONUT PALM	50'	-	-	-
59	LOULU FAN PALM	1'	-	-	-
60	MACARTHUR PALM	15'	-	-	-
61	COCONUT PALM	50'	-	-	-
62	LOULU FAN PALM	1'	-	-	-
63	BRASSAIA	30'	20'	3'	-
64	COCONUT PALM	35'	-	-	-
65	ARECA PALM	20'	-	-	-
66	COCONUT PALM	40'	-	-	-

OHANA EDGEWATER HOTEL/OHANA WAIKIKI TOWER
SCALE:. 1" = 30'-0"

0 5'10' 20' 30' 60' 120'

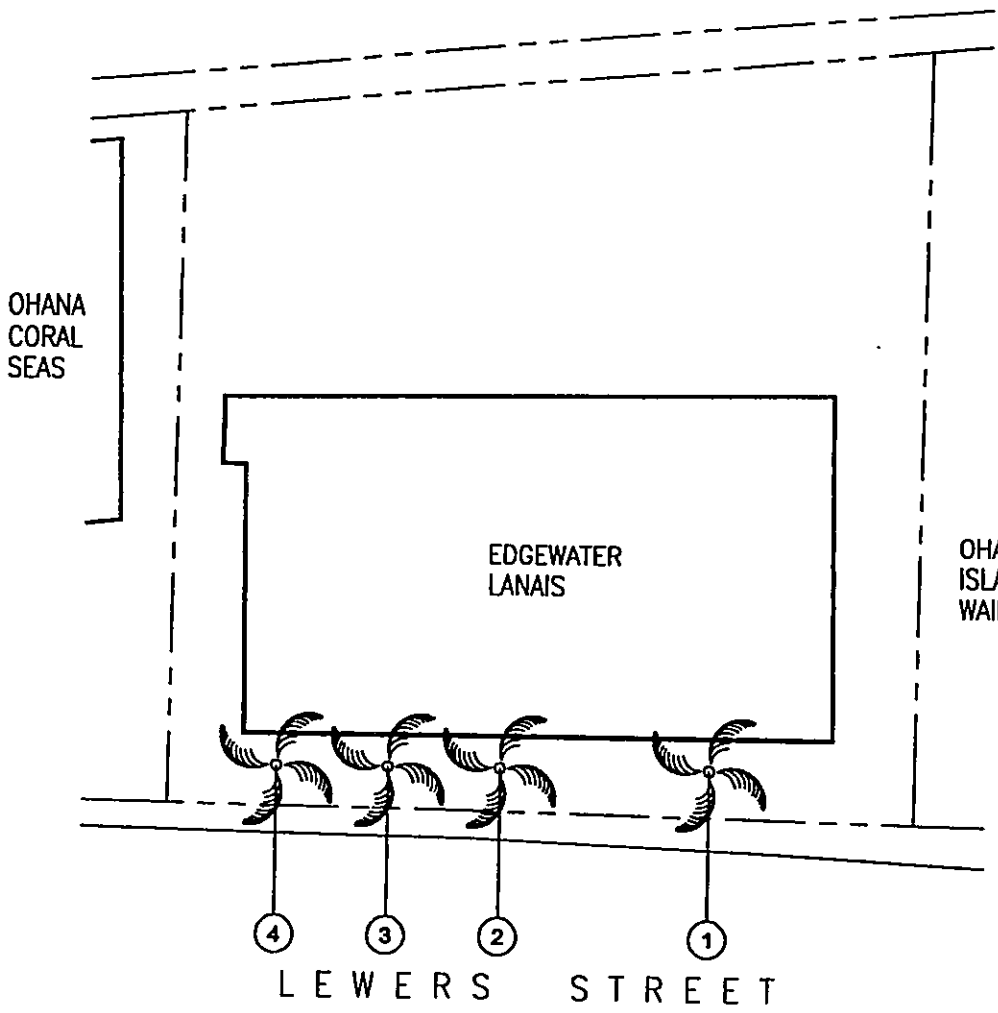

OHANA CORAL SEAS
EXISTING TREE/PALM SURVEY:
NO: | COMMON NAME | HEIGHT | SPREAD | CALIPER | REMARKS
1 | COCONUT PALM | 45' | | | SKINNY TRUNK
2 | COCONUT PALM | 50' | | | CUT OUT FOR TRUNK
3 | COCONUT PALM | 50' | | | SKINNY TRUNK
4 | COCONUT PALM | 45' | | | SKINNY TRUNK
5 | COCONUT PALM | 60' | | | SKINNY TRUNK
EXISTING CORAL SEAS HOTEL
JOB SITE COPY
LEWERS STREET
REVISION 2, APRIL 10 1972
CORAL SEAS HOTEL ADDITION
OHANA CORAL SEAS
SCALE: 1" = 10'-0"
0 5' 10' 20' 40'
A3



OHANA WAIKIKI VILLAGE/PARKING/CARL'S JR.
EXISTING TREE/PALM SURVEY

NO.	COMMON NAME	HEIGHT	SPREAD	CALIPER	REMARKS
1	BRASSAIA	20'	15'	6"	.
2	BRASSAIA	20'	15'	6"	.
3	BRASSAIA	20'	15'	6"	.
4	BRASSAIA	20'	15'	6"	.
5	COCONUT PALM	70'	.	.	.
6	COCONUT PALM	60'	.	.	SKINNY TRUNK
7	COCONUT PALM	50'	.	.	.
8	COCONUT PALM	70'	.	.	.
9	BANYAN TREE	45'	50'	3'	.
10	COCONUT PALM	45'	.	.	.
11	COCONUT PALM	70'	.	.	.
12	COCONUT PALM	70'	.	.	.
13	COCONUT PALM	65'	.	.	.
14	LOULU FAN PALM	8'	.	.	.
15	COCONUT PALM	70'	.	.	.
16	ARECA PALM	20'	.	.	.
17	ARECA PALM	20'	.	.	.
18	COCONUT PALM	20'	.	.	.
19	COCONUT PALM	20'	.	.	.
20	COCONUT PALM	10'	.	.	.
21	COCONUT PALM	15'	.	.	.
22	MONKEYPOD TREE	40'	60'	4'	.
23	COCONUT PALM	60'	.	.	.
24	COCONUT PALM	50'	.	.	.
25	COCONUT PALM	60'	.	.	.

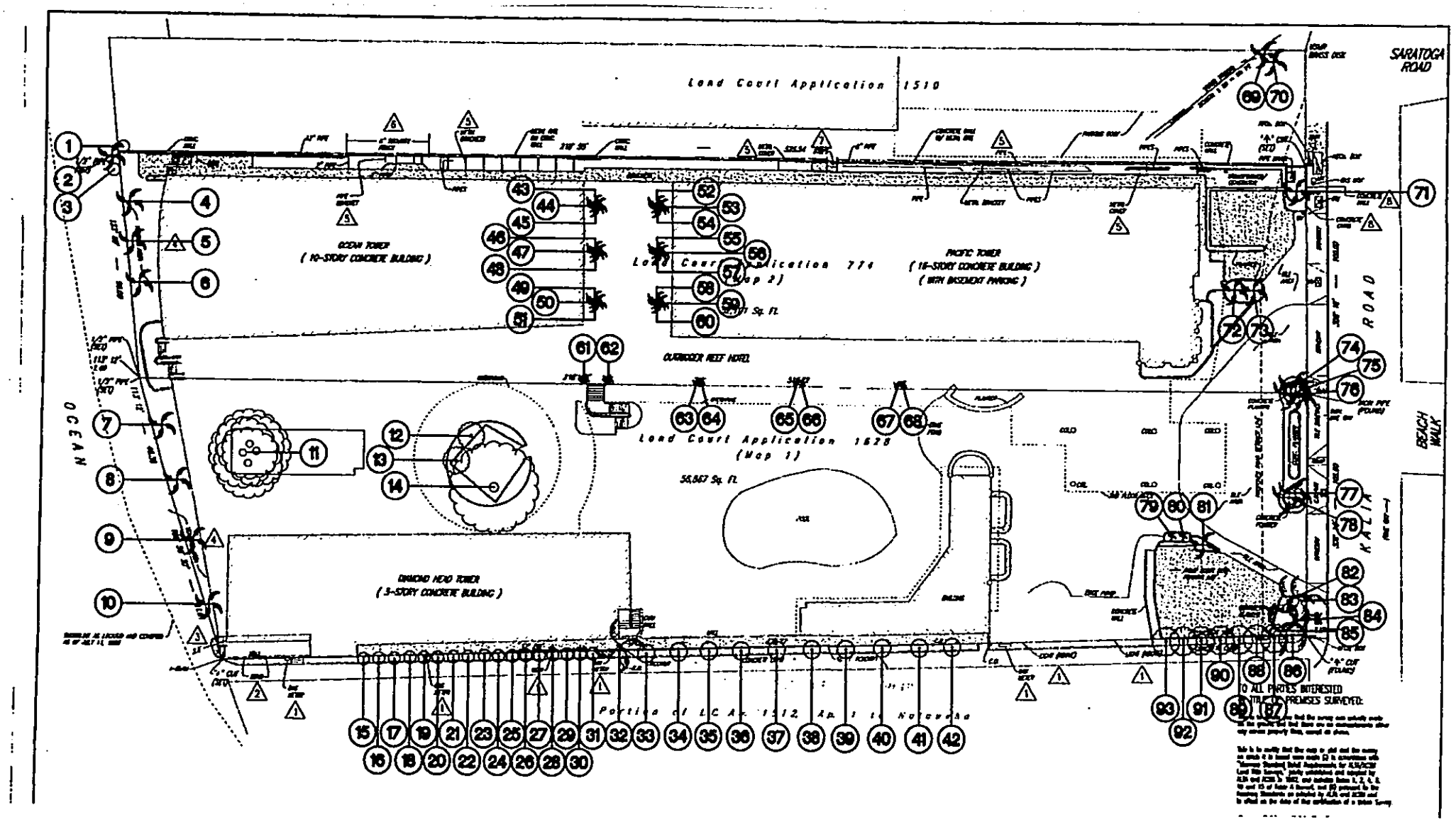
OHANA WAIKIKI VILLAGE/PARKING/CARL'S JR.
SCALE: 1" = 30'-0"
0 5'10' 20' 30' 60' 120'



EDGEWATER LANAIS
EXISTING TREE/PALM SURVEY

NO.	COMMON NAME	HEIGHT	SPREAD	CALIPER	REMARKS
1	COCONUT PALM	70'	.	.	KINK @ 45'
2	COCONUT PALM	70'	.	.	KINK @ 45'
3	COCONUT PALM	65'	.	.	KINK @ 45'
4	COCONUT PALM	70'	.	.	.

EDGEWATER LANAIS
SCALE: 1" = 20'-0"
0 5' 10' 20' 40' 80'

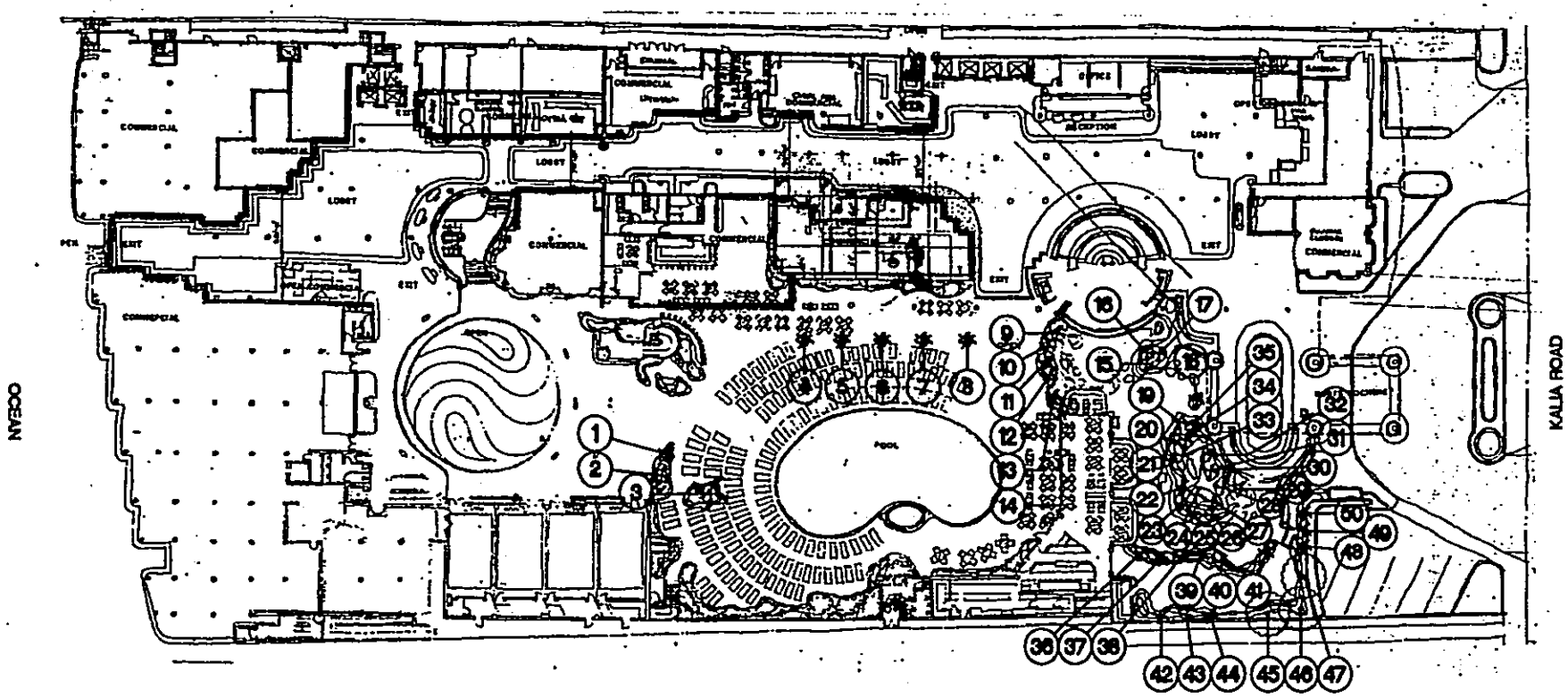


OUTRIGGER REEF ON THE BEACH

FRONT ENTRY AND LANAI AREA

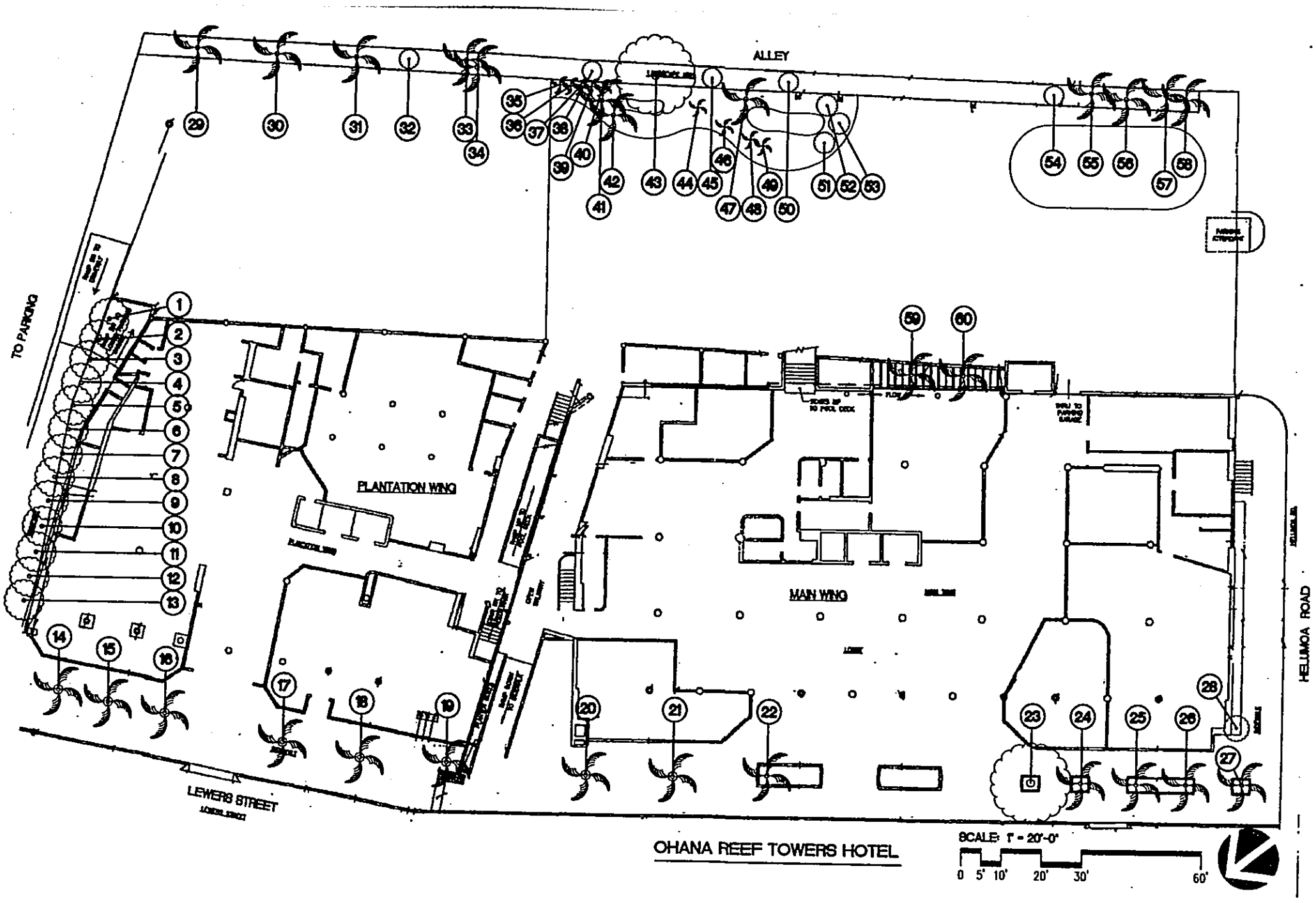
SCALE: 1" = 40'-0"

0 10' 20' 40' 60' 120'



OUTRIGGER REEF ON THE BEACH
POOL AND LOBBY AREA
SCALE: 1" = 40'-0"

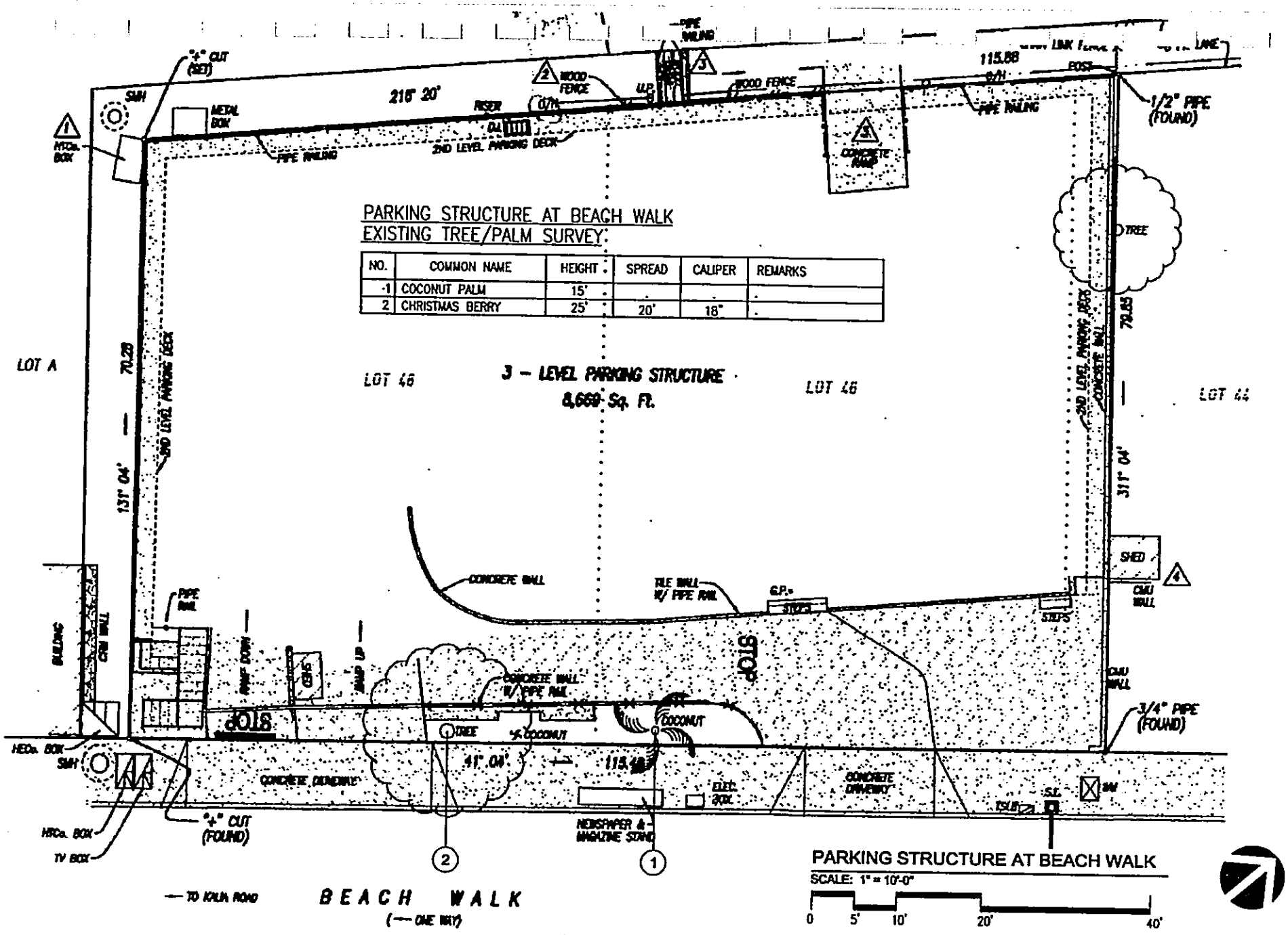
0 10' 20' 40' 60' 120'



OHANA REEF TOWERS HOTEL

PARKING STRUCTURE AT BEACH WALK
EXISTING TREE/PALM SURVEY:

NO.	COMMON NAME	HEIGHT	SPREAD	CALIPER	REMARKS
-1	COCONUT PALM	15'			
2	CHRISTMAS BERRY	25'	20'	18"	

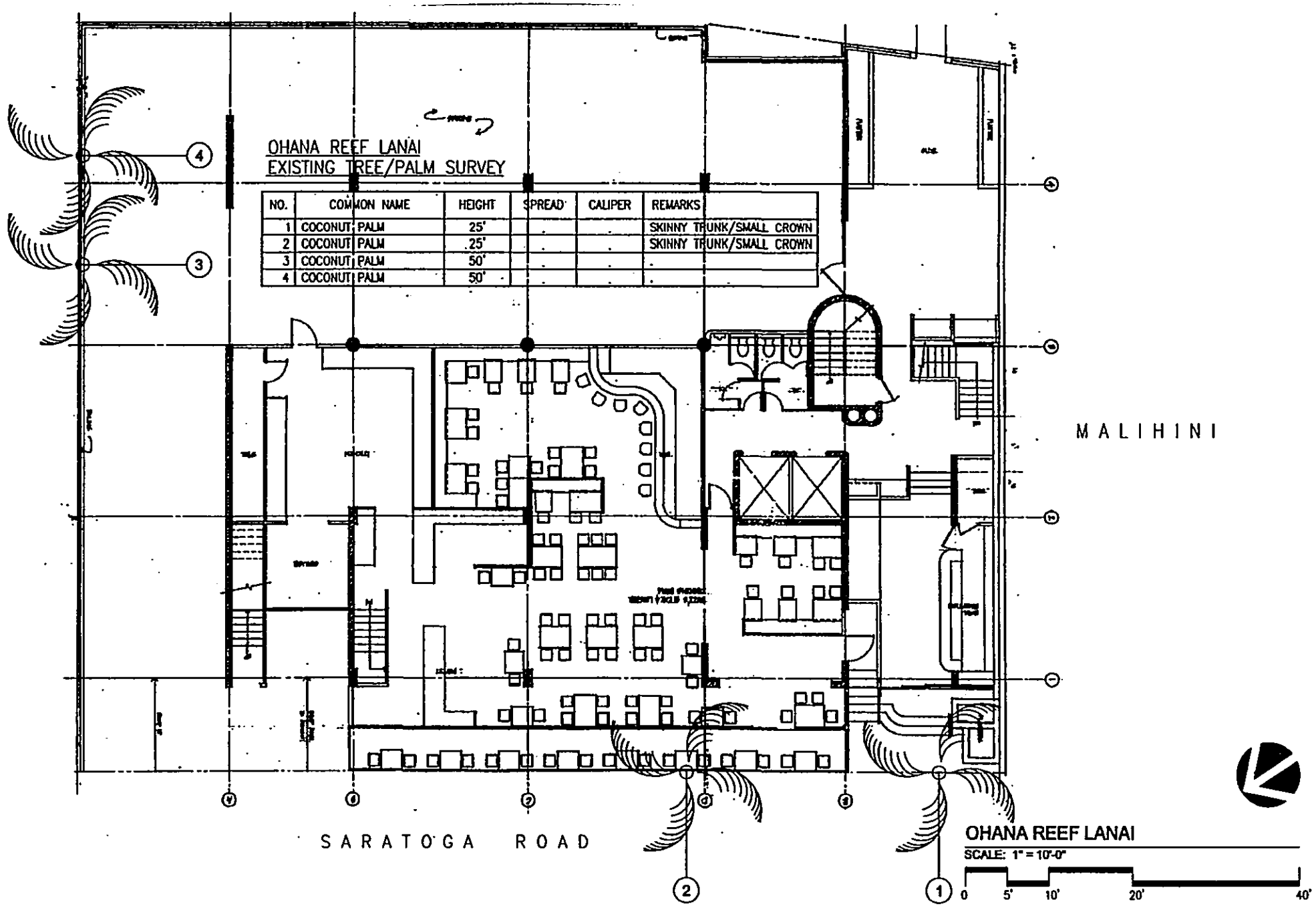


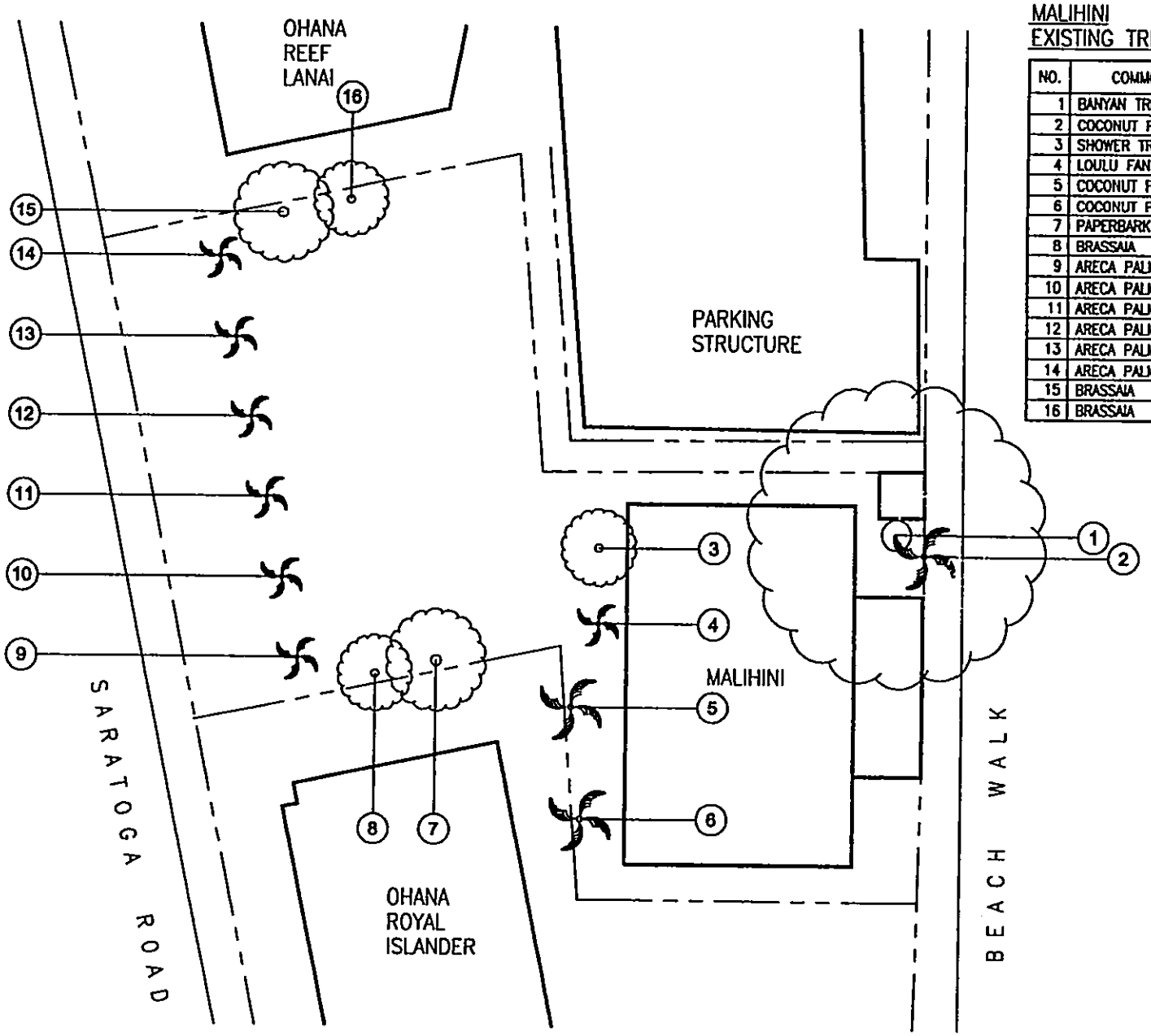
PARKING STRUCTURE AT BEACH WALK
SCALE: 1" = 10'-0"

0 5' 10' 20' 40'

OHANA REEF LANAI
EXISTING TREE/PALM SURVEY

NO.	COMMON NAME	HEIGHT	SPREAD	CALIPER	REMARKS
1	COCONUT PALM	25'			SKINNY TRUNK/SMALL CROWN
2	COCONUT PALM	25'			SKINNY TRUNK/SMALL CROWN
3	COCONUT PALM	50'			
4	COCONUT PALM	50'			

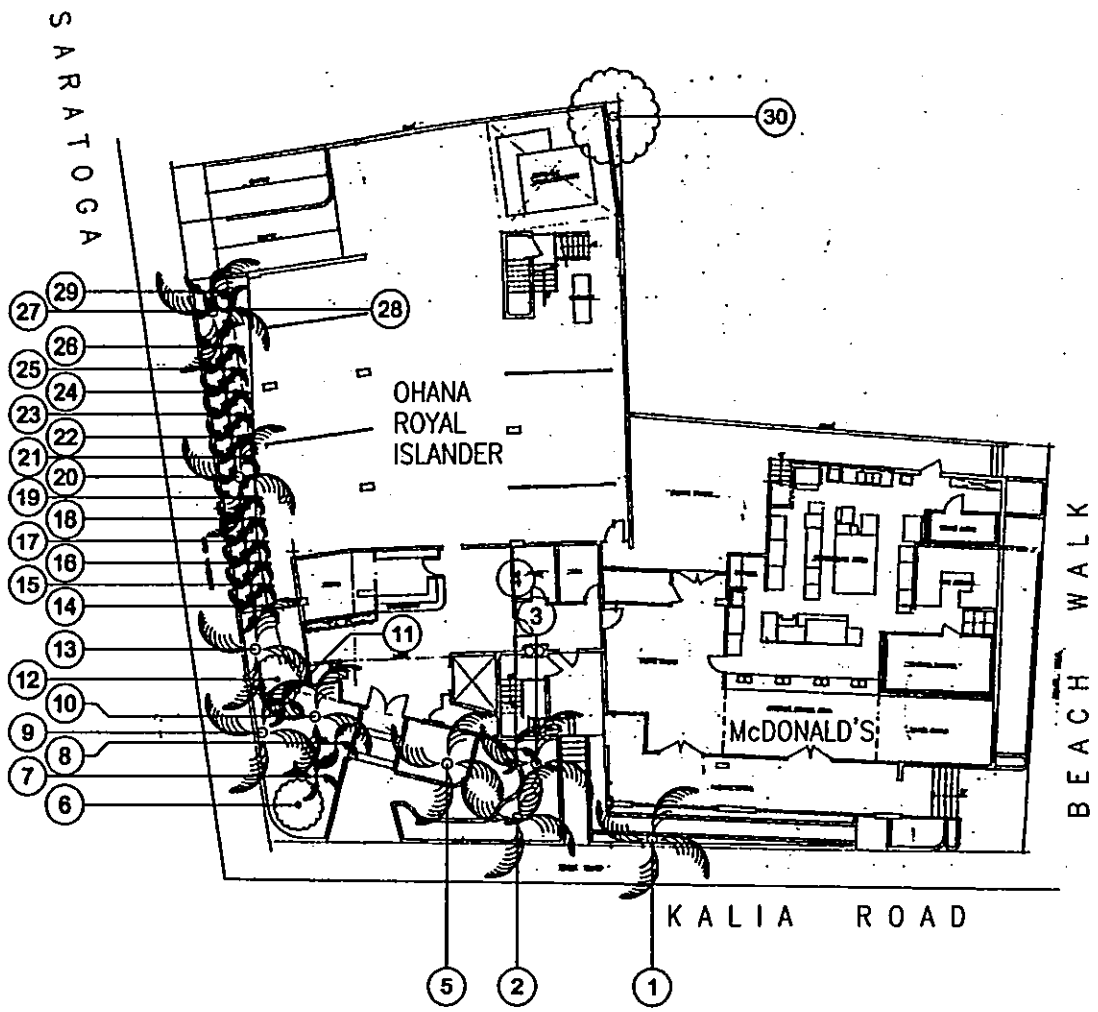




MALIHINI
EXISTING TREE/PALM SURVEY

NO.	COMMON NAME	HEIGHT	SPREAD	CALIPER	REMARKS
1	BANYAN TREE	30'	60'	3'	.
2	COCONUT PALM	60'	.	.	.
3	SHOWER TREE	20'	10'	6"	.
4	LOULU FAN PALM	20'	.	.	.
5	COCONUT PALM	20'	.	.	.
6	COCONUT PALM	15'	.	.	.
7	PAPERBARK TREE	40'	20'	12"	.
8	BRASSAIA	25'	15'	8"	.
9	ARECA PALM	8'	.	.	.
10	ARECA PALM	8'	.	.	.
11	ARECA PALM	8'	.	.	.
12	ARECA PALM	8'	.	.	.
13	ARECA PALM	8'	.	.	.
14	ARECA PALM	8'	.	.	.
15	BRASSAIA	20'	20'	12"	.
16	BRASSAIA	20'	15'	12"	.

MALIHINI
SCALE: 1" = 20'-0"
0 5' 10' 20' 40' 80'



OHANA ROYAL ISLANDER
EXISTING TREE/PALM SURVEY

NO.	COMMON NAME	HEIGHT	SPREAD	CALIPER	REMARKS
1	COCONUT PALM	60'	.	.	SKINNY TRUNK
2	COCONUT PALM	70'	.	.	.
3	COCONUT PALM	35'	.	.	.
4	DWARF PHOENIX PALM	3'	.	.	.
5	COCONUT PALM	35'	.	.	.
6	STEMMADENIA	10'	8'	8"	.
7	CARDBOARD PALM	.	.	.	.
8	DWARF PHOENIX PALM	3'	.	.	.
9	COCONUT PALM	50'	.	.	.
10	COCONUT PALM	35'	.	.	.
11	DWARF PHOENIX PALM	4'	.	.	.
12	STEMMADENIA	10'	8'	3"	.
13	COCONUT PALM	30'	.	.	.
14	ARECA PALM	8'	.	.	.
15	ARECA PALM	8'	.	.	.
16	ARECA PALM	8'	.	.	.
17	ARECA PALM	8'	.	.	.
18	ARECA PALM	8'	.	.	.
19	ARECA PALM	8'	.	.	.
20	COCONUT PALM	35'	.	.	.
21	ARECA PALM	8'	.	.	.
22	ARECA PALM	8'	.	.	.
23	ARECA PALM	8'	.	.	.
24	ARECA PALM	8'	.	.	.
25	ARECA PALM	8'	.	.	.
26	ARECA PALM	8'	.	.	.
27	COCONUT PALM	25'	.	.	SKINNY TRUNK
28	ARECA PALM	8'	.	.	.
29	ARECA PALM	8'	.	.	.
30	BRASSAIA	20'	15'	12"	.

OHANA ROYAL ISLANDER
SCALE: 1" = 20'-0"

0 5' 10' 20' 40' 80'

APPENDIX F

An Assessment of Potential Effects to Water Quality and Marine Communities from Proposed Redevelopments of Outrigger Properties in the Lewers-Kalia Area, Waikīkī, O'ahu, Hawai'i.

Marine Research Consultants

September 2001

AN ASSESSMENT OF POTENTIAL EFFECTS TO WATER QUALITY AND MARINE COMMUNITIES FROM PROPOSED REDEVELOPMENTS OF OUTRIGGER PROPERTIES IN THE LEWERS-KALIA AREA, WAIKIKI, OAHU, HAWAII

Prepared for

Outrigger Enterprises, Inc.
2375 Kuhio Ave.
Honolulu, HI 96815

and

Group 70 International, Inc.
Honolulu, HI

By

MARINE RESEARCH CONSULTANTS
4467 Sierra Dr.
Honolulu, Hawaii 96816

September 17, 2001

1.0. INTRODUCTION and PURPOSE

Outrigger Enterprises Inc. is in the process of planning a substantial redevelopment of its properties in the Lewers/Saratoga/Kalia area of Waikiki. The two-phase project will consist of upgrading five existing hotels, and demolition of six older hotels. The area vacated by the demolition is planned to be redeveloped into a new hotel/retail/entertainment complex. The project site is adjacent to Waikiki Beach and the ocean, which is the keystone element of the area in terms of recreational and economic resources. As a result, one component of the Draft Environmental Impact Statement (DEIS) and subsequent Final Environmental Impact Statement (FEIS) for the project is to address the potential for alteration of the nearshore marine environment of Waikiki adjacent to the site of redevelopment.

While one of the properties scheduled for redevelopment (Outrigger on the Beach) is located adjacent to the beach, there are no plans for alteration of the actual shoreline and nearshore area. As a result, the primary means of impact to the nearshore marine water chemistry is through alteration of water that flows beneath or through the area of redevelopment. With no physical alteration, it follows that communities of marine biota can only be affected by alterations in water quality caused by efflux of groundwater or surface water (including erosional materials) in the nearshore zone. The rationale of this assessment is to determine the composition and effect of groundwater to marine water chemistry prior to commencement of any new redevelopment activities (flow of surface water is extremely episodic and did not occur during the study period). The resulting data provides a characterization of the effects of the existing development in the Lewers-Saratoga area of Waikiki to the adjacent marine environment. With an understanding of the existing linkages between activities on land and the effects to the marine environment, it will be possible to address the potential for impacts to the marine environment that may result from the redeveloped project.

Combining information on the existing situation with estimates of changes in surface water discharge and groundwater percolation that will result from the redevelopment project will provide the basis to estimate the potential effects to the marine environment from the proposed project. Predicted changes in groundwater flow rates and groundwater chemistry have been supplied by Tom Nance Water Resource Engineering (TNWRE) in a report under separate cover entitled "Impact on Surface and Groundwater Resources of the Proposed Waikiki Beachwalk Redevelopment" dated September 2001. Results of the combined evaluation will indicate if, and to what degree, there is the potential for negative effects to the aquatic environments from the proposed project.

2.0. METHODS

2.1. Sampling Sites

The Lewers-Kalia properties encompass approximately 1,000 feet of shoreline of Waikiki. At present, runoff from the area of Waikiki that encompasses the project site drains to the ocean through a box culvert with an outlet offshore of the beach. As this culvert is the point source of runoff entering the ocean, the sampling scheme was centered around the drainage outlet (hereafter termed the "Outrigger Drain"). Sampling was conducted within a corridor, bounded at the west by Fort DeRussy Beach, to the east by the Halekulani Sand Channel and centered on the drainage culvert. At each of these points, a transect was established that consisted of a line running perpendicular to the beach, and extending from the shoreline out to the open ocean. Transect 1 is located at Fort DeRussy, Transect 2 is located off the drainage culvert, and Transect 3 bisects the Halekulani Sand Channel (Figure 1) Transect 1 extended approximately 600 meters (m) offshore, while transects 2 and 3 extended about 500 m offshore (Figure 1).

In addition to the ocean sampling sites, water from three newly drilled monitoring wells was collected to determine background chemical composition of groundwater under the redevelopment site. Water was also collected from a manhole in the drainage culvert at the junction of Kalia Road and Saratoga Road.

2.2. Monitoring Constituents

Water quality parameters evaluated included the nine specific criteria designated for open coastal waters in Chapter 11-54, Section 06 (Open Coastal waters) of the Water Quality Standards, Department of Health, State of Hawaii. These criteria include: total nitrogen (TN) which is defined as inorganic nitrogen plus organic nitrogen, nitrate + nitrite nitrogen (NO_3^- + NO_2^-), ammonium (NH_4^+), total phosphorus (TP) which is defined as inorganic phosphorus plus organic phosphorus, chlorophyll a (Chl *a*), turbidity, dissolved oxygen, pH and salinity. In addition, orthophosphate phosphorus (PO_4^{-3}) and silica (Si) was analyzed because these constituents are sensitive indicators of biological activity and the degree of groundwater mixing, respectively. Oil and Grease and Total Petroleum Hydrocarbons were also evaluated in water collected from monitoring wells and the nearshore ocean.

2.3 Sampling Protocol

All ocean field work was conducted between 07:30 and 10:00 on August 2, 2001 by divers swimming from shore and from a small boat. Monitoring wells were sampled August 2, 2001 between 14:00 and 16:00. Environmental conditions during ocean sample collection consisted of calm seas and wind, and low tide (+0.25-0.5 feet). Water samples were collected at eight stations along each transect at distances of approximately 0, 5, 10, 50, 100, 200, 300 and 500-600 m offshore (the sample collected at a distance of 0 m was collected at the highest wash of waves on the beach). Such a sampling scheme was designed to span the greatest range of salinity with respect to freshwater efflux at the shoreline and into the coastal ocean. Sampling was more concentrated in the nearshore zone because this area is most likely to show the effects of mixing of surface water and/or groundwater with marine waters.

With the exception of the three ocean stations closest to the shoreline, samples were collected at two depths; a surface sample was collected within approximately 20 centimeters (cm) of the sea surface, and a bottom sample was collected within approximately 20 cm of the sea floor. Owing to the shallow depth (<2 feet) and turbulent mixing at the three ocean stations closest to shore, only one water sample was collected.

Surface water samples were collected by opening 1-liter polyethylene bottles at the desired depth. Bottom samples were collected from the boat using a 1.8 liter Niskin-type oceanographic sampling bottle. The bottle is lowered through the water column with spring-loaded endcaps cocked in an open position which allow for free flow of water through the bottle. A messenger released from the surface trips the endcaps to close, isolating a sample of water from the desired depth. Subsamples for nutrient analyses were immediately placed in 125-milliliter (ml) acid-washed, triple rinsed, polyethylene bottles and stored on ice until returned to the analytical laboratory in Honolulu. Water for other analyses was subsampled from 1-liter polyethylene bottles and kept chilled until analysis. Samples from the two most shoreward stations and the monitoring wells were also collected in 1-liter amber glass bottles for analyses of total petroleum hydrocarbons (TPH) and Oil and Grease.

2.4. Analytical Methodology

Analyses for NH_4^+, PO_4^{3-}, and NO_3^- + NO_2^- (hereafter termed NO_3^-) were performed using a Technicon autoanalyzer according to standard methods for seawater analysis (Strickland and Parsons 1968, Grasshoff 1983). TN and TP were analyzed in a similar fashion following digestion. Dissolved organic nitrogen (DON) and dissolved organic

phosphorus (DOP) were calculated as the difference between total dissolved nitrogen (TDN) and dissolved inorganic nitrogen (DIN), and total dissolved phosphorus (TDP) and dissolved inorganic phosphorus (DIP), respectively. The level of detection for the dissolved nutrients is 0.2 µM for TN and Si, 0.02 µM for TP, NO_3^- and NH_4^+, and 0.01 µM for PO_4^{3-}.

Turbidity was measured on a Monitek Model 21 90-degree nephelometer, and reported in nephelometric turbidity units (ntu, level of detection 0.01 ntu). Chl *a* was measured by filtering 300 ml of water through glass fiber filters; pigments on filters were extracted in 90% acetone in the dark at -5° C for 12-24 hours, and the fluorescence before and after acidification of the extract was measured with a Turner Designs fluorometer (level of detection 0.01 µg/L). Salinity was determined using an AGE Model 2100 laboratory salinometer with a precision of 0.0003‰. pH was determined using a lab meter with combination electrode and a precision of 0.01 pH units. Dissolved oxygen was measured using a YSI model 51 meter. Turbidity, Chl *a*, dissolved oxygen and pH were not measured in well samples. TPH was analyzed by EPA Method 418.1, while Oil and Grease was analyzed using EPA Method 413.2.

Oil and Grease and TPH were evaluated by Food Quality Lab. All other lab analyses were conducted by Marine Analytical Specialists (Laboratory Certification NO. HI-0009).

3.0. RESULTS

3.1. Physical Structure of the Waikiki Marine Area

The marine area off Waikiki consists of a poorly defined embayment within Mamala Bay that extends from the Ala Wai Channel to the Kapahulu Groin area. The entire area has been altered substantially over the past decades, and was created from infilling of wetlands following the construction of the Ala Wai Canal. The shoreline of the Waikiki area is rimmed with a sand beach. Periodically the beach is nourished by imported sand owing to loss by movement of sand beyond the littoral cell. Offshore of the beach, the shallowest region consists of a sandy flat that extends from the shoreline offshore for a distance of several meters. Beyond the sandy zone, the inner area of the Waikiki embayment consists of a relatively flat limestone platform that has a dept of 0.5-2 meters. Much of the platform is covered with a variety of fleshy algae. In addition, a layer of moving sand covers the platform. Off of the Halekulani Hotel, a continuous channel of sand, called the "Halekulani Sand Channel" extends from the shoreline past the reef crest (Figure 1).

The inner reef platform forms a basin with the outer boundary formed by the shallow reef crest. The crest consists of an elevated ridge of limestone. In some areas the ridge crest is nearly emergent at low tide. The seaward edge of the reef crest slopes gradually to an outer reef shelf that extends to the open coastal ocean. The outer edge of the reef crest is the main area where surf breaks in the Waikiki area.

3.2. Water Chemistry

3.2.1. Horizontal and Vertical Stratification

Tables 1 and 2 show results of all marine water chemical analyses for samples collected on the three transects off Waikiki in the vicinity of the proposed Outrigger Improvements Project. Table 1 shows nutrient concentration in units of micrograms per liter (µg/L), while Table.2 shows nutrient concentrations in micromolar units (µM). Concentrations of eight dissolved nutrients are shown as functions of distance from the shoreline in Figure 2. Concentrations of salinity, turbidity, Chl *a* and temperature along the transects as functions of distance from shore are shown in Figure 3.

A distinct pattern is apparent on all three transects with respect to Si, NO_3^-, PO_4^{3-} and salinity. At all three transects, concentrations of inorganic nutrients (Si, NO_3^- and PO_4^{3-}) were highest in samples collected nearest the shoreline (0-10 m), decreased slightly in the transect region over the inner reef (50-200 m), and then increased slightly over the remainder of the transect out to the open ocean (300-600 m) (Table 1, Figure 2). Salinity exhibited the reverse trend as Si, NO_3^- and PO_4^{3-} with the lowest values in samples collected closest to the shoreline, peak values in over the inner reef, and slightly lower values over the outer reef (Tables 1, Figure 3). The greatest ranges in salinity and inorganic nutrients occurred at the Outrigger Drain Transect. Salinity was lowest at the shoreline (34.06‰), peaked 200 m offshore (35.03‰) and dropped slightly at the ocean terminus of the transect 400 m offshore (34.97‰).

These patterns reflect the typical physical processes that occur in the nearshore ocean off of Waikiki. Small amounts of groundwater enter ocean near the shoreline, primarily in the area of the Outrigger Drain. Groundwater normally contains high concentrations of inorganic nutrients and low salinity. The groundwater input results in the small area of decreased salinity and increased nutrients near the shoreline. The shallow reef flat between approximately 50 and 200 m from shore forms a weak "basin," with restricted circulation of water. Water within the basin has a longer residence time owing to impeded circulation caused by shoreward movement of water from breaking waves over the shallow reef crest. The increased residence time results in slight increases in salinity likely owing to evaporation, as well as nutrient

removal by uptake from the algae that lines the shallow floor of the basin. Beyond the reef crest, water circulation is relatively unrestricted compared to the basin; as a result salinity is slightly depressed while Si and NO_3^- are slightly elevated relative to the concentrations in the inner basin.

Because groundwater entering the ocean is lower in density than ocean water, a surface layer characterized by high nutrient concentrations and low salinity often occurs in many nearshore areas of Hawaii. Inspection of surface and bottom water samples indicates slight vertical gradients in salinity (elevated in bottom water compared to surface water) and Si (elevated in surface water compared to bottom water) (Tables 1 and 2). None of the other chemical constituents exhibited any degree of consistent vertical stratification. Rather, concentrations of water chemistry constituents are uniform throughout the water column.

Concentrations of other nutrient constituents that do not occur in groundwater (NH_4^+, TP, TN, DON, DOP) showed little variation across the length of the sampling transects (Table 1, Figure 2). In fact, some of the lowest concentrations of these constituents occurred at the shoreline sampling stations where the input of groundwater was most evident, as noted by decreased salinity.

Turbidity showed a consistent pattern across all three transects. Values were highest in the samples collected within 10 m of the shoreline, with consistent concentrations of 0.1-0.2 ntu across the rest of the transects (Table 1, Figure 2). Similarly, values of Chl *a* were highest in the samples collected closest to shore with relatively constant values across the remainder of the transects. Some of the highest values of Chl *a* occurred in bottom samples, particularly on the Halekulani Sand Channel transect (Table 1, Figure 2). Temperature was also substantially elevated at the sampling stations closest to shore, likely from solar warming of shallow nearshore waters.

3.2.2. Groundwater

The project site sits on a thick coastal caprock formation consisting of marine (calcareous) sediments, some of which are imported to infill wetlands following the construction of the Ala Wai Canal. Three shallow monitoring wells were drilled into the caprock within the boundaries of the project. At least to the depth of the monitoring wells (3-5 meters below sea level), caprock consists of silty sands and decomposing organics which are generally poorly permeable (TNWRE 2001). The concentrations of nutrients and salinity found in water sampled from the three monitoring wells, as well as the box drain which runs to the shoreline between the Waikiki Shore Apartments and Fort DeRussy are shown in Tables 1 and 2, while concentrations of oil and grease and TPH in the wells are shown in Table 3. Salinity in

the wells ranged from about 25‰ to 33‰, which is about 70% to 90% seawater. Thus, there is a small, but distinct freshwater component to the groundwater that enters the ocean through the aquifer. Nutrient concentrations in all of the wells were generally elevated relative to ocean water. In particular, the concentrations of NH_4^+ were elevated by an order of magnitude over that found in the ocean. The elevated NH_4^+ is likely a result of organic decomposition within the aquifer, either as a natural process or as leakage from the sewerage system.

TNWRE (2001) reports that the monitoring wells demonstrate very little tidal response despite the close proximity to the shoreline. The lack of tidal response reflects the limited permeability of the silty sands and carbonates that the wells penetrate. In addition, all of the water levels in the wells are below sea level, and the depression below sea level increase with distance from the shoreline. The somewhat unusual factors of a reverse gradient of water levels below sea level is a response to dewatering pumpage by all of hotels and other buildings with parking facilities or other facilities below sea level.

3.2.3. Oil Grease/TPH

Results of sample analyses for Oil and Grease and TPH are shown in Table 3. The middle well contained both oil and grease and TPH at concentrations of 1.1 mg/L, while the mauka well had oil and grease at a concentration of 2.3 mg/L. However, no oil and grease or TPH were detected in any of the samples collected in the ocean near the shoreline at the three transect sites. In addition, no material was found in the makai monitoring well.

3.2.4. Conservative Mixing Analysis

A useful treatment of water chemistry data for interpreting the extent of material input from land is application of a hydrographic mixing model. In the simplest form, such a model consists of plotting the concentration of a dissolved chemical species as a function of salinity. Comparison of the curves produced by such plots with conservative mixing lines provides an indication of the origin and fate of the material in question (Officer 1979, Dollar and Atkinson 1992, Smith and Atkinson 1993). This method of data interpretation has recently been formally adopted by the State of Hawaii Department of Health as the new protocol for evaluating compliance with water quality standards on the west coast of the island of Hawaii.

Figure 4 shows plots of concentrations of four nutrient constituents (Si, NO_3^-, PO_4^{-3} and NH_4^+) as functions of salinity for samples collected along the three transects at Waikiki. Each graph in Figure 4 also shows a conservative mixing line that was

constructed by connecting the end member concentrations of open ocean water and water collected from the mauka monitoring well located at the most inland area of the proposed project site. Water from this well was judged to be the most representative of groundwater that flows under the project site and reached the ocean (Tom Nance, personal communication).

If the parameter in question displays purely conservative behavior (no input or removal from any process other than physical mixing), data points should fall on, or very near, the conservative mixing line. If, however, external material is added to the system through processes such as leaching of fertilizer or sewage nutrients to groundwater, data points will fall above the mixing line. If material is being removed from the system by processes such as uptake by biotic metabolic processes, data points will fall below the mixing line.

Dissolved Si represents a check on the model as this material is present in high concentration in groundwater, but is not a major component of fertilizer or sewage. In addition, Si is not usually utilized rapidly within Hawaiian nearshore environments by biological processes. It can be seen in Figure 4 that most of the data points from the samples collected off of Waikiki on all three ocean transects fall close to the conservative mixing line for Si. Such agreement between the mixing lines and the data distribution substantiates the methodological approach in that water chemistry in the nearshore region in the vicinity of the Outrigger is a mixture of seaward flowing groundwater and ocean water.

The plots of NO_3^- versus salinity reveal a different pattern than plots of Si (Figure 4). Most of the data points at salinities above 34.8‰ fall on or slightly above the conservative mixing line. Data points from the Outrigger Drain transect at these salinities occurred in a cluster near the mixing line. Most of the data points from the ocean at salinities less than 34.8‰ fall below the conservative mixing line. Owing to the reduced salinities relative to open ocean salinity of ~35‰, these points indicate mixing between ocean water and low salinity groundwater. The occurrence of these data points below the mixing line indicate that there is uptake of NO_3^- within the nearshore area. The lack of data points at lowered salinities above the mixing line indicates that there are not external subsidies of NO_3^- entering the ocean from sources other than groundwater.

PO_4^{3-} is also a major component of fertilizer, but is usually not found to leach to groundwater to the extent of NO_3^-, owing to a high absorptive affinity of phosphorus in soils. With several exceptions of samples from Fort DeRussy and the Outrigger Drain at salinities of about 35‰, most of the data points for PO_4^{3-} fall near the mixing line (Figure 4). The agreement of the data with the mixing line at salinities lower

than open ocean water indicate that there is little uptake within the nearshore region. Such a result is different from NO_3^- which indicated substantial uptake in the nearshore area.

The other form of dissolved inorganic nitrogen, NH_4^+, showed little variation in concentration for all samples regardless of salinity. There is little relationship between the pattern of distribution with respect to salinity and the mixing line. The lack of a relationships between the concentrations of NH_4^+ and salinity indicates that NH_4^+ concentrations in the ocean are not the result of input from groundwater flux, but rather are the result of *in situ* biological activity.

3.2.5. Compliance with DOH Standards

DOH Water Quality Standards include specific criteria for three situations; criteria that are not to be exceeded during either 10% or 2% of the time, and criteria that are not to be exceeded by the geometric mean of samples. With only one set of samples, comparison of the 10%, 2% of the time criteria, or geometric means for any sampling station are not statistically meaningful. However, comparing sample concentrations to these criteria provide an indication of whether water quality is within the standards set out by the specific criteria.

Noted in Table 1 are samples that exceed DOH water quality standards for open coastal waters under "dry" conditions. The criteria for dry conditions are applied to the Waikiki site assuming that this area likely receives less than 3 million gallons of groundwater input per mile per day. A comparison of the results of analyses of 39 samples of water chemistry with DOH criteria reveals that during August 2001 two measurements of NO_3^-, three measurements of NH_4^+, and five measurements of turbidity exceeded the 10% criteria. No measurements of TP, TN or Chl *a* exceeded DOH water quality standards during this survey.

These results are important with respect to how the overall water quality in Waikiki relates to the proposed redevelopment project. Without doubt, this area is probably the most utilized marine recreational area in the state, and is also located off a fully developed urban area. The result of this study that only several of the samples exceeded State of Hawaii water quality standards indicates that inputs from land or urbanization appear to have little effect on marine water quality. The results of the oil and grease and TPH sampling that showed no detectable materials in the nearshore ocean corroborate the finding of little impact to water quality from human activities.

In this regard it is interesting to note that the water samples that comprised the Fort DeRussy Transect exhibited the lowest number of samples that exceeded water

quality standards (only turbidity at the shoreline exceeded the 10% criteria). The Fort DeRussy transect was located closest to the Ala Wai channel which drains the Ala Wai Canal. The Ala Wai Canal effectively intercepts all surface runoff from the watersheds inland of Waikiki. It has been documented that water in the canal is severely impacted by human activities. During the time of sampling, drainage of the canal to the ocean appears to have virtually no effect on water quality in the ocean off of Waikiki. It is important to note, however, that the survey was conducted during a period of prolonged dry weather. It is possible that the situation would be very different following periods of heavy rainfall when the volume of water draining from the Ala Wai Canal is substantially larger than during dry periods.

3.3.Biological Community Structure

The biotic community structure of the Waikiki area is divided into two major zones that correspond to the physical zonation of the area. The inner zone, consisting of the region from the shoreline over the reef platform to the reef crest is primarily a sand and rubble-covered flat inhabited primarily by various species of algae (Figure 5). Reef corals, and most other epibenthic organisms, are sparse in the inner zone, primarily as a result of the continuous shifting of sand that is kept in motion by wave surge. Where corals do occur in the inner area, they are attached to the upper surfaces of boulders or outcrops, such as occur at the edges of the channel leading to the pier at the Hilton Hawaiian Village (Figure 5). Predominant algae in the inner area are the alien species of red alga *Acanthophora specifera*, and the blue-green alga *Lyngbya majuscula*. The inner zone is the area that would be subjected to changes in water quality resulting from inputs from land.

The second major zone, which originates just seaward of the reef crest and extends seaward is composed of a relatively flat "hardpan" limestone bottom. Because this zone is at depths below most of the destructive force of waves, and beyond the limits of sand scour, reef corals occur abundantly (Figure 6). As is typical on most coral reefs in Hawaii, the most dominant corals were *Porites lobata* and *Pocillopora meandrina*.

Results from a study to assess the effects of beach sand replenishment in Waikiki (Marine Research Consultants 1990) show quantitatively that the dominant environmental factor shaping the nearshore benthic and reef fish communities off of Waikiki is movement of sand. As Waikiki Beach has been created by importation of sand, and will continually require sand nourishment, the situation regarding the factors controlling biotic community composition are not likely to change.

4.0 DISCUSSION and CONCLUSIONS

The purpose of this baseline survey is to provide the information to make valid estimates of the potential for impact to the marine environment of Waikiki offshore of the proposed Outrigger Redevelopment. The information collected for this study provides the basis to understand the processes that are operating in the groundwater-ocean system, and to specifically address the concerns raised in the planning process.

The Outrigger Redevelopment does not include any plans for any direct alteration of the shoreline or offshore areas. Therefore, potential impacts to the marine environment can only be considered from activities on land that may result in delivery of materials to the ocean through infiltration to groundwater or surface runoff.

At present, the 7.9 acre redevelopment site contains numerous hotels, various other residential and commercial buildings, as well as ground level pavement and landscaping. The existing buildings cover approximately 88% of the project area, while the redevelopment will include 85% buildings. Ground level pavement will increase from 8% to 10%, while landscaping will also increase from 4 to 5%. These percentages indicate that the proposed redevelopment will not constitute a substantial change in land use compared to the present scenario. In fact, the area of hardened surface area will actually decrease by 1%.

The surface water drainage system, which also serves as the discharge system for sump-pumped groundwater will remain intact and be utilized in its present configuration by the redevelopment properties (TNWRE 2001). The redeveloped project will also contain an unspecified number of sump pumping facilities sufficient to keep groundwater levels at about the same depth below sea level as they are held at present. All of these sump pumping systems will utilize the drain system for disposal, essentially duplicating the present practice for which all surface and groundwater is discharged to the shoreline via the box drain between the Waikiki Shores and Fort DeRussy (TNWRE 2001).

It is estimated that surface runoff will be equivalent to 20 inches per year over the total area of impervious surfaces of building and ground level pavement. Given the changes between pre- and post-development coverage, annual runoff volumes would drop about 1% from 5.15 million gallons to 5.10 million gallons after completion of the project (TNWRE 2001).

The change to groundwater dynamics resulting from the redevelopment will occur primarily in the landscaped areas. Assuming an irrigation rate of 1.5 inches per week and a 20% percolation loss to groundwater, the 1% increase in landscaped area of the redeveloped property would result in an increase in percolation from 0.26 to 0.32 gallons per minute, or about 86 gallons per day. All of this percolate would eventually be picked up by sump pumps and discharged into the surface drainage system (TNWRE 2001). With the small decrease in surface water discharge, and small increase in groundwater percolate, the amount of water from the redevelopment property that will reach the ocean is not likely to differ from the present development scenario.

Results of the water chemistry assessment reveal that under the present development scenario, water quality throughout the area off Waikiki is surprisingly good with respect to State of Hawaii Water Quality Standards. Only a few samples having concentrations above the most stringent (i.e. "Dry") set of criteria. When the more lenient "Wet" conditions (greater than 3 million gallons a day of freshwater are discharged), only one sample of NO_3^- at the shoreline next to the box drain would exceed the water quality standards (Table 1).

Such a result is perhaps even more surprising when the locations of the sampling transects are considered. The Fort DeRussy transect is situated close to the point where water from the Ala Wai Canal drains out of the Ala Wai harbor channel to the open ocean. Examination of Tables 1 and 2 reveal than none of the water samples collected on the Fort DeRussy transect were above water quality standards. Similarly, the Outrigger Drain transect originated in the area where the box drain containing surface drainage water and sump-pumped water from the project site are discharged to the ocean. Again, examination of Tables 1 and 2 reveal that only several samples close to the shoreline in the area of the box drain were above water quality standards. Hence, with the caveat that the sampling and assessment program were carried out during a period of dry weather with minimal surface runoff, it can be stated that the present development has very little effect on water quality in the marine environment that is directly influenced by the project. Because the redevelopment will not result in any substantial quantitative or qualitative changes to surface runoff or groundwater percolation, it can be concluded that the project will not cause any changes over the present situation of excellent water quality.

Shifting sand is the dominant physical feature in the nearshore marine environment that could be affected by the redevelopment. Substantial quantities of calcareous sands that have been imported for beach creation and nourishment with subsequent movement offshore. Corals and other reef organisms are capable of removing sediment suspended by natural phenomena up to threshold levels of deposition

where cleaning mechanisms are overwhelmed and organisms become buried. In addition, abrasion of living tissue from sands resuspended by wave action is a dominant factor in controlling coral occurrence. Because of the existence of large quantities of sand, and the normally turbulent conditions which continually resuspend sand in the nearshore zone off Waikiki, biotic community structure is presently controlled primarily by the ability to deal with continual stress from sand burial and abrasion. Organisms that do occur in the nearshore region (primarily algae) are therefore capable of withstanding the stress associated with large natural sediment loads. In comparison to the continual sediment resuspension within the study area, the potentially very small changes in input of freshwater from percolation of groundwater or surface water discharge would be insignificant, and have no effect on the existing communities.

The marine areas in the outer zones of Waikiki that presently contain substantial coral communities would be beyond the influence of the small potential alterations of water chemistry that could be caused by the redevelopment. Rather, these communities are influenced by continual larger-scale phenomenon that is not associated with the redevelopment, such as discharge of water from the Ala Wai Canal, and large surf that breaks on the reef crest off Waikiki.

During the construction phases, it is likely that permit regulations will require dust-control measures. As a result, it appears that there is little potential for significant input of sediment from wind transport to the marine environment resulting from the proposed project.

Because there is no plan for any work in the nearshore region, there is no potential for blasting or excavation that might affect behavior of turtles, whales, monk seals, and other endangered or protected marine species.

In summary, the proposed redevelopment of the Outrigger properties have little or no potential to alter the marine environment fronting the project site. As long as reasonable steps are taken in construction practices, and operational procedures for the project do not involve unforseen delivery of chemical materials to the nearshore ocean, there should be no adverse impacts to the marine environment.

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TABLE 1. Results of water chemistry measurements on three ocean transects off Waikiki on August 2, 2001 starting at the shoreline and extending to open coastal waters offshore, as well as in three monitoring wells and a storm water drain fronting the proposed Outrigger Improvements Project. "S" indicates surface sample; "B" indicates bottom sample. "DFS" indicates "distance from shore." Nutrient concentrations are shown in units of micrograms per liter (µg/L). "Bdl" stands for "below detection limit." Also shown are State of Hawaii Dept. of Health "not to exceed 10% and 2% of the time" water quality standards (WQS) for open coastal waters under "dry" conditions. Shaded values show exceedance of 10% criteria. For station sampling locations, see Figure 1.

SAMPLING TRANSECT	DFS (m)	PO4 (µg/L)	NO3 (µg/L)	NH4 (µg/L)	Si (µg/L)	DOP (µg/L)	DON (µg/L)	TP (µg/L)	TN (µg/L)	Turb (ntu)	Salt (o/oo)	pH (rel)	Chl-a (µg/l)	TEMP °C	O2 (%sat)
FORT DERUSSY	0	8.68	9.52	2.52	108.50	7.44	85.54	18.12	97.58	0.88	34.944	8.01	0.138	27.6	84
	5	5.27	7.14	3.50	90.76	8.99	101.22	14.26	111.86	0.49	34.933	8.01	0.138	27.4	90
	10	4.03	0.84	4.48	57.61	9.30	87.08	13.33	92.40	0.15	34.930	8.05	0.078	26.5	91
	50a	2.48	0.28	1.40	54.51	9.61	86.94	12.09	88.62	0.18	34.935	8.07	0.090	26.4	92
	50b	3.41	bdl	1.40	49.46	9.61	100.94	13.02	102.34	0.18	34.936	8.08	0.096	26.3	92
	100a	3.41	1.68	2.38	39.90	8.37	100.10	11.78	104.16	0.18	35.040	8.03	0.096	26.3	84
	100b	3.41	2.24	1.82	41.59	8.99	91.14	12.40	95.20	0.20	35.036	8.01	0.102	26.4	83
	200a	5.89	1.96	1.40	76.71	8.06	87.08	13.95	90.44	0.19	35.024	8.02	0.090	26.2	84
	200b	5.89	2.24	2.38	48.33	7.13	99.40	13.02	124.74	0.20	35.026	8.03	0.132	26.2	84
	300a	4.03	3.50	1.12	122.80	9.30	90.16	13.33	94.78	0.11	34.900	8.09	0.102	26.2	84
	300b	3.41	1.12	2.52	51.42	8.99	92.96	12.40	96.60	0.15	34.998	8.06	0.084	26.2	84
	600a	4.34	0.14	3.22	122.52	9.92	135.10	14.26	138.46	0.20	34.665	8.06	0.126	26.5	90
	600b	3.72	0.28	0.14	48.61	7.75	77.70	11.47	78.12	0.09	34.950	8.11	0.048	26.4	90
OUTRIGGER DRAIN	0	8.68	29.68	1.68	726.10	19.84	90.16	28.52	121.52	1.00	34.055	8.13	0.294	27.9	98
	5	4.03	8.16	2.38	508.06	8.37	90.58	12.40	99.12	0.58	34.185	8.12	0.102	28.0	110
	10	4.65	13.58	3.08	467.30	8.99	84.28	13.64	100.94	0.55	34.398	8.08	0.090	26.8	99
	50a	2.48	0.28	1.40	54.51	9.61	86.94	12.09	88.62	0.18	34.921	8.07	0.090	26.3	92
	50b	3.41	2.24	1.40	49.46	9.61	98.70	13.02	102.34	0.18	34.934	8.08	0.096	26.3	90
	100a	3.72	1.68	2.38	39.90	8.06	100.10	11.78	104.16	0.18	34.987	8.03	0.093	26.4	87
	100b	4.34	2.24	1.82	41.59	8.06	91.14	12.40	95.20	0.20	35.012	8.01	0.112	26.4	86
	200a	2.79	8.58	4.34	52.27	9.30	82.74	12.09	93.66	0.18	35.028	8.05	0.126	24.4	81
	200b	7.44	0.98	2.24	40.75	7.13	78.12	14.57	81.34	0.21	35.010	8.04	0.180	24.4	82
	300a	4.34	3.22	2.80	51.70	8.68	87.08	13.02	93.10	0.11	34.949	8.07	0.066	26.4	83
	300b	4.03	5.04	0.28	45.52	8.68	81.90	12.71	87.22	0.12	34.966	8.09	0.084	26.4	83
	500a	4.65	3.64	0.28	59.29	11.47	89.02	16.12	72.94	0.12	34.961	8.06	0.078	26.3	81
	500b	3.10	2.24	2.66	43.84	11.78	71.26	14.88	76.16	0.14	34.972	8.07	0.078	26.3	81
HALEKULANI SAND CHANNEL	0	5.58	8.68	1.68	320.62	6.20	98.00	11.78	108.36	1.73	34.440	8.03	0.180	27.3	93
	5	3.72	2.24	1.82	186.02	6.82	85.96	10.54	90.02	0.56	34.724	8.06	0.108	26.4	90
	10	2.17	2.66	5.60	117.18	7.75	88.76	9.92	97.02	0.41	34.862	8.02	0.066	26.5	87
	50a	2.17	3.64	0.56	52.27	8.06	98.28	10.23	102.48	0.27	35.001	7.98	0.084	26.6	84
	50b	2.79	4.62	3.64	51.99	7.44	87.92	10.23	98.18	0.26	35.001	7.98	0.090	26.6	74
	100a	2.17	2.80	1.40	38.78	7.75	97.86	9.92	102.06	0.29	35.072	7.94	0.096	26.2	78
	100b	2.48	3.08	2.10	46.37	7.75	96.46	10.23	101.64	0.30	35.012	7.93	0.089	26.1	79
	200a	5.27	3.92	3.64	46.06	7.13	93.66	12.40	101.22	0.26	35.030	7.95	0.114	25.9	82
	200b	2.48	5.04	3.22	42.15	7.44	78.86	9.92	85.12	0.27	35.038	7.93	0.120	25.8	81
	300a	6.20	7.14	5.04	66.04	6.82	66.06	13.02	78.26	0.26	35.022	7.99	0.090	26.2	88
	300b	3.10	4.34	0.56	41.87	7.44	91.00	10.54	95.90	0.25	35.012	8.03	0.234	26.2	89
	500a	3.72	2.94	3.36	32.66	7.75	85.40	11.47	91.70	0.15	34.991	8.06	0.090	26.3	79
	500b	2.48	4.34	4.48	42.15	7.75	82.60	10.23	91.42	0.20	35.018	8.04	0.192	26.3	83
DRAIN		21.08	72.80	9.52	1779.3	14.88	100.80	35.98	183.1		32.333	7.864			
MAKAI WELL		150.04	10.64	235.2	7726.4	2.48	75.04	152.52	320.9		25.163	7.486			
MIDDLE WELL		107.88	148.96	352.8	5348.0	2.48	43.12	110.36	544.9		33.126	7.528			
MAUKA WELL		40.92	537.04	1121.7	6845.2	13.64	92.40	54.56	1751.1		27.289	7.560			
DOH WQS	10%		10.00	5.00				30.00	180.00	0.50	*		0.50	**	≥75%
	2%		20.00	9.00				45.00	250.00	1.00			1.00		

* Shall not deviate more than 0.5 units from a value of 8.1

** Shall vary no more than 1° C from "ambient conditions"

TABLE 2. Results of water chemistry measurements on three ocean transects off Waikiki starting at the shoreline and extending to open coastal waters offshore, as well as in three monitoring wells and a storm water drain fronting the proposed Outrigger Improvements Project. "S" indicates surface sample; "B" indicates bottom sample. "DFS" indicates "distance from shore." Nutrient concentrations are shown in micromolar units (µM). "Bdl" stands for "below detection limit." For station sampling locations, see Figure 1.

SAMPLING TRANSECT	DFS (m)	PO4 (µM)	NO3 (µM)	NH4 (µM)	Si (µM)	DOP (µM)	DON (µM)	TP (µM)	TN (µM)	Turb (ntu)	Salt (o/oo)	pH (rel)	Chl-a (µg/l)	TEMP °C	O2 (%sat)
FORT DERUSSY	0	0.26	0.68	0.18	3.79	0.24	6.11	0.52	6.97	0.88	34.944	8.01	0.138	27.6	84
	5	0.17	0.51	0.25	3.23	0.29	7.23	0.46	7.99	0.49	34.933	8.01	0.138	27.4	90
	10	0.13	0.06	0.32	2.05	0.30	6.22	0.43	6.60	0.15	34.930	8.05	0.078	26.5	91
	50s	0.08	0.02	0.10	1.94	0.31	6.21	0.39	6.33	0.16	34.935	8.07	0.090	26.4	92
	50b	0.11	bdl	0.10	1.76	0.31	7.21	0.42	7.31	0.16	34.936	8.08	0.096	26.3	92
	100s	0.11	0.12	0.17	1.42	0.27	7.15	0.38	7.44	0.18	35.040	8.03	0.096	26.3	84
	100b	0.11	0.16	0.13	1.48	0.29	6.51	0.40	6.80	0.20	35.036	8.01	0.102	26.4	83
	200s	0.19	0.14	0.10	2.73	0.26	6.22	0.45	6.46	0.19	35.024	8.02	0.090	26.2	84
	200b	0.19	0.16	0.17	1.72	0.23	7.10	0.42	8.91	0.20	35.028	8.03	0.132	26.2	84
	300s	0.13	0.25	0.08	4.37	0.30	6.44	0.43	6.77	0.11	34.900	8.09	0.102	26.2	84
	300b	0.11	0.08	0.18	1.83	0.29	6.64	0.40	6.90	0.15	34.998	8.06	0.084	26.2	84
	600s	0.14	0.01	0.23	4.36	0.32	9.65	0.46	9.89	0.20	34.665	8.08	0.126	26.5	90
	600b	0.12	0.02	0.01	1.73	0.25	5.55	0.37	5.58	0.09	34.950	8.11	0.048	26.4	90
OUTRIGGER DRAIN	0	0.28	2.12	0.12	25.84	0.64	6.44	0.92	8.68	1.00	34.055	8.13	0.264	27.9	98
	5	0.13	0.44	0.17	18.01	0.27	6.47	0.40	7.08	0.58	34.185	8.12	0.102	28.0	110
	10	0.15	0.97	0.22	16.63	0.29	6.02	0.44	7.21	0.55	34.398	8.08	0.090	26.6	99
	50s	0.08	0.02	0.10	1.94	0.31	6.21	0.39	6.33	0.16	34.921	8.07	0.090	26.3	92
	50b	0.11	0.16	0.10	1.76	0.31	7.05	0.42	7.31	0.16	34.934	8.08	0.096	26.3	90
	100s	0.12	0.12	0.17	1.42	0.26	7.15	0.38	7.44	0.18	34.987	8.03	0.093	26.4	87
	100b	0.14	0.16	0.13	1.48	0.26	6.51	0.40	6.80	0.20	35.012	8.01	0.112	26.4	86
	200s	0.09	0.47	0.31	1.86	0.30	5.91	0.39	6.69	0.18	35.028	8.05	0.126	24.4	81
	200b	0.24	0.07	0.16	1.45	0.23	5.58	0.47	5.81	0.21	35.010	8.04	0.180	24.4	82
	300s	0.14	0.23	0.20	1.84	0.28	6.22	0.42	6.65	0.11	34.949	8.07	0.066	26.4	83
	300b	0.13	0.36	0.02	1.62	0.28	5.85	0.41	6.23	0.12	34.966	8.08	0.084	26.4	83
	500s	0.15	0.26	0.02	2.11	0.37	4.83	0.52	5.21	0.12	34.961	8.08	0.078	26.3	81
	500b	0.10	0.18	0.19	1.56	0.38	5.09	0.48	5.44	0.14	34.972	8.07	0.078	26.3	81
HALEKULANI SAND CHANNEL	0	0.18	0.62	0.12	11.41	0.20	7.00	0.38	7.74	1.73	34.440	8.03	0.180	27.3	93
	5	0.12	0.18	0.13	6.62	0.22	6.14	0.34	6.43	0.56	34.724	8.08	0.108	26.4	90
	10	0.07	0.19	0.40	4.17	0.25	6.34	0.32	6.93	0.41	34.862	8.02	0.066	26.5	87
	50s	0.07	0.26	0.04	1.86	0.26	7.02	0.33	7.32	0.27	35.001	7.98	0.084	26.6	63
	50b	0.09	0.33	0.26	1.85	0.24	6.28	0.33	6.87	0.26	35.001	7.98	0.090	26.6	74
	100s	0.07	0.20	0.10	1.38	0.25	6.99	0.32	7.29	0.29	35.072	7.94	0.096	26.2	76
	100b	0.08	0.22	0.15	1.65	0.25	6.69	0.33	7.26	0.30	35.012	7.93	0.089	26.1	79
	200s	0.17	0.28	0.26	1.64	0.23	6.69	0.40	7.23	0.26	35.030	7.95	0.114	25.9	82
	200b	0.08	0.36	0.23	1.50	0.24	5.49	0.32	6.08	0.27	35.038	7.93	0.120	25.8	81
	300s	0.20	0.51	0.36	2.35	0.22	4.72	0.42	5.59	0.26	35.022	7.99	0.090	26.2	88
	300b	0.10	0.31	0.04	1.49	0.24	6.50	0.34	6.85	0.25	35.012	8.03	0.234	26.2	89
	500s	0.12	0.21	0.24	1.17	0.25	6.10	0.37	6.55	0.15	34.991	8.06	0.090	26.3	79
	500b	0.08	0.31	0.32	1.50	0.25	5.90	0.33	6.53	0.20	35.016	8.04	0.192	26.3	89
DRAIN		0.68	5.20	0.68	63.32	0.48	7.20	1.16	13.08		32.333	7.984			
MAKAI WELL		4.84	0.78	16.80	274.96	0.08	5.36	4.92	22.92		25.163	7.486			
MIDDLE WELL		3.48	10.64	25.20	190.32	0.08	3.08	3.56	38.92		33.126	7.528			
MAUKA WELL		1.32	38.36	80.12	243.60	0.44	8.60	1.76	125.08		27.289	7.560			

TABLE 3. Results of sampling for Oil and Grease and Total Petroleum Hydrocarbons (TPH) from samples collected near the shoreline at the origin of the three water sampling transects off Waikiki, and from three monitoring wells within the Outrigger Properties in Waikiki. N.D. = non-declable. See Figure 1 for sampling locations.

SAMPLING LOCATION	Oil & Grease (mg/L)	TPH (mg/L)
Fort DeRussy	N.D.	N.D.
Outrigger Drain	N.D.	N.D.
Halekulani SC	N.D.	N.D.
Makai Well	N.D.	N.D.
Middle Well	1.1	1.1
Mauka Well	2.3	N.D.

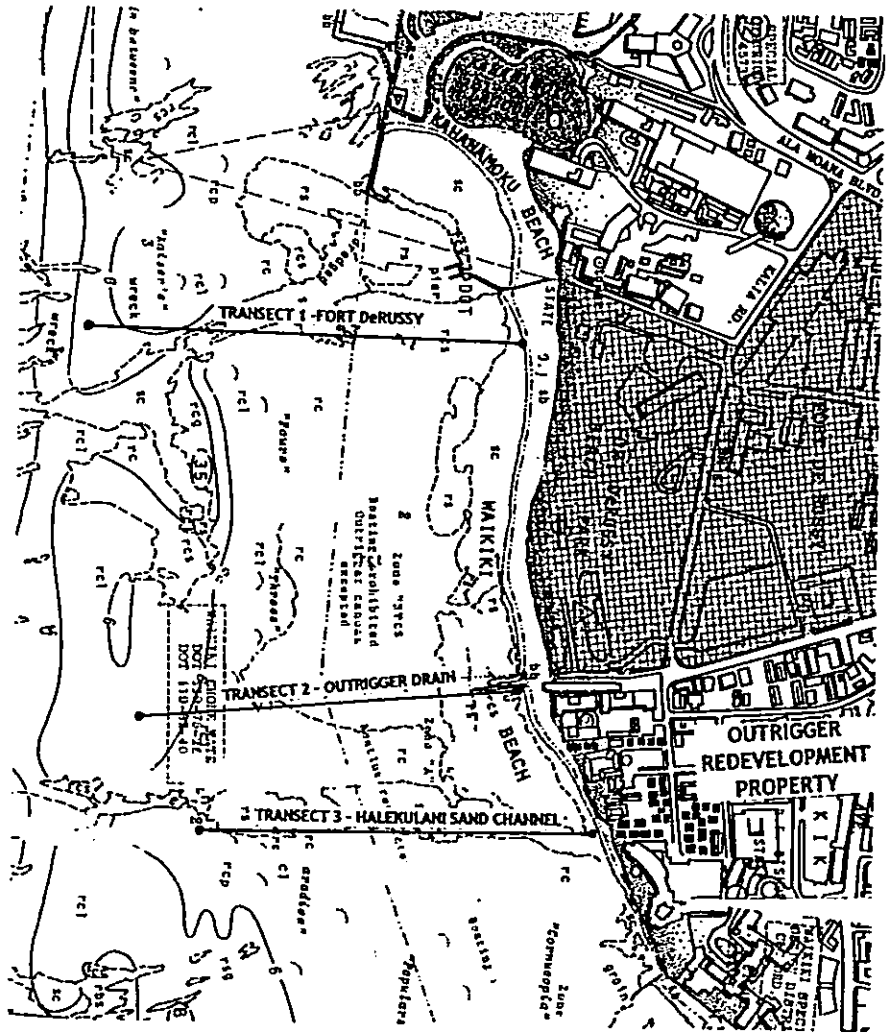

FIGURE 1. Map of Waikiki showing locations of three water sampling transects that extend from the shoreline to the open ocean. Also shown is location of Outrigger Redevelopment Project area.

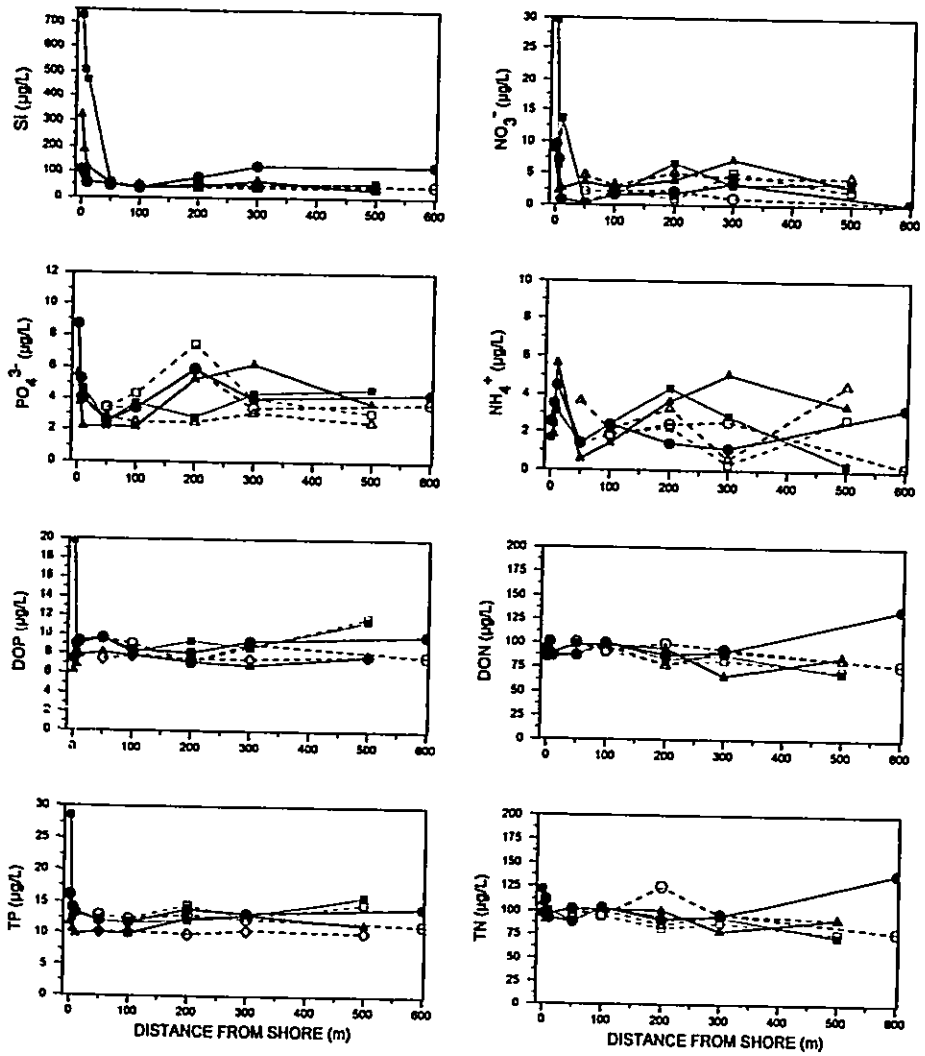

FIGURE 2. Plots of dissolved nutrients in surface (S) and deep (D) samples collected on August 2, 2001 as a function of distance from the shoreline off of Waikiki in the vicinity of the Outrigger Development. Site abbreviations as follows: FD (Fort DeRussy); OD (Outrigger Drain); HSC (Halekulani Sand Channel). "S" indicates surface sample; "B" indicates bottom sample.For site locations, see Figure 1.

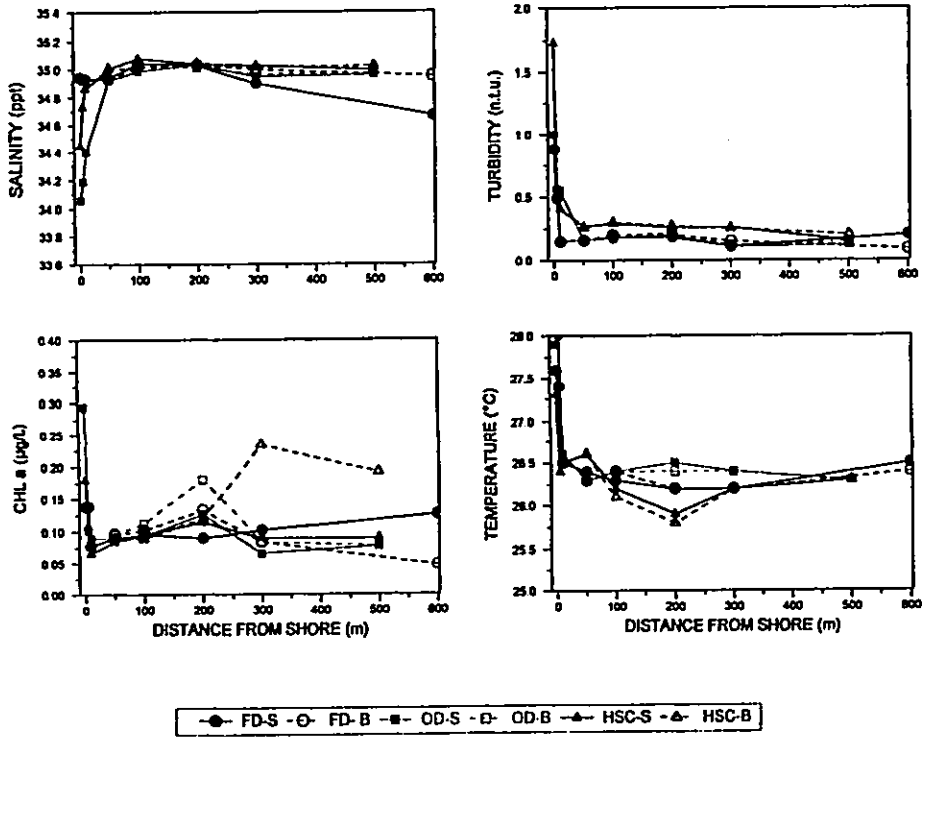

FIGURE 3. Plots of water chemistry constituents in surface (S) and deep (D) samples collected on August 2, 2001 as a function of distance from the shoreline off of Waikiki in the vicinity of the Outrigger Development. Site abbreviations as follows: FD (Fort DeRussy); OD (Outrigger Drain); HSC (Halekulani Sand Channel). For site locations, see Figure 1.

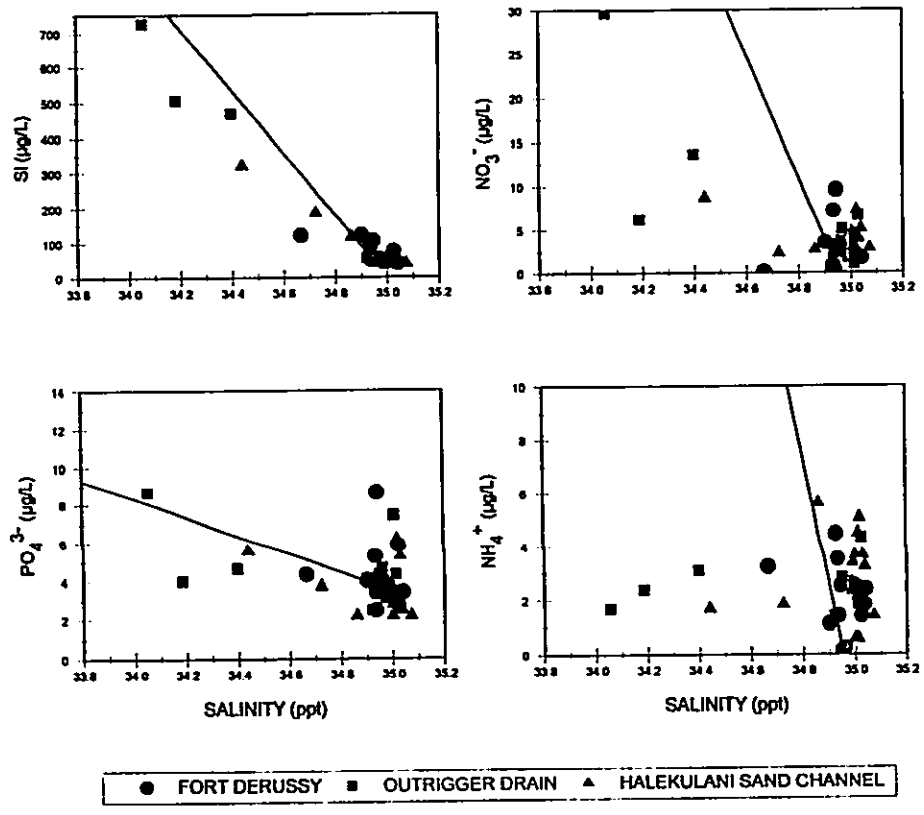

FIGURE 4. Mixing diagram showing concentration of dissolved nutrients from samples collected off Waikiki on August 2, 2001 as functions of salinity. Straight line in each plot are conservative mixing lines constructed by connecting the concentrations in open ocean water with well water from a monitoring well drilled at the most landward area of the Outrigger property in Waikiki.

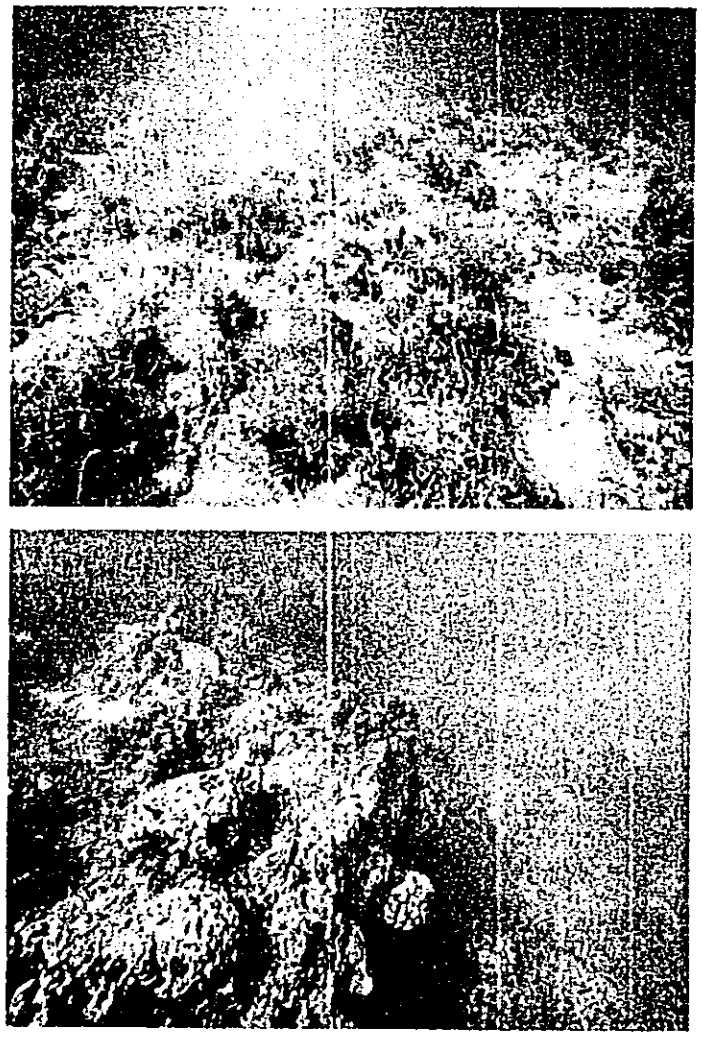

FIGURE 5. TOP: Typical underwater view of inner area of Waikiki off the box drain fronting the Outrigger redevelopment property. Bottom composition is primarily white sand and rubble. Predominant algae is *Acanthophora specifera*. Water depth is approximately 3 feet.
BOTTOM: Uplifted and undercut ledge at the inner area of Waikiki adjacent to the Hilton Channel off of Fort DeRussy. Predominant coral is *Pocillopora meandrina*. Water depth is approximately 5 feet.

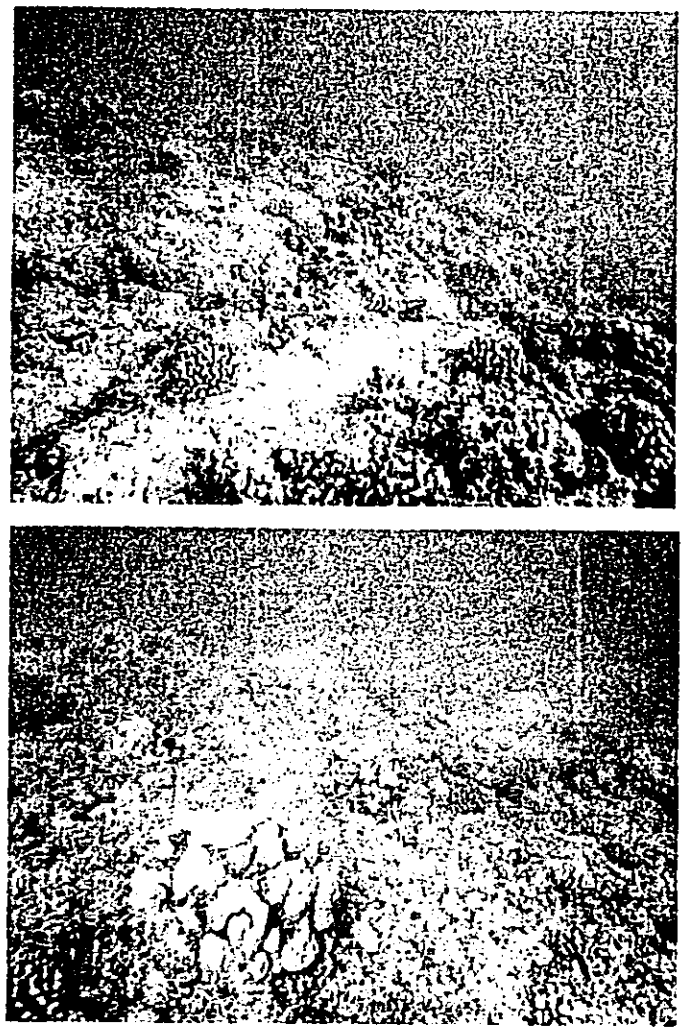

FIGURE 6. Two views of the outer reef slope seaward of reef crest off of the Waikiki. Top photo is at the ocean terminus of the Outrigger Drain Transect (water depth = 20 feet); Bottom photo is off the seaward terminus of the Fort DeRussy Transect (water depth= 25 feet). Note lack of sand covering bottom that controls community structure in inner Waikiki zone.

APPENDIX G

Acoustic Study for the Waikīkī Beach Walk Development

Y. Ebisu & Associates

October 2001

ACOUSTIC STUDY FOR THE WAIKIKI BEACH WALK DEVELOPMENT

HONOLULU, HAWAII

Prepared for:

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OCTOBER 2001

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CHAPTER I. SUMMARY

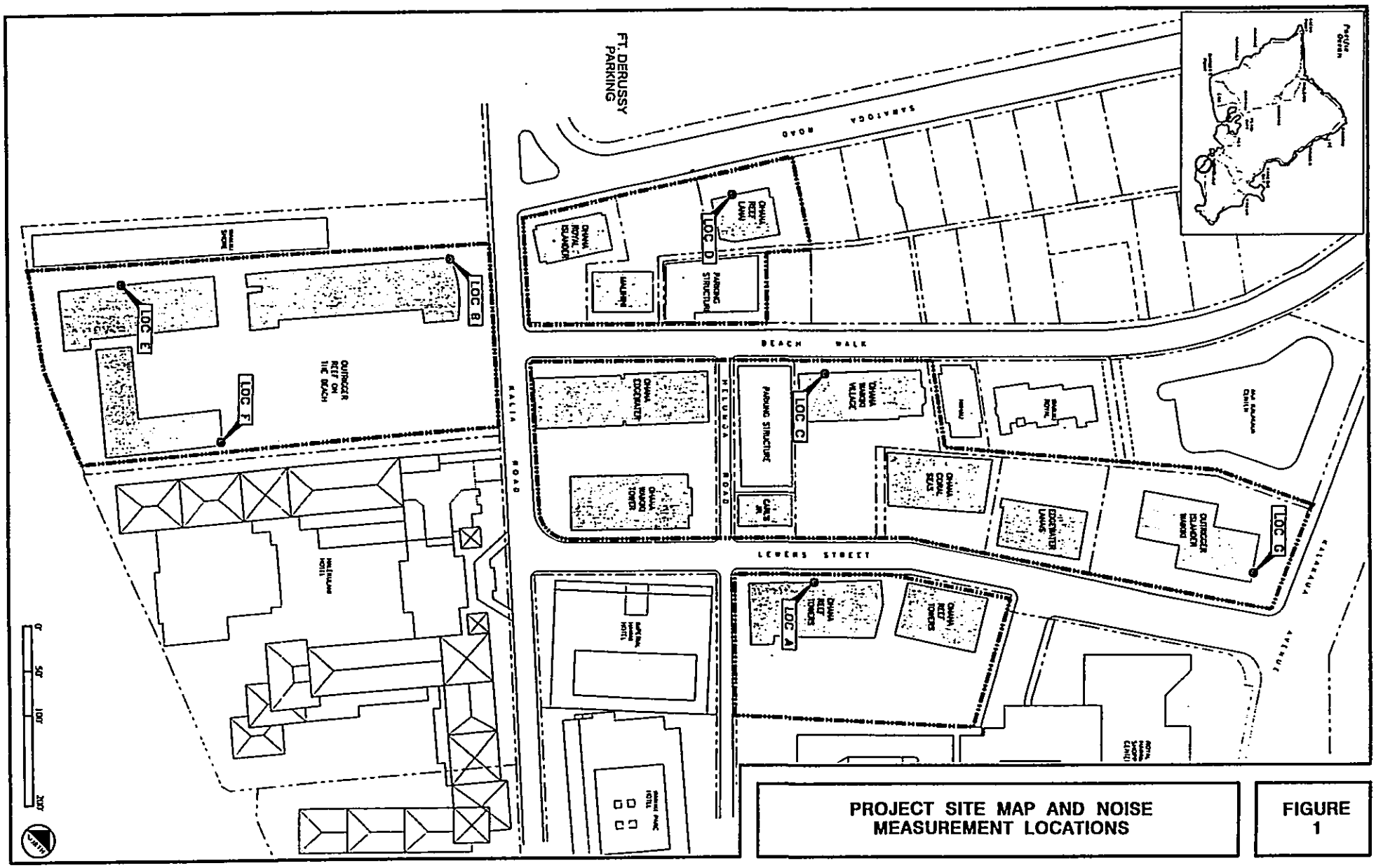
The existing and future traffic noise levels in the vicinity of the proposed Waikiki Beach Walk Project in Waikiki (see FIGURE 1) were evaluated for their potential impacts and their relationship to current FHA/HUD noise standards. The traffic noise level increases along the access roadways to and from the project site were calculated. No significant increases in traffic noise are predicted to occur along Kalakaua Avenue, Saratoga Road, Kalia Road, and Lewers Street as a result of project plus non-project traffic following project build-out by CY 2005 and CY 2010. Traffic noise from Kalakaua Avenue, Saratoga Road, and Kalia Road will continue to control background ambient noise levels in the project environs, with traffic noise levels exceeding 70 Ldn at existing and future resort units which front Kalakaua Avenue, Saratoga Road, and Kalia Road. Mitigation of the high traffic noise levels will be required at all new resort units, and will be available in the form of closure and air conditioning of the existing and future units within the Waikiki Beach Walk Project.

Project traffic will add less than 0.6 Ldn additional units of noise along the high noise roadways such as Kalakaua Avenue, Saratoga Road, and Kalia Road. The increases in future traffic noise levels resulting from project generated traffic are not considered to be significant.

Larger increases in traffic noise levels of 2.0 Ldn are predicted to occur along Beach Walk Street at Kalia Road following the Phase I and II developments. However, total noise levels along Beach Walk Street will not be controlled (or dominated) by traffic on Beach Walk Street, but by area-wide noise from Kalakaua Avenue, Saratoga Road, and Kalia Road. For this reason, total noise levels at receptor locations along Beach Walk Street should not increase by more than 0.7 Ldn units over existing noise levels.

The aircraft noise component should not exceed the Hawaii State Department of Transportation, Airports Division, recommended planning level of 60 Ldn for residences and resort units. Mitigation of aircraft noise levels is not required for the existing and planned resort units within the Waikiki Beach Walk Project, but will be available in the form of closure and air conditioning of these resort units.

Unavoidable, but temporary, noise impacts may occur during the demolition and construction activities within the project area, and particularly during the demolition and excavation activities on the project site. Because construction activities are predicted to be audible within the project site and at adjoining properties, the quality of the acoustic environment may be degraded to unacceptable levels during periods of construction. Mitigation measures to reduce construction noise to inaudible levels will not be practical in all cases, but the use of quiet equipment is recommended as a standard mitigation measure. The implementation of Hawaii State Department of Health permit procedures and curfew periods for construction activities is also expected for this project.



PROJECT SITE MAP AND NOISE MEASUREMENT LOCATIONS

FIGURE 1

Because of the presence of mid- and high-rise buildings near the project site, and the potential for damage to these buildings from vibration during impact pile driving operations, vibration monitoring is recommended during close-in pile driving operations where vibration levels are expected to exceed 0.2 inches/second. In addition, it is expected that the design and construction methods for the project's buildings will be optimized to minimize risks of damage to adjacent structures from settling or heaving. A vibration limit of 2.0 inches/second should not be exceeded at any of the adjacent buildings, and modifications to the project's plans prior to design and construction are recommended if these limits are expected to be exceeded.

CHAPTER II. PURPOSE

The primary objective of this study was to describe the existing and future noise environment in the environs of the proposed Waikiki Beach Walk Project in Waikiki on the island of Oahu. Traffic noise level increases and impacts associated with the proposed development were to be determined along the public roadways which are expected to service the project related traffic. A specific objective was to determine future traffic noise level increases associated with both project and non-project traffic, and the potential noise impacts associated with these increases.

Potential noise impacts from the activities and equipment associated with the planned two-level entertainment/retail complex along Lewers Street following Phase I of the project schedule were also evaluated. Potential noise impacts associated with the addition of the new Outrigger Saratoga Hotel following Phase II of the project schedule were also evaluated. Assessments of possible future impacts from short term construction noise at the project site were also included as noise study objectives. Recommendations for minimizing identified noise impacts were also to be provided as required.

CHAPTER III. NOISE DESCRIPTORS AND THEIR RELATIONSHIP TO LAND USE COMPATIBILITY

The noise descriptor currently used by federal agencies (such as FHA/HUD) to assess environmental noise is the Day-Night Average Sound Level (Ldn or DNL). This descriptor incorporates a 24-hour average of instantaneous A-Weighted Sound Levels as read on a standard Sound Level Meter. By definition, the minimum averaging period for the Ldn descriptor is 24 hours. Additionally, sound levels which occur during the nighttime hours of 10:00 PM to 7:00 AM are increased by 10 decibels (dB) prior to computing the 24-hour average by the Ldn descriptor. A more complete list of noise descriptors is provided in APPENDIX B to this report.

TABLE 1, derived from Reference 1, presents current federal noise standards and acceptability criteria for residential land uses. Land use compatibility guidelines for various levels of environmental noise as measured by the Ldn descriptor system are shown in FIGURE 2. As a general rule, noise levels of 55 Ldn or less occur in rural areas, or in areas which are removed from high volume roadways. In urbanized areas which are shielded from high volume streets, Ldn levels generally range from 55 to 65 Ldn, and are usually controlled by motor vehicle traffic noise. Residences which front major roadways are generally exposed to levels of 65 Ldn, and as high as 75 Ldn when the roadway is a high speed freeway.

In the project area, traffic noise levels associated with Kalakaua Avenue, Kalia Road, and Saratoga Road are greater than 70 Ldn along their Rights-of-Way due to the large volumes of traffic and heavy vehicles (trucks and buses) on those major thoroughfares. Adding to the traffic noise from the roadways are the relatively high noise levels of tour buses idling at curbside, sirens on police and emergency vehicles, outdoor mechanical equipment (fans and air conditioning equipment) at the commercial and resort buildings, maintenance activities, and garbage and delivery truck operations.

For purposes of determining noise acceptability for funding assistance from federal agencies (FHA/HUD and VA), an exterior noise level of 65 Ldn or less is considered acceptable for residences. This standard is applied nationally (Reference 2), including Hawaii. Because of our open-living conditions, the predominant use of naturally ventilated dwellings, and the relatively low exterior-to-interior sound attenuation afforded by these naturally ventilated structures, an exterior noise level of 65 Ldn does not eliminate all risks of noise impacts. Because of these factors, and as recommended in Reference 3, a lower level of 55 Ldn is considered as the "Unconditionally Acceptable" (or "Near-Zero Risk") level of exterior noise. However, after considering the cost and feasibility of applying the lower level of 55 Ldn, government agencies such as FHA/HUD and VA have selected 65 Ldn as a more appropriate regulatory standard.

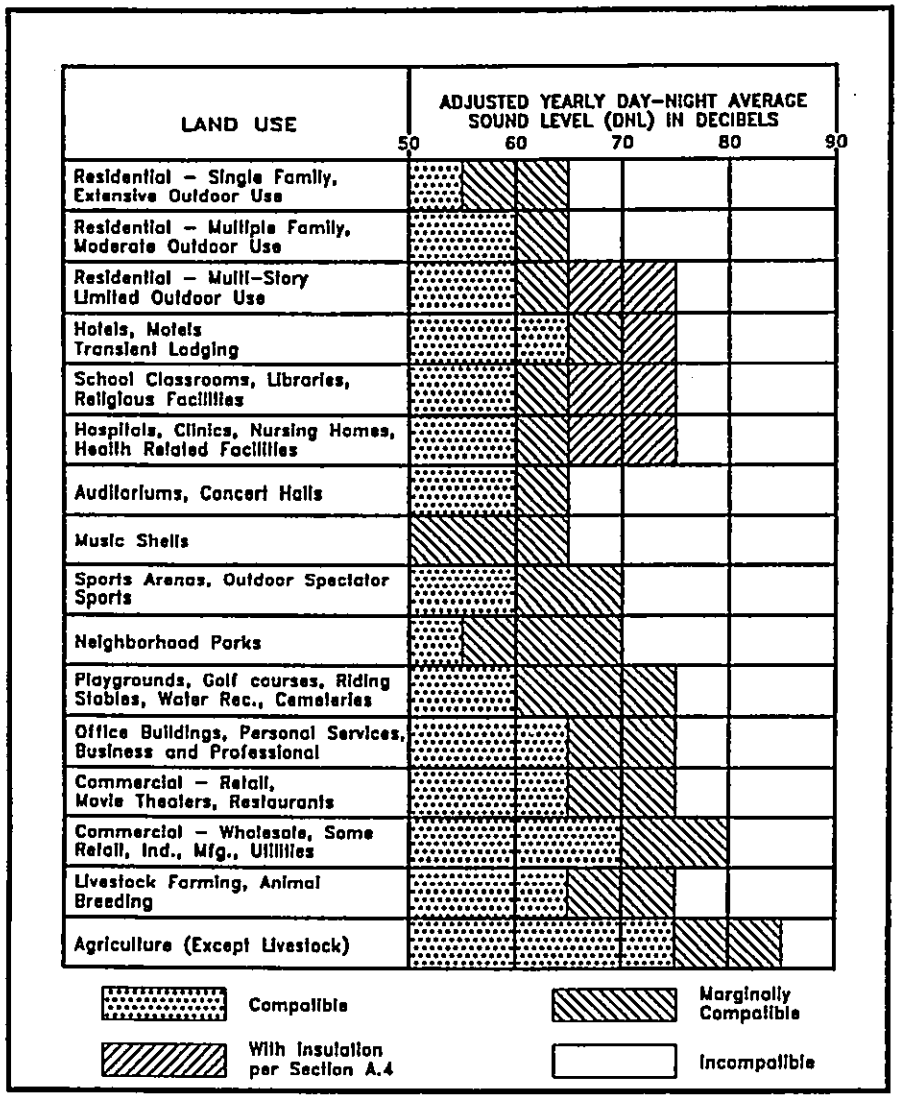
TABLE 1

EXTERIOR NOISE EXPOSURE CLASSIFICATION (RESIDENTIAL LAND USE)

NOISE EXPOSURE CLASS	DAY–NIGHT SOUND LEVEL	EQUIVALENT SOUND LEVEL	FEDERAL (1) STANDARD
Minimal Exposure	Not Exceeding 55 DNL	Not Exceeding 55 Leq	Unconditionally Acceptable
Moderate Exposure	Above 55 DNL But Not Above 65 DNL	Above 55 Leq But Not Above 65 Leq	Acceptable(2)
Significant Exposure	Above 65 DNL But Not Above 75 DNL	Above 65 Leq But Not Above 75 Leq	Normally Unacceptable
Severe Exposure	Above 75 DNL	Above 75 Leq	Unacceptable

Notes: (1) Federal Housing Administration, Veterans Administration, Department of Defense, and Department of Transportation.

(2) FHWA uses the Leq instead of the Ldn descriptor. For planning purposes, both are equivalent if: (a) heavy trucks do not exceed 10 percent of total traffic flow in vehicles per 24 hours, and (b) traffic between 10:00 PM and 7:00 AM does not exceed 15 percent of average daily traffic flow in vehicles per 24 hours. The noise mitigation threshold used by FHWA for residences is 67 Leq.



LAND USE COMPATIBILITY WITH YEARLY AVERAGE DAY-NIGHT AVERAGE SOUND LEVEL (DNL) AT A SITE FOR BUILDINGS AS COMMONLY CONSTRUCTED.
(Source: American National Standards Institute S12.9-1998/Part 5)

FIGURE 2

For commercial, industrial, and other non-noise sensitive land uses, exterior noise levels as high as 75 Ldn are generally considered acceptable. Exceptions to this occur when naturally ventilated office and other commercial establishments are exposed to exterior levels which exceed 65 Ldn.

On the island of Oahu, the State Department of Health (DOH) regulates noise from fixed mechanical equipment and construction activities. State DOH noise regulations are expressed in maximum allowable noise limits rather than Ldn (see Reference 4). Although they are not directly comparable to noise criteria expressed in Ldn, State DOH noise limits for single family residential lands equate to approximately 55 Ldn. For multifamily residential, commercial, and resort lands, the State DOH noise limits equate to approximately 60 Ldn. For light and heavy industrial lands, the State DOH noise limits equate to approximately 76 Ldn, respectively. Construction activities, which are typically noisier than the State DOH noise limits, are regulated through the issuance of permits for allowing excessive construction noise during limited time periods.

CHAPTER IV. GENERAL STUDY METHODOLOGY

Existing traffic and background ambient noise levels were measured at 7 locations (A, B, C, D, E, F, and G) in the project environs to provide a basis for describing the existing noise environment in the project environs. The locations of the measurement sites are shown in FIGURE 1. Location A was on the west lanai of an 8th floor guest room in the Ohana Reef Towers; Location B was on the 5th floor lanai of a guest room at the Pacific Tower of the Reef On the Beach; Location C was on the 5th floor lanai of a guest room at the Ohana Waikiki Village; Location D was on the 3rd floor lanai of a guest room at the Ohana Reef Lanai; Location E was on the 7th floor lanai of a guest room at the Ocean Tower of the Reef On the Beach; Location F was on the roof of Serenity Spa; and Location G was on the 6th floor lanai of a guest room at the Outrigger Islander Waikiki. The traffic and background ambient noise measurements were performed during the month of July 2001, and those results are summarized in TABLE 2.

Traffic noise calculations for the existing conditions as well as noise predictions for CY 2005 (Phase I) and CY 2010 (Phase II) were performed using the Federal Highway Administration (FHWA) Traffic Noise Model Version 1.1 (Reference 5). Traffic data entered into the noise prediction model were: roadway and receiver locations; hourly traffic volumes, average vehicle speeds; estimates of traffic mix; and "Pavement" propagation loss factor. The traffic data and forecasts for the project (Reference 6) were the primary sources of data inputs to the model. APPENDICES C and D summarize the AM and PM peak hour traffic volumes for CY 2001, 2005, and 2010, which were used to model existing and future traffic noise along the streets surrounding the project site. For existing and future traffic along the streets surrounding the project site, it was assumed that the average noise levels, or Leq(h), during the PM peak traffic hour were approximately 2 dB less than the 24-hour Ldn along those roadways. This assumption was based on the traffic counts from Reference 6 as well as the traffic noise measurement data from Locations B, D, and G.

Traffic noise calculations for both the existing and future conditions in the project environs were developed for ground level and elevated receptors. Traffic noise levels were also calculated for future conditions with (Build Alternative) and without (No Build Alternative) the proposed project. The forecasted changes in traffic noise levels over existing levels were calculated with and without the project, and noise impact risks evaluated. The relative contributions of non-project and project traffic to the total noise levels were also calculated, and an evaluation of possible traffic noise impacts was made.

In addition to the traffic noise measurements, background ambient and aircraft noise measurements were obtained at Locations E and F, where the noise from the surf, hotel guests, and construction activities controlled the background ambient noise levels. The results of these measurements plus the results of the traffic noise measurements and predictions were used to describe the existing and future noise levels in the project environs.

TABLE 2
TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

LOCATION	Time of Day (HRS)	Ave. Speed (MPH)	Hourly Traffic Volume AUTO	M.TRUCK	H.TRUCK	Measured Leq (dB)	Predicted Leq (dB)
A. 30 FT from the centerline of Lewers Street (7/21/01)	1600 TO 1700	35	346	4	25	68.4	68.3
B. 53 FT from the centerline of Kalia Road (7/23/01)	700 TO 800	32	403	46	35	68.9	67.4
B. 53 FT from the centerline of Kalia Road (7/23/01)	1600 TO 1700	32	586	17	59	69.1	68.5
C. 43 FT from the centerline of Beach Walk Street (7/24/01)	700 TO 800	25	210	20	7	63.5	64.2
C. 43 FT from the centerline of Beach Walk Street (7/24/01)	1600 TO 1700	25	288	6	1	64.9	63.9

TABLE 2 (CONTINUED)

TRAFFIC AND BACKGROUND NOISE MEASUREMENT RESULTS

LOCATION	Time of Day (HRS)	Ave. Speed (MPH)	Hourly Traffic Volume AUTO	M.TRUCK	H.TRUCK	Measured Leq (dB)	Predicted Leq (dB)
D. 42 FT from the center-line of Saratoga Road (7/25/01)	700 TO 800	37	458	72	57	69.4	69.3
D. 42 FT from the center-line of Saratoga Road (7/25/01)	1600 TO 1700	37	875	24	92	71.9	70.3
G. 68 FT from the center-line of Kalakaua Avenue (7/27/01)	700 TO 800	28	1,390	95	72	68.8	69.9
G. 68 FT from the center-line of Kalakaua Avenue (7/26/01)	1600 TO 1700	28	1,971	38	62	69.4	69.6

Calculations of average exterior and interior noise levels from construction activities were performed for typical naturally ventilated and air conditioned dwellings. Predicted noise levels were compared with existing background ambient noise levels, and the potential for noise impacts was assessed. Potential noise and vibration impacts from pile driving operations were also discussed, and mitigation measures recommended.

V. EXISTING ACOUSTICAL ENVIRONMENT

Major contributors to the existing background ambient noise levels within the project area are: traffic along Kalakaua Avenue, Saratoga Road, Lewers Street, and Kalia Road; garbage collection trucks; tour buses and delivery trucks which are idling or positioning at curbside; loud motorcycles; the sirens of emergency and police vehicles; and nearby construction activities. Sample strip charts of the louder noise events which were recorded at the noise measurement locations are shown in FIGURES 3 through 14. These louder noise events can range from 80 to 100 dBA, and are clearly audible above the other background ambient noise sources, and tend to distort the hourly average [or Leq(h)] and 24-hour average (or Ldn) noise levels.

The typical hourly variations in noise levels within the project area are controlled by motor vehicle traffic along the high volume roadways such as Kalakaua Avenue, Saratoga Road, and Kalia Road. Traffic noise levels tend to be lowest during the early morning hours between 3 and 5 AM, and tend to be highest during the AM and PM peak commuting hours. The measured variations in average hourly noise levels at the measurement locations are shown in FIGURES 15 through 20.

Superimposed on the hourly variations associated with traffic noise are the large increases in average hourly noise levels caused by the loud noise sources described previously. The large increase in hourly noise level at Location A at 1700 hours (see FIGURE 15) was caused by the 100 dBA siren at 4:40 PM (see FIGURE 3). The large increases in hourly noise levels at Location B (see FIGURE 16) were caused by garbage trucks, tour buses, and delivery vehicles operating in the loading area along Kalia Road. The large increase in hourly noise level at 2:00 PM at Location C (see FIGURE 17) was caused by a parked bus which was idling at curbside (see FIGURE 7). At Location E, construction activities at a unit in the adjacent Waikiki Shore caused the large midday increases in average noise levels (see FIGURES 19 and 12). At Location G, sirens were the cause of the large increases in average noise levels at 9:00 AM, 12:00 noon, and 5:00 PM (see FIGURES 20 and 13). At Location F, poolside activities at the Reef On the Beach controlled the daytime background ambient noise levels, which ranged between 62 and 86 dBA.

The existing traffic volumes and their noise contributions at 50, 100, and 200 feet setback distances from the centerlines of the roadways servicing the project are shown in APPENDIX C and TABLE 3. The corresponding setback distances from the roadways' centerlines to their corresponding 65, 70, and 75 Ldn traffic noise contours for ground level receptors are shown in TABLE 4. Based on the results shown in TABLES 3 and 4, as well as the measured sound levels at the various locations (see FIGURES 15 through 20), it was concluded that existing background noise levels in the project environs currently exceed 65 Ldn at essentially all buildings which front Kalakaua Avenue, Saratoga Road, Lewers Street, and Kalia Road. In addition, at the upper floors of buildings which front the lower volume streets such as Beach Walk

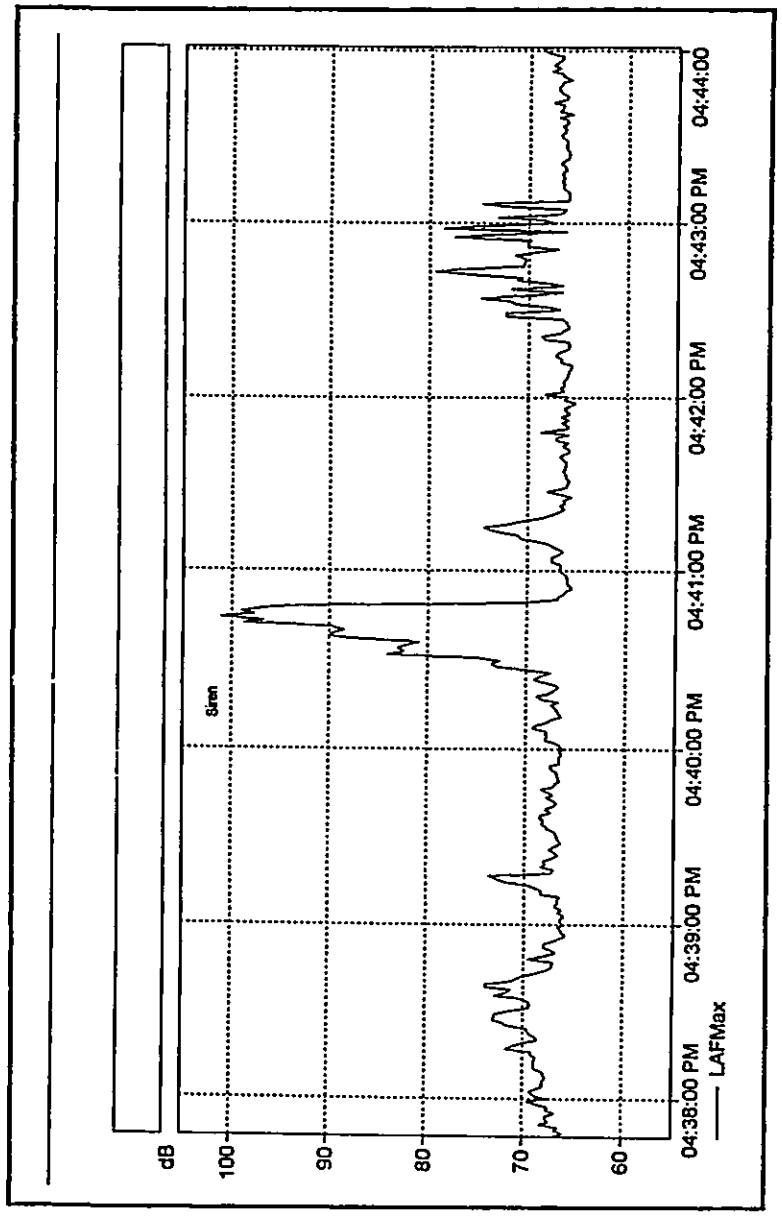
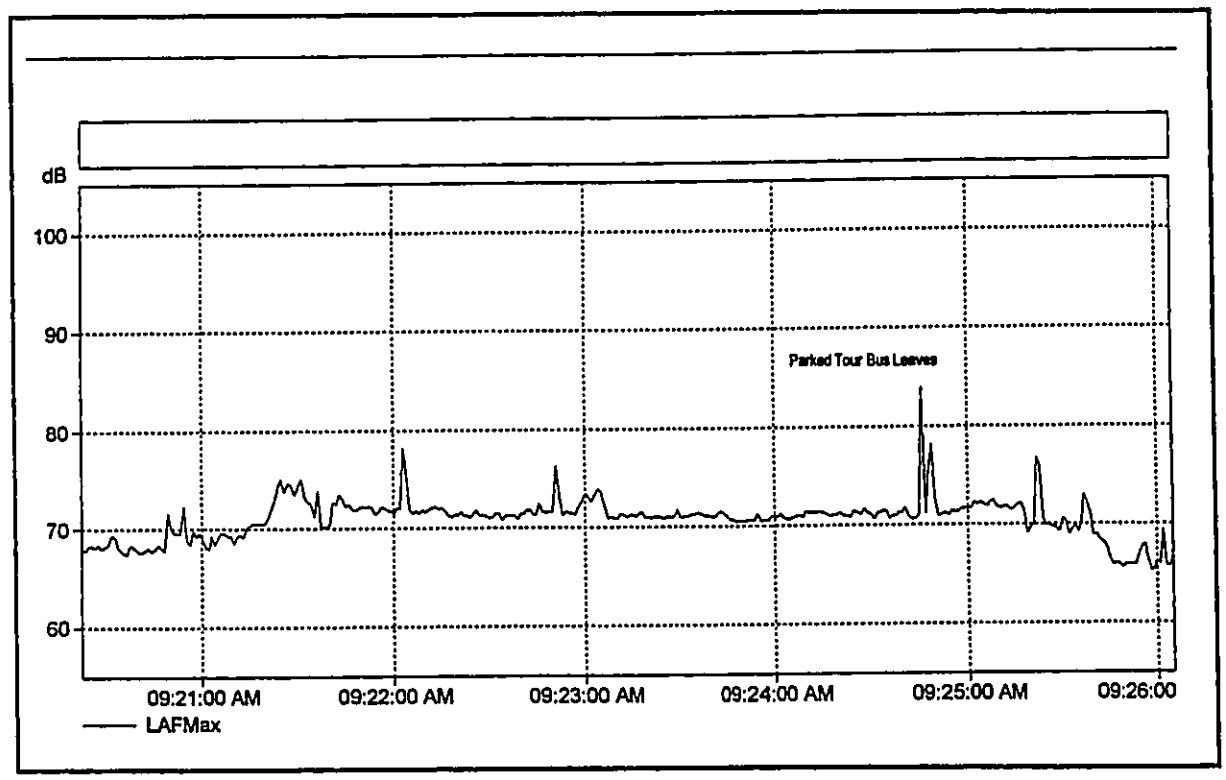


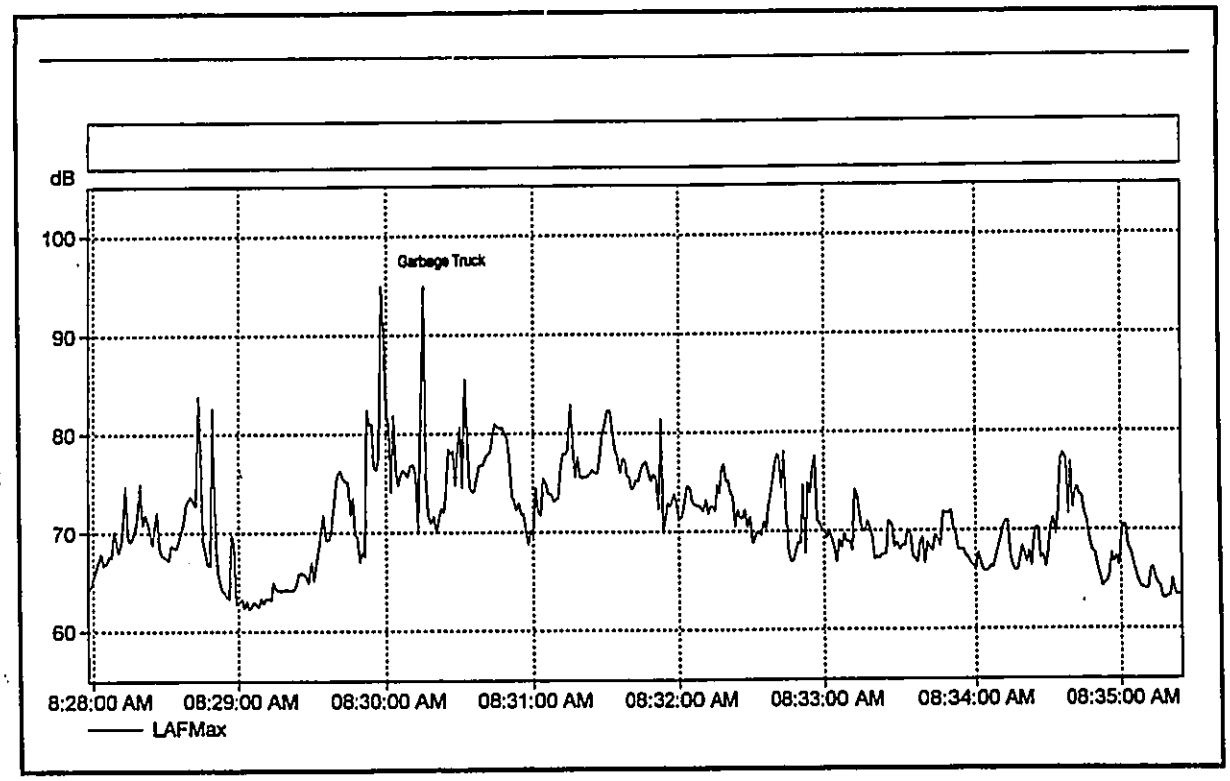
FIGURE 3

MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "A" (07/21/01; 4:41 PM)



MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "A" (07/22/01; 09:23 AM)

FIGURE 4



MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "B" (07/23/01; 08:32 AM)

FIGURE 5

CORRECTION

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

V. EXISTING ACOUSTICAL ENVIRONMENT

Major contributors to the existing background ambient noise levels within the project area are: traffic along Kalakaua Avenue, Saratoga Road, Lewers Street, and Kalia Road; garbage collection trucks; tour buses and delivery trucks which are idling or positioning at curbside; loud motorcycles; the sirens of emergency and police vehicles; and nearby construction activities. Sample strip charts of the louder noise events which were recorded at the noise measurement locations are shown in FIGURES 3 through 14. These louder noise events can range from 80 to 100 dBA, and are clearly audible above the other background ambient noise sources, and tend to distort the hourly average [or Leq(h)] and 24-hour average (or Ldn) noise levels.

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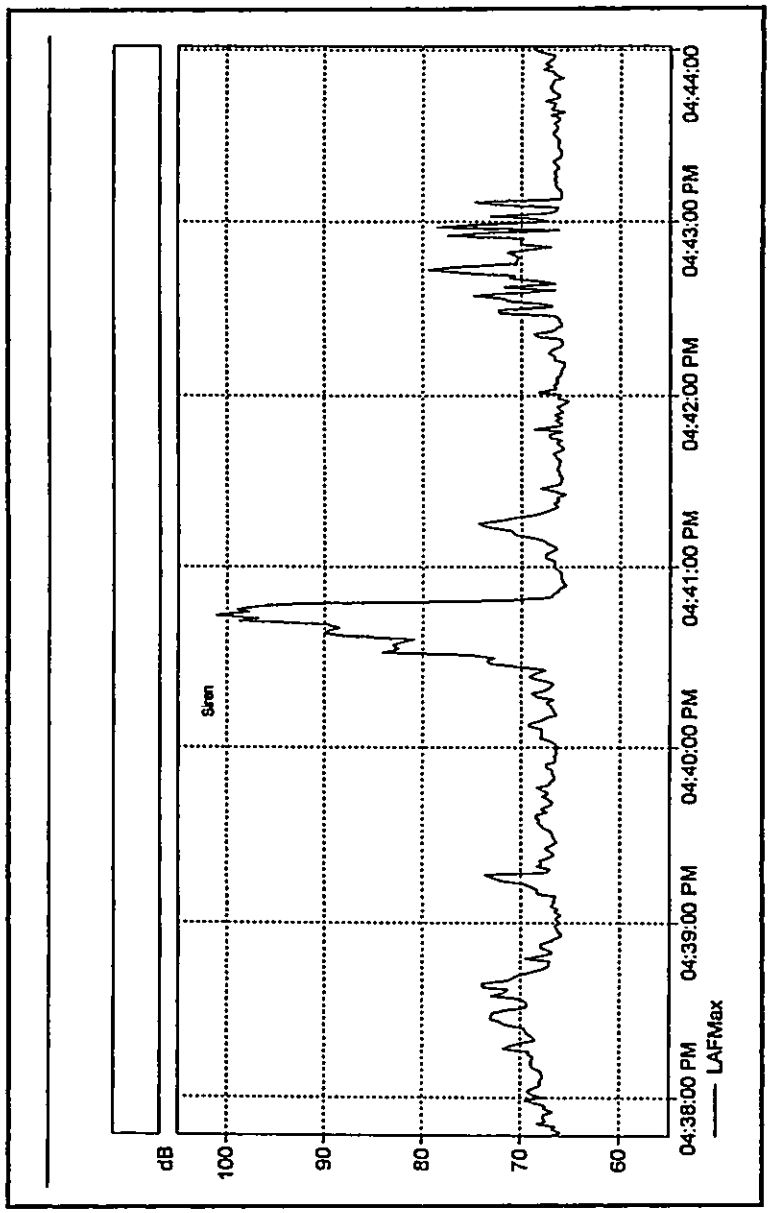
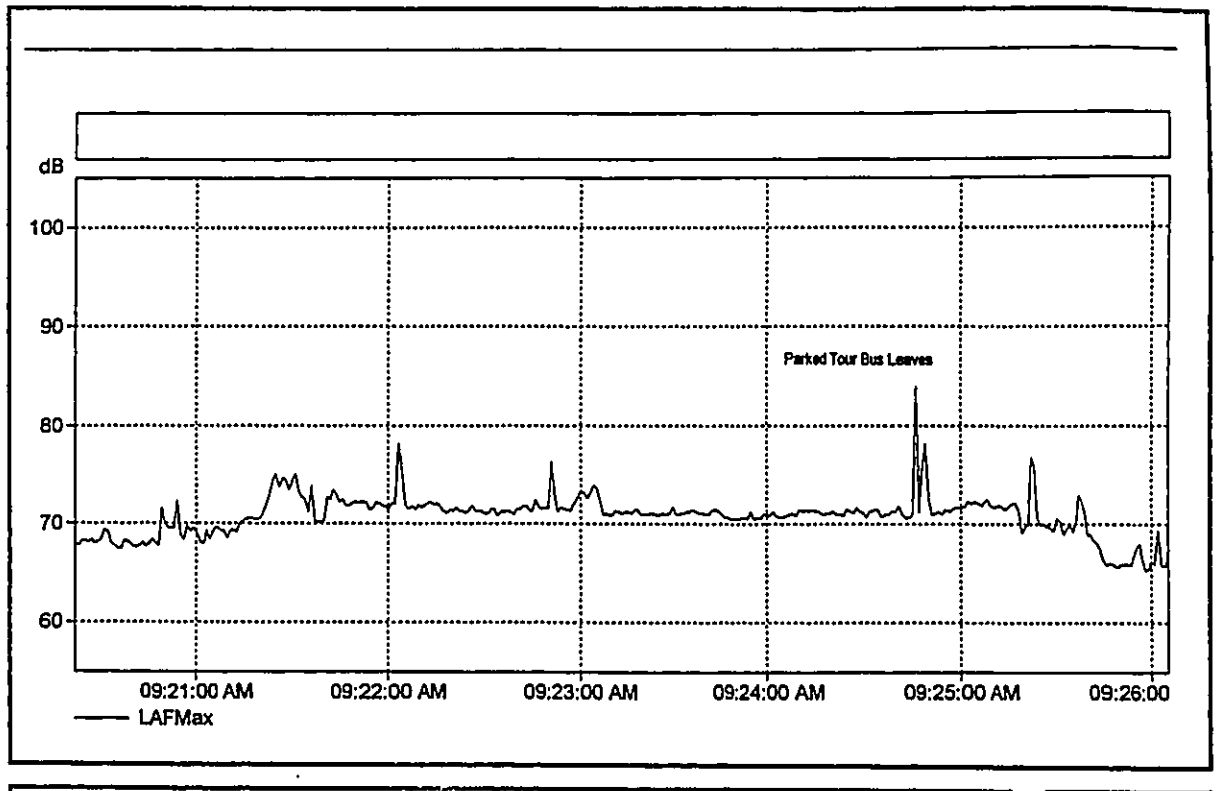


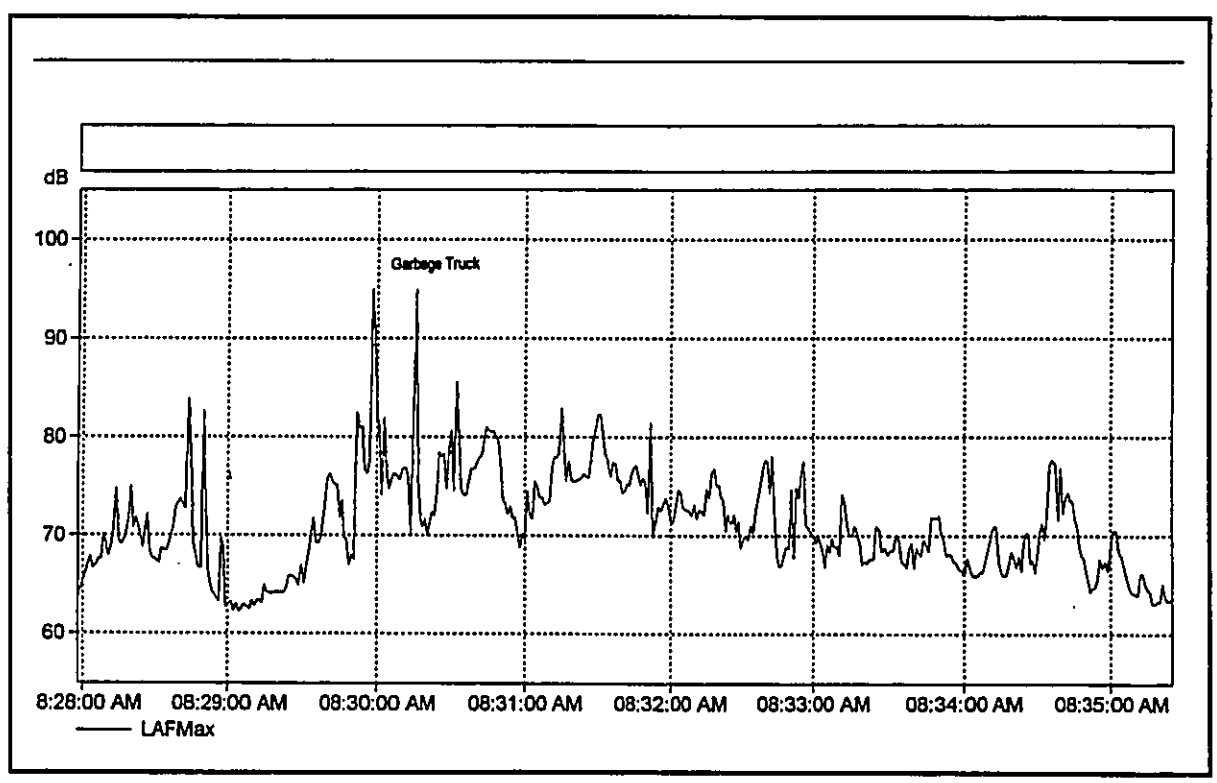
FIGURE 3

MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "A" (07/21/01; 4:41 PM)



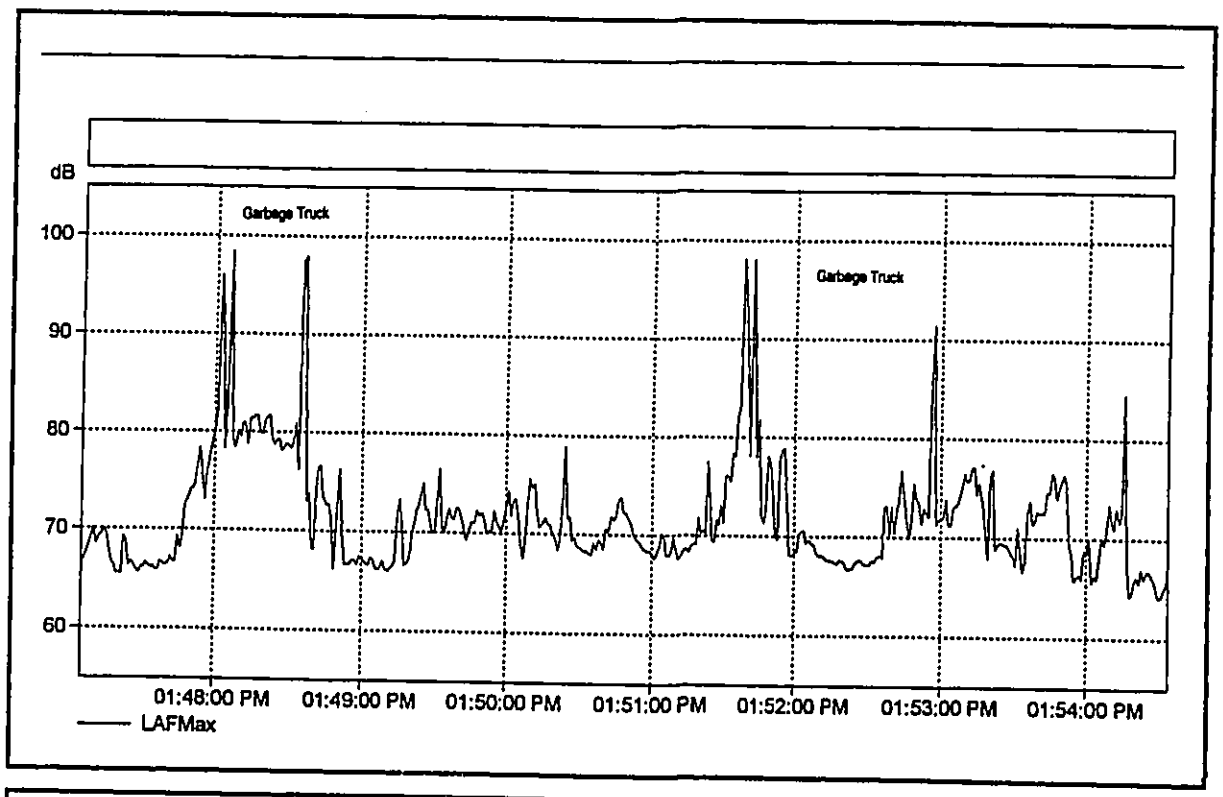
MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCAT:ON "A" (07/22/01; 09:23 AM)

FIGURE 4



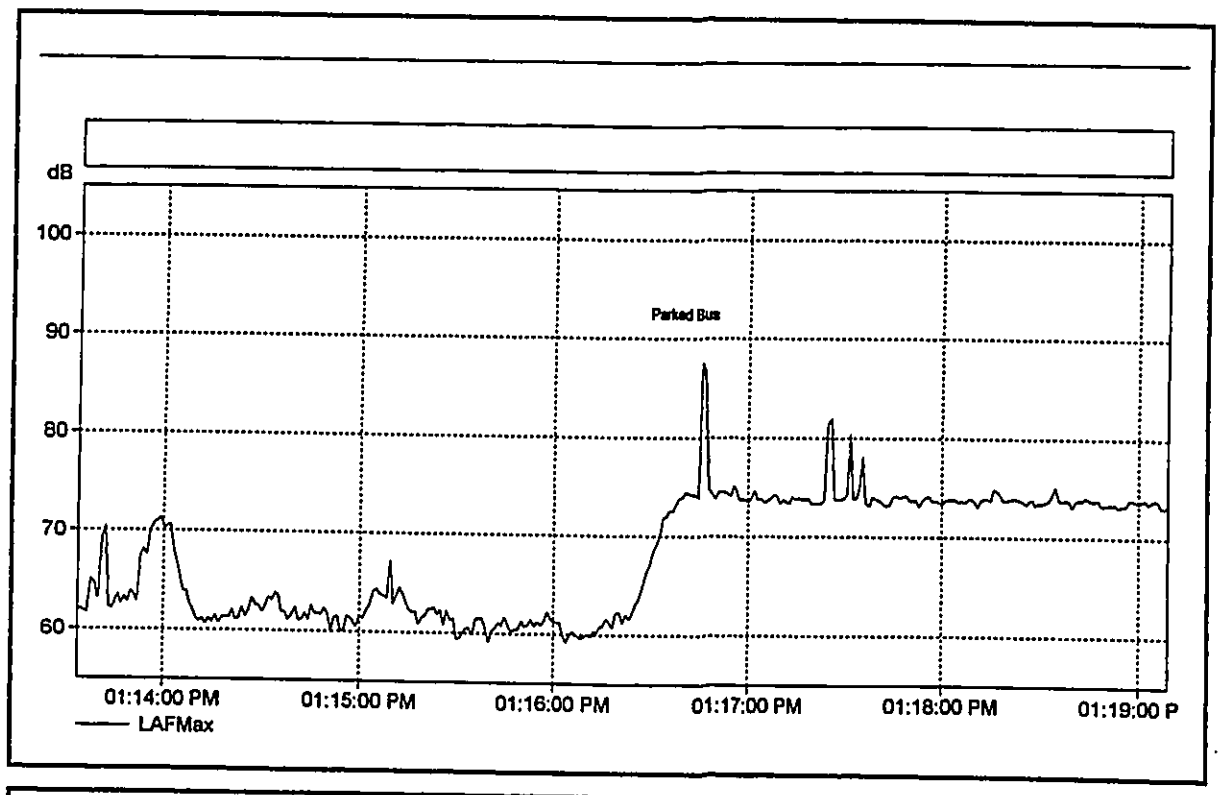
MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "B" (07/23/01; 08:32 AM)

FIGURE 5



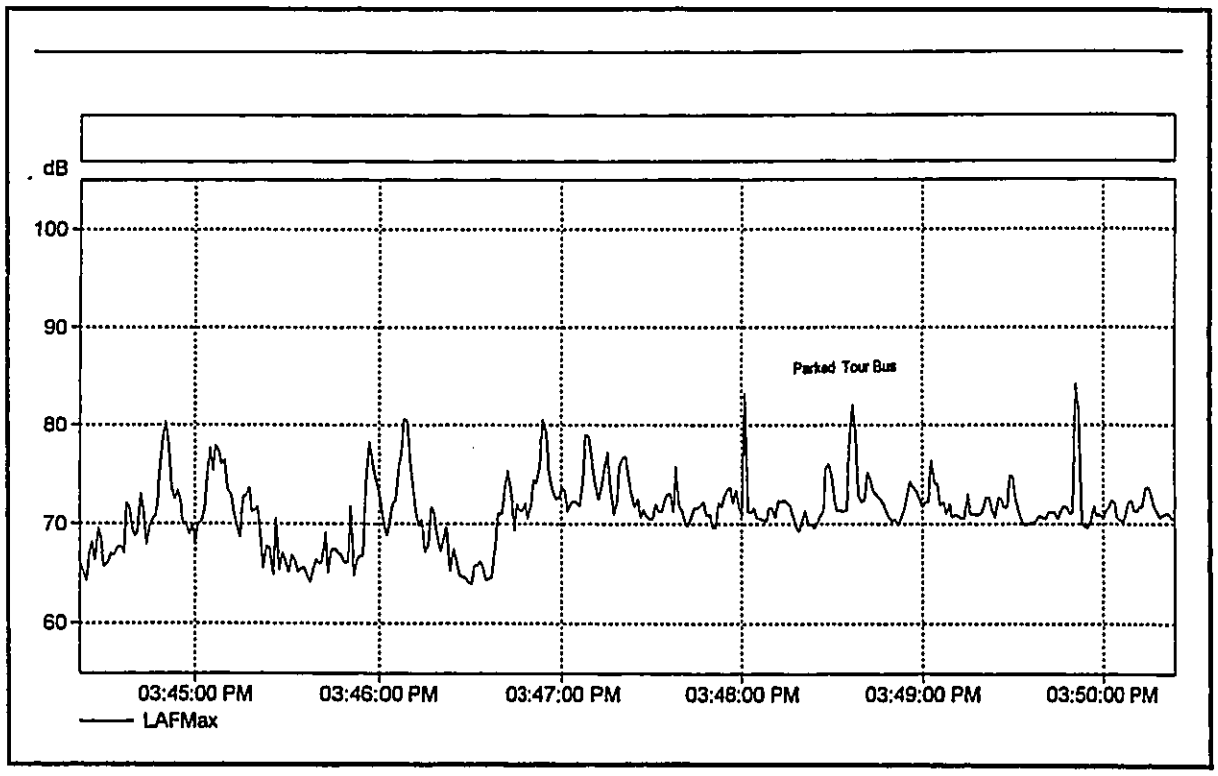
MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "B" (07/23/01; 01:51 PM)

FIGURE 6



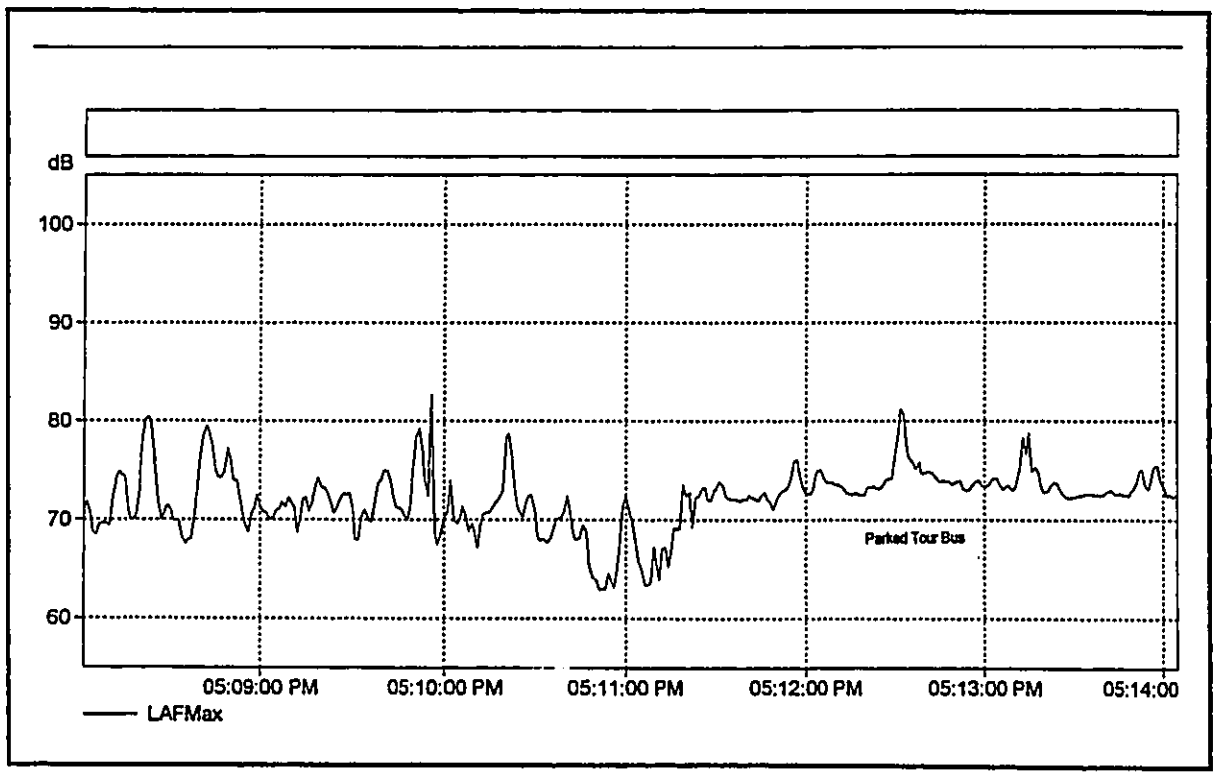
MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "C" (07/24/01; 01:16 PM)

FIGURE 7



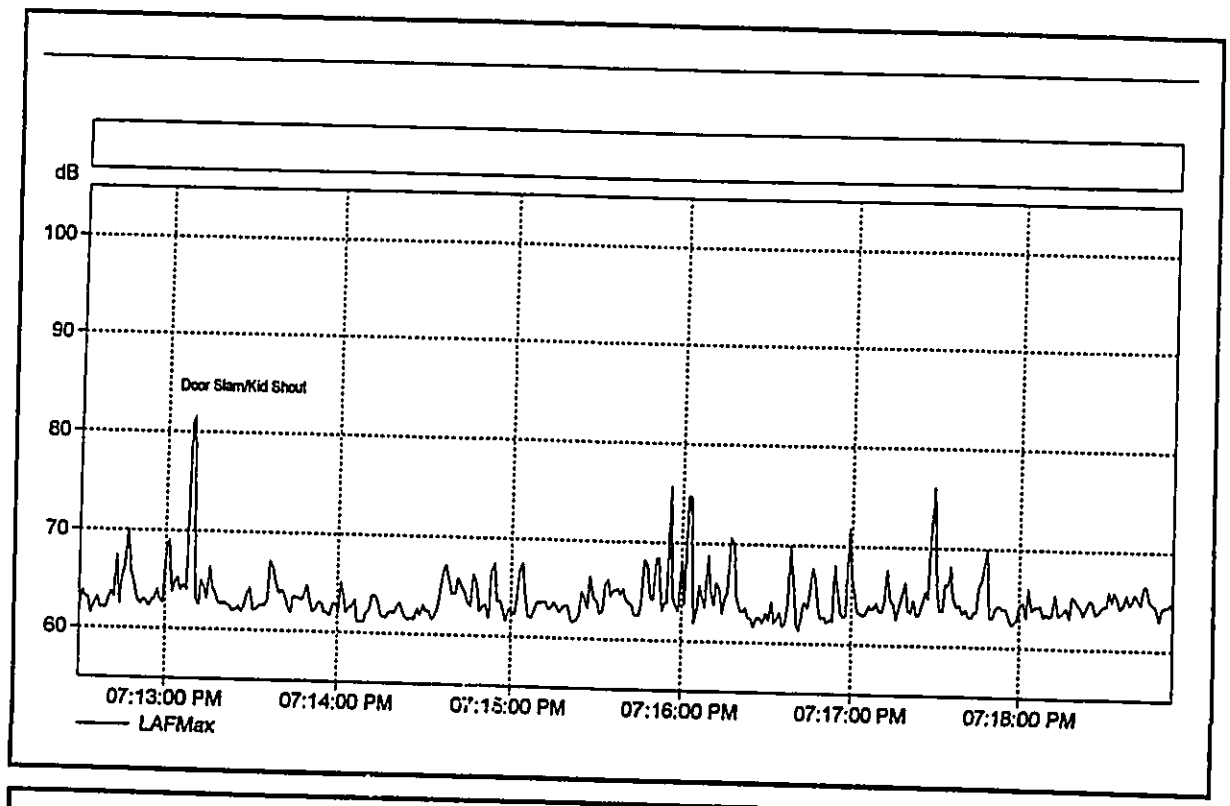
MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "D" (07/25/01; 03:47 PM)

FIGURE 8



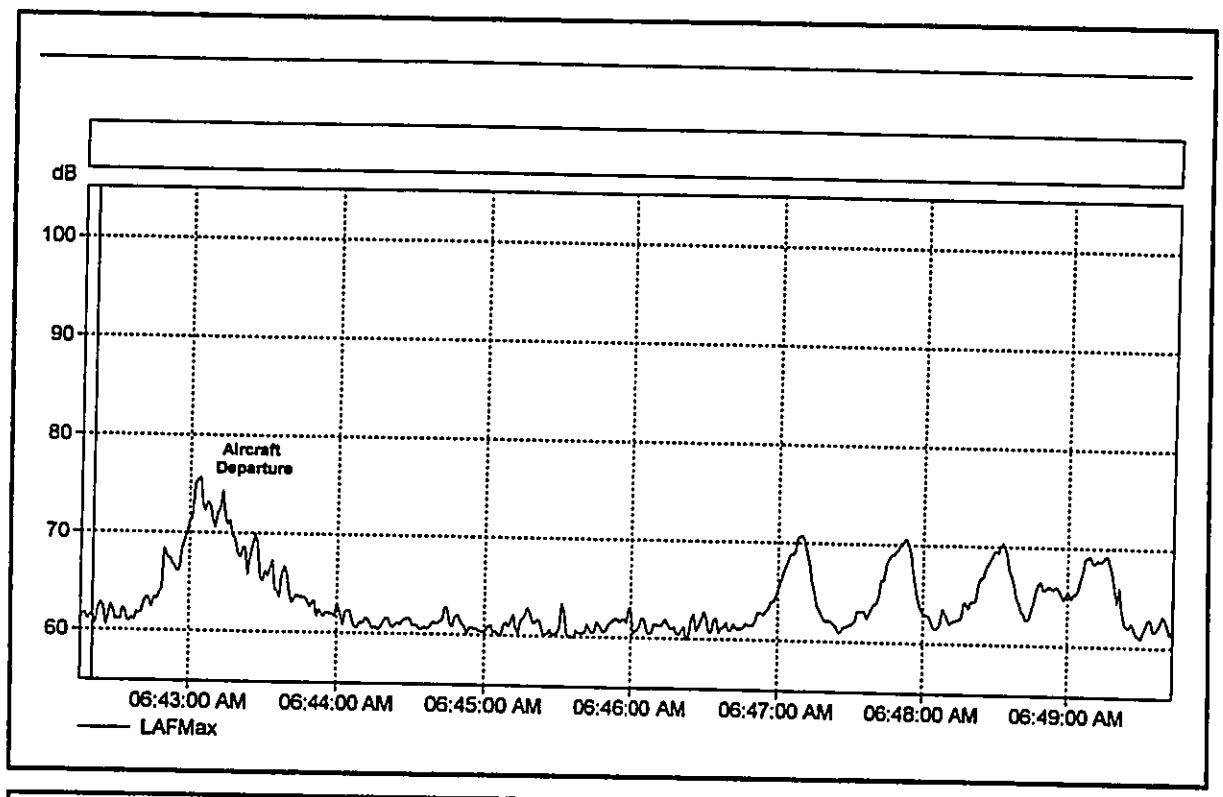
MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "D" (07/25/01; 05:11 PM)

FIGURE 9



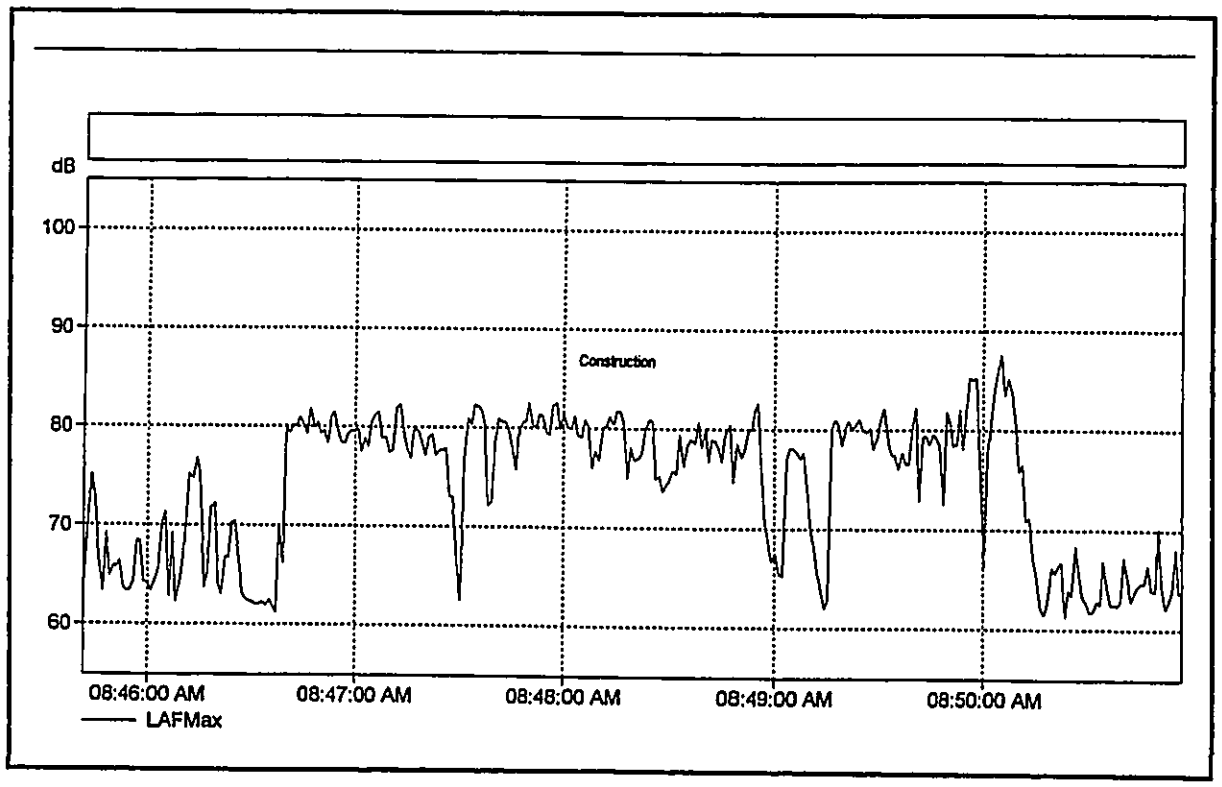
MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "E" (07/25/01; 07:15 PM)

FIGURE 10



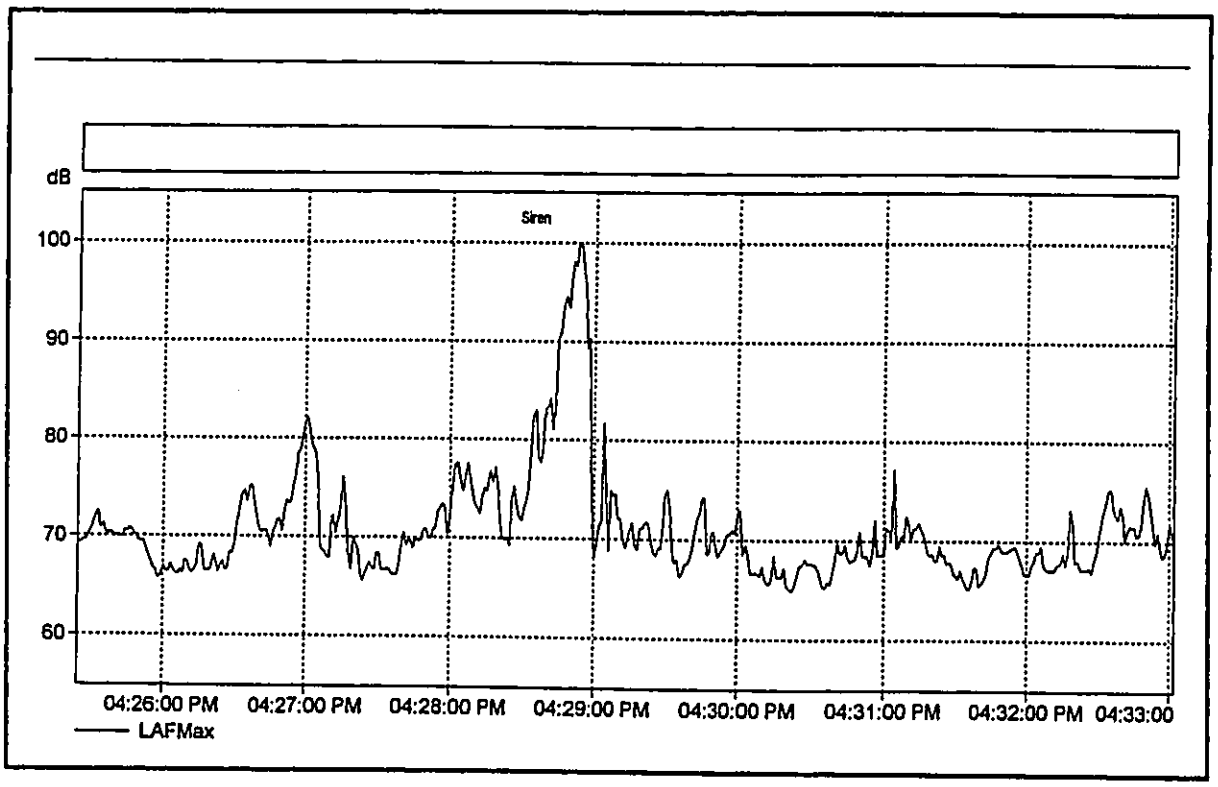
MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "E" (07/26/01; 06:46 AM)

FIGURE 11



MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "E" (07/26/01; 08:45 AM)

FIGURE 12



MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "G" (07/26/01; 04:29 PM)

FIGURE 13

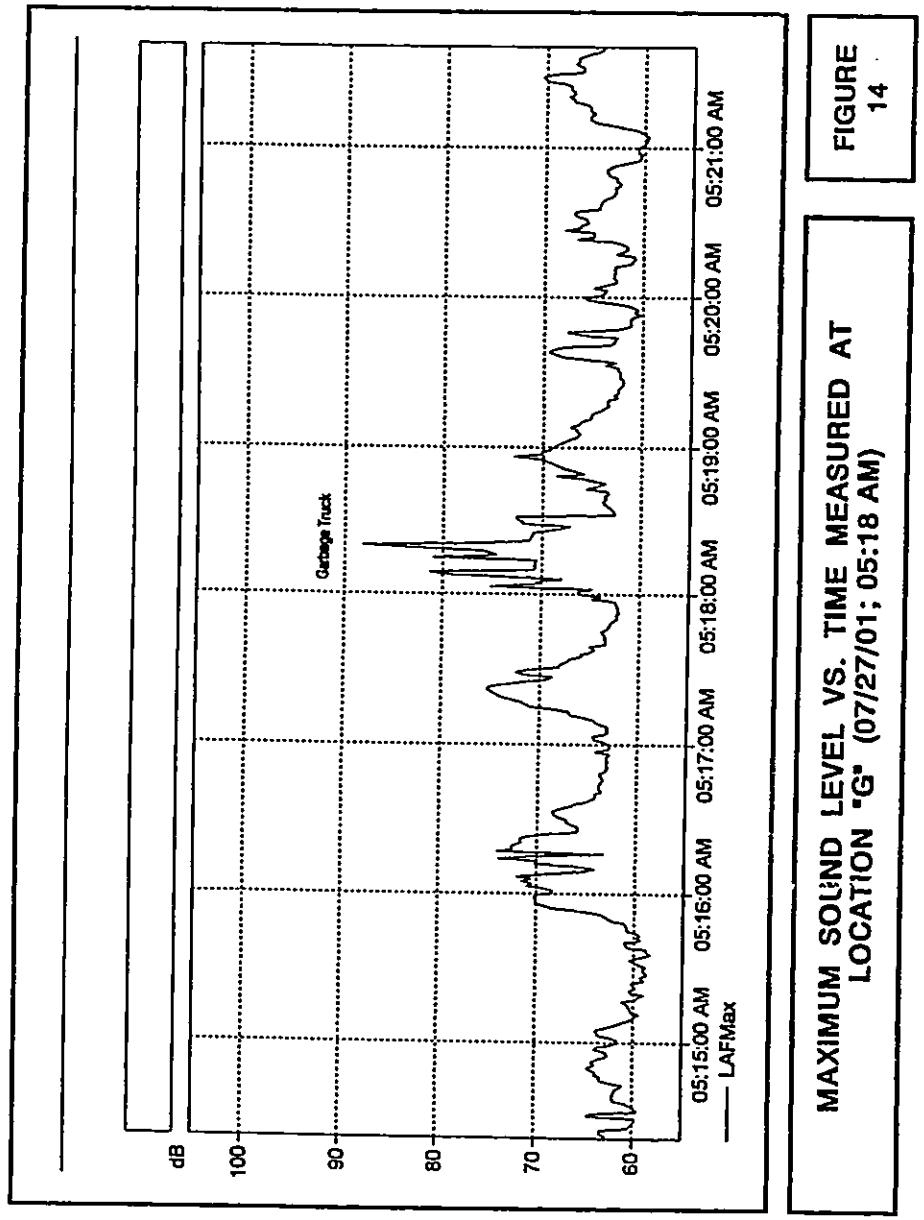


FIGURE 14

MAXIMUM SOUND LEVEL VS. TIME MEASURED AT LOCATION "G" (07/27/01; 05:18 AM)

FIGURE 15

MEASURED HOURLY VARIATIONS OF BACKGROUND AMBIENT NOISE AT LOCATION "A" OHANA REEF TOWERS AT LEWERS STREET (JULY 21 – 22, 2001)

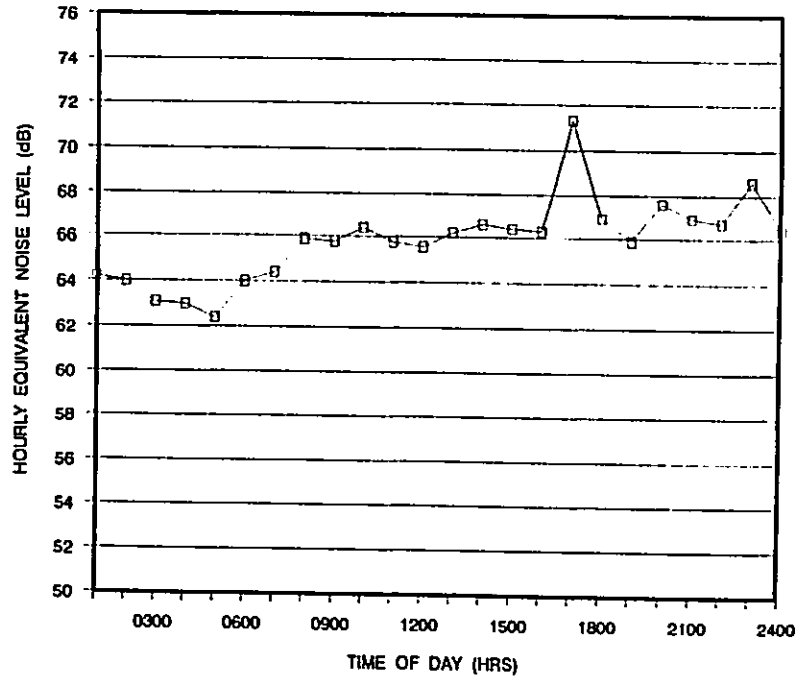
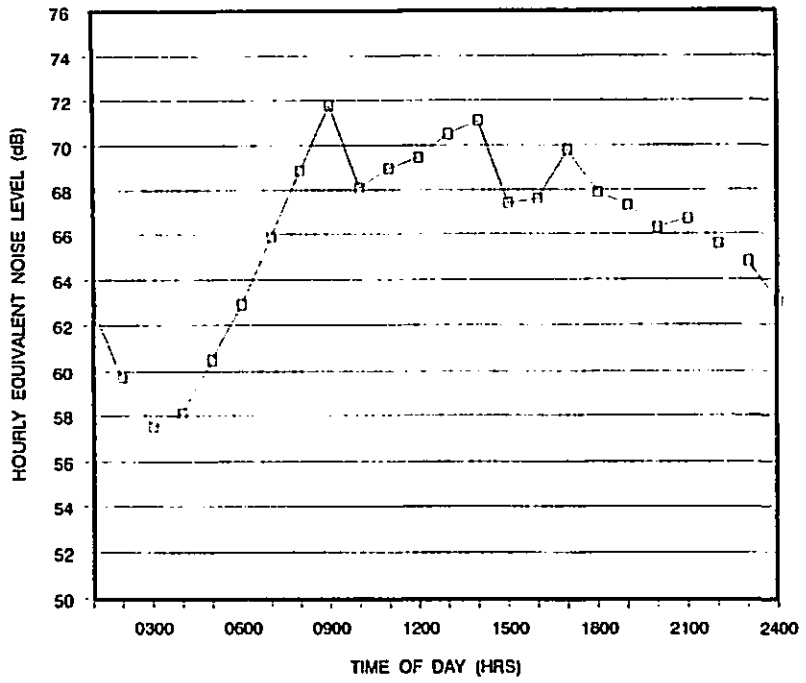


FIGURE 16

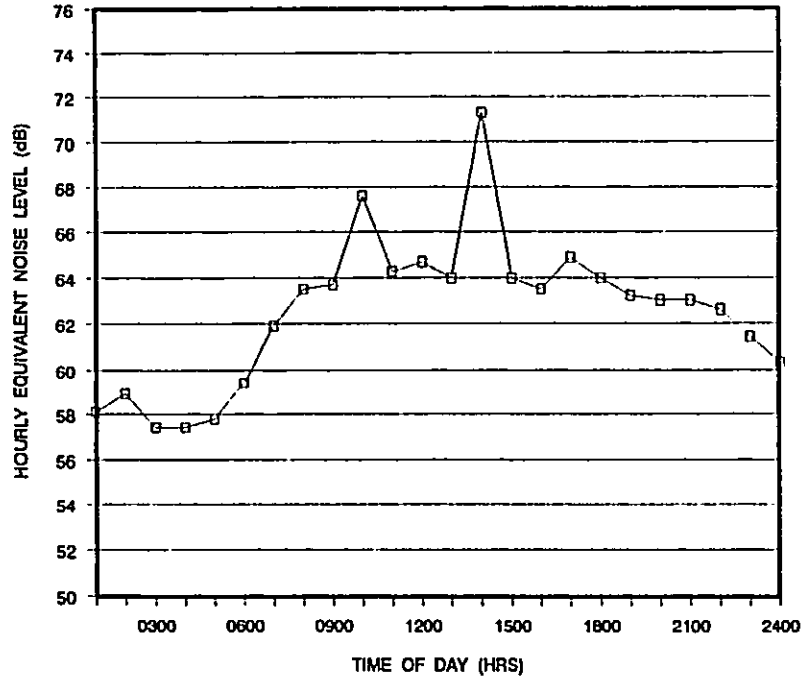
MEASURED HOURLY VARIATIONS OF BACKGROUND
AMBIENT NOISE AT LOCATION "B"
REEF ON THE BEACH AT KALIA ROAD
(JULY 22 – 23, 2001)



70.1 Ldn at Location "B"

FIGURE 17

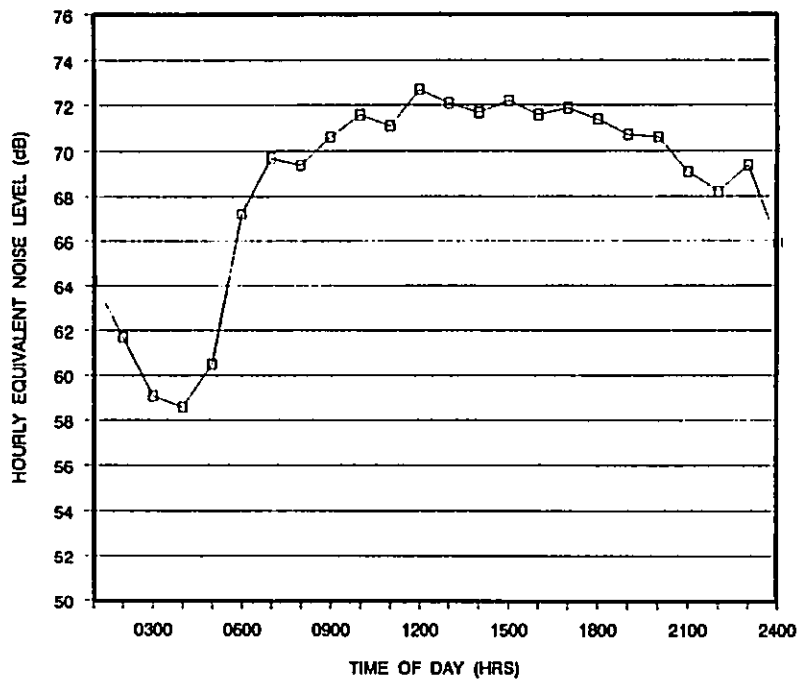
MEASURED HOURLY VARIATIONS OF BACKGROUND
AMBIENT NOISE AT LOCATION "C"
OHANA WAIKIKI VILLAGE AT BEACH WALK STREET
(JULY 23 – 24, 2001)



67.3 Ldn at Location "C"

FIGURE 18

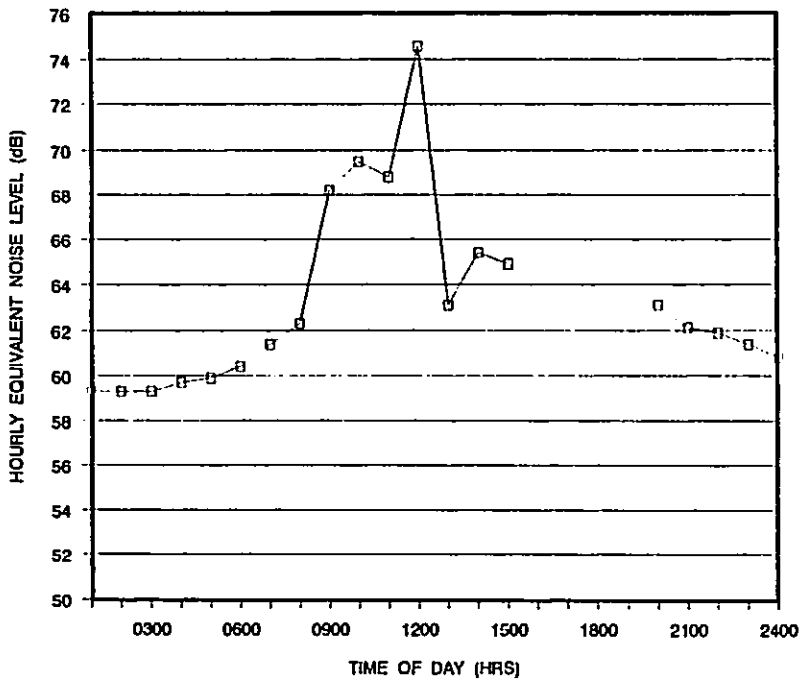
MEASURED HOURLY VARIATIONS OF BACKGROUND
AMBIENT NOISE AT LOCATION "D"
OHANA REEF LANAI AT SARATOGA ROAD
(JULY 24 – 25, 2001)



□ 74.1 Ldn at Location "D"

FIGURE 19

MEASURED HOURLY VARIATIONS OF BACKGROUND
AMBIENT NOISE AT LOCATION "E"
REEF ON THE BEACH, OCEAN TOWER
(JULY 25 – 26, 2001)



□ Estimated 67.4 Ldn at Location "E"

FIGURE 20

MEASURED HOURLY VARIATIONS OF BACKGROUND AMBIENT NOISE AT LOCATION "G" ISLANDER WAIKIKI AT KALAKAUA AVENUE (JULY 26 – 27, 2001)

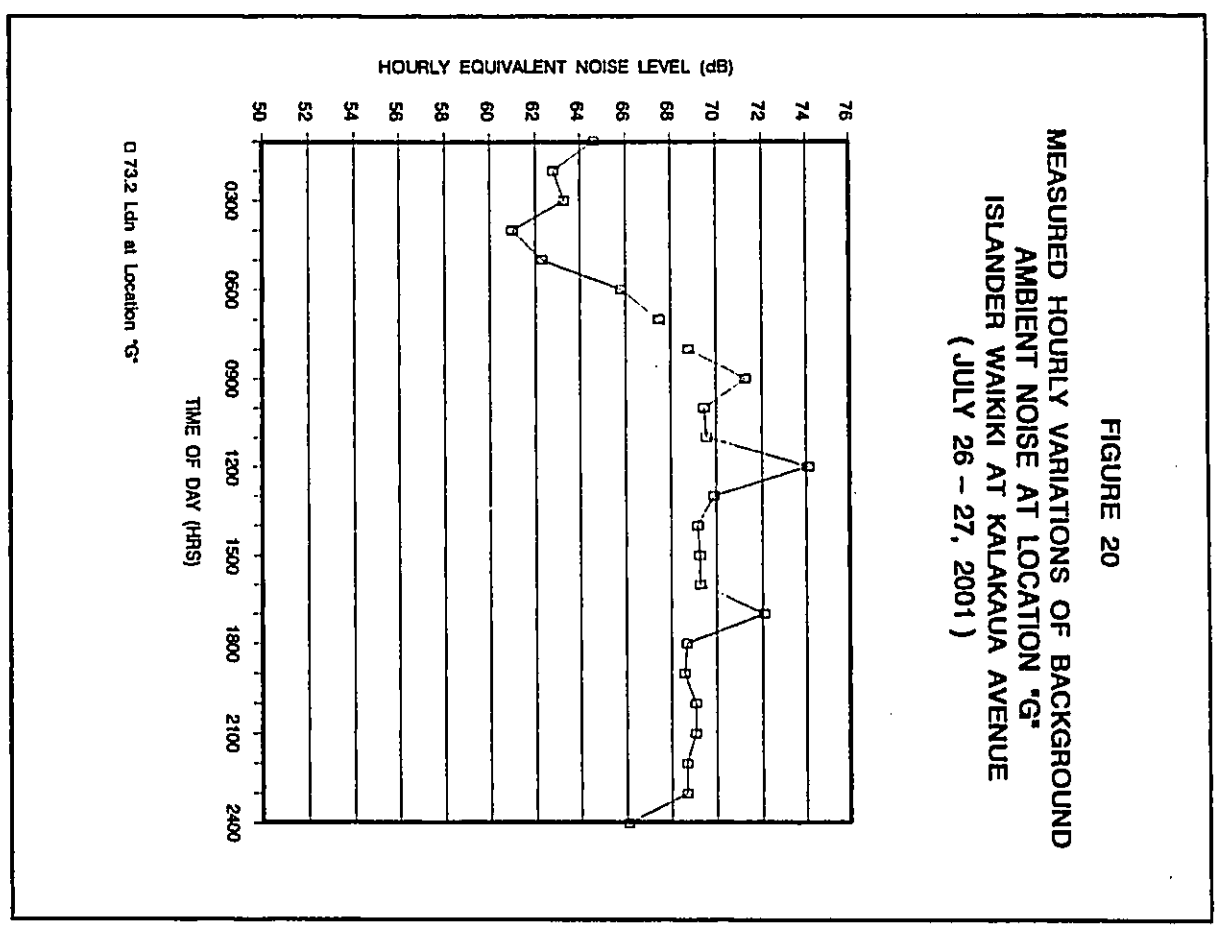


TABLE 3

EXISTING (CY 2001) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS IN PROJECT AREA (PM PEAK HOUR)

LOCATION	SPEED (MPH)	TOTAL VPH	VOLUMES (VPH) AUTOS	M.TRUCKS	H.TRUCKS	50' Leq	100' Leq	200' Leq
Kalakaua Ave. - West of Saratoga	28	2,060	1,916	62	82	71.1	69.5	65.8
Kalakaua Ave. - Between Saratoga and Lewers	28	2,297	2,136	69	92	71.5	70.0	66.3
Kalakaua Ave. - East of Lewers	28	1,754	1,648	53	53	69.9	68.3	64.6
Kalia Rd. West of Saratoga	32	900	765	63	72	70.4	68.8	65.1
Kalia Rd. - Between Saratoga and Beach Walk	32	628	534	44	50	68.8	67.2	63.6
Kalia Rd. - Between Beach Walk and Lewers	30	460	396	32	32	66.7	65.2	61.5
Kalia Rd. East of Lewers	25	205	191	6	8	60.4	58.8	55.2
Saratoga Rd. - South of Kalakaua	37	1,065	894	75	96	72.4	70.8	67.2
Saratoga Rd. - North of Kalia	37	980	886	20	74	71.2	69.5	65.9
Beach Walk St. North of Kalia	25	165	160	3	2	57.2	55.5	51.9
Lewers St. South of Kalakaua	25	485	436	15	34	65.6	64.1	60.5
Lewers St. North of Kalia	35	445	401	13	31	67.2	65.6	61.9

Notes:

1. Traffic noise levels calculated for ground level receptors.
2. Hard ground and unobstructed field-of-view conditions assumed.

TABLE 4

EXISTING AND CY 2005 DISTANCES TO 65, 70, AND 75 LDN CONTOURS

STREET SECTION	65 Ldn SETBACK (FT)		70 Ldn SETBACK (FT)		75 Ldn SETBACK (FT)	
	EXISTING	CY 2005	EXISTING	CY 2005	EXISTING	CY 2005
Kalakaua Ave. - West of Saratoga	359	373	134	140	50	52
Kalakaua Ave. - Between Saratoga and Lewe	396	403	148	151	55	56
Kalakaua Ave. - East of Lewers	283	297	106	111	40	42
Kalia Rd. West of Saratoga	312	352	117	132	44	49
Kalia Rd. - Between Saratoga and Beach Wa	233	213	85	78	31	29
Kalia Rd. - Between Beach Walk and Lewers	154	102	58	38	22	< 20
Kalia Rd. East of Lewers	43	43	< 20	< 20	< 20	< 20
Saratoga Rd. - South of Kalakaua	480	509	176	186	64	68
Saratoga Rd. - North of Kalia	369	394	135	144	49	53
Beach Walk St. North of Kalia	22	35	< 20	< 20	< 20	< 20
Lewers St. South of Kalakaua	125	103	46	38	< 20	< 20
Lewers St. North of Kalia	167	109	62	41	23	< 20

Notes:

(1) All setback distances are from the roadways' centerlines.
(2) See Tables 3 and 5A for traffic volume, speed, and mix assumptions.
(3) Setback distances are for ground level receptors with unobstructed fields-of-view.
(4) "Pavement" or hard ground conditions assumed along all roadways.

Street, distant traffic noise plus the other non-traffic noise sources in the area cause ambient noise levels to exceed 65 Ldn. At those receptor locations which front Kalakaua Avenue, Saratoga Road, and Kalia Road, existing background ambient noise levels exceed 70 Ldn, and are approaching 75 Ldn. Existing noise levels on the west side of the proposed Saratoga Hotel building range from 70 to 75 Ldn, and are controlled by traffic noise from Saratoga Road and Kalia Road. As indicated in TABLES 3 and 4, the existing noise levels in the project environs are highest along Saratoga Road and Kalakaua Avenue, and lowest along Beach Walk Street and Kalia Road east of Lewers Street.

At the noise monitoring Locations A, B, and G, emergency and police vehicles and garbage trucks were the loudest noise sources measured (see Figures 3, 5, 6, 13, and 14), with intermittent noise levels ranging from 90 to 100 dBA. Parked tour buses idling at curbside were also relatively noisy at 70 to 80 dBA (see Figures 4, 7, 8, and 9). Noise from delivery truck movements and loading dock activities along Kalia Road were also relatively loud at Location B (see Figures 5 and 6).

At receptor locations which are shielded from traffic noise, such as Locations E and F, existing background ambient noise levels are lower due to the noise shielding effects of the buildings. Noise reductions of 5 to 20 dBA can be expected from these noise shielding effects. Background ambient noise levels at these locations range from 65 to 70 Ldn, and are controlled by the surf or activities on the grounds of the Reef On the Beach rather than by traffic noise. Construction noise from the neighboring Waikiki Shore Hotel was also recorded at Location E (see Figure 12).

The maximum noise levels from offshore aircraft ranged between 70 and 75 dBA as shown in Figure 11. The loudest aircraft noise events were typically associated with departures by interisland jet aircraft. Aircraft noise events were audible above the background ambient noise at the quieter receptor locations, such as Locations E and F. However, aircraft noise levels at the project site do not exceed 60 Ldn, which is the level above which the Hawaii State Department of Transportation, Airports Division, considers to be unacceptable for residences and resorts. The most recently published airport noise contours for Honolulu International Airport indicate that the project site is located beyond (or outside) the 55 Ldn contour for the Year 2007. This correlates with the measured aircraft noise data and the Year 2001 estimate of 45 to 50 Ldn for aircraft noise at the project site.

CHAPTER VI. FUTURE NOISE ENVIRONMENT

Predictions of future traffic noise levels were made using the traffic volume assignments of Reference 6 for CY 2005 and CY 2010 with and without the proposed project. The future projections of non-project and project traffic volumes for the No Build and Build Alternatives are shown in APPENDICES C and D.

TABLES 5A and 5B contain the CY 2005 and CY 2010 traffic volumes and noise levels at 50, 100, and 200 feet from the roadways' centerlines for the Build Alternative. TABLES 4 and 6 contain the setback distances to the 65, 70, and 75 Ldn contours for CY 2005 and CY 2010, respectively. Future average vehicle speeds along all roadways were assumed to be identical to those used for CY 2001 (see TABLE 3).

In CY 2005, the dominant traffic noise sources in the project area will continue to be traffic noise from Kalakaua Avenue and Saratoga Road. Because of the expected reduction of approximately 145 trips in the study area during the PM peak hour following completion of Phase I in CY 2005, reductions in traffic volumes and their associated noise levels are expected to occur as shown in TABLE 7A. Along Kalia Road east of Saratoga Road and Lewers Street, traffic volumes and their associated noise levels are expected to decline below CY 2001 values following completion of Phase I.

In CY 2010, traffic noise from Kalakaua Avenue and Saratoga Road will continue to be the dominant traffic noise sources in the project area. Traffic noise levels along Kalakaua Avenue and Kalia Road east of Lewers Street are not expected to change as a result of the Phase II improvements of the Waikiki Beach Walk Project. The construction of the new Outrigger Saratoga Hotel is expected to increase traffic noise levels along Kalia Road west of Saratoga Road by 0.6 dB or Ldn units, which are not considered to be significant. Traffic noise level increases along Saratoga Road are expected to range from 0.3 to 0.4 dB or Ldn units as a result of the Phase II improvements, and these increases are also not significant. Along Kalia Road east of Saratoga Road and along Lewers Street, traffic volumes and their associated noise levels are expected to decline below CY 2001 values following completion of Phase II.

TABLE 8 presents the existing and future traffic noise levels at the noise monitoring Locations A through F, which are depicted in FIGURE 1. Significant increases in traffic noise levels in the project environs are not expected to occur by CY 2005 or CY 2010 under the No Build or Build Alternatives. The future dominant noise sources in the project area are not expected to change between CY 2001 and CY 2010, and will continue to be emergency and police sirens, garbage and delivery trucks, and tour buses.

Essentially all locations which front Kalakaua Avenue, Saratoga Road, Kalia Road, Lewers Street, and Beach Walk Street will continue to experience relatively high noise levels above 65 Ldn. Lower elevation receptors which benefit from the noise

TABLE 5A

FUTURE (CY 2005) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS IN PROJECT AREA (PM PEAK HOUR, BUILD)

LOCATION	SPEED (MPH)	TOTAL VPH	****** VOLUMES (VPH) ****** AUTOS	M-TRUCKS	H-TRUCKS	50' Leq	100' Leq	200' Leq
Kalakaua Ave. - West of Saratoga	28	2,157	2,006	65	86	71.3	69.7	68.0
Kalakaua Ave. - Between Saratoga and Lewers	28	2,342	2,178	70	94	71.6	70.1	68.4
Kalakaua Ave. - East of Lewers	28	1,854	1,742	56	56	70.1	68.5	66.8
Kalia Rd. West of Saratoga	32	1,036	880	73	83	71.0	69.4	65.7
Kalia Rd. - Between Saratoga and Beach Walk	32	587	482	40	45	68.4	66.8	63.2
Kalia Rd. - Between Beach Walk and Lewers	30	287	247	20	20	64.6	63.1	59.4
Kalia Rd. East of Lewers	25	203	189	6	8	60.4	58.8	55.2
Saratoga Rd. - South of Kalakaua	37	1,140	957	80	103	72.7	71.1	67.5
Saratoga Rd. - North of Kalia	37	1,056	956	21	79	71.5	69.8	66.2
Beach Walk St. North of Kalia	25	275	266	6	3	59.4	57.7	54.1
Lewers St. South of Kalakaua	25	388	349	12	27	64.6	63.1	59.5
Lewers St. North of Kalia	35	270	243	8	19	65.0	63.4	59.7

Notes:

1. Traffic noise levels calculated for ground level receptors.
2. Hard ground and unobstructed field-of-view conditions assumed.

TABLE 5B

FUTURE (CY 2010) TRAFFIC VOLUMES AND NOISE LEVELS ALONG ROADWAYS IN PROJECT AREA (PM PEAK HOUR, BUILD)

LOCATION	SPEED (MPH)	TOTAL VPH	******* VOLUMES (VPH) ********* AUTOS	M TRUCKS	H TRUCKS	50' Leq	100' Leq	200' Leq
Kalakaua Ave. - West of Saratoga	28	2,335	2,172	70	93	71.6	70.0	66.3
Kalakaua Ave. - Between Saratoga and Lewers	28	2,456	2,284	74	98	71.8	70.3	66.6
Kalakaua Ave. - East of Lewers	28	1,968	1,850	59	59	70.4	68.8	65.1
Kalia Rd. West of Saratoga	32	1,186	1,008	83	95	71.6	70.0	66.3
Kalia Rd. - Between Saratoga and Beach Walk	32	564	480	39	45	68.3	66.7	63.1
Kalia Rd. - Between Beach Walk and Lewers	30	292	252	20	20	64.7	63.2	59.5
Kalia Rd. East of Lewers	25	203	189	6	8	60.4	58.8	55.2
Saratoga Rd. - South of Kalakaua	37	1,281	1,076	90	115	73.2	71.6	68.0
Saratoga Rd. - North of Kalia	37	1,219	1,104	24	91	72.1	70.4	66.8
Beach Walk St. North of Kalia	25	267	259	5	3	59.3	57.6	54.0
Lewers St. South of Kalakaua	25	388	349	12	27	64.6	63.1	59.5
Lewers St. North of Kalia	35	275	248	8	19	65.1	63.5	59.8

Notes:

1. Traffic noise levels calculated for ground level receptors.
2. Hard ground and unobstructed field-of-view conditions assumed.

TABLE 6

EXISTING AND CY 2010 DISTANCES TO 65, 70, AND 75 LDN CONTOURS

STREET SECTION	65 Ldn SETBACK (FT) EXISTING	65 Ldn SETBACK (FT) CY 2010	70 Ldn SETBACK (FT) EXISTING	70 Ldn SETBACK (FT) CY 2010	75 Ldn SETBACK (FT) EXISTING	75 Ldn SETBACK (FT) CY 2010
Kalakaua Ave. - West of Saratoga	359	399	134	149	50	56
Kalakaua Ave. - Between Saratoga and Lewr	396	420	148	157	55	59
Kalakaua Ave. - East of Lewers	283	312	106	117	40	44
Kalia Rd. West of Saratoga	312	395	117	148	44	55
Kalia Rd. - Between Saratoga and Beach Wa	233	212	85	78	31	28
Kalia Rd. - Between Beach Walk and Lewers	154	103	58	39	22	< 20
Kalia Rd. East of Lewers	43	43	< 20	< 20	< 20	< 20
Saratoga Rd. - South of Kalakaua	480	564	176	206	64	76
Saratoga Rd. - North of Kalia	369	447	135	164	49	60
Beach Walk St. North of Kalia	22	34	< 20	< 20	< 20	< 20
Lewers St. South of Kalakaua	125	103	46	38	< 20	< 20
Lewers St. North of Kalia	167	111	62	41	23	< 20

Notes:

(1) All setback distances are from the roadways' centerlines.
(2) See Tables 3 and 5B for traffic volume, speed, and mix assumptions.
(3) Setback distances are for unobstructed line-of-sight conditions.
(4) "Pavement" or hard ground conditions assumed along all roadways.

TABLE 7A

CALCULATIONS OF PROJECT AND NON-PROJECT TRAFFIC NOISE CONTRIBUTIONS (CY 2005) (PM PEAK HOUR)

STREET SECTION	NOISE LEVEL INCREASE DUE TO: NON-PROJECT TRAFFIC	PROJECT TRAFFIC
Kalakaua Ave. - West of Saratoga	0.3	-0.1
Kalakaua Ave. - Between Saratoga and Lewers	0.2	-0.1
Kalakaua Ave. - East of Lewers	0.3	0.0
Kalia Rd. West of Saratoga	0.6	0.0
Kalia Rd. - Between Saratoga and Beach Walk	0.1	-0.5
Kalia Rd. - Between Beach Walk and Lewers	0.0	-2.1
Kalia Rd. East of Lewers	0.0	0.0
Saratoga Rd. - South of Kalakaua	0.5	-0.2
Saratoga Rd. - North of Kalia	0.5	-0.2
Beach Walk St. North of Kalia	0.1	2.1
Lewers St. South of Kalakaua	-0.3	-0.7
Lewers St. North of Kalia	0.0	-2.2

TABLE 7B

CALCULATIONS OF PROJECT AND NON-PROJECT TRAFFIC NOISE CONTRIBUTIONS (CY 2010) (PM PEAK HOUR)

STREET SECTION	NOISE LEVEL INCREASE DUE TO: NON-PROJECT TRAFFIC	PROJECT TRAFFIC
Kalakaua Ave. - West of Saratoga	0.5	0.1
Kalakaua Ave. - Between Saratoga and Lewers	0.4	-0.1
Kalakaua Ave. - East of Lewers	0.5	0.0
Kalia Rd. West of Saratoga	0.6	0.6
Kalia Rd. - Between Saratoga and Beach Walk	0.1	-0.5
Kalia Rd. - Between Beach Walk and Lewers	0.0	-2.1
Kalia Rd. East of Lewers	0.0	0.0
Saratoga Rd. - South of Kalakaua	0.5	0.3
Saratoga Rd. - North of Kalia	0.5	0.4
Beach Walk St. North of Kalia	0.1	2.0
Lewers St. South of Kalakaua	-0.3	-0.7
Lewers St. North of Kalia	0.0	-2.1

TABLE 8

EXISTING AND FUTURE TRAFFIC NOISE LEVELS
(NO BUILD AND BUILD ALTERNATIVES)

RECEPTOR LOCATION	SETBACK DIST. FROM EXIST. C/L	RECEPTOR ELEVATION	EXISTING (CY 2001) Ldn	FUTURE (CY 2005) NO BUILD Ldn	FUTURE (CY 2005) BUILD Ldn	FUTURE (CY 2010) NO BUILD Ldn	FUTURE (CY 2010) BUILD Ldn
Location A	30 FT from Lewers Street	75 FT Above Ground	70.0	69.8	69.1	69.7	69.2
Location B	53 FT from Kalia Road	53 FT Above Ground	70.2	70.5	70.3	70.4	70.6
Location C	43 FT from Beach Walk Street	50 FT Above Ground	67.3	67.8	67.8	67.1	68.0
Location D	42 FT from Saratoga Road	25 FT Above Ground	71.9	72.4	72.2	71.0	72.8
Location E	N/A	63 FT Above Ground	61.8	62.3	61.9	61.9	62.4
Location F	N/A	40 FT Above Ground	62.8	63.0	62.8	62.7	63.1
Location G	68 FT from Kalakaua Avenue	54 FT Above Ground	72.1	72.2	72.0	72.3	72.1

shielding from existing and new buildings may experience traffic noise levels less than 65 Ldn. In addition, those receptor locations which are also removed from the major roadways (such as Locations E and F) as well as shielded by existing and new buildings should experience traffic noise levels less than 65 Ldn. The relatively high noise levels within the project area are characteristic of Waikiki, and will remain high through CY 2010, with or without the project.

The future units on the north (mauka) and west (Ewa) sides of the proposed Outrigger Saratoga Hotel with unobstructed lines-of-sight to Kalakaua Avenue and/or Saratoga Road will have exterior noise levels greater than 65 Ldn. Noise levels on the north side of the proposed tower building are predicted to be 68 Ldn in CY 2010, and noise levels on the west side are predicted to range from 71 to 73 Ldn. Noise levels on the east (Diamond Head) side of the proposed tower building will be lower and in the range of 64 to 65 Ldn due to the noise shielding effects from the proposed Saratoga Hotel tower building. Predicted noise levels on the south (makai) side of the tower building are expected to range from 69 to 73 Ldn.

Aircraft noise levels over the project site should not change significantly between CY 2001 and 2010, and should remain at or below the current levels of 45 to 50 Ldn. During the period between CY 2001 and CY 2005, aircraft noise levels over the project site are expected to decrease by 1 to 2 Ldn with the anticipated replacement of Hawaiian Airlines' current DC-9(50) aircraft with new B-717(200) aircraft. With or without the replacement of its aircraft by Hawaiian Airlines, aircraft noise levels over the project site should not be significant when compared to traffic noise levels.

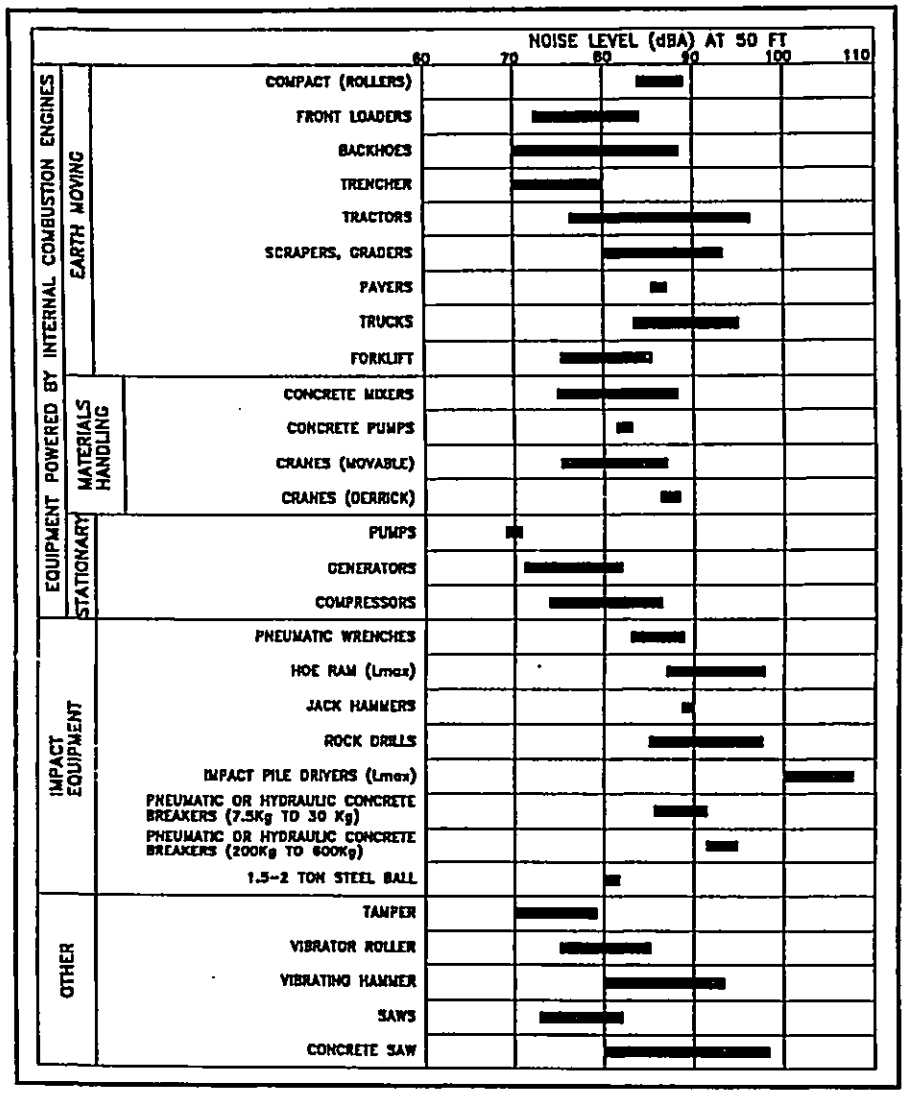
CHAPTER VII. DISCUSSION OF PROJECT-RELATED NOISE IMPACTS AND POSSIBLE MITIGATION MEASURES

Traffic Noise. For the guest units in the proposed Outrigger Saratoga Hotel building, as well as all of the existing guest units which are planned for renovations, noise mitigation measures are recommended. Closure and air conditioning of the guest units is an effective noise mitigation measure for this project. Approximately 30 to 35 dB of exterior-to-interior noise reduction is recommended for those units which have unobstructed lines-of-sight to Kalakaua Avenue, Saratoga Road, and Kalia Road, and approximately 25 to 30 dB of noise reduction is recommended for the remaining units. Noise impacts from project related traffic along the roadways which are expected to service the project traffic (Kalia Road west of Saratoga Road, Kalakaua Avenue, and Saratoga Road) are not expected due to the relatively low levels of project related traffic noise when compared to the noise levels of non-project related traffic and other noise sources. In addition, the existing resort units which are located in the immediate vicinity of the project are currently provided with air conditioning.

General Construction Noise. Audible construction noise will probably be unavoidable during the entire project construction period. The total time period for construction of the Phase I improvements is anticipated to be 18 months. The total time period for completion of the Phase II improvements is unknown, but may be as long as the Phase I construction period. It is anticipated that actual construction work will be moving from one location on the project site to another during that period. Actual length of exposure to construction noise at any receptor location will probably be less than the total construction period for the entire project. FIGURE 21 depicts the range of noise levels of various types of construction equipment when measured at 50 FT distance from the equipment.

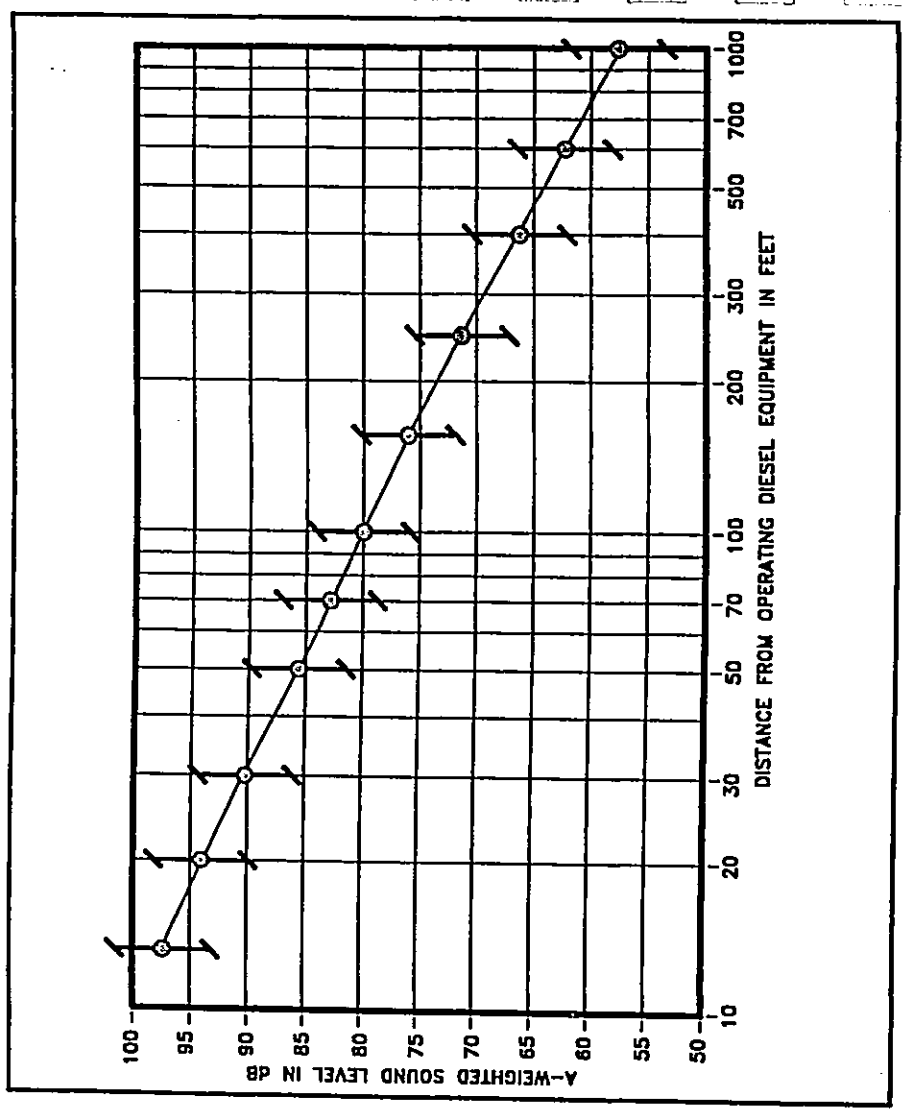
Demolition of the Ohana Edgewater, Ohana Coral Seas, and Edgewater Lanais Hotels will occur during Phase I, and demolition of the Ohana Reef Lanai, Ohana Royal Islander, and Malihini Hotels will occur during Phase II. Noise during preparation for the actual demolition of the structures from jack hammering and drilling, during the actual demolition by explosives or wrecking ball, and during site cleanup and removal of the debris can be expected. Following demolition and cleanup, the noise from site excavation, grading, and preparation activities will be present. Typical levels of exterior noise from construction activity (excluding pile driving activity) at various distances from the job sites are shown in FIGURE 22. The impulsive noise levels of impact pile drivers are approximately 15 dB higher than the levels shown in FIGURE 22, while the intermittent noise levels of vibratory pile drivers are at the upper end of the noise level ranges depicted in the figure.

FIGURE 22 is useful for predicting exterior noise levels at short distances (within 100 FT) from the work when visual line of sight exists between the construction equipment and the receptor. Direct line-of-sight distances from the construction



RANGES OF CONSTRUCTION EQUIPMENT NOISE LEVELS

FIGURE 21



ANTICIPATED RANGE OF CONSTRUCTION NOISE LEVELS VS. DISTANCE

FIGURE 22

equipment to existing resort, apartment, and commercial buildings will range from 20 FT to 600+ FT, with corresponding average noise levels of 94 to 62 dBA (plus or minus 5 dBA). For receptors along a cross-street, the construction noise level vs. distance curve of FIGURE 22 should be reduced by approximately 8 dBA when the work is occurring at the intersection with the cross street, and should be reduced by 15 dBA when work is occurring at least 100 FT from the intersection (and the visual line-of-sight is blocked by intervening buildings). Typical levels of construction noise inside naturally ventilated and air conditioned structures are approximately 10 and 20 dB less, respectively, than the levels shown in FIGURE 22.

The units in the buildings west and northwest of the Ohana Coral Seas Hotel, and those north of and immediately adjacent to the proposed Outrigger Saratoga Hotel are predicted to experience the highest noise levels during construction activities due to their close proximity to the Phase I and Phase II construction sites. Adverse impacts from construction noise are not expected to be in the "public health and welfare" category due to the temporary nature of the work, the availability of closure and air conditioning for noise mitigation at the majority of the apartment, resort, and commercial units in the project area, and due to the administrative controls available for regulation of construction noise. Instead, these impacts will probably be limited to the temporary degradation of the quality of the acoustic environment in the immediate vicinity of the project sites.

Mitigation of construction noise to inaudible levels will not be practical in all cases due to the intensity of construction noise sources (80 to 90+ dB at 50 FT distance), and due to the exterior nature of the work (demolition, excavation, grading, trenching, concrete pouring, hammering, etc.). The use of properly muffled construction equipment should be required on the job site.

Severe noise impacts are not expected to occur inside air conditioned structures which are beyond 70 to 450 FT of the project construction sites. Inside naturally ventilated structures, interior noise levels (with windows or doors opened) are estimated to range between 73 to 55 dBA at 70 FT to 450 FT distances from the construction site. Closure of all doors and windows facing the construction site would generally reduce interior noise levels by an additional 5 to 10 dBA.

The incorporation of State Department of Health construction noise limits and curfew times, which are applicable throughout the State of Hawaii (Reference 4), is another noise mitigation measure which is normally applied to construction activities. FIGURE 23 depicts the normally permitted hours of construction. Noisy construction activities are not allowed on Sundays and holidays, during the early morning, and during the late evening and nighttime periods under the DOH permit procedures.

Vibration from Pile Driving. Pile driving will probably be necessary to implant piles into the ground in the new construction areas. Impact driven concrete and sheet

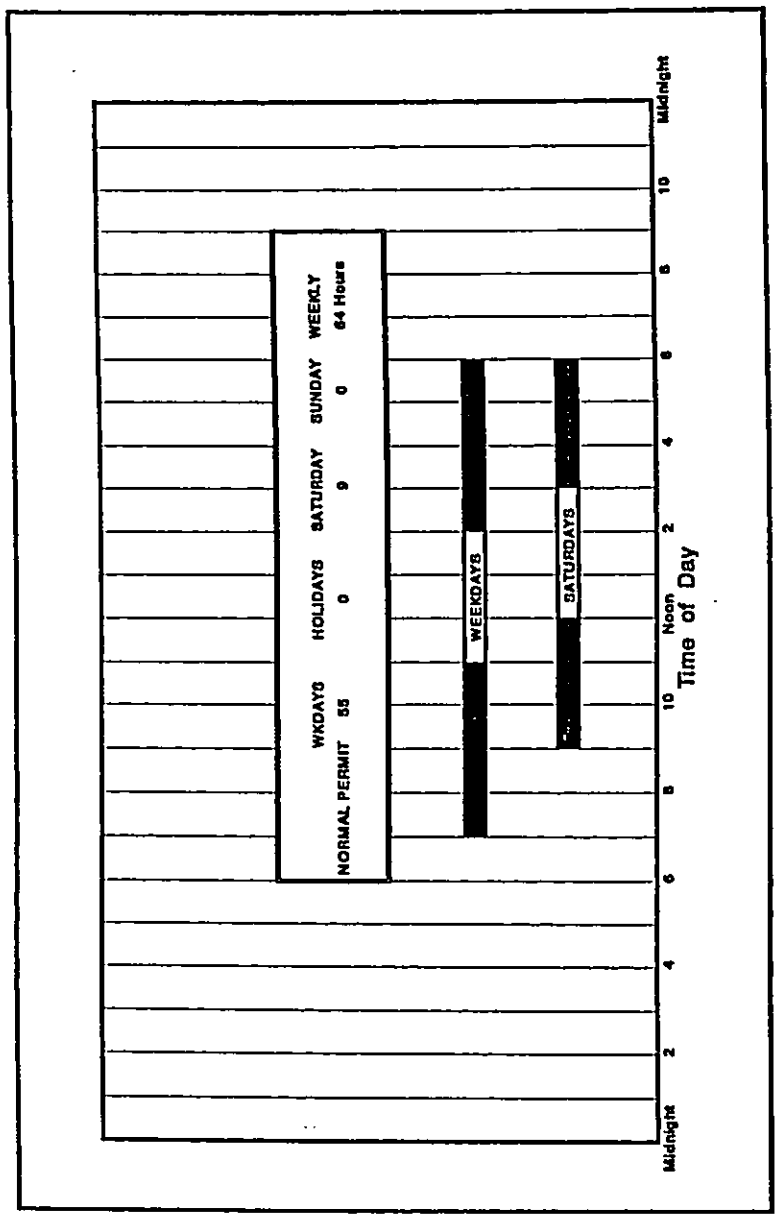


FIGURE 23

AVAILABLE WORK HOURS UNDER DOH PERMIT PROCEDURES FOR CONSTRUCTION NOISE

piles may both be used on the project site. Induced ground vibrations from the pile driving operations have the potential to cause architectural and structural damage to structures.

Ground vibrations generated during pile driving operations are generally described in terms of peak particle (or ground) velocity in units of inches/second. The human being is very sensitive to ground vibrations, which are perceptible at relatively low particle velocities of 0.01 to 0.04 inches/second. Damage to structures, however, occur at much higher levels of vibration as indicated in TABLE 9. The most commonly used damage criteria for structures is the 2.0 inches/second limit derived from work by the U.S. Bureau of Mines. A more conservative limit of 0.2 inches/second is also used, and is suggested for planning purposes on this project because of the repetitive nature of pile driving operations which can increase risks of damage due to fatiguing.

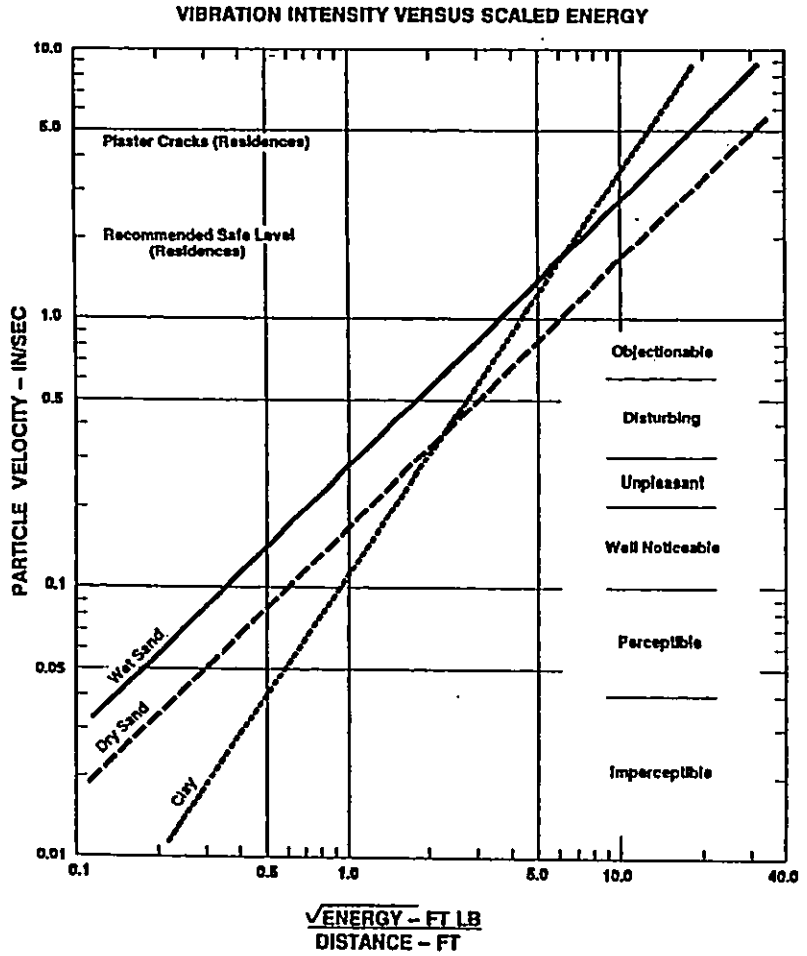
Based on measured vibration levels during pile driving operations under various soil conditions and at various distances, estimates of ground vibration levels vs. distance from the pile driver have been made for various soil conditions and for various energy ratings of the pile drivers. FIGURE 24, which was extracted from Reference 7, may be used to predict vibration levels for the soil conditions indicated. When coral layers must be penetrated, vibration levels can be expected to be higher than those shown in FIGURE 24, particularly if the adjacent structures are supported by the common coral layer. From FIGURE 24, and for wet sand soil conditions, the 0.2 inches/second vibration damage criteria will be exceeded at a scaled energy distance factor of approximately 0.7. The scaled energy distance factor is equal to the square root of the energy (in foot-pounds) per blow of the hammer divided by the distance (in feet) between the pile tip and the monitoring location. For a 2,500 foot-pound small pile driver, a scaled energy distance of 0.7 equates to a required separation distance of 71 FT. Under clay soil conditions, and using the prediction procedures contained in FIGURE 24, a shorter separation distance of 47 FT is required to not exceed the 0.2 inches/second criteria when using a 2,500 foot-pound pile driver. It should be noted that 0.2 inches/second vibration levels were measured from a much larger 22,400 foot-pound pile driver at even shorter separation distances of approximately 30 FT in sandy, layered soil (Reference 8). The measurement data reported in Reference 8 are significantly lower than the vibration levels predicted by the methodology of Reference 7.

As indicated above, predictions of peak ground vibration levels vs. scaled energy distance factor from the driven pile are not precise, with initial uncertainty factor for a given location in the order of 10:1. For this reason, it is standard practice to employ seismograph monitoring of ground vibrations during pile driving operations with a 3-axis geophone or accelerometer. If sheet pile drivers of approximately 2,500 foot-pounds or smaller ratings are anticipated to be used on the job site, the initial vibration predictions indicate that there is some risk of exceeding the 0.2 inches/second vibration damage criteria at 47 to 71 FT separation distances, and monitoring during pile driving operations is warranted if pile driving are planned at those distances from any existing

TABLE 9
SUMMARY OF BUILDING DAMAGE CRITERIA

PEAK GROUND VELOCITY (mm/sec)	PEAK GROUND VELOCITY (in/sec)	COMMENT
193.04	7.6	Major damage to buildings (mean of data).
137.72	5.4	Minor damage to buildings (mean of data).
101.16	4.0	'Engineer structures' safe from damage.
50.8	2.0	Safe from damage limit (probability of damage <5%).
		No structural damage.
33.02	1.3	Threshold of risk of 'architectural' damage for houses.
25.4	1.0	No data showing damage to structures for vibration <1 in./sec.
15.24	0.6	No risk of 'architectural' damage to normal buildings.
10.16	0.4	Threshold of damage in older homes.
5.08	0.2	Statistically significant percentage of structures may experience minor damage (including earthquake, nuclear event, and blast data for old and new structures).
		No 'architectural' damage.
3.81	0.5 to 0.15	Upper limits for ruins and ancient monuments.
1.0	0.04	Vertical vibration clearly perceptible to humans.
0.32	0.01	Vertical vibration just perceptible to humans.

Source: 'State-of-the-Art Review: Prediction and Control of Groundborne Noise and Vibration from Rail Transit Trains'; U.S. Department of Transportation; December 1983.



MINIMUM VIBRATION INTENSITIES EXPECTED FROM PILE DRIVING

FIGURE 24

structures. The following preventative measures are recommended for implementation during the planning and design phases of the project:

- In addition to the normal planning and design concerns regarding potential damage due to settling and heaving during construction, consideration should also be given to risks of damage due to vibration from pile driving. A damage criteria of 0.2 inches/second should be used in conjunction with the vibration prediction method of Reference 7 to identify the potential damage risk distances to the driven piles.

- If predicted vibration levels from pile driving exceed 0.2 inches/second at a building, and predicted levels cannot be reduced by sizing of the pile driver, test piles should be driven and their vibrations monitored and recorded prior to completion of the foundation design. The monitoring of the test piles should be designed to measure the expected peak, 3-axis vibration levels at the building. The results of the monitoring should be used to define empirical distance from the driven pile to the 0.2 inches/second damage risk location, and to evaluate the risks of structural damage to the adjacent structure during actual construction.

- If predicted vibration levels from pile driving exceed 2.0 inches/second at a building, the use of alternate types of piles or shoring should be considered for implementation during the design phase.

New On Site Activities. The new retail shops, restaurants, and entertainment stage do not represent totally new activity centers for the project site. Risks of adverse noise impacts from the new shops, restaurants, and entertainment stage are considered to be low, and compliance with local noise regulations should be possible at the new establishments. The applicable State Department of Health noise limits (see Reference 4) are 60 dBA and 50 dBA during the daytime and nighttime periods, respectively, and these limits apply to fixed machinery and equipment. The Honolulu Liquor Commission also applies similar noise limits to music and other noises which may emanate from an establishment where alcohol is served. Because existing background ambient noise levels in Waikiki and within the Waikiki Beach Walk project area are generally higher than the State Department of Health noise limits, the noise limits of 60 and 50 dBA will probably not apply to the project area, and noise levels from project sources will generally be allowed to be as high as existing daytime and nighttime background ambient noise levels.

The entertainment stage is sufficiently distant from existing noise sensitive neighbors or shielded by existing and new buildings so as to present very low risks of adverse noise impacts. Outdoor entertainment facilities are very common throughout Waikiki, and the proposed entertainment stage should complement rather than detract from the existing and new activities along Lewers Street.

APPENDIX A. REFERENCES

(1) "Guidelines for Considering Noise in Land Use Planning and Control;" Federal Interagency Committee on Urban Noise; June 1980.

(2) "Environmental Criteria and Standards, Noise Abatement and Control, 24 FR, Part 51, Subpart B;" U.S. Department of Housing and Urban Development; July 12, 1979.

(3) "Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety;" Environmental Protection Agency (EPA 550/9-74-004); March 1974.

(4) "Title 11, Administrative Rules, Chapter 46, Community Noise Control;" Hawaii State Department of Health; September 23, 1996.

(5) "FHWA Traffic Noise Model User's Guide;" FHWA-PD-96-009, DOT-VNTSC-FHWA-98-1, Federal Highway Administration; Washington, D.C.; January 1998 and Version 1.1 Addendum dated September 2000.

(6) Existing and Future AM and PM Peak Hour Traffic Turning Movements for the Waikiki Beach Walk Project; Transmittals from Kaku Associates dated August 7, 2001 and October 3, 2001.

(7) Wiss, John F., Janney, Elstner and Assoc.; "Damage of Pile Driving Vibration;" Highway Research Record, Number 155.

(8) Gutowski, T.G.; Wittig, L.E.; and Dym, C.L.; "Some Aspects of the Ground Vibration Problem;" Noise Control Engineering; May-June 1978.

APPENDIX B

EXCERPTS FROM EPA'S ACOUSTIC TERMINOLOGY GUIDE

Descriptor Symbol Usage

The recommended symbols for the commonly used acoustic descriptors based on A-weighting are contained in Table I. As most acoustic criteria and standards used by EPA are derived from the A-weighted sound level, almost all descriptor symbol usage guidance is contained in Table I.

Since acoustic nomenclature includes weighting networks other than "A" and measurements other than pressure, an expansion of Table I was developed (Table II). The group adopted the ANSI descriptor-symbol scheme which is structured into three stages. The first stage indicates that the descriptor is a level (i.e., based upon the logarithm of a ratio), the second stage indicates the type of quantity (power, pressure, or sound exposure), and the third stage indicates the weighting network (A, B, C, D, E.....). If no weighting network is specified, "A" weighting is understood. Exceptions are the A-weighted sound level and the A-weighted peak sound level which require that the "A" be specified. For convenience in those situations in which an A-weighted descriptor is being compared to that of another weighting, the alternative column in Table II permits the inclusion of the "A". For example, a report on blast noise might wish to contrast the LCdn with the LAdn.

Although not included in the tables, it is also recommended that "Lpn" and "LepN" be used as symbols for perceived noise levels and effective perceived noise levels, respectively.

It is recommended that in their initial use within a report, such terms be written in full, rather than abbreviated. An example of preferred usage is as follows:

The A-weighted sound level (LA) was measured before and after the installation of acoustical treatment. The measured LA values were 85 and 75 dB respectively.

Descriptor Nomenclature

With regard to energy averaging over time, the term "average" should be discouraged in favor of the term "equivalent". Hence, Leq, is designated the "equivalent sound level". For Ld, Ln, and Ldn, "equivalent" need not be stated since the concept of day, night, or day-night averaging is by definition understood. Therefore, the designations are "day sound level", "night sound level", and "day-night sound level", respectively.

The peak sound level is the logarithmic ratio of peak sound pressure to a reference pressure and not the maximum root mean square pressure. While the latter is the maximum sound pressure level, it is often incorrectly labelled peak. In that sound level meters have "peak" settings, this distinction is most important.

"Background ambient" should be used in lieu of "background", "ambient", "residual", or "indigenous" to describe the level characteristics of the general background noise due to the contribution of many unidentifiable noise sources near and far.

With regard to units, it is recommended that the unit decibel (abbreviated dB) be used without modification. Hence, DBA, PNdB, and EPNdB are not to be used. Examples of this preferred usage are: the Perceived Noise Level (Lpn was found to be 75 dB. Lpn = 75 dB). This decision was based upon the recommendation of the National Bureau of Standards, and the policies of ANSI and the Acoustical Society of America, all of which disallow any modification of bel except for prefixes indicating its multiples or submultiples (e.g., deci).

Noise Impact

In discussing noise impact, it is recommended that "Level Weighted Population" (LWP) replace "Equivalent Noise Impact" (ENI). The term "Relative Change of Impact" (RCI) shall be used for comparing the relative differences in LWP between two alternatives.

Further, when appropriate, "Noise Impact Index" (NII) and "Population Weighed Loss of Hearing" (PWL) shall be used consistent with CHABA Working Group 69 Report Guidelines for Preparing Environmental Impact Statements (1977).

APPENDIX B (CONTINUED)

TABLE I

A-WEIGHTED RECOMMENDED DESCRIPTOR LIST

TERM	SYMBOL
1. A-Weighted Sound Level	L_A
2. A-Weighted Sound Power Level	L_{WA}
3. Maximum A-Weighted Sound Level	L_{max}
4. Peak A-Weighted Sound Level	L_{Apk}
5. Level Exceeded x% of the Time	L_x
6. Equivalent Sound Level	L_{eq}
7. Equivalent Sound Level over Time (T) (1)	$L_{eq(T)}$
8. Day Sound Level	L_d
9. Night Sound Level	L_n
10. Day-Night Sound Level	L_{dn}
11. Yearly Day-Night Sound Level	$L_{dn(Y)}$
12. Sound Exposure Level	L_{SE}

(1) Unless otherwise specified, time is in hours (e.g. the hourly equivalent level is $L_{eq(1)}$). Time may be specified in non-quantitative terms (e.g., could be specified a $L_{eq(WASH)}$ to mean the washing cycle noise for a washing machine).

SOURCE: EPA ACOUSTIC TERMINOLOGY GUIDE, BNA 8-14-78,

APPENDIX B (CONTINUED)

TABLE II

RECOMMENDED DESCRIPTOR LIST

TERM	A-WEIGHTING	ALTERNATIVE[1] A-WEIGHTING	OTHER[2] WEIGHTING	UNWEIGHTED
1. Sound (Pressure)[3] Level	L_A	L_{pA}	L_B, L_{pB}	L_p
2. Sound Power Level	L_{WA}		L_{WB}	L_W
3. Max. Sound Level	L_{max}	L_{Amax}	L_{Bmax}	L_{pmax}
4. Peak Sound (Pressure) Level	L_{Apk}		L_{Bpk}	L_{pk}
5. Level Exceeded x% of the Time	L_x	L_{Ax}	L_{Bx}	L_{px}
6. Equivalent Sound Level	L_{eq}	L_{Aeq}	L_{Beq}	L_{peq}
7. Equivalent Sound Level[4] Over Time(T)	$L_{eq(T)}$	$L_{Aeq(T)}$	$L_{Beq(T)}$	$L_{peq(T)}$
8. Day Sound Level	L_d	L_{Ad}	L_{Bd}	L_{pd}
9. Night Sound Level	L_n	L_{An}	L_{Bn}	L_{pn}
10. Day-Night Sound Level	L_{dn}	L_{Adn}	L_{Bdn}	L_{pdn}
11. Yearly Day-Night Sound Level	$L_{dn(Y)}$	$L_{Adn(Y)}$	$L_{Bdn(Y)}$	$L_{pdn(Y)}$
12. Sound Exposure Level	L_S	L_{SA}	L_{SB}	L_{Sp}
13. Energy Average Value Over (Non-Time Domain) Set of Observations	$L_{eq(e)}$	$L_{Aeq(e)}$	$L_{Beq(e)}$	$L_{peq(e)}$
14. Level Exceeded x% of the Total Set of (Non-Time Domain) Observations	$L_{x(e)}$	$L_{Ax(e)}$	$L_{Bx(e)}$	$L_{px(e)}$
15. Average L_x Value	L_x	L_{Ax}	L_{Bx}	L_{px}

(1) "Alternative" symbols may be used to assure clarity or consistency.

(2) Only B-weighting shown. Applies also to C,D,E,.....weighting.

(3) The term "pressure" is used only for the unweighted level.

(4) Unless otherwise specified, time is in hours (e.g., the hourly equivalent level is Leq(1). Time may be specified in non-quantitative terms (e.g., could be specified as Leq(WASH) to mean the washing cycle noise for a washing machine.

APPENDIX C

SUMMARY OF BASE YEAR AND CY 2005 TRAFFIC VOLUMES IN PROJECT ENVIRONS

ROADWAY LANES	***** CY 2001 ***** AM VPH	PM VPH	CY 2005 (NO BUILD) AM VPH	PM VPH	CY 2005 (BUILD) AM VPH	PM VPH
Kalakaua Ave. - West of Saratoga	1,925	2,060	2,027	2,209	1,978	2,157
One-Way (EB)	1,925	2,060	2,027	2,209	1,978	2,157
Kalakaua Ave. - East of Saratoga	2,110	2,410	2,194	2,531	2,126	2,454
One-Way (EB)	2,110	2,410	2,194	2,531	2,126	2,454
Kalakaua Ave. - West of Lewers	1,865	2,184	1,935	2,293	1,882	2,230
One-Way (EB)	1,865	2,184	1,935	2,293	1,882	2,230
Kalakaua Ave. - East of Lewers	1,375	1,754	1,443	1,870	1,435	1,854
One-Way (EB)	1,375	1,754	1,443	1,870	1,435	1,854
Kalia Rd. West of Saratoga (EB)	255	450	290	555	294	568
Kalia Rd. West of Saratoga (WB)	320	450	348	479	381	468
Two-Way	575	900	638	1,034	675	1,036
Kalia Rd. East of Saratoga	480	630	491	640	489	568
One-Way (WB)	480	630	491	640	489	568
Kalia Rd. West of Beach Walk	560	625	571	637	570	565
Kalia Rd. East of Beach Walk	395	460	404	469	298	290
One-Way (EB)	395	460	404	469	298	290
Kalia Rd. West of Lewers	335	460	343	462	237	283
One-Way (EB)	335	460	343	462	237	283
Kalia Rd. East of Lewers (EB)	135	95	134	95	134	95
Kalia Rd. East of Lewers (WB)	75	110	77	108	77	108
Two-Way	210	205	211	203	211	203

APPENDIX C (CONTINUED)

SUMMARY OF BASE YEAR AND CY 2005 TRAFFIC VOLUMES IN PROJECT ENVIRONS

ROADWAY LANES	**** CY 2001 ***** AM VPH	PM VPH	CY 2005 (NO BUILD) AM VPH	PM VPH	CY 2005 (BUILD) AM VPH	PM VPH
Saratoga Rd. South of Kalakaua (NB)	550	875	584	982	553	933
Saratoga Rd. South of Kalakaua (SB)	155	190	173	207	173	207
Two-Way	705	1,065	757	1,189	726	1,140
Saratoga Rd. North of Kalia (NB)	545	805	581	911	550	862
Saratoga Rd. North of Kalia (SB)	130	175	148	194	148	194
Two-Way	675	980	729	1,105	698	1,056
Beach Walk North of Kalia	165	165	167	168	272	275
One-Way (SB)	165	165	167	168	272	275
Lewers St. South of Kalakaua (NB)	65	205	56	172	51	163
Lewers St. South of Kalakaua (SB)	335	280	334	281	284	225
Two-Way	400	485	390	453	335	388
Lewers St. North of Kalia (SB)	395	445	400	449	294	270
One-Way (SB)	395	445	400	449	294	270

APPENDIX D

SUMMARY OF BASE YEAR AND CY 2010 TRAFFIC VOLUMES IN PROJECT ENVIRONS

ROADWAY LANES	**** CY 2001 ***** AM VPH	PM VPH	CY 2010 (NO BUILD) AM VPH	PM VPH	CY 2010 (BUILD) AM VPH	PM VPH
Kalakaua Ave. - West of Saratoga	1,925	2,060	2,114	2,300	2,160	2,335
One-Way (EB)	1,925	2,060	2,114	2,300	2,160	2,335
Kalakaua Ave. - East of Saratoga	2,110	2,410	2,281	2,622	2,232	2,567
One-Way (EB)	2,110	2,410	2,281	2,622	2,232	2,567
Kalakaua Ave. - West of Lewers	1,865	2,184	2,003	2,379	1,974	2,344
One-Way (EB)	1,865	2,184	2,003	2,379	1,974	2,344
Kalakaua Ave. - East of Lewers	1,375	1,754	1,511	1,956	1,527	1,968
One-Way (EB)	1,375	1,754	1,511	1,956	1,527	1,968
Kalia Rd. West of Saratoga (EB)	255	450	290	555	348	631
Kalia Rd. West of Saratoga (WB)	320	450	348	479	489	555
Two-Way	575	900	638	1,034	837	1,186
Kalia Rd. East of Saratoga	480	630	491	640	492	565
One-Way (WB)	480	630	491	640	492	565
Kalia Rd. West of Beach Walk	560	625	571	637	572	562
One-Way (WB)	560	625	571	637	572	562
Kalia Rd. East of Beach Walk	395	460	404	469	304	295
One-Way (EB)	395	460	404	469	304	295
Kalia Rd. West of Lewers	335	460	343	462	243	288
One-Way (EB)	335	460	343	462	243	288
Kalia Rd. East of Lewers (EB)	135	95	134	95	134	95
Kalia Rd. East of Lewers (WB)	75	110	77	108	77	108
Two-Way	210	205	211	203	211	203

APPENDIX D (CONTINUED)

SUMMARY OF BASE YEAR AND CY 2010 TRAFFIC VOLUMES IN PROJECT ENVIRONS

ROADWAY LANES	***** CY 2001 ***** AM VPH	PM VPH	CY 2010 (NO BUILD) AM VPH	PM VPH	CY 2010 (BUILD) AM VPH	PM VPH
Saratoga Rd. South of Kalakaua (NB)	550	875	584	982	597	981
Saratoga Rd. South of Kalakaua (SB)	155	190	173	207	273	300
Two-Way	705	1,065	757	1,189	870	1,281
Saratoga Rd. North of Kalia (NB)	545	805	581	910	610	930
Saratoga Rd. North of Kalia (SB)	130	175	148	194	259	289
Two-Way	675	980	729	1,104	869	1,219
Beach Walk North of Kalia	165	165	167	168	268	267
One-Way (SB)	165	165	167	168	268	267
Lewers St. South of Kalakaua (NB)	65	205	56	172	51	163
Lewers St. South of Kalakaua (SB)	335	280	334	281	284	225
Two-Way	400	485	390	453	335	388
Lewers St. North of Kalia (SB)	395	445	400	449	300	275
One-Way (SB)	395	445	400	449	300	275

APPENDIX H

Air Quality Impact Report (AQIR): Waikīkī Beach Walk, Honolulu, Hawai'i

J W Morrow

October 2001

AIR QUALITY IMPACT REPORT (AQIR)

WAIKIKI BEACH WALK
HONOLULU, HAWAII

PREPARED FOR:

Group 70 International, Inc.

and

Outrigger Enterprises, Inc.

PREPARED BY:

J. W. MORROW
Environmental Management Consultant
1481 South King Street, Suite 548
Honolulu, Hawaii 96814

October 2001

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2	Air Quality Data - Department of Health Monitoring Sites, 1999
3	Climatic Norms, Means and Extremes, Honolulu International Airport
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6	A.M. Peak-Hour Conditions, Kalia Road - Saratoga Road, 30 August 2001
7	August Wind Rose - Honolulu International Airport
8	January Wind Rose - Honolulu International Airport
9	Saratoga Road at Kalia Road
10	Saratoga Road at Kalakaua Avenue
11	Beach Walk
12	Lewers Street

1. INTRODUCTION

Outrigger Enterprises, Inc. is proposing to redevelop its properties in the Lewers Street - Saratoga Road area of Waikiki (see Figures 1 and 2)[1]. The two-phase project will upgrade five existing hotels, demolish six older hotels in the area and redevelop the latter areas to include a new entertainment retail complex, a new hotel, and enhanced public areas. Parking will be provided in on- and off-site areas. The overall project will result in net increases of approximately 235 hotel rooms, 50,000 ft^2 of retail space, 25,000 ft^2 of back of house and administrative space, and 12,000 ft^2 of public amenity space.

The two phases of the project were described as follows in the environmental impact statement preparation notice[1]:

> *Phase I of the project involves the redevelopment and renovation of the Waikiki Village and Waikiki Tower hotels and the replacement of the Edgewater Lanais, Coral Seas, and Edgewater hotels with a new two-level entertainment/retail promenade along Lewers Street. The new retail complex will be seamlessly integrated with the renovated Waikiki Village and Waikiki Tower hotels, and connected to the adjacent Islander Waikiki and Reef Tower hotels through extensive streetscape improvements, including the creation of a Lewers Street public plaza. The lower floors of the Waikiki Village and Waikiki Towers hotels will be reconstructed and linked by a new four-level podium featuring a grand lobby, servicing both hotels, a large banquet hall and meeting rooms, and a rooftop pool deck. Helumoa Road would be closed between Lewers and Beach Walk to allow for Phase I construction. A pedestrian bridge over Kalia Road will link the Outrigger Reef on the Beach to the new complex. In addition to on-site parking, off-site parking will be provided at the corner of Saratoga Road and Kalia Road.*
>
> *Phase II will focus on redevelopment of the Outrigger properties between Saratoga Road and Beach Walk. A new hotel tower (~27 floors with ~890 rooms) will be constructed at the current location of the Royal Islander, Reef Lanai and Malihini hotels. Pedestrian bridges will be constructed over Beach Walk connecting the new hotel tower to the Phase I improvements. The Reef on the Beach porte cochere and public areas will be remodeled and a new signature gateway form will be created to enhance the makai side of Kalia Road and visually tie the new hotel with the existing properties. The Reef Towers and Islander Waikiki hotels will be similarly upgraded in Phase II.*

FIGURE 1

PROJECT LOCATION

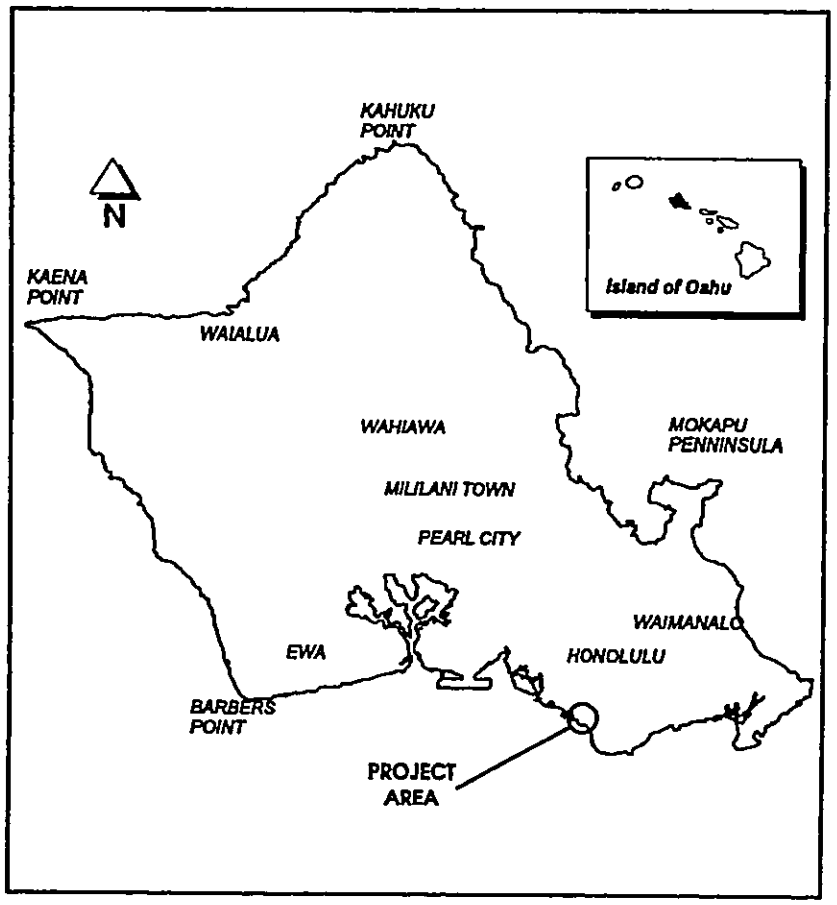
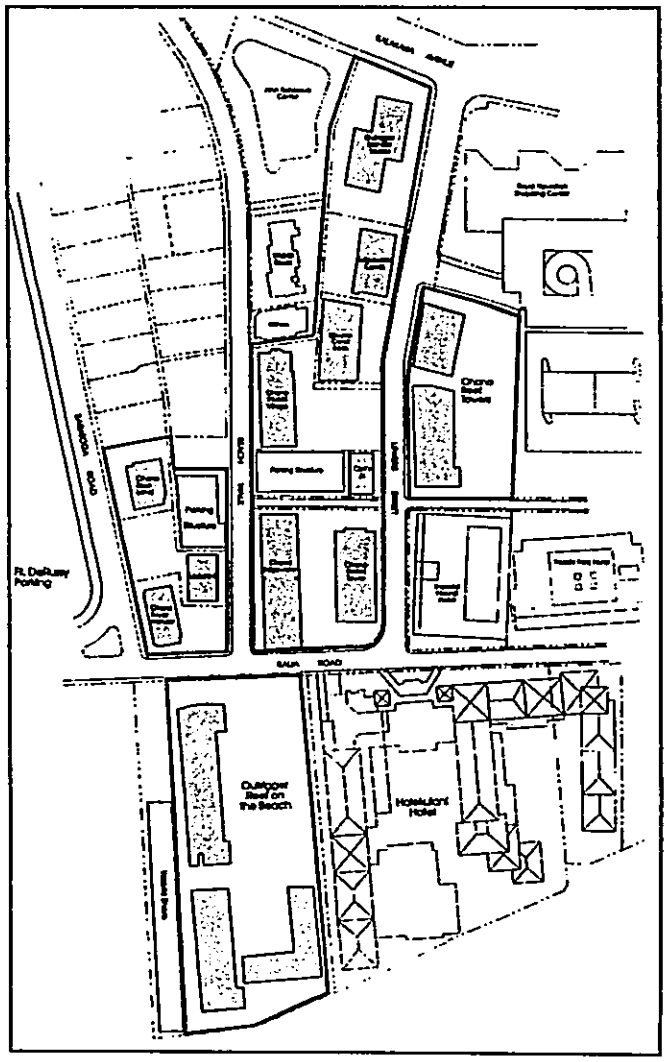


FIGURE 2

EXISTING OUTRIGGER FACILITIES



The purpose of this report is to assess the short and long-term impacts of the proposed development on air quality. The overall project can be considered an "indirect source" of air pollution as defined in the federal Clean Air Act since its primary association with air quality is its inherent attraction for mobile sources, i.e., motor vehicles. Much of the focus of this analysis, therefore, is on the project's ability to generate traffic and the resultant impact on air quality. Air quality impact was evaluated for existing (2001) and future (2005 and 2010) conditions with the proposed development.

A project such as this also has offsite impacts due to increased demand for electrical energy which must be met by the combustion of some type of fuel and the incineration of solid waste generated by project residents. Both these processes result in pollutant emissions to the air which have been addressed in this report.

Finally, during construction of the various buildings and facilities air pollutant emissions will be generated onsite and offsite due to vehicular movement, grading, concrete and asphalt batching, and general dust-generating construction activities. These impacts have also been addressed.

2. AIR QUALITY STANDARDS

A summary of State of Hawaii and national ambient air quality standards (NAAQS) is presented in Table 1.[2,3,4] Note that Hawaii's standards are not divided into primary and secondary standards as are the federal standards.

Primary standards are intended to protect public health with an adequate margin of safety while secondary standards are intended to protect public welfare through the prevention of damage to soils, water, vegetation, man-made materials, animals, wildlife, visibility, climate, and economic values [5]. Note that in the case of the principal automotive pollutants [CO, NO_2, and O_3], the primary and secondary standards are identical.

Some of Hawaii's standards (CO, NO_2, and O_3) are clearly more stringent than their federal counterparts and like their federal counterparts in the case of short-term standards, they may be exceeded once per year. Note also that the federal $PM_{2.5}$ and 8-hour O_3 standards, while promulgated in 1997, [6,7] were remanded to EPA by a federal court in 1999 and are currently under appeal.[8]

Finally, the State of Hawaii also has fugitive dust regulations for particulate matter (PM) emanating from construction activities [9]. There simply can be no visible emissions from fugitive dust sources.

3. EXISTING AIR QUALITY

3.1 General. The state Department of Health (DOH) maintains a network of air monitoring stations around the state to gather data on the following regulated pollutants:

- particulate matter ≤ 10 microns (PM_{10})
- sulfur dioxide (SO_2)

TABLE 1

SUMMARY OF STATE OF HAWAII AND FEDERAL AMBIENT AIR QUALITY STANDARDS

POLLUTANT	AVERAGING PERIOD	NAAQS PRIMARY	NAAQS SECONDARY	STATE STANDARDS
PM_{10}	Annual 24-hr	50 150	50 150	50 150
$PM_{2.5}$	Annual 24-hr	15 65	15 65	— —
SO_2	Annual 24-hr 3-hr	80 365 —	— — 1,300	80 365 1,300
NO_2	Annual	100	100	70
CO	8-hr 1-hr	10 40	— —	5 10
O_3	1-hr 8-hr	235 156	235 156	100 —
H_2S	1-hr	—	—	35
Pb	Calendar Quarter	1.5	1.5	1.5

KEY: PM_{10} - particulate matter ≤ 10 microns
$PM_{2.5}$ - particulate matter ≤ 2.5 microns
SO_2 - sulfur dioxide
NO_2 - nitrogen dioxide
CO - carbon monoxide
O_3 - ozone
H_2S - hydrogen sulfide
Pb - lead

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

- nitrogen dioxide (NO_2)
- carbon monoxide (CO)
- ozone (O_3)

In the case of PM_{10} , measurements are made on a 24-hour basis to correspond with the averaging period specified in state and federal standards. Depending on the sampling equipment and site, samples are collected either continuously or once every six days in accordance with U. S. Environmental Protection Agency (EPA) guidelines. Carbon monoxide, sulfur dioxide, and ozone, however, are measured on a continuous basis due to their short-term (1- and 3-, and 8-hour) standards. Nitrogen dioxide is also measured with continuous instruments and averaged over a full year to correspond to its annual standards. Lead sampling was discontinued in October 1997 with EPA approval. This was largely due to the elimination of lead in gasoline and the resulting reduction of ambient lead levels in Hawaii to essentially zero.

3.2 Department of Health Monitoring. There is one DOH monitoring station in Waikiki which measures carbon monoxide (CO) along Kalakaua Avenue not far from the project site. A summary of the most recent published air quality data [10] from that station and other sites in downtown Honolulu, Sand Island (the only ozone monitoring site) and Kapolei (one of two NO_2 monitoring sites), is presented in Table 2. These data are indicative of the generally good air quality in Honolulu County and may be considered reasonably representative of existing air quality in the project area.

TABLE 2

AIR QUALITY DATA
DEPARTMENT OF HEALTH MONITORING SITES
1999

Pollutant		Concentration ($\mu g/m^3$)
Particulate matter ≤ 10 microns (PM_{10})	24-hr (second highest)	43
	Annual	14
Sulfur dioxide (SO_2)	3-hr (max)	48
	24-hr (max)	8
	Annual	2
Carbon monoxide (CO)	1-hr (max)	4.0
	8-hr (max)	2.3
	Annual	1.0
Ozone (O_3)	1-hr (max)	110
	Annual	40
Nitrogen Dioxide (NO_2)	Annual	7

Notes:
1. SO_2 and PM_{10} data are from DOH Building site.
2. CO data are from the Waikiki monitoring site.
3. O_3 data are from the Sand Island site.
4. NO_2 data are from the Kapolei site.
5. CO data are milligrams per cubic meter (mg/m^3)

Source: Hawaii Department of Health (Reference 10)

3.3 Onsite Carbon Monoxide Sampling. In conjunction with this project, air sampling was conducted in August 2001 in the vicinity of the project site. A continuous carbon monoxide (CO) instrument was set up and operated during the a.m. and p.m. peak traffic hours. An anemometer and vane were also installed to record onsite surface winds during the sampling period. A simultaneous manual count of traffic was performed. The variability of each of the parameters measured during the peak hours is clearly seen in Figures 3 - 6 with 1-hour CO levels consistently below state and federal standards.

On Monday, 27 August 2001, sampling equipment was set up on the west side of Saratoga Road in the vicinity of the U. S. Post Office. Weather conditions during the afternoon peak hour were characterized by partly cloudy skies and light variable winds averaging 1.9 mph. Carbon monoxide concentrations measured were very low, averaging only 0.4 mg/m^3 due primarily to the southwesterly component of the winds which placed the sampler upwind of the street traffic. Total two-way traffic on Saratoga Road totaled 973 vehicles between 16:00 and 17:00 Hawaiian Standard Time (HST).

On Tuesday morning, 28 August 2001, at the same location, sky conditions were again partly cloudy and the winds were still very light and variable at 1.6 mph. However, there was a greater southeasterly component to the winds which served to transport more of the vehicular emissions towards the CO instrument. Nevertheless, with the hourly free-flow traffic volume of 583 vehicles, the 1-hour average CO level was still very low at 1.0 mg/m^3.

FIGURE 3

P.M. PEAK-HOUR CONDITIONS
SARATOGA ROAD
27 AUGUST 2001

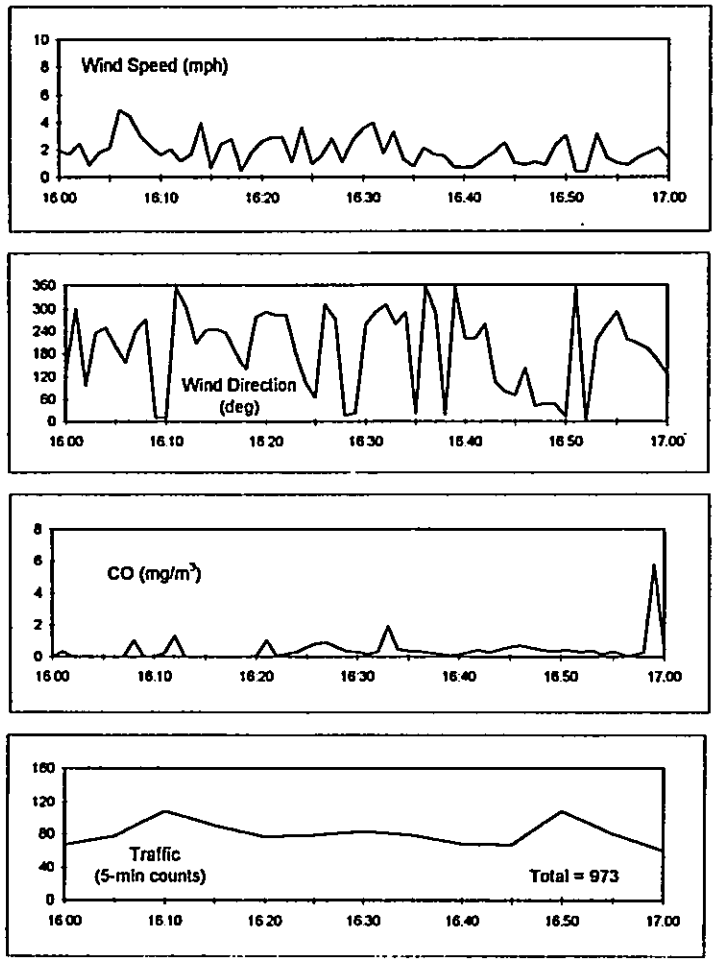


FIGURE 4

A.M. PEAK-HOUR CONDITIONS
SARATOGA ROAD
28 AUGUST 2001

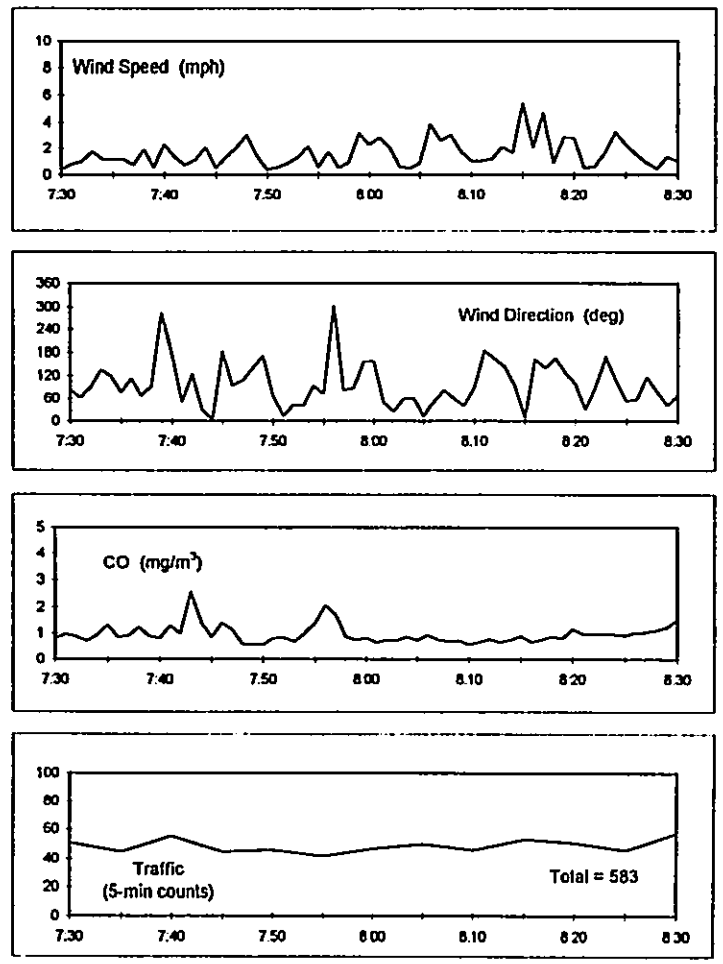


FIGURE 5

P.M. PEAK-HOUR CONDITIONS
KALIA ROAD - SARATOGA ROAD INTERSECTION
28 AUGUST 2001

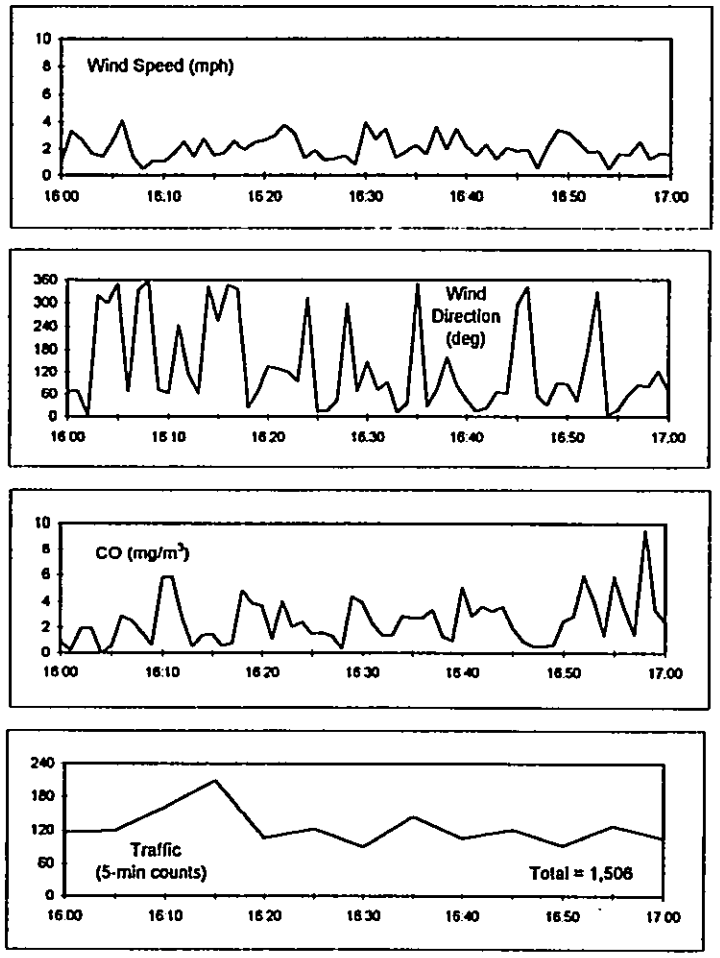
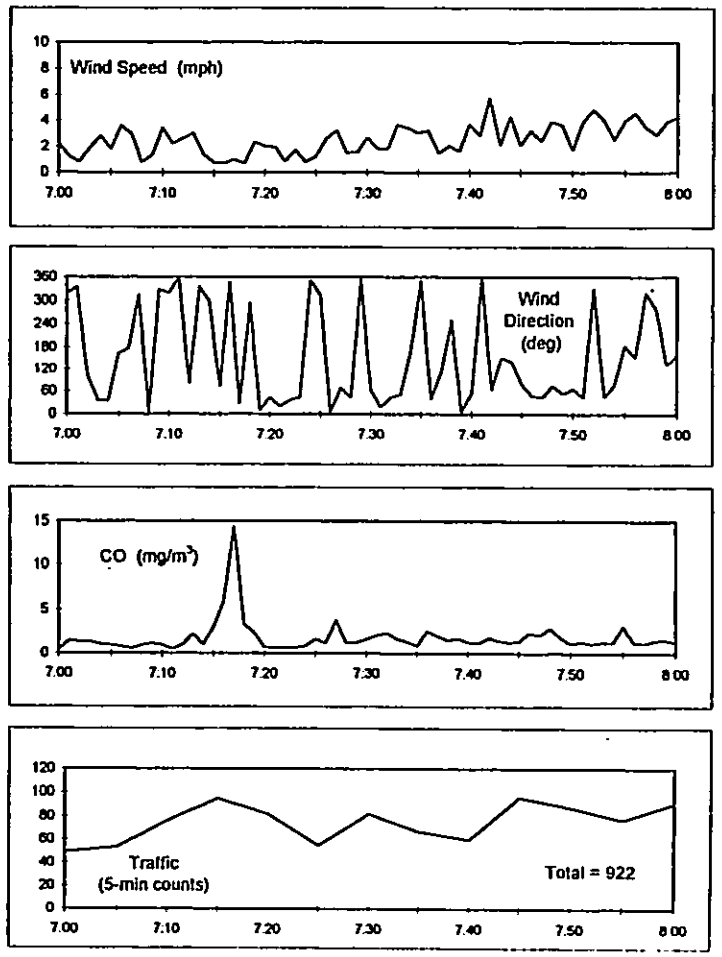


FIGURE 6

A.M. PEAK-HOUR CONDITIONS
KALIA ROAD - SARATOGA ROAD INTERSECTION
30 AUGUST 2001



On the afternoon of 28 August 2001, the equipment was relocated to the *makai* side of the Kalia Road - Saratoga Road intersection. Sky conditions continued to be partly cloudy and winds remained light and variable but with a northerly tendency and average speed of 2.0 mph. Traffic through the intersection totaled 1,506 and the 1-hour average CO level was 2.5 mg/m^3 .

On Thursday morning, 30 August 2001, at the same Kalia - Saratoga location, sky conditions were partly cloudy and the winds were again light and variable at 2.5 mph but with predominant northerly and northeasterly components. Hourly traffic volume was 922 vehicles and the 1-hour average CO level was 1.8 mg/m^3.

4. CLIMATE AND METEOROLOGY

4.1 Climate. Climatic norms, means and extremes for Honolulu [11] are presented in Table 3. Analysis of the monthly temperature and rainfall data in accordance with Thornwaite's scheme for climatic classification, yields a precipitation/evaporation (P/E) index of 26.6 which classifies the area as "semi-arid". [12]

4.2 Surface Winds. Meteorological data records were reviewed from the Honolulu International Airport and Hickam Air Force Base. The annual prevalence of northeast trade winds is clearly shown in Table 4. A closer examination of the data, however, indicates that low velocities (less than 10 mph) occur frequently and that the normal northeasterly trade winds tend to break down in the Fall giving

TABLE 3

CLIMATIC NORMS, MEANS AND EXTREMES
HONOLULU INTERNATIONAL AIRPORT

Parameter	Descriptor	Value
Temperature (deg F)	Daily maximum	84.4
	Daily minimum	70.0
	Annual mean	77.2
Precipitation (inches)	Maximum monthly	20.91
	Minimum monthly	trace
	Annual mean	22.02
Humidity (%)	Normal	68
Wind Speed (mph)	Mean	11.4
Sunshine	Percent of possible	71
Sky cover (mean # days)	Clear	90.0
	Partly cloudy	179.8
	Cloudy	92.0

Source: National Climatic Data Center (Reference 11)

way to more light, variable wind conditions through the Winter and on into early Spring. It is during these times that Honolulu generally experiences elevated pollutant levels. This seasonal difference in wind conditions can be easily contrasted by comparing August and January wind roses (Figures 7 and 8). Of particular interest from an air pollution standpoint were the stability wind roses prepared for Hickam Air Force Base [13]. These data indicated that stable conditions, i.e., Pasquill-Gifford stability categories E and F [14], occur about 28% of the time on an annual basis and 36% of the time during the peak winter month (January). It is under such conditions that the greatest potential for air pollutant buildup from groundlevel sources, e g , motor vehicles, exists.

5. SHORT-TERM IMPACTS

5.1 Onsite Impacts. The principal source of short-term air quality impact will be construction activity. Construction vehicle activity can at times increase automotive pollutant concentrations along adjoining existing streets as well as on the project site itself. Construction activity itself as well as additional construction vehicle traffic may at times cause a temporary reduction in average travel speeds with a concomitant increase in vehicle emissions due to the "stop and go" traffic conditions.

The site preparation including demolition and earth moving will create particulate matter (PM) emissions as will construction of the various new structures. Construction vehicle movement on unpaved on-site areas will also generate PM emissions. EPA studies on fugitive dust emissions from construction sites indicate that about 1.2 tons/acre per month of activity may be expected under

TABLE 4

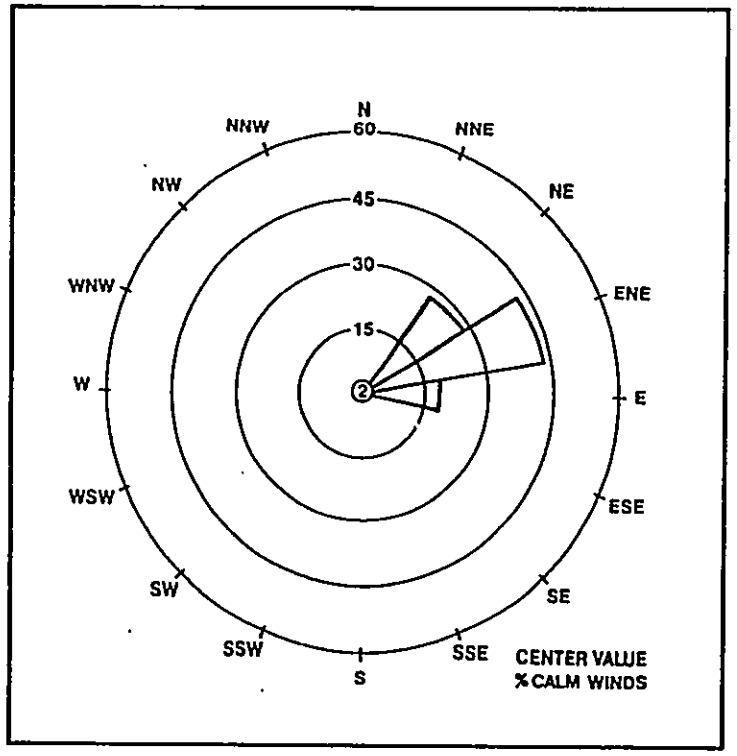
ANNUAL JOINT FREQUENCY DISTRIBUTION
OF WIND SPEED AND DIRECTION
HONOLULU INTERNATIONAL AIRPORT

	Wind Speed (mph)						
Dir (deg)	< 7	< 10	< 13	< 16	< 19	>/= 19	All
10	0.0065	0.0038	0.0023	0.0016	0.0009	0.0001	0.0151
20	0.0082	0.0041	0.0025	0.0023	0.0011	0.0001	0.0183
30	0.0100	0.0061	0.0051	0.0038	0.0028	0.0007	0.0286
40	0.0188	0.0157	0.0258	0.0222	0.0174	0.0040	0.1039
50	0.0268	0.0290	0.0449	0.0385	0.0307	0.0054	0.1752
60	0.0344	0.0289	0.0436	0.0273	0.0238	0.0041	0.1621
70	0.0250	0.0181	0.0197	0.0122	0.0096	0.0009	0.0855
80	0.0113	0.0081	0.0065	0.0039	0.0009	0.0003	0.0310
90	0.0073	0.0049	0.0040	0.0009	0.0008	0.0000	0.0179
100	0.0031	0.0016	0.0014	0.0006	0.0002	0.0000	0.0068
110	0.0027	0.0019	0.0010	0.0007	0.0005	0.0001	0.0069
120	0.0027	0.0013	0.0019	0.0009	0.0003	0.0003	0.0075
130	0.0022	0.0032	0.0018	0.0015	0.0007	0.0002	0.0096
140	0.0034	0.0033	0.0039	0.0018	0.0011	0.0006	0.0141
150	0.0022	0.0030	0.0019	0.0003	0.0002	0.0005	0.0081
160	0.0024	0.0033	0.0023	0.0010	0.0005	0.0000	0.0094
170	0.0031	0.0046	0.0023	0.0007	0.0003	0.0000	0.0109
180	0.0055	0.0042	0.0018	0.0008	0.0005	0.0000	0.0128
190	0.0065	0.0038	0.0013	0.0002	0.0000	0.0000	0.0117
200	0.0057	0.0032	0.0011	0.0001	0.0000	0.0000	0.0101
210	0.0076	0.0038	0.0016	0.0001	0.0000	0.0000	0.0131
220	0.0083	0.0077	0.0016	0.0001	0.0001	0.0000	0.0179
230	0.0076	0.0049	0.0014	0.0001	0.0001	0.0000	0.0141
240	0.0042	0.0016	0.0013	0.0000	0.0000	0.0000	0.0071
250	0.0040	0.0010	0.0003	0.0000	0.0000	0.0000	0.0054
260	0.0064	0.0023	0.0005	0.0000	0.0000	0.0000	0.0091
270	0.0065	0.0010	0.0005	0.0002	0.0000	0.0000	0.0082
280	0.0099	0.0005	0.0002	0.0000	0.0000	0.0000	0.0106
290	0.0123	0.0003	0.0002	0.0001	0.0000	0.0000	0.0130
300	0.0167	0.0018	0.0011	0.0000	0.0000	0.0000	0.0197
310	0.0235	0.0022	0.0015	0.0001	0.0000	0.0000	0.0272
320	0.0200	0.0022	0.0013	0.0006	0.0001	0.0000	0.0241
330	0.0121	0.0023	0.0011	0.0005	0.0000	0.0000	0.0159
340	0.0094	0.0010	0.0003	0.0001	0.0000	0.0000	0.0109
350	0.0082	0.0025	0.0016	0.0002	0.0000	0.0000	0.0125
360	0.0093	0.0027	0.0022	0.0006	0.0005	0.0001	0.0154
All	0.3537	0.1898	0.1917	0.1240	0.0932	0.0174	0.9698
						Calms:	0.0302

SOURCE: National Weather Service, 1992

FIGURE 7

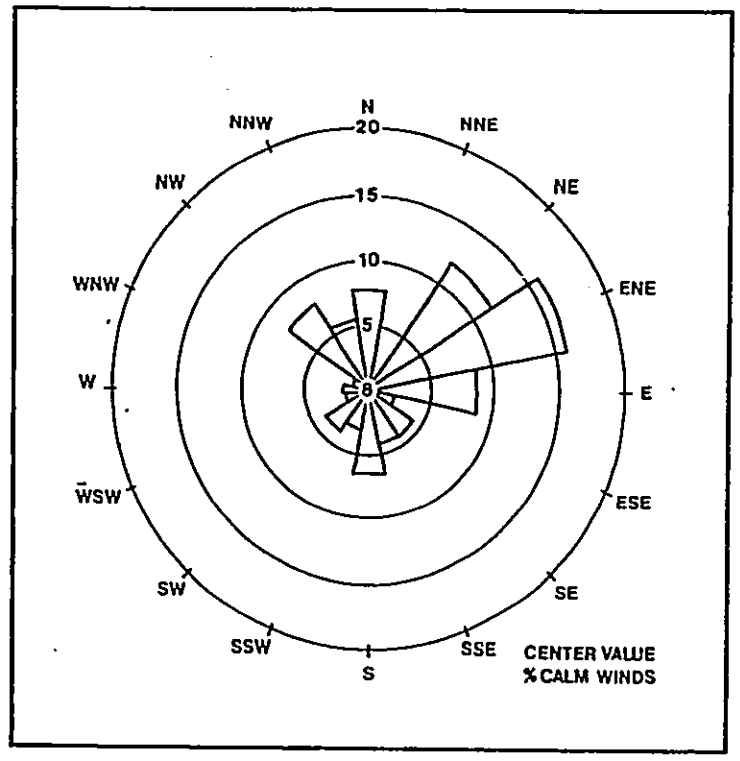
AUGUST WIND ROSE
HONOLULU INTENATIONAL AIRPORT



SOURCE: National Weather Service
Historical Records, 1940-57

FIGURE 8

JANUARY WIND ROSE
HONOLULU INTERNATIONAL AIRPORT



SOURCE: National Weather Service
Historical Records, 1940-57

conditions of medium activity, moderate soil silt content (30%), and a precipitation/ evaporation (P/E) index of 50 [12, 13].

5.2 Offsite Impacts. In addition to the onsite impacts attributable to construction activity, there will also be offsite impacts due to the operation of concrete and asphalt batching plants needed for construction of buildings, sidewalks and roadways. Such plants routinely emit particulate matter and other gaseous pollutants; however. it is too early to identify the specific facilities that will be providing these materials and thus the discussion of air quality impacts is necessarily generic. The batch plants which will be producing this concrete and asphalt must be permitted by the Department of Health Clean Air Branch pursuant to state regulations [9]. In order to obtain these permits they must demonstrate their ability to continuously comply with both emission [9] and ambient air quality [4] standards. Under the federal Title V operating permit requirements [16], now incorporated in Hawaii's rules [9], air pollution sources must regularly attest to their compliance with all applicable requirements. A typical concrete batch plant in Hawaii is equipped with fabric filters, i.e., "baghouses" for particulate matter (PM) control. Similarly, a typical asphalt plant is equipped with either a wet venturi scrubber or fabric filters. The efficiency of such controls is normally 95 - 99%.

6. MOBILE SOURCE IMPACTS

6.1 Mobile Source Activity. The traffic impact analysis [17] prepared for the proposed project served as the basis for this mobile source impact analysis. Existing and projected future peak-hour traffic volumes for the streets serving the project site were obtained from that report. Since air quality impact

is typically greatest in the vicinity of intersections due to the associated vehicle queuing, this analysis focused on the principal intersections in the project area (see Figures 9 - 12).

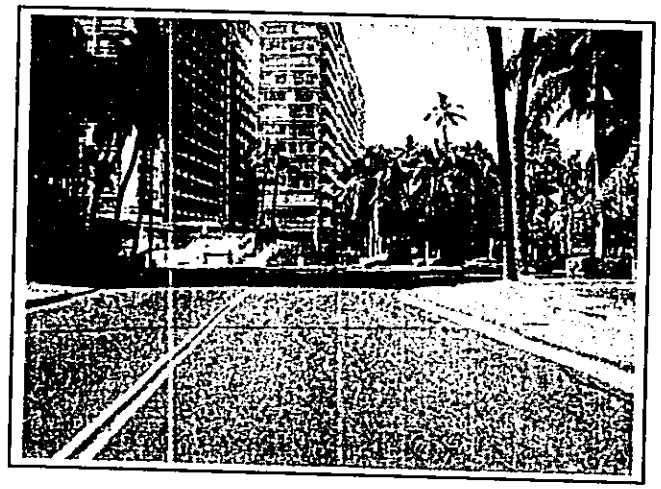
6.2 Emission Factors. Automotive emission factors for carbon monoxide (CO) were generated for calendar years 2001, 2005 and 2010 using EPA's Mobile Source Emissions Model (MOBILE-5B)[18]. To localize the emission factors as much as possible, an age distribution for registered vehicles in the City & County of Honolulu [19] was used in lieu of national statistics. That same age distribution was the basis for the distribution of vehicle miles traveled as well.

6.3 Modeling Methodology. Mobile source air quality modeling has historically focused on estimating concentrations of non-reactive pollutants, primarily carbon monoxide (CO). This has been the case because CO is relatively stable in the atmosphere having a half-life on the order of about one (1) month,[20] and it comprises the largest fraction of automotive emissions. [18]

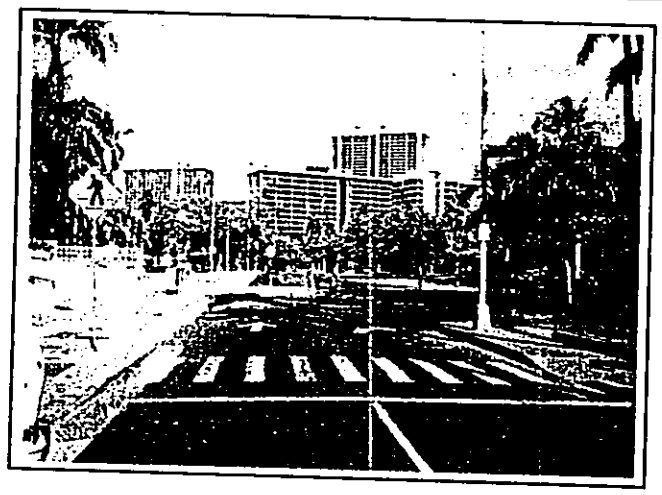
Using the traffic data provided, modeling was performed for the aforementioned intersections for 2001, 2005, and 2010. The EPA guideline model CAL3QHC [21, 22] as revised to allow for use of hourly meteorological data files [23] was employed to estimate near-intersection carbon monoxide concentrations. CO concentrations were estimated at an array of up to 40 receptor sites spaced at a distance of 10 meters and placed along the sidewalks around each intersection. A background concentration of 0.92 mg/m^3 from the Department of Health's 1999 monitoring data was also used as the background concentration in the modeling. Hourly meteorological data for a.m. and p.m. peak

FIGURE 9

SARATOGA ROAD AT KALIA ROAD



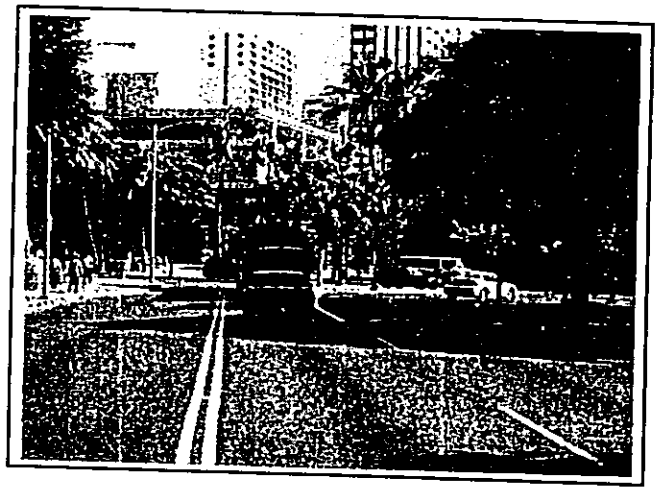
Saratoga Road at Kalia Road (facing southwest)



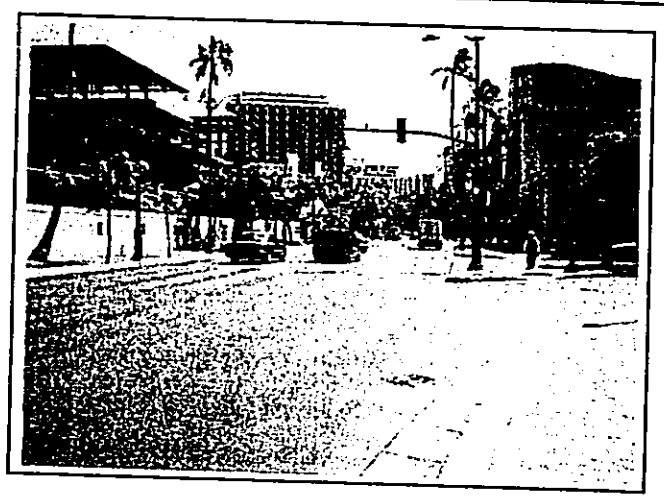
Kalia Road at Saratoga Road (facing northwest)

FIGURE 10

SARATOGA ROAD AT KALAKAUA AVENUE



Saratoga Road at Kalakaua Avenue (facing northeast)

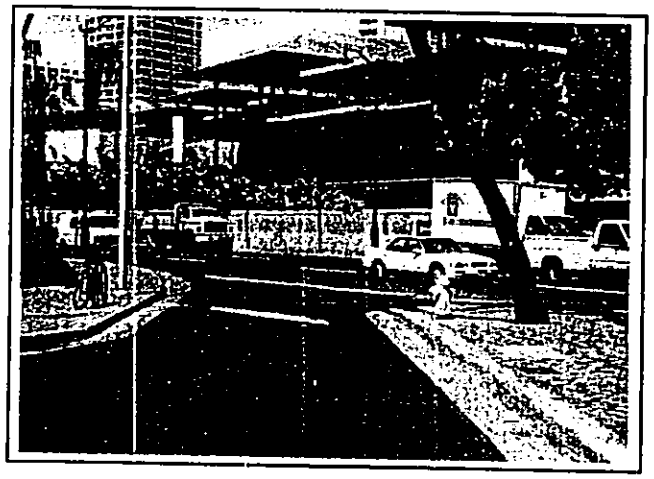


Kalakaua Avenue at Saratoga Road (facing southeast)

FIGURE 11

BEACH WALK

Beach Walk at Kalakaua Avenue (facing northwest)

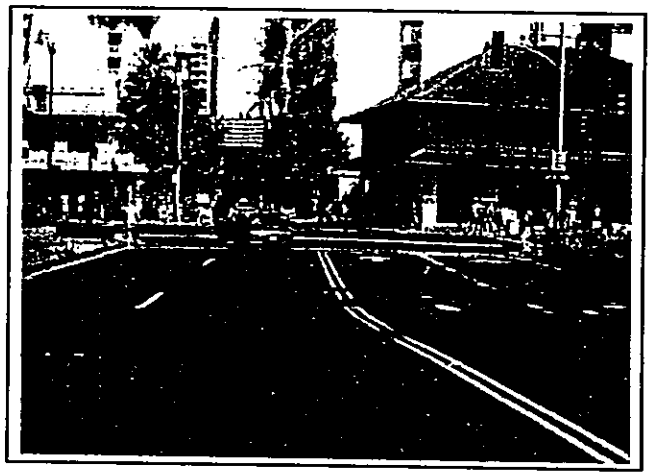


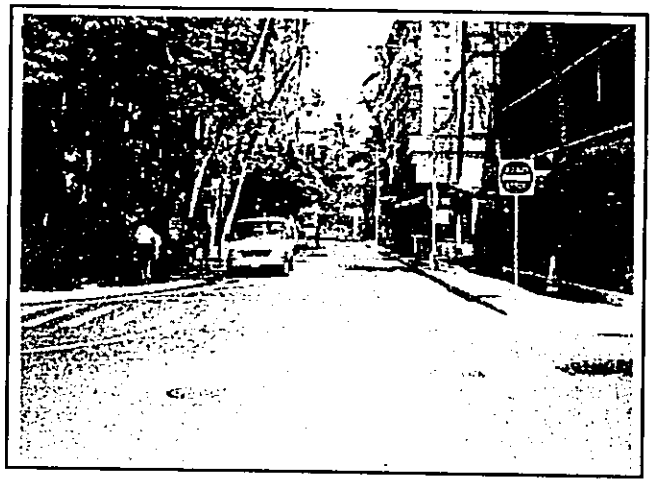
Beach Walk at Kalia Road (facing northeast)

FIGURE 12

LEWERS STREET

Lewers Street at Kalakaua Avenue (facing northeast)





Lewers Street at Kalia Road (facing northeast)

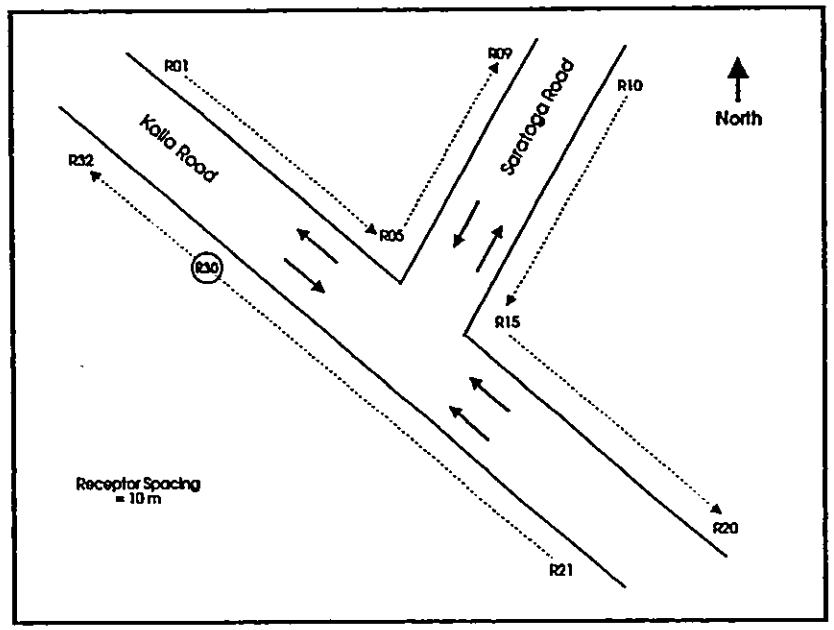
traffic hours used in the model were extracted from National Weather service data collected at the Honolulu International Airport [24] and preprocessed with EPA's PCRAMMET program. [25]

6.4 Results: 1-Hour Concentrations. The results of this modeling are presented in Figures 13 - 15. Maximum estimated 1-hour CO concentrations in milligrams per cubic meter (mg/m^3) for each of the three evaluated scenarios are presented along with the particular receptor location at which they were predicted. The results suggest that, under *worst case* conditions of meteorology and traffic, both the federal and state 1-hour CO standards would be met at receptor locations along the sidewalks and beyond. Changes in CO concentration ranged from small increases to small decreases. The latter is attributable to the federal motor vehicle emissions control program which causes the emissions from increasing traffic volume to be offset by increasingly more stringent emission standards for new motor vehicles. Thus, over time older, higher emitting vehicles are eventually replaced by newer, lower emitting vehicles.

6.5 Results: 8-Hour Concentrations. The 8-hour values, also presented in Figures 13 - 16, are very conservative estimates because they are based on averages of the worst case a.m. and p.m. peak hour traffic and meteorology. Nevertheless, the results are similar to the 1-hour findings in that the predicted changes are very small, and compliance with state and federal standards is indicated.

FIGURE 13

ESTIMATES OF MAXIMUM 1- AND 8-HOUR CARBON MONOXIDE CONCENTRATIONS
Kalia Road at Saratoga Road
Peak Traffic Hours
2001 - 2010

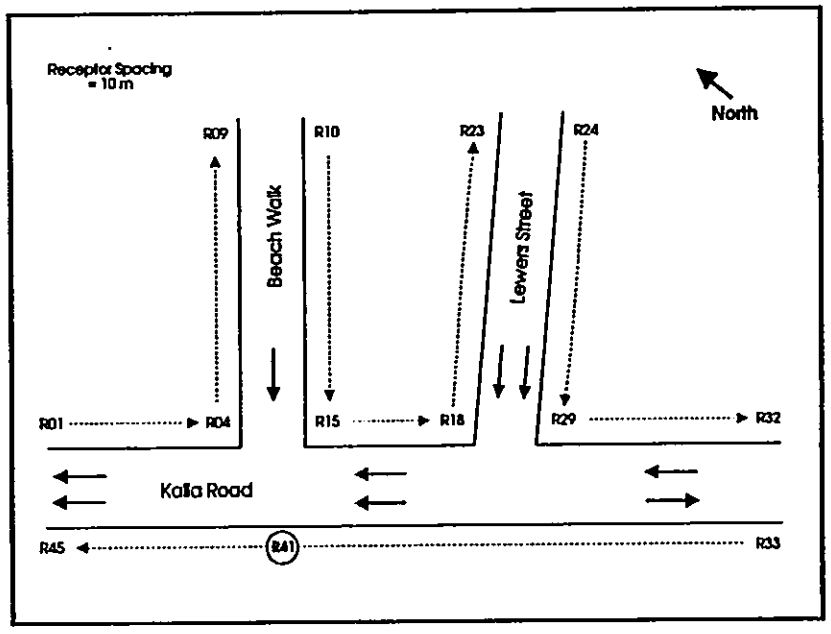


Estimated Maximum CO Concentrations
(mg/m^3)

Period	2001	2005 w/Phase I	2010 w/Phase 2	Receptor
A.M.	2.7	2.9	3.1	R29
P.M.	2.8	3.0	3.2	R30
8-Hr	1.8	1.9	2.0	n/a

FIGURE 14

ESTIMATES OF MAXIMUM 1- AND 8-HOUR CARBON MONOXIDE CONCENTRATIONS
Beach Walk and Lewers Street at Kalia Road
Peak Traffic Hours
2001 - 2010

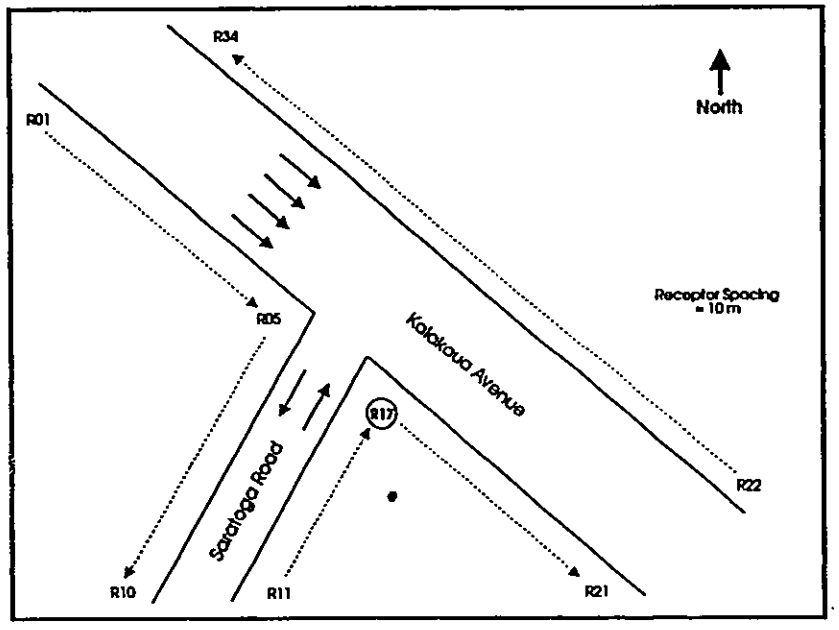


Estimated Maximum CO Concentrations (mg/m³)

Period	2001	2005 w/Phase I	2010 w/Phase 2	Receptor
A.M.	2.4	2.6	2.6	R41
P.M.	2.2	2.4	2.5	R15
8-Hr	1.7	1.8	1.8	n/a

FIGURE 15

ESTIMATES OF MAXIMUM 1- AND 8-HOUR CARBON MONOXIDE CONCENTRATIONS
Saratoga Road at Kalakaua Avenue
Peak Traffic Hours
2001 - 2010

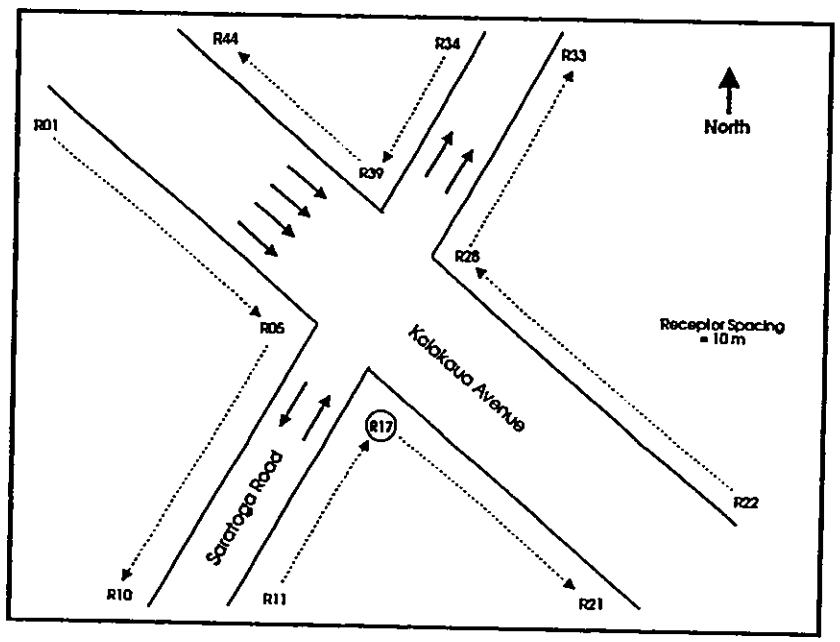


Estimated Maximum CO Concentrations (mg/m³)

Period	2001	2005 w/Phase I	2010 w/Phase 2	Receptor
A.M.	6.3	6.1	6.2	R17
P.M.	5.3	5.2	5.3	R17
8-Hr	4.9	4.7	4.7	n/a

FIGURE 16

ESTIMATES OF MAXIMUM 1- AND 8-HOUR CARBON MONOXIDE CONCENTRATIONS
Kalakaua Avenue at Lewers Street
Peak Traffic Hours
2001 - 2010



Estimated Maximum CO Concentrations
(mg/m^3)

Period	2001	2005 w/Phase I	2010 w/Phase 2	Receptor
A.M.	3.4	2.7	2.8	R39
P.M.	5.3	4.3	4.2	R17
8-Hr	2.4	2.2	2.3	n/a

7. OFFSITE STATIONARY SOURCE IMPACTS

7.1 Electrical Generation. The estimated 5.9 million kilowatt hours (kWhrs) of increased annual electrical demand by the project will necessitate the generation of electricity by power plants. Currently, most of Oahu's electrical energy is generated by Hawaiian Electric Company's oil-fired plants at Kahe Point and Waiau. These units fire low sulfur (0.5%) fuel oil. The estimated emissions resulting from fuel burned to provide the power needed by the project are presented in Table 5.

7.2 Solid Waste Disposal. The municipal solid waste (MSW) generated by the additional hotel rooms will also require disposal. The annual quantity of MSW per room was estimated based on recent data for the existing Outrigger hotels in the Waikiki Beach Walk project area [26]. Historically, about 80% of Oahu's refuse was being landfilled with the remaining 20% being burned at the former Waipahu Incinerator. With the opening of the City's resource recovery facility (HPOWER) at Campbell Industrial Park some years ago, most refuse is now being pre-processed and burned leaving less mass to be landfilled. Estimates of annual emissions attributable to the combustion of MSW from the proposed development are also included in Table 5.

8. CONCLUSIONS AND MITIGATION

8.1 Short-Term Impacts. Since, as noted in Section 4, the project area is considered semi-arid by Thornwaite's climatic classification system with a P/E index lower than that associated with the EPA

TABLE 5

ESTIMATES OF ANNUAL EMISSIONS FROM OFFSITE STATIONARY SOURCES

Pollutant	Emissions (T/yr)	
	Electrical Generation	Solid Waste Disposal
Sulfur dioxide (SO_2)	16	0.20
Nitrogen oxides (NOx)	9.7	0.98
Particulate matter (PM)	1.1	0.082
Carbon monoxide (CO)	1.0	0.86
Volatile organic compounds (VOC)	0.16	0.051

fugitive dust emission factor, there appears to be a somewhat greater potential for fugitive dust. It will therefore be very important to employ adequate dust control measures during the construction period, particularly during the drier summer months. Dust control could be accomplished through frequent watering of unpaved roadways and areas of exposed soil. The EPA estimates that twice daily watering can reduce fugitive dust emissions by as much as 50% [15]. The soonest possible paving of roadways and landscaping of bare soil areas will also help.

Short-term air quality impacts due to offsite activities supporting the proposed development, i.e., concrete and asphalt production, appear to be *de minimus* due in large part to the high removal of control devices typically found on such production facilities. Furthermore, any emissions will be

strictly regulated by the Department of Health permit which each batch plant must have in order to operate.

8.2 Mobile Source Impacts. As reported in Section 6, compliance with federal and state carbon monoxide standards is demonstrated under *worst case* conditions of meteorology and peak hour traffic; thus, no special mitigative measures are required.

8.3 Offsite Stationary Source Impacts. The increased offsite emissions associated with the proposed development represent small additional increments to existing island-wide emissions. Besides the federal and state air pollution control requirements which will mitigate emissions at the offsite sources themselves, additional mitigation can be incorporated into the design of the proposed facilities. Installation and use of energy efficient appliances including solar water heating and heat pump devices can sharply reduce electrical demand and its associated emissions. Facilities to collect recyclable materials such as paper, cardboard boxes, aluminum cans, and glass containers can reduce the quantities of solid waste going to the HPOWER facility and thus its emissions.

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APPENDIX I

Environmental Review- Outrigger Waikīkī Beach Walk Project

J.R. Herold & Associates

August 2001

ENVIRONMENTAL REVIEW
OUTRIGGER WAIKIKI BEACH WALK PROJECT

Group 70 International
925 Bethel Street, 5th Floor
Honolulu, Hawai 96813

August 2001

J.R. Herold & Associates
Environmental Professionals

prepared for

Group 70
925 Bethel Street
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Environmental Review
of
Outrigger Waikiki Beach Walk Project
Honolulu, Hawaii

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JRHA Project No: JRHA1G070118
August 2001

J.R. Herold & Associates
Environmental Professionals

ACTION ITEMS

Project: **Outrigger Waikiki Beach Walk**
Honolulu, Hawaii

1. Perform comprehensive environmental regulatory and historical research to assess potential impacts from properties in the immediate vicinity not owned by Outrigger Hotels & Resorts. This task should identify the sources of potential soil and groundwater contamination.

2. Perform a comprehensive asbestos survey to document the asbestos containing materials found on all properties. The assessment should include type of materials, locations, exact quantities, and provide for a budgetary estimate for abatement.

3. Perform a comprehensive lead containing paint assessment of all structures, including interior and exterior areas. The assessment should note areas of peeling, flaking paint, lead concentrations, and provide for a budgetary estimate for abatement.

4. Perform a comprehensive assessment of light fixtures to determine quantities of light ballasts and lamps, and provide for a budgetary estimate for abatement.

J.R. Herold & Associates
Environmental Professionals

PROJECT AT A GLANCE

Project: Outrigger Waikiki Beach Walk
Honolulu, Hawaii
Date: August 2001

Assessment Component	No Further Action	Routine Solution	Further Assessment Required	Abatement Required[3]
Regulatory Review [1] [2]		X	X	
Historical Review [1] [2]		X	X	
Asbestos [1]		X	X	X
Lead-Containing Paint [1]		X	X	X
USTs	X (According to Outrigger sources)			
PCBs[1]		X	X	X
Mercury Lamps [1]		X	X	X
Soil/Groundwater	X (Unless new discovery)			
Other HazMat	X	X		

[1] Based on this preliminary study, it appears that further investigation in this area is a priority concern for this project at the present time.
[2] Historical and regulatory review should be performed for the entire project.
[3] Remediation costs, if required, will be identified as a result of further assessment.

ENVIRONMENTAL REVIEW
OUTRIGGER WAIKIKI BEACH WALK PROJECT

Group 70 International
925 Bethel Street, 5th Floor
Honolulu, Hawai 96813

August 2001

J.R. Herold & Associates
Environmental Professionals

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Ohana Edgewater

OHANA EDGEWATER

2168 Kalia Road

Planned Action: Demolition

ASBESTOS

Survey Observations

Some asbestos testing and abatement has occurred on this property.

A. A 1993 survey discovered the acoustic ceilings in the guest rooms were negative. Acoustic ceilings in the corridors tested positive. The acoustic ceiling in both lobbies was negative. The vinyl flooring in the bathrooms was negative.

B. Vinyl floor tiles (345 square feet) in the lobby tested positive and were removed in 1993.

C. The acoustic ceiling in the main lobby was replace in 1993.

D. In 1994, 484 square feet of acoustic ceiling was abated in the 6th floor corridor.

E. In 1995, 80 square feet of acoustic ceiling was abated In the 3rd floor corridor.

F. In 1995, testing of the vinyl floor tile in the basement tested positive.

G. In 1996, Okaum thermal pipe insulation tested positive.

H. In 1996, thermal pipe insulation was abated on the 7th and 8th floors in response to a pipe leak.

I. In 1996, acoustical ceiling in the corridor outside Room 723 tested positive.

J. Testing in 1999of the under of slab/upper ceiling in the lobby tested positive.

K. Testing of the acoustical ceiling in Room 709 proved negative.

M. Thermal pipe insulation in the lobby tested positive and was abated.

Recommendations

Asbestos containing building materials (ACM) remain on the property. Prior to any demolition, a comprehensive survey should be completed to inventory these materials. The survey should document exact locations, type and quantity of ACM to be removed.

LEAD CONTAINING PAINT

Survey Observations

No testing of lead containing paint was confirmed during the survey. Given the age of the property, it is assumed that lead paint exists both in the interior and exterior.

Recommendations

A lead containing paint survey would measure concentrations of lead containing paint on the exterior and interior of the hotel.

If no lead is measured in the paint, no further remedial action is necessary. If lead is confirmed in the paint, the State of Hawaii Department of Health requires all lead containing paint that is peeling and flaking to be removed prior to demolition. Once completed, the building may be demolished without further paint removal. Occupational Health and Safety Administration (OSHA) standards for worker protection shall be effective for all demolition activities.

Underground Storage Tanks (USTs)

Survey Observations

During the site inspection no indicators of USTs were observed. Bob Finan of Outrigger Hotels & Resorts reported that there are no USTs on the property.

Recommendations

None.

Polychlorinated Biphenyls (PCB)

(PCB Transformers, Capacitors and Light Ballasts)

Survey Observations

Transformers and capacitors on the property are owned by Hawaiian Electric Company and remain their responsibility.

There were no records documenting a lighting retrograde for this hotel. Light ballasts in significant quantity exist on the property. These ballasts are assumed to contain PCB.

Recommendations

A survey of the light ballast quantity would generate budgetary costs for removal and proper disposal.

All light ballasts without the label signifying "No PCBs" are assumed to contain PCB and should be removed, packaged and transported (per Department of Transportation requirements) to a permitted facility capable of receiving, processing and disposing the ballasts.

Mercury Containing Lamps

Survey Observations

There were no records documenting a lighting retrograde for this hotel. Fluorescent lighting was observed throughout the property. Unless recently replaced, these lamps contain mercury vapor.

Recommendations

A survey of lamp quantity can be performed in conjunction with the ballast survey and would generate budgetary costs for removal and proper disposal.

Unless known otherwise, the lamps should be removed without breaking, packaged, and transported to a facility that is permitted to process them.

Soil and Groundwater Contamination

Survey Observations

No previous environmental reports were provided that addressed potential soil and groundwater contamination.

During the site inspection, no activities were observed to suggest possible sources of soil and groundwater contamination.

Recommendations

Unless other information is discovered, none.

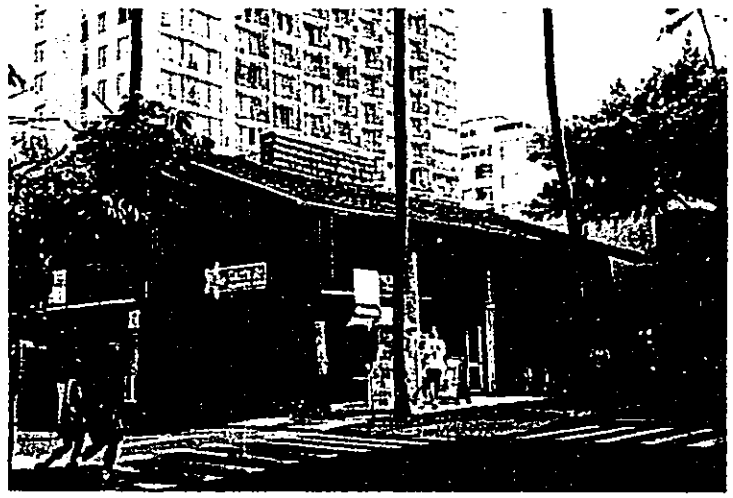
Other Hazardous Materials

Survey Observations

There are small quantities of various hazardous materials used in the daily maintenance of the hotel.

Recommendations

Prior to demolition, these chemical should either be used for their intended application, transferred to another property to be used for their intended application, or disposed of properly.



Carl's Jr.

CARL'S JR. RESATAURANT

226 Lewers Street

Planned Action: Demolition

ASBESTOS

Survey Observations

No documents for asbestos testing and abatement were provided.

Recommendations

Asbestos containing building materials (ACM) may exist on the property. Prior to any demolition, a comprehensive survey should be completed to inventory these materials. The survey should document exact locations, type and quantity of ACM to be removed.

LEAD CONTAINING PAINT

Survey Observations

No testing of lead containing paint was confirmed during the survey. Given the age of the building, it is assumed that lead paint exists both in the interior and exterior.

Recommendations

A lead containing paint survey would measure concentrations of lead containing paint on the exterior and interior of the hotel.

If no lead is measured in the paint, no further remedial action is

necessary. If lead is confirmed in the paint, the State of Hawaii Department of Health requires all lead containing paint that is peeling and flaking to be removed prior to demolition. Once completed, the building may be demolished without further paint removal. Occupational Health and Safety Administration (OSHA) standards for worker protection shall be effective for all demolition activities.

UNDERGROUND STORAGE TANKS (USTs)

Survey Observations

During the site inspection no indicators of USTs were observed. Bob Finan of Outrigger Hotels & Resorts reported that there are no USTs on the property.

Recommendations

None.

POLYCHLORINATED BIPHENYLS (PCB)
(PCB Transformers, Capacitors and Light Ballasts)

Survey Observations

Ownership information regarding the electrical equipment for the property was not provided.

There were no records documenting a lighting retrograde for this hotel. Light ballasts exist on the property. These ballasts are assumed to contain PCB.

Recommendations

Further inquiry should be made into the ownership responsibility and PCB status of the transformers and capacitors.

A survey of the light ballast quantity would generate budgetary costs for removal and proper disposal.

All light ballasts without the label signifying "No PCBs" are assumed to contain PCB and should be removed, packaged and transported (per Department of Transportation requirements) to a permitted facility capable of receiving, processing and disposing the ballasts.

Mercury Containing Lamps

Survey Observations

There were no records documenting a lighting retrograde for this hotel. Fluorescent lighting was observed throughout the property. Unless recently replaced, these lamps contain mercury vapor.

Recommendations

A survey of lamp quantity can be performed in conjunction with the ballast survey and would generate budgetary costs for removal and proper disposal.

Unless known otherwise, the lamps should be removed without breaking, packaged, and transported to a facility that is permitted to process them.

Soil and Groundwater Contamination

Survey Observations

No previous environmental reports were provided that addressed potential soil and groundwater contamination.

During the site inspection, no activities were observed to suggest possible sources of soil and groundwater contamination.

Recommendations

Unless other information is discovered, none.

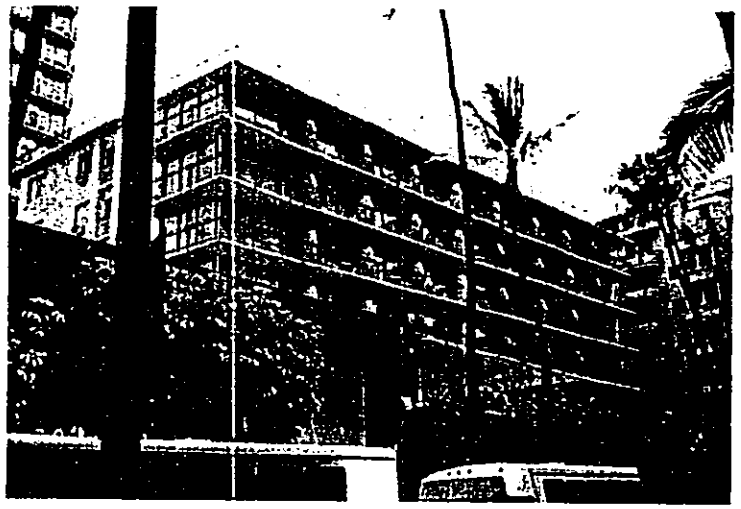
Other Hazardous Materials

Survey Observations

For this property only minor quantities of hazardous materials are used in the daily maintenance.

Recommendations

Prior to demolition, these chemical should either be used for their intended application, transferred to another property to be used for their intended application, or disposed of properly.



Ohana Coral Seas

250 Lewers Street

Planned Action: Demolition

ASBESTOS

Survey Observations

Some asbestos testing and abatement has occurred on this property.

A. In 1993, acoustical ceiling was abated in Guest Room 256.

B. Acoustical ceiling were abated in Guest Rooms 364, 350, and 659 in 1993.

C. In 1997, there was an emergency cleanup of asbestos debris in Guest Room 771. The ceiling had delaminated and fallen.

D. A section of hot water piping located in the northern driveway was abated.

E. Guest Room 465 acoustical ceiling tested positive. Guest Room 765 acoustical ceiling tested negative. Acoustical ceilings in the third and fourth floor corridors tested negative

F. There is suspect ACM in the electrical conduits.

G. Bathroom flooring in Guest Room 668 tested negative.

H. Other testing of acoustical ceiling in guest rooms tested positive.

Recommendations

Asbestos containing building materials (ACM) remain on the property. Prior to any demolition, a comprehensive survey should be completed to inventory these materials. The survey should document exact locations, type and quantity of ACM to be removed.

LEAD CONTAINING PAINT

Survey Observations

No testing of lead containing paint was confirmed during the survey. Given the age of the property, it is assumed that lead paint exists both in the interior and exterior.

Recommendations

A lead containing paint survey would measure concentrations of lead containing paint on the exterior and interior of the hotel.

If no lead is measured in the paint, no further remedial action is necessary. If lead is confirmed in the paint, the State of Hawaii Department of Health requires all lead containing paint that is peeling and flaking to be removed prior to demolition. Once completed, the building may be demolished without further paint removal. Occupational Health and Safety Administration (OSHA) standards for worker protection shall be effective for all demolition activities.

UNDERGROUND STORAGE TANKS (USTs)

Survey Observations

During the site inspection no indicators of USTs were observed. Bob Finan of Outrigger Hotels & Resorts reported that there are no USTs on the property.

Recommendations

None.

POLYCHLORINATED BIPHENYLS (PCB)
(PCB Transformers, Capacitors and Light Ballasts)

Survey Observations

Information regarding ownership of transformers and capacitors for this particular hotel was not provided.

There were no records documenting a lighting retrograde for this hotel. Light ballasts in significant quantity exist on the property. These ballasts are assumed to contain PCB.

Recommendations

Further inquiry should be made to establish the ownership responsibility and PCB status of the transformers and capacitors.

A survey of the light ballast quantity would generate budgetary costs for removal and proper disposal.

All light ballasts without the label signifying "No PCBs" are assumed to contain PCB and should be removed, packaged and transported (per Department of Transportation requirements) to a permitted facility capable of receiving, processing and disposing the ballasts.

Mercury Containing Lamps

Survey Observations

There were no records documenting a lighting retrograde for this hotel. Fluorescent lighting was observed throughout the property. Unless recently replaced, these lamps contain mercury vapor.

Recommendations

A survey of lamp quantity can be performed in conjunction with the ballast survey and would generate budgetary costs for removal and proper disposal.

Unless known otherwise, the lamps should be removed without breaking, packaged, and transported to a facility that is permitted to process them.

Soil and Groundwater Contamination

Survey Observations

No previous environmental reports were provided that addressed potential soil and groundwater contamination.

During the site inspection, no activities were observed to suggest possible sources of soil and groundwater contamination.

Recommendations

Unless other information is discovered, none.

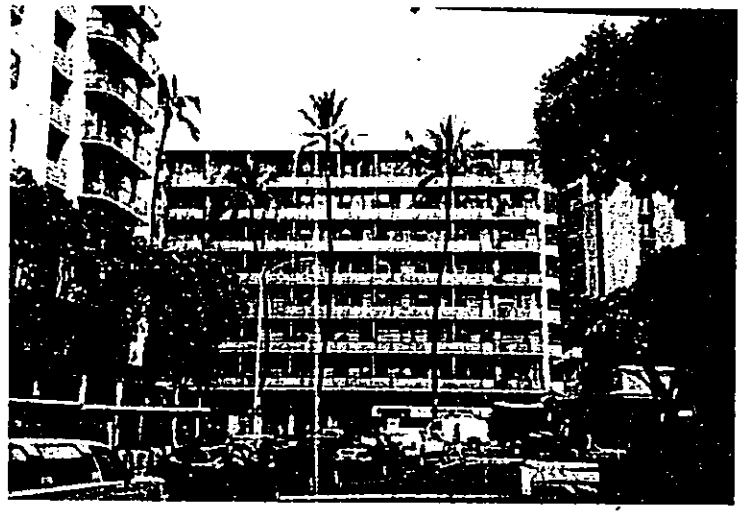
Other Hazardous Materials

Survey Observations

There are small quantities of various hazardous materials used in the daily maintenance of the hotel.

Recommendations

Prior to demolition, these chemical should either be used for their intended application, transferred to another property to be used for their intended application, or disposed of properly.



Edgewater Lanais

260 Lewers Street

Planned Action: Demolition

ASBESTOS

Survey Observations

Some asbestos testing and abatement has occurred on this property.

A. In 1992, the vinyl tile (48 square feet) in the kitchen was removed.

B. In 1994, the sidewalk overhang and main roof area (gray sealant and transite) tested positive.

C. Vinyl tile and mastic were abated in Guest Room 350.

Recommendations

Asbestos containing building materials (ACM) remain on the property. Prior to any demolition, a comprehensive survey should be completed to inventory these materials. The survey should document exact locations, type and quantity of ACM to be removed.

LEAD CONTAINING PAINT

Survey Observations

Paint from Guest Room 350 tested at 641 parts per million lead. Given the age of the property, it is assumed that lead paint exists both in the interior and exterior.

Recommendations

A lead containing paint survey would measure concentrations of lead containing paint on the exterior and interior of the hotel.

If no lead is measured in the paint, no further remedial action is necessary. If lead is confirmed in the paint, the State of Hawaii Department of Health requires all lead containing paint that is peeling and flaking to be removed prior to demolition. Once completed, the building may be demolished without further paint removal. Occupational Health and Safety Administration (OSHA) standards for worker protection shall be effective for all demolition activities.

UNDERGROUND STORAGE TANKS (USTs)

Survey Observations

During the site inspection no indicators of USTs were observed. Bob Finan of Outrigger Hotels & Resorts reported that there are no USTs on the property.

Recommendations

None.

POLYCHLORINATED BIPHENYLS (PCB)
(PCB Transformers, Capacitors and Light Ballasts)

Survey Observations

Transformers and capacitors on the property are owned by Outrigger Hotels & Resorts and are reported to be non-PCB.

There were no records documenting a lighting retrograde for this hotel. Light ballasts in significant quantity exist on the property. These ballasts are assumed to contain PCB.

Recommendations

A survey of the light ballast quantity would generate budgetary costs for removal and proper disposal.

All light ballasts without the label signifying "No PCBs" are assumed to contain PCB and should be removed, packaged and transported (per Department of Transportation requirements) to a permitted facility capable of receiving, processing and disposing the ballasts.

MERCURY CONTAINING LAMPS

Survey Observations

There were no records documenting a lighting retrograde for this hotel. Fluorescent lighting was observed throughout the property. Unless recently replaced, these lamps contain mercury vapor.

Recommendations

A survey of lamp quantity can be performed in conjunction with the ballast survey and would generate budgetary costs for removal and proper disposal.

Unless known otherwise, the lamps should be removed without breaking, packaged, and transported to a facility that is permitted to process them.

Soil and Groundwater Contamination

Survey Observations

No previous environmental reports were provided that addressed potential soil and groundwater contamination.

During the site inspection, no activities were observed to suggest possible sources of soil and groundwater contamination.

Recommendations

Unless other information is discovered, none.

Other Hazardous Materials

Survey Observations

There are small quantities of various hazardous materials used in the daily maintenance of the hotel.

Recommendations

Prior to demolition, these chemical should either be used for their intended application, transferred to another property to be used for their intended application, or disposed of properly.

Ohana Waikiki Tower

ASBESTOS

Survey Observations

Some asbestos testing and abatement has occurred on this property.

A. Guard railings were tested and confirmed 20 percent asbestos. The railings were removed from the first floor only.

B. Acoustical ceiling material found in the front desk area tested negative prior to this area undergoing renovation.

C. Random sampling and testing of materials from the guest rooms, corridors and lobby tested negative.

Recommendations

Asbestos containing building materials (ACM) remain on the property. Prior to any renovation or demolition, a comprehensive survey should be completed to inventory these materials. The survey should document exact locations, type and quantity of ACM to be removed.

LEAD CONTAINING PAINT

Survey Observations

No testing of lead containing paint was confirmed during the survey. Given the age of the property, it is assumed that lead paint exists both in the interior and exterior.

Recommendations

A lead containing paint survey would measure concentrations of lead containing paint on the exterior and interior of the hotel.

If no lead is measured in the paint, no further remedial action is necessary. If lead is confirmed in the paint, the State of Hawaii Department of Health requires all lead containing paint that is peeling and flaking to be removed prior to remodeling or demolition. Once completed, the area may be remodeled or demolished without further paint removal. Occupational Health and Safety Administration (OSHA) standards for worker protection shall be effective for all demolition activities.

UNDERGROUND STORAGE TANKS (USTs)

Survey Observations

During the site inspection no indicators of USTs were observed. Bob Finan of Outrigger Hotels & Resorts reported that there are no USTs on the property.

Recommendations

None.

Polychlorinated Biphenyls (PCB)
(PCB Transformers, Capacitors and Light Ballasts)

Survey Observations

Transformers and capacitors on the property are owned by Outrigger Hotels and Resorts and have been reported to be free of PCB.

There were no records documenting a lighting retrograde for this hotel. There are a significant number of light ballasts on the property. These ballasts are assumed to contain PCB.

Recommendations

A survey of the light ballast quantity would generate budgetary costs for removal and proper disposal.

All light ballasts without the label signifying "No PCBs" are assumed to contain PCB and should be removed, packaged and transported (per Department of Transportation requirements) to a permitted facility capable of receiving, processing and disposing the ballasts.

Mercury Containing Lamps

Survey Observations

There were no records documenting a lighting retrograde for this hotel. Fluorescent lighting was observed throughout the property. Unless recently replaced, these lamps contain mercury vapor.

Recommendations

A survey of lamp quantity can be performed in conjunction with the ballast survey and would generate budgetary costs for removal and proper disposal.

Unless known otherwise, the lamps should be removed without breaking, packaged, and transported to a facility that is permitted to process them.

Soil and Groundwater Contamination

Survey Observations

No previous environmental reports were provided that addressed potential soil and groundwater contamination.

During the site inspection, no activities were observed to suggest possible sources of soil and groundwater contamination.

Recommendations

Unless other information is discovered, none.

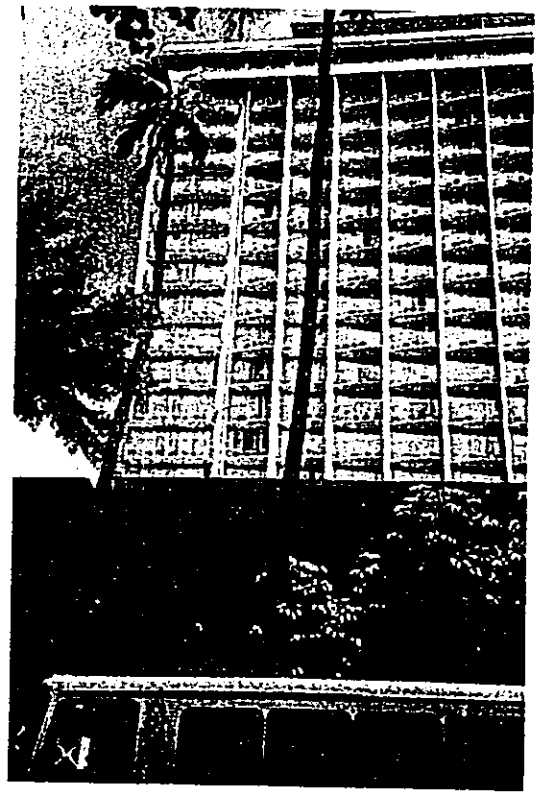
Other Hazardous Materials

Survey Observations

There are small quantities of various hazardous materials used in the daily maintenance of the hotel.

Recommendations

Prior to renovation or demolition, these chemical should either be used for their intended application, transferred to another area or property to be used for their intended application, or disposed of properly.



Ohana Waikiki Village

ASBESTOS

Survey Observations

Major asbestos testing and abatement has occurred on this property.

A. In 1988, 140,000 square feet of acoustic ceiling material was removed.

B. Subsequently, 9,112 square feet of acoustic ceiling was abated from the ground floor.

C. 3,508 square feet of acoustic ceiling in the restaurant was removed.

D. Acoustic ceiling material was abated in the Little Shop, Lobby Coke area and Shops 1, 2, and 3.

E. Acoustic ceiling material (2,732 square feet) was abated From Mr. Kelly's office, a second office, and storage area.

Recommendations

Asbestos containing building materials (ACM) remain on the property. Prior to any renovation or demolition, a comprehensive survey should be completed to inventory these materials. The survey should document exact locations, type and quantity of ACM to be removed.

LEAD CONTAINING PAINT

Survey Observations

No testing of lead containing paint was confirmed during the survey. Given the age of the property, it is assumed that lead paint exists both in the interior and exterior.

Recommendations

A lead containing paint survey would measure concentrations of lead containing paint on the exterior and interior of the hotel.

If no lead is measured in the paint, no further remedial action is necessary. If lead is confirmed in the paint, the State of Hawaii Department of Health requires all lead containing paint that is peeling and flaking to be removed prior to renovation or demolition. Once completed, the area may be remodeled or demolished without further paint removal. Occupational Health and Safety Administration (OSHA) standards for worker protection shall be effective for all demolition activities.

UNDERGROUND STORAGE TANKS (USTs)

Survey Observations

During the site inspection no indicators of USTs were observed. Bob Finan of Outrigger Hotels & Resorts reported that there are no USTs on the property.

Recommendations

None.

POLYCHLORINATED BIPHENYLS (PCB)
(PCB Transformers, Capacitors and Light Ballasts)

Survey Observations

Transformers and capacitors on the property are owned by Outrigger Hotels & Resorts and are reported to be PCB free.

There were no records documenting a lighting retrograde for this hotel. Light ballasts in significant quantity exist on the property. These ballasts are assumed to contain PCB.

Recommendations

A survey of the light ballast quantity would generate budgetary costs for removal and proper disposal.

All light ballasts without the label signifying "No PCBs" are assumed to contain PCB and should be removed, packaged and transported (per Department of Transportation requirements) to a permitted facility capable of receiving, processing and disposing the ballasts.

MERCURY CONTAINING LAMPS

Survey Observations

There were no records documenting a lighting retrograde for this hotel. Fluorescent lighting was observed throughout the property. Unless recently replaced, these lamps contain mercury vapor.

Recommendations

A survey of lamp quantity can be performed in conjunction with the ballast survey and would generate budgetary costs for removal and proper disposal.

Unless known otherwise, the lamps should be removed without breaking, packaged, and transported to a facility that is permitted to process them.

SOIL AND GROUNDWATER CONTAMINATION

Survey Observations

No previous environmental reports were provided that addressed potential soil and groundwater contamination.

During the site inspection, no activities were observed to suggest possible sources of soil and groundwater contamination.

Recommendations

Unless other information is discovered, none.

OTHER HAZARDOUS MATERIALS

Survey Observations

There are small quantities of various hazardous materials used in the daily maintenance of the hotel.

Recommendations

Prior to renovation or demolition, these chemical should either be used for their intended application, transferred to another area or property to be used for their intended application, or disposed of properly.

Ohana Royal Islander

OHANA ROYAL ISLANDER

2164 Kalia Road

Planned Action: Demolition

ASBESTOS

Survey Observations

Some asbestos testing and abatement has occurred on this property.

A. In 1990, acoustic ceilings of the guest rooms and corridors were abated on floors 1 through 9.

B. In 1992, acoustic ceilings of the guest rooms and corridors were abated on floors 10 through 12.

Recommendations

Asbestos containing building materials (ACM) remain on the property. Prior to any demolition, a comprehensive survey should be completed to inventory these materials. The survey should document exact locations, type and quantity of ACM to be removed.

LEAD CONTAINING PAINT

Survey Observations

No testing of lead containing paint was confirmed during the survey. Given the age of the property, it is assumed that lead paint exists both in the interior and exterior.

Recommendations

A lead containing paint survey would measure concentrations of lead containing paint on the exterior and interior of the hotel.

If no lead is measured in the paint, no further remedial action is necessary. If lead is confirmed in the paint, the State of Hawaii Department of Health requires all lead containing paint that is peeling and flaking to be removed prior to demolition. Once completed, the building may be demolished without further paint removal. Occupational Health and Safety Administration (OSHA) standards for worker protection shall be effective for all demolition activities.

UNDERGROUND STORAGE TANKS (USTs)

Survey Observations

During the site inspection no indicators of USTs were observed. Bob Finan of Outrigger Hotels & Resorts reported that there are no USTs on the property.

Recommendations

None.

POLYCHLORINATED BIPHENYLS (PCB)
(PCB Transformers, Capacitors and Light Ballasts)

Survey Observations

Transformers and capacitors on the property are owned by Hawaiian Electric Company and remain their responsibility.

There were no records documenting a lighting retrograde for this hotel. Light ballasts in significant quantity exist on the property. These ballasts are assumed to contain PCB.

Recommendations

A survey of the light ballast quantity would generate budgetary costs for removal and proper disposal.

All light ballasts without the label signifying "No PCBs" are assumed to contain PCB and should be removed, packaged and transported (per Department of Transportation requirements) to a permitted facility capable of receiving, processing and disposing the ballasts.

Mercury Containing Lamps

Survey Observations

There were no records documenting a lighting retrograde for this hotel. Fluorescent lighting was observed throughout the property. Unless recently replaced, these lamps contain mercury vapor.

Recommendations

A survey of lamp quantity can be performed in conjunction with the ballast survey and would generate budgetary costs for removal and proper disposal.

Unless known otherwise, the lamps should be removed without breaking, packaged, and transported to a facility that is permitted to process them.

Soil and Groundwater Contamination

Survey Observations

No previous environmental reports were provided that addressed potential soil and groundwater contamination.

During the site inspection, no activities were observed to suggest possible sources of soil and groundwater contamination.

Recommendations

Unless other information is discovered, none.

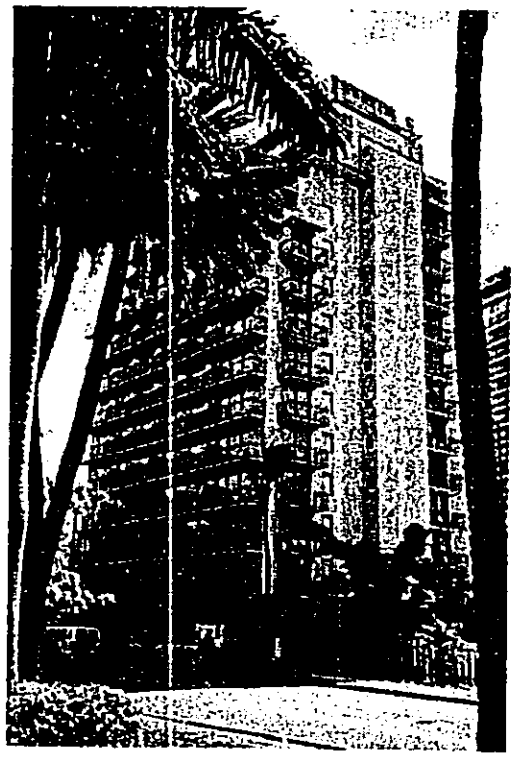
Other Hazardous Materials

Survey Observations

There are small quantities of various hazardous materials used in the daily maintenance of the hotel.

Recommendations

Prior to demolition, these chemical should either be used for their intended application, transferred to another property to be used for their intended application, or disposed of properly.



Ohana Reef Lanai

OHANA REEF LANAI

225 Saratoga Road

Planned Action: Demolition

ASBESTOS

Survey Observations

Some asbestos testing and abatement has occurred on this property.

A. Acoustic ceiling material from the lobby, guest rooms and corridors was abated in 1990.

Recommendations

Asbestos containing building materials (ACM) remain on the property. Prior to any demolition, a comprehensive survey should be completed to inventory these materials. The survey should document exact locations, type and quantity of ACM to be removed.

LEAD CONTAINING PAINT

Survey Observations

No testing of lead containing paint was confirmed during the survey. Given the age of the property, it is assumed that lead paint exists both in the interior and exterior.

Recommendations

A lead containing paint survey would measure concentrations of lead containing paint on the exterior and interior of the hotel.

If no lead is measured in the paint, no further remedial action is necessary. If lead is confirmed in the paint, the State of Hawaii Department of Health requires all lead containing paint that is peeling and flaking to be removed prior to demolition. Once completed, the building may be demolished without further paint removal. Occupational Health and Safety Administration (OSHA) standards for worker protection shall be effective for all demolition activities.

Underground Storage Tanks (USTs)

Survey Observations

During the site inspection no indicators of USTs were observed. Bob Finan of Outrigger Hotels & Resorts reported that there are no USTs on the property.

Recommendations

None.

Polychlorinated Biphenyls (PCB)
(PCB Transformers, Capacitors and Light Ballasts)

Survey Observations

Transformers and capacitors on the property are owned by Hawaiian Electric Company and remain their responsibility.

There were no records documenting a lighting retrograde for this hotel. Light ballasts in significant quantity exist on the property. These ballasts are assumed to contain PCB.

Recommendations

A survey of the light ballast quantity would generate budgetary costs for removal and proper disposal.

All light ballasts without the label signifying "No PCBs" are assumed to contain PCB and should be removed, packaged and transported (per Department of Transportation requirements) to a permitted facility capable of receiving, processing and disposing the ballasts.

Mercury Containing Lamps

Survey Observations

There were no records documenting a lighting retrograde for this hotel. Fluorescent lighting was observed throughout the property. Unless recently replaced, these lamps contain mercury vapor.

Recommendations

A survey of lamp quantity can be performed in conjunction with the ballast survey and would generate budgetary costs for removal and proper disposal.

Unless known otherwise, the lamps should be removed without breaking, packaged, and transported to a facility that is permitted to process them.

Soil and Groundwater Contamination

Survey Observations

No previous environmental reports were provided that addressed potential soil and groundwater contamination.

During the site inspection, no activities were observed to suggest possible sources of soil and groundwater contamination.

Recommendations

Unless other information is discovered, none.

Other Hazardous Materials

Survey Observations

There are small quantities of various hazardous materials used in the daily maintenance of the hotel.

Recommendations

Prior to demolition, these chemical should either be used for their intended application, transferred to another property to be used for their intended application, or disposed of properly.

Malihini Hotel

MALIHINI HOTEL

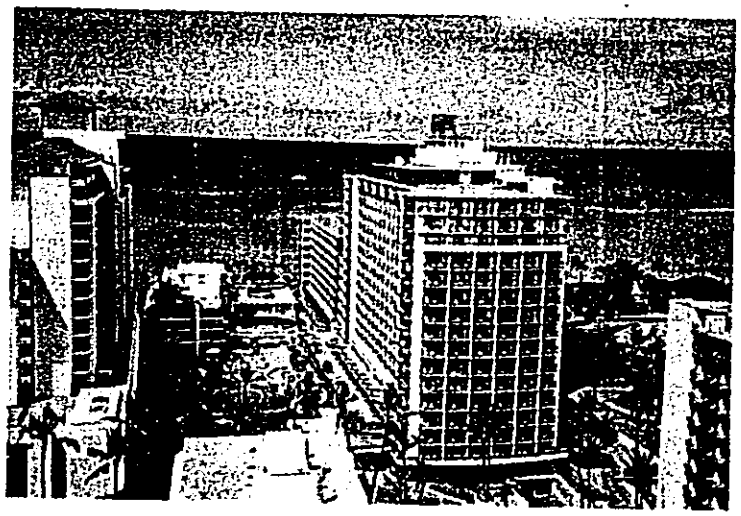
Action Taken: Demolished

Survey Observation

The Malihini Hotel has been demolished. There is a two-story structure on Beach Walk Street directly behind the former hotel that remains. This property is not in use and access was not available.

Recommendations

None for the former Malihini Hotel except for soil and groundwater considerations. Issues for asbestos, lead containing paint, PCBs, light fixtures and miscellaneous hazardous chemicals apply to the two-story structure.



Outrigger Reef on the Beach

OUTRIGGER REEF ON THE BEACH

2169 Kalia Road

Planned Action: Upgrade/Renovate

ASBESTOS

Survey Observations

Some asbestos testing and abatement has occurred on this property.

A. Floor tile (3,000 square feet in 1993) in the makai elevation of the Shorebird restaurant were abated.

B. Thermal pipe insulation, 8 linear feet per guest room was removed from Guest Rooms 346, 446, 546, 646, and 746.

C. In 1994, 3,800 square feet of vinyl tile was removed from the Shorebird.

D. Bathroom linoleum, 40 square feet, was removed from Guest Rooms 354 and 1739.

E. Linoleum tested positive for Guest Room 353, Pacific Tower.

F. Approximately 100 square feet of flooring per bath was removed from Guest Rooms 1738, 1739, 1764, 1766, 1767, 1543, 1544, 1554, 1555, 1765, 1132, 1133, 1148, 1149, 1032, 1033, 1054, 1055, 1036, 1037, 938, 939, 758, 759, 766, 767, 636, 637, 652, and 653.

G. Approximately 36 square feet of flooring per bath was Removed from the Guest Rooms 658, 659, 640, 641, 565, 564, 355, 356, 357, 354, 353, 352, 349, 348, 343, 344, 248, 249, 236, 237, 254, 257, 258, and 259.

H. Pipe insulation and tape was abated on the 18th floor.

I. There was pipe insulation removed on the 10th floor.

J. Water pipe insulation on the second floor, Diamond Head tested at 15% amosite.

Recommendations

Asbestos containing building materials (ACM) remain on the property. Prior to any renovation or demolition, a comprehensive survey should be completed to inventory these materials. The survey should document exact locations, type and quantity of ACM to be removed.

LEAD CONTAINING PAINT

Survey Observations

No testing of lead containing paint was confirmed during the survey. Given the age of the property, it is assumed that lead paint exists both in the interior and exterior.

Recommendations

A lead containing paint survey would measure concentrations of lead containing paint on the exterior and interior of the hotel.

If no lead is measured in the paint, no further remedial action is necessary. If lead is confirmed in the paint, the State of Hawaii Department of Health requires all lead containing paint that is peeling and flaking to be removed prior to renovation or demolition. Once completed, the area may be demolished without further paint removal. Occupational Health and Safety Administration (OSHA) standards for worker protection shall be effective for all demolition activities.

Underground Storage Tanks (USTs)

Survey Observations

During the site inspection no indicators of USTs were observed. Bob Finan of Outrigger Hotels & Resorts reported that there are no USTs on the property.

Recommendations

None.

Polychlorinated Biphenyls (PCB)
(PCB Transformers, Capacitors and Light Ballasts)

Survey Observations

Information regarding ownership of transformers and capacitors on the property was not provided.

There were no records documenting a lighting retrograde for this hotel. Light ballasts in significant quantity exist on the property. These ballasts are assumed to contain PCB.

Recommendations

Further evaluation should determine ownership responsibility and PCB status of the transformers and capacitors.

A survey of the light ballast quantity would generate budgetary costs for removal and proper disposal.

All light ballasts without the label signifying "No PCBs" are assumed to contain PCB and should be removed, packaged and transported (per Department of Transportation requirements) to a permitted facility capable of receiving, processing and disposing the ballasts.

Mercury Containing Lamps

Survey Observations

There were no records documenting a lighting retrograde for this hotel. Fluorescent lighting was observed throughout the property. Unless recently replaced, these lamps contain mercury vapor.

Recommendations

A survey of lamp quantity can be performed in conjunction with the ballast survey and would generate budgetary costs for removal and proper disposal.

Unless known otherwise, the lamps should be removed without breaking, packaged, and transported to a facility that is permitted to process them.

Soil and Groundwater Contamination

Survey Observations

No previous environmental reports were provided that addressed potential soil and groundwater contamination.

During the site inspection, no activities were observed to suggest possible sources of soil and groundwater contamination.

Recommendations

Unless other information is discovered, none.

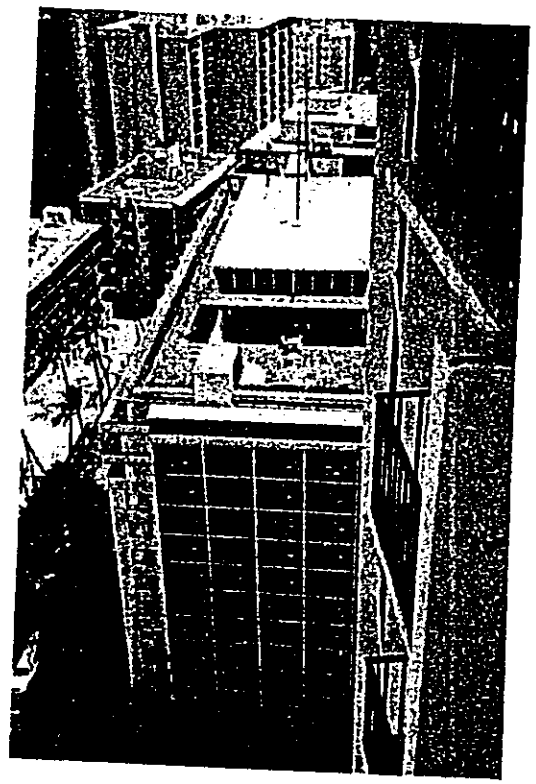
Other Hazardous Materials

Survey Observations

There are small quantities of various hazardous materials used in the daily maintenance of the hotel.

Recommendations

Prior to demolition, these chemical should either be used for their intended application, transferred to another property to be used for their intended application, or disposed of properly.



Ohana Reef Towers

Planned Action: Upgrade/Renovate

ASBESTOS

Survey Observations

Major asbestos testing and abatement has occurred on this property.

A. Acoustic ceilings in the Plantation Wing Guest Rooms 229 and 230 tested positive.

B. Acoustic ceilings in the Plantation Wing Guest Rooms 526 through 542, 726 through 742, 926 through 942, 1432, 1436, 1437. 1439 and 14141 tested positive.

C. Acoustic ceilings in the Guest Rooms 1426, 1427, 1428, 1430, 1434, and 1438 all tested negative.

D. Acoustic ceilings in Plantation Wing corridors on Floors 5, 7, 9, and 14 tested positive.

E. Acoustic ceilings in the corridors of floors 11 and 12 tested negative.

F. Acoustic ceilings in Guest Rooms 1122, 1203, 1206, 1207, 1215, 1218, 1023, 1100, 1101, 1119, 1121, 1001, 1018, 1021, and 1022, tested negative.

G. Bottom layer of bathroom vinyl tile tested positive In Guest Rooms 101, 224, 508, and 608.

H. Vinyl tile tested positive in the 10th floor hallway.

I. Vinyl tile tested negative in Guest Rooms 116, 119, 205, 206, 312, 215, 319, 420, 421, 424 509, 512, 607, 608, 621, 624, 715, 716, 718, 1014, 1106, 1112, 1120, 1202, and 1203.

J. Flooring in Guest Rooms 1200 through 1224, 1100 through 1123, 1001 through 1019, 1021, 1022, 1025, and the 10th floor service elevator tested negative.

K. Bathroom tile floors in Guest rooms 900 through 908, 910, 912, 914 through 925, 1225, 1102, 1103, 1105, 1117, 1122, 1124, and 1125 all tested negative.

M. The following vinyl flooring tested positive:. bathrooms in Guest Rooms 120, 118, 909, 911, 1000, 1020, 1023, 1024, 805, 811, 818, 900, 901, 902, 504, 506, 510, 519, 518, 524, 523, 525, 615, 604, 603, and 1000.

N. The following vinyl flooring tested positive: Kitchenettes in Guest Rooms 917, 1111, 1114, 1110, 517, 503, 618, and 600.

O. Acoustical ceilings were abated in 1995 in the guest rooms and corridors on floors 1 through 9 and in the corridors on floors 10 through 12.

P. Negative vinyl flooring was found in rooms on the 3rd and 4th floor. Except for rooms 118 and 120, all rooms on the 1st and 2nd floors. Kitchenettes in rooms 910, 914, 919, 920, 923, 1210, 16, 1100, 1115, 409, 410, 416, and 417.

Q. The acoustical ceiling in the Tower Chapel tested negative.

Recommendations

Asbestos containing building materials (ACM) remain on the property. Prior to any renovation or demolition, a comprehensive survey should be completed to inventory these materials. The survey should document exact locations, type and quantity of ACM to be removed.

LEAD CONTAINING PAINT

Survey Observations

No testing of lead containing paint was confirmed during the survey. Given the age of the property, it is assumed that lead paint exists both in the interior and exterior.

Recommendations

A lead containing paint survey would measure concentrations of lead containing paint on the exterior and interior of the hotel.

If no lead is measured in the paint, no further remedial action is necessary. If lead is confirmed in the paint, the State of Hawaii Department of Health requires all lead containing paint that is peeling and flaking to be removed prior to renovation or demolition. Once completed, the area may be demolished without further paint removal. Occupational Health and Safety Administration (OSHA) standards for worker protection shall be effective for all demolition activities.

UNDERGROUND STORAGE TANKS (USTs)

Survey Observations

During the site inspection no indicators of USTs were observed. Bob Finan of Outrigger Hotels & Resorts reported that there are no USTs on the property.

Recommendations

None.

POLYCHLORINATED BIPHENYLS (PCB)
(PCB Transformers, Capacitors and Light Ballasts)

Survey Observations

Transformers and capacitors on the property are owned by Outrigger Hotels and Resorts and are reported to be PCB free.

There were no records documenting a lighting retrograde for this hotel. Light ballasts in significant quantity exist on the property. These ballasts are assumed to contain PCB.

Recommendations

A survey of the light ballast quantity would generate budgetary costs for removal and proper disposal.

All light ballasts without the label signifying "No PCBs" are assumed to contain PCB and should be removed, packaged and transported (per

Department of Transportation requirements) to a permitted facility capable of receiving, processing and disposing the ballasts.

Mercury Containing Lamps

Survey Observations

There were no records documenting a lighting retrograde for this hotel. Fluorescent lighting was observed throughout the property. Unless recently replaced, these lamps contain mercury vapor.

Recommendations

A survey of lamp quantity can be performed in conjunction with the ballast survey and would generate budgetary costs for removal and proper disposal.

Unless known otherwise, the lamps should be removed without breaking, packaged, and transported to a facility that is permitted to process them.

Soil and Groundwater Contamination

Survey Observations

No previous environmental reports were provided that addressed potential soil and groundwater contamination.

During the site inspection, no activities were observed to suggest possible sources of soil and groundwater contamination.

Recommendations

Unless other information is discovered, none.

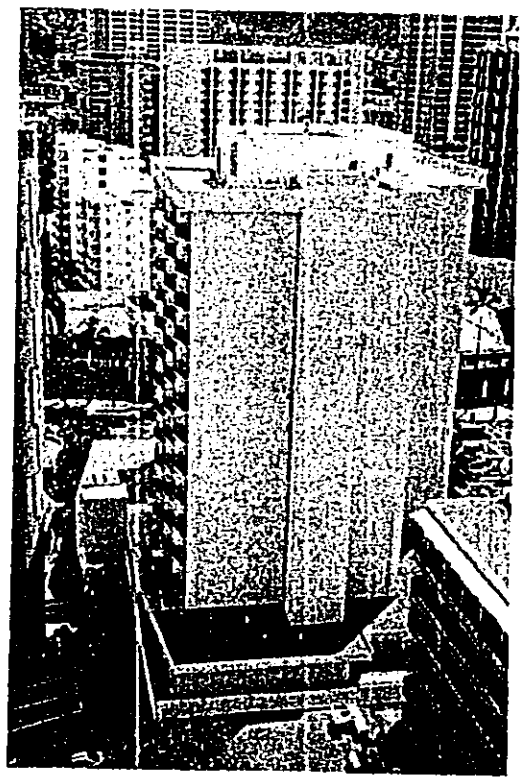
Other Hazardous Materials

Survey Observations

There are small quantities of various hazardous materials used in the daily maintenance of the hotel.

Recommendations

Prior to renovation or demolition, these chemical should either be used for their intended application, transferred to another property to be used for their intended application, or disposed of properly.



Outrigger Islander Waikiki

Outrigger Islander Waikiki

270 Lewers Street

Planned Action: Upgrade/Renovation

Asbestos

Survey Observations

Major asbestos testing and abatement has occurred on this property. The hotel was renovated in 1997.

A. Almost all of the ACM was abated during the last renovation.

B. Insulation for circulating tower pump/chill water line pump tested positive.

Recommendations

Asbestos containing building materials (ACM) remain on the property. Prior to any renovation or demolition, a comprehensive survey should be completed to inventory these materials. The survey should document exact locations, type and quantity of ACM to be removed.

Lead Containing Paint

Survey Observations

No testing of lead containing paint was confirmed during the survey. Given the age of the property, it is assumed that lead paint exists both in the interior and exterior.

Recommendations

A lead containing paint survey would measure concentrations of lead containing paint on the exterior and interior of the hotel.

If no lead is measured in the paint, no further remedial action is necessary. If lead is confirmed in the paint, the State of Hawaii Department of Health requires all lead containing paint that is peeling and flaking to be removed prior to renovation or demolition. Once completed, the area may be demolished without further paint removal. Occupational Health and Safety Administration (OSHA) standards for worker protection shall be effective for all demolition activities.

UNDERGROUND STORAGE TANKS (USTs)

Survey Observations

During the site inspection no indicators of USTs were observed. Bob Finan of Outrigger Hotels & Resorts reported that there are no USTs on the property.

Recommendations

None.

POLYCHLORINATED BIPHENYLS (PCB)
(PCB Transformers, Capacitors and Light Ballasts)

Survey Observations

Transformers and capacitors on the property are owned by Outrigger Hotels and Resorts and are reported to be PCB free.

Lighting was replaced during the 1997 renovation.

Recommendations

A survey of the light fixtures that were not replaced in 1997 is recommended.

MERCURY CONTAINING LAMPS

Survey Observations

Lighting was replaced during the 1997 renovation.

Recommendations

A survey of light fixtures that were not replaced in 1997 is recommended.

SOIL AND GROUNDWATER CONTAMINATION

Survey Observations

No previous environmental reports were provided that addressed potential soil and groundwater contamination.

During the site inspection, no activities were observed to suggest possible sources of soil and groundwater contamination.

Recommendations

Unless other information is discovered, none.

OTHER HAZARDOUS MATERIALS

Survey Observations

There are small quantities of various hazardous materials used in the daily maintenance of the hotel.

Recommendations

Prior to renovation, these chemical should either be used for their intended application, transferred to another area of the property to be used for their intended application, or disposed of properly.

APPENDIX J

Infrastructure Assessment- Waikīkī Beach Walk Outrigger Redevelopment

Wilson Okamoto & Associates

August 2001

Infrastructure Assessment

Waikīkī Beach Walk
Outrigger Redevelopment
Honolulu, Hawai'i

Prepared For:

Group 70 International, Inc.
925 Bethel Street. 5th Floor
Honolulu, Hawaii 96813

Prepared By:

Wilson Okamoto & Associates, Inc.
Engineers and Planners
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

September 2001

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1. INTRODUCTION

Outrigger Enterprises Inc. is proposing the Waikīkī Beach Walk project to revitalize its properties in the Lewers Street / Saratoga Road area at the *Ewa* end of Waikīkī (see Figures 1 to 2). Proceeding in two phases, the project will upgrade five existing hotels and demolish six older hotels for redevelopment with a new entertainment / retail complex, a new 891-room hotel and enhanced public areas. The project will result in net increases of approximately 235 hotel rooms, 50,000 square feet of retail space, 25,000 square feet of back-to-house and administrative space and 12,000 square feet of public amenity space. This infrastructure assessment report presents the findings and recommendations associated with an engineering assessment of the existing roadway, water, wastewater, storm drainage, electrical, telephone, gas and other utility systems required to support the proposed project.

To assess the infrastructure in the project area, existing data and record drawings were collected from the respective government agencies and utility companies, and reviewed in conjunction with the planned development. The review provided information on the availability of water supply, sanitary sewer, storm drainage, electrical power, telephone, and gas systems in the area. The adequacy of these existing systems was assessed based on the proposed redevelopment program. Potential existing constraints are identified, discussed and potential mitigation measures suggested for consideration as a basis for further consultation with appropriate agencies during engineering design of the proposed project.

2. PROJECT DESCRIPTION

2.1 Project Area

The redevelopment project area includes Outrigger properties *makai* of Kalākaua Avenue and along Lewers Street, Kālia Road, Beach Walk, Saratoga Road and Helumoa Road as shown in Figures 1 to 2. The segment of Helumoa Road between Lewers Street and Beach Walk will be acquired from the City and permanently closed. Off-site parking will be provided in a new parking structure to be developed at the existing surface parking lot on the corner of Kālia Road and Saratoga Road in Fort DeRussy.

The project area includes 22 parcels totaling approximately 7.9 acres of land. These parcels are identified in the following table:

TABLE 1: TAX MAP KEYS

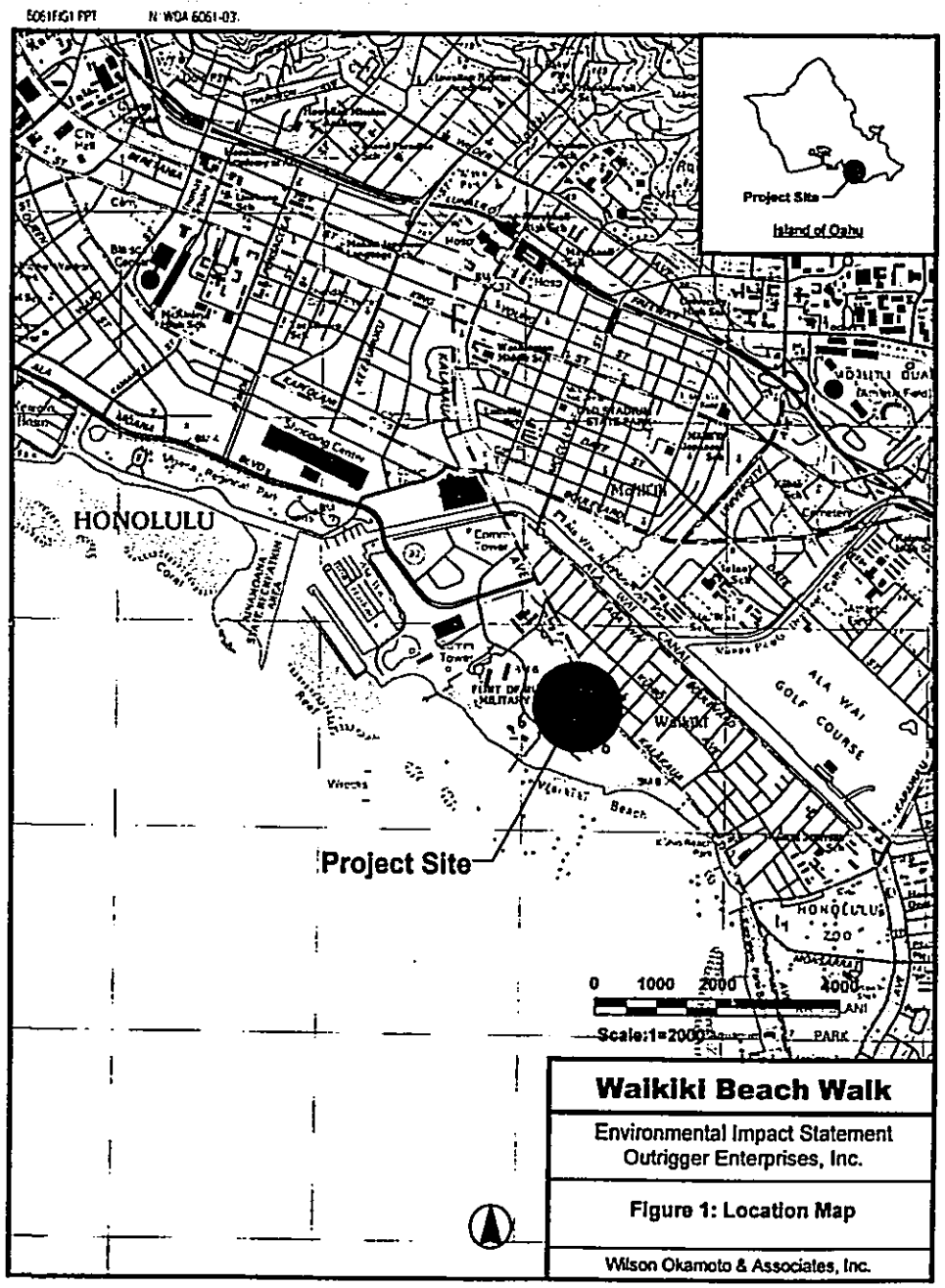
Zone-Section-Plat	Parcels
2-6-002	015, 016
2-6-003	001, 002, 003, 004, 006, 007, 008, 009, 010, 011, 012, 021, 032, 034, 035, 039, 052, 056 (portion), 057
2-6-004	010

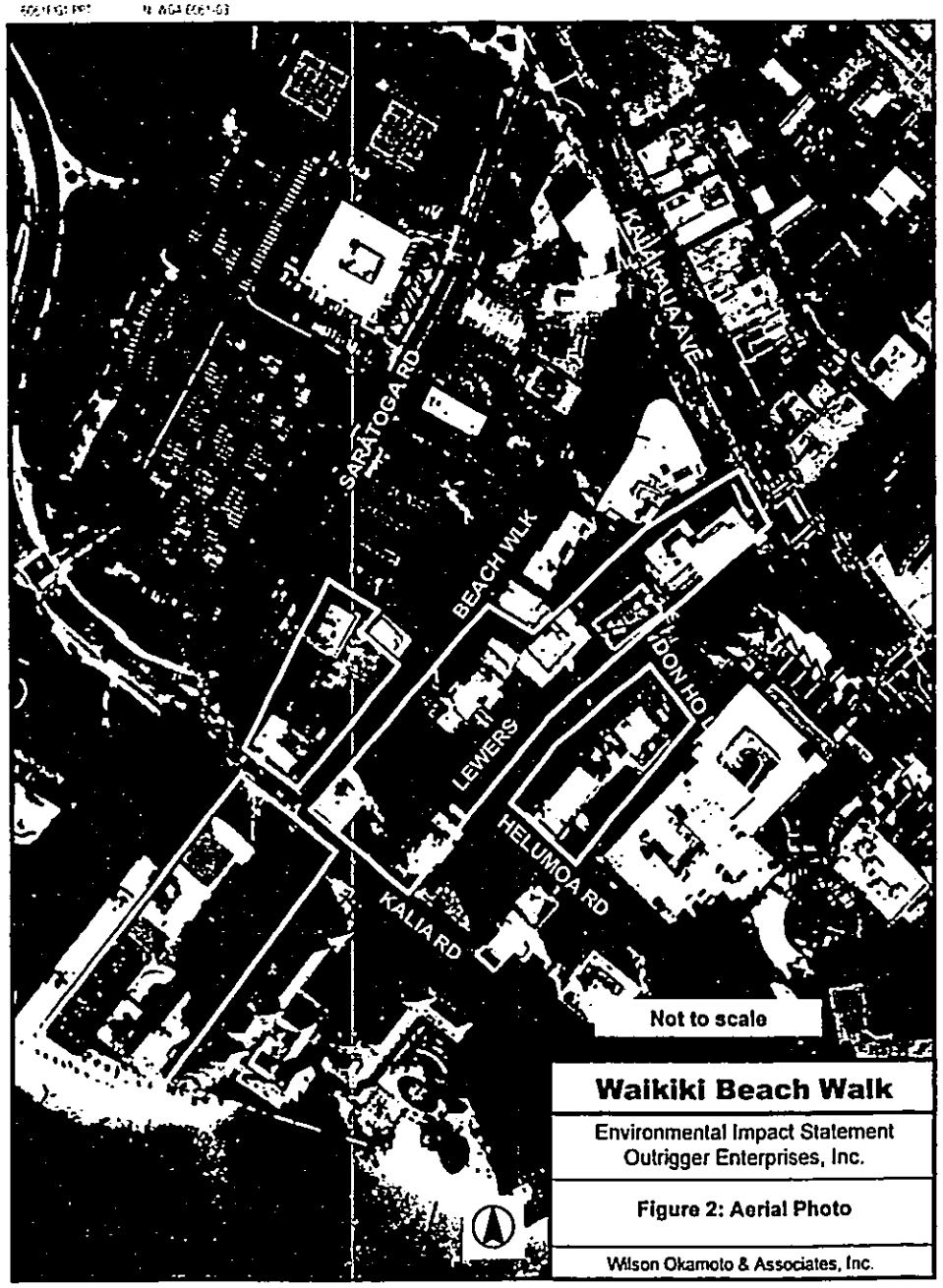
Outrigger's holdings include the Outrigger Reef on the Beach hotel, Ohana Reef Lanais, Malihini Hotel, Ohana Royal Islander, Ohana Waikiki Edgewater, Ohana Waikiki Tower, Ohana Waikiki Village, Ohana Coral Seas, Edgewater Lanais, Outrigger Islander Waikiki, and the Ohana Reef Towers. The existing uses within the project area are shown in Figure 3.

2.2 Proposed Project

The site plan for the proposed project is shown in Figure 4. Implementation of the proposed project will proceed in two phases. Phase I will include the following improvements:

- Demolition of the existing Edgewater Lanais, Ohana Coral Seas, Ohana Waikiki Edgewater hotels and the Carl's Jr. Restaurant;
- Redevelopment and renovation of the existing Ohana Waikiki Village and Ohana Waikiki Tower hotels, including a new four-level podium spanning the closed section of Helumoa Road and linking the two hotels with a grand lobby, banquet



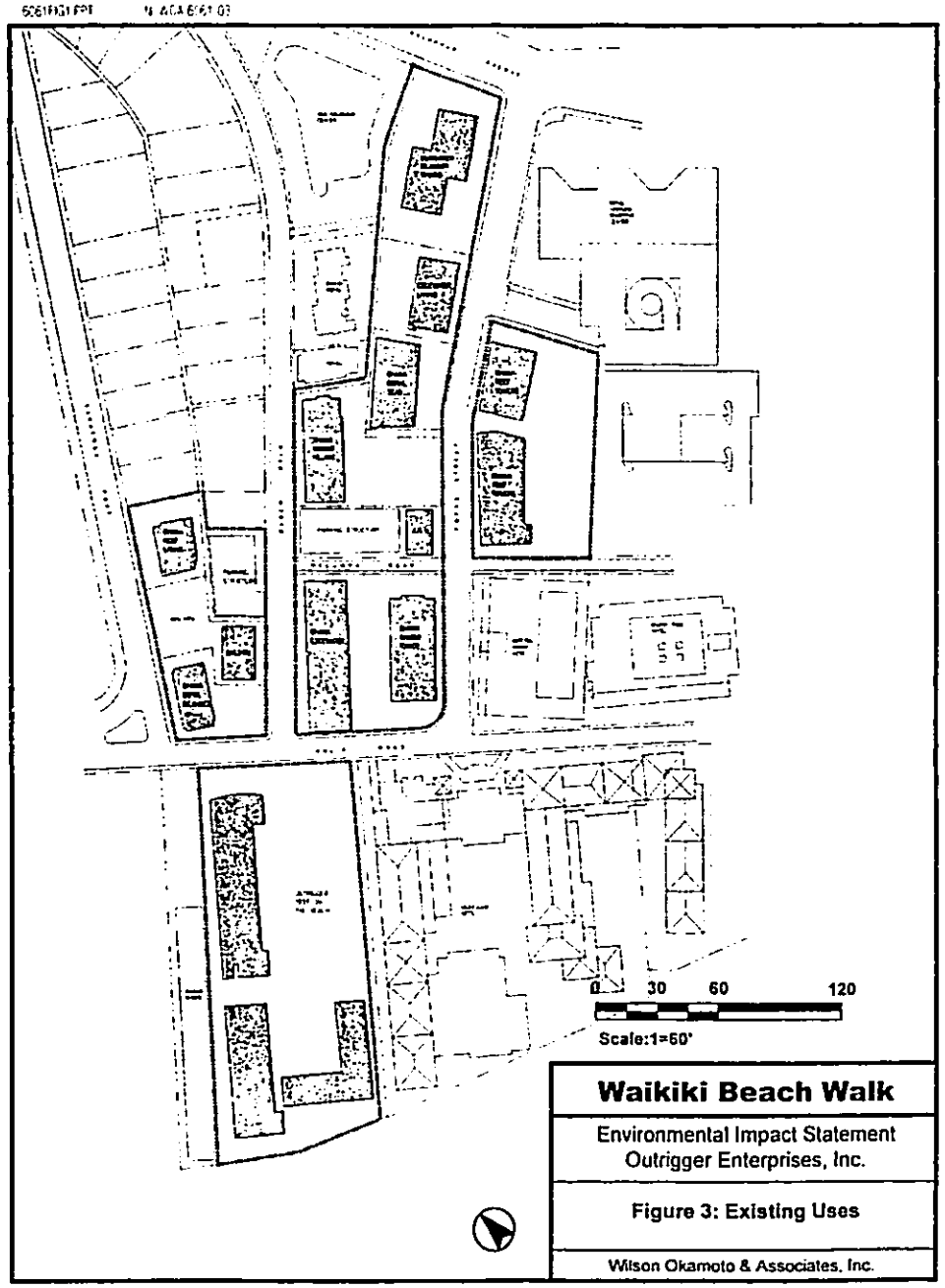


Waikiki Beach Walk

Environmental Impact Statement
Outrigger Enterprises, Inc.

Figure 2: Aerial Photo

Wilson Okamoto & Associates, Inc.

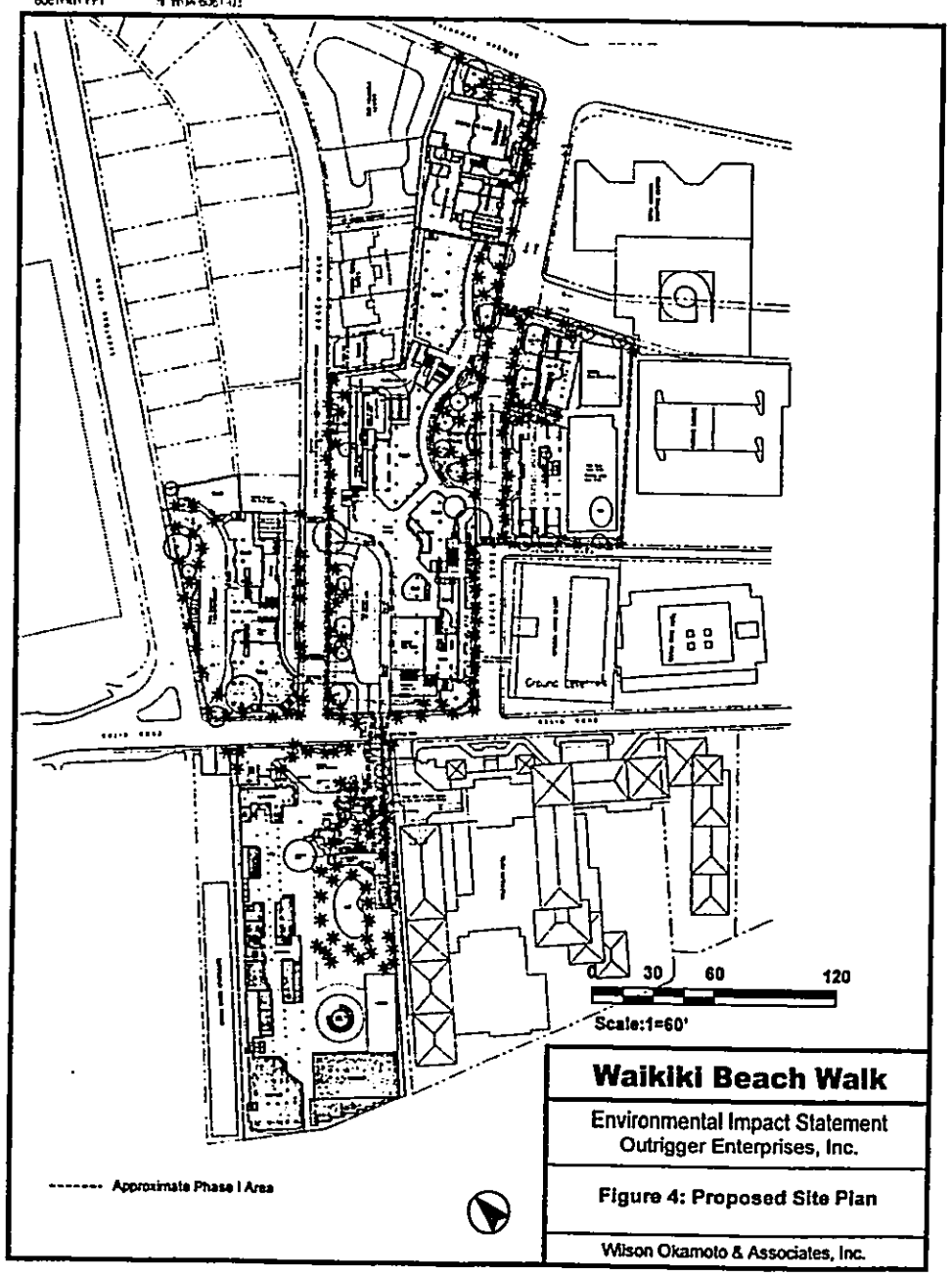


Waikiki Beach Walk

Environmental Impact Statement
Outrigger Enterprises, Inc.

Figure 3: Existing Uses

Wilson Okamoto & Associates, Inc.



hall, meeting rooms and rooftop pool deck, as well as a pedestrian bridge over Kālia Road to the existing Outrigger Reef on the Beach hotel;

- Development of a new two-level entertainment/retail promenade along Lewers Street, including extensive streetscape improvements and creation of a new Lewers Street public plaza; and,

- In addition to on-site parking, off-site parking will be provided at the corner of Saratoga Road and Kālia Road in Fort DeRussy.

Phase II will include the following:

- Demolition of the Ohana Royal Islander, Ohana Reef Lanais and Malihini hotels;

- Construction of a new, approximately 890-room hotel tower with pedestrian bridges over Beach Walk to the Phase I development; and

- Renovation of the Outrigger Reef on the Beach, Outrigger Islander Waikiki, Ohana Reef Towers and public areas.

The proposed disposition of the existing buildings in the project area is summarized in Table 2 and the change in the existing and proposed hotel room count is summarized in Table 3.

TABLE 2: DISPOSITION OF EXISTING BUILDINGS

Existing Use	Phase 1	Phase 2
Outrigger Islander Waikiki	Retain	Upgrade
Ohana Reef Towers	Retain	Upgrade
Outrigger Reef on the Beach	Redevelop (portion)	Upgrade
Malihini Hotel	Retain	Demolish
Ohana Reef Lanai	Retain	Demolish
Ohana Royal Islander	Retain	Demolish
Ohana Waikiki Village	Redevelop (portion)	–
Ohana Waikiki Tower	Redevelop (portion)	–
Edgewater Lanais	Demolish	–
Ohana Coral Seas	Demolish	–
Carl's Jr. Restaurant	Demolish	–
Ohana Edgewater	Demolish	–
Outrigger Saratoga Hotel (New)	–	Construct

TABLE 3: EXISTING AND PROPOSED HOTEL ROOM COUNT

Hotel	Existing Rooms	Phase 1 Demolish	Phase 1 Retain	Phase 2 Demolish	Phase 2 Retain	Phase 2 New*	Proposed Rooms
Ohana Reef Tower	480	0	480	0	480		480
Outrigger Islander Waikiki	287	0	287	0	287		287
Outrigger Reef on the Beach	885	0	885	0	885		885
Phase I							
Edgewater Lanais	55	55	0		0		0
Ohana Coral Seas	109	109	0		0		0
Ohana Waikiki Village	442	33	409	0	409		409
Outrigger Edgewater	184	184	0		0		0
Ohana Waikiki Tower	439	55	384	0	384		384
Phase I Subtotal	1,229	381	793		793		793
Phase 2							
Ohana Reef Lanai	110	0	110	110	0		0
Malihini Hotel	10	0	10	10	0		0
Ohana Royal Islander	101	0	101	101	0		0
New Outrigger Saratoga Hotel						891	891
Phase 2 Subtotal	221	0	221	221	0	891	891
*Note: Room count for new Saratoga Hotel is preliminary							
Totals	3,102	436	2,666	221	2,445	891	3,336
						Total Increase in Hotel Rooms	234

3. ROADWAY SYSTEM

3.1 Existing System

The existing roadways in the vicinity of the project area are owned by the City and County of Honolulu and maintained by its Department of Facilities Maintenance. Traffic flow directions on these roadways are shown in Figure 5. A separate Traffic Impact Assessment, being conducted by Kaku Associates, addresses the operational considerations of the roadway system in the vicinity of the proposed project.

3.1.1 Kalākaua Avenue

Kalākaua Avenue is the primary route for traffic moving in the *Diamond Head* direction within Waikīkī. It is a one-way road with four lanes.

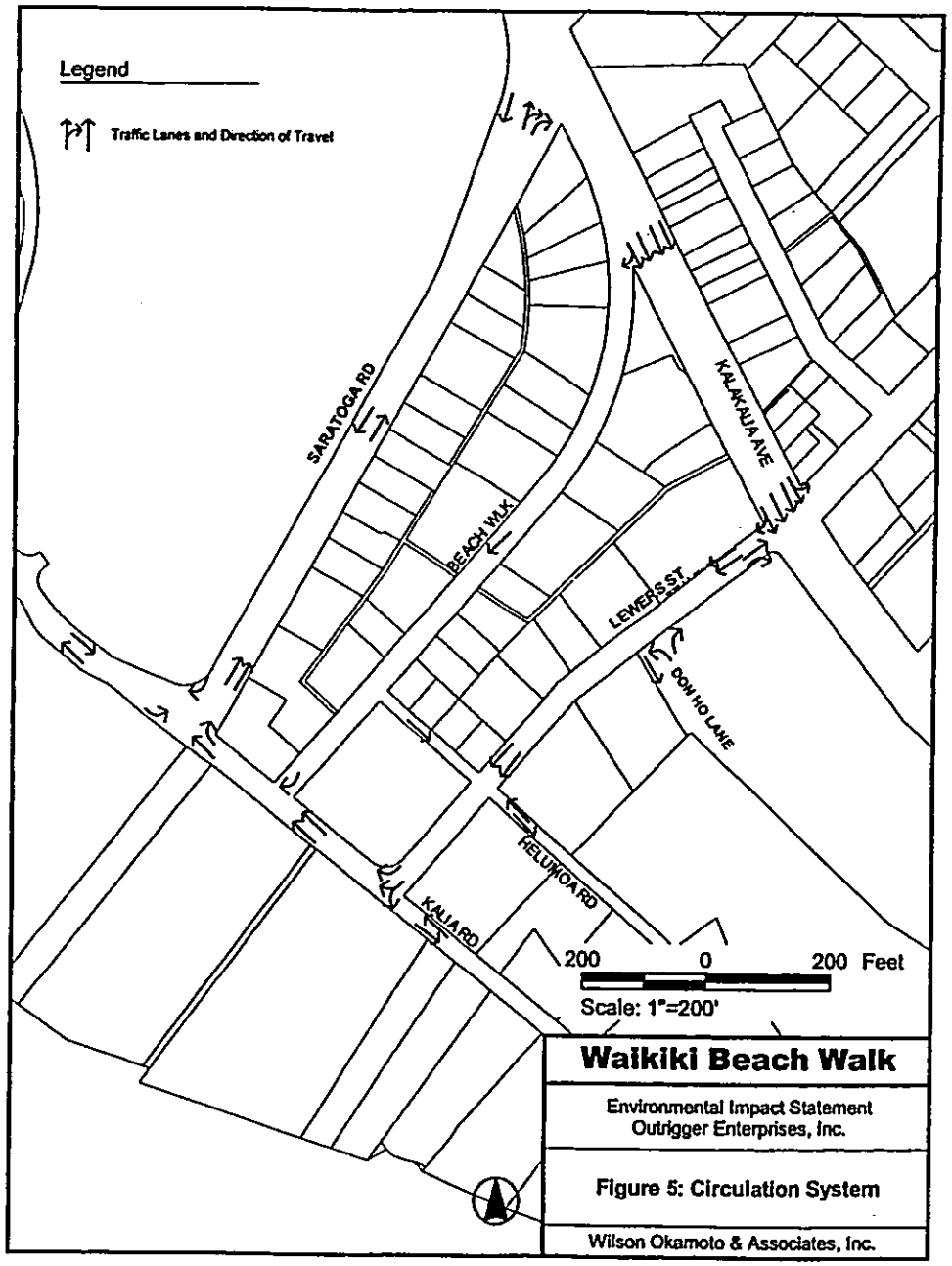
3.1.2 Lewers Street

Lewers Street is a local street providing access to hotels and businesses in the project area. *Mauka* of the project area, Lewers Street is a two-lane two-way road between Kalākaua Avenue and the privately-owned Don Ho Lane, which is a two-way driveway for the Waikiki Sheraton and Royal Hawaiian Parking Garages. In this section, the *mauka*-bound lane of Lewers Street only serves traffic exiting from the parking garages at Don Ho Lane.

Makai of Don Ho Lane, through the project area to Kālia Road, Lewers Street provides two-lane, one-way traffic flow in the *makai* direction. This section of Lewers Street has a right-of-say (ROW) of 40 feet, a curb-to-curb pavement width of 24 feet and a sidewalk width of approximately 8 feet on either side. Between Don Ho Lane and Helumoa Road, there are driveways located on the *Ewa* side for Outrigger Islander Waikiki and Ohana Coral Seas and on the *Diamond Head* side for Outrigger Reef Towers.

At the Helumoa Road intersection, *makai*-bound traffic on Lewers Street may left-turn into the one-way *Diamond Head*-bound Helumoa Road, which leads to the back of the Sheraton Parking Garage and entrance to Waikiki Parc Hotel. The limited turning radii at the intersection restricts the movement of tour buses entering or exiting Helumoa Road. Therefore, tour buses generally load and unload passengers nearby, occasionally resulting in congestion at the intersection.

Lewers Street terminates at Kālia Road.



3.1.3 Kālia Road

Kālia Road is a local street with a 44-foot ROW width and 24-foot curb-to-curb pavement width. From the Lewers Street intersection to Saratoga Avenue, Kālia Road is a two-lane, one-way road with traffic flowing in the *Ewa* direction. This segment primarily serves traffic exiting the project area from *makai*-bound Beach Walk and Lewers Street, as well as vehicles exiting from the Halekulani Hotel, the Waikiki Parc Hotel, and the Sheraton Waikiki bus terminal and loading docks. At the Saratoga Road intersection, traffic on Kālia Road may proceed through Fort DeRussy to Ala Moana Boulevard or turn right onto Saratoga Road toward Kalākaua Avenue.

Diamond Head of Lewers Street, Kālia Road is a two-lane, two-way road that loops around the Waikiki Parc Hotel and connects to Helumoa Road.

3.1.4 Saratoga Road

With a 60 –foot ROW and 44-foot curb-to-curb pavement, Saratoga Road is considered a secondary street, diverting traffic from Ala Moana Boulevard and other traffic generators into Waikīkī and the local streets in the project area. Extending along the *Ewa* boundary of the project area, Saratoga Road is a two-lane, two-way road between Kalākaua Avenue and Kālia Road with on-street parking permitted along the *mauka*-bound lane. Terminating at Kalākaua Avenue, Saratoga Road widens to provide two *mauka*-bound lanes for right-turns onto Kalākaua Avenue, with the left lane also proceeding across Kalākaua Avenue into Kalanimoku Street. Terminating at Kālia Road, only right turns from the *makai*-bound lane of Saratoga Road onto Kālia Road.

3.1.5 Beach Walk

Beach Walk is a local street with a 44-foot ROW width and 24-foot curb-to-curb pavement width. Extending between Kalākaua Avenue and Kālia Road, Beach Walk is a one-lane, one-way road with on-street parking permitted on the *Diamond Head* side. At the Helumoa Road intersection, left turns into the one-way section of Helumoa Road provides alternate access to Lewers Street and *Diamond Head*-bound Kālia Road. Terminating at Kālia Road, only right turns from Beach Walk onto Kālia Road are permitted.

3.1.6 Helumoa Road

Helumoa Road is a substandard local street with a ROW width of only 20 feet. Between Beach Walk and Lewers Street, Helumoa Road operates as a one-way *Diamond Head* – bound lane. From Lewers Street to the Sheraton Waikiki, Helumoa Road is a narrow two-lane, two-way road. The *port cochere* and loading dock for the Waikiki Parc Hotel are located along this segment, as well as the exit from Sheraton Waikiki bus terminal. A one-way *mauka* bound driveway, located within the Sheraton Waikiki property,

connects the *Diamond Head* ends of Kālia and Helumoa Roads. This connection is primarily used by vehicles exiting the Sheraton loading dock located at the *Diamond Head* end of Kālia Road.

3.1.7 ADA Curb Ramps

The City and County of Honolulu *Americans with Disabilities Act (ADA) Final Transition Plan Related to Curb Ramps (January 7, 1999)* evaluated the existing curb ramps within the City's jurisdiction. The curb ramps in the general vicinity are scheduled for modifications by fiscal year 2002.

3.2 Assessment

The proposed project includes various improvements to portions of streets adjoining the project area to complement the proposed developments. These improvements include the following:

- **Lewers Street**
  In Phase I of the proposed project, sidewalk improvements on the *Ewa* side of Lewers Street will create a public plaza extending seamlessly from the sidewalk to proposed retail establishments. The plaza area will be paved and landscaped to the edge of Lewers Street. Since there will be no raised curbs, delineation on the pavement may be needed to maintain safe separation of vehicular and pedestrian traffic, especially for movements involving tour buses operations and truck deliveries that may cross pedestrian areas.

- **Kālia Road**
  In Phase II of the project, the sidewalk on the *makai* side will be enhanced to visually connect in the new hotel with the existing properties.

- **Saratoga Road**
  The *porte cochere* for the new Outrigger Saratoga Hotel (redevelopment of the existing Ohana Royal Islander, Ohana Reef Lanais, and Malihini) will be located on the *Diamond Head* side of Saratoga Road.

- **Beach Walk**
  The *porte cochere* for the redevelopment of the Outrigger properties between Beach Walk and Lewers Street will be on the *Diamond Head* side of Beach Walk.

- **Helumoa Road**
  The segment of Helumoa Road between Lewers Street and Beach Walk will be acquired from the City and permanently closed.

During construction of the aforementioned street improvements, the following impacts on roadways adjacent to the project site may occur:

- Since most of the hotels in the project area do not have *port cocheres* or other off-street areas to accommodate loading and unloading of passengers from tour buses, taxis, shuttles, or private vehicles, on-street areas reserved for loading/unloading of passengers are heavily utilized. During construction, use of these loading/unloading areas may be temporarily restricted. This may inconvenience some hotel guests and tour/delivery operations. In addition, there may be more traffic congestion associated with the heavier use of alternate loading/unloading areas.

- Portions of sidewalks may be temporarily closed to pedestrian traffic for safety.

- Shuttle buses may need to be re-routed to avoid construction areas.

- Traffic associated with construction will increase, including the movement of construction vehicles through the project area.

In the long-term, adjustments of road and curb grades, reconstruction of sidewalks to enhance pedestrian traffic circulation and relocation of existing appurtenances within the street ROW are anticipated to restore or improve traffic and pedestrian circulation patterns. These improvements will need to meet current applicable City and County Standards and requirements

Operational conditions of the existing roadway system are addressed in a separate Traffic Impact Assessment Report.

3.2.1 ADA Curb Ramps

The City and County of Honolulu completed the *ADA Final Transition Plan Related to Curb Ramps* in January of 1999. The Transition Plan is a schedule for the planned installation of new curb ramps and the modification of existing curb ramps to insure that accessibility is provided for disabled users of sidewalks within the City and County of Honolulu public rights-of-way.

The Transition Plan identified curb ramp modification requirements at the following intersections in the project area:

- Kalākaua Avenue / Lewers Street
- Beach Walk / Helumoa Road
- Beach Walk / Kālia Road
- Lewers Street / Don Ho Lane
- Lewers Street / Helumoa Road
- Kālia Road / Lewers Street
- Kālia Road / Saratoga Road

- Kālia Road / Lewers Street
- Kālia Road / Saratoga Road

If curb ramps at these intersections have not been modified to meet ADA requirements when construction work on streets associated with the proposed project commences, they will need to be modified in conjunction with the proposed project. Additional ADA compliance requirements may include pedestrian crossings, accessible signals, and other necessary installations.

4. WATER SYSTEM

4.1 Existing System

Water service for the project area is provided by the City and County of Honolulu Board of Water Supply (BWS), which maintains an integrated system of source wells, storage reservoirs and distribution lines in the Honolulu area. Existing waterlines in the vicinity of the project area are interconnected, which increases service reliability by providing alternate routes for flows to reach users and to stabilize water pressure during periods of heavy usage. Major service lines in the vicinity of the project area form a transmission grid and include the following (see Figure 6):

- A 12-inch water main along Lewers Street extending *mauka* from Kālia Road beyond Kalākaua Avenue. This main has a 6-inch and an 8-inch branch extending *Diamond Head* along Helumoa Road, toward the Waikiki Sheraton Hotel;
- An 8-inch waterline along Beach Walk extending from Kālia Road to Kalākaua Avenue;
- A 6-inch waterline along Saratoga Road extending from Kālia Road to Kalākaua Avenue, with a 2-inch branch running mid-block between Saratoga Road and Beach Walk;
- A 12-inch water main along Kālia Road with connections to the aforementioned 12-inch main along Lewers Street, the 8-inch waterline along Beach Walk and the 6-inch waterline along Saratoga Road; and,
- An 8-inch waterline along Kalākaua Avenue with connections to the aforementioned 12-inch main along Lewers Street, the 8-inch waterline along Beach Walk and the 6-inch waterline along Saratoga Road.

Fire protection is provided by fire hydrants located within the sidewalk area of the roads adjacent to the project site, as shown in Figure 6. BWS flow data and static pressures for hydrants within the project site is presented in Table 4.

4.2 Assessment

The availability of water for the proposed project will be confirmed by BWS when the building permit for the project is submitted for review and approval. When water is made available for the project, the applicant will be required to pay BWS' Water System Facilities Charges for resource development, transmission and daily storage. The BWS requires that on-site fire protection requirements be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department. This will be undertaken in the design phase of the project.

TABLE 4: FLOW DATA FOR FIRE HYDRANTS IN PROJECT AREA				
Fire Hydrant Number	Location	Static Pressure (psi)	Residual Pressure (psi)	Flow (gpm)
7261	Kālia Road	76	20	5,000
1031	Kālia Road	76	20	5,000
2249	Lewers Street	76	20	5,000
1033	Lewers Street	76	20	5,000
7263	Lewers Street	76	20	5,000
7262	Beach Walk	77	20	4,000
3110	Beach Walk	77	20	4,000
3109	Beach Walk	77	20	4,000
3108	Beach Walk	76	20	4,000
1027	Saratoga Road	77	20	4,000
1028	Saratoga Road	77	20	2,000

The overall capacity of the existing distribution system serving the project site to meet the domestic consumption and fire protection requirements of the proposed project will be based upon the State of Hawaii Water System Standards for Planning, Materials, Construction and Standard Details (1985). The Water System Standards was adopted by the four Counties for use in the design and construction of their respective water system facilities. Water distribution system adequacy is based on meeting demands for domestic consumption as well as flows required for fire protection. Section 8 of the Water System Standards relating to Water Requirements, stipulates the following regarding the capacity of the distribution system:

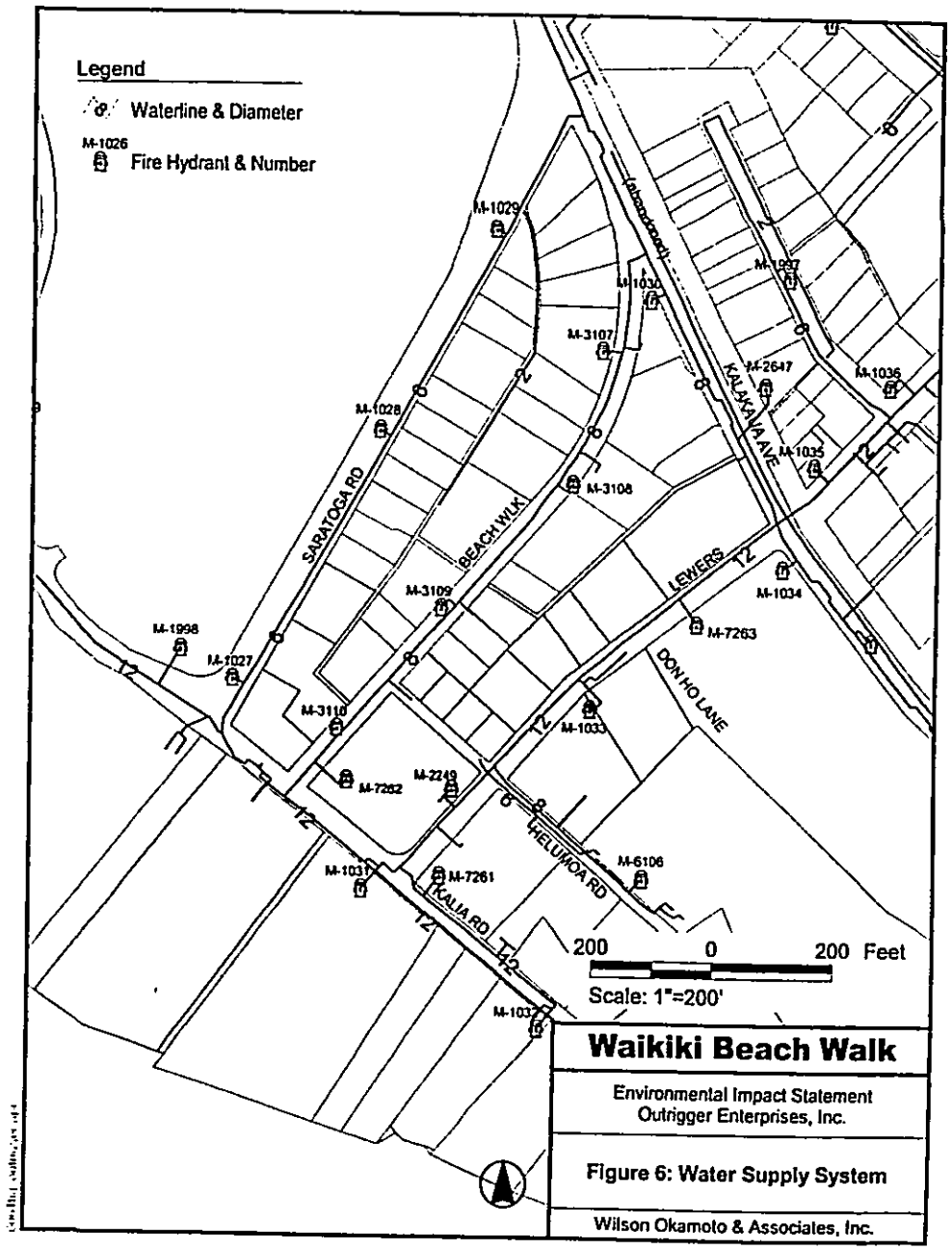
8.4 System Capacity. The capacity of the distribution system shall deliver the maximum daily demand simultaneously with the required fire flow.

The distribution system shall also deliver the peak hour flow (without fire flow).

The adequacy of the existing water distribution system to meet these standards is discussed below.

4.2.1 Domestic Consumption

According to Table 17 of the Water System Standards, maximum daily demand for O'ahu is calculated by a factor of 1.5 over the average day (daily) demand and peak hour demand is defined as 3 times the average day demand. Average daily demand is correlated to land use zones in Table 15 - Domestic Water Consumption Guideline. For O'ahu, the following average daily demand rates would be applicable to the proposed uses of the Waikīkī Beach Walk project:



Zoning	Average Daily Demand
Resort	350 gallons per unit or 4000 gallons per acre
Commercial	120 gallons per 1000 sq. ft.

Based on these rates, the existing 3,102 hotel units on the project site generate an average daily demand of 1,085,700 gallons per day (gpd) (3,102 units X 350 gpd/unit) as shown in Table 5. Implementation of Phase 1 of the proposed project involves demolishing 436 hotel units within the project site, resulting in a reduction in average daily demand by 152,600 gpd (436 units X 350 gpd/unit). This reduction in demand would be offset by the development of 25,000 square feet of ~~office~~ commercial space creating an average daily demand of 3,000 gpd (120 gpd X 25,000 square feet/1,000 square feet). Thus, the net change in average daily demand in Phase I is a reduction of 149,600 gpd (152,600 gpd – 3,000 gpd). Maximum daily demand would be reduced by 224,400 gpd (149,600 gpd X 1.5) and peak hourly demand would be reduced by 18,700 gallons per hour (gph) (149,600 gpd/24 hours X 3).

Implementation of Phase 2 involves the demolition of 221 additional hotel units and the development of 891 new hotel units, resulting in a net gain of 670 hotel units. This would increase average daily demand within the project site by 234,500 gpd (670 units X 350 gpd/unit). Accounting for the reduction in average daily demand following Phase 1, the overall change in average daily demand from the existing condition would be an increase of 84,900 gpd (234,500 gpd – 149,600 gpd) or approximately 7.8 percent. Maximum daily demand would increase to 127,350 gpd (84,900 gpd X 1.5) and peak hourly demand would increase to 10,613 gph (84,900 gpd/24 hours X 3). ~~Table 5 summarizes the changes in domestic consumption demand resulting from the proposed project.~~

4.2.2 Fire Protection

According to the Water System Standards, flow requirements for fire protection on Oahu is based on land use, as presented in Table 16 – Fire Flow Requirement. For the proposed project, the following land use would be applicable:

Land Use	Flow[1]/Duration[2] /Spacing[3]
Hotels, small shopping Center, High Rise Apartment	2000/2/250

TABLE 5 – EXISTING AND FUTURE WATER DEMAND (FOR HOTEL UNITS)

Hotel	Existing Room Count	Existing Water Demand (1) (gallons per day)	Disposition: Demolition	Disposition: Retain	Disposition: New	Proposed Room Count	Future Water Demand (gallons per day)
Hotels to Remain							
Ohana Reef Tower	480	168,000	0	480	0	480	168,000
Outrigger Islander Waikiki	287	100,450	0	287	0	287	100,450
Outrigger Reef on the Beach	885	309,750	0	885	0	885	309,750
Phase I							
Edgewater Lanais	55	19,250	(55)	0	0	0	0
Ohana Coral Seas	109	38,150	(109)	0	0	0	0
Ohana Waikiki Village	442	154,700	(33)	409	0	409	143,150
Outrigger Edgewater	184	64,400	(184)	0	0	0	0
Ohana Waikiki Tower	439	153,650	(55)	384	0	384	134,400
Phase 2							
Ohana Reef Lanai	110	38,500	(110)	0	0	0	0
Malihini Hotel	10	3,500	(10)	0	0	0	0
Ohana Royal Islander	101	35,350	(101)	0	0	0	0
New Outrigger Saratoga Hotel	-				891	891	311,850
	3102	1,085,700	(657)	2445	891	3336	1,167,600

Notes: (1) Based on 350 gallons per unit or room count

1. Rate of flow in gallons per minute (gpm)
2. Time, in hours, the required flow should be maintained
3. Distance, in feet, between fire hydrants

4.2.3 System Capacity

The overall adequacy of the existing distribution system to serve the proposed project relative to the projected domestic consumption demand and fire flow requirements stipulated in the Section 8.4 of the Water System Standards is as follows:

The capacity of the distribution system shall deliver the maximum daily demand simultaneously with the required fire flow.

The distribution system shall also deliver the peak hour flow (without fire flow).

Implementation of Phase 1 will reduce the maximum daily demand within the project site by 224,400 gpd. Assuming no flow restriction in the distribution system, this reduction in consumption demand will theoretically increase the flow available for fire protection by approximately 156 gpm (224,400 gpd/ 1,440 minutes/day) at the individual hydrants. Thus, to meet the minimum fire flow requirement of 2,000 gpm, existing hydrants will require a minimum flow of 1,844 gpm. According to flow data provided by the BWS (see Table 4) all hydrants in the project site currently meet or exceed this requirement.

Implementation of Phase 2 will increase the maximum daily demand within the project site by 127,350 gpd. Assuming no flow restriction in the distribution system, this increase in consumption demand will theoretically reduce the flow available for fire protection by approximately 88 gpm (127,350 gpd/1,440 minutes/day) at the individual hydrants. Thus, to meet the minimum fire flow requirement of 2,000 gpm, existing hydrants will require a minimum flow of 2,088 gpm. According to flow data provided by the BWS, (see Table 4), all hydrants in the project site currently meet or exceed the hydraulic requirement of 2,000 gpm at 20 psi residual pressure.

Implementation of Phase 1 will reduce the peak hour flow within the project site by 28,050 gph. This reduction in consumption demand would increase the flow available for fire protection by approximately 468 gpm (28,050 gph/ 60 minutes/hour). This increase would exceed the minimum fire flow requirement of 2,000 gpm, indicating that this requirement can be met by the existing system.

Implementation of Phase 2 will increase the peak hour flow within the project site by 15,918 gph. This increase in consumption demand would decrease the flow available for fire protection by approximately 265 gpm (15,918 gph/ 60 minutes/hour). To meet

the minimum fire flow requirement of 2,000 gpm, the existing system should provide flows in excess of 2,265 gpm (2,000 gpm + 265 gpm). According to flow data provided by the BWS, (see Table 4), all except one hydrant in the project site currently exceed this requirement.

Based on this assessment, the existing distribution system has the overall capacity to meet the water requirements of the proposed project. Hydrant spacing within the project site currently meets the minimum spacing standard of 250 feet. More detailed investigation and consultation with the BWS and the Fire Department will be required during engineering design of the proposed project to determine specific requirements for domestic service connections, static pressure and on-site fire protection.

5. SANITARY SEWER SYSTEM

5.1 Existing System

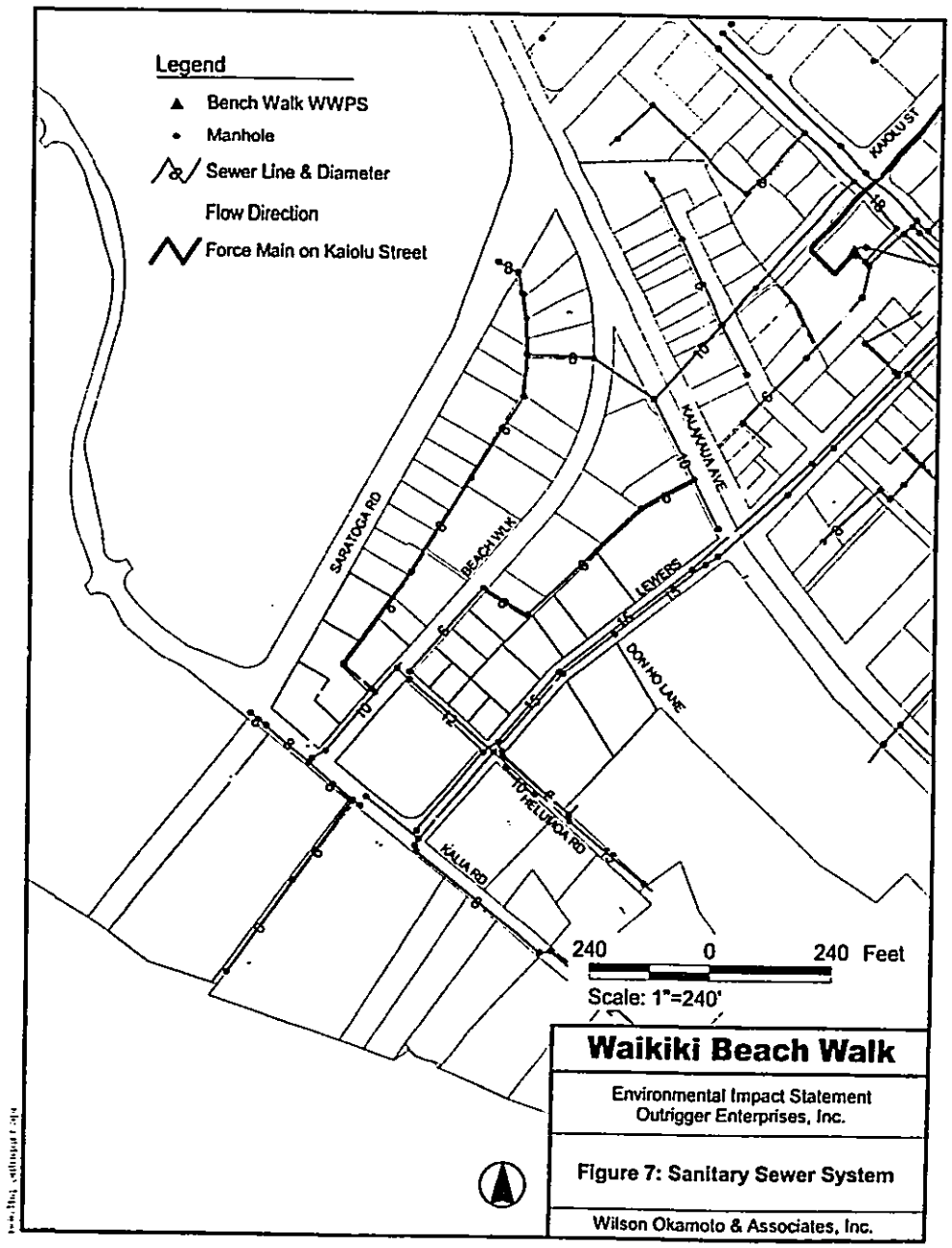
The sanitary sewer system serving Waikīkī is owned by the City and County of Honolulu and maintained by its Department of Environmental Services. Wastewater collected by the sanitary sewer system is conveyed to the City's Sand Island Wastewater Treatment Plant (WWTP) which serves the Honolulu area from Kuli'ou'ou to Moanalua. The Sand Island WWTP is a primary treatment plant designed to treat an average flow of 82 million gallons per day (mgd). Presently, the plant is treating an average flow of 68 mgd, indicating an available capacity of 14 mgd (City and County of Honolulu, 1999).

Based on information and maps obtained from the Department of Planning and Permitting, the major sanitary sewer-lines collecting wastewater generated in the project area convey flows in the mauka direction to the Beach Walk Wastewater Pump Station (WWPS) which is located on Kuhio Avenue in a lot south of Kai'olu Street and Kuhio Avenue (see Figure 7). The Beach Walk WWPS receives wastewater flows generated throughout most of Waikīkī and pumps those flows into a 42-inch force main extending *mauka* along Kai'olu Street to Ala Wai Boulevard, then *Ewa* to Ala Moana Boulevard. The force main discharges into a 69-inch gravity line running parallel to Ala Moana Boulevard near the Waikiki Yacht Club. The gravity line runs through Ala Moana Beach Park, ultimately conveying wastewater flows to the Sand Island WWTP. The Beach Walk WWPS is designed to handle an average daily flow of 15.7 million gallons per day (mgd) and a peak flow of 36 mgd (Personal Communication, August 15, 2001). The average daily flow for the first six months of year 2001 was 11.36 mgd, indicating an available capacity of approximately 4.3 mgd.

Major sanitary sewer lines in the vicinity of the project site include:

- One of two parallel 15-inch mains along Lewers Street conveying wastewater *mauka* toward the Beach Walk WWPS. Discharging into this main from the *Ewa* direction along Helumoa Road is a 12-inch line that branches into smaller 10-inch, 8-inch and 6-inch lines serving most of the block bounded by Saratoga Road, Kālia Road, Beach Walk and Kalākaua Avenue, as well as a portion of Fort DeRussy and beach front hotels *makai* of Kālia Road. The 15-inch main collects flows from another 15-inch sewer main extending *Diamond Head* along Helumoa Road toward the Waikiki Sheraton hotel. Extending *makai* past the Helumoa Road intersection, the 15-inch main continues to Kālia Road where it collects flows from 8-inch lines extending in the *Diamond Head* and *Ewa* direction, respectively, along Kālia Road.

- The other of the two parallel 15-inch mains in Lewers Street. This line collects flows from a 10-inch and a 6-inch line extending *Diamond Head* along Helumoa Road. It also extends *makai*, to the intersection of Kālia Road.



- A 10-inch line along Kalākaua Avenue between Lewers Street and Beach Walk. Feeding into this line is a 6-inch line extending *makai* through the block between Lewers Street and Beach Walk and jogging westward to run along Beach Walk to Helumoa Road. Also feeding into this 10-inch line is an 8-inch line that serves the *mauka* end of the block bounded by Beach Walk, Kalākaua Avenue and Saratoga Road. The 10-inch line conveys flows in the *mauka* direction across Kalākaua Avenue toward the Beach Walk WWPS.

The existing sanitary sewer system serving the vicinity of the project site has had no reports of wastewater overflows or spills. Such overflows or spills are typically associated with wet-weather conditions when rainfall and groundwater entering sanitary sewers can overtax their capacity to convey flows. During storms and prolonged periods of rainfall, runoff can enter the sanitary sewer system through manhole covers or illegal storm drain connections. Wet weather conditions can also elevate groundwater tables causing increased infiltration through joints and defects in sewer lines and manhole shafts.

In addition to investigating reports of overflows and spills, the City assesses the capacity of its sanitary sewer system using computerized hydraulic flow models. According to the results of a hydraulic flow model prepared for the East Mamala Bay Wastewater Facilities Plan (December, 1993), portions of the sanitary sewer system serving the project site would be surcharged, meaning that their capacity would be theoretically exceeded, based on the parameters specified in the model. These include hypothetical wet-weather conditions and projected volumes of wastewater generated. Specifically, the model identified the first of two 15-inch sewer mains along Lewers Street described above as being surcharged from Kālia Road to beyond Kalākaua Avenue. In addition, the model identified the connecting 15-inch line extending eastward along Helumoa Road and the connecting 8-inch line extending eastward along Kālia Road as being surcharged.

Subsequent to the publication of the East Mamala Bay Facilities Plan, the City updated its wastewater flow computations based on an updated hydraulic flow model. The later computations also identified the aforementioned 15-inch sewer main along Lewers Street to be surcharged, but only the segment from Helumoa Road to Kalākaua Avenue. The aforementioned connecting 8-inch line extending eastward along Kālia Road was also identified as being surcharged, but not the connecting 15-inch line along Helumoa Road. Additionally, the updated computations identified the connecting 8-inch line extending westward along Kālia Road to be surcharged from Saratoga Road to Beach Walk.

5.2 Assessment

Wastewater volumes generated by the proposed project would be comparable to the volume of domestic water consumed with relatively minor losses to landscape irrigation

and evaporation. As discussed in the previous section on water requirements, implementation of Phase 1 will reduce the existing rate of domestic water consumption. Therefore, the associated rate of wastewater generation would also be reduced. Based on the Water System Standards, implementation of the Phase 2 will increase the average daily demand for domestic water consumption by approximately 84,900 gpd or approximately 7.8 percent over existing conditions, as discussed previously in Section 4.2.1. Wastewater generation would increase by a comparable volume.

With regard to wastewater treatment and disposal at the Sand Island WWTP, an average flow increase of 84,900 gpd would have negligible impact on the capacity of the plant. The Sand Island WWTP has an average flow design capacity of 82 mgd and presently receives an average flow of 68 mgd, indicating an available average flow capacity of 14 mgd.

Conveyance of wastewater at the Beach Walk WWPS would also be negligibly impacted by the additional 84,900 gpd of additional wastewater flow. The Beach Walk WWPS has an average flow design capacity of 15.7 mgd and presently receives approximately 11.36 mgd, indicating an available average flow capacity of approximately 4.3 mgd.

While the sanitary sewer system serving the project area have no recorded incidences of overflows or spills, the City's latest hydraulic models suggest that segments of some lines could, theoretically, be surcharged during severe wet-weather conditions. Of the surcharged lines identified, the 15-inch main along Lewers Street is a potential concern because it serves much of the project area. Its theoretical capacity appears to be limited by its low slope of 0.2 percent. Inasmuch as most of the sanitary sewer system serving the project site is not identified as surcharged, however, opportunities for developing engineering design solutions to accommodate the additional wastewater generated by the proposed project are available. These solutions will be developed through more detailed investigation of line capacities and consultation with the City Department of Environmental Services. If necessary, mitigation measures such as enlargement of existing lines, relief lines, or diversion of flows into lines with available capacity can be constructed to accommodate the proposed project.

6. STORM DRAINAGE SYSTEM

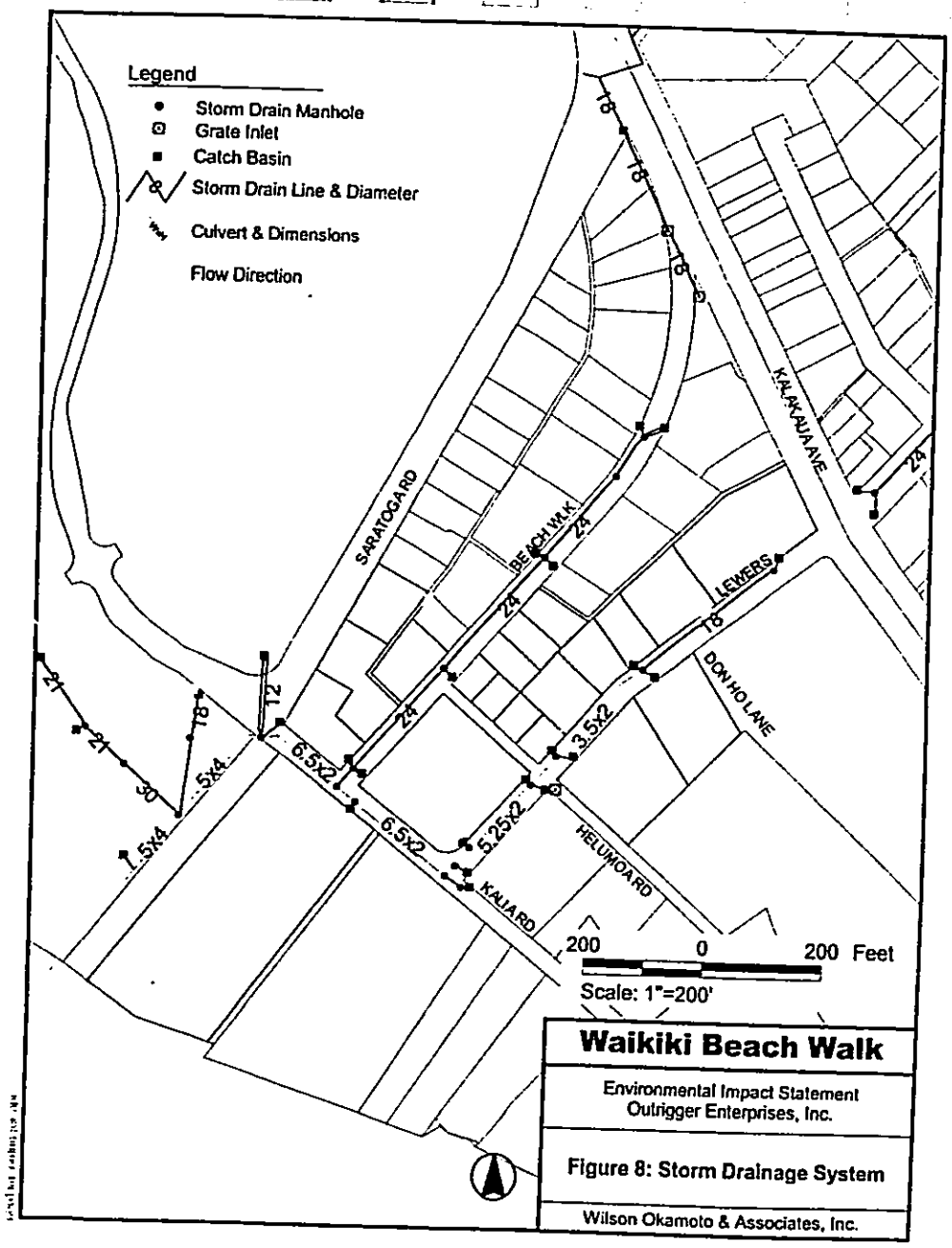
6.1 Existing System

The storm drainage system in the vicinity of the project area is owned by the City and County of Honolulu and maintained by its Department of Facility Maintenance. Based on the storm drain facility map obtained from the City Department of Planning and Permitting (DPP), storm runoff in the vicinity of the project site is collected by underground drainage facilities along Lewers Street and Beach Walk and discharged into the ocean through 5.0' X 4.0' concrete box culvert between the Waikiki Shore Condominium and Fort DeRussy. (see Figure 8). The culvert receives flows from portions of Fort DeRussy through several lines between the shore and the intersection of Kālia Road and Saratoga Road. At that intersection, the culvert turns eastward along Kālia Road and extends to the intersection of Lewers Street at a dimension of 6.5' X 2.0'. At the intersection of Kālia Road and Beach Walk the culvert receives flows from a 24-inch reinforced concrete pipe extending *mauka* along Beach Walk. From the intersection of Kālia Road and Lewers Street, the culvert turns *mauka* along Lewers Street at a dimension of 5.25' X 2.0'. At the intersection of Helumoa Road, the culvert reduces further in dimension to 3.5' X 2.0 feet and extends approximately 100-feet further *mauka* along Lewers Street. At its terminus, it receives flows from an 18-inch concrete reinforced pipe extending mauka along Lewers Street and terminating approximately 50 feet from Kalākaua Avenue.

Due to the relatively flat ground surface and low elevation in the vicinity of the project site, the existing underground drainage system is limited by the difference in elevation available to facilitate drainage to the ocean. This difference in elevation is reduced even further during high tide. Although the project site is not prone to flooding, street drainage in the vicinity can be sluggish when storms coincide with high tides. Occasional ponding along curb gutters and inlets have been reported during such conditions.

6.2 Assessment

The project site is presently fully developed with almost the entire area comprised of impervious surfaces. The few landscaped areas along the street frontage provide for some infiltration of rainfall. The proposed project will provide more landscaped open space than is presently available for rainfall infiltration and detention. By increasing the area available for infiltration, the volume of runoff discharged into the City's drainage system will be reduced. Appropriate channeling of runoff through open areas can increase infiltration and detain discharges, thereby decreasing the rate of runoff and reducing contributions to peak flows following heavy rainfall. While the existing sluggish street drainage condition that occurs when storm flows coincide with high tides may not eliminated by increasing landscaped open space, measures to improve street drainage could be incorporated. For example, a grated trench drainage system to channel flows



at the surface could maximize the difference in elevation to facilitate street drainage, as opposed to relying on underground systems at lower elevations. The Department of Planning and Permitting, City and County of Honolulu adopted the new Rules Relating to Storm Drainage Standards in January 2001. These new Rules updated the old City and County of Honolulu Storm Drainage Standards of March 1986, and addresses requirements for both storm runoff quantities for flood control as well as storm runoff quality. Compliance with these standards will be achieved based on further analysis during engineering design of the proposed project.

7. ELECTRICAL SYSTEM

7.1 Existing System

Electrical service for the project area is provided by Hawaiian Electric Company (HECO) which operates an integrated system of power generators and transmission facilities. Power for Mānoa, Pālolo, Kahala, Kaimukī, Kapahulu, McCully / Mō'ili'ili and Waikīkī is distributed primarily from HECO's Pukele Substation in Pālolo Valley. The Pukele Substation is at the end of HECO' major 138-kilovolt (kV) Northern Transmission Corridor extending from the 621 megawatt (MW) Kahe Power Plant through the Halawa Substation and Koolau Substation. Being at the end of the transmission corridor means that major power outages in areas served by the Pukele Substation could occur if power transmission through the corridor is interrupted. Although HECO's integrated transmission grid would allow some power to be diverted to affected areas, the capacity of the lines along the alternate routes would limit the extent to which power can be restored. Therefore, HECO is proposing to construct a new 138-kV transmission line from the Pukele Substation to the new Kamoku Substation near Iolani School. The Kamoku Substation is at the end of HECO's major 138-kV Southern Transmission Corridor, which also emanates from the Kahe Power Plant. The link would complete a ring of major 138-kV transmission lines to provide greater reliability of service from the various substations along the ring, including the Pukele Substation. A secondary benefit would be to increase the capacity of the connected substations since power could be drawn from both transmission corridors.

In the vicinity of the project area, HECO maintains a grid of underground transmission lines consisting of 3-inch conduits.

7.2 Assessment

In Phase 1 of the proposed project, electrical power demand in the project area may decline as a result of demolishing 436 hotel units, although this decline will be somewhat offset by the construction of 25,000 square feet of retail floor area. Completion of Phase II will likely increase electrical power demand above existing levels. As a public utility, HECO has a regulatory obligation as well as an economic interest in providing reliable electrical power to its customers. By initiating early consultation with HECO, any necessary accommodations in the vicinity of the project area can be made to service the proposed project.

At a regional level, HECO's proposed 138-kV transmission line connecting the Pukele and Kamoku substations would assure more reliable electrical service for the entire region from Kahala to Waikīkī. The transmission line would also have a secondary impact of increasing the capacity of the system to accommodate future growth in the region, including in Waikīkī.

8. COMMUNICATION SYSTEM

8.1 Existing System

Telephone service in the project area is provided by Verizon of Hawaii (formerly GTE – Hawaiian Telephone Company). Record information obtained from Verizon indicates telephone system in the area includes the following.

- 2- and 3.5-inch ductlines running along Lewers Street;
- 3- and 4-inch ductlines running along Helumoa Road;
- 2-, 3-, 3.5-, and 4-inch ductlines running along Beach Walk; and,
- 2-, 2.5-, and 4-inch ductlines running along Kālia Road.

Oceanic Cable, Inc. provides cable TV to the project area. The service is essentially provided by underground coaxial cables along Lewers Street, Beach Walk, Saratoga and Kālia Roads. Oceanic Cable does not provide fiber optics in the project area.

8.2 Assessment

Communication services for the proposed project will be provided by Verizon and Oceanic Cable. Any necessary off-site improvements required to provide this service without compromising the quality and reliability of service to their existing customers would be the responsibility of Verizon and Oceanic Cable, respectively. Required project connections to the communication service systems will be coordinated with the respective service providers to minimize any potential disruption of service in adjacent areas.

9. GAS

9.1 Existing System

Existing gas lines in the project vicinity are owned by the Gas Company (GASCO INC.) Record Company shows existing gas facilities in the ocean area include:

- 4-inch gas lines along Kālia Road;
- 3-inch gas lines in Lewers Street;
- 6-inch gas lines in Saratoga Road; and,
- 2-inch gas lines in Beach Walk.

9.2 Assessment

Gas service for the proposed project will be provided GASCO. Any necessary off-site improvements required to provide this service without compromising the quality and reliability of service to its existing customers would be the responsibility of GASCO. Required project connections to service lines will be coordinated with GASCO to minimize any potential disruption of service in adjacent areas.

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2. Hawaii State Department of Public Works. *Water System Standards for Planning, Materials, Construction and Standard Details.* 1985.

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4. Personal Communication with Mr. Jay Hamai, City and County of Honolulu Department of Design and Construction, August 15, 2001.

APPENDIX K

Traffic Study for the Waikīkī Beach Walk EIS

Kaku Associates

October 2001

TRAFFIC STUDY
FOR THE
WAIKIKI BEACH WALK EIS
OUTRIGGER LEWERS/SARATOGA PROPERTIES REDEVELOPMENT

October 2001

Prepared for:

GROUP 70 INTERNATIONAL, INC.

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I. INTRODUCTION

Outrigger Enterprises, Inc. is undertaking a substantial project to revitalize its properties in the Lewers/Saratoga area of Waikiki. This two-phase project involves upgrading five existing hotels and demolishing six older hotels where a new hotel/retail/entertainment complex will be developed.

This report documents the results of the traffic study conducted by Kaku Associates, Inc. as part of the environmental impact statement (EIS) for the project prepared for the City and County of Honolulu. This study analyzes the possible effects of the proposed project on traffic circulation at ten selected intersections near the proposed project. This study draws upon base data and analyses prepared as part of the preparation notice *Waikiki Beach Walk Environmental Impact Statement Notice of Preparation* (Group 70 International, June 2001) prepared for the City and County. It also draws upon data collected specifically for this study.

PROJECT DESCRIPTION

The proposed redevelopment project area includes the Outrigger holdings makai of Kalakaua Avenue and along Lewers Street, Kalia Road, Beach Walk, and Saratoga Road. Phase I of the project will involve the properties between Lewers and Beach Walk, and Phase II will encompass the remaining properties, including those bounded by Beach Walk, Kalia Road and Saratoga Road. Off-site parking will be provided at the existing surface parking lot at Fort DeRussy at Saratoga Road and Kalia Road. Figure 1 illustrates the proposed Waikiki Beach Walk site plan.

Phase I

Phase I of the project, which is expected to be completed within a timeframe consistent with Year 2005, involves the redevelopment and renovation of the Waikiki Village and Waikiki Tower hotels.

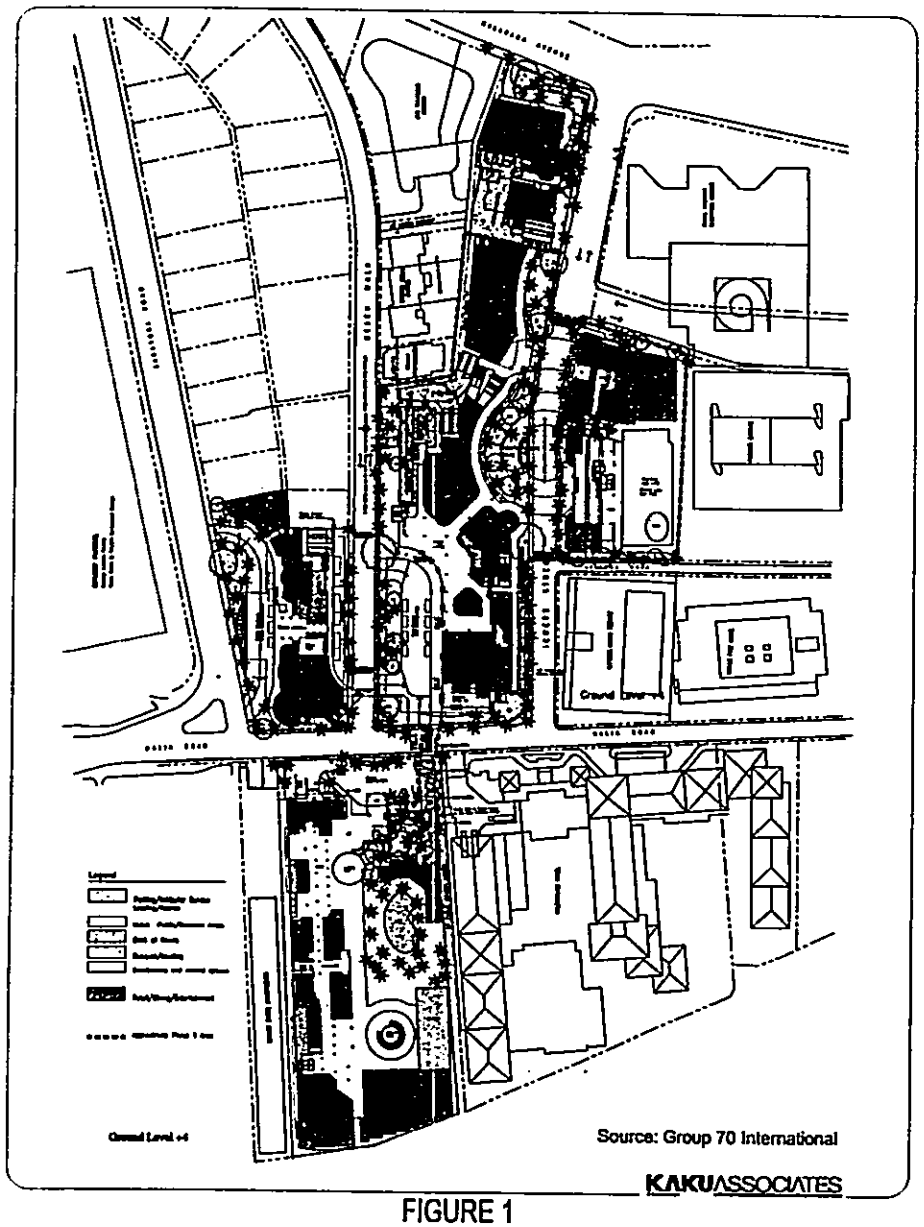


FIGURE 1
PROPOSED WAIKIKI BEACH WALK SITE PLAN

It also involves the replacement of the Edgewater Lanais, Coral Seas and Edgewater hotels with a new two-level entertainment/retail promenade along Lewers Street. The new retail complex will be integrated with the renovated Waikiki village and Waikiki Tower hotels, and it will be connected to the adjacent Islander Waikiki Reef Tower hotels through streetscape improvements, including the creation of a Lewers Street public plaza. The lower floors of the Waikiki Village and Waikiki Towers will be reconstructed and linked to a new four-level podium featuring a lobby that serves both hotels, a banquet hall and meeting rooms, and a rooftop pool deck. Phase I also plans the closure of Helumoa Road between Lewers Road and Beach Walk. A pedestrian bridge over Kalia Road will link the Outrigger Reef to the new complex. On-site parking supply will be supplemented with off-site parking at the corner of Saratoga Road and Kalia Road.

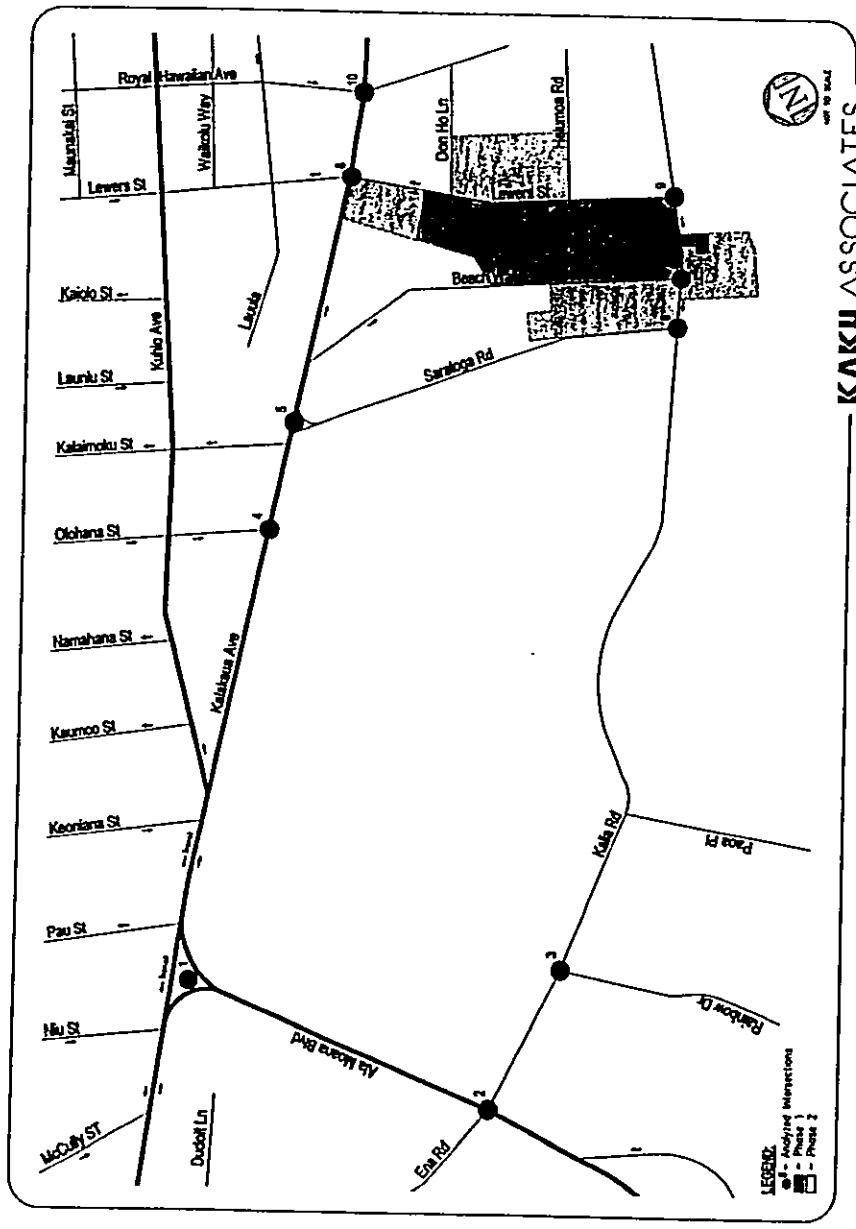
Phase II

Phase II focuses on the redevelopment of the Outrigger properties between Saratoga Road and Beach Walk. Completion is expected by Year 2010. A new hotel tower of about 27 stories providing 891 rooms will be constructed at the current location of the royal Islander, Reef Lanai and Malihini hotels. Pedestrian bridges will be constructed over Beach Walk connecting the new hotel tower to the Phase I improvements. The Reef on the Beach porte-cochere and public areas will be remodeled, and a new gateway form will be created at the makai side of Kalia Road.

Figure 2 provides a schematic illustration of the study area and the two phases on the project site.

STUDY SCOPE

This study analyzes potential project-generated traffic impacts on the street system surrounding the project site. In addition, site access issues are examined. Potential impacts of the project are evaluated against Year 2005 and Year 2010 conditions as a means of assessing the potential impacts of Phase I and Phase II, respectively. The following traffic scenarios are analyzed in the study for the a.m. peak hour (the peak one-hour period between 7:00 and 9:00 a.m.) and the p.m. peak hour (the peak one-hour period between 4:00 and 6:00 p.m.):



KAKU ASSOCIATES

FIGURE 2
STUDY AREA AND ANALYZED INTERSECTIONS

- Year 2001 Existing Conditions – The analysis of existing traffic conditions is intended to provide a basis for the remainder of the study. The existing conditions analysis includes an assessment of streets, traffic volumes, and current operating conditions.

- Year 2005 Cumulative Base Conditions - This phase will project short-term future traffic growth and operating conditions that could be from regional growth and related projects in the vicinity of the project site without consideration of the proposed project in the short term. The cumulative base conditions also represent the No Project Alternative.

- Year 2010 Cumulative Base Conditions - This phase will project longer-term future traffic growth and operating conditions that could be expected from regional growth and related projects in the vicinity of the project site, without consideration of the proposed project in the longer term.

- Year 2005 Cumulative Plus Project Conditions (Phase I of project) - This phase will identify potential impacts of the project on projected short-term future traffic operating conditions with traffic expected to be generated by the proposed project added to the cumulative base traffic forecasts.

- Year 2010 Cumulative Plus Project Conditions (Phase II of project) - This phase will identify potential impacts of the project on projected longer-term future traffic operating conditions with traffic expected to be generated by the proposed project added to the cumulative base traffic forecasts.

- Year 2010 Cumulative Plus Project Alternative Conditions (Phase II of project) - This phase will identify potential impacts of the project on projected longer-term future traffic operating conditions with traffic expected to be generated by the proposed project added to the cumulative base traffic forecasts.

- Year 2010 Cumulative Plus Project With BRT Conditions (Phase II of project) - This phase will identify potential impacts of the project on projected longer-term future traffic operating conditions with traffic expected to be generated by the proposed project added to the cumulative base traffic forecasts with the assumption that the proposed BRT system is implemented by the City and County of Honolulu.

Ten intersections are analyzed in the study for each scenario. The study intersections are listed below and shown in Figure 2.

1. Ala Moana Boulevard/Niu Street/Pau Street & Kalakaua Avenue
2. Ala Moana Boulevard & Kalia Road/Ena Road
3. Rainbow Drive & Kalia Road
4. Olohana Drive & Kalakaua Avenue
5. Saratoga Road/Kalaimoku Avenue & Kalakaua Avenue
6. Saratoga Road & Kalia Road
7. Beach Walk & Kalia Road
8. Lewers Street& Kalakaua Avenue

9. Lewers Street & Kalia Road
10. Royal Hawaiian Avenue & Kalakaua Avenue

ORGANIZATION OF REPORT

This report is divided into six chapters. Chapter II describes the existing circulation system, traffic volumes, and traffic conditions within the study area. The methodologies used to forecast future cumulative and project traffic volumes as well as the resultant forecasts are described in Chapter III. Chapter IV presents an assessment of potential project traffic impacts. Traffic mitigation measures are suggested in Chapter V. Chapter VI summarizes the results of the analysis of a project alternative, and Chapter VII summarizes the results of the analysis of the project with the addition of the City and County of Honolulu Bus Rapid Transit (BRT) system. Chapter VIII provides a discussion of related safety and operational issues associated with the proposed redevelopment project. A summary of the report is provided in Chapter IX.

II. EXISTING CONDITIONS

A comprehensive data collection effort was undertaken to develop a detailed description of existing conditions within the study area. The assessment of conditions relevant to this study includes an inventory of the street system, traffic volumes on these facilities, and operating conditions at key intersections.

EXISTING STREET SYSTEM

Regional access to the project site is provided by the Lunalilo Freeway (H-1) via Kapiolani Boulevard, McCulley Street, and Kapahulu Avenue. Additional regional access is provided by several major arterial streets including Ala Moana Boulevard and Kalakaua Avenue. Direct access to the project site is provided by Saratoga Road, Kalia Road and Lewers Street.

The study area is bounded by Saragota Road on the ewa side (west), Kalakaua Avenue on the mauka side (north), Royal Hawaiian on the diamondhead site (east) and Kalia Road on the makai side (south). Brief descriptions of the principal streets serving the study area are included below:

- Ala Moana Boulevard – Ala Moana Boulevard is a state highway that runs in the east-west direction regionally but runs in the north-south direction on the ewa side of the study area. It provides six lanes, three lanes in each direction south of Kalia Road, and five lanes, three lanes southbound and two lanes northbound, between Kalia Road and Kalakaua Avenue. The roadway has a raised median in the vicinity of the project site with no parking permitted on either side.

- Ena Road – Ena Road is a local street that runs north-south from Kalakaua Avenue to Ala Moana Boulevard within the study area. It provides two travel lanes, one lane per direction. No parking, stopping, standing, loading and unloading is allowed on either side.

- Niu Street – Niu Street is a one-way collector street that runs south from Ala Wai Boulevard to Kalakaua Avenue. It provides three travel lanes with no parking anytime on the west side and no parking from 6:00 am to 6:00 pm on the east side.

- Pau Street – Pau Street is a one-way collector street that runs north from Kalakaua Avenue to Ala Wai Boulevard. It provides one travel lane with parking allowed on both sides.

- Saratoga Road – Saratoga Road is a north-south collector street that runs from Kalakaua Avenue to Kalia Road. It provides two travel lanes northbound and one travel lane southbound. No parking is allowed on either side, except for two-hour meter parking from 7:00 am to 6:00 pm southbound north of post office.

- Beach Walk – Beach Walk is a one-way collector street that runs south from Kalakaua Avenue to Kalia Road with one travel lane. No parking is allowed on the west side, but metered parking is allowed on the east side between Kalakaua Avenue and Waikiki Royal. Parking is permitted on both sides between Waikiki Royal and Helumoa Road. No parking is allowed on the west side, and there is a freight loading zone only on the east side between Helumoa Road and Kalia Road.

- Lewers Street – Lewers Street is a north-south local street from Ala Wai Boulevard to Kalia Road. North of Kalakaua Avenue, it provides one travel lane that runs one-way northbound with parking allowed on the west side, and a freight loading zone only on the east side. Between Kalakaua Avenue and Don Ho Lane, there is one travel lane northbound and 2 travel lanes southbound with no parking anytime on either side. South of Don Ho Lane, it provides one travel lane that runs one-way southbound with tour buses only on the west side and no parking on the east side.

- Royal Hawaiian – Royal Hawaiian is a north-south local street. North of Kalakaua Avenue, it provides two travel lanes that ~~runs~~ run one-way southbound with no parking on the west side and a freight loading zone only on the east side. South of Kalakaua Avenue, it provides one travel lane northbound and two travel lanes southbound with access to the Sheraton Royal Hawaiian.

- Kalakaua Avenue – Kalakaua Avenue is a east-west major arterial. Between Ena Road and McCully Street, it provides four travel lanes eastbound and two travel lanes westbound. Between McCully Street and Royal Hawaiian, it operates as a one-way eastbound street with four travel lanes, except for one transit lane going west from Kuamoo Street to McCully Street.

- Kalia Road – Kalia Road is a local street that runs east-west from Ala Moana Boulevard to Sheraton Waikiki Loading dock. It provides one lane per direction between Hale Koa Drive and the Saratoga Road as well as east of Lewers Street. Between Saratoga Road and Lewers Street, it runs one-way westbound with 2 travel lanes. No parking is allowed on both sides except for some transit stops west of Hale Koa Drive.

- Helumoa Road – Helumoa Road is an east-west collector street. It provides one lane per direction with no parking allowed on either side. It operates one-way eastbound between Beach Walk and Lewers Street.

Table 1 provides a summary of the roadway characteristics for each of the streets in the study area. Diagrams of the existing lane configurations at the analyzed intersections are contained in Appendix A.

TABLE 1
ROADWAY CHARACTERISTICS FOR STUDY AREA

SEGMENT	FROM	TO	LANES NB/EB	LANES SB/WB	MEDIAN TYPE	PARKING RESTRICTIONS NB/EB	PARKING RESTRICTIONS SB/WB	SPEED LIMIT
North-South Streets								
Ena	w/o Ala Moana	Kalakaua	1	1		NPSSLU	NPSSLU	
Ala Moana	Kalakaua	Kalia	2	3	RM	NP	NP	NB-25;SB-35
	Kalia	s/o Kalia to next intersection	3	3	RM	NP	NP	35
Ala Wai	Kalakaua	Kalakaua	3	3	1-way SB	West side: NPAT; East side: NP 6a-6p		
Paki	Kalakaua	Kalakaua	1		1-way NB	PA both sides		
Saratoga	Kalakaua	s/o Post Office	2	1		NP	2h (m) 7a-6p except Sun/Holiday - 19 spaces	25
	s/o Post Office	Kalia	2	1		NP	NP	
Beach Walk	Kalakaua	Waikiki Royal	1	1	1-way SB		West side: NP; East side: PA (m)	
	Waikiki Royal	Helumoa	1	1	1-way SB		West side: PA; East side: PA	
	Helumoa	Kalia	1	1	1-way SB		West side: NP; East side: FLZ	
Lewers	n/o Kalakaua	Kalakaua	1	1	1-way NB	West side: PA; East side: FLZ		
	Kalakaua	Don Ho	2	1	1-way SB	NPAT	NPAT	
	n/o Kalakaua	Kalakaua	2	2	1-way SD		West side: Tour buses only; East side: NP	
Royal Hawaiian	Kalakaua	Sheraton/Royal Hawaiian Hotel	1				West side: NP; East side: FLZ	
East-West Streets								
Kalakaua	w/o Ena to next intersection	Ena	2	2	1-way EB			25
	Ena	McCully	3*	2	1-way EB			
	McCully	Kuamoo	4	2				
	Kuamoo	Royal Hawaiian	4	1**				
	Beach Walk	Lewers	1		1-way EB	NP	NP	
	Ala Moana	Rainbow	1	1		NP		
	Rainbow	Makuhia/Halekoa	2	3-4ams up		transit stop	transit stop	
	Makuhia/Halekoa	Saratoga	1-2	2-4ams up		transit stop	2 transit stops	
	Saratoga	Beach Walk	1	1	1-way WB	NP	NPAT	
	Beach Walk	Lewers	2	2	1-way WB	NP	FLZ; North side heavily used by supply	
	Lewers	Sheraton Waikiki loading dock	1	1	1-way WB	NPAT	NPAT	

Parking: PA = Parking Allowed
NS = No Stopping
NPAT = No Parking Anytime
NSAT = No Stopping Anytime
NPSSLU = No Parking, Stopping, Standing, Loading, Unloading
FLZ = Freight Loading Zone

Notes:
LANES: # = Number of lanes
* = 1 lane north of median
** = transit only

MEDIAN MEDIAN TYPE: RM = Raised Median

EXISTING TRAFFIC VOLUMES AND LEVELS OF SERVICE

The following sections present the current intersection peak hour traffic volumes, a description of the methodology used to analyze the intersection operating conditions, and the resulting level of service conditions at each of the study intersections under existing conditions.

Existing Traffic Volumes

Weekday morning and afternoon peak hour traffic counts were conducted at each of the ten analyzed intersections in July 2001. Figure 3 illustrates the traffic volumes, which represent the Existing 2001 conditions, for each of these intersections.

Level of Service Methodology

Level of service (LOS) is a qualitative measure describing the condition of traffic flow, ranging from excellent conditions at LOS A to overloaded conditions at LOS F. The City and County of Honolulu has established LOS D, which is typically recognized as the minimum satisfactory level of service in most urban areas, as the minimum acceptable level of service for its intersections. Level of service definitions are provided in Tables 2 and 3 and are discussed below.

Seven of the ten analyzed intersections are controlled by traffic signals. The remaining three intersections are controlled by stop signs. In accordance with policies established by the City and County of Honolulu, the "Operational Analysis" method from the *Highway Capacity Manual* (HCM) (Transportation Research Board, 2000) was employed to perform the intersection level of service analysis for the signalized intersections. The HCM operational method determines the average stopped delay incurred per vehicle and the volume/capacity (V/C) ratio. The intersection level of service is related to the average stopped delay as indicated in Table 2.

The nine intersections that are controlled by stop signs on the minor approach or on all approaches are analyzed using either the "Two-Way Stop" or "All-Way Stop" methods from the 2000 HCM, respectively. These methodologies provide estimates of the vehicle delay and corresponding level of service for each of the constrained movements at the unsignalized

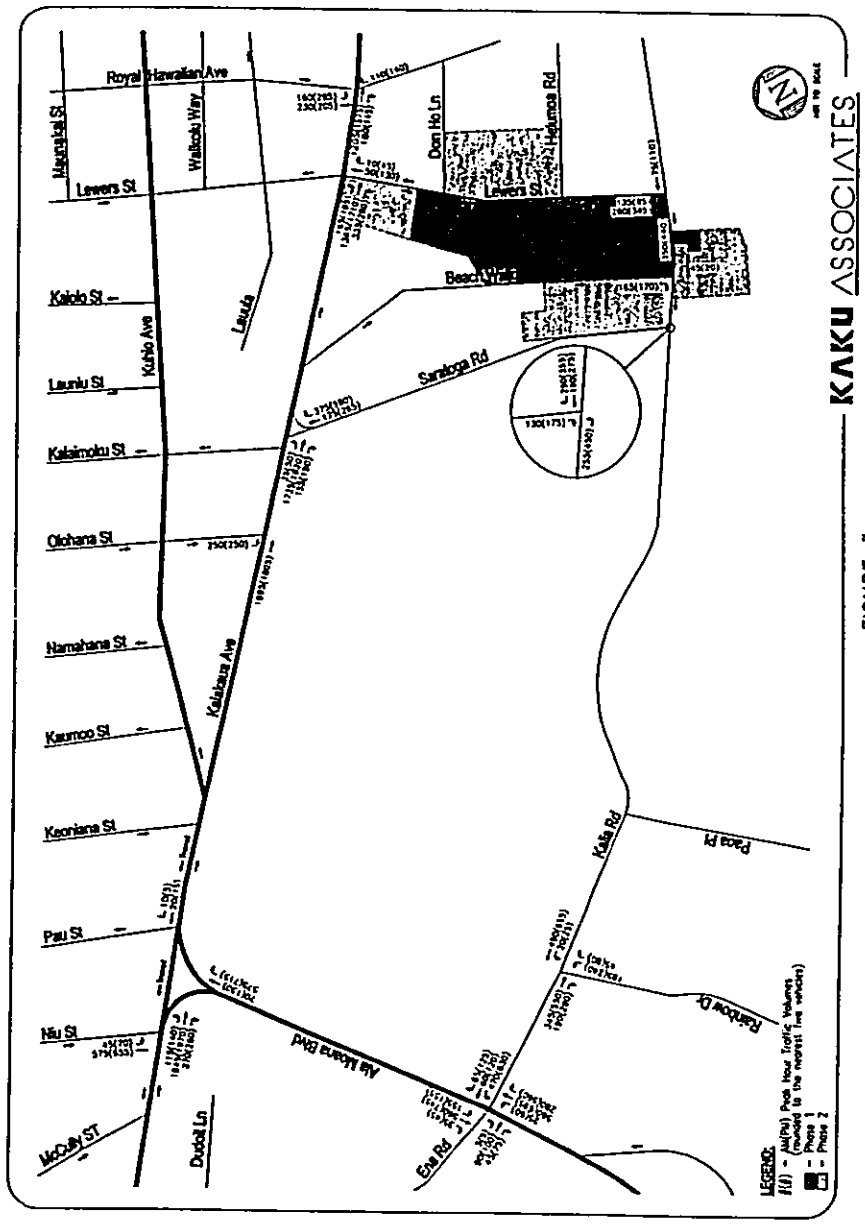


FIGURE 3
EXISTING PEAK HOUR TRAFFIC VOLUMES
YEAR 2001 EXISTING

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TABLE 2
LEVEL OF SERVICE DEFINITIONS FOR SIGNALIZED INTERSECTIONS
(Highway Capacity Manual Operational Method)

Level of Service	Average Control Delay per Vehicle (seconds)	Definition
A	0.0 - 10.0	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	10.1 - 20.0	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	20.1 - 35.0	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	35.1 - 55.0	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	55.1 - 80.0	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 80.0	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source: Transportation Research Board, *Highway Capacity Manual, 2000.*

TABLE 3
LEVEL OF SERVICE DEFINITIONS FOR
STOP-CONTROLLED INTERSECTIONS

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

Source: Transportation Research Board, *Highway Capacity Manual, 2000.*

intersections. The intersection LOS at two-way stop controlled intersections is based on the most constrained approach or movement while the intersection LOS at all-way stop controlled intersections is based on average vehicle delay for all approaches. The level of service is related to the vehicle delay as indicated in Table 3.

Existing Levels of Service

The existing traffic volumes presented in Figure 3 were analyzed using the level of service methodologies described above and the existing intersection characteristics illustrated in Appendix A. This determined the existing operating conditions at each of the analyzed intersections. Table 4 summarizes the results of the level of service analysis for existing conditions at each of the ten intersections. The table, which provides the existing V/C ratio and average control delay during the morning and afternoon peak hours and the corresponding LOS at each of the study intersections, indicates that all ten intersections are currently operating at LOS D or better during both peak hours.

EXISTING PUBLIC TRANSIT SERVICE

The study area is served by several transit lines operated by "The Bus," Oahu Transit Services, Inc. The following thirteen transit lines serve the study area:

- Route 8 – This route follows Kalakaua Av and Kuhio Av through the study area. The route extends from the Kalihi Transit Center to the Waikiki area.
- Route 2 – This route follows Kalakaua Av and Kuhio Av through the study area. The route extends from the Kalihi area to the Kapahulu area.
- Route 4 – This route follows Kalakaua Av, Kuhio Av, Pau St, Ala Wai Bl, and McCully St in the study area. The route extends from the Waikiki area to the Dowsett Highlands area.
- Route 8 – This route follows Ala Moana Bl, Kalia Rd, Saratoga Rd, Kalaimoku St, Olohana St, and Kuhio Ave through the study area. The route extends from the Kapahulu area to the Ala Moana shopping center.
- Route 13 – This route follows Kalakaua Av and Kuhio Av through the study area. The route extends from the Puunui Park area to the Kapahulu area.

TABLE 4
YEAR 2001 EXISTING CONDITIONS
PEAK HOUR LEVELS OF SERVICE

INTERSECTION	PEAK HOUR	EXISTING V/C	EXISTING Delay*	EXISTING LOS
1. Ala Moana Bl./Niu St./Pau St. & Kalakaua Av.	AM	0.606	18	B
	PM	0.694	21	C
2. Ala Moana Bl. & Kalia Rd./Ena Rd.	AM	0.507	39	D
	PM	0.640	43	D
3. Rainbow Dr. & Kalia Rd.	AM	0.266	10	A
	PM	0.391	10	A
4. Olohana Av. & Kalakaua Av.	AM	0.393	10	A
	PM	0.412	9	A
5. Saratoga Rd./Kalaimoku Av. & Kalakaua Av.	AM	0.463	12	B
	PM	0.571	15	B
6. Saratoga Rd. & Kalia Rd. [1]	AM	0.359	10	A
	PM	0.668	14	B
7. Beach Walk & Kalia Rd. [2]	AM	n/a	11	B
	PM	n/a	11	B
8. Lewers St. & Kalakaua Av.	AM	0.344	3	A
	PM	0.439	6	A
9. Lewers St. & Kalia Rd. [2]	AM	n/a	10	A
	PM	n/a	10	A
10. Royal Hawaiian Av. & Kalakaua Av.	AM	0.391	13	B
	PM	0.463	14	B

Note:
* Delay indicates average control delay per vehicle in seconds.
[1] Intersection is controlled by stop signs on all approaches.
[2] Intersection is controlled by stop signs on the minor approaches.

- Route 19 – This route follows Kuhio Av, Olohana St, Saratoga Rd, Kalaimoku St, Kalia Rd and Ala Moana Bl through the study area. The route extends from the Kapahulu area to the Hickam Air Force area.

- Route 20 – This route follows Kuhio Av, Olohana St, Saratoga Rd, Kalaimoku St, Kalia Rd and Ala Moana Bl through the study area. The route extends from the Kapahulu area to Aiea area.

- Route 22 – This route follows Kuhio Av, Kalakaua Av, Pau St and McCully St through the study area. The route extends from the Sea Life Park area to the Papahulu area.

- Route 42 – This route follows Kuhio Av, Olohana St, Saratoga Rd, Kalaimoku St and Ala Moana Bl through the study area. The route extends from the Kapahulu area to the Ewa area.

- Route 58 – This route follows Kuhio Av, Olohana St, Saratoga Rd, Kalaimoku St, Kalia Rd and Ala Moana Bl through the study area. The route extends from the Ala Moana Shopping Center area to the Sea Life Park area.

- Route 201 & 202 – This route follows Ala Moana Bl, Kalia Rd, Saratoga Rd, Kalaimoku St and Kuhio Av through the study area. The route extends from the Waipahu area to the Waikiki area.

- Route 203 – This route follows Kalakaua Av, Ala Moana Bl, Kalia Rd, Saratoga Rd, Kalaimoku St and Kuhio Av through the study area. The route extends from the Kalihi area to the Waikiki area.

III. FUTURE TRAFFIC PROJECTIONS

To properly evaluate potential impacts of the proposed project on the street system, it is necessary to develop estimates of future traffic conditions in the area both without and with the proposed project traffic. Future traffic volumes are first estimated for the study area without the project. These future forecasts reflect traffic increases resulting from two factors: (1) general regional growth and (2) traffic that is expected to be generated by other specific developments in the vicinity of the project. These traffic volumes are analyzed on the future street network, which includes any planned modifications to the existing street network, and represent the cumulative base conditions.

Once the cumulative base conditions are established, the magnitude of traffic generated by the proposed project is estimated and separately assigned to the surrounding street system. The sum of the cumulative base and project-generated traffic represents the cumulative base plus project conditions. A detailed description of the assumptions and methodologies used to develop the future traffic scenarios follows. In addition, a project access alternative is analyzed for each of the future timeframe scenarios, i.e., for both Year 2005 and Year 2010. The project access alternative analysis is presented in Chapter VI.

CUMULATIVE BASE TRAFFIC PROJECTIONS

The Cumulative Base traffic projections used in this analysis, which are the Year 2005 and Year 2010 traffic forecasts, were developed using a process that includes assumptions associated with the general regional growth in the area and estimates based on information from other specific development projects planned or under construction within or in the vicinity of the study area. Each of the steps was completed as an integral part of the work program for this study and necessitated a verification of each of the inputs.

The traffic volumes which represent future Cumulative Base conditions normally reflect growth in traffic over existing conditions from two primary sources: (1) growth in the existing traffic volumes reflecting the effects of overall regional growth and development outside the study area, and (2) traffic volumes generated by specific cumulative projects located within, or in the vicinity of, the study area.

Areawide Traffic Growth

Several sources of data were reviewed to assess the potential ambient growth rate that should be used to estimate the change in regional traffic from 2001 to 2005 and from 2001 to 2010. These sources include a comparison of the current traffic counts conducted as part of this study with available data from previous traffic studies conducted in 1999, a review of historical data accumulated by HDOT for Ala Moana Boulevard. They also include growth rates used in recently completed traffic studies for projects in the vicinity of the study area, data from the OMPO regional travel demand forecasting model used for the preparation of the ORTP, and other regional traffic studies. The results of this investigation indicate that a growth rate of 1% per year would be an appropriate figure to use in view of the fact that traffic volumes from additional development projects would also be added to the base data for this analysis. Therefore, it is estimated that the ambient growth between the Existing Conditions Year 2001 traffic volumes and the Cumulative Base Year 2005 would be 4% and 9% for the Cumulative Base Year 2010 volumes. These factors were applied to the peak hour traffic volumes for each of the 10 analyzed intersections in the study area.

Traffic Generated by Cumulative Development Projects

Traffic expected to be generated by specific development projects within, or with the potential to affect, the study area were also considered in addition to the area-wide traffic growth. Research into recent development projects in the area identified 5 projects that are planned or under construction that are expected to add traffic to the study area streets. The traffic model used the 5 projects identified in Figure 4 to forecast future traffic conditions for use in the Outrigger traffic study.

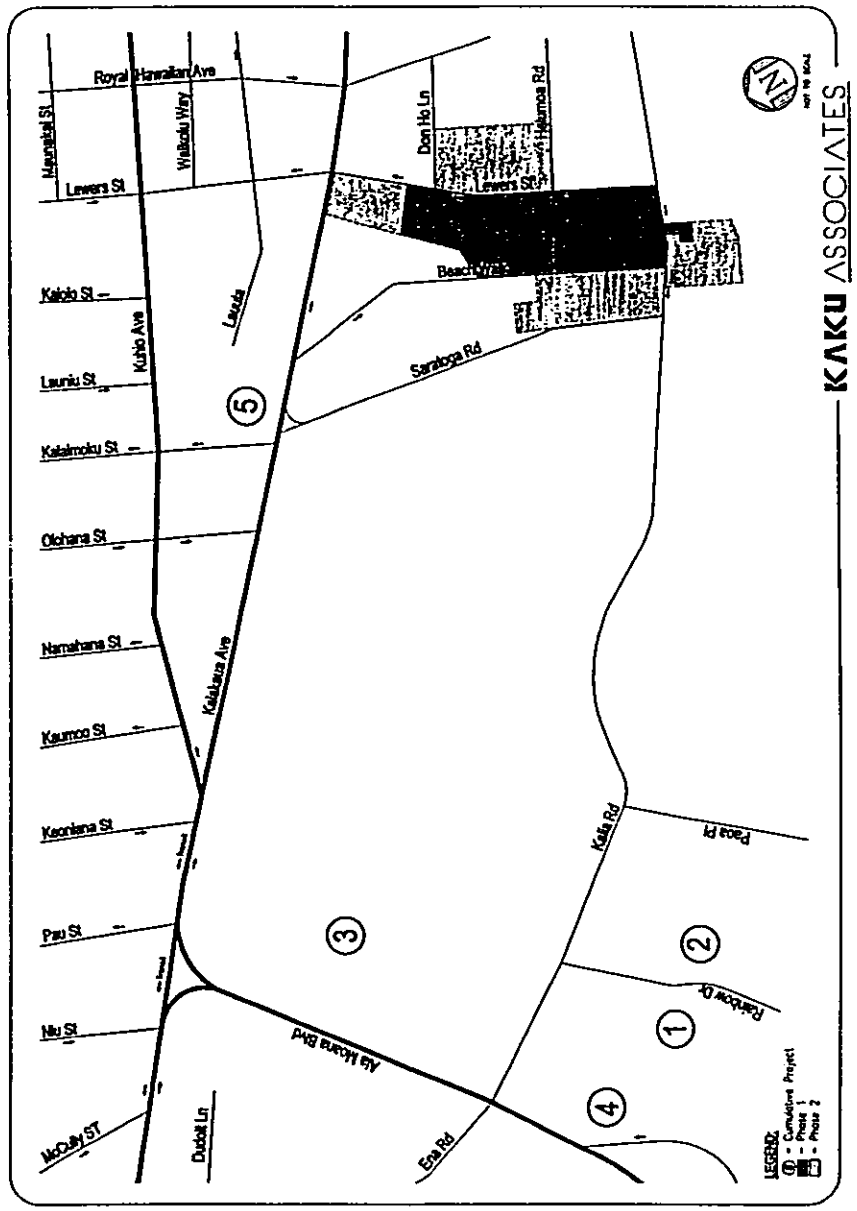

FIGURE 4
LOCATION OF CUMULATIVE PROJECTS

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Trip Generation. The trip generation estimates for the 5 cumulative projects were obtained from recently completed traffic studies for projects in the vicinity of the study area. The cumulative projects listed in Table 5 are expected to generate approximately 576 vehicles per hour (vph) during the morning peak hour, of which 366 vph would occur in the inbound direction and 210 vph in the outbound direction. During the afternoon peak hour, 905 vph would occur, of which 410 would travel in the inbound direction and 495 vph in the outbound direction.

Traffic Distribution. The geographic distribution of traffic generated by developments such as those included in the list of cumulative projects were obtained from recently completed traffic studies for projects in the vicinity of the study area.

Cumulative Base Traffic Volumes

Using the estimated trip generation summarized in Table 6 and trip distribution patterns obtained from recently completed traffic studies, traffic generated by the cumulative projects was assigned to the street network using the traffic model. These traffic volumes were added to the existing traffic volumes illustrated in Figure 2, which were first adjusted to reflect the 4% ambient growth to Year 2005 and 9% ambient growth to Year 2010 to develop Cumulative Base traffic volumes for Year 2005 and 2010. The Cumulative Base traffic volumes for Year 2005 and 2010, which are illustrated in Figure 5 and 6, represent the future year peak hour traffic volumes without the project traffic for Year 2005 and 2010, respectively.

CUMULATIVE PLUS PROJECT TRAFFIC PROJECTIONS

Once the forecast of cumulative base conditions was completed, the volume of trips expected to be generated by the proposed project was estimated and then applied to the future street network to develop forecasts that represent future conditions with the project. This section describes the steps used in this process and the resulting traffic projections.

TABLE 5
LIST OF CUMULATIVE PROJECTS

Map #	Project	Land Use	Size	WEEKDAY AM Peak Hour Trips In	AM Peak Hour Trips Out	AM Peak Hour Trips Total	PM Peak Hour Trips In	PM Peak Hour Trips Out	PM Peak Hour Trips Total
1	Lagoon Tower [a]	Hotel	212 Occupied Rooms (236 total)	35	29	64	36	39	75
2	Kalia Tower [a]	Hotel	408 Occupied Rooms (453 total)	68	55	123	70	73	143
3	Asia-Pacific Center [a]	N/A	122 Staff	85	9	94	9	85	94
4	Waikikian Project [a]	Hotel	315 Occupied Rooms (350 total)	52	43	95	54	57	111
5	2100 Kakakaua Project [b]	Retail	261,125 square feet	126	74	200	241	241	482
	TOTAL CUMULATIVE PROJECT TRIP GENERATION			366	210	576	410	495	905

Note:
[a] Trip Generation from "Waikikian Development Plan", Wilbur Smith Associates
[b] Trip Generation from "King Kalakaua Plaza Phase II, Traffic Impact Report", Wilson Okamoto & Associates, Inc.

TABLE 6
SUMMARY OF PROJECT DESCRIPTION

Land Use	Size
PHASE I	
Edgewater Lanais (to be demolished)	
Hotel	-55 rooms
Retail	-3,870 square feet
Ohana Coral Seas (to be demolished)	
Hotel	-109 rooms
Retail	-10,300 square feet
Carl's Jr. Restaurant (to be demolished)	
Fast-Food	-3,060 square feet
Ohana Edgewater (to be demolished)	
Hotel	-184 rooms
Retail	-10,370 square feet
Ohana Waikiki Village (to be redeveloped)	
Hotel	-442 rooms
Retail	-9,800 square feet
Ohana Waikiki Tower (to be redeveloped)	
Hotel	-439 rooms
Retail	-4,500 square feet
Redeveloped Ohana	
Hotel	793 rooms
Retail	48,000 square feet
Restaurant	5,000 square feet
Fast-Food	5,000 square feet
Showroom	10,000 square feet
Phase I Subtotal	
Hotel	-436 rooms
Commercial	26,100 square feet

TABLE 6 (Continued)
SUMMARY OF PROJECT DESCRIPTION

Land Use	Size
PHASE II	
Ohana Reef Towers (to be upgraded)	
Hotel	no change
Retail	no change
Outrigger Islander Waikiki (to be upgraded)	
Hotel	no change
Retail	no change
Outrigger Reef On The Beach (to be upgraded)	
Hotel	no change
Retail	no change
Malihini Hotel (to be demolished)	
Hotel	-10 rooms
Retail	-1,000 square feet
Ohana Reef Lanai (to be demolished)	
Hotel	-110 rooms
Retail	-3,570 square feet
Ohana Royal Islander (to be demolished)	
Hotel	-101 rooms
Retail	-4,000 square feet
New Outrigger Saratoga Hotel	
Hotel	891 rooms
Retail	25,500 square feet
Fast-Food	4,500 square feet
Phase II Subtotal	
Hotel	670 rooms
Commercial	21,430 square feet
PHASE I AND PHASE II TOTAL	
Hotel	234 rooms
Commercial	47,530 square feet

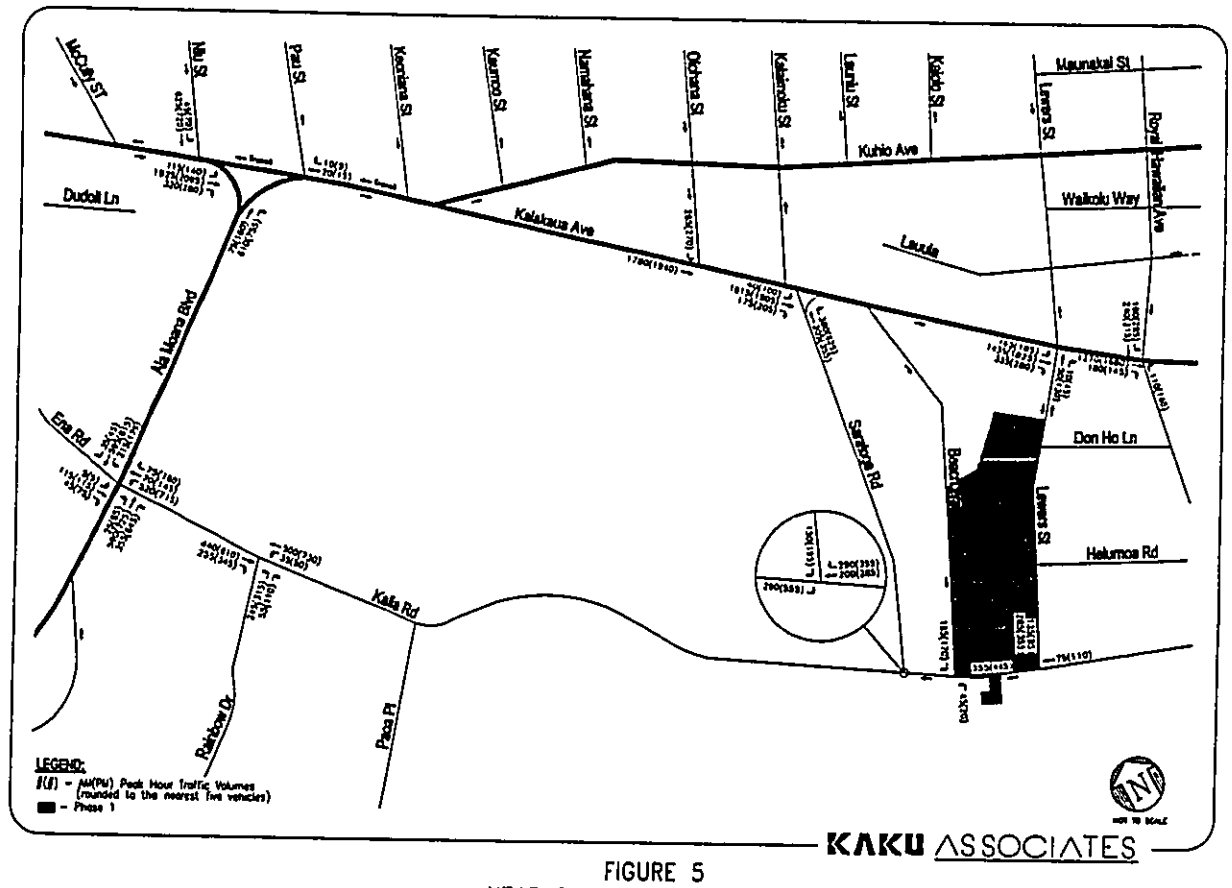

FIGURE 5
YEAR 2005 CUMULATIVE BASE
PEAK HOUR TRAFFIC VOLUMES

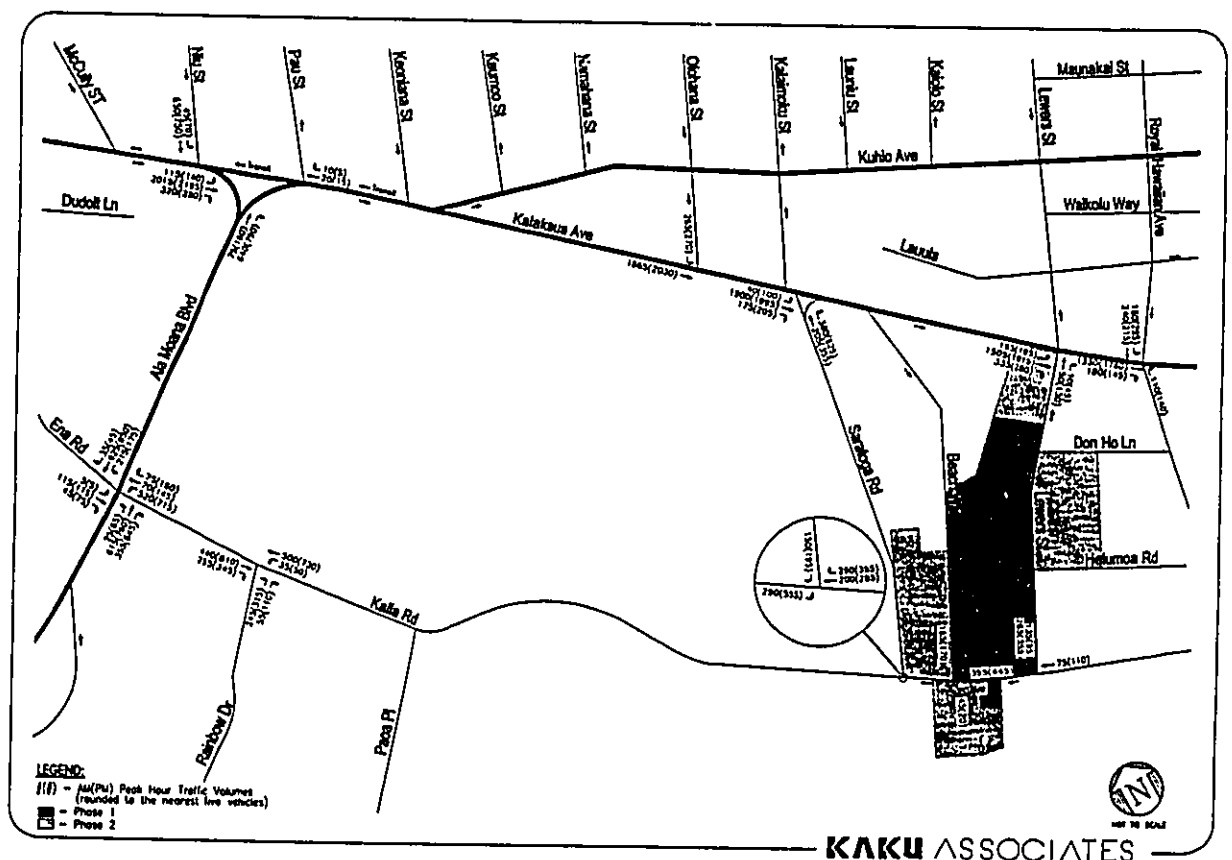

FIGURE 6
YEAR 2010 CUMULATIVE BASE
PEAK HOUR TRAFFIC VOLUMES

Project Description

The indicated proposed project consists of two phases of development, each of which involves a series of improvements that result in the demolition of several facilities, renovations and upgrading of some facilities, redevelopment of other areas, and the construction of several new facilities. Table 6 provides a detailed summary of the various elements of each phase. It identifies the specific facility, the intended changes, and the magnitude of each intended change, e.g., number of room demolished, number of square feet added. Phase I involves the removal of 436 hotel rooms and the addition of 26,100 square feet of commercial space for retail, restaurant, and fast food facilities. Phase II involves the addition of 670 new hotel rooms and 21,430 square feet of commercial space. The sum of Phases I and II is a net increase of 234 hotel rooms and 47,530 square feet of commercial development.

Project Trip Generation

Trip generation estimates for development projects are typically developed using data from *Trip Generation, 6th Edition* (Institute of Transportation Engineers, 1997). This information was supplemented with data collected as part of a previously conducted study assessing the potential environmental impact of the Hilton Hawaii Village expansion in Waikiki, *Waikikian Development Plan, Draft Environmental Impact Statement*, July 2001, for Hilton Hotels Corporation by Belt Collins Hawaii, Ltd. Driveway counts were conducted as part of this previous study to provide the necessary data to develop empirical trip generation rates. These trip generation studies indicate that the vehicular trip generation rate for the Hilton Hotel is 0.299 vehicle trips per hour per occupied room during the morning peak hour and 0.349 vehicle trips per hour per occupied room during the evening peak hour. A comparison with rates illustrated in the Table 7 indicate that these rates are significantly lower than those indicated by the ITE Trip Generation Manual. There are several reasons why the trip generation rates for hotels located in the Waikiki area, such as the Outrigger hotels and the Hilton Hawaiian Village, have a lower trip generation rate than the typical hotel found in the ITE manual. These include:

- The high percentage of guests that are a member of a tour package with pre-arranged public transportation to and from the airport.

TABLE 7
TRIP GENERATION RATES

Land Use	Weekday						
	Average Daily Rate	AM Peak Hour			PM Peak Hour		
		Rate	%In	%Out	Rate	%In	%Out
Hotel (Trips per occupied room)	8.92	0.67	58%	42%	0.71	49%	51%
Retail (Trips per 1,000 sf)	42.92	1.03	61%	39%	3.74	48%	52%
Fast-Food w/o Drive Through (Trips per 1,000 sf)	716	43.87	60%	40%	26.15	51%	49%
Restaurant (High-turnover) (Trips per 1,000 sf)	130.34	9.27	52%	48%	10.86	60%	40%
Movie Theater without Matinee [1] (Trips per seat)	78.06	0.22	50%	50%	6.16	94%	6%

Note:
Trip Generation from Institute of Transportation Engineers (ITE), "Trip Generation, 6th Edition, 1997." Unless otherwise noted.

[1] Trip generation rates used to estimate five shows in Ohana project.

- The number of attractions and activities that are within walking distance of the hotels reducing the need for hotel guests to travel in an automobile during the day to shop, dine, or to attend recreational facilities and activities.

- The high percentage of hotel employees that use public transit or other forms of ridesharing (e.g., carpools) to travel to and from home.

- The proximity of a large number of hotels in a relatively small area allowing delivery trucks and other service vehicles to make multiple stops without moving their vehicle

Therefore, it was determined that although the trip generation rates developed for the Hilton Hotel would not be used for this study, adjustments would be made to the rates found in the ITE manual rates illustrated in Table 7. Based on the implications of the empirical data from the Hilton Hotel and other traffic studies conducted in the Waikiki area of Honolulu, it is estimated that the trip generation rates shown in Table 7 should be reduced by 50% for hotel rooms and 60% for restaurant and fast food facilities.

These adjusted trip generation rates were used to prepare trip generation estimates for the incremental changes in traffic resulting from the completion of the two phases of the proposed project for the Outrigger Hotels. Table 8 summarizes the trip generation estimates for Phases I and II of the project. As indicated, Phase I of the project is expected to result in a net reduction in traffic. The demolition of the Edgewater Lanai will result in a decrease of 26 vph during morning peak hour and 47 vph during the evening peak hour. The demolition of the Ohana Coral Seas will create a decrease of 49 vph and 91 vph, the demolition of the Carl's Jr. Restaurant a decrease of 54 vph and 32 vph, and the demolition of the Ohana Edgewater a decrease of 71 vph and 115 vph. The redevelopment of the Ohana Waikiki Village will result in a net decrease of 149 vph and 195 vph, and the redevelopment of the Ohana Waikiki Tower will create a net decrease of 142 vph and 172 vph. The redevelopment of the Ohana Hotel will result in a net increase of 387 vph during the morning peak hour and 507 vph during the evening peak hour. The net effect of these demolition and redevelopment projects is a net decrease in Phase I of 104 vph during the morning peak hour and 145 vph during the evening peak hour.

Phase II of the project would result in a net increase in traffic. The demolition of the Malihini Hotel will result in a decrease of 7 vph during the morning peak hour and 15 vph during the evening peak hour. The demolition of the Ohana Reef Lanai will create a decrease of 42 vph and 63 vph,

TABLE 8
PROJECT TRIP GENERATION

Land Use	Size	WEEKDAY AM Peak Hour Trips In	AM Out	AM Total	PM Peak Hour Trips In	PM Out	PM Total
PHASE I							
Edgewater Lanais (to be demolished)							
Hotel (55 rooms)	-50 rooms [a]	(20)	(14)	(34)	(18)	(18)	(36)
Non-Auto Reduction [b]		10	7	17	9	9	18
Retail	-3,870 square feet	(14)	(9)	(23)	(35)	(38)	(73)
Captive & Walk-in [c]		9	5	14	21	23	44
Subtotal		(15)	(11)	(26)	(23)	(24)	(47)
Ohana Coral Seas (to be demolished)							
Hotel (109 rooms)	-98 rooms [a]	(38)	(28)	(66)	(34)	(36)	(70)
Non-Auto Reduction [b]		19	14	33	17	18	35
Retail	-10,300 square feet	(25)	(16)	(41)	(67)	(73)	(140)
Captive & Walk-in [c]		15	10	25	40	44	84
Subtotal		(29)	(20)	(49)	(44)	(47)	(91)
Carl's Jr. Restaurant (to be demolished)							
Fast-Food	-3,060 square feet	(80)	(54)	(134)	(41)	(39)	(80)
Captive & Walk-in [c]		48	32	80	24	24	48
Subtotal		(32)	(22)	(54)	(17)	(15)	(32)
Ohana Edgewater (to be demolished)							
Hotel (184 rooms)	-166 rooms [a]	(64)	(47)	(111)	(58)	(60)	(118)
Non-Auto Reduction [b]		32	24	56	29	30	59
Retail	-10,370 square feet	(25)	(16)	(41)	(68)	(73)	(141)
Captive & Walk-in [c]		15	10	25	41	44	85
Subtotal		(42)	(29)	(71)	(56)	(59)	(115)
Ohana Waikiki Village (to be redeveloped)							
Hotel (442 rooms)	-398 rooms [a]	(155)	(112)	(267)	(139)	(144)	(283)
Non-Auto Reduction [b]		78	56	134	70	72	142
Retail	-9,800 square feet	(24)	(16)	(40)	(65)	(71)	(136)
Captive & Walk-in [c]		15	9	24	39	43	82
Subtotal		(86)	(63)	(149)	(95)	(100)	(195)
Ohana Waikiki Tower (to be redeveloped)							
Hotel (439 rooms)	-395 rooms [a]	(154)	(111)	(265)	(137)	(143)	(280)
Non-Auto Reduction [b]		77	56	133	69	71	140
Retail	-4,500 square feet	(15)	(10)	(25)	(39)	(42)	(81)
Captive & Walk-in [c]		9	6	15	24	25	49
Subtotal		(83)	(59)	(142)	(83)	(89)	(172)
Redeveloped Ohana							
Hotel (793 rooms)	714 rooms [a]	277	201	478	248	259	507
Non-Auto Reduction [b]		(139)	(100)	(239)	(124)	(130)	(254)
Retail	48,000 square feet	63	40	103	186	201	387
Captive & Walk-in [c]		(38)	(24)	(62)	(111)	(121)	(232)
Restaurant	5,000 square feet	24	22	46	32	22	54
Captive & Walk-in [c]		(15)	(13)	(28)	(19)	(13)	(32)
Fast-Food	5,000 square feet	131	88	219	67	64	131
Captive & Walk-in [c]		(79)	(52)	(131)	(40)	(39)	(79)
Showroom	10,000 square feet	1	1	2	30	32	62
Captive & Walk-in [c]		(1)	0	(1)	(18)	(19)	(37)
Subtotal		224	163	387	251	256	507
Phase I Subtotal		(63)	(41)	(104)	(67)	(78)	(145)

TABLE 8 (Continued)
PROJECT TRIP GENERATION

Land Use	Size	WEEKDAY AM Peak Hour Trips In	AM Out	AM Total	PM Peak Hour Trips In	PM Out	PM Total
PHASE II							
Makahiki Hotel (demolished)							
Hotel (10 rooms)	-9 rooms [a]	(3)	(3)	(6)	(3)	(3)	(6)
Non-Auto Reduction [b]		2	1	3	1	2	3
Retail	-1,000 square feet	(6)	(4)	(10)	(14)	(16)	(30)
Captive & Walk-in [c]		3	3	6	10	8	18
Subtotal		(4)	(3)	(7)	(6)	(9)	(15)
Ohana Reef Lanai (to be demolished)							
Hotel (110 rooms)	-99 rooms [a]	(38)	(28)	(66)	(34)	(36)	(70)
Non-Auto Reduction [b]		19	14	33	17	18	35
Retail	-3,570 square feet	(13)	(9)	(22)	(34)	(36)	(70)
Captive & Walk-in [c]		8	5	13	24	18	42
Subtotal		(24)	(18)	(42)	(27)	(36)	(63)
Ohana Royal Islander (to be demolished)							
Hotel (101 rooms)	-91 rooms [a]	(35)	(26)	(61)	(32)	(33)	(65)
Non-Auto Reduction [b]		18	13	31	16	17	33
Retail	-4,000 square feet	(14)	(9)	(23)	(36)	(39)	(75)
Captive & Walk-in [c]		8	6	14	26	19	45
Subtotal		(23)	(16)	(39)	(26)	(36)	(62)
New Outrigger Saratoga Hotel							
Hotel (891 rooms)	802 rooms [a]	311	226	537	279	290	569
Non-Auto Reduction [b]		(156)	(113)	(269)	(140)	(145)	(285)
Retail	25,500 square feet	43	28	71	122	133	255
Captive & Walk-in [c]		(26)	(17)	(43)	(73)	(80)	(153)
Fast-Food	4,500 square feet	118	79	197	60	58	118
Captive & Walk-in [c]		(71)	(47)	(118)	(36)	(35)	(71)
Subtotal		219	156	375	212	221	433
Phase II Subtotal		168	119	287	153	140	293
PHASE I AND PHASE II TOTAL		105	78	183	86	62	148

Note:
[a] Assumed hotel occupancy to be 90%.
[b] The non-auto reduction is based on hotel trip generation estimates in the "Waikiki Development Plan, July 2001, Draft EIR, Volume I".
[c] The captive and walk-in reductions are assumed to be smaller as the non-auto use for hotels since the uses are located adjacent to the hotels and other uses with high pedestrian activity.

and the demolition of the Ohana Royal Islander a net decrease of 39 vph and 62 vph. The completion of the New Outrigger Saratoga Hotel will result in a net increase of 375 vph during the morning peak hour and 433 vph during the evening peak hour resulting in a total Phase II trip generation net increase of 287 vph during the morning peak hour and 293 vph during the evening peak hour.

The completion of both phases would result in a net increase in traffic of 183 vph during the morning peak hour and 148 vph during the evening peak hour.

Project Trip Distribution

Similar to the cumulative projects, the geographic distribution of trips generated by the project is dependent on the type of land use, the quality and operational characteristics of the adjoining roadway system, and the geographic distribution of the employees homes, the potential attractions in the area, and the location of the airport. The trip distribution pattern used for the cumulative projects illustrated in Figure 7 provides the overall trip distribution of project traffic.

Cumulative plus Project Traffic Volumes

The project-generated traffic volumes were assigned to the street system and added to the cumulative base traffic projections. The cumulative plus project peak hour traffic volumes are illustrated in Figures 8 and 9 for Year 2005 Cumulative Plus Project conditions and Year 2010 Cumulative Plus Project conditions, respectively. They reflect future conditions after the completion of the Phase I of the project, i.e., Year 2005 Cumulative Plus Project, conditions and Phase II of the project, i.e., Year 2010 Cumulative Plus Project conditions.

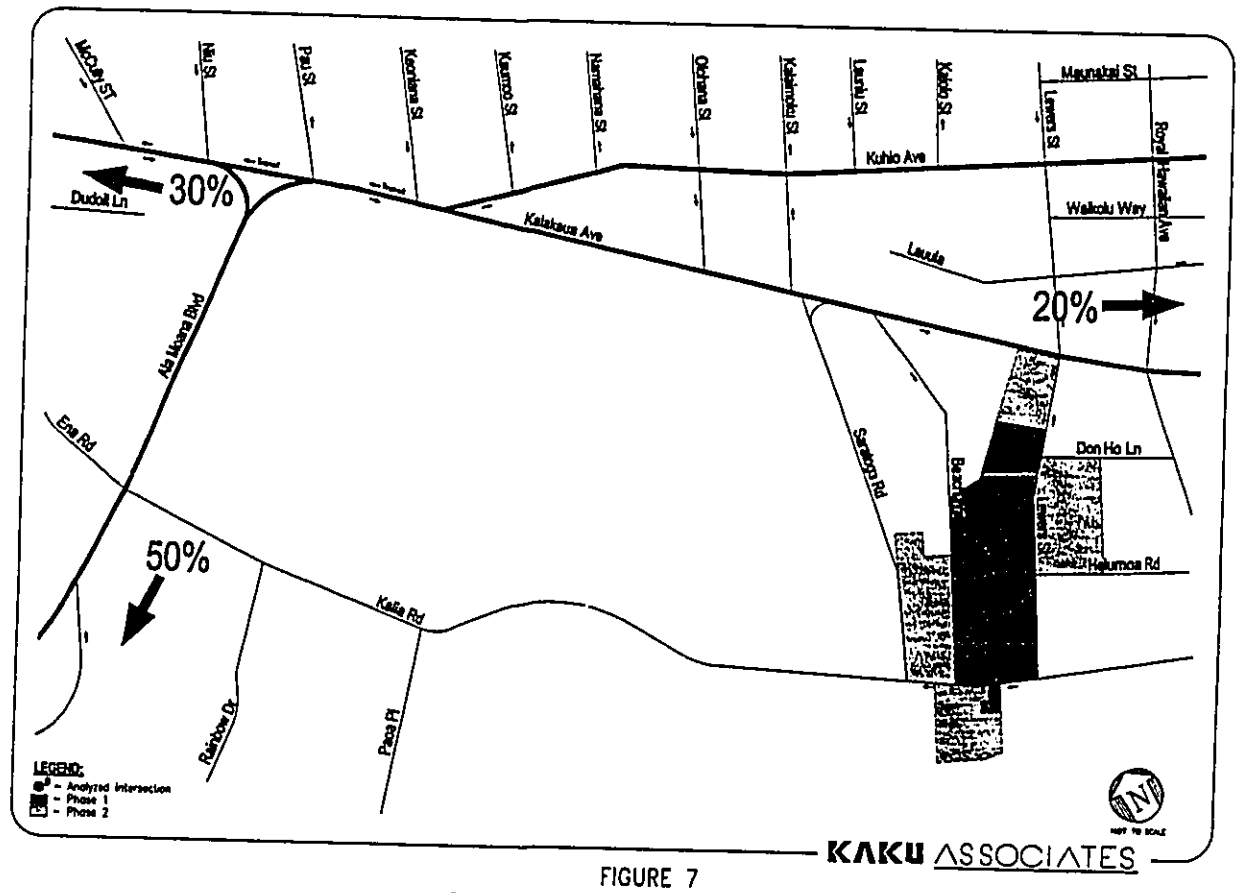

FIGURE 7
PROJECT TRIP DISTRIBUTION PATTERN

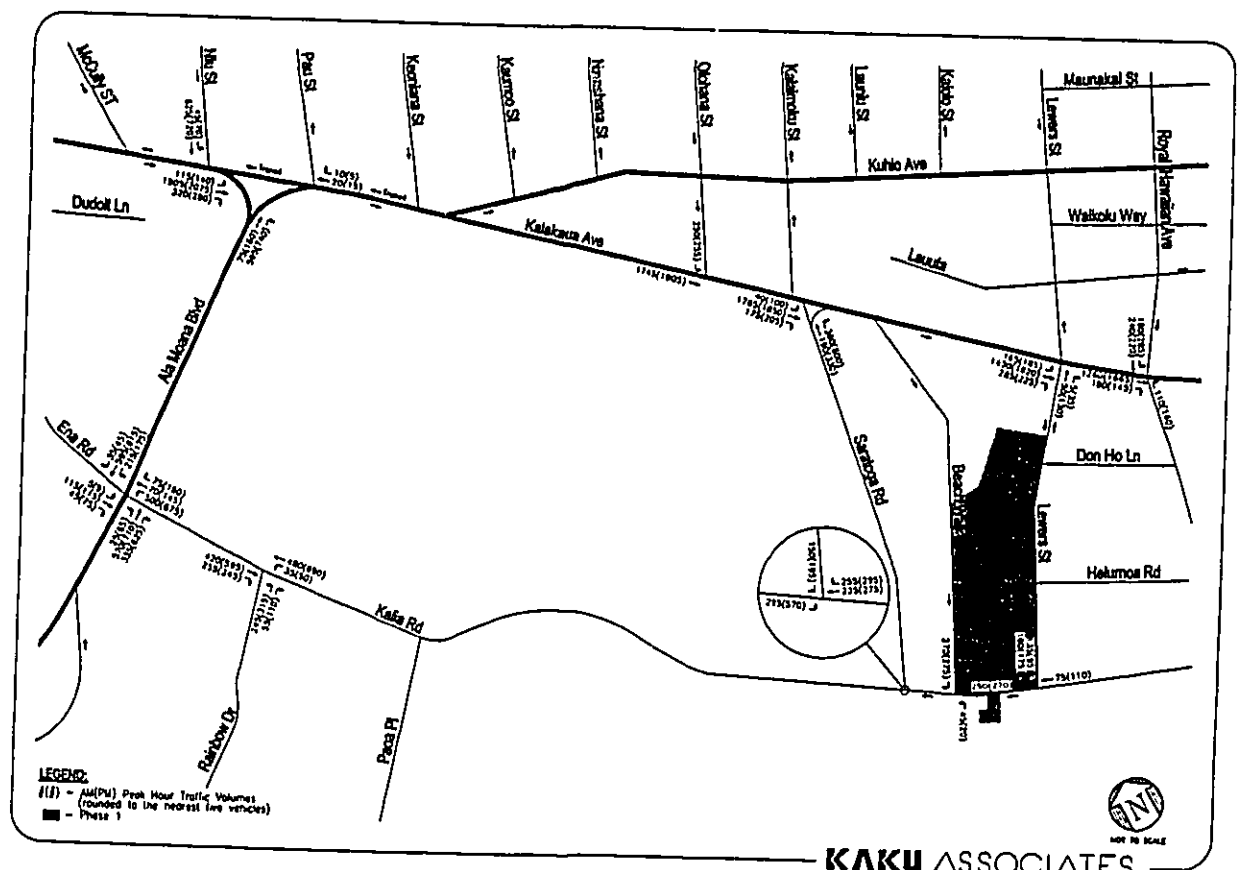

FIGURE 8
YEAR 2005 CUMULATIVE PLUS PROJECT PHASE I
PEAK HOUR TRAFFIC VOLUMES

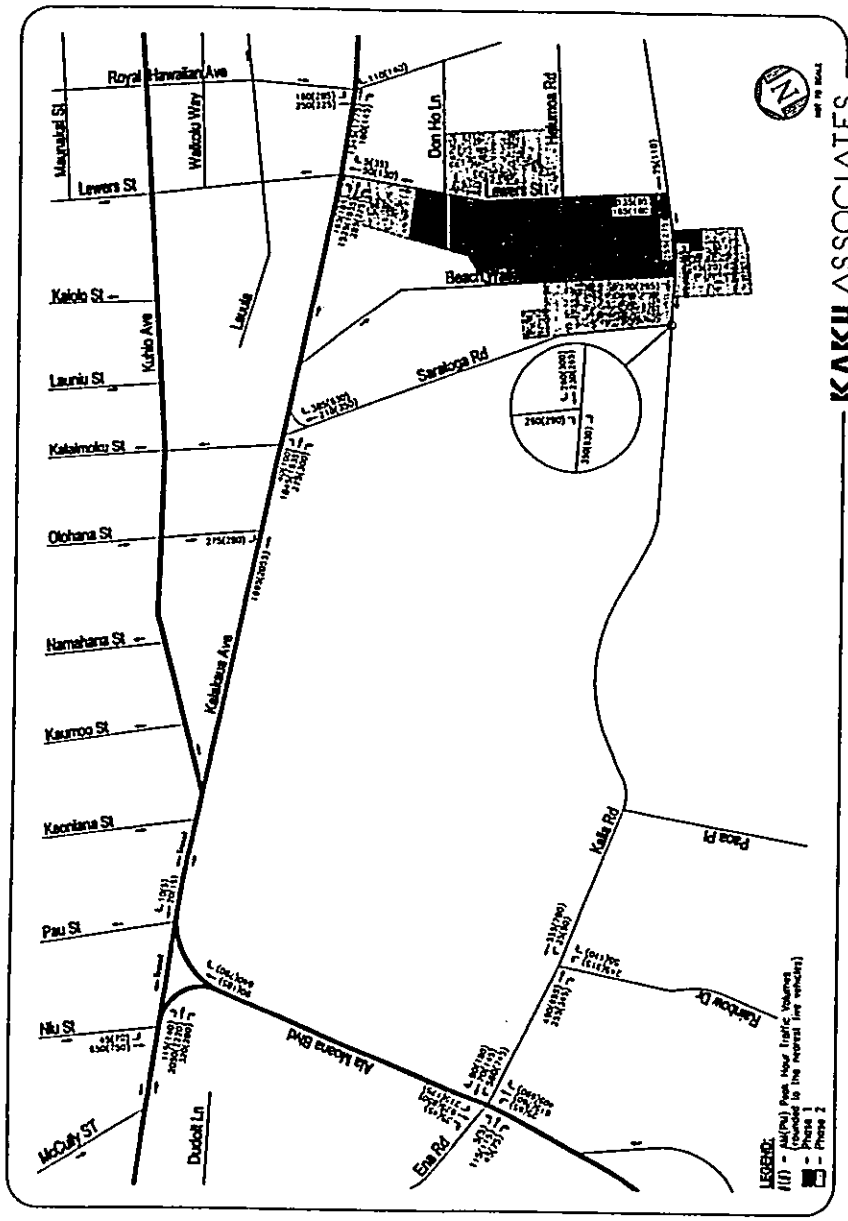

FIGURE 9
YEAR 2010 CUMULATIVE PLUS PROJECT PHASES I & II
PEAK HOUR TRAFFIC VOLUMES

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IV. TRAFFIC IMPACT ANALYSIS

This chapter presents an analysis of the projected Year 2005 and Year 2010 Cumulative Base and Year 2005 and Year 2010 Cumulative Plus Project traffic volumes to determine the potential impacts of the proposed project on operating conditions at intersections in the surrounding street system. The following provides a summary of the methodology and the standards used.

CRITERIA FOR DETERMINATION OF SIGNIFICANT TRAFFIC IMPACT

Although the City and County of Honolulu has not established an officially adopted significance criteria for assessing the level of significance of project-related impacts on operating condition of intersections, it is recognized that the potential significance of a proposed project's impact is measured by either the change in the LOS to an unacceptable condition or the change in the average vehicular delay depending on the base LOS. For example, a development project is considered to have a significant impact if the addition of project-generated traffic causes the level of service at an intersection to deteriorate below the acceptable operating condition, i.e.; if an intersection is operating at LOS D or better before the addition of project traffic, the project is considered to have a significant impact if it is projected to operate at LOS E or F after the addition of project traffic. If the base LOS is E or F, significance is defined in terms of a change in V/C ratio (as calculated by the HCM operational method). This difference in methodology is part of the criteria recognizing that average vehicular delay cannot be calculated using the HCM operational method if the projected traffic volumes at one or more of the approaches at an intersection is such that over-saturated conditions are projected.

CUMULATIVE BASE INTERSECTION OPERATING CONDITIONS

This section presents an analysis of potential traffic conditions under Year 2005 Cumulative Base and Year 2010 Cumulative Base conditions. The Year 2005 and 2010 cumulative base traffic

volumes projected in Chapter III were analyzed using the level of service methodologies described in Chapter II to forecast cumulative base peak hour levels of service at the 10 study intersections. Table 9 summarizes the results of the Year 2005 Cumulative Base analysis. As indicated in the table, acceptable levels of services (LOS D or better) are projected at each of the 10 intersections during both of the analyzed peak hours under the Year 2005 Cumulative Base conditions.

Table 10 summarizes the results of the Year 2010 Cumulative Base conditions indicating that all 10 intersections are expected to operate at an acceptable level of service during both peak hours.

PROJECT TRAFFIC IMPACT ANALYSIS

The Year 2005 Cumulative Plus Project volumes were analyzed to determine potential future operating conditions and traffic impacts with the addition of Phase I of project-generated traffic described in Chapter III. The results are presented in Table 9 and indicate that Phase I of the proposed project would not have a significant impact at any of the 10 intersections under these future conditions. All intersections would continue to operate at LOS D or better under these future conditions.

Table 10 summarizes the results of the analysis for Year 2010 Cumulative Plus Project conditions and indicates that none of the 10 intersections would be significantly impacted by the addition of Phase I and II of project traffic. All will continue to operate at LOS D or better.

Therefore, neither Phase I nor Phase II is projected to have an impact on the street system.

TABLE 9
YEAR 2005 FUTURE CONDITIONS
PEAK HOUR LEVELS OF SERVICE

INTERSECTION	PEAK HOUR	YEAR 2005 CUMULATIVE BASE V/C	Delay*	LOS	YEAR 2005 CUMULATIVE PLUS PROJECT PHASE I V/C	Delay*	LOS	Increase in V/C	Significant Impact
1. Ala Moana Bl./Niu St./Pau St. & Kalakaua Av.	AM	0.642	19	B	0.635	19	B	-0.01	NO
	PM	0.742	22	C	0.733	22	C	-0.01	NO
2. Ala Moana Bl. & Kalia Rd./Ena Rd.	AM	0.581	41	D	0.570	41	D	-0.01	NO
	PM	0.700	44	D	0.683	44	D	-0.02	NO
3. Rainbow Dr. & Kalia Rd.	AM	0.346	11	B	0.341	11	B	0.00	NO
	PM	0.465	11	B	0.460	11	B	-0.01	NO
4. Olohana Av. & Kalakaua Av.	AM	0.414	10	A	0.401	10	A	-0.01	NO
	PM	0.442	10	A	0.428	9	A	-0.01	NO
5. Saratoga Rd./Kalaimoku Av. & Kalakaua Av.	AM	0.483	12	B	0.467	12	B	-0.02	NO
	PM	0.610	16	B	0.592	15	B	-0.02	NO
6. Saratoga Rd. & Kalia Rd. [1]	AM	0.414	10	A	0.420	10	A	0.01	NO
	PM	0.837	19	C	0.849	20	C	0.01	NO
7. Beach Walk & Kalia Rd. [2]	AM	n/a	11	B	n/a	12	B	n/a	NO
	PM	n/a	11	B	n/a	11	B	n/a	NO
8. Lewers St. & Kalakaua Av.	AM	0.356	3	A	0.345	3	A	-0.01	NO
	PM	0.457	6	A	0.445	6	A	-0.01	NO
9. Lewers St. & Kalia Rd. [2]	AM	n/a	10	A	n/a	10	A	n/a	NO
	PM	n/a	10	A	n/a	10	A	n/a	NO
10. Royal Hawaiian Av. & Kalakaua Av.	AM	0.407	13	B	0.407	13	B	0.00	NO
	PM	0.483	13	B	0.481	14	B	0.00	NO

Note:
* Delay indicates average stopped delay per vehicle in seconds.
[1] Intersection is controlled by stop signs on all approaches.
[2] Intersection is controlled by stop signs on the minor approaches.

TABLE 10
YEAR 2010 FUTURE CONDITIONS
PEAK HOUR LEVELS OF SERVICE

INTERSECTION	PEAK HOUR	YEAR 2010 CUMULATIVE BASE V/C	Delay*	LOS	YEAR 2010 CUMULATIVE PLUS PROJECT PHASES I & II V/C	Delay*	LOS	Increase in V/C	Significant Impact
1. Ala Moana Bl./Niu St./Pau St. & Kalakaua Av.	AM	0.668	19	B	0.677	20	B	0.01	NO
	PM	0.771	22	C	0.782	23	C	0.01	NO
2. Ala Moana Bl. & Kalia Rd./Ena Rd.	AM	0.589	41	D	0.601	41	D	0.01	NO
	PM	0.710	44	D	0.719	44	D	0.01	NO
3. Rainbow Dr. & Kalia Rd.	AM	0.346	11	B	0.362	11	B	0.02	NO
	PM	0.465	11	B	0.478	11	B	0.01	NO
4. Olohana Av. & Kalakaua Av.	AM	0.428	10	A	0.439	10	A	0.01	NO
	PM	0.457	10	A	0.465	10	A	0.01	NO
5. Saratoga Rd./Kalaimoku Av. & Kalakaua Av.	AM	0.496	12	B	0.511	12	B	0.02	NO
	PM	0.624	16	B	0.636	16	B	0.01	NO
6. Saratoga Rd. & Kalia Rd. [1]	AM	0.414	10	A	0.535	12	B	0.12	NO
	PM	0.837	19	C	1.003	33	D	0.17	NO
7. Beach Walk & Kalia Rd. [2]	AM	n/a	11	B	n/a	12	B	n/a	NO
	PM	n/a	11	B	n/a	11	B	n/a	NO
8. Lewers St. & Kalakaua Av.	AM	0.367	3	A	0.360	3	A	-0.01	NO
	PM	0.472	6	A	0.463	6	A	-0.01	NO
9. Lewers St. & Kalia Rd. [2]	AM	n/a	10	A	n/a	10	A	n/a	NO
	PM	n/a	10	A	n/a	10	A	n/a	NO
10. Royal Hawaiian Av. & Kalakaua Av.	AM	0.417	13	B	0.425	13	B	0.01	NO
	PM	0.496	13	B	0.500	13	B	0.00	NO

Note:
* Delay indicates average stopped delay per vehicle in seconds.
[1] Intersection is controlled by stop signs on all approaches.
[2] Intersection is controlled by stop signs on the minor approaches.

V. MITIGATION MEASURES

The results of the analysis indicate that the proposed project would not have a significant impact at any of the intersections in the study area. Therefore, it is not necessary to identify any mitigation measures for this project.

VI. ANALYSIS OF PROJECT ALTERNATIVE

An alternative to the proposed project has also been developed as part of the planning process for the redevelopment of the Outrigger properties in the Lewers-Kalia area of Waikiki. The most significant characteristic of the project alternative is the proposed closure of Lewers Street between Don Ho Lane and Helumoa Road. As illustrated in Figure 10, the project alternative for the redevelopment of the Outrigger properties is similar to the proposed project but assumes that the entertainment plaza in front of the retail development on Lewers Street would become a public space used for a variety of large functions requiring that Lewers Street be closed between Don Ho Lane and Helumoa Road.

Two separate issues must be addressed in the analysis of the proposed project alternative for redevelopment of the Outrigger properties. They include the need to assess the impact that the proposed closure of Lewers Street would have on access and circulation within the study area and the potential impact that the proposed project alternative would have on the 10 intersections within the study area

ACCESS AND CIRCULATION REQUIREMENTS

A review of the properties in the study area indicates that up to 5 non-Outrigger properties could use Lewers Street to gain access to their site and may be impacted by the proposed closure of the street. These properties are:

- Halekulani Hotel
- Parc Hotel
- Sheraton Waikiki Hotel
- Royal Hawaiian Shopping Center
- Imperial Hawaiian Hotel

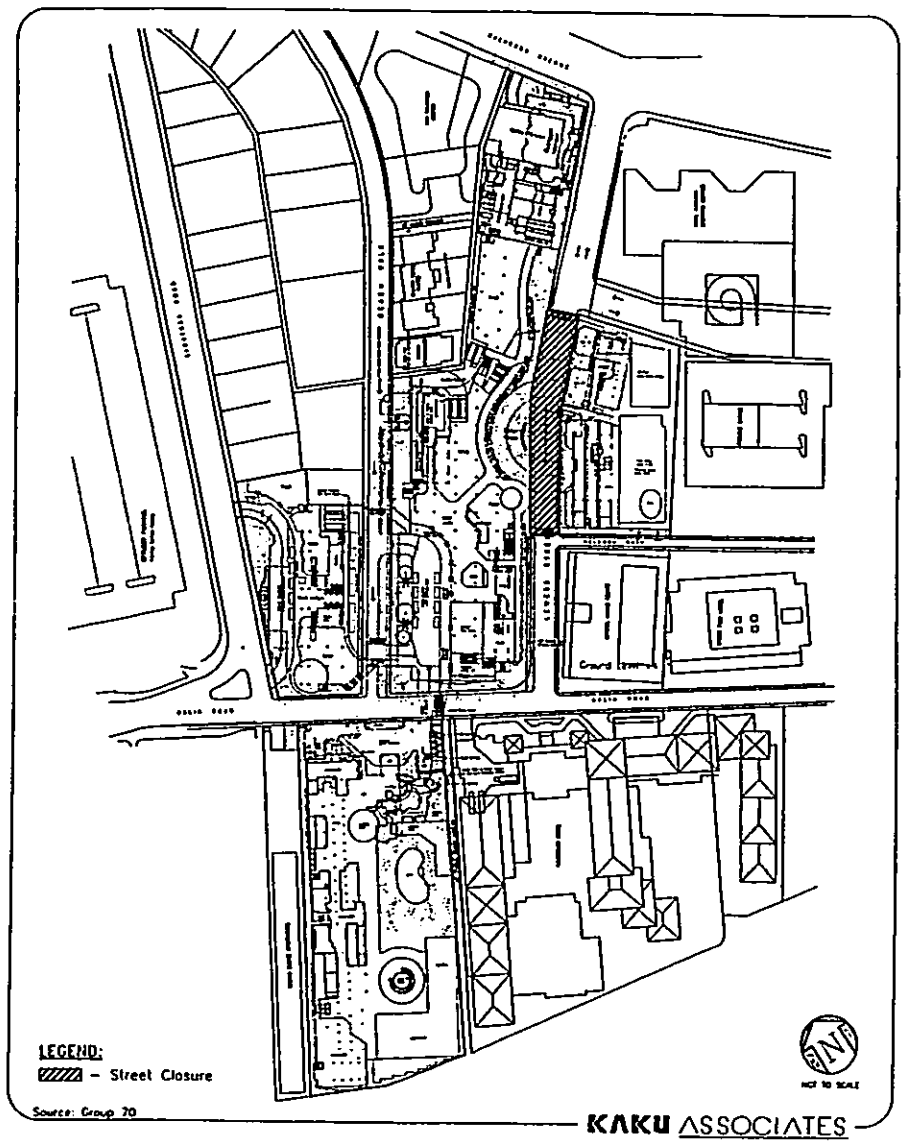

FIGURE 10
SITE PLAN FOR PROJECT ALTERNATIVE (LEWERS STREET CLOSURE)

Figure 11 illustrates the location of these 5 properties in relation to the project site and the portion of Lewers Street proposed for closure.

<u>Proposed Improvements</u>

In order to ensure that access can continue to be provided to each of the properties identified above, and to maintain an appropriate level of circulation within the study area, it is recommended that the following improvements be implemented:

1. Convert Kalia road from one-way ewa-bound to two-way from Saratoga Road to its termination near the Sheraton Waikiki Hotel parking facility.

2. Widen the portion of Kalia Road from Beach Walk to Saratoga Road by approximately 10 feet to accommodate the re-configuration of the intersection of Kalia road and Saratoga Road.

3. Re-configure the intersection of Kalia Road and Saratoga Road to provide a shared through/right-turn lane in the ewa-bound approach; a through lane and an exclusive left-turn lane in the diamondhead-bound approach; and left-turn lane and a right-turn lane in the makai-bound approach.

4. Convert Lewers Street from one-way makai-bound to two-way in the portion from Helumoa Road to Kalia road.

Figure 12 provides a schematic illustration of the proposed improvement plan for Kalia Road that provides the necessary access to each of the 5 properties discussed above.

<u>Revised Access Plan</u>

The following provides a description of the revised access plan for each of the 5 properties identified above:

1. <u>Halekulani Hotel</u>

   <u>Current</u> - Most vehicles currently gain access to the hotel off of Kalakaua Avenue by turning right at Lewers Street to Kalia Road. Some vehicles may use Beach Walk to Helumoa Road to Lewers Street to Kalia Road. All vehicles departing the hotel must use Kalia Road to its intersection with Saratoga Road. Traffic would either continue on

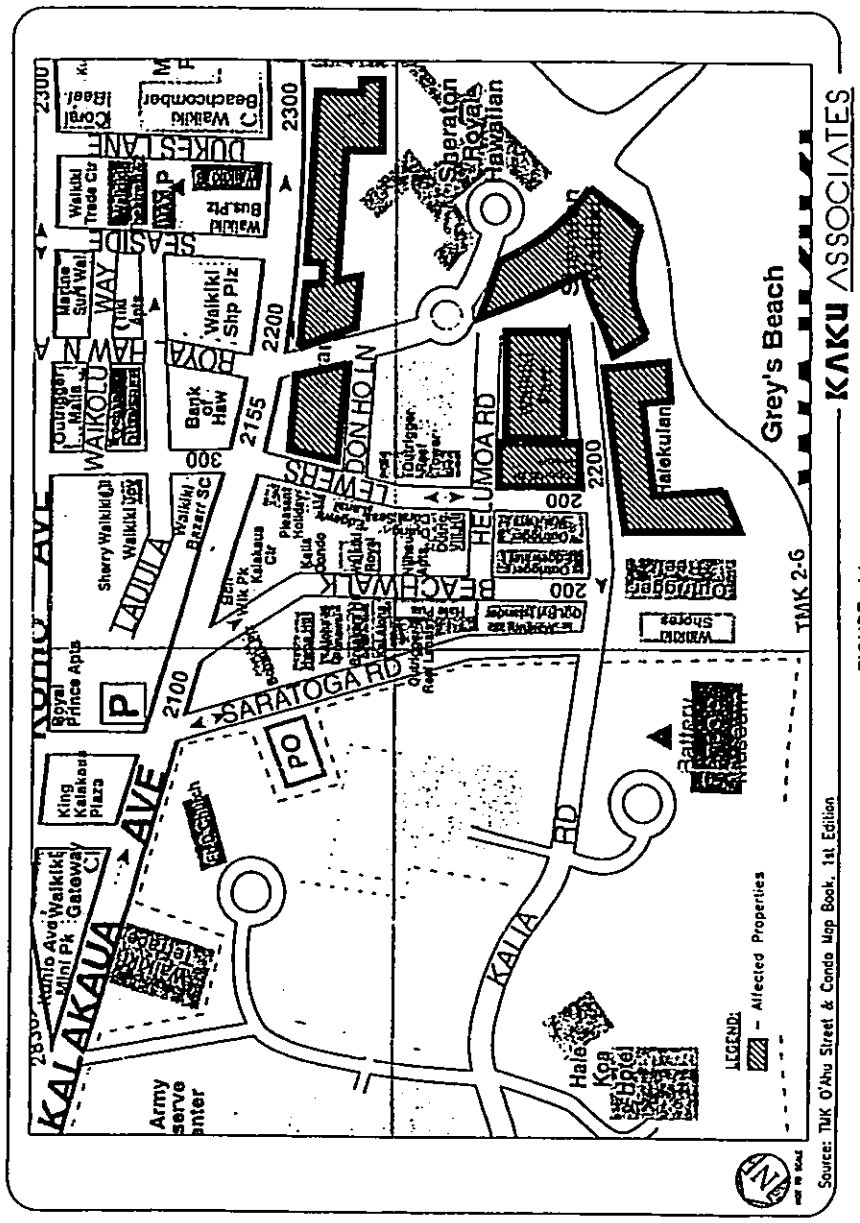

FIGURE 11
LOCATION OF PROPERTIES AFFECTED BY CLOSURE OF LEWERS STREET

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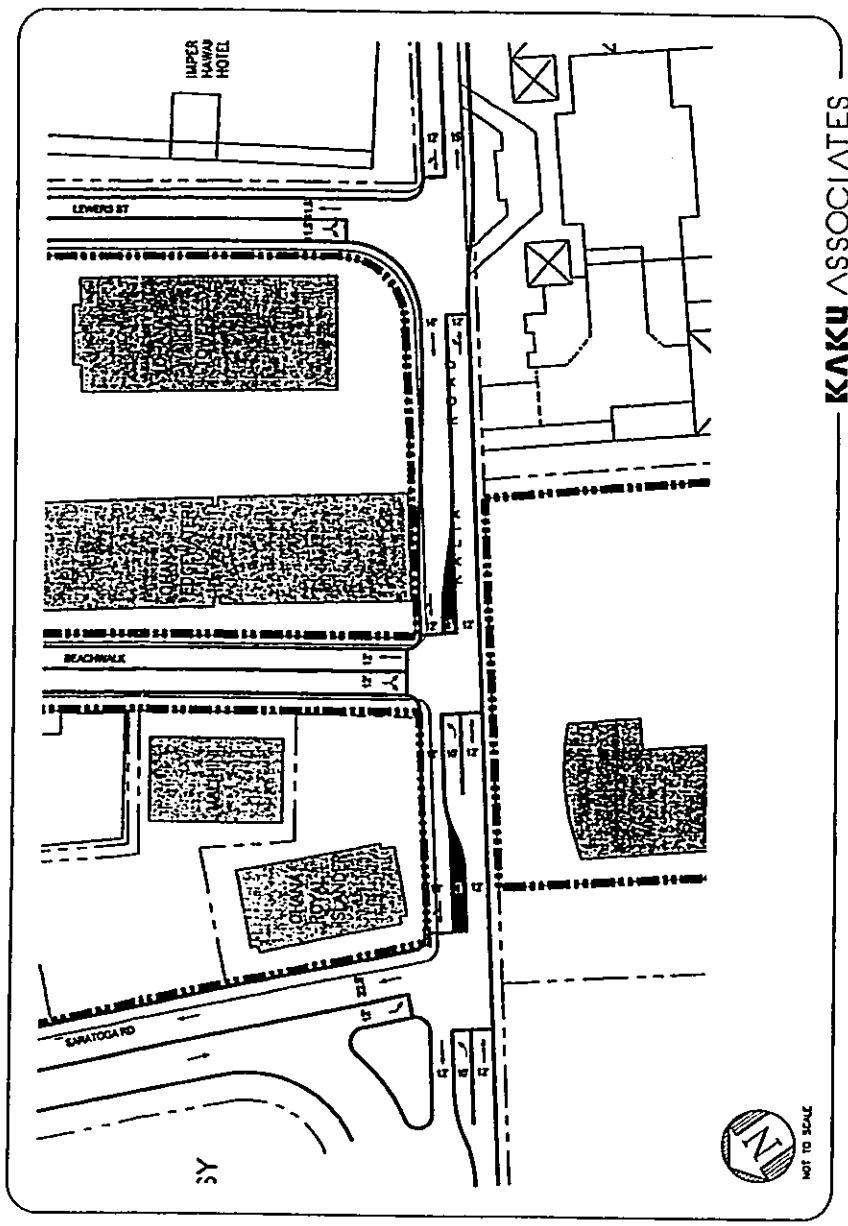

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FIGURE 12
PROPOSED IMPROVEMENTS TO KALIA ROAD

Kalia Road toward Ala Moana Boulevard or turn-right onto Saratoga Road toward Kalakaua Avenue.

Revised - The revised route would use Kalia Road to access the hotel and to depart the hotel. Traffic can use either Kalia Road or Saratoga Road to both access the hotel and depart. Figure 13 schematically illustrates both access and departure routes.

2. Parc Hotel

Current – As illustrated in Figure 13, access to and from the Parc Hotel is similar to the Halekulani Hotel. The difference is that Halumoa Road rather than Kalia Road provides direct access to the hotel.

Revised – The revised route for the Parc Hotel would be similar to the revised route for the Halekulani Hotel. The difference is that it is necessary to use the portion of Lewers Street between Kalia Road and Helumoa Road to access Helumoa Road then access the Park Hotel. Vehicles reverse the route to exit the site.

3. Sheraton Waikiki Hotel

Current – The primary access to the Sheraton Waikiki Hotel is off of Kalakaua Avenue to Royal Hawaiian Avenue. Don Ho Lane to Lewers Street is also used to depart the hotel's parking facility. Some of the employees currently use a rear driveway to the parking facility off of Helumoa Road.

Revised – The proposed closure would not affect the primary access route to the Sheraton Waikiki Hotel. The recommended roadway improvements would allow the employees to continue to access the rear driveway via Helumoa road. Those who currently use don Ho Lane to exit the parking facility to go makai in Lewers would be forced to go mauka back to Kalakaua Avenue, or to use the rear driveway to Helumoa Road as illustrated in Figure 13.

4. Royal Hawaiian Shopping Center

Current – Similar to the Sheraton Waikiki Hotel, the access to the Royal Hawaii Shopping Center is off of Kalakaua Avenue onto Royal Hawaiian Avenue. Some vehicles use Don Ho Lane to exit via Lewers Street.

Revised – The proposed closure to Lewers Street would only have a minor affect on the access to the Royal Hawaiian Shopping Center. Those that use Don Ho Lane to exit the parking garage to access Lewers Street to travel makai toward Kalia Road would no longer be able to make this maneuver.

5. Imperial Hawaiian Hotel

Current – Similar to the Halekulani and Parc Hotels, most vehicles currently gain access to the hotel off of Kalakaua Avenue by turning right at Lewers Street to Helumoa Road and the entrance to the hotel. Some vehicles may use Beach Walk to Helumoa Road and cross Lewers Street to the hotel. All vehicles departing the hotel must use Lewers

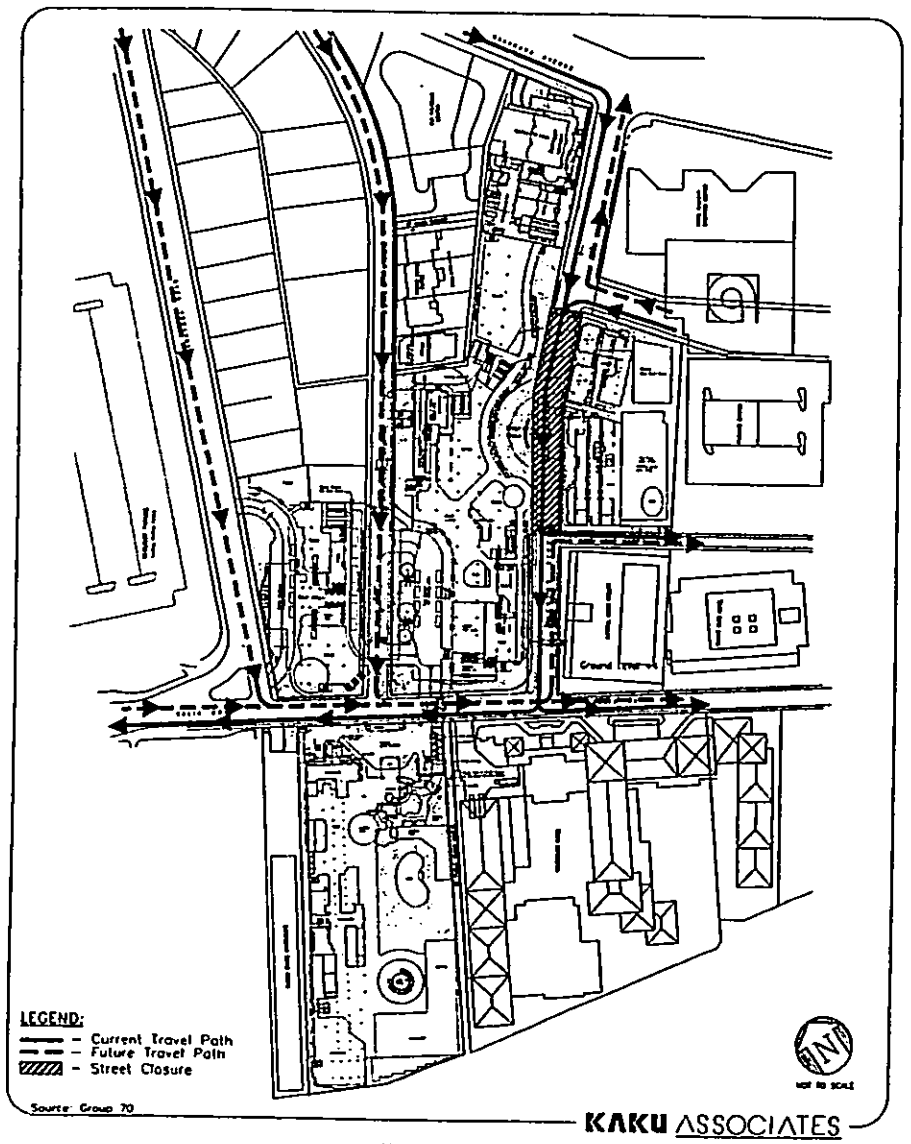


FIGURE 13
CURRENT AND REVISED ACCESS

Street to Kalia Road to its intersection with Saratoga Road. Traffic would either continue on Kalia or turn onto Saratoga Road.

Revised - The revised route for the Imperial Hawaiian Hotel would be similar to the revised route for the Halekulani Hotel. However, it would be necessary to use the portion of Lewers Street between Kalia Road and Helumoa Road to access the hotel. Vehicles reverse the route to exit the site.

IMPACT OF PROPOSED CLOSURE TO LEWERS STREET

In order to properly evaluate the potential impact of the proposed closure of Lewers Street between Don Ho Lane and Helumoa Road, the appropriate modifications to existing traffic patterns must be made to reflect the affects of this closure on existing traffic. To accomplish this task, it was necessary to develop a detailed understanding of the travel routes of all traffic currently using Lewers Street. Once this understanding was developed, it was necessary to project the revised route that this traffic would use to access its destination. The revised routes expected to be used by the traffic generated by the cumulative projects and the completion of the proposed redevelopment of the Outrigger Properties were then developed. The combination of these three elements of the traffic forecasts were used to prepare the Year 2010 Cumulative Plus Project Alternative traffic forecasts. These traffic projections are illustrated in Figure 14.

The volumes in Figure 14 were analyzed using the same methodology used to analyze the previous traffic scenarios. The results of this analysis summarized in Table 11 indicate that all of the study intersections but one, the intersection of Kalia Road and Saratoga Road, would continue to operate at LOS D or better. The intersection of Kalia/Saratoga is projected to have average delays of 17 seconds per vehicle resulting in an operating condition of LOS C during the morning peak hour and average delays of 65 seconds per vehicle and LOS F during the evening peak hour under these future conditions.

Therefore, the completion of the proposed project alternative with the closure of Lewers Street would have a significant impact at one location, Kalia Road and Saratoga Road.

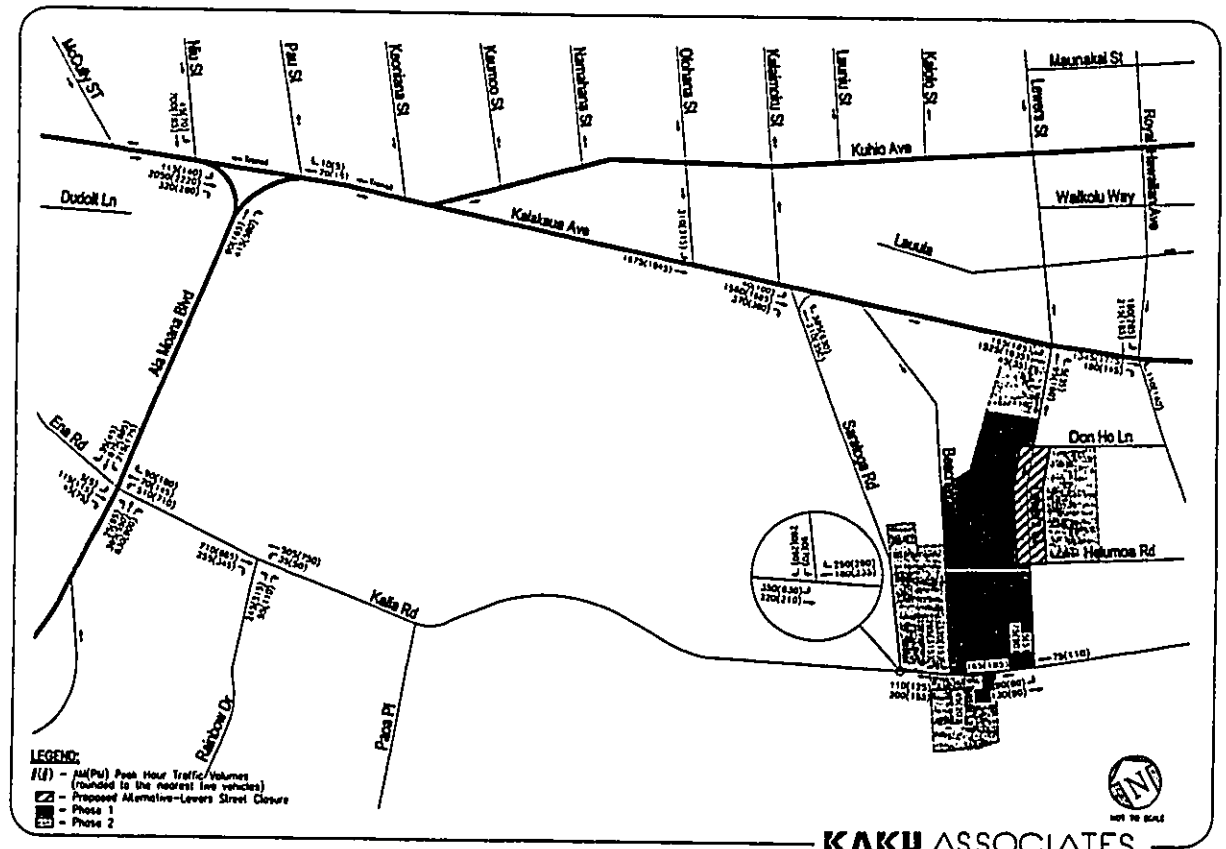


FIGURE 14
YEAR 2010 CUMULATIVE PLUS PROJECT ALTERNATIVE (LEWERS STREET CLOSURE)
PEAK HOUR TRAFFIC VOLUMES

TABLE 11
YEAR 2010 FUTURE CONDITIONS FOR PROJECT ALTERNATIVE
PEAK HOUR LEVELS OF SERVICE

INTERSECTION	PEAK HOUR	YEAR 2010 CUMULATIVE BASE V/C	Delay*	LOS	YEAR 2010 CUMULATIVE PLUS PROJECT ALTERNATIVE V/C	Delay*	LOS	Increase in V/C	Significant Impact	YEAR 2010 CUMULATIVE PLUS PROJECT ALTERNATIVE WITH MITIGATION V/C	Delay*	LOS	Increase in V/C	Significant Impact
1. Ala Moana Bl./Niu St./Pau St. & Kalakaua Av.	AM	0.668	19	B	0.606	18	B	-0.06	NO					
	PM	0.771	22	C	0.711	21	C	-0.06	NO					
2. Ala Moana Bl. & Kalia Rd./Ena Rd.	AM	0.589	41	D	0.519	41	D	-0.07	NO					
	PM	0.710	44	D	0.646	44	D	-0.06	NO					
3. Rainbow Dr. & Kalia Rd.	AM	0.348	11	B	0.429	10	A	0.08	NO					
	PM	0.465	11	B	0.542	11	B	0.08	NO					
4. Olohana Av. & Kalakaua Av.	AM	0.428	10	A	0.421	11	B	-0.01	NO					
	PM	0.457	10	A	0.450	11	B	-0.01	NO					
5. Saratoga Rd./Kalaimoku Av. & Kalakaua Av.	AM	0.496	12	B	0.486	12	B	-0.01	NO					
	PM	0.624	16	B	0.612	16	B	-0.01	NO					
6. Saratoga Rd. & Kalia Rd. [1]	AM	0.414	10	A	0.693	17	C	0.28	NO	0.532	13	B	0.12	NO
	PM	0.837	19	C	1.206	65	F	0.37	YES	0.920	24	C	0.08	NO
7. Beach Walk & Kalia Rd. [2]	AM	n/a	11	B	n/a	27	D	n/a	NO					
	PM	n/a	11	B	n/a	26	D	n/a	NO					
8. Lewers St. & Kalakaua Av.	AM	0.367	3	A	0.338	5	A	-0.03	NO					
	PM	0.472	6	A	0.442	7	A	-0.03	NO					
9. Lewers St. & Kalia Rd. [2]	AM	n/a	10	A	n/a	9	A	n/a	NO					
	PM	n/a	10	A	n/a	9	A	n/a	NO					
10. Royal Hawaiian Av. & Kalakaua Av.	AM	0.417	13	B	0.402	13	B	-0.02	NO					
	PM	0.496	13	B	0.488	13	B	-0.01	NO					

Note:
* Delay indicates average stopped delay per vehicle in seconds.
[1] Intersection is controlled by stop signs on all approaches.
[2] Intersection is controlled by stop signs on the minor approaches.

MITIGATION MEASURE

It is recommended that the proposed mitigation measure for the intersection of Kalia Road and Saratoga Street be the installation of a traffic signal at this location. If this signal is installed at this location, the intersection would operate at LOS B during the morning peak hour and LOS C during the evening peak hour and the significant impact would be mitigated. No additional improvements would be necessary.

VII. IMPACT OF BRT

The City and County of Honolulu Department of Transportation Services (DTS) is currently engaged in the preparation of an Environmental Impact Statement for the proposed implementation of a Bus Rapid Transit (BRT) system within the primary urban center of Honolulu. The proposed project is intended to address existing and future transportation demand and capacity needs, support socioeconomic growth on the island and in the corridor, improve public transit services, facilitate land use development in the central urban core consistent with the vision for Oahu, and support current planning activities and policies. The entire transit corridor extends from Kapolei in the Ewa District to the University of Hawaii in Manoa. The proposed BRT system includes a zipper lane on the H-1 Freeway during the peak periods, trolley service from Downtown Honolulu to Waikiki, modified and new freeway ramps, and arterial improvements to provide priority treatments for buses, and transit centers.

The planned alignment for the BRT system, as shown on Figure 15, includes the portion of Kalia Road ewa of Saratoga Road and the portion of Saratoga Road between Kalia and Kalakaua Avenue. The traffic analysis of the proposed Outrigger project was re-analyzed under the assumption that the BRT system is implemented and occupies the curb lane in both direction on Kalia Road ewa of Saratoga and the curb lane in both directions on Saratoga Road mauka of Kalia.

CUMULATIVE PLUS PROJECT TRAFFIC VOLUMES

It is expected that the completion of the BRT would not occur within the 2005 timeframe. Consequently, the analysis was limited to the timeframe consistent with Phase II of the project, i.e., Year 2010. A review of the potential changes to the street system and intersections configurations after implementation of the BRT as currently planned indicates that no changes to the traffic projections for the Year 2010 Cumulative Plus Project traffic

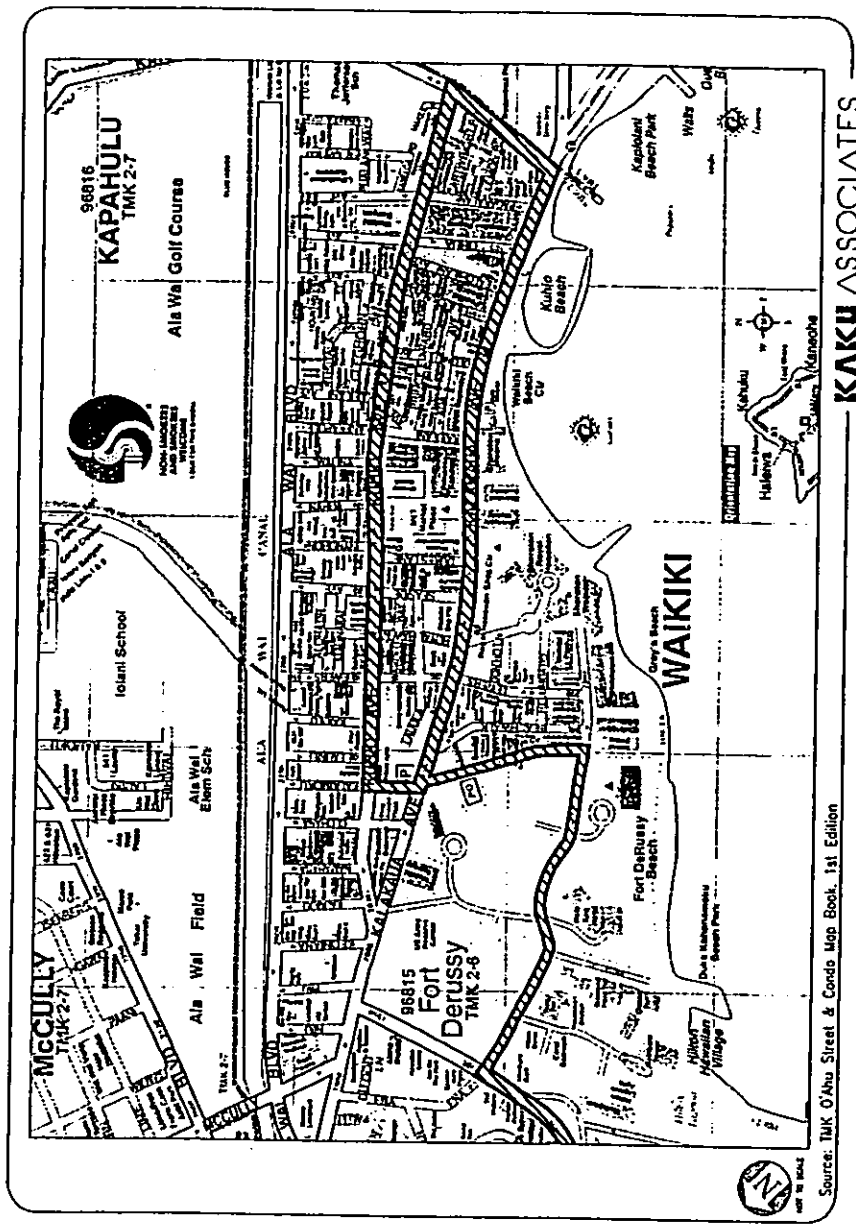


FIGURE 15
ALIGNMENT OF BRT WITHIN STUDY AREA

forecasts illustrated in Figure 9 would be necessary. It is necessary to change the intersection configurations at Kalia/Saratoga and Saratoga/Kalakaua. These are illustrated in the appendix.

TRAFFIC IMPACT WITH BRT

Table 12 summarizes the results of the analysis for Year 2010 Cumulative Plus Project conditions with the completion of the BRT. The results indicate that each of the 10 intersections would continue to operate at LOS D or better and that no significant impacts would result from the completion of the proposed project.

TABLE 12
YEAR 2010 FUTURE CONDITIONS WITH BRT
PEAK HOUR LEVELS OF SERVICE

INTERSECTION	PEAK HOUR	YEAR 2010 CUMULATIVE BASE WITH BRT			YEAR 2010 CUMULATIVE WITH BRT PLUS PROJECT				
		V/C	Delay*	LOS	V/C	Delay*	LOS	Increase in V/C	Significant Impact
1. Ala Moana Bl./Niu St./Pau St. & Kalakaua Av.	AM	0.668	19	B	0.677	20	B	0.01	NO
	PM	0.771	22	C	0.782	23	C	0.01	NO
2. Ala Moana Bl. & Kalia Rd./Ena Rd.	AM	0.657	43	D	0.680	43	D	0.02	NO
	PM	0.857	52	D	0.880	54	D	0.02	NO
3. Rainbow Dr. & Kalia Rd.	AM	0.545	10	A	0.575	10	A	0.03	NO
	PM	0.738	13	B	0.783	13	B	0.03	NO
4. Olohana Av. & Kalakaua Av.	AM	0.526	9	A	0.540	10	A	0.01	NO
	PM	0.584	8	A	0.574	9	A	0.01	NO
5. Saratoga Rd./Kalaimoku Av. & Kalakaua Av.	AM	0.751	16	B	0.740	16	B	-0.01	NO
	PM	0.959	32	C	0.946	30	C	-0.01	NO
6. Saratoga Rd. & Kalia Rd. [1]	AM	0.414	10	A	0.535	12	B	0.12	NO
	PM	0.837	19	C	1.003	33	D	0.17	NO
7. Beach Walk & Kalia Rd. [2]	AM	n/a	11	B	n/a	12	B	n/a	NO
	PM	n/a	11	B	n/a	11	B	n/a	NO
8. Lewers St. & Kalakaua Av.	AM	0.479	3	A	0.470	3	A	-0.01	NO
	PM	0.604	6	A	0.592	6	A	-0.01	NO
9. Lewers St. & Kalia Rd. [2]	AM	n/a	10	A	n/a	10	A	n/a	NO
	PM	n/a	10	A	n/a	10	A	n/a	NO
10. Royal Hawaiian Av. & Kalakaua Av.	AM	0.499	13	B	0.507	13	B	0.01	NO
	PM	0.598	14	B	0.603	14	B	0.01	NO

Note:
* Delay indicates average stopped delay per vehicle in seconds.
[1] Intersection is controlled by stop signs on all approaches.
[2] Intersection is controlled by stop signs on the minor approaches.

VIII. RELATED TRAFFIC AND SAFETY ISSUES

In an effort to address all issues introduced by the city staff, it was necessary to analyze several concerns related to the safety and traffic operations on the street network within the study area as a result of the redevelopment of the Outrigger Kalia/Saratoga properties. These issues include:

- Traffic operations at project driveway locations
- Impact of pedestrian activity on capacity and traffic operations
- Impact of service vehicles
- Impact of transit vehicles

TRAFFIC OPERATIONS AT DRIVEWAYS

A review of the project site plan, which includes the locations of the various parking facilities, indicates that there are a total of five project driveways planned within the study area. Figure 16 illustrates the general location of these five driveways. Figure 17 provides the peak hour traffic volumes projected to use each location under Year 2010 Cumulative Plus Project Conditions.

A capacity analysis was conducted for each of the driveway locations to ensure that no capacity or operational problems would be anticipated. Each project driveway location was analyzed using the same methodology used to analyze the unsignalized intersections within the study area. The results of the analysis, which are summarized in Table 13 summarizes, indicates that each of the driveway locations is projected to operate at LOS D or better resulting in acceptable operating conditions at all locations.

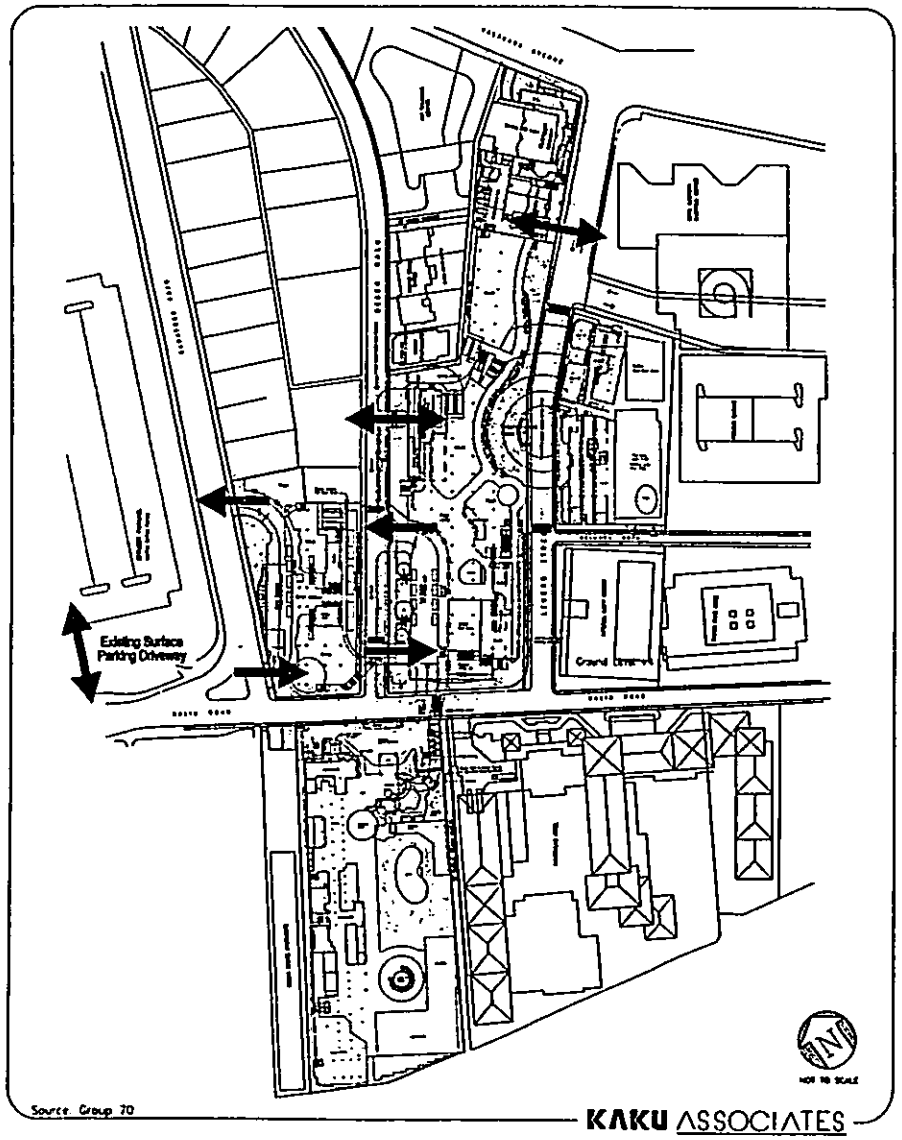


FIGURE 16
LOCATION OF PROJECT DRIVEWAYS

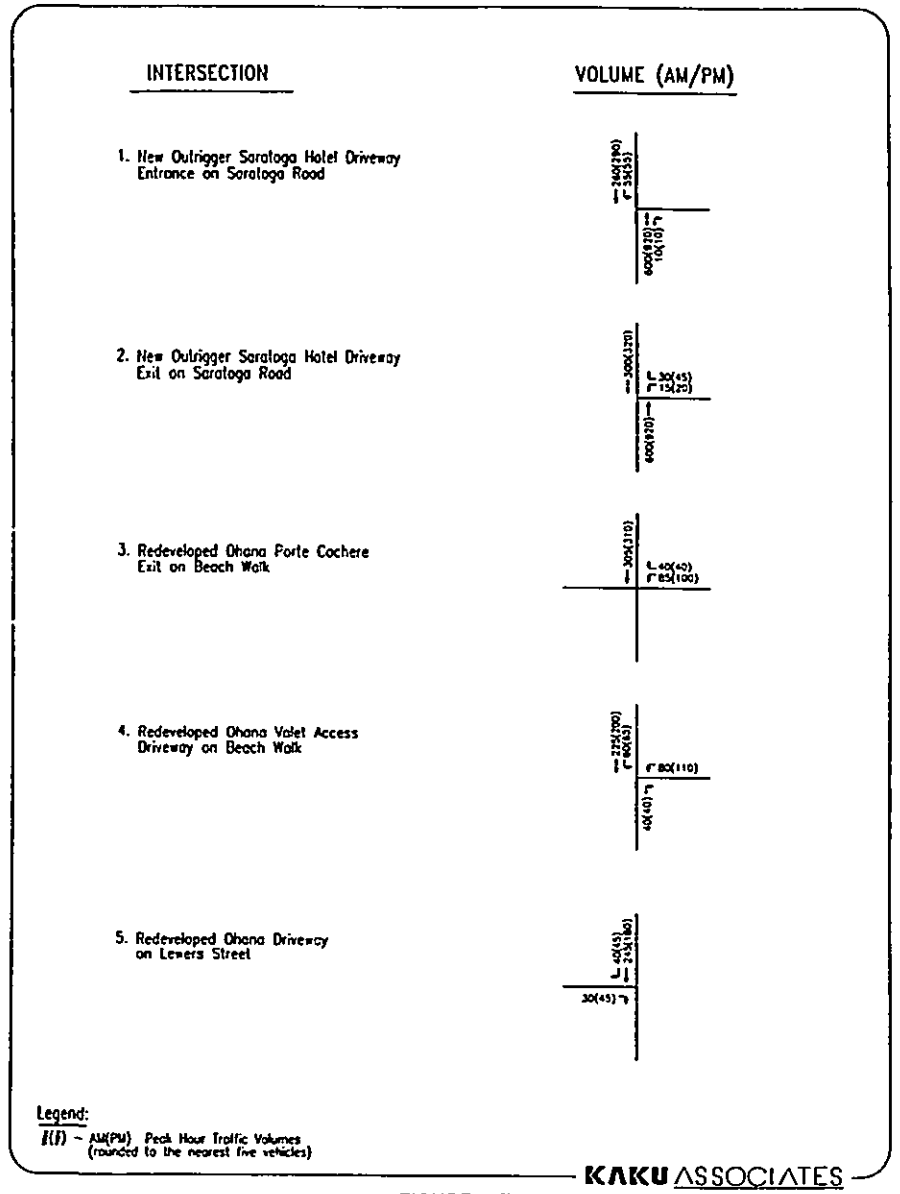


FIGURE 17
FURTURE TRAFFIC VOLUMES AT PROJECT DRIVEWAYS

TABLE 13
YEAR 2010 FUTURE CONDITIONS
AT PROJECT DRIVEWAYS

INTERSECTION	PEAK HOUR	YEAR 2010 FUTURE CONDITIONS Delay*	LOS
1. New Outrigger Saratoga Hotel Driveway Entrance [1] on Saratoga Road	AM	9	A
	PM	10	A
2. New Outrigger Saratoga Hotel Driveway Exit [1] on Saratoga Road	AM	15	B
	PM	23	C
3. Redeveloped Ohana Porte Cochere Exit [1] on Beach Walk	AM	8	A
	PM	8	A
4. Redeveloped Ohana Valet Access Driveway [1] on Beach Walk	AM	11	B
	PM	12	B
5. Redeveloped Ohana Driveway [1] on Lewers Street	AM	10	A
	PM	10	A

Note:
* Delay indicates average control delay per vehicle in seconds.
[1] Intersection is controlled by stop signs on the driveways.

IMPACT ON PEDESTRIAN ACTIVITY

There are currently several locations adjacent to the proposed project site location that experience a significant volume of pedestrian activity. These include the intersections of Saratoga and Kalakaua, Beach Walk and Kalakaua, Lewers and Kalakaua, Lewers and Don Ho, Lewers and Helumoa, Lewers and Kalia, Beach Walk and Kalia, and Saratoga and Kalia.

The lane configurations and the traffic control plan at the intersections of Saratoga Road and Kalakaua Avenue and Saratoga Road and Kalia Road are such that the magnitude of the pedestrian activity does not significantly affect the capacity of the intersections. However, the pedestrians do tend to have an impact on the existing capacity of the other intersections. In most cases, the pedestrian activity affects the ability of vehicles to complete right-turns at these intersections. Because of the width, quality, and nature of the activities on the sidewalks along Lewers, Kalia and Beach Walk, many pedestrians do not stay on the sidewalks and use the roadways to walk. This has a significant impact on the capacity of these roadways.

The improvements included in the proposed project do not include measures that affect the operation of any of the streets or intersections. The most significant improvement proposed in the redevelopment of the Outrigger Kalia/Saratoga property in Waikiki is the revitalization and beautification of the sidewalks in the study area. This includes sidewalks along Lewers Street between Kalakaua Avenue and Kalia Road, on Kalia Road between Lewers Street and Saratoga Road, on Saratoga Road north of Kalia Road, and on Beach Walk adjacent to the Outrigger property. The redevelopment plan also includes a proposal to provide additional landscaping within the Beach Walk right-of-way adjacent to the Outrigger property. These improvements will not only create a much more attractive and pleasant environment in the study area, but they also should have a direct positive impact on the relationship between pedestrian activity and traffic capacity and operations. These improvements should result in a significant reduction in the number of pedestrians that use the roadway. Although these improvements will not affect the impact of pedestrian activity on completing right-turns at some intersections, the project does not include any measures that will worsen the existing conditions.

IMPACT ON SERVICE VEHICLES

One of the most apparent characteristics of the traffic conditions on the streets adjacent to the Outrigger property is the number of service vehicles that park in on-street spaces to complete their deliveries and provide other services. This is true on Lewers Street, Kalia Road, Saratoga Raod, and Beach Walk. This practice of service vehicles using the roadways to conduct their business is the most significant factor affecting the capacity of the roadways in the study area. This activity also has a negative impact on traffic operations and safety.

The completion of the proposed project should result in a significant improvement in traffic operations and safety on the streets identified above. The proposed master plan for each of the redeveloped and new facilities in the Outrigger redevelopment plan includes loading and service bays for all service vehicles. The removal of the service vehicles should significantly increase the capacity of the street system, increase the efficiency of traffic operations, and eliminate many hazardous conditions that currently exist.

IMPACT ON TRANSIT VEHICLES

The proposed plan will not have any impact on the operation of the bus transit system. As indicarted in Chapter II, all existing bus lines are currently on Saratoga Road or Kalakaua Avenue. None of the planned improvements will have any impact on the operation of these routes. The proposed BRT system could be affected by the proposed plan with regard to the planned location of the transit center on Saratoga Road. A mutually beneficial improvement may result by coordinating the planning and design of the transit center on Saratoga Road between the City and County and the Outrigger Hotel. No other impacts are anticipated.

IX. SUMMARY AND CONCLUSIONS

The following provides a summary of the results and conclusions of the traffic study conducted for the proposed Outrigger Lewers/Saratoga Properties Redevelopment project.

EXISTING CONDITIONS

- A total of 10 intersections were analyzed in the study area.
- Each of the 10 intersections is currently operating at LOS D or better, a condition that is within minimum acceptable standards for the City and County of Honolulu.

FUTURE TRAFFIC

- A total of 5 related future projects expected to add traffic to the streets in the study area were identified. These projects are expected to generate 576 vph during the morning peak hour and 905 vph during the evening peak hour.
- The existing traffic on streets in the study area is expected to experience an ambient growth rate of 1% per year resulting in a growth of 4% from Year 2001 Existing Conditions to Year 2005 and 9% from Year 2001 to Year 2010.
- The proposed project is planned for implementation in two phases. Phase I is expected to be completed by Year 2005. Phase II is expected to be completed by Year 2010. Year 2005 Cumulative Base traffic conditions represent future conditions without the addition of project traffic by 2005, and Year 2010 Cumulative Base traffic conditions represent future conditions without the project traffic by 2010.
- Because of the demolition of several facilities and the redevelopment of others in Phase I, the change in traffic expected to result from the completion of Phase I in Year 2005 is a net decrease in traffic of 104 vph during the morning peak hour and 145 vph during the evening peak hour. The Year 2005 Cumulative Plus Project represents future conditions in 2005 with the addition of project (Phase I) traffic.
- Phase II of the project is expected to generate a net increase in traffic of 287 vph during the morning peak hour and 293 vph during the evening peak hour.

- The net incremental change in traffic generation for the overall project, i.e., Phases I and II is a net increase of 183 vph during the morning peak hour and 148 vph during the evening peak hour. The Year 2010 Cumulative Plus Project represents future conditions in 2010 with the addition of project (Phases I and II) traffic.

TRAFFIC IMPACT OF PROPOSED PROJECT

- The analysis of the Year 2005 Cumulative Base traffic projections indicates that all 10 intersections will continue to operate at LOS D or better under these future conditions.
- The analysis of the Year 2010 Cumulative Base traffic projections indicates that all 10 intersections will continue to operate at LOS D or better under these future conditions.
- The analysis of the Year 2005 Cumulative Plus Project traffic projections indicates that all 10 intersections will operate at LOS D or better under these future conditions. Phase I of the proposed project would not have a significant impact on the study area.
- The analysis of the Year 2010 Cumulative Plus Project traffic projections indicates that all 10 intersections will operate at LOS D or better under these future conditions. Phase II of the proposed project will not have a significant impact on the study area.
- No mitigation measures are necessary for this project.

TRAFFIC IMPACT OF PROJECT ALTERNATIVE

- The project alternative plans for the closure of Lewers Street between Don Ho Lane and Helumoa Road. To properly analyze the impacts of the project alternative, it was necessary to estimate the diversion of traffic from current routes onto the revised routes.
- The revised Year 2010 Cumulative Plus Project Alternative traffic forecasts were analyzed to assess the potential impact of the closure of Lewers Street on the local street system. The results of this analysis summarized indicate that all of the study intersections but one, the intersection of Kalia Road and Saratoga Road, would continue to operate at LOS D or better. It is recommended that the proposed mitigation measure for the intersection of Kalia Road and Saratoga Street be the installation of a traffic signal at this location. If this signal is installed at this location, the significant impact would be mitigated.

TRAFFIC IMPACT OF BRT

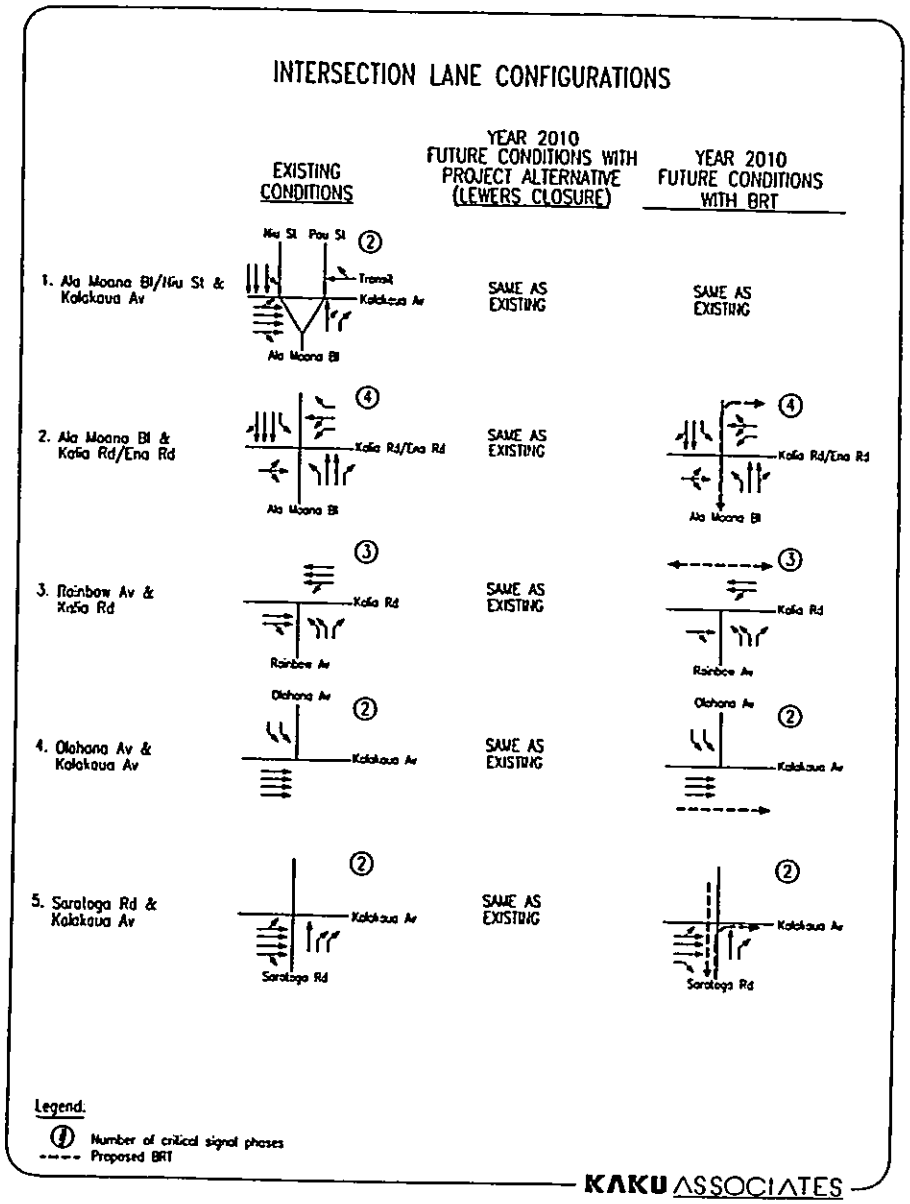
- The Year 2010 Cumulative Plus Project traffic forecasts were analyzed based on the assumption that the BRT system will be completed. The results of this analysis indicate that all 10 intersections will continue to operate at LOS D or better. The project will not have a significant impact under these future conditions.

ANALYSIS OF OTHER ISSUES

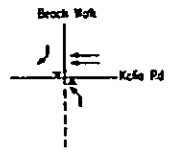
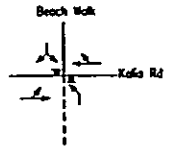
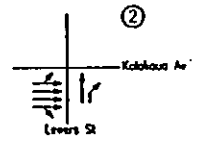
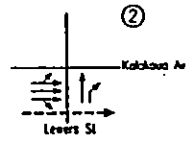
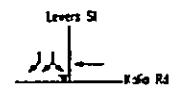
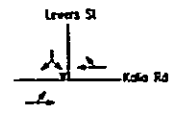
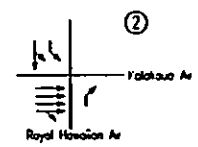
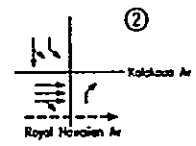
- Each of the project driveways is expected to operate at LOS D or better under Year 2010 Cumulative Plus project conditions.
- The proposed project is expected to improve conditions for pedestrians in the study area. The improved pedestrian conditions should result in improved operations, increased capacity and safer conditions.
- The proposed project is expected to encourage elimination of the use of on-street spaces by service vehicles to complete their business. This should increase safety and capacity.
- The proposed project will not impact the operation of the bus transit system.

APPENDIX A

INTERSECTION LANE CONFIGURATIONS



INTERSECTION LANE CONFIGURATIONS

	EXISTING CONDITIONS	YEAR 2010 FUTURE CONDITIONS WITH PROJECT ALTERNATIVE (LEWERS CLOSURE)	YEAR 2010 FUTURE CONDITIONS WITH BRT
6. Saratoga Rd & Kalia Rd			SAME AS EXISTING
7. Beach Walk & Kalia Rd			SAME AS EXISTING
8. Lewers St & Kalakaua Av		SAME AS EXISTING	
9. Lewers St & Kalia Rd			SAME AS EXISTING
10. Royal Hawaiian Av & Kalakaua Av		SAME AS EXISTING	

Legend:

② Number of critical signal phases

----- Proposed BRT

KAKU ASSOCIATES

Addendum to Traffic Study

Kaku Associates

January 2002

Analysis of Weekend Evening Peak Hour Traffic

(January 2002)

An analysis of weekday versus Saturday evening peak hour traffic was conducted to compare the traffic flow in Waikiki for different days of the week. The analysis was based on data obtained from the City and County of Honolulu Department of Transportation Services and included 24-hour machine traffic counts on Kalakaua Avenue west of Royal Hawaiian Avenue. Data was collected over a three-week period in July and August 1998. The analysis indicates that the typical peak hour for weekdays occurs between 5:00 p.m. and 6:00 p.m. and between 4:00 p.m. and 6:00 p.m. on Saturdays. The analysis indicates that the peak hour volume on Kalakaua Avenue during an average weekday is about 1% higher than the peak hour volume on Saturdays. The weekday volumes for Wednesdays and Thursdays are about 2% higher than the Saturday volumes. The morning peak hour volumes are lower on weekdays.

A review of the trip generation characteristics for projects similar to the Waikiki Beach Walk indicates that the trip generation during the Saturday peak hour is 10 to 25% less than the trip generation during the weekday evening peak hour.

The results of this analysis indicate that it is not necessary to conduct a Saturday traffic analysis for this project since the existing peak hour volumes within the study area are likely to be less than the weekday peak hour volumes used in the traffic analysis, and since the total trip generation for the project is expected to be significantly less on Saturdays than on weekdays.

EXISTING (YEAR 2001) & FUTURE (YEAR 2010) CONDITIONS
INTERSECTION PEAK HOUR LEVEL OF SERVICE

INTERSECTION	APPROACH MOVEMENT		EXISTING CONDITIONS YEAR 2001				CUMULATIVE BASE YEAR 2010				CUMULATIVE PLUS PROJECT YEAR 2010			
	AM	PM	AM		PM		AM		PM		AM		PM	
			DV [a]	LOS [b]	DV [a]	LOS [b]	DV [a]	LOS [b]	DV [a]	LOS [b]	DV [a]	LOS [b]	DV [a]	LOS [b]
1. Ala Moana Bl./Ala Wai Bl./Paoa Dr. & Kalakaua Av.														
Overall Intersection			18.4	B	20.6	C	19.1	B	22.3	C	19.5	B	22.6	C
NB Approach	T,R	T,R	29.4	C	29.7	C	30.7	C	30.8	C	30.9	C	31.0	C
SB Approach	L,T	L,T	26.5	C	24.0	C	26.9	C	24.3	C	26.8	C	24.1	C
EB Approach	L,T,R	L,T,R	13.1	B	16.8	B	14.1	B	18.7	B	14.4	B	19.2	B
WB Approach	T,R	T,R	8.3	A	13.1	B	8.4	A	10.3	B	8.4	A	10.4	B
2. Ala Moana Bl. & Kalia Rd./Ena Rd.														
Overall Intersection			36.9	D	42.8	D	40.7	D	44.2	D	41.1	D	44.4	D
EB Approach	L	L	65.8	E	63.5	E	65.7	E	63.6	E	66.0	E	65.2	E
SB Approach	L	L	54.1	D	62.8	E	53.2	D	67.2	E	54.1	D	68.1	E
EB Approach	L,T,R	L,T,R	56.3	E	60.2	E	59.0	E	65.2	E	59.8	E	66.1	E
WB Approach	L,T	L,T	41.9	D	41.8	D	44.8	D	42.9	D	43.9	D	42.5	D
3. Rainbow Dr. & Kalia Rd.														
Overall Intersection			10.1	B	9.9	A	10.7	B	11.3	B	10.5	B	10.1	B
NB Approach	L	L	21.1	C	24.2	C	21.8	C	23.4	C	22.5	C	24.0	C
SB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
EB Approach	T,R	T,R	8.0	A	7.4	A	8.8	A	9.0	A	8.2	A	8.7	A
WB Approach	L,T	L,T	7.5	A	6.5	A	7.7	A	7.8	A	7.3	A	7.6	A
4. Olohana Av. & Kalakaua Av.														
Overall Intersection			9.6	A	9.4	A	9.7	A	9.5	A	10.0	A	9.7	A
NB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SB Approach	L	L	23.9	C	24.7	C	24.6	C	25.5	C	24.4	C	25.4	C
EB Approach	T	T	7.6	A	7.3	A	7.8	A	7.3	A	7.8	A	7.5	A
WB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
5. Saratoga Rd./Kalaimoku Av. & Kalakaua Av.														
Overall Intersection			11.7	B	15.0	B	11.7	B	15.6	B	11.8	B	15.7	B
NB Approach	R	R	24.1	C	21.2	C	25.2	C	22.7	C	25.6	C	23.2	C
SB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
EB Approach	L,T,R	L,T,R	8.3	A	12.7	B	8.6	A	12.8	B	8.6	A	12.8	B
WB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
6. Saratoga Rd. & Kalia Rd. [c]														
Overall Intersection			9.7	A	13.7	B	10.1	B	19.0	C	11.8	B	33.4	D
NB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SB Approach	n/a	n/a	8.7	A	10.3	B	9.6	A	11.1	B	12.9	B	13.9	B
EB Approach	n/a	n/a	10.8	B	17.9	C	11.4	B	29.3	D	14.1	B	80.3	F
WB Approach	n/a	n/a	9.4	A	11.7	B	9.7	A	12.4	B	10.7	B	13.2	B
7. Beach Walk & Kalia Rd. [d]														
Overall Intersection			11.1	B	11.3	B	11.1	B	11.4	B	11.5	B	11.3	B
NB Approach	n/a	n/a	11.1	B	11.3	B	11.1	B	11.4	B	11.5	B	11.3	B
SB Approach	n/a	n/a	10.1	B	10.5	B	10.1	B	10.5	B	10.5	B	10.5	B
EB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
WB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
8. Lewers St. & Kalakaua Av.														
Overall Intersection			2.7	A	5.9	A	2.8	A	5.7	A	2.8	A	5.6	A
NB Approach	T	T	36.7	D	31.7	C	37.3	D	32.7	C	37.1	D	32.5	C
SB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
EB Approach	L,T,R	L,T,R	1.7	A	3.9	A	1.7	A	3.8	A	1.7	A	3.8	A
WB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
9. Lewers St. & Kalia Rd. [d]														
Overall Intersection			9.8	A	10.1	B	9.9	A	10.1	B	9.6	A	9.7	A
NB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
SB Approach	n/a	n/a	9.8	A	10.1	B	9.9	A	10.1	B	9.6	A	9.7	A
EB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
WB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
10. Royal Hawaiian Av. & Kalakaua Av.														
Overall Intersection			13.2	B	13.5	B	13.1	B	13.3	B	13.2	B	13.4	B
NB Approach	R	R	16.7	B	18.4	B	17.4	B	19.5	B	17.1	B	19.4	B
SB Approach	T	L,T	18.4	B	20.2	C	19.2	B	21.5	C	19.1	B	21.5	C
EB Approach	T,R	T,R	11.6	B	11.2	B	11.3	B	10.7	B	11.5	B	10.8	B
WB Approach	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Notes:
[a] DV denotes Delay per Vehicle (in seconds per vehicle)
[b] LOS = level of Service
[c] Intersection is controlled by stop signs on all approaches
[d] Intersection is controlled by stop signs on the minor approaches

APPENDIX L

Parking and Loading Management Plan, Waikīkī Beach Walk Planned Development

TDA, Inc.

October 2001

PARKING AND LOADING MANAGEMENT PLAN

OUTRIGGER WAIKIKI BEACH WALK
PLANNED DEVELOPMENT

Prepared for:

Outrigger Enterprises, Inc.
Honolulu, Hawaii

Prepared by:

TDA Inc.
615 2nd Avenue, Suite 680
Seattle, Washington 98104
(206) 682-4750; fax: (206) 682-4173
email: tda@tdanet.com

October 25, 2001

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PARKING AND LOADING MANAGEMENT PLAN

OUTRIGGER WAIKIKI BEACH WALK PLANNED DEVELOPMENT

INTRODUCTION

This report concerns parking and loading for the proposed Outrigger Beach Walk project. The report discusses current parking and loading supply and demand, and proposes physical improvements and management plans for parking and loading activities in the future.

Currently, Outrigger Hotels and Resorts owns and operates 11 hotel properties in the Lewers/Saratoga area.

Today, all properties have some below- or above grade parking on-site. However, parking supply at individual hotels varies from as few as 2 to as many as 143 "painted" spaces. The hotels increase the usable parking supply by providing valet services during peak demand times. The Outrigger Lewers/Saratoga hotels share parking facilities, and some have parking facilities that connect beneath and between hotels.

Field surveys of existing usage indicates that the current parking supply is adequate to meet both average and peak demand, although some hotels have higher demand rates than others. For instance, the Reef On The Beach has higher parking demand than other Lewers/Saratoga properties. Honolulu residents and other hotel guests come to Reef On The Beach to eat and relax on weekend evenings. Sharing of parking amongst Outrigger properties allows all peak demand to be accommodated. Some hotels, and the Beach Walk Parking Structure, accept parking by the general public (for a fee).

A high water table limits below-grade parking and loading in this part of Waikiki. Parking and loading facilities for most businesses makai of Kalakaua Avenue only goes down to the –4 level (i.e., 4 feet below grade, or ground level). Therefore, only one-half floor of parking or loading can be located below grade.

With the exception of the Reef On The Beach, none of the hotels have off-street loading facilities.[1] Loading takes place on the street, with delivery vehicles, buses, taxis and limos parked along Lewers, Kalia, Helumoa, Beach Walk and Saratoga. As a result, the area has a congested feel, and is a poor pedestrian experience. The ambience is quite urban in nature, rather than resort-like.

The proposed project will improve some existing hotels and remove others. At the end of Phase II, the Lewers/Saratoga properties will have been condensed from 11 to 5 distinct, but closely interrelated properties. Transportation matters will continue to be operated as a whole, sharing parking, loading and pedestrian facilities between properties.

[1] The Islander Waikiki has an off-street loading area, but its design is such that it is basically unusable.

At build-out, the hotel room count will increase to 3,336 (compared to 3,100 today). The overall retail and restaurant square footage will increase. Additional meeting/ballroom space will be located in the Retail Promenade property, as well as a new showroom.[2] The painted parking supply will increase from the current 609 spaces to 646 painted on-site, and license to use 250 additional spaces at Fort DeRussy, for a total of 896 painted stalls.

The site is being designed to remove all regular Outrigger-related goods deliveries and passenger loading to off-street locations. Goods deliveries will be consolidated as much as possible in the Retail Promenade property, although some off-street loading spaces will be located at the Saratoga, Reef On The Beach and Reef Towers properties. Three new, expansive porte cochere areas will accommodate all passenger loading off-street (whether bus, taxi, limousine or private vehicle). Any overflow delivery demand will be accommodated in the off-street Edgewater Plaza and/or in the new hotel porte cocheres..

EXISTING CONDITIONS

Parking

Existing Parking Supply

Field data were collected on Wednesday, July 11, 2001 to determine the current total parking supply. This supply was rechecked in the field on Monday and Tuesday, July 16 – 17, and Friday through Sunday, October 12 – 14, 2001. In some locations, parking spaces have been taken out of use for storage, laundry, rental car stalls or other (non-Outrigger) leased parking activities. The information below relates to the *usable* parking supply.

Table 1 shows parking supply (painted spaces) by facility and the number of parking floors. Note that floors 2 and 3 are completely above grade, at +4 and +13. Floor 1 is half below and half above grade. One property, the Malihini Hotel, has a 2-stall parking area at+0, or at grade.

The table is followed by Figures 1 – 3, which show graphically the location of existing parking in the project area. Note that there are additional potential spaces in the garages, but the spaces are being used for storage and laundry facilities.

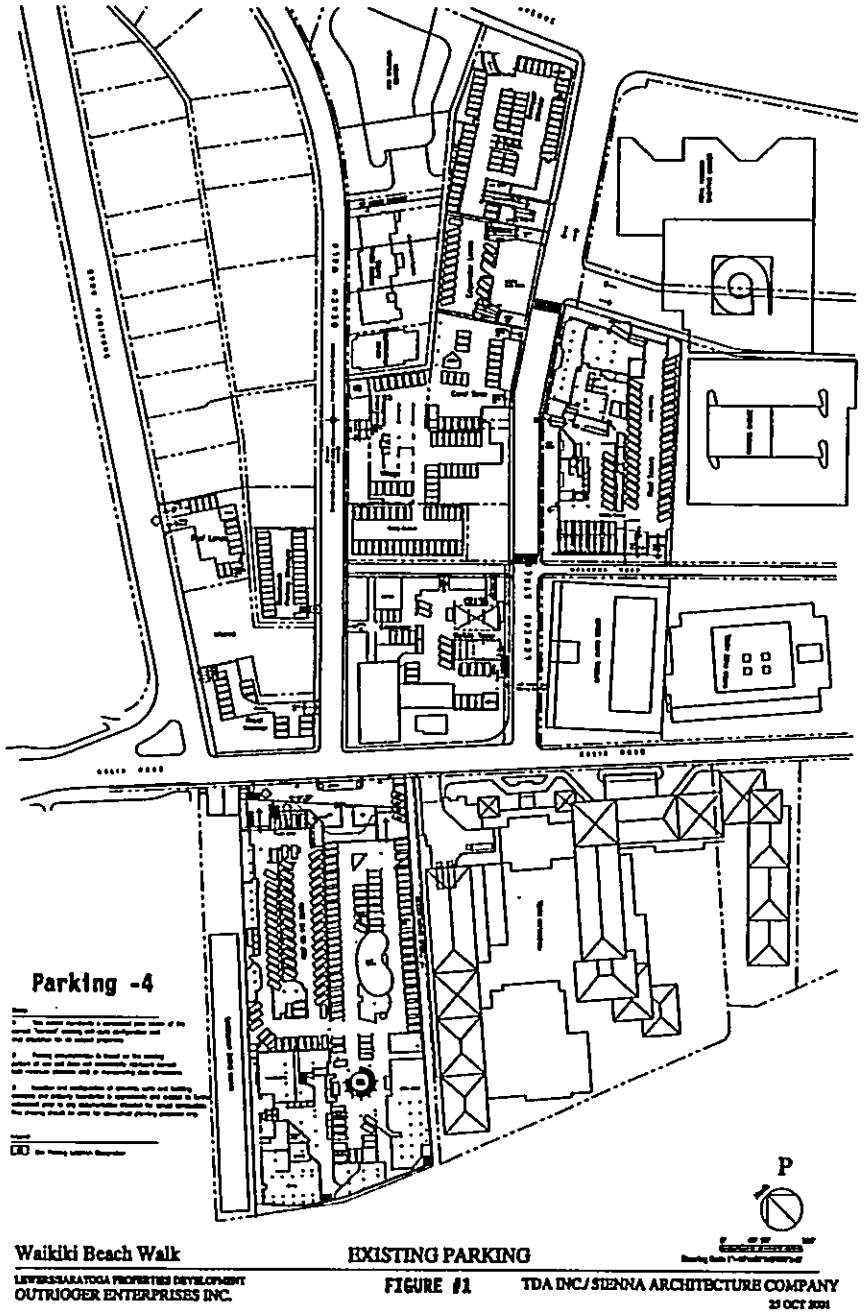
The total existing parking for these properties is about 609 painted, usable spaces.

The parking supply is boosted during peak demand times through valet parking. Parking supply was observed as high as 682 spaces with valet services. With the valet services, all parking demand is accommodated and about 8% of capacity remains in peak demand times.

[2] The existing showroom in the Ohana Reef Towers will be converted to retail space.

TABLE 1. PARKING SUPPLY
Outrigger Waikiki Beach Walk Planned Development

Property	*Painted Supply*	*Added Valet*	*Total*	*No. of Floors*
Islander Waikiki	57	11	68	1
Edgewater Lanais	27	0	27	2
Reef Towers	102	22	124	2
Coral Seas/Waikiki Village	131	15	146	3
Waikiki Tower/Edgewater	37	5	42	2
Beach Walk Parking Structure	77	0	77	3
Reef Lanais/Malihini	18	0	18	1
Royal Islander	17	0	17	2
Reef On The Beach	143	20	163	1
Total Supply	609	73	682	n/a

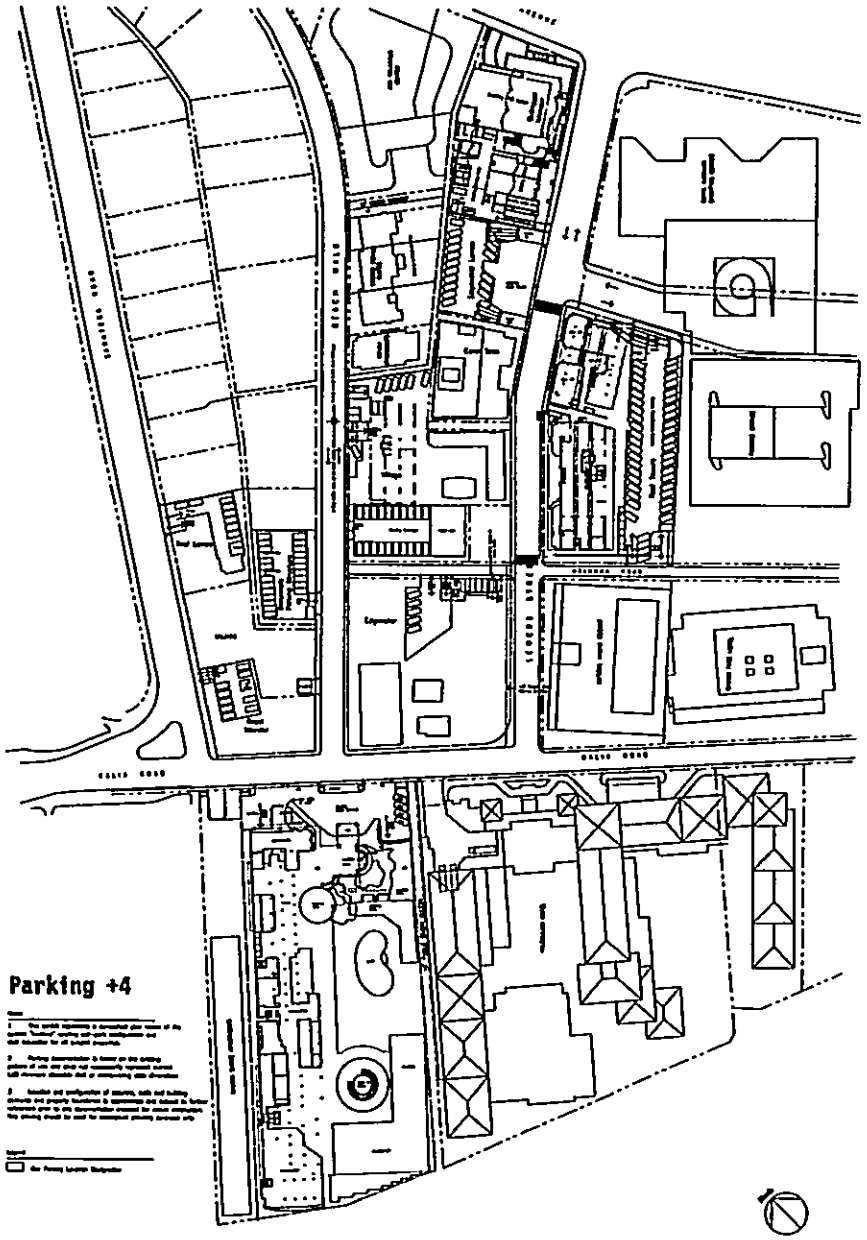


Waikiki Beach Walk — EXISTING PARKING

LEWIS/SARATOGA PROPERTIES DEVELOPMENT
OUTRIGGER ENTERPRISES INC.

FIGURE #1

TDA INC./ SIENNA ARCHITECTURE COMPANY
25 OCT 2001

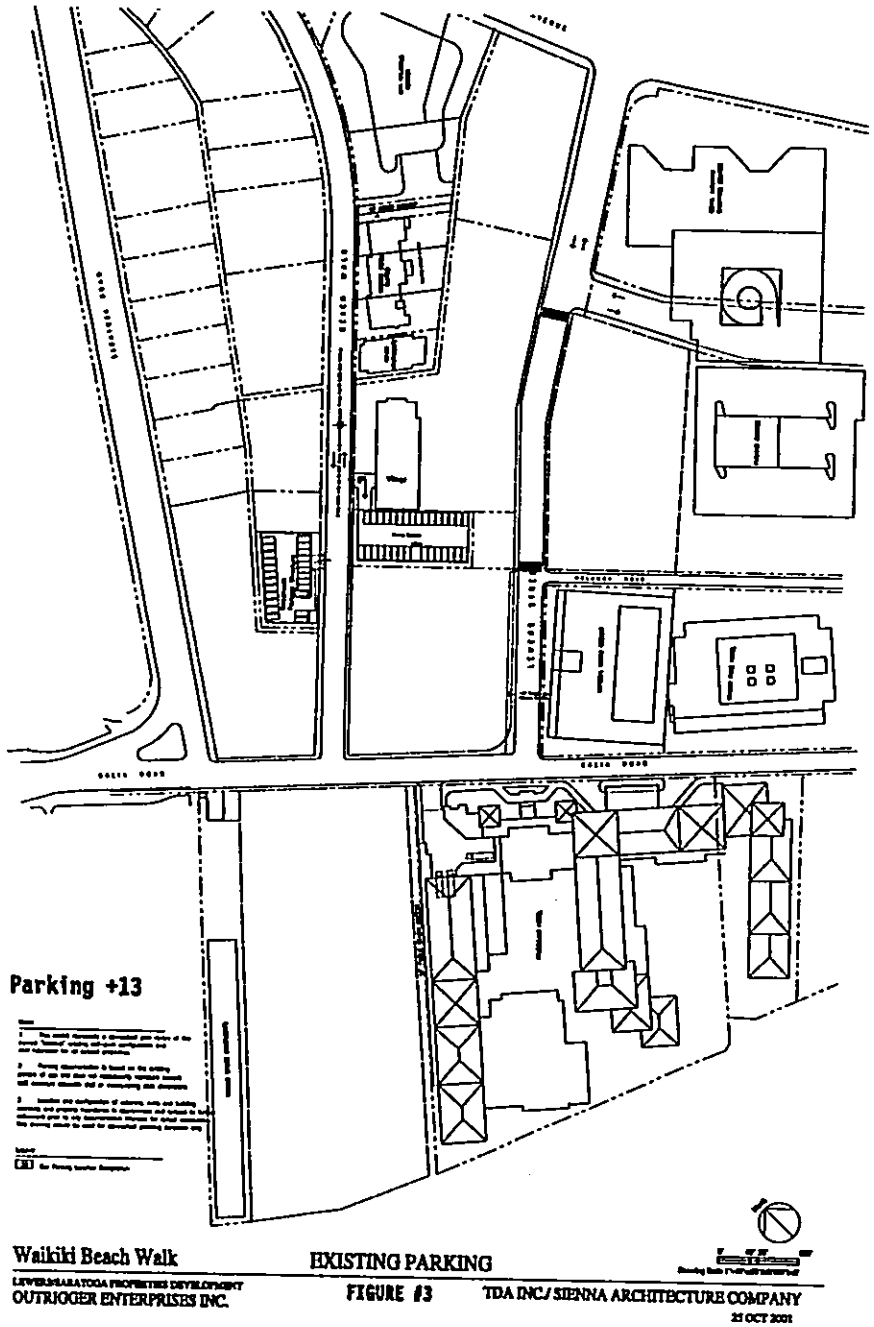


Waikiki Beach Walk — EXISTING PARKING

LEWIS/SARATOGA PROPERTIES DEVELOPMENT
OUTRIGGER ENTERPRISES INC.

FIGURE #2

TDA INC./ SIENNA ARCHITECTURE COMPANY
25 OCT 2001



Most valet parking occurs at Reef On The Beach and the Reef Towers, although valet parking occurs to some degree at all the properties.

Parking Utilization

During field observations July 11 - 15, 2001, parking utilization data were collected over a variety of hours. Table 2 shows a summary of parking utilization, by hotel and for the Outrigger properties as a whole. Note that garages were field checked for utilization during other hours, but overall demand had obviously dropped from the peak hours. Therefore, the data show the peak demand periods.

On Sunday night between 7:30 and 8:30 p.m., 561 vehicles were parked in the Outrigger hotel properties. This represented the very peak time of the week. At the peak time on Sunday evening, overall parking was 92% utilized, with valet services running. Some of the individual facilities, especially Reef On The Beach and Reef Towers, were parked at over 100% due to valet parking. Others, however, were underutilized.

On weekdays, parking was utilized in the 61% to 86% range during the day. Utilization increases in the evenings, when hotel guests with rental cars return after a day out, locals visiting restaurants or the beach come to Waikiki, or those attending shows arrive for the evening.

July is one of the busiest times of the year in Waikiki, but not the very peak month. August has the highest hotel occupancy rates, both for Outrigger and for Waikiki in general. Occupancy can be 80% or higher during August, which translates to about a 23% increase in overall parking demand. (Average occupancy for the hotels lies in the 60 – 65% range). In that case, peak parking demand could be for about 690 spaces. Since the current valet parking system easily increases supply to 682 spaces, the hotels can accommodate demand for 690 spaces by a small adjustment in valet parking.

The data collected represent the reasonable worst case, but not the very worst case, scenario. Typically, the very worst case is not the basis for permitting and development decisions, since it would be wasteful of resources to build to the peak demand. For instance, shopping centers typically build parking to meet the 20th or 30th highest hour of demand; highways are typically built to the 30th highest hour; and recreational highways are built to the 100th highest hour.

Parking Characteristics of Outrigger Facilities

The Beach Walk Parking Structure is the most consistently used facility, with 75% or more utilization during many hours of the day. Note that this parking structure is well used by the general public, as it is primarily above grade and not obviously "connected" to a specific hotel. The Reef On The Beach and Reef Towers had the highest peak utilization rates (over 100%), but utilization fluctuated greatly during the day. Not surprisingly, the Edgewater Lanais garage is underutilized; its appearance and lack of hotel guests probably drive this.

TABLE 2. PARKING UTILIZATION
Outrigger Waikiki Beach Walk Planned Development

Property	Planned Supply	Wednesday 7/11/01 1:00 - 2:00 p.m.	Wednesday 7/11/01 7:00 - 8:00 pm	Thursday 7/12/01 9:00 - 10:00 a.m.	Thursday 7/12/01 11:00-12:00 noon	Friday 7/13/01 8:00 - 9:00 p.m.	Saturday 7/14/01 9:00 - 10:00 a.m.	Sunday 7/15/01 5:30 - 6:30 p.m.	Sunday 7/15/01 7:30 - 8:30 p.m.
Islander Waikiki	57	67%	54%	84%	77%	61%	61%	75%	79%
Edgewater Lanai	27	37%	59%	26%	26%	59%	37%	30%	56%
Reef Towers	102	49%	92%	86%	85%	116%	68%	82%	116%
Coral Seas/Waikiki Village	131	76%	68%	94%	76%	76%	74%	59%	61%
Waikiki Tower/Edgewater	37	38%	70%	46%	22%	76%	62%	78%	61%
Reef Lanais/Makaha	8	25%	83%	8%	5%	50%	0%	63%	50%
Beach Walk Parking Structure and Royal Islander	104	75%	81%	107%	95%	85%	70%	100%	102%
Reef On The Beach	143	57%	107%	64%	51%	92%	72%	102%	114%
Averages		61%	82%	80%	66%	86%	71%	81%	82%

Note: Some hotels use valet parking to increase supply during peak times. This is reflected in those hours when utilization exceeds 100%.
Valet parking was also used at some hotels when parking did not exceed 100%.

The Islander Waikiki is largely underutilized. This hotel seemed to have the highest percentage of guests from Japan, who have a lower tendency to rent cars than mainlanders, Canadians and Australians/New Zealanders.[3]

Interviews with hotel staff indicate that an average of 25% of guests rent a car while staying at these Outrigger properties. This fluctuated some from a low of 15% at the Islander Waikiki (as discussed above) to a high of 40% at the Reef Towers.

Other Nearby Parking Facilities

Parking at Fort DeRussy was also checked. The peak utilization at DeRussy showed 57% of its 527 spaces used on a Friday evening, followed by 52% on Sunday afternoon. Otherwise, the lot was 25% to 35% utilized.

The 613 parking spaces in the Royal Hawaiian Shopping Center parking structure appear to be underutilized, especially at night. Although this facility was not specifically counted, field observations indicate that garage is occupied at a rate of about 35% to 65% over the day and week. This should not be considered an indication of the center's success; many shoppers walk in from Waikiki hotels and businesses.

Parking Supply as Compared to Demand

The data collected demonstrate that the existing parking supply for Outrigger properties meets demand. There are some peak times, which are handled with valet parking services. There is additional, unused valet capacity that could increase the parking supply by another 10%.

Loading – Deliveries, Buses and Taxis

Deliveries – Description and Observations

Most of the Lewers/Saratoga properties were constructed long ago without specific loading facilities. Loading activities occur primarily on-street. The exception is the Reef On The Beach, which has 3 off-street loading spaces. The Islander Waikiki has some loading facilities; however, these are extremely difficult to maneuver into, and most delivery drivers eschew the loading area for the curb along Lewers. Only one space at the Islander Waikiki is "counted" in the existing off-street delivery supply.

Delivery vehicles, ranging in size from private vehicles and pick-up trucks to step vans and single unit trucks, stop along Lewers, Helumoa, Kalia, Beach Walk and occasionally along Saratoga. Drivers can be observed servicing more than one hotel or business at a time, including non-Outrigger facilities. It should be noted that no full-sized (e.g., WB-50 or larger) trucks were observed servicing these hotels.

[3] Based on interviews with hotel staff and management.

The dearth of off-street loading facilities at Outrigger properties is repeated in other Waikiki hotels and other Waikiki businesses. In an urban fabric such as Waikiki, excessive loading docks are wasteful of resources. However, the current delivery demand is not being accommodated well, creating an unpleasant and congested atmosphere in the area.

Delivery activities in Waikiki occur throughout the day. While there is a restriction on activity after 9:00 a.m., it is not adhered to nor strongly enforced by the HPD, who likely have more pressing and critical matters to which they must attend. Given the nature of current business practices (just-in-time deliveries), restricted storage space and service of tourism facilities by a variety of vendors, it is somewhat difficult to restrict deliveries completely outside the 9:00 a.m. deadline. A concerted effort on the part of hotel and retail/restaurant management to schedule deliveries earlier in the day would help this situation.

Most deliveries are by small vehicle (van or pick-up truck). Some deliveries occur in single unit vehicles, approximately 30 feet or shorter in length and 10 to 12 feet tall. These vehicles have a turning radius similar to a small bus or very large passenger vehicle. Most deliveries are short-term, with drivers arriving and departing for deliveries in a matter of minutes.

Some vendors, notably the beverage vendors, dwell longer at the curb. The drivers of these vehicles tend to service more than one facility in one stop. Since these trucks represent the largest trucks making deliveries for Outrigger properties on a regular basis, the drivers probably prefer to walk between different delivery points rather than move their vehicles to another spot along the congested Lewers Street ewa curb.[4] With a crowded curb area, it is difficult to move these largest vehicles to new spaces. The one-way orientation of roads in this area probably dissuades delivery drivers from moving their vehicles from, say, Lewers to Beach Walk. Such a move would require circling all the way around on Saratoga and back onto Kalakaua Avenue.

In this part of Waikiki, garbage trucks cannot access below-grade garbage receptacles, because of low vertical clearances in garages. Therefore, a small pick-up truck accompanies the garbage truck. The pick-up is outfitted with special forks on the front, lifting the bins and then returning with them to the street level. After being transferred to the garbage truck lifting devices, the receptacles are emptied, and then returned below grade by the pick-up trucks. This is an inventive response to a geographic problem; however, it compounds the noise level on the streets.

Frequency of Delivery Activities

Delivery activities were observed at many hours of the day and several days of the week. Types and numbers of vehicles making deliveries along Lewers, Kalia, Beach Walk,

[4] Traffic congestion on Lewers is related to load/unload activities, not high volumes. The vehicular volumes on this street are actually quite low makai of Don Ho Lane. But the constant presence of delivery trucks along the ewa curb (as well as buses, taxis and private cars) creates a congested atmosphere.

Helumoa and Saratoga were recorded. It is impossible to determine with certainty how many delivery vehicles were exclusive to Outrigger properties. However, observation of delivery behavior indicates that 20% of trucks stopped along the curb in this area either made deliveries to both Outrigger and non-Outrigger hotels/businesses, or only to non-Outrigger businesses. In other words, some of the delivery activity is not related to Outrigger properties; Outrigger should not have to provide off-street loading spaces for those vehicles.

Table 3 outlines delivery activity levels at different times and on different days. It also shows the median and peak volume of delivery vehicles.

Demand for delivery spaces peaked at 23 spaces. The median demand was for 15 spaces. This demand includes delivery activity NOT related to Outrigger properties. Adjusting for non-Outrigger activity, peak demand would be for about 18 spaces, and median demand would be for about 12 spaces.

Buses and Taxis

Outrigger does not provide any direct transportation services. General transportation is available to Waikiki visitors through a number of private vendors, including Roberts' Hawaii, JAL, taxi/limo services, Pleasant Hawaiian Holidays, Ala Moana (shuttle bus) and others. Vehicles range in size from standard taxi to full-size and over-sized motor coaches. Maneuvering the large coaches can prove challenging, but is accomplished on a regular basis along Lewers, Helumoa and Kalia.[5] Such maneuvers sometimes require driving over curbs and sidewalks at intersections.

Other than Reef On The Beach, none of the Lewers/Saratoga properties have off-street loading areas for buses, taxis or private vehicles. Drivers drop off and pick up passengers along the curb, mixing in with the delivery vehicles. Although parking and loading are restricted in places along Lewers, drivers tend to ignore any restrictions.

To their credit, drivers generally park only along the ewa curb of Lewers, allowing traffic to continue flowing in the diamond-head-side lane (makai bound).

Passenger loading activities are constant and fluid. Table 4 gives an indication of the number of buses and taxis loading/unloading in the study area at different times.

The primary concerns about the current loading/unloading activity are aesthetics and pedestrian safety. The motor coaches are quite large, noisy and smelly. Drivers are supposed to stop engines at the curb, but generally do not. Of course, stopping the engine would mean stopping the air conditioner, which may not be acceptable to those passengers already on the bus. The large coaches obscure sight lines, impacting pedestrian enjoyment of the area. Finally, the constant on-street maneuvering is somewhat hazardous for pedestrians. This is self-mitigated; traffic flows so slowly

[5] Even fire department ladder trucks can maneuver through the area, with very careful driving. These were observed several times, turning from Don Ho to Lewers and then to Kalia.

Table 3. LOADING ACTIVITY
Outrigger Waikiki Beach Walk Planned Development

(Based on observed loading along Lewers, Helumoa, Kalia, Beach Walk and Saratoga)

	Single Unit	Van or Pick Up	Total Delivery Vehicles
Thursday 7/12/01 8:30 a.m.	8	5	13
8:50 a.m.	5	9	14
9:20 a.m.	7	8	15
9:50 a.m.	8	8	16
10:30 a.m.	7	10	17
12:00 noon	1	4	5
Friday 7/13/01 5:30 a.m.	1	2	3
6:30 a.m.	3	4	7
7:30 a.m.	9	2	11
8:30 a.m.	10	9	19
10:30 a.m.	6	8	14
Tuesday 7/17/01 8:30 a.m.	16	7	23
9:30 a.m.	9	8	17
11:30 a.m.	12	6	18
Average	*7*	*6*	*13*
Median	*8*	*8*	*16*
Peak	*16*	*10*	*26*

Note: Some deliveries occur most hours of weekdays, between 5:30 a.m. and 9:00 p.m. However, the data shown represent the times of highest activity overall. After 6:00 p.m., and on weekends, delivery activity is very low.

Table 4. BUS AND TAXI ACTIVITY
Outrigger Waikiki Beach Walk Planned Development

Buses and Taxis curbside along Lewers, Kalia (EWA OF Lewers), Beach Walk or Saratoga

	Buses or Taxis
Thursday 7/12/01 8:30 a.m.	4
8:50 a.m.	3
9:20 a.m.	6
9:50 a.m.	6
10:30 a.m.	9
12:00 noon	4
Friday 7/13/01 5:30 a.m.	0
6:30 a.m.	2
7:30 a.m.	4
8:30 a.m.	9
10:30 a.m.	10
Tuesday 7/17/01 8:30 a.m.	6
9:30 a.m.	3
11:30 a.m.	6
Average	***5***
Median	***5***
Peak	***10***

CORRECTION

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

The dearth of off-street loading facilities at Outrigger properties is repeated in other Waikiki hotels and other Waikiki businesses. In an urban fabric such as Waikiki, excessive loading docks are wasteful of resources. However, the current delivery demand is not being accommodated well, creating an unpleasant and congested atmosphere in the area.

Delivery activities in Waikiki occur throughout the day. While there is a restriction on activity after 9:00 a.m., it is not adhered to nor strongly enforced by the HPD, who likely have more pressing and critical matters to which they must attend. Given the nature of current business practices (just-in-time deliveries), restricted storage space and service of tourism facilities by a variety of vendors, it is somewhat difficult to restrict deliveries completely outside the 9:00 a.m. deadline. A concerted effort on the part of hotel and retail/restaurant management to schedule deliveries earlier in the day would help this situation.

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Some vendors, notably the beverage vendors, dwell longer at the curb. The drivers of these vehicles tend to service more than one facility in one stop. Since these trucks represent the largest trucks making deliveries for Outrigger properties on a regular basis, the drivers probably prefer to walk between different delivery points rather than move their vehicles to another spot along the congested Lewers Street ewa curb.[4] With a crowded curb area, it is difficult to move these largest vehicles to new spaces. The one-way orientation of roads in this area probably dissuades delivery drivers from moving their vehicles from, say, Lewers to Beach Walk. Such a move would require circling all the way around on Saratoga and back onto Kalakaua Avenue.

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Helumoa and Saratoga were recorded. It is impossible to determine with certainty how many delivery vehicles were exclusive to Outrigger properties. However, observation of delivery behavior indicates that 20% of trucks stopped along the curb in this area either made deliveries to both Outrigger and non-Outrigger hotels/businesses, or only to non-Outrigger businesses. In other words, some of the delivery activity is not related to Outrigger properties; Outrigger should not have to provide off-street loading spaces for those vehicles.

Table 3 outlines delivery activity levels at different times and on different days. It also shows the median and peak volume of delivery vehicles.

Demand for delivery spaces peaked at 23 spaces. The median demand was for 15 spaces. This demand includes delivery activity NOT related to Outrigger properties. Adjusting for non-Outrigger activity, peak demand would be for about 18 spaces, and median demand would be for about 12 spaces.

Buses and Taxis

Outrigger does not provide any direct transportation services. General transportation is available to Waikiki visitors through a number of private vendors, including Roberts' Hawaii, JAL, taxi/limo services, Pleasant Hawaiian Holidays, Ala Moana (shuttle bus) and others. Vehicles range in size from standard taxi to full-size and over-sized motor coaches. Maneuvering the large coaches can prove challenging, but is accomplished on a regular basis along Lewers, Helumoa and Kalia.[5] Such maneuvers sometimes require driving over curbs and sidewalks at intersections.

Other than Reef On The Beach, none of the Lewers/Saratoga properties have off-street loading areas for buses, taxis or private vehicles. Drivers drop off and pick up passengers along the curb, mixing in with the delivery vehicles. Although parking and loading are restricted in places along Lewers, drivers tend to ignore any restrictions.

To their credit, drivers generally park only along the ewa curb of Lewers, allowing traffic to continue flowing in the diamond-head-side lane (makai bound).

Passenger loading activities are constant and fluid. Table 4 gives an indication of the number of buses and taxis loading/unloading in the study area at different times.

The primary concerns about the current loading/unloading activity are aesthetics and pedestrian safety. The motor coaches are quite large, noisy and smelly. Drivers are supposed to stop engines at the curb, but generally do not. Of course, stopping the engine would mean stopping the air conditioner, which may not be acceptable to those passengers already on the bus. The large coaches obscure sight lines, impacting pedestrian enjoyment of the area. Finally, the constant on-street maneuvering is somewhat hazardous for pedestrians. This is self-mitigated; traffic flows so slowly

[5] Even fire department ladder trucks can maneuver through the area, with very careful driving. These were observed several times, turning from Don Ho to Lewers and then to Kalia.

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Outrigger Waikiki Beach Walk Planned Development

(Based on observed loading along Lewers, Helumoa, Kalia, Beach Walk and Saratoga)

	Single Unit	Van or Pick Up	Total Delivery Vehicles
Thursday 7/12/01			
8:30 a.m.	8	5	13
8:50 a.m.	5	9	14
9:20 a.m.	7	8	15
9:50 a.m.	8	8	16
10:30 a.m.	7	10	17
12:00 noon	1	4	5
Friday 7/13/01			
5:30 a.m.	1	2	3
6:30 a.m.	3	4	7
7:30 a.m.	9	2	11
8:30 a.m.	10	9	19
10:30 a.m.	6	8	14
Tuesday 7/17/01			
8:30 a.m.	16	7	23
9:30 a.m.	9	8	17
11:30 a.m.	12	6	18
Average	*7*	*6*	*13*
Median	*8*	*8*	*16*
Peak	*16*	*10*	*26*

Note: Some deliveries occur most hours of weekdays, between 5:30 a.m. and 9:00 p.m. However, the data shown represent the times of highest activity overall. After 6:00 p.m., and on weekends, delivery activity is very low.

Table 4. BUS AND TAXI ACTIVITY
Outrigger Waikiki Beach Walk Planned Development

Buses and Taxis curbside along Lewers, Kalia (EWA OF Lewers), Beach Walk or Saratoga

	Buses or Taxis
Thursday 7/12/01	
8:30 a.m.	4
8:50 a.m.	3
9:20 a.m.	6
9:50 a.m.	6
10:30 a.m.	9
12:00 noon	4
Friday 7/13/01	
5:30 a.m.	0
6:30 a.m.	2
7:30 a.m.	4
8:30 a.m.	9
10:30 a.m.	10
Tuesday 7/17/01	
8:30 a.m.	6
9:30 a.m.	3
11:30 a.m.	6
Average	***5***
Median	***5***
Peak	***10***

through the area that pedestrians continue to cross Lewers at will. However, this is not so for those crossing Kalia, where pedestrians generally do not slow down or check for traffic before crossing.[6]

Pedestrian Activity

The level of pedestrian activity, especially along Lewers, is striking. Over 400 pedestrians can be observed at the Lewers/Don Ho intersection during a 10-minute period, most evenings.[7] Daily pedestrian counts along Lewers are in the thousands, much greater than vehicle volumes.

This high activity level occurs despite very poor pedestrian facilities. The sidewalks in the area are narrow, in poor shape, and sometimes nearly non-existent (Helumoa). Street furniture, trees and vendors hamper pedestrian flow. Generally, lighting is good on Lewers so pedestrians can at least see where they are going. Helumoa and Beach Walk have lower lighting levels, and significantly fewer pedestrians, than Lewers.

The pedestrian volumes crossing Kalia can be quite large, since that is the route to the beach. These constant crossings are quite disruptive to traffic flow, and are a safety concern. People tend to cross midblock rather at corners, where drivers might be more likely to watch for them. Also, pedestrians crossing Kalia seem to pay little attention to conflicting vehicle traffic – they often do not look, but just continue across the Kalia as if it were an extension of the sidewalk.

This is different than Lewers, where most pedestrians can be observed slowing or stopping before crossing. It may be that the change in walking path (to cross Lewers) causes people to use more caution than when heading straight along their same travel path across Kalia.

PROJECT CONDITIONS

General Description

The project, in two phases, would renovate some of the existing hotels and replace others. By the end of Phase II, the project would have a net gain in rooms of about 8% and an increase by about 54% of retail, restaurant and meeting room space.

The two "new" facilities (Retail Promenade and Saratoga Hotel) would result in a consolidation of back of house activities. Laundry, some storage, parking and loading activities that now occur separately for several hotels will come together in the new back of house areas that will be constructed in Phase I.. Connected below grade with the

[6] We observed several "near misses" on Kalia during field work in the study area, with pedestrians stepping out onto Kalia without looking.

[7] During the same 10-minute observation times, only 20 – 40 vehicles cross the intersection.

Islander Waikiki, the Retail Promenade delivery area can also be used for Islander Waikiki deliveries.

The Reef Towers' parking area will be revised slightly to include two regular sized delivery loading areas. Any additional delivery demand for the Reef Towers can be addressed with the changes at the Retail Promenade described below. The Reef On The Beach and the new Saratoga Hotel will generally operate independently, as stand-alone hotels, with three delivery spaces each.

With the project improvements, all delivery activity for these Outrigger facilities will be accommodated off-street.[8] This is a vast improvement over today's delivery situation. During peak times, some loading activity will occur within the Edgewater Plaza and the hotel porte cocheres.

Some sharing of parking would continue. In an urban setting, sharing of parking facilities makes the most efficient use of scarce resources. Shared parking and valet parking services could be under the umbrella management of one parking firm, to minimize problems and maximize use of the site.

Outrigger is negotiating a license agreement for 250 surface spaces at Fort DeRussy to serve their long-term needs. As discussed under "Existing Conditions", that facility is vastly underutilized. The license arrangement will help fill up an existing parking lot and reduce the need for building more parking in the immediate area.

Parking

Parking Supply

At the completion of Phase II, the Outrigger Lewers/Saratoga properties will include about 646 painted parking spaces. In the new Retail Promenade and Saratoga Hotel, most of the parking will be tandem parking, requiring valet service. Some of the spaces are situated such that they can be used as self-park spaces.

With the licensing of 250 spaces in Fort DeRussy, the total painted parking supply for the Outrigger Lewers/Saratoga properties will be 896 spaces.

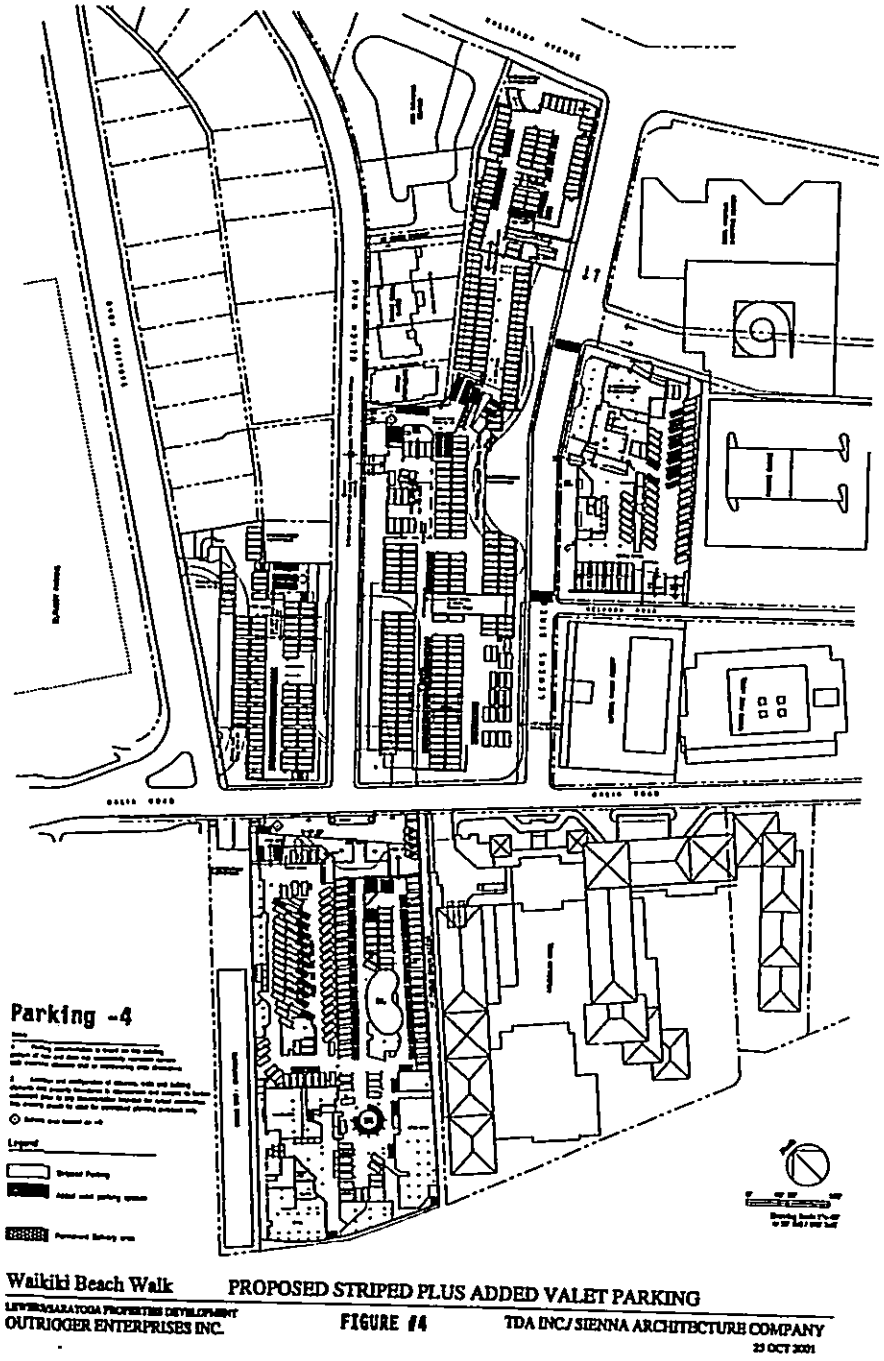
Parking for both the Retail Promenade and Saratoga Hotel will be in a single floor, at –4 feet.

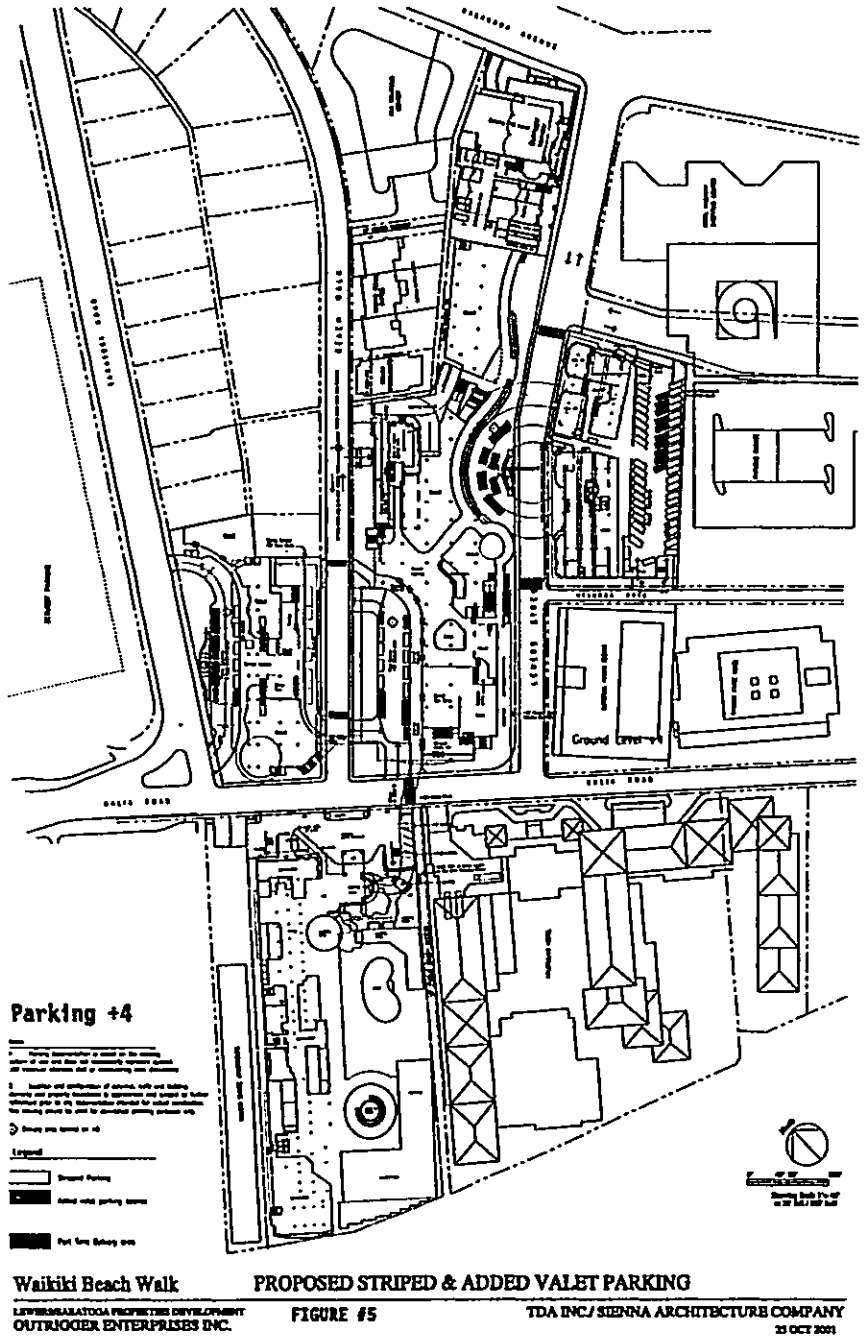
Table 5 shows future parking supply for the proposed project. Figures 4 and 5 show stripped and valet parking for the –4 and +4 levels (only Reef Towers will have parking at +4 in future).

[8] Loading activity for other, non-Outrigger hotels and businesses may still occur on-street.

Table 5. FUTURE PARKING SUPPLY
Outrigger Waikiki Beach Walk Planned Development

On-Site	*Painted Spaces*	*Added Valet*	*Painted + Added Valet*	*Aggressive Valet*	*Painted + Added Valet + Aggressive*
Outrigger Islander	54	13	67	9	76
Ohana Reef Towers	106	20	126	24	150
Retail Promenade Complex	250	17	267	21	288
Saratoga Hotel	92	7	99	8	107
Reef On The Beach	144	47	191	18	209
On-Site Totals	646	104	750	80	830
Off-Site - Fort DeRussy	250		250		250
TOTALS	896	104	1,000	80	1,080





Valet Parking – Added and Aggressive

Table 5 also shows that the parking supply can be increased to 1,000 spaces with valet services over and above the tandem parking arrangements.

An aggressive valet program could readily add another 80 spaces to the site supply. This would bring the total parking supply to 1,080 spaces.

Figures 6 and 7 show aggressive valet spaces added to the stripped and regular valet spaces.

Projected Parking Demand

Parking Demand –Key Assumptions and Factors

Parking demand is based on several key assumptions:

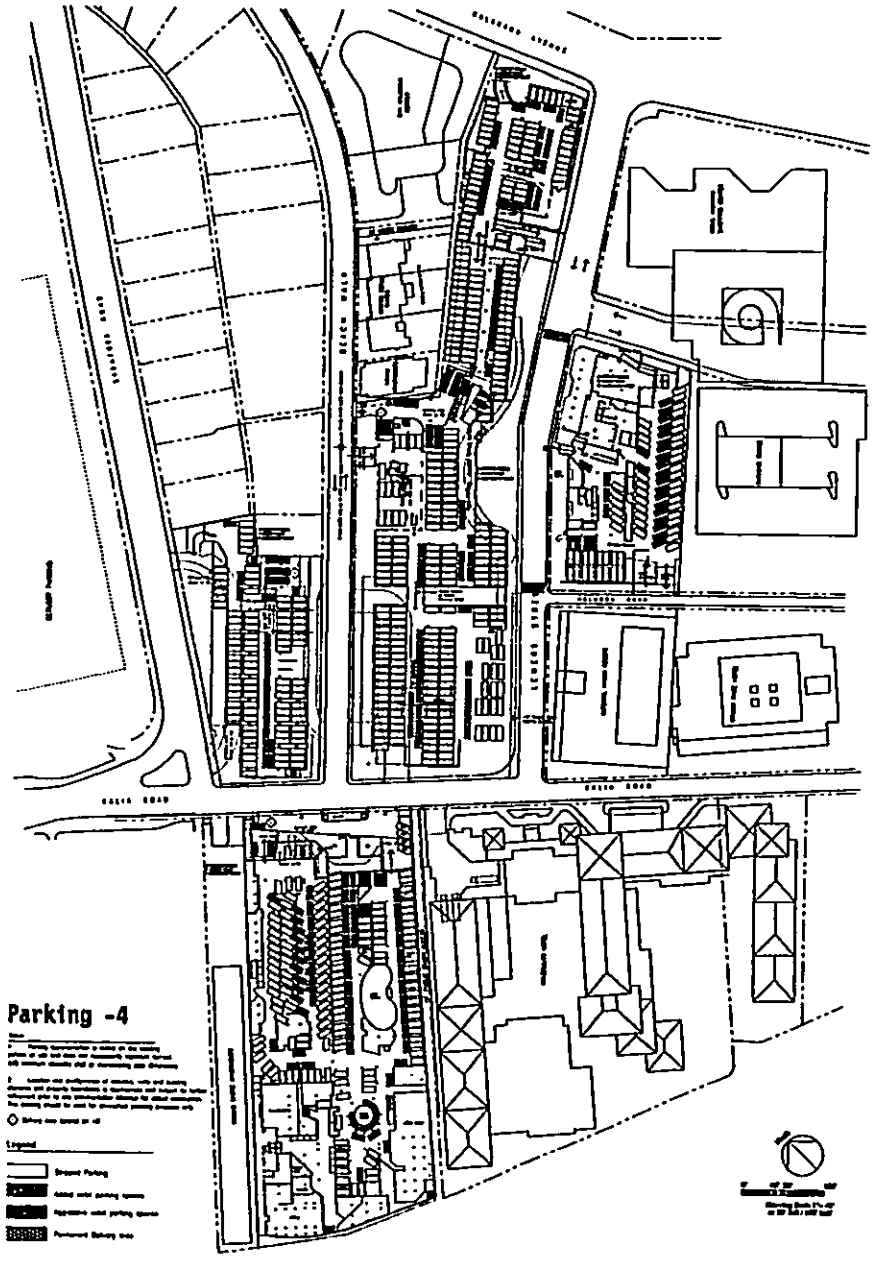
1. Tourism patterns are similar to today, with a busy July as the basis for projections.
2. No significant changes occur in car rental use by hotel guests, other than a small increase in average rental rates (30% renting cars as opposed to 25% today). Parking demand from rental cars can be influenced by providing information about non-rental car access from the airport, letting guests know they can rent cars while in Waikiki for day trips, providing information about parking costs (which are high), and providing information before the trip about tour operators and buses.
3. Occupancy of the hotels increases to an average of 70% (for the properties as a whole; based on information and projections of occupancy from Outrigger. This is typical of a healthy hotel market).
4. The increase in parking is related to the increase in the number of rooms, as well as the increase overall in retail and meeting space square footage.

In reality, the projections of parking demand presented in Table 6 are conservatively high. The increase in retail and restaurant square footage would probably lead to very small increases in parking demand, since most customers come from Outrigger or other nearby hotels.

Parking demand projections are based on TDA experience in resort and recreational settings in Honolulu, on the mainland, and in Asia. Data from Urban Land Institute and Institute of Transportation Engineers is also used. Finally, these data are tempered with field observations in the study area.

Key factors in the demand projections include:

1. Hotel Guests: An average of 2 persons per room, with an average stay of 4 nights. Thirty percent of guests rent a car and thus have a need to park. This assumes a small increase in rental car use, since 25% of guests rent a car for their stay in current conditions.

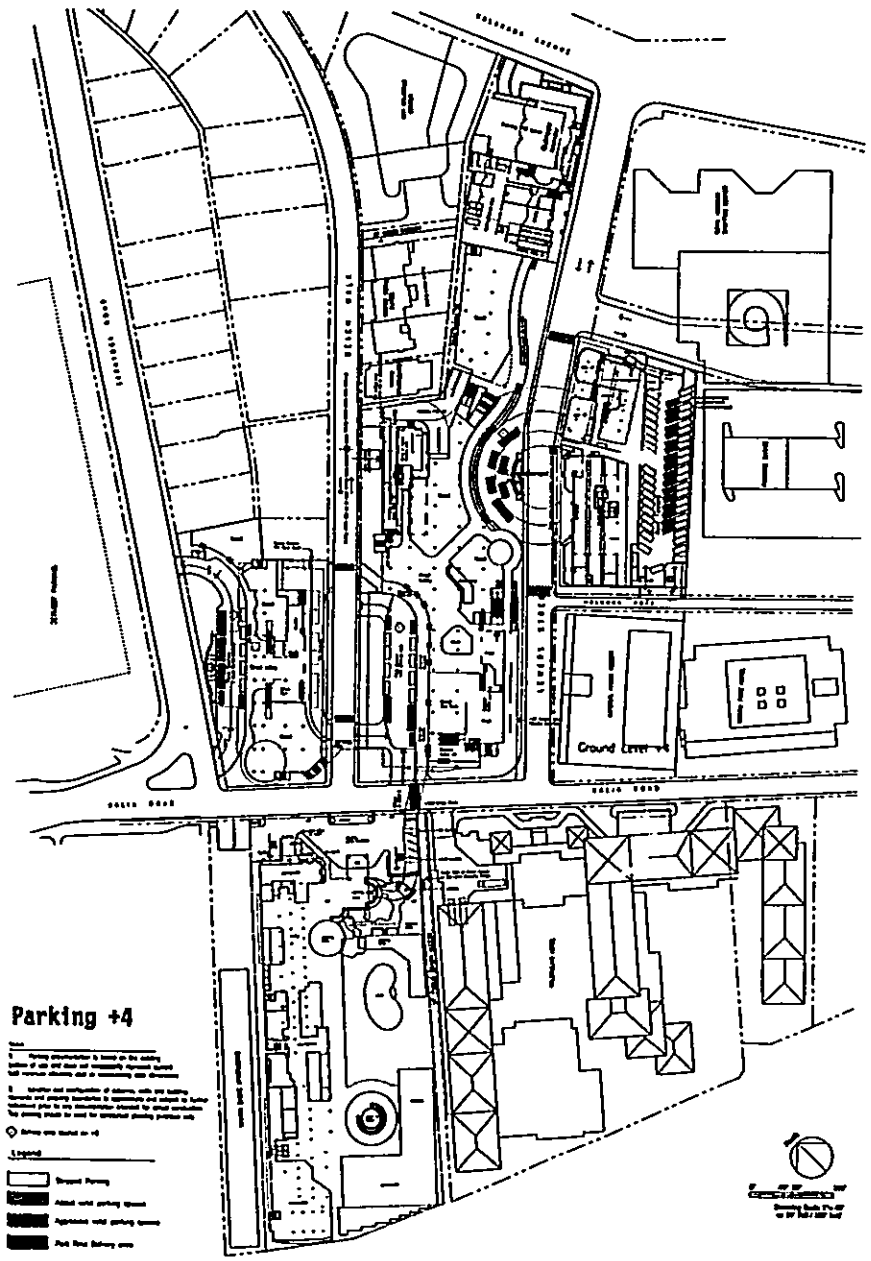


Waikiki Beach Walk PROPOSED STRIPED, ADDED VALET AND AGGRESSIVE VALET PARKING

LEWIS/SARATOGA PROPERTIES DEVELOPMENT
OUTRIGGER ENTERPRISES INC.

FIGURE #6

TDA INC./ SIENNA ARCHITECTURE COMPANY
25 OCT 2001



Waikiki Beach Walk PROPOSED STRIPED, ADDED AND AGGRESSIVE VALET PARKING

LEWIS/SARATOGA PROPERTIES DEVELOPMENT
OUTRIGGER ENTERPRISES INC.

FIGURE #7

TDA INC./ SIENNA ARCHITECTURE COMPANY
25 OCT 2001

2. Hotel Employees: Outrigger product hotels (Reef On The Beach, Saratoga) will have employees at a rate of about 1 per 2 rooms (total employment; these people are not all present at one time). Ohana Hotels have a somewhat lower employment rate, at about 1 employee per 3 rooms. Employment is based on total room count, not occupied rooms. Seventy percent (70%) of employees drive to work, with an average vehicle occupancy of just over 1 person. The remainder take transit, walk or are dropped off/picked up. These factors are based on typical behavior in Waikiki and in the hotel industry.
3. Retail and Restaurant: These businesses experience several peaks throughout the day (2.5 on weekdays, 3 on weekends) with an average density of 50 people per thousand square feet. These density calculations include employees for the retail and restaurant space.
4. Meeting Space: Occupied at a density of about 20 square feet per person, with about 65% of the total space at use at a time. This is typical of meeting space use; many meetings have a main event in the ballroom, and then break out to smaller meeting rooms for additional sessions. It is rare to see both the ballroom and meeting space fully used simultaneously.
5. Showroom: Demand projections based on 500 seats, with 85% of seats full, 30% of attendees driving with an average of 3 persons per vehicle. The remainder walk in from nearby hotels or restaurants, or use taxis or limousines to reach the site.

Parking Demand - Typical

Table 6 shows parking demand by hotel and for the study area as a whole, for both median and peak demand periods. The typical weekday parking demand would be for 824 spaces with the proposed Phases I and II completed. On weekends, median parking demand increases to about 901 spaces. This demand would occur for several hours per day, Thursday through Sunday, dropping dramatically on Monday and then building up again on Wednesday. These patterns reflect fluctuations in room use, more local use of restaurants and retail on weekends, and showroom activity.

This parking demand also includes parking related to the meeting space. The small amount of meeting space may generate very little separate parking demand. This type of meeting space is intended for small, conference-type meetings that would be based on corporate business retreats. However, a large local event (e.g., wedding, Christmas party) may increase demand on event days. This type of demand is best managed through a detailed parking management plan, discussed later in this report.

Parking Demand – Peak

For a few hours a week (2 hours on three weekend nights) parking demand may be as high as 1,153 spaces. This would occur from Friday through Sunday.

Table 6. PARKING DEMAND BY HOTEL
Outrigger Waikiki Beach Walk Planned Development

Property	Median Demand	Peak Demand
Weekday		
Islander Waikiki	34	39
Reef Tower	94	111
Reef On The Beach	188	208
Retail Promenade	249	308
Saratoga Hotel	259	278
Total Demand	*824*	*944*
Weekend		
Islander Waikiki	37	41
Reef Tower	100	117
Reef On The Beach	210	236
Retail Promenade	281	459
Saratoga Hotel	273	300
Total Demand	*901*	*1,153*

Parking Demand – Special Events

A large local event could push ballroom/meeting space parking demand above the peak discussed in the previous subsection. This type of event might be a local wedding, awards dinner, or seasonal ball.

In this case, parking demand associated with just the meeting/ballroom space could be as high as 290 vehicles, vs. 50 for a typical meeting-type event where most attendees are hotel guests. Special events would happen only occasionally. That type of occasional parking demand is best accommodated through planning and informing attendees where best to park, urging them to carpool, and making arrangements to park them at another Outrigger facility mauka of Kalakaua Avenue.

Parking Code Requirements

The current City code parking requirement for the planned project is shown in Table 7.

Table 7. Honolulu Code Required Parking

Use	*Amount*	*LUO Parking Factor*	*Required Spaces*
Hotel Rooms	3,336	0.25 spaces/room	834
Meeting Space	20,920 SF	5 spaces per 1,000 SF	105
Restaurant and Retail	184,830 SF	1.25/1,000 SF	231
Totals			*1,170*

However, these parking requirements are for individual (free-standing) facilities. These take no reductions for shared parking, or for internalization. In resort settings, most restaurant patrons and retail shoppers are already in the hotel or a nearby hotel. These people don't move their cars (if they even have one) to visit these retail and restaurant establishments.

Parking Supply Compared to Code

Table 8 shows a comparison of code-required parking and the proposed supply.

Although the proposed parking supply (1,080 spaces – see Table 5, page 16) is less than required by code, a comparison with parking *demand* (Table 6, page 23) shows that parking can be accommodated for all but a few peak hours per week. For most hours of the week, parking supply will exceed demand.

Table 9 demonstrates that current actual parking demand is significantly lower than that required by code. According to the Land Use Ordinance, 955 spaces would be required for the existing properties. However, it has been demonstrated that the existing parking supply is adequate to meet demand for Outrigger properties, with use of valet services during peak times.

Table 8. PLANNED PARKING SUPPLY COMPARED TO LUO REQUIREMENTS
Outrigger Waikiki Beach Walk Planned Development

(Includes all on-site and Fort Derussy spaces)

	Code Required	Regular Parking	Additional Valet	Aggressive Valet	Excess or Deficit
Regular Parking Case	1,170	896			-274
Additional Valet Parking Case	1,170		1,000		-170
Aggressive Valet Parking Case	1,170			1,080	-90

Table 9. EXISTING PARKING SUPPLY COMPARED TO LUO REQUIRMENTS
Outrigger Waikiki Beach Walk Planned Development

(Includes all on-site stripped spaces and typical valet service)

Type of Use	*Amount*	*LUO Parking Factor*	*LUO Required Parking*
Hotels	3,102 Rooms	0.25 per Room	776
Meeting Facility Space	3,570 SF	5 per 1,000 SF	18
Retail/Restaurant	129,940 SF	1.25 per 1,000 SF	162
Total			956
Existing Painted + Valet Supply			682
Parking Supply vs Code			-274

In fact, the ratio of code compared to actual demand will significantly improve with the project, as compared to today. Today, the parking supply with valet services represents 71% of code requirement. With the proposed project, parking supply will improve to 85% of code requirement with valet services. Aggressive valet services would improve the situation so that 92% of code requirement is available.

It is key to remember that actual demand is more important than code requirements. Code requirements are generalized standards that try to approximate parking needed for land uses in different areas. Specific projects and owners have different operating approaches, which can change real demand to higher or lower than code. Generally, city codes require more parking than demand, but many make exceptions for downtown areas. Downtown Honolulu is a good example of this situation, where private developments are not required to provide parking. Parking demand is met partly with municipal parking facilities, with the remainder provided by developers strictly on the basis of their own determinations of how much parking is needed to make their projects viable.

Parking Management - Discussion

People on vacation tend to leave their expectations of speed and access behind, and have proven quite amenable to shuttle buses, valet parking, walking some distance and waiting for services.[9] This attitude allows resort hotels to rely upon shared parking between facilities, valet services, and even remote parking with walking or shuttle services, to maximize parking efficiency.

In Waikiki and other warm weather resort areas, tourists prove to be very amenable to walking, and to walking a considerable distance, rather than relying upon their cars. It is not unusual for people to walk ¼ mile or more between activity centers in urban centers; this distance is matched and sometimes exceeded in resort areas.

We bring this up because current city code does not allow parking to be relied upon if it lies more than 400 feet from the subject property or requires crossing a public street. This does not reflect observed behavior in Waikiki. Also, a study called "Livable Waikiki" is underway, intended to improve the pedestrian experience in Waikiki (among other things). Encouraging pedestrians means you want and expect people to walk, sometimes considerable distances.

Since pedestrians represent a formidable force in the Waikiki retail and restaurant market, sharing parking and making the most efficient use of parking facilities is in all businesses best interests. That means a high level of parking management and consolidation of loading facilities (as delivery vehicles and buses are a very visual and aesthetic intrusion into the pedestrian environment). The parking and loading management plans discussed

[9] Based on TDA 30+ years of experience in resort/recreational parking and traffic planning, and strengthened by direct observations in Waikiki of guest behavior.

below for the Waikiki Beach Walk project represent a potential format for future management throughout Waikiki.

Parking Management Plan

Why is it important to maximize parking efficiency? Parking spaces are incredibly expensive to build, and eat up scarce land. Below grade parking spaces can cost as much as $50,000 a space; even above grade parking spaces can be $15,000 to $25,000 a space. But with good parking management, you can meet much of anticipated parking demand by parking cars in the aisles and blank areas of existing garages and lots, at a fraction of the cost.[10]

Parking demand can be best managed by operating all Waikiki Beach Walk facilities as "one" parking supply. Given the restraints caused by the high water table, some of the individual hotels will have more parking supply than demand, and some less. However, the five separate hotel properties (treating Retail Promenade hotels as one property) are very close in proximity, and certainly within reasonable walking distance of each other. Although the City and County Land Use Ordinance currently prohibits sharing or parking (or loading activity) if pedestrians must walk more than 400 feet from parking, this does not match people's behavior in Waikiki. People can be observed every day walking much further distances even for quick errands.

The following actions form the basis of a parking management plan intended to maximize use of existing parking in Waikiki and avoid overbuilding of parking that may go unused many hours of the day.

Valet Parking to maximize efficiency and supply: To maximize parking supply, most of the properties will use valet services. The Reef On The Beach, Reef Towers and Islander Waikiki may be able to allow self-parking during non-peak times. Yet a valet service, run by or managed by the parking operator, will maximize both efficiency of a scarce Waikiki resource (parking) and improve the guest experience.

Parking at Fort DeRussy. Outrigger is pursuing a license agreement with the operators of Fort DeRussy to lease 250 spaces within the existing parking lot at the corner of Saratoga Road and Kalia Street. As discussed above, this helps utilization in a large parking lot that today is less than half full.[11] This is an excellent approach to maximizing efficiencies. This lot will most likely be used as parking for the nearest hotels (Saratoga and Reef On The Beach). Its proximity, though, makes it a reasonable peak parking

[10] Valet services do obviously incur costs, but much of the costs can be recovered through the parking fee. Valet parking is usually charged at a premium as compared to self-park. In an area like Waikiki where most parking spaces require a fee, it is even easier to defray the valet costs.

[11] Appearances can be deceiving. At times, the Fort DeRussy lot appears quite full when viewed from Kalia or Saratoga, even though the lot is less than 50% full. Since people tend to fill up the spaces along the edges first, it creates the illusion (from a cursory glance) that the lot is full. Yet walking through the lot and counting spaces shows few of the spaces in the central and mauka areas are used.

location for those attending a function at the new ballroom or a performance in the new Edgewater Plaza, or visiting the restaurants and shops in the Retail Promenade.

Fort DeRussy parking may be either self-park or valet parked, depending upon the time of day and day of week. For self-parking, guests will probably drop off bags at their hotel porte cochere before parking.

Pedestrian Connections between parking and hotels: Accessing the Fort DeRussy lot requires crossing Saratoga. It is unlikely that many pedestrians will walk to Kalia and Saratoga to cross at crosswalks. Crossing Saratoga can be difficult, due to the constant flow on Saratoga mauka-bound created by the all-way stop at the intersection.

Signalizing that intersection would create gaps in the traffic along Saratoga and make crossing easier and safer for pedestrians. This will be especially true with the bus rapid transit system.

Analysis of Managed Parking and Parking Demand: Some hotels have more parking supply on site than demand, and other have fewer spaces than demand. However, the total average parking demand can be met through sharing of facilities, and the proposed increase of parking supply through creation of new painted and valet-only spaces.

Information: Signage and other types of information are key in parking management. Often, retail businesses complain that there is not enough parking for their customers, when in fact there is plenty of parking. But the parking may not be obvious to tourists and others who are unfamiliar with the area.

To maximize use of parking and reduce a perception of a parking crunch, the Waikiki Beach Walk property operators should:

1. Let hotel guests know beforehand where to park (provide written information or verbal information when confirming reservations).
2. Provide information to rental car companies about parking locations in Waikiki so the rental car companies can pass it along to guests.
3. Provide web site information on where to park for hotels, restaurants and retail areas. Some professional sports teams post these types of maps on their websites.
4. Keep employees informed about where people should park, so they can help guests and visitors find parking.
5. Provide consistent, highly visible and simple signage to direct drivers to available parking.
6. Have parking operators work together (ideally, use one parking operator) so that drivers can be redirected immediately to another convenient lot if one is full. This can be as simple as giving walkie talkies to parking lot attendants so they can stay in touch. Other nearby Outrigger hotels could be included in this, to even further improve flexibility and efficiency of parking use.

Peak Parking Demand

Table 10 shows how most of the excess parking demand on weekend evenings can be mitigated through a more aggressive valet program. (Space layouts for aggressive valet parking are shown on Figures 6 and 7.)

Peak parking demand can be met for all but 1 – 6 hours per week with the proposed parking painted supply and valet services. More aggressive valet services can absorb 136 of the 209 peak demand spaces that exceed the normal parking supply. The remaining 73 spaces of parking demand can be mitigated through several demand management measures.

The peak parking management plan centers on managing employee parking demand, since this is the group with which property owners can have the most direct and consistent contact. Potential demand management measures include:

1. Encourage employees that arrive after regular business hours to find available parking at nearby office buildings. If possible, make arrangements with one particular property owner and provide a shuttle bus if needed to and from that property.
2. Work with Royal Hawaiian Shopping Center to allow some employee parking there during peak Outrigger property demand times. Shopping center parking demand tends to peak early afternoon on weekends, dropping off quite a bit by evening.
3. Encourage employees to use transit or other modes when they have weekend evening shifts.
4. Subsidize transit passes for employees.
5. Provide employees with specific route and schedule information – let them know specifically which buses work for them and when and where to board them.
6. Encourage hotel guests not to rent cars for their entire say in Waikiki. Let guests know that they can take a bus or limousine affordably from the airport, and then rent a car for the day in Waikiki (sometimes in their own hotel) when they wish to travel further afield.

Loading – Deliveries, Buses and Taxis

Loading – Code Requirements

Under the provisions of the City and County Land Use Ordnance, the proposed project would be required to provide 30 off-street loading spaces. Code required loading is summarized in Table 11.

However, the analysis presented below indicates that, with proper management, median and even peak future demand can be met with fewer spaces. Limiting the number of "full-time" loading spaces (i.e., the extent of the areas devoted exclusively to loading

Table 10. PEAK DEMAND AND MITIGATION THROUGH AGGRESSIVE VALET
Outrigger Waikiki Beach Walk Planned Development

Weekday	Peak		Peak Mitigation	
	Demand	*Supply, Additional Valet*	*Demand*	*Supply, Aggressive Valet*
Islander Waikiki	39	67	39	76
Reef Tower	111	126	111	150
Reef on the Beach	208	191	208	209
Retail Promenade	308	267	308	288
Saratoga Hotel	278	99	278	107
Fort DeRussey		250		250
Totals	944	1,000	944	1,080

Weekend	Peak		Peak Mitigation	
	Demand	*Supply, Aggressive Valet*	*Demand*	*Supply, Aggressive Valet*
Waikiki Islander	41	76	41	76
Reef Tower	117	150	117	150
Reef on the Beach	236	209	236	209
Retail Promenade	459	288	459	288
Saratoga Hotel	300	107	300	107
Fort DeRussey		250		250
	1,153	1,080	1,153	1,080

Table 11. LAND USE ORDINANCE LOADING SPACE REQUIREMENTS
Outrigger Waikiki Beach Walk Planned Development

Use	Number	Per SF of Floor Area	Total SF	Required Loading Berths
Reef Towers Hotel				
Hotels & Places of Assembly	3	1st 100K SF	100,000	3
	1	each added 100K SF	165,380	2
Sub-Totals			265,380	5
Reef On The Beach Hotel				
Hotels & Places of Assembly	3	1st 100K SF	100,000	3
	1	each added 100K SF	368,240	4
Sub-Totals			468,240	7
Islander Waikiki, Waikiki Village & Waikiki Towers Hotels / New Retail Promenade (Phase I)				
Hotels & Places of Assembly	3	1st 100K SF	100,000	3
	1	each added 100K SF	437,690	4
Retail/Eating & Drinking Places	4	1st 60K SF	60,000	4
	1	each added 50K SF	20,680	0
Sub-Totals			618,370	11
New Saratoga Hotel (Phase II)				
Hotels & Places of Assembly	3	1st 100K SF	100,000	3
	1	each added 100K SF	404,890	4
Sub-Totals			504,890	7
Total Required Loading Spaces			1,856,880	30

NOTE: City and County of Honolulu Land Use Code states that, for floor area above 100,000 SF for hotels, and above 60,000 SF for retail, 1 additional loading space is required per 100,000 SF for hotels, and 50,000 SF for retail, or MAJOR fraction (e.g., 51% or more) thereof.

purposes) to what is required to meet the demand will be a key factor in revitalizing the area. Limiting the area devoted to off-street loading will be vital to the success of efforts to maximize the size and design quality of public spaces and the overall pedestrian experience to be offered by the project.

Loading Demand

Delivery Activity

Delivery activity is somewhat related to the number of rooms in a hotel. More importantly, it is related to restaurant, retail and meeting room activity at a site.

Hotels in and of themselves have little loading demand – without restaurants and retail facilities, there are just a few deliveries a day. Most hotel deliveries occur in small vehicles, such as flower delivery vans, Fed Ex trucks, or laundry delivery vehicles. Even on the mainland, virtually the only times large trucks need to service hotels are when furniture is delivered.

As demonstrated through on-site observations, deliveries in the project area come primarily in small trucks, vans and pick-ups. These vehicles have similar space requirements and operating capabilities as private cars. Therefore, there is no need to build loading berths or areas to accommodate full-sized trucks. On the rare occasion when a larger vehicle arrives, it would be accommodated on the street or within a given hotel porte cochere. These kinds of deliveries tend to occur when the hotel is not busy (late at night or early in the morning).

Delivery Vehicle Demand

With the proposed project, overall loading demand could increase by approximately 54%. This is a conservative assumption, since it assumes the level of delivery activity is only related to the increase in meeting facility, retail and restaurant square footage. Since the retail, restaurant and meeting room space increases by 54%, we have used this factor to conservatively estimate the increase in delivery demand. (Hotel room count increases by only 8%.) In fact, there will probably be little increase in demand.

Some reduction in demand could occur due to consolidation of deliveries and efficiencies. Right now, trucks dwell along Lewers, Kalia, Helumoa, Beach Walk and Saratoga, sometimes serving more than one facility per stop, but more often serving one hotel, moving a short distance, serving a storefront at another hotel, etc.

Table 12 summarizes median and peak delivery demand and compares it to the supply that will be provided under the proposed project plan. The proposed delivery space configurations are shown in Figures 4 and 6 earlier in this report (with the parking layouts).

Table 12. FUTURE DELIVERY SPACE MEDIAN AND PEAK DEMAND VS SUPPLY
Outrigger Waikiki Beach Walk Planned Development

Median Future Demand	**18**
Median Supply	
Reef Towers - full-time	2
Reef On The Beach - full-time	3
New Saratoga Hotel - full-time	3
Retail Promenade - full-time	8
Porte Cocheres - part-time	10
Total Supply - Median	***26***

Peak Future Demand	**28**
Peak Supply	
Reef On The Beach - full-time	3
New Saratoga Hotel - full-time	3
Reef Towers - full-time	2
Retail Promenade - full-time	8
Porte Cocheres - part-time	10
Edgewater Plaza - part time	6
Total Supply - Peak	***32***

Delivery Vehicle Supply vs. Demand

Construction of the Retail Promenade will allow for consolidation of delivery activity for the Waikiki Village, Waikiki Tower, Islander Waikiki and, to some degree, the Reef Towers, as well as for the shops and restaurants in the Retail Promenade. Eight off-street permanent delivery spaces will be provided in the Retail Promenade area. The Reef On The Beach already has three delivery spaces. Similarly, the Saratoga Hotel will include three off-street delivery spaces. Two new, small loading spaces will be created at the Reef Towers, through conversion of parking spaces. This gives a total of 16 "full-time" or 24-hour off-street loading spaces

There are other areas within the project that can be reserved for off-street deliveries during peak demand times. This because the level of use by the intended users of these areas is low during the early morning hours, when the peak demand for loading spaces occurs. The Edgewater Plaza can be opened to delivery vehicles before 9:00 a.m., and can accommodate up to 6 part-time delivery spaces if needed. The new project porte cocheres can be used part-time to accommodate 10 (or more) delivery spaces to accommodate any further overflow demand. This exceeds by 4 spaces the 6 additional spaces that are required to meet the total projected peak demand (28 spaces – see Table 12), and by 2 spaces the existing LUO code requirements (30 spaces – see Table 11).

With more sites able to be served in one delivery stop, a reduction on the order of 20% of demand is expected.[12] This matches the percentage of delivery vehicles observed that park along area streets but only deliver to non-Outrigger hotels, or serve both Outrigger and other hotels in one stop. This reduction is conservatively low, since it is based on an extremely inefficient system in place today. Once the management system is in place, a greater efficiency, and thus decrease in concurrent demand, can be expected.

Median demand of 18 spaces can met through a combination of 16 permanent/full-time and 2 of the potential part-time delivery spaces in the new porte cocheres. The new Beach Walk and Saratoga porte cocheres can accommodate up to 10 loading spaces for all hours of the day, and 15 for most morning hours. (Porte cochere regular demand in the afternoon and evening is opposite delivery peak demand hours before noon).

These spaces will also be able to meet most of the peak demand. As noted, an additional 6 part time spaces can be provided in the Edgewater Plaza. The peak times for deliveries (before 9:00 a.m. on weekdays) matches the lowest time for pedestrian and non-delivery vehicle demand. This means using the Plaza is a good way to match the supply to highest peak demand.

These projections of demand are conservatively high. It is unusual for hotels to have delivery demand at this high of a rate. According to the Chambers Group, a hospitality consulting firm based in the Pacific Northwest, even convention/meeting hotels typically feature just two or three loading berths. Those berths are used for loading and unloading

[12] The 20% reduction is accounted for in Table 12.

of convention set-ups. Food and beverage, laundry and miscellaneous deliveries, which tend to come in small vehicles, occur in parking garages, lay-bys or even on street.

Specific examples include the Westin in Downtown Seattle, with over 1,000 rooms, high-end restaurants and retail, and over 100,000 square feet of meeting space. That hotel has 3 off-street loading spaces. In downtown Portland, the Hilton has a similar amount of meeting space and fewer rooms than the Westin, and just 2 off-street loading berths. Hotel management at these hotels schedule deliveries, make use of the hotel porte cocheres, and send some delivery vehicles to on-street loading zones or to other empty properties (from where goods are hand trucked).

This information helps to demonstrate how the delivery projections in this report are conservatively high. However, it is recognized that the mainland hotel examples do not have peak demand as high as projected for the Waikiki Beach Walk project. It would be poor planning to advocate for fewer off-street delivery spaces than are proposed, since current field observations show an unusually high concurrent delivery demand level. An important point about this demand level is that it occurs at times when usage is otherwise low in the areas that are proposed for part-time loading use.

Once the Outrigger project is complete and delivery management systems are in place, delivery logs and more observations will provide information the City can use to revise loading berth requirements in Waikiki. It may also show the wisdom of centralized, shared loading facilities, which may be a feasible approach for all of Waikiki.

Delivery Management Plan

Providing any additional delivery spaces would be detrimental to the project as a whole. Loading berths require both space for the vehicle and space for maneuvering. In the Edgewater Plaza area (accessed via Beach Walk), maneuvering will occur within the site. This means the loss of usable square feet for the occasional times when deliveries are at their peak.

Using the Plaza for part-time demand avoids dedicating additional space for loading that would go unused except for very short periods of time. Providing additional, mostly unused loading areas would have a significant negative impact on efforts to redevelop and revitalize the area and add public amenities in this part of Waikiki.

To accommodate median demand, delivery vehicles would be directed to porte cocheres. To accommodate all peak demand, delivery vehicles will be allowed to use the Edgewater Plaza. This loading area use would be restricted to use before 9:00 a.m., when pedestrian volumes are low.

In essence, the 5 properties will be sharing delivery facilities, much as they will share parking facilities. Without an effort at demand management, providing off-street spaces will prove fruitless. Delivery drivers prefer to pull up the curb, unload quickly and then leave, without have to mess with entering a loading area, maneuvering and backing into a berth, and then maneuvering out.

If the delivery areas are not managed, drivers will continue to use Lewers and other streets for delivery stops. Even if the project would meet code requirements, it could not meet the parking and loading management objectives for Waikiki without management and enforcement on the streets, and would not significantly improve the pedestrian environment in the area.

The proposed plan involves a combination of enforcement of no loading zones, expanding no loading zones, providing an adequate supply of both reasonably convenient "full-time" delivery spaces and additional "part-time" areas for peak demand, and having a delivery management team that will make using the new off-street spaces as easy for delivery drivers as using the curb. This approach will allow all loading to be moved off the public streets, while minimizing the impacts of deliveries on the functionality, attractiveness and extent of public spaces and amenities. Improving public amenities is at the heart of the objectives of the Waikiki Beach Walk project for the redevelopment of this area.

Buses and Taxis

Buses, taxis and limos now dwell at the curb, with the exception of those servin- Reef On The Beach guests. The Retail Promenade (Phase I development) and Saratoga Hotel (Phase II development) will include three additional porte cochere facilities: one along Beach Walk that will serve the new Retail Promenade and meeting space, as well as the Waikiki Village and Waikiki Tower Hotels; and one along Saratoga Road. The Saratoga Hotel also has a separate bus porte cochere facility along Beach Walk. These three new facilities could accommodate 20 (or more) vehicles at once.

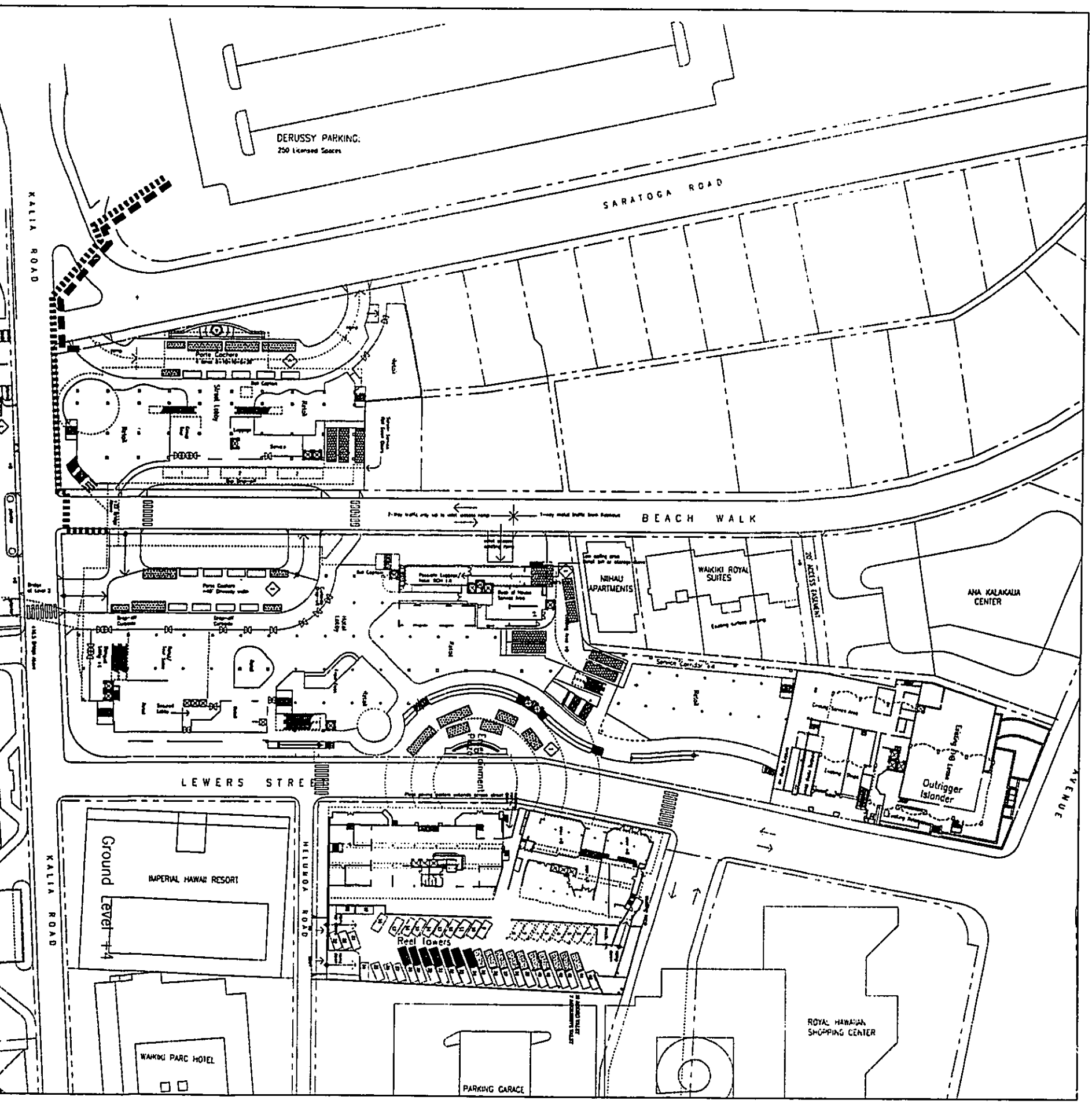
Today's peak demand for buses/taxis is for 10 vehicles at a time, with an average demand for 5 vehicles. (See Table 4 in earlier section of report.) The small (8%) increase in room count will probably not translate to an increase in bus, taxi or private vehicle demand for the porte cocheres.

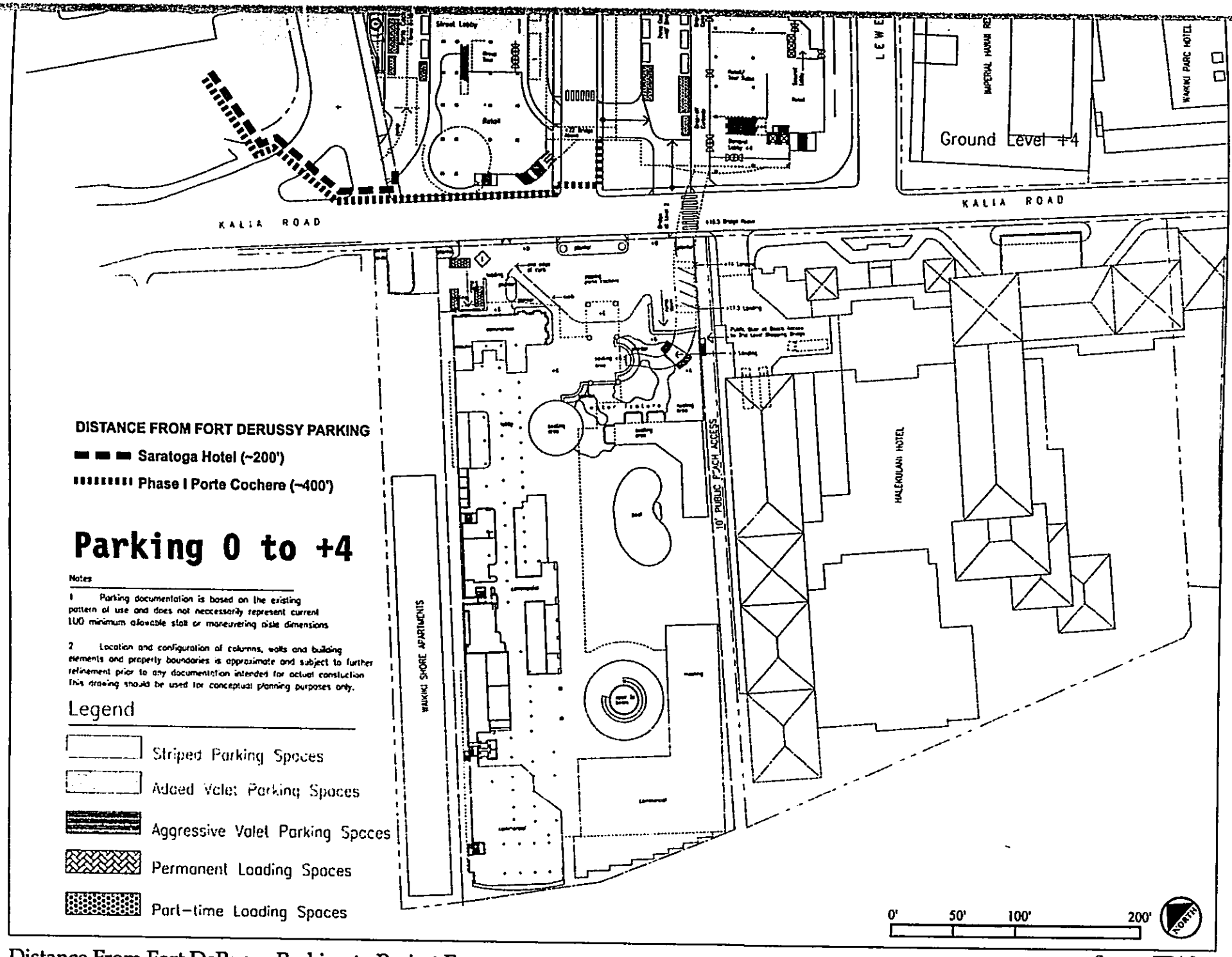
The proposed development will vastly improve the loading/unloading experience for guests and remove vehicles from the curbside, opening up area streets for better pedestrian flow and a more pleasant resort experience. Off-street passenger loading and unloading supply will exceed demand. Therefore, no issues are expected with regard to passenger loading and unloading with the proposed development. Further, the porte cocheres have excess capacity that could absorb any overflow delivery vehicle demand.

Addendum to Parking and Loading Management Plan

TDA, Inc.

January 2002


DERUSSY PARKING
250 Licensed Spaces
SARATOGA ROAD
KALIA ROAD
BEACH WALK
NIHAU APARTMENTS
WAIKIKI ROYAL SUITES
ANA KALAKAUA CENTER
Outrigger Islander
LEWERS STREET
Ground Level +4
IMPERIAL HAWAII RESORT
Reel Towers
HELUMOA ROAD
WAIKIKI PARC HOTEL
PARKING GARAGE
ROYAL HAWAIIAN SHOPPING CENTER



Distance From Fort DeRussy Parking to Project Entrance

Source: TDA Inc.

APPENDIX M

Waikīkī Beach Walk Social Impact Assessment

Earthplan

September 2001

WAIKIKI BEACH WALK
SOCIAL IMPACT ASSESSMENT

PREPARED BY EARTHPLAN

SEPTEMBER 2001

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1 Background and Introduction

1.1 Report Description

Outrigger Enterprises, Inc. proposes to redevelop a portion of Waikiki on Oahu. The project triggers the requirement for compliance with Chapter 343, Hawaii Revised Statutes, regarding the disclosure of environmental impacts. All projects proposed in the Waikiki Special District must be evaluated in the State environmental review process, and the magnitude of the proposed actions warrants the preparation of an Environmental Impact Statement (EIS). An EIS Preparation Notice was prepared in June 2001.

This report contains the social impact assessment conducted as part of the EIS process. It will be summarized in and appended to the EIS.

This social impact assessment was prepared by Earthplan, Inc., whose offices are located at 81 South Hotel Street, Suite 211, Honolulu, Hawaii. Berna Cabacungan, principal of Earthplan, was project manager, and principal analyst and writer.

Assistance was provided by three independent contractors. Traver Carroll gathered census statistics and assisted in conducting community interviews. Michael Mays assisted in the analysis of public policies and public facilities, and conducted community interviews. Sara Verga assisted in community interviews and project research.

The remaining portions of this section describe the proposed actions and discuss the role and purpose of social impact assessments.

Section 2 describes the existing social environment in terms of population trends, demographic information and selected economic characteristics. Section 3 extends the baseline information by exploring what may occur in the region with or without the proposed changes.

Community issues are presented and analyzed in Section 4. Proposed social impacts are described in Section 5 in terms of population changes, the project's relationship to regional public policies, displacement impacts, and public facilities and services.

1.2 Description of the Proposed Project

Outrigger Enterprises, Inc. proposes to redevelop 7.9 acres in Waikiki. The site comprises 22 parcels and is located makai of Kalakaua Avenue and along Saratoga Road, Beach Walk, Lewers Street, and Kalia Road. It occupies portions of four blocks.

1.2.1 Existing Uses

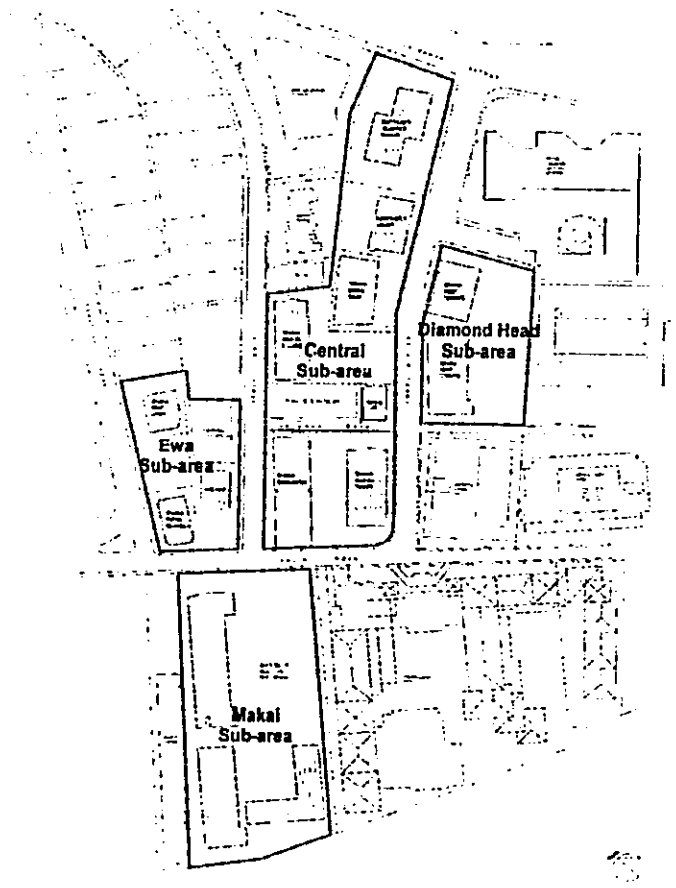
Four the purposes of this report, the Project Area is divided into four sub-areas as follows. These areas are illustrated in Figure A.

Central sub-area: This is the largest portion of the Project Site and is bounded by Kalakaua Avenue on the mauka side, Kalia Road on the makai side, Beach Walk and private property on the Ewa side, and Lewers Street on the Diamond Head side. Six hotels are located in this Sub-area, including:

- The most mauka hotel, Outrigger Islander Waikiki, was named in honor of Outrigger's first hotel, and opened in 1997 following major renovation. It fronts Kalakaua Avenue and Lewers Street and contains 287 hotel rooms. The ground floor includes a food court, other restaurants, retail shops, and a tour company.
- The Edgewater Lanais is located on Lewers Street and is not currently in hotel use. A restaurant, sundries store, a tour company and retail establishments are located on the ground floor. The first three floors are used for office space. The remaining floors are closed.
- Ohana Coral Seas also fronts Lewers Street. Built in 1960, this hotel contains 109 rooms. On the ground floor are restaurants, retail shops and a tour company.
- Ohana Waikiki Village is accessible from Lewers Street and Beach Walk. Built in the 1960s, it contains 442 units. Its ground floor contains retail shops, a cocktail lounge, tour companies, and a nightclub.
- The Ohana Edgewater Hotel was built in 1951 and is the second hotel developed by Outrigger Hotels founder Roy Kelley. Its entrance is located on Beach Walk and the hotel is also accessible via the lobby of the Ohana Waikiki Village. It contains 184 units. Its ground floor contains food establishments, retail shops and a beauty salon.

- The Ohana Waikiki Tower was built in the 1970s and is accessible via Lewers Street. It contains 439 hotel rooms, and the ground floor houses a restaurant and bar, tour companies and retail shops.

Figure A: Project Site Sub-areas for this SIA



Also in this sub-area at the corner of Lewers Street and Helumoa Road is a two-story structure that contains a fast food establishment, tour companies, and retail shops. In addition, a parking structure is located at the corner of Helumoa Road and Beach Walk.

Diamond Head sub-area: This sub-area is on the southwestern portion of the project site and is bounded by Helumoa Road, Lewers Street, and private property. This Sub-area contains the Ohana Reef Towers, which was built in 1959 and is accessible via Lewers Street. The hotel comprises two high-rise structures that house 480 hotel units. Its ground floor offers several establishments, including retail shops, tour companies, a convenience store, a nightclub, a restaurant, a pub and a lounge. Also in this hotel is the Waikiki Kelley Chapel, an Episcopal facility founded to provide ministry and hospitality to visitors. The Kelley family and hotel management have continuously provided this space to be an Episcopal/Anglican presence in Waikiki.

Ewa sub-area: This block is located on the Ewa end of the overall project site, and is bounded by Saratoga and Kalia Roads, Beach Walk and private property. From mauka to makai, the three hotels in this sub-area include:

- The Ohana Reef Lanai was built in 1955 and contains 110 hotel rooms. It fronts Saratoga Road and contains a restaurant on the ground floor.
- The Malihini Hotel contains ten units that are currently vacant. This area also contains a sundry store and clothing shop.
- The Royal Islander is located at the corner of Saratoga Road and Kalia Road and is accessible via the latter. It contains 101 hotel units, and its ground floor tenants include a fast food restaurant and a car rental office.

A parking structure serving these hotels is also in this sub-area.

Makai sub-area: This portion of the project site is located makai of Kalia Road and is bounded by the ocean and private property. Built in 1959, the Outrigger Reef on the Beach comprise three towers that contain a total of 885 rooms. Non-hotel uses include several retail shops, restaurants, tour companies, and a car rental office.

1.2.2 Project Description

Outrigger Enterprises proposes to develop the Waikiki Beach Walk, a mixed-use entertainment, retail and hotel project that is intended to define Lewers Street as a gathering place for residents and visitors. The project includes:

- ***Redevelopment of the Central sub-area*** – This portion is envisioned as a centerpiece for the overall project. A two-level entertainment and retail promenade will be integrated with the renovated Ohana Waikiki Village and Ohana Waikiki Tower hotels. The lower floors of the Waikiki Village and Waikiki Towers will be reconstructed and linked by a new four-level podium that will include a lobby serving both hotels, a large banquet hall and meeting rooms, and a rooftop pool deck. The retail and entertainment complex will also be connected to the adjacent Outrigger Islander Waikiki and Ohana Reef Tower hotels through streetscape improvements, namely in the new Lewers Street public plaza. In addition, a pedestrian bridge over Kalia Road will link this area to the Outrigger Reef on the Beach.

- ***Renovation and upgrade of five hotels*** – In addition to the aforementioned improvements to the Ohana Waikiki Village and the Ohana Waikiki Tower hotels, these hotels will experience a decrease in rooms as part of the renovation efforts. Ohana Waikiki Village will experience a decrease from 442 units to 409 units; Ohana Waikiki Tower, from 439 units to 384 units. The Islander Waikiki, the Ohana Reef Towers and the Outrigger Reef on the Beach will undergo various improvements and upgrades, but will have no change in unit count.

- ***Construction of the new Saratoga Hotel*** – A new hotel with approximately 891 units will be developed in the Ewa sub-area. This hotel will be connected to the Central sub-area via pedestrian bridges over Beach Walk.

- ***Demolition of seven structures*** – As part of the redevelopment, seven structures will be demolished. In the Central sub-area, the Edgewater Lanais (55 units), Ohana Coral Seas (109 units), the Ohana Edgewater (84 units), and the two-story structure at the corner of Lewers Street and Helumoa Road demolished. In the Ewa sub-area, the Ohana Reef Lanai (110 units), the Malihini Hotel (10 units) and the Ohana Royal Islander (110 units) will be demolished. With the development of a new hotel and this demolition, there will be a net increase of 234 hotel rooms on the project site.

- ***New signature gateway in the Makai sub-area*** – To enhance the makai side of Kalia Road, the porte cochere and public areas of the Outrigger Reef on the Beach will be remodeled and a new signature gateway will be created.

1.3 The Role and Purpose of Social Impact Assessments

The social aspects of an area relate to people living and interacting with other people. Social impact analysis explores how the physical environment of a community or neighborhood may be changed by a proposed land development, and how these changes may affect the neighborhood as a social environment. [1]

Social impact assessment, hereafter referred to as SIA, became a recognized subfield of research and policy application, with the passage of the U.S. National Environmental Policy Act (NEPA) legislation in 1969. [2] It is an interdisciplinary, inter-professional field of social science knowledge and application. SIA draws sometimes from social science, but other times from organizational development, political analysis, or journalism. Its primary function has to do with the development and disclosure of social information relevant to informing the decision-making process and/or designing management actions to deal with problematic social outcomes of a proposed project.

The goal of SIA is to predict the social effects of a policy, program or project while still in the planning stage, before those effects have occurred. The overall framework for SIA is anticipatory research, which seeks to place the expectation and attainment of desired outcomes on a rational and reliable basis.

Commonly identified uses of SIA include:

Understanding the ability of a community or group to adapt to changing conditions - In identifying social consequences of a proposed action, cause-and-effect relationships are complex. Different people and different communities react differently to similar events. An important function of SIAs is therefore to obtain and analyze the necessary information about community organization and likely responses to changing conditions. As such, the non-project social scenario is as important as the with-project scenario because it provides the analyst with a realistic social context for the proposed action.

[1] *Kathleen Christiansen, Social Impacts of Land Development: An Initial Approach to Estimating Impacts on Neighborhood Usages and Perceptions (1976)*

[2] *Rabel Burdge and Frank Vanclay, "Social Impact Assessment," Environmental and Social Impact Assessment, ed. Frank Vanclay and Daniel A. Bronstein (1996), 34.*

Defining the problems or clarifying the issues involved in a proposed change - Frequently, opposition to or support for a proposed project can only be understood and addressed when the proponent is aware of cultural tendencies, underlying issues, vested interests, and misperceptions. The SIA is the basis for defining and clarifying project or program issues in a systematic approach within the EIS framework.

Illuminating the meaning and importance of anticipated change - An important objective of SIA is to determine what meaning a probable impact would have for a community and its residents. Whereas a certain impact may have relatively low social significance in some communities, it may be given more import or significance in other settings or communities.

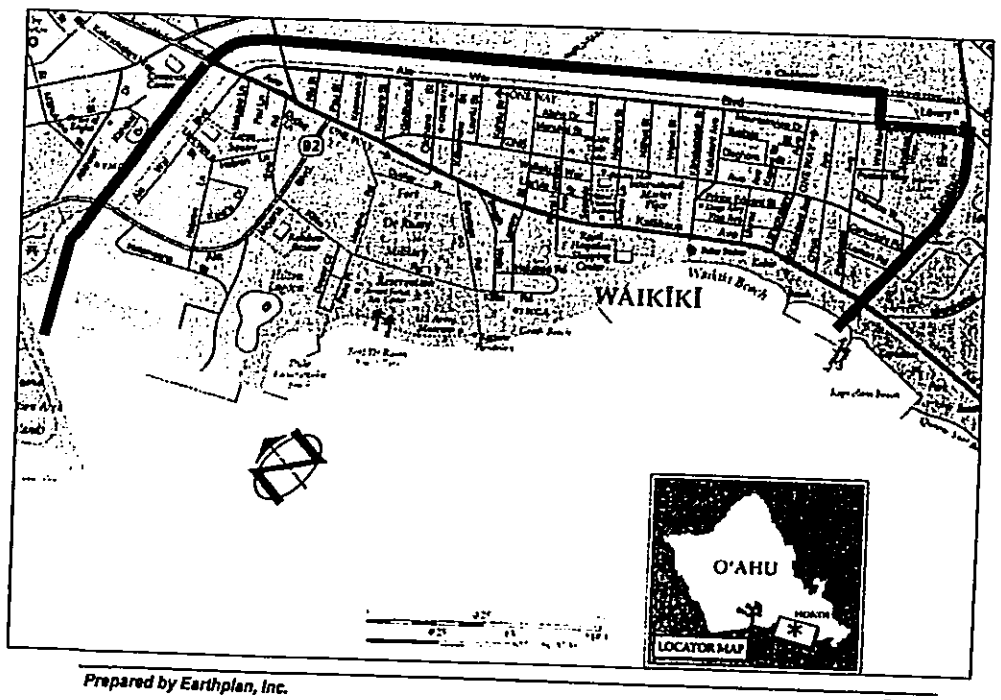
Identifying mitigation opportunities or requirements - Another function of SIA is to explore how a proposed action can cause the least adverse and most beneficial impacts, and to identify responses from the community and affected persons. SIA information can be crucial in determining what mitigation is necessary, what mitigation alternatives exist, and which mitigation strategies are most likely to work.

2 PROFILE OF THE EXISTING COMMUNITY

2.1 Study Area Definition

The project site is located in the Waikiki Neighborhood Board Area, which is the Study Area for this study and is illustrated in Figure B. This area is bounded by the Ala Wai Promenade on the Ewa end and Kapahulu Avenue on the Diamond Head end. It extends mauka to makai from the mauka edge of the Ala Wai Canal to the ocean. To further determine the Study Area, when possible, distinctions are made between the areas mauka and makai of Kalakaua Avenue.

Figure B: Study Area for This SIA

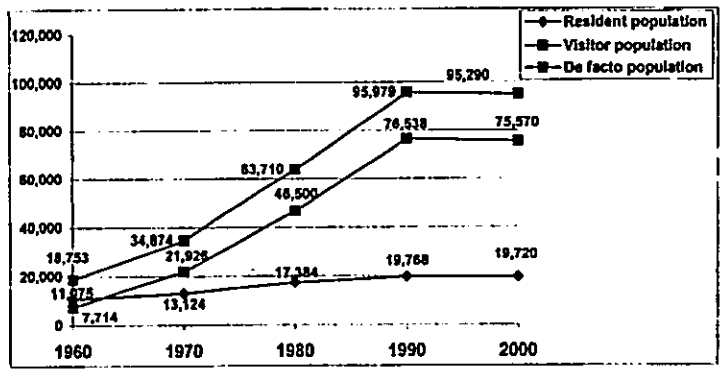


2.2 Population Trends

In 2000, an estimated 19,720 persons resided in the Study Area. An average of 75,570 visitors were present on a daily basis, resulting in a 2000 de facto population of 95,290 persons.

The Study Area resident and visitor populations steadily increased between 1960 and 1990. In 2000, both the resident and visitor populations decreased slightly, as illustrated in Figure C.

Figure C: Waikiki Resident, Visitor and De Facto Populations, 1960 to 2000



Sources: Information for 1960 to 1990 is from Table 1.17 of the 1999 State of Hawaii Data Book. Information for 2000 was provided by the City Department of Planning and Permitting. The 2000 visitor population is estimated as 89 percent of the total Oahu average visitor census of 84,910 persons.

In terms of growth rates, the Study Area residential population grew at an average rate of 1.5 percent between 1960 and 2000. The average annual growth rate for the visitor population during that 40-year period was much higher at 5.9 percent.

2.3 Selected Demographic Characteristics of Study Area Residents

As Table 1 shows, an estimated 19,720 persons lived in the Study Area in 2000. The majority, or 13,360 persons (86 percent), lived mauka of Kalakaua Avenue.

Table 1: Demographic Information for Oahu, the Total Study Area and the Mauka and Makai Portions of the Study Area, 1990 and 2000

	1990		2000			
	Oahu	Total Waikiki	Oahu	Total Waikiki	Waikiki Mauka of Kalakaua	Waikiki Makai of Kalakaua
Population	836,231	19,757	876,156	19,720	13,360	6,360
Age						
Less than 5 years	7.4%	2.1%	6.5%	3.5%	3.7%	3.0%
5 to 19 years *(1)*	17.1%	5.1%	20.0%	7.5%	6.2%	5.6%
20 to 64 years *(2)*	64.5%	71.6%	60.1%	70.7%	74.9%	66.3%
65 and older	11.0%	21.2%	13.4%	18.4%	15.2%	25.1%
Ethnicity *(3)*						
Caucasian	31.7%	61.1%	21.3%	43.7%	40.9%	49.5%
Asian	45.6%	28.8%	46.0%	38.8%	40.3%	35.5%
Hawaiian	10.8%	4.8%	5.6%	4.5%	4.8%	4.0%
All Other	12.0%	5.3%	27.1%	13.0%	14.0%	11.0%
Households						
Number	265,304	11,445	286,450	11,397	7,678	3,719
Average household size	3.02 persons	1.71 persons	2.95 persons	1.72 persons	1.73 persons	1.70 persons
Housing Units						
Number	281,683	17,137	315,988	18,370	12,129	6,241
Owner Occupied	49.0%	20.9%	49.5%	20.8%	18.8%	24.6%
Renter Occupied	45.2%	45.3%	41.2%	41.3%	44.5%	35.0%
Vacant Units	5.8%	33.8%	9.3%	38.0%	36.7%	40.4%

Notes:

1. In 1990, this age category was 5 to 17 years.

2. In 1990, this age category was 18 to 64 years.

3. Ethnicity proportions are presented for information only. 1990 and 2000 information cannot be compared because of methodology differences in gathering information. In 1990, census respondents were required to pick one ethnic category. In 2000, multi-ethnic respondents were allowed to select the appropriate number of categories.

Sources: The 1990 information for Oahu and Waikiki is from Summary Tape 1-A of the 1990 census. The 2000 Oahu information is from the U.S. Census Bureau (Profiles of General Demographic Characteristics. 2000 Census of Population and Housing, Hawaii (May 2001)). The 2000 Waikiki information was provided by the City Department of Planning and Permitting.

2.3.1 Age

Between 1999 and 2000, the Study Area experienced:

- an increase in children 18 years and younger (from seven percent to eleven percent),
- a stable working class population (from 72 to 71 percent), and
- and a decrease in residents 65 years and older (from 21 to 18 percent)

In 2000, Study Area households tended to have less children than the islandwide population. Whereas 27 percent of the Oahu-wide population were 18 years or younger, only eleven percent of the Study Area were in this category in 2000. Proportionally, the mauka portion of the Study Area tended to have slightly more youngsters.

In terms of proportions of working age group (20 to 64 years) and the elderly (65 years and older) the Study Area had distinct differences between the mauka and makai portions of the Study Area. The mauka portion had a larger working age population and the makai portion had a significantly high level of elderly residents. In the mauka portion, three-fourths of the population were between the ages of 20 to 64, and 15 percent were elderly. In the makai portion, two-thirds were between the ages of 20 to 64 and 25 percent were elderly.

In the Oahu-wide population, 60 percent were between 20 and 64 years old, and 13 percent were elderly.

2.3.2 Ethnicity [3]

In 2000, the Study Area tended to have high proportions of Caucasians, when compared to the Oahu-wide population. Twenty-one percent of the islandwide population was Caucasian in 2000. In the makai portion of the Study Area, half of the resident population was Caucasian in 2000; in the mauka portion, 41 percent. Consequently, all other ethnic groups were under-represented in Waikiki.

[3] *Ethnicity proportions are presented for information only. 1990 and 2000 information cannot be compared because of methodology differences in gathering information. In 1990, census respondents were required to pick one ethnic category. In 2000, multi-ethnic respondents were allowed to select the appropriate number of categories.*

2.3.3 Households and Housing Units

Between 1990 and 2000, the Study Area experienced:

- a slight decrease in number of households, from 11,445 in 1990 to 11,397 households in 2000,
- an increase of 1,233 housing units (17,137 to 18,370 units),
- stability in owner-occupied units (21 percent in both years),
- a decrease in renter-occupied units (45 to 41 percent), and
- an increase in housing vacancy (from 34 to 38 percent).

In terms of average household size, the Study Area tended to have small households when compared to the islandwide households. The average household size in the Study Area was 1.7 persons in 1990 and 2000. Oahu's average household sizes were 3.02 and 2.95 persons in 1990 and 2000, respectively.

In 2000, 66 percent of the Study Area's 18,370 housing units were located in the mauka portion. Of the mauka occupied units, 19 percent were owner-occupied and 44 percent had renters. The makai portion had more owner-occupied units (25 percent) and less occupied rentals (35 percent).

Vacancies were high in the mauka and makai portions, with, respectively, 37 and 40 percent of the housing supply vacant in 2000. About half of the vacant mauka units were available for rent, and the other half was held as seasonal or part time residences. In the makai portion, 44 percent were available for rent, and 54 percent were held as seasonal or part time residences.

At the same time, the housing vacancy rate on Oahu was nine percent.

2.4 Selected Economic Characteristics

The Study Area has been and continues to be a major economic force for the State and the County. Of the 1999 total Oahu hotel room inventory of 36,303 units, 87 percent, or 31,557 units, were located in and around Waikiki. Table 2 provides a breakdown of Waikiki visitor units.

Table 2: Visitor Units in Waikiki, 2000

Type of unit	Properties	Available units
Apartment / hotel	12	529
Condominium hotel	24	2,979
Hostel	3	143
Hotel	68	27,358
Individual vacation unit	5	152
Other	5	396
Total	117	31,557

Source: Table 3 of 2000 Visitor Plant Inventory, as prepared by the Research and Economic Analysis Division of the State Department of Business, Economic Development and Tourism

Another visitor room count is provided by the City Department of Planning and Permitting for the purposes of calculating the status of existing units relative to the visitor unit cap. The City's estimate of existing visitor units for 1999 is 31,313 units.

Waikiki's hotels, visitor attractions, and natural resources draw the bulk of tourists who visit Oahu and provide limitless opportunities for visitor spending. Table 3 shows that, in 1999, out of the total $5.8 billion spent by visitors on Oahu, $5 billion, or 86.2 percent, was spent in Waikiki.

Table 3: Visitor Spending on Oahu and in Waikiki, 1999

Visitor Spending in 1999	Oahu	Waikiki	Percentage
Domestic	$2,952,645,571	[illegible]	
Eastbound *(primarily Japanese visitors)*	$2,831,454,607	[illegible]	
Visitor Spending Total	$5,784,100,179	$4,985,894,354	86.20%

Source: Estimated by the Waikiki Improvement Association and provided in August 2001.

In addition to generating revenues that benefit the entire State, Waikiki also provides employment opportunities to local residents. As Table 4 indicates, Waikiki establishments employed an estimated 30,000 people in 1980. By 1990, the employment base increased to 38,300, which represents a 22 percent increase over a ten-year period.

Table 4: Employment in Waikiki, 1980, 1990, 1994

	1980	1990		1994		
	Total Study Area	Total Study Area	Waikiki Mauka of Kalakaua Avenue	Waikiki Makai of Kalakaua Avenue	Total Study Area	Waikiki Mauka of Kalakaua Avenue	Waikiki Makai of Kalakaua Avenue
Employment	30,011	38,277	20,722	17,555	37,098	20,040	17,058
Percent of Total Study Area	[illegible]	[illegible]	*54.1%*	*45.9%*	[illegible]	*54.0%*	*46.0%*

Source: The 1980 information is from Table 1.17 of the 1999 State of Hawaii Data Book. The 1990 and 1994 information was provided by the City Department of Planning and Permitting.

3 MAJOR FORCES FOR CHANGE

Waikiki is expected to undergo major changes regardless of whether the proposed project is implemented. These changes extend the baseline context of the social environment and are outlined in this section. Section 3.1 presents changes advocated by the public sector, and private sector projects are presented in Section 3.2.

3.1 Public Initiatives, Plans, Policies and Projects

Waikiki's character as a visitor destination has evolved from an exclusive enclave featuring a handful of upscale hotels to a high-rise environment with physical and social problems typical of dense cities. Public entities have therefore sought to improve Waikiki to recapture its appeal as a visitor destination and a gathering place for local residents. This section provides the highlights of public efforts directed toward the revitalization and renovation of the Study Area.

3.1.1 Joint Waikiki Task Force

In 1998, the Hawaii State Legislature passed a resolution to establish a Joint Waikiki Task Force that would provide a forum for the State and City to work together for the revitalization and renovation of Waikiki and surrounding areas, including the Hawaii Convention Center. This task force was to recommend infrastructure improvements related to tourism-related construction, beautification projects, Capital Improvement priorities, and the relationship of Waikiki to surrounding areas.

In its 1998 report, the Joint Task Force developed five recommendations for 1999. These recommendations called for the establishment of the Waikiki Business Improvement District, related legislation, and organizational requirements. In addition, the Task Force recommended that specific strategies be developed to improve the Hawaiian sense of place, to improve the transportation and circulation system, and to promote private reinvestment. [4]

[4] *Joint Waikiki Task Force, Report of the Joint Waikiki Task Force. Report to the Twentieth Legislature, Regular Session of 1999, In response to SCR 191, SD2, HD1, CD1, 1998 (December 1998).*

In its subsequent 1999 report, the Joint Task Force focused on a "Pedestrian First Policy for Waikiki" intended to recapture the "Magic of Waikiki." This policy is based on the premise that Waikiki is to be a pedestrian-oriented resort and a pedestrian-oriented residential area. Some of the recommended tools to implement this policy include a plan for Waikiki Walks, a design manual that provides an integrated approach to street furniture, landscaping and traffic calming, and various traffic and circulation improvements to discourage vehicular traffic. [5]

3.1.2 Waikiki Special Improvement District

The City and County of Honolulu established Special Improvement Districts to provide and finance services and improvements intended to promote and enhance business activity within these districts. A district may be established to provide for and finance supplemental services and improvements related to:

- Additional maintenance, security or other additional services related to the enjoyment and protection of the public,
- Restoration or promotion of business activity, and
- Operation, maintenance, removal and replacement of any supplemental service or improvement.

When a district is formed, a District Association is established, and its Board of Directors may accept advances of funds, work or property in-kind from any source. The Board may enter into agreements to repay all or a portion of the funds or to reimburse the work or property in-kind, with or without interest. [6]

Waikiki is the first Special Improvement District, and the district's boundaries are co-terminus with the Study Area boundaries. The Waikiki Improvement Association prepared and sponsored the Waikiki Business Improvement Plan. The plan's mission statement calls for, in part, the development and implementation of programs that promote the overall vitality of Waikiki and Hawaii by strengthening their roles as world-class destination areas.

Supplemental services intended to be provided and financed by the District include:

[5] *Joint Waikiki Task Force, Recapturing the Magic of Waikiki (December 1999).*

[6] *Based on Ordinance 00-13, Relating to Special Improvement Districts, passed by the Honolulu City Council on April 26, 2000, and signed into law on April 28, 2000.*

- Information and Safety Officers - They are intended to supplement security provided by the Honolulu Police Department and private security. These people will also provide hospitality by providing information, offering assistance and sharing a working knowledge of Hawaii's history and cultures.
- Clean Sweep Crews – These crews are intended to supplement the cleaning and maintenance of publicly-owned areas and certain improvements. Their services include several maintenance activities, including landscape maintenance, trash service, and street furniture maintenance.[7]

These initiatives have been implemented. Aloha Patrol Officers were contracted on March 15, 2001, and approximately 20 people serve in this capacity. Malama Waikiki cleaning crews were contracted on March 4, 2001 and include approximately 30 employees. In addition, the Volunteer Aloha Patrol, which is a sub-group of the Waikiki Improvement District, shares aloha and walks the streets in the evenings along Kuhio and Kalakaua Avenues.[8]

3.1.3 Primary Urban Center Development Plan

The City and County of Honolulu guides and directs land use and growth through a three-tier system of policies, planning principles, guidelines, and regulations. The General Plan forms the first tier of this system and comprises statements of objectives and policies. Adopted in 1977, the General Plan has been amended several times, although the basic elements in the original document remain the same.

The second tier of the system includes the Development and Sustainable Communities Plans. The eight plans cover the Primary Urban Center, East Honolulu, Central Oahu, Ewa, Waianae, North Shore, Kooloauloa, and Koolaupoko.

The third tier of the system comprises the implementing ordinances, including the Land Use Ordinance and the City's Capital Improvement Program.

[7] *Based on Ordinance 00-40, Relating to the Establishment of the Waikiki Special Improvement District No. 1, passed by the Honolulu City Council on June 14, 2000, and signed into law on June 20, 2000.*

[8] *Information provided by Rick Egged, president of the Waikiki Improvement Association, and Jan Yamane, Executive Director of the Waikiki Improvement Association.*

The Study Area is in the Primary Urban Center, hereafter referred to as the PUC, which extends from Pearl City in the west to Kahala in the east. The General Plan promotes the "full development of the PUC." The PUC Development carries out the General Plan policies through policies related to:

- Growth and redevelopment,
- Natural, historic, cultural and recreational resource areas,
- Stable residential neighborhoods,
- Housing and community development within the Heart of Honolulu and the Heart of Pearl Harbor,
- Military installations, transportation centers and industrial areas,
- Visitor industry activities, and
- Transportation networks and systems.

In the draft PUC Development Plan, the preferred approach in the further development of the visitor industry is to establish new hotels near the Convention Center and the Downtown Waterfront, and smaller more personal hotels, inns and bed-and-breakfast establishments in other designated areas within the greater PUC. The PUC DP calls for the sharing of local attractions with visitors, including shopping areas, civic and cultural facilities, and recreational areas. This would provide opportunities for resident – visitor interactions and an authentic experience for visitors.

Several policies are intended to pursue this preferred approach, and the following are relevant to the proposed project:

- Provide a transit link along the Ala Moana / Kakaako / Downtown corridor to facilitate visitor access between Waikiki and the visitor attractions and units in the corridor
- Evaluate the visitor cap for Waikiki every five years (as required) and consider adjusting it as necessary to allow the islandwide demand for hotel rooms to be met (particularly for first-class rooms) without allowing speculation and overbuilding to take place

The PUC also specifies that, in Waikiki, all improvements related to resort, hotel and visitor industry development should seek to convey a "Hawaiian Sense of Place" as described in the Waikiki Special District Design Guidelines adopted in 1996.

The PUC Development Plan is currently a draft, and major changes are being made to the plan's format and content. It is our understanding that the basic intent of policies related to Waikiki and the visitor industry may remain as in the draft current at this writing.

3.1.4 Transportation Initiatives

As noted in Section 3.1.1, a key focus in the revitalization of Waikiki is transportation as a means to bring residents and visitors to the region, and providing the means to circulate within the region with minimal vehicular traffic.

The Islandwide Mobility Concept Plan was developed in 1999 and revised in the summer of 2001. Its goals are to improve in-town mobility, strengthen connections throughout the Island, and make transportation choices that help foster livable communities. The plan recognizes that Waikiki and the Hawaii Convention Center area will remain the focal point of Oahu's visitor plant. It calls for a multi-modal transportation loop linking a reinvigorated Waikiki with downtown and adjacent neighborhoods.

Six major efforts were undertaken to further explore and develop the Islandwide Mobility Concept Plan. They include islandwide traffic calming, a Honolulu Bicycle Master Plan, a Sand Island Scenic Parkway, Hub-and-Spoke Bus Routes, Transit Centers and the Primary Corridor Transportation Project.[9]

The Primary Corridor Transportation Project was covered in a draft Environmental Impact Statement. An alternative was the Expanded Bus and Bus Rapid Transit, the latter of which was accepted by the City Council as the Locally Preferred Alternative.

Of particular relevance to the proposed project is the Waikiki Bus Rapid Transit, hereafter referred to as BRT. The Waikiki BRT will travel adjacent to the project site. It uses Ala Moana Boulevard, Kalia and Saratoga Roads, before forming a one-way loop on Kalakaua, Kapahulu and Kuhio Avenues. It will serve the Hilton Hawaiian Village and Fort DeRussy, and hotels and attractions along Kalakaua and Kuhio Avenues. [10]

[9] *City Department of Transportation Services, Islandwide Mobility Concept Plan (August 2001).*

[10] *U.S. Department of Transportation, Federal Transit Administration, and the City Department of Transportation Services, Major Investment Study / Draft Environmental Impact Study: Primary Corridor Transportation Project (September 2000).*

Currently several Working Groups are refining the details of the BRT program. A Working Group for the Waikiki BRT convened its first meeting on August 14, 2001.

3.1.5 City-Sponsored Activities

In an effort to promote Waikiki as a visitor destination and a resident gathering place, the City and County of Honolulu has initiated several activities, including:

- The monthly Sunday "Brunch on the Beach," which has drawn thousands of residents and visitors for food and entertainment at the Diamond Head end of Kalakaua Avenue,
- Torch lighting ceremonies at sundown and hula, which is performed nightly near Duke Kahanamoku's Statue at the Diamond Head end of Kalakaua Avenue,
- Strolling musicians playing Hawaiian music on Fridays,
- At the Kapiolani Bandstand, the Royal Hawaiian Band and other cultural events performed on weekends, and
- A new Kuhio Beach Festival will feature top entertainers at the hula mound.

In addition, the establishment of the Waikiki Historic Walk is underway. Sixteen of the 22 bronzed surfboard shaped markers are in place. The surfboard markers trace the history and culture of the Hawaiian Royalty in Waikiki. The sites include the Healing Stones, Duke's Statue, Moana and Royal Hawaiian Hotels. [11]

[11] *From Dateline: Waikiki (August 2001) produced by the Waikiki Improvement Association.*

3.2 Private Development Efforts

Several private sector efforts are underway that will change the character of the Ewa end of Waikiki. These are as follows:

- **2100 Kalakaua**

  A commercial and retail complex is under construction on 2.5 acres near the mauka – Ewa of the project site. Located at the corner of Kalaimoku and Kalakaua Avenues, the 105,000-square foot project is a three story complex. The new development will contain eight retail shops that will front Kalakaua Avenue. Its low profile and 70-foot setback are designed to create a park-like atmosphere, landscaped with monkey pod trees and other vegetation. Other features include a porte-cochere entry and a drop off area.

  Confirmed tenants include Tiffany & Co., Chanel and TOD's, and other top end retailers, such as Gucci, Prada, Yves Saint Laurent, and similar retailers, may be vying the remaining retail shops. The complex is scheduled to open in fall 2002. The $140m project is expected to create 200 construction and 250 managerial and sales positions. [12]

- **"Hilo Hattie" property**

  Near the Ewa end of the project site is a 28,000 square foot property that is awaiting redevelopment. Fronting Beach Walk and Saratoga Road, the property was purchased a year ago by retailer Hilo Hattie, and was recently placed on the market.

  Purchased at $7.5 million, the parcel is expected to sell for $9.9 million. The retailer's parent company, Pomare, felt that this higher value reflects the potential for more upscale retailers and noted that there are other sites that may be more compatible with their own retail line. This decision was due, in part, to the proposed project and the 2100 Kalakaua Avenue development. [13]

[12] *Based on minutes of the May 9, 2000 meeting of the Waikiki Neighborhood Board No. 9.*

[13] *Andrew Gomes, Hilo Hattie to sell Waikiki property, The Honolulu Advertiser (July 19, 2001).*

- **Waikikian Tower**

  The Hilton Hawaiian Village, hereafter referred to HHV, is proposing to develop a new 350-foot tower that would be located perpendicular to the existing HHV parking lot. Part of the project site includes the 1.9-acre site of the former Waikikian Hotel. The 35-story, $80 million tower will be Hilton's seventh in their Village complex. It will contain 350 vacation ownership units. In the initial phases of operation, those units not occupied under vacation ownership will be used as hotel units. Four levels of parking will provide 200 stalls. The remaining number of required stalls will be provided by existing excess parking stalls at HHV. [14]

- **The Imperial Resort**

  The Imperial Resort is adjacent to the Diamond Head sub-area and located at the corner of Lewers Street and Kalia Road. The lobby level of the four-story structure fronting Lewers Street contains retail shops and a restaurant and the upper floors house office space. Plans for renovation include a makeover of the front and side exterior, giving it a distinctive modern look. The roof on the fourth level will be converted to a garden and will include a restaurant bar. The project will cost between $6-7 million and will be completed 2003. No changes are planned for the vacation ownership units in the adjacent tower. [15]

- **Renovation of the Royal Hawaiian Shopping Center**

  Major renovation is being planned for The Royal Hawaiian Shopping Center, which is adjacent to the Diamond Head sub-area. It spans more than three blocks along Kalakaua Avenue. The four-story retail complex has been in operation since 1981, and the planned renovation is its first major facelift. Scheduled to being in late 2001, the estimated $30 million project is expected to be implemented in two to three years. [16]

[14] *Belt Collins Hawaii Ltd., Waikikian Development Plan Draft Environmental Impact Statement (July 2001).*

[15] *Personal communication with Peter Elliot, Manager Director of the Imperial of Waikiki.*

[16] *Andrew Gomes, "Royal Hawaiian Center to get major makeover," The Honolulu Advertiser (August 31, 2001).*

4 PRELIMINARY COMMUNITY ISSUES

Impacts are changes that may occur as a result of a proposed action, plan or policy. Issues are reactions and opinions. Issues can change over time, as people's priorities and values change.

Issues analysis helps decision-makers identify and analyze community concerns about a proposed action. To ensure that a proposed action is reviewed in the full social context in which the project is proposed, feelings and concerns about the existing community need to be considered as well. For example, it is helpful to understand if a project is unique in terms of its issues, or if reactions are consistent with other proposed changes.

Issues analysis differs from statistical surveys, the latter of which is designed to focus on frequency of reactions. Polls are valuable because they tell us about the opinions of the majority or the minority. The survey instrument is not conducive to dialogue, however, and the personalized reasons for these opinions are often not readily evident, and need to be inferred from the responses.

In contrast, the only time we make reference to the frequency of opinion in issues analysis is where there is significant difference of number or a distinct trend.

Section 5.1 discusses the study approach and methodology used in this issues analysis. Section 5.2 presents findings related to feelings about the existing community, and Section 5.3 presents reactions to the proposed Waikiki Beach Walk. Section 5.4 presents our analysis of community issues.

4.1 Approach

The source of information for this analysis is the collective information provided in community interviews, and the interview process is discussed in Section 5.1.1. A profile of those interviewed is presented in Section 5.1.2.

4.1.1 Interview Process

Four interviewers conducted interviews over a two-week period; a few telephone interviews were conducted after this period. Most of the interviews were held in person.

Our primary objective was to learn about the existing community and how the project would relate to the community. Hence, though the interview questions were standard, we also allowed for flexibility so that those interviewed could converse in a manner that was comfortable for them.

Interviewees were informed that their names and affiliations would be listed in this report. They chose the affiliations for listing. We noted that the affiliations and organizational information was solicited to provide readers an indication of the interest base of those interviewed. People spoke as individuals, and did not represent or speak for their organizations.

They were further informed that their individual conversations were confidential, and that their comments would be collectively analyzed. The four parts of the interview are as follows:

- ***Feelings about the existing community***

  Interviewers asked people to first discuss their existing community. Interviewees were asked to identify the community's most important strengths, as well as the most important problems. Interviewees were then asked to discuss their hopes for the future of the community.

- ***The project environs***

  Interviewers asked about the person's personal use of the project site and the surrounding area in terms of frequency and activity. They were then asked to describe what they liked about the area, and what they considered existing problems.

- ***Feelings about the proposed Waikiki Beach Walk***

  Interviewers described the proposed project based on information available in the Environmental Impact Statement Preparation Notice prepared by Group 70 International (June 2001).

  Interviewees were then asked to identify positive characteristics of the proposal and potential problems associated with this effort. It was noted if they felt that the project had either no positive characteristics or no potential problems.

  In addition, interviewees were also asked to recall the project to the community strengths and problems and their hopes they earlier identified, and to relate the project to those comments.

- *Suggestions*

  Those interviewed were asked if they had any suggestions related to any aspect of the proposed project.

4.1.2 Profile of People Interviewed

An understanding of the full range of feelings and concerns about a proposed project needs a broad cross-section of people. We interviewed people who live, work or operate a business on or near the project site. Further, we contacted people who are active in Waikiki business and residential organizations. We also interviewed people active in islandwide organizations that may have an interest in the project. Finally, we contacted people who were recommended by those interviewed because they were recognized as important individuals in the community.

In all, 57 people were interviewed. Those interviewed were asked to identify their organizational and other affiliations so that the reader would have an idea as to the cross section of interests reflected in this analysis. Interviewees shared their opinions as individuals, however, and were not asked to take a position for their organization. The list of names is provided in Table 5.

Table 5: List of People Interviewed

Name	Affiliation [17]
Richfield Aguilana	Co-owner of Tamare's Aloha Wear (Ohana Waikiki Village) Member of the Filipino Jaycees
Akira Aniya	General Manager and Operations / Systems Analyst of The Waikiki Royal Suites (nearby hotel)
Jeff Apaka	Secretary of Waikiki Neighborhood Board No. 9 Director of Community Relations of Waikiki Community Center Coordinator of Waikiki Citizens Patrol
Sylvia Au	Owner of A & A Bookkeeping Plus Inc. (bookkeeper for Hale Pua Nui, a nearby hotel)

[17] *Organizational and other affiliations are provided so that the reader has an idea as to the cross section of interests reflected in this analysis. Interviewees shared their opinions as individuals, and were not asked to take a position for their organization.*

Name	Affiliation [17]
Sam Bren	President of Waikiki Neighborhood Board No. 9 Ex-officio member of Waikiki Improvement Association Ex-officio member of Waikiki Business Improvement District Director of Kapahulu Senior Center
Laverne Catao	Manager of Food Court (Outrigger Island Waikiki)
Louise Cavanagh	Membership Chair of the Board of Directors of Travel Tourism Research Association Owner of Marketing Boutique (marketing agent for Perry's Smorgy in Ohana Coral Seas)
Eva Chan	Manager of Blue Ginger (Ohana Reef Towers)
Colin Ching	General Manager of Consolidated Resorts (on-site business at the corner of Lewers Street and Helumoa Road) Company belongs to Waikiki Business Improvement Development Association
Ronald Chong	Manager of Island Coffee House (Ohana Reef Towers)
Henry Curtis	Executive Director of Life of the Land Member of the Board of Directors of Pearl Harbor Navy Restoration Member of the Board of Directors of Community Alliance on Prisons
Laure Dillon	Salesperson at Wyland Galleries (nearby business) Member of Sierra Club Member of Earthjustice Legal Defense Fund Member of National Resources Defense Council
Mark DeMello	General Manager of Waikiki Parc
Rick Egged	President of Waikiki Improvement Association President and Chief Executive Officer of Waikiki Business Improvement Association Chair of Visitors Aloha Society of Hawaii Chair of the Board of Directors of Variety School Member of the Board of Directors of Aloha Festivals

Name	Affiliation [17]
Rick Elliot	President of Waikiki Shores Condominium Association (nearby resident)
Peter Elliot	Manager of The Imperial of Waikiki (nearby hotel)
Rick Espinda	Chief engineer for The Imperial of Waikiki (nearby hotel)
Karl Erbacher	Resident Manager of the Canterbury (nearby resident)
Bob Finely	Vice President of Waikiki Neighborhood Board No. 9
Bob Fishman	Chief Executive Officer of Hawaii Tourism Authority Member of the Board of Directors of Hawaii Chamber of Commerce Member of the Board of Directors Aloha Council of the Boy Scouts Member of the Board of Directors of the Public Broadcasting Foundation Deputy Commander of the U.S. Army Reserves on the Pacific
Scott Hamilton	Member and founding president of the Waikiki Neighborhood Board No. 9 Board Member of Salvation Army
Elliot Higgins III	Operation Manager of Roberts Tours
Mike Hill	Owner of Diamond Head Scooters (Ohana Edgewater)
Fred Honda	General Manager of the Halekulani Hotel (nearby hotel)
Gail Hong	General Manager at House of Hong (Edgewater Lanais) Owner of Chuck's Steak House (Ohana Edgewater Hotel) Member of Chamber of Commerce
Lisa Hookano-Holly	Manager of Hawaiiana Hotel (nearby hotel)
John Jefferis	General Manager of the Hale Koa Hotel (nearby hotel) and Fort DeRussy Armed Forces Recreation Center (nearby use) Member of the Board of Directors for Waikiki Improvement Association Member of the Board of Directors of Hawaii Hotel Association Nearby resident

Name	Affiliation [17]
Colleen Kang	Owner of Colleen's Gift Shop (Ohana Edgewater)
Melvin Kirkland	Member of the Board of Directors of Wailana Apartments (nearby hotel)
Jim Lackey	Executive Director of Asia Pacific Center for Security Studies (nearby business) Member of Honolulu Rotary Club Member of Hawaii Army Museum Society Member of Japan America Society Member of Pacific and Asian Affairs Council
"Sonny" Hal Lewis	Outside Public Contact Manager of Marketing of Consolidated Resorts (on-site business at the corner of Lewers Street and Helumoa Road)
Fred Livingston	Owner of two on-site restaurants: Trattoria (Ohana Edgewater Hotel) and Davey Jones Ribs (Ohana Coral Seas) Member of Hawaii Restaurant Association Member of Hawaii Visitors Bureau
John McLaughlin	Director of Museum Archives, Community Recreation Division of Battery Randolph Waikiki Army Museum at Fort DeRussy (nearby use)
Malie Myer	Director of Kanahele Training Institute (contracted by Association to provide cultural sensitivity training) Member of the Board of Directors of Na Ha, Native Hawaiian Hospitality Association President and Chief Executive Officer of Native Books
Jeff Mikulina	Director of the Hawaii Chapter of the Sierra Club Member of the Board of Directors of Hawaii Bicycling League
Georgia Miller	Founding Secretary of Waikiki Neighborhood Board Director and President Emeritus of The Waikiki Residents Association Member of the Hawaii Federation of Business and Professional Women's Club, Inc.
Ethyl Y. Nada	Manager of Breakers Hotel (nearby hotel)

Name	Affiliation [17]
Susan Nealan	Manager of Kenneth Cole NY (Outrigger Islander Waikiki)
Steve Nostrum	Owner of Outrigger Shops (an independent owner of 20 on-site businesses; office in Edgewater Lanais)
	Member of National Association of Merchants
Rufina Parras	Supervisor/ Manager of Carl's Jr. (on-site business at the corner of Lewers Street and Helumoa Road)
	Member of United Filipino Council
Patty Sadoi	Manager of Outrigger Shops (office in Ohana Waikiki Tower)
Maryknoll Sadet	Manager of Mos Burger (nearby use)
"Ronny" Ronnela Sanico	Manager at Patisserie (Ohana Edgewater)
Gena Shultz	Manager of Planet Hollywood (nearby business)
Robert Shaver	Operations Manager of Royal Hawaiian Shopping Center (nearby business)
	Member of Honolulu Rotary Club
	Member of International Council of Shopping Centers
Mary Sim	Vice Chair of the Board of Directors of the Waiiana (nearby resident)
Marvin Silverman	President and Chief Executive Officer of Royal Hawaiian Shooting Club and Royal Hawaiian Entertainment (nearby businesses)
	Member of Waikiki Improvement Association
	Member of Hawaii Visitor and Convention Bureau
	Member of Visitor Industry Coalition
	Founding Chair of Visitors Aloha Society
	Member of Retail Merchants of Hawaii
Roy Simkin	President of Niihau Apartment Association (nearby resident)
Henry Takahashi	Owner and manager of Henry's Place (Malahini Hotel)
Mitsuru Takahashi	Father of owner and manager of Henry's Place (Malahini Hotel)

Name	Affiliation [17]
Murray Towill	President of Hawaii Hotel Association
	Member and past president of Ala Wai Watershed Association
	Member of the Board of Directors of the Greater East Oahu Community Association
	Member of the Board of Directors of Aloha Festival
	Member of the Board of Directors of the Blood Bank
Leah Thayer	Employee of Local Motion (nearby business)
Vit Udom	Owner of Buzz's Steak House (Ohana Reef Lanai)
Reverend Noriaki Ueda	Deacon of the Waikiki Episcopal Chapel (Ohana Reef Towers)
	Member of the Pacific Health Ministry
Les Ueki	Operation manager of Sav-On-Tours (on-site business at the corner of Lewers Street and Helumoa Road)
Jan Yamane	Vice President and Chief Executive Officer of Waikiki Business Improvement District
	Member of Tourism and Retail Resources
William Zee	Manager of Plaza Hawaii Wear and Plaza Hawaiian's Tee's (Outrigger Reef on the Beach)

To identify the full range of possible issues on the proposed project, every effort was made to reach a cross section of interests. The following presents a profile of those interviewed:

- **Length of time in Waikiki**

  When asked how long they lived, worked or operated a business in Waikiki, 24 people, or 42 percent, indicated that they were in the region for ten or less years. The next largest group indicated that they had been involved in Waikiki for over 20 years. Twenty one people, or 37 percent, were in this category. Nine people lived or worked in Waikiki for eleven to 20 years, and two did not specify their length of time in Waikiki.

- **On-site employees and business operators / owners**

  Twenty interviewees were employed by on-site businesses, or owned and operated an on-site business. Of these, twelve were in structures planned for demolition and the other eight were in hotels planned for renovation and upgrade.

- **Nearby users**

  Twenty-six of those interviewed lived, worked or operated a business near the project site. Seven were nearby residents, eight operated neighboring hotels, and eleven were employed or owned a nearby business.

- **Organizational affiliations**

  Nine people said that they belonged to organizations based in the Waikiki region, including the Waikiki Neighborhood Board No. 9, the Waikiki Improvement Association, the Waikiki Business Improvement District Association, and the Waikiki Residents Association.

  Sixteen people were members and officers of islandwide and statewide organizations. These ranged from environmental groups, such as Life of the Land and the Sierra Club, to business organizations, such as the Hawaii Chamber of Commerce and the Hawaii Tourism Authority, and to community organizations such the Salvation Army and the Aloha Council of Boys Scouts.

4.2 Feelings about the Waikiki Region

To understand how the project site relates to the overall region, we asked interviewees to first discuss what they considered Waikiki's strengths and problems. They were subsequently asked to share their hopes for the future of Waikiki. This section summarizes their feelings about the overall Waikiki region.

4.2.1 Waikiki Strengths

Interviewees identified several regional strengths that generally fell into four categories, as follows:

- **Value as a visitor destination**

  Interviewees noted that Waikiki has significant name recognition as a tourist destination. Waikiki enjoys worldwide fame and is often portrayed in the media and posters as *the* dream destination with its sun, beaches, coconut trees, and surf. It was felt that its urban qualities of a "mini city within a resort destination" appeal to many, especially eastbound visitors who prefer the shopping and high-density hotels.

  Those interviewed also pointed out that Waikiki offers a wide range of lodging choices that attracts a diversity of visitors. Visitor units range from condominiums to hotels and from bargain travel packages to upscale accommodations. This diversity also lends itself to supporting a wide range of small and big businesses.

- **Economic engine**

  Those interviewed expressed strong appreciation for Waikiki's value as an economic engine for Hawaii and Oahu. They noted that Waikiki attracts the greatest concentration of visitors in Hawaii. This means jobs for thousands of residents, and, for small businesses, a large pool of potential customers. Interviewees active in the visitor industry also pointed out that there are significant indirect effects of Waikiki's economy.

- **Recent revitalization efforts**

  Interviewees cited the revitalization efforts over the past few years as one of Waikiki's strengths. They praised the collaborative efforts between the public and private sectors, and the Sunday Brunch on the Beach was seen as a good example of this cooperation. Business people felt that the Waikiki Business Improvement District provided good incentives for improvements and maintenance of the region. It was also believed that the increase in private investment to redevelop their properties brought optimism to the industry and the economy.

  A positive effect of these revitalization efforts, interviewees felt, was the increase of local residents who are visiting Waikiki. They felt that the Sunday Brunch on the Beach attracted many residents who typically might not visit Waikiki. Further, the revitalization efforts often emphasized Hawaiian cultural activities and resources, and interviewees felt that this benefits visitors as well as local residents.

- **Residential environment**

  Residents interviewed generally felt that Waikiki was a good place to live. They believed that the region has convenient amenities, and was "moderately well-planned" for urban dwellers. Residents who were active in community efforts also felt that, in recent years, there have been increasing alliances and collaboration between Waikiki residents and the business community. This promotes understanding of each other's needs and provides some political influence for residential interests.

4.2.2 Waikiki Problems

While interviewees appreciated regional strengths, they were quick to point out regional problems that detracted from the positive characteristics. Six areas of problems were identified, as follows:

- **Aged infrastructure and visitor plant**

  Interviewees criticized the condition of infrastructure, including water mains, sewage lines, electrical lines and gas lines. They pointed out that infrastructure improvements have not occurred in a timely manner and have not kept up with the pace of development. Those interviewed felt that the source of this problem stemmed from lack of planning by public entities.

  Those interviewed also cited older hotels and unsightly areas as part of the aging visitor plant. They felt that the juxtaposition of rundown structures and neglected lots with the newer and upscale development did not work well from urban design and functional perspectives.

- **Traffic congestion and parking**

  Interviewees strongly felt that one of Waikiki's biggest problems is traffic congestion. They felt that narrow roadways and other inadequate circulation infrastructure, such as some bus stops and pedestrianways, contribute to the overall problem. Employees and business operators noted that, to avoid peak traffic hours, they often stayed in the region in evenings to dine and for entertainment.

  Another factor of this problem is user conflict. It was pointed out that delivery trucks, trash collectors, public buses, tour buses, rental cars, employee vehicles and pedestrians must compete for the same spaces. This results in both safety problems and traffic tie-ups.

- **Undesirable activities**

  Those interviewed were critical of social activities that they felt detract from Waikiki's plusses. These activities included loitering, illegal handbill distribution, prostitution, theft, drugs and other crimes. Interviewees who were in Waikiki for 20 or more years believed that these types of activities reflect the loss of old Hawaii in this tourist destination.

- **Lack of open space**

  Waikiki was described as a "concrete jungle," and this was a major problem by interviewees. They felt that, while the urban nature of the region had some appeal, the overall prevalence of structures and concrete was unattractive. It was felt that tall structures that blocked mauka – makai views added to this problem and interviewees used the Sheraton Waikiki as an example.

- **Difficult business climate**

  Interviewees who conduct or are otherwise involved in business in Waikiki said that private sector initiatives to improve properties were often stifled by the high cost of land and the numerous costs associated with obtaining permits and conducting construction activities.

  In addition, small business operators believed that, while there was potential for high volumes of customers in Waikiki, the downside is a high level of competition among small businesses. It was felt that there are often too many of the same types of business in a relatively small area, thereby causing product duplication and price wars.

- **Environmental degradation**

  Interviewees felt that the combination of high concentration of people, cars and buses and the aging infrastructure contribute to environmental pollution related to noise and air quality. Of particular concern was the ocean water quality off Waikiki. Those interviewed felt that the water seems increasingly murky and polluted and they attributed these conditions to the aforementioned factors.

It was further reported that the structures in Waikiki generally are not operated in an environmentally self-sufficient manner. There are few solar roof panels and solar glazed windows, and insufficient number of solar generators.

4.2.3 Hopes for Waikiki's Future

When asked to discuss their hopes for Waikiki's future, interviewees tended to repeat two themes. First, there were recurring comments calling for continued revitalization. They wanted to see an eventual rebirth with private investment and public incentives and support. Those interviewed wanted to replace the older hotels and redevelop the rundown areas. There were differences in the preferred type of redevelopment, however. While some wanted more high rises to enable more ground level open space, others wanted more low rises and lower densities. One person strongly felt that there should be no more new buildings.

The second theme for Waikiki's future was a change in the makeup of Waikiki's social environment. Interviewees wanted to see more local residents visiting and patronizing Waikiki's shops and hotels. They felt that reduced parking fees and more live music venues would help realize this future.

4.3 Feelings about the Project Site Environs

After discussing regional perspectives, interviewees were asked to narrow their focus and discuss what they liked and disliked about the project site and surrounding areas.

4.3.1 Existing Characteristics That Interviewees Liked

Three people, including nearby users and an on-site employee, said there was nothing they liked about this area. Others named four characteristics they liked:

- **Convenient location**

  Those interviewed felt that, relative to the overall region, this area is in a convenient location. For visitors, it is near shopping and beaches. For visitors and local residents, it is easy to access and leave this area via Kalia Road and Lewers Street, without having to deal with traffic congestion along Kuhio Avenue and most of Kalakaua Avenue.

- **Variety of restaurants**

  Nearby residents and employees of on-site and nearby businesses appreciated the variety of restaurants on the project site and in the surrounding area. The restaurants catered to a full price range, from fast food to upscale establishments, and offered diverse menus.

- **Old and low rise hotels**

  Interviewees liked the older hotels in the area because they were reminders of the past less hectic Waikiki. It was felt that the two- and three-story walk-ups gave visitors and residents an alternative to high rise hotels. Further, the Halekulani was considered a major resource in this area, or a "tasteful oasis," as coined by one person.

- **High volume of business**

  On-site and nearby business operators and employees felt that the many hotel rooms in this area produce a constant stream of passersby and browsers who are all potential patrons.

4.3.2 Existing Characteristics That Interviewees Disliked

Those interviewed were critical of several characteristics of the project site and its surrounding area, as follows:

- **Physical setting**

  Interviewees did not like "the look" of this area. They felt there was no architectural identity, and that the area had "just a pile of buildings," a "haphazard arrangement of hotels." They cited rundown hotels both on and near the project site as eyesores and felt that some hotels had unattractive street frontages. In addition, those interviewed felt that the physical appearance gave the impression of very high density and clutter.

- **Traffic and parking**

  Those interviewed commonly disliked the traffic congestion in this area. They said that, as motorists, they are constantly stopping to accommodate jaywalkers, tour buses and delivery trucks. They believed that the hotels had insufficient numbers of parking stalls, and that the roads are too narrow for the volume of traffic. Two people pointed out that Helumoa Road is narrow with insufficient turning radius, and tour bus drivers routinely drive on the sidewalk while turning.

- **Undesirable activities**

  Interviewees did not like the handbill distribution and the parrot picture solicitation. They noted that, even though these activities are illegal, the perpetrators are difficult to apprehend. Those interviewed also felt that some bars in the area are loud and rambunctious, and are open too late at night.

- **Business concerns**

  Those with business concerns expressed two concerns about business on the project site and in the surrounding area. First, on-site interviewees criticized the lack of exclusion clauses in their lease agreements. They said that it was difficult to sustain profitability if there are other shops with similar goods in the same lobby. Second, they cited higher incidences of crime at night, and this presented a security and safety issue.

4.4 Feelings about the Waikiki Beach Walk Proposal

After discussing the region and the project environs, interviewees were provided project information. They were then asked to discuss the project's positive aspects and its potential problems, and to relate the project to their feelings about Waikiki's strengths and problems. In addition, they were invited to share suggestions on any part of the project.

4.4.1 Positive Aspects

Interviewees identified several positive aspects of the proposed Beach Walk project, and these are hereby presented:

- **Overall improvement and consistency with revitalization efforts**

  All of those interviewed expressed approval of the overall project because they felt it would be a major improvement to the area. They expected that the project would provide a positive identity to the area and would improve the gateway to Waikiki at this end.

  The Waikiki Beach Walk was considered a new element, an innovative idea, imaginative and a visionary renovation of the area. Those interviewed felt that the project would eliminate the "hodge-podge" of buildings, and eliminate undesirable activities.

  Further, interviewees believed that the project would complement other upscale establishments and developments at this end of Waikiki. From a regional perspective, those interviewed felt that the project is very consistent with public plans and initiatives.

- **Design-related improvements**

  Interviewees cited three design-related characteristics as positive aspects. First, they liked the low-rise, open space nature of the overall proposed project. They particularly liked the design scheme of the Central sub-area, with its low-rise retail and entertainment center and open spaces.

  Second, interviewees, particularly those who live nearby, felt that the replacement of some of the hotels with low-rise buildings and open space will improve their views.

  The third design-related improvement was pedestrian circulation. Those interviewed liked the orientation toward pedestrian circulation, and complimented the interconnections between hotels and the retail and entertainment center.

- **Economic effects**

  Those interviewed expected the project to have a positive effect on the economy. They believed that this type of project would attract more visitors to Waikiki, and this means more hotel guests and business patrons, which translates into increased revenue, more jobs and new business opportunities.

  Nearby and on-site business people looked forward to the operational aspects of the project. They anticipated more walk-in customers and new business opportunities in the redeveloped areas.

- **Social and cultural effects**

  Interviewees anticipated that the new entertainment complex would draw local residents to the project site and into the rest of Waikiki. They envisioned live performances and cultural events. They hoped that on-site activities would promote the various cultures in Hawaii, with particular emphasis on native Hawaiian music and dance.

4.4.2 Potential Problems

When asked to identify potential problems related to the proposed project, seven people felt there were none, and one person was uncertain. The other interviewees cited four areas of problems, as follows:

- **Construction Impacts**

  The most common concern from on-site and nearby users was the effects of construction activities on neighboring sites. On-site and nearby business operators and employees, as well as neighboring hotel operators and residents, were concerned about dust and noise.

  Business operators were concerned that they would constantly need to deal with dust problems, and that general construction activities would deter potential customers and guests from venturing into the vicinity.

  Hotel operators were concerned that construction would cause discomfort for guests and possibly an increase in maintenance requirements, all of which may lead to loss in revenues.

  Nearby residents were mostly concerned about construction-related noise.

  Interviewees were particularly concerned about the traffic and circulation inconvenience during construction. Tour transportation and deliveries would be affected and this could potentially affect most of the businesses in the area.

  Another concern was the potential effect of any site dewatering that might be needed. Interviewees cited an example in another area of Waikiki where sitework included dewatering of underground water tunnels. In that example, there was a shift in the topography of neighboring parcels, thereby causing structural stability problems.

- **Long-term traffic and vehicular circulation impacts**

  Almost all of the interviewees expressed concern about the increase in vehicular traffic generated by the project, and, more importantly, the possible closure of Lewers Street. Interviewees stressed that delivery trucks, tour buses, and other vehicles would still need to have full access to this area. This was not a cause for opposition to the project, but rather a call for an effective and innovative long-term traffic and circulation plan for the area.

Two people discussed the possible convention facilities in the project, and warned that there are potential parking shortages during captured conventions. When these occur, hotel employees must often find alternative parking, thereby causing inconvenience.

- **Displacement of some on-site businesses**

  On-site businesses were concerned that they would be displaced by the proposed project. Business operators and employees in structures planned for demolition were aware that they would need to relocate. They were generally resigned to eventual relocation, since many were on month-to-month leases. They were nevertheless apprehensive that it would be difficult to find comparable location at similar rent levels.

- **Feasibility**

  While interviewees appreciated the creativity of the proposed project, they also noted that this is a departure from Outrigger's market niche, which was described as providing hotel accommodations in the affordable and mid-range price ranges. They wanted Outrigger to have a solid market and feasibility plan that would ensure success.

  Two people questioned the feasibility of possible three-story retail structures. They believed that retail structures higher than two stories have feasibility issues.

4.4.3 Relationship to Interviewees' Feelings about Waikiki

When those interviewed were asked to relate the project to their feelings about Waikiki's strengths and problems, as well as their hopes for Waikiki's future, they tended to associate the project with Waikiki's strengths and their hopes for the future. Even though interviewees had concerns about short-term construction-related impacts, they generally felt that the project would be a positive addition to the Waikiki region.

Those in the visitor industry believed that the project is central to the hope for Waikiki's future. The Beach Walk would provide a strong positive identity to this end of Waikiki. Interviewees felt that the project would add to existing beautification and revitalization efforts. It would remove old, unsightly buildings. Further, a basic project theme is pedestrian circulation, which is consistent with the vision for a livable Waikiki.

In addition, interviewees hoped that this project would be part of the resurgence of Hawaiian culture and local presence in Waikiki.

4.4.4 Suggestions from Those Interviewed

Construction-related suggestions

- Establish a system for ongoing and advanced notification of construction delays and other problems and recommendations for alternate routes
- Develop a notification data base that includes nearby hotels, area businesses, residential associations, delivery companies, tour operators, and the use of various media to post notifications
- Minimize visual impacts during construction; put up an attractive temporary wall with viewing portals
- During construction, find ways to keep construction workers on-site

Cultural and social suggestions

- Feature authentic Hawaiian entertainment; not commercial or cheap
- Build in attractions that make this a "must-visit" place
- Feature live entertainment that showcase local entertainers
- Keep the Ohana Edgewater, since this is the oldest remaining Outrigger hotel
- Develop attractions for a full range of visitors, including eastbound, European and mainland visitors
- Make sure you have affordable family entertainment, not just places to spend money
- Consider the relocation of the Kelley Chapel to the ground floor for greater visibility

Design suggestions

- Employ environmental measures in design, including
  - Structures designed and oriented to allow ventilation
  - Solar roof panels
  - On-site electricity co-generation plant
  - Recycling shoots
- Feature native vegetation in the landscape
- Use authentic Hawaiian design; no fake waterfalls

Transportation suggestions

- Prepare a short- and long-term circulation plan that ensures easy access for neighboring users
- Develop Kalia Road into a two-way street; use a portion of the Outrigger property to create a third lane
- Realign Kalia Road so the it meets Saratoga Road near the post office; this will increase the contiguous open space makai of the roadway
- Do not block off Lewers Street

Displacement suggestions

- Help the small businesses relocate; provide ample time for relocation
- Help small businesses relocate

4.5 Analysis of Issues

1. **The project is expected to complement Waikiki's strengths and is part of people's hope for the future.**

   Waikiki's strengths cited by those interviewed included the region's value as a visitor destination, its economic contributions, recent revitalization efforts, and its residential environment. Their hopes for Waikiki's future were related to continued revitalization and an increase in patronage by local residents.

   When asked to share their views on the proposed project, the positive aspects tended to be related to Waikiki's strengths. They believed that the project will enhance Waikiki's appeal as a visitor destination and will be an economic boost. They strongly felt that the project is consistent with current revitalization efforts, and residents looked forward to the change in the urban landscape. In terms of hopes for the future, the project is consistent with continued revitalization and increasing the potential customer base.

2. **Waikiki Beach Walk is not expected to deter from the pluses of the project site environs.**

   Those interviewed liked the convenient location, the variety of restaurants, the old and low rise hotels and the high volume of business in the project environs.

The project will complement these elements. The new complex will add to the inventory of eating establishments, and will increase the potential customer base by increasing the number of hotel rooms and providing additional attractions and shops.

In terms of the appreciation for old and low-rise hotels, the project will enhance the low-rise nature of the area by eliminating several structures and creating more open space.

3. **Potential project problems are expected to be solved or mitigated and are not a cause for opposition.**

   Those interviewed said that potential project-related problems included construction impacts, long-term traffic and vehicular circulation impacts, displacement of some on-site businesses and feasibility of what is currently proposed.

   None of these problems was considered significant enough to stop or significantly modify the project, however. Rather, as indicated in Section 4.4.4, interviewees expected the issues to be addressed and suggested feasible ways to solve the problems.

   Regarding displacement, those interviewed, who included several business people who would need to relocate in Phase 1, understood that the displacement resulting from the redevelopment is necessary to achieve the project's objective. They recommended that Outrigger assist in relocation to some degree, but did not see displacement as a reason to stop the project.

4. **There is an overall acceptance of the project concept and most of its elements.**

   There was a tendency for interviewees to have a positive view towards the proposed Waikiki Beach Walk. In general, they easily identified positive project elements, and associated the project with Waikiki's strengths and their hopes for the future. Further problems were considered within the range of acceptability and could probably be mitigated.

   It is noted that, typically in proposed development projects analyzed by Earthplan, the community is split about the proposals. There is often opposition regarding the project concept, or relative to specific aspects of the project.

This does not appear to be the case with the Waikiki Beach Walk at this time. While there are some differences of opinion, and some people have strong concerns about project problems, the overall tendency seems to be acceptance of the project. This situation may change in time, but as of this writing, it appears there is general acceptance for the project.

5 POTENTIAL SOCIAL IMPACTS

5.1 Population Impacts

The Waikiki Beach Walk redevelopment will result in, among other things, an increase in visitor units and an increase in visitor spending. Both of these will increase the population. Section 5.1.1 presents impacts on the visitor population and Section 5.1.2 presents impacts on the resident population.

5.1.1 Visitor Population

The Waikiki Beach Walk includes the elimination of 381 visitor units in Phase 1 and the elimination of 211 units in Phase 2 for a total removal of 592 visitor units. Further, the proposed project includes the construction of 891 new units in Phase2.

Table 6: Project Impacts on Visitor Population

Phase	On-Site Population Change *(1)*	Project Impact to 2000 Visitor Population of 75,570 Persons
Phase 1 2002 to 2005	Decrease of 383 visitors	-0.5 percent decrease
Phase 2 2006 to 2010	Increase of 668 visitors	0.9 percent increase
Stabilization 2015	Increase of 831 visitors	1.1 percent increase

(1) The on-site population assumes that local resident guests and 50 percent of the U.S. guests would stay elsewhere in Waikiki and would not be impacted by the removal of on-site visitor units. The average room occupancy was 2.1 persons.

Source: Mikiko Corporation, Economic and Fiscal Impact Assessment for Outrigger Enterprises, Inc.'s Waikiki Beach Walk Development (August 31, 2001).

The project impacts on the visitor population are nominal and no mitigation is required.

5.1.2 Resident Population

The proposed project may increase the resident population due to an increase in direct, indirect and induced jobs. Table 7 shows that the project will initially result in a decrease of 84 jobs, based on estimated loss in revenues of the displaced tenants.

Table 7: Projected Operational Employment

	Direct jobs	Indirect and Induced jobs	Total jobs
Phase 1 2002 to 2005	(84)	(54)	(138)
Phase 2 2006 to 2010	466	340	806
Stabilization 2015	509	367	876

Source: Based on estimates provided by the Mikiko Corporation (Exhibit M: Projected Operational Employment Full-Time Equivalent Jobs, Economic and Fiscal Impact Assessment for Outrigger Enterprises, Inc.'s Waikiki Beach Walk Development (August 30, 2001).

Eventually, by project stabilization which is estimated in 2015, it is projected that the Waikiki Beach Walk will add approximately 876 full-time jobs to the economy.

These jobs may generate an increase in resident population as people move to the island or the State to work in a job related to the project. Table 8 shows that, at project stabilization in 2015, 20 people may move to Oahu, and another ten may move to the State to work in a project-related job.

Table 8: Projected Average In-Migrant Population

	In-migrants to Oahu	In-migrants to Hawaii State
Phase 1 2002 to 2005	6	4
Phase 2 2006 to 2010	28	16
Stabilization 2015	20	10

Source: Based on estimates provided by the Mikiko Corporation (Exhibit O: Projected Average In-migrant Population, Economic and Fiscal Impact Assessment for Outrigger Enterprises, Inc.'s Waikiki Beach Walk Development (August 30, 2001).

The project impacts on the resident population are nominal and no mitigation is required.

5.2 Project Relationship to Public Policies and Community Expectations

As discussed in Section 3.1, Waikiki's value and contribution as a visitor destination continues to be supported and promoted by public policies. These policies were developed by public agencies and officials with participation from Waikiki's residential and business community. To a large extent, these policies indicate community expectations for the future of the region.

From a social impact perspective, the proposed Waikiki Beach Walk is consistent with the directions and actions set forth in these public policies from three perspectives, as follows:

Revitalization

Public policy and initiatives clearly call for the revitalization and redevelopment of Hawaii's primary visitor destination. The Joint Waikiki Task Force recognized that the aging visitor plant and infrastructure system have detracted from Waikiki's appeal. Its efforts triggered legislation and several public and private efforts intended to revive the region's "magic."

The project is highly consistent with current and desired revitalization and redevelopment efforts. In addition to meeting public policy objectives, the Waikiki Beach Project complements the private development and rehabilitation efforts near the project site.

Indeed, those interviewed in conjunction with our issues analysis considered the project an integral part of Waikiki's revitalization. They considered revitalization a major part of their hope for the future of Waikiki and, to them, Waikiki Beach Walk is consistent with this hope.

Increase residential opportunities in Waikiki

In public reports and interviews conducted for this SIA, it was often noted that Waikiki has lost its appeal for local residents. The decrease in live local entertainment, coupled with high parking fees and traffic congestion, all contribute to Waikiki's reputation of being off-limits for much of the resident community. New efforts, such as "Brunch on the Beach" and strolling musicians, are intended to help residents rediscover Waikiki.

The proposed retail and entertainment complex will be consistent with efforts to provide more attractions for residents. Intended to serve as a gathering place for both residents and visitors, the project will provide opportunities for residents to enjoy local culture and entertainment, as well as diverse eateries typical of the local environment.

Circulation and pedestrian orientation

A major focus of public policy relative to Waikiki is vehicular and pedestrian circulation. The Islandwide Mobility Concept Plan recognized that Waikiki will remain the focal point of Oahu's visitor plant and calls for a multi-modal transportation loop linking Waikiki to other neighborhoods. This plan also calls for providing transportation choices within neighborhoods to foster livable communities.

Consistent with the latter theme is the "pedestrian-first" policy developed by the Joint Waikiki Task Force. This policy calls for developing the facilities that will help Waikiki become a pedestrian-oriented resort and residential neighborhood.

The Waikiki Beach Walk is related to the transportation infrastructure in that the Waikiki BRT is intended to serve, in part, the project area and its environs. Redevelopment of the project area will provide a distinct character that will enhance the attractiveness of this portion of Waikiki, thereby increasing user incentive for the system.

Further, the proposed project will encourage pedestrian circulation. Lewers Street will become a pedestrian corridor and a portion of Helumoa Road will be closed. Various facilities will be provided to allow attractive and functional pedestrian circulation within the site and will be linked to neighboring walkways.

5.3 Potential Business Displacement Impacts

The proposed redevelopment will require the demolition of several structures, including six hotels and one two-story building. In addition to hotel units, these structures also contain several tenants who operate a variety of businesses. Demolition of these structures will require the displacement and relocation of these tenants. Table 9 lists tenants in these structures. [18]

Table 9: Tenants in Structures Planned for Demolition

Structure Planned for Demolition	Tenants
Edgewater Lanais	ABC Stores Honolua Surf House of Hong Outrigger Properties LLC Offices Outrigger Shops Offices Sun Islands Hawaii Outrigger Gifts Pleasant Hawaiian Holidays
Ohana Coral Seas	Aloha Trading Davey Jones Ribs Honolua Surf Just the Ticket Travel Perry's Smorgy
Ohana Edgewater	Outrigger Pantry Patisserie Takahashi's North Shore Shave Ice Trattoria Restaurant Wet Hawaii Chuck's Steak House Colleen's Gift and Fashion Outrigger Activities Edgewater Beauty Saloon Diamond Head Scooters
Ohana Reef Lanais	Buzz's Steak and Lobster
Malihini	Henry's Place JH Aloha Fashions

[18] Employees in these hotels will be relocated to other hotels in the Outrigger chain.

Structure Planned for Demolition	Tenants
Ohana Royal Islander	Alamo Rent a Car McDonald's of Hawaii
Structure at Corner of Helemua Road and Lewers Street	Carl's Jr. Restaurant Consolidated Resorts Sav-On-Tours Aloha Fashion Lahaina Ticket Company

Thirty-three tenants will be directly affected by the structural demolition. These tenants include chain franchises, individual owners, and multi-business corporations. Project impacts include loss of approximately 100 on-site jobs, [19] termination of the month-to-month leases, searching for a comparable lease and relocation if a new site is available. The loss of jobs would be offset based on the tenants' ability to relocate and maintain staffing levels.

In the interviews conducted for this study, twelve people were associated with businesses that would need to relocate if the project is implemented. They were aware of project plans because of previous notification by Outrigger, and had some general expectation that changes would occur due to the lease tenure (month-to-month) and discussions related to redevelopment. Their main concern was their ability to find comparable leases in terms of location, price and amenities.

This displacement is an inevitable impact generated by the project. It may be temporary or permanent, depending on the tenant's ability to relocate.

Recommended mitigation includes both short and long term measures. Short term mitigation includes assisting tenants in finding comparable leases so that they can relocate soon after displacement and allowing tenants adequate time to relocate. Long term mitigation includes working with existing tenants on possible relocation in the new project.

[19] *Based on estimates provided by the Mikiko Corporation (Exhibit M: Projected Operational Employment Full-Time Equivalent Jobs, Economic and Fiscal Impact Assessment for Outrigger Enterprises, Inc.'s Waikiki Beach Walk Development (August 30, 2001).*

5.4 Public Services and Facilities

5.4.1 Police Protection

The Waikiki region comprises District 6, as designated by the Honolulu Police Department (HPD). District 6 extends from west to east from Atkinson Drive to the foot of Diamond Head crater.

The new Waikiki storefront station, which is located on Kalakaua Avenue at Prince Kuhio Beach, officially opened in August 2000. The district's burglary-theft detectives and Crime Reduction Unit (CRU) occupy office space on the fourth floor of the Royal Hawaiian Shopping Center. In addition, officers staff a kiosk next to the shopping center during evening hours in an effort to help deter crime and give visitors and residents direct access to the police.

Given the nature of Waikiki, the HPD has several initiatives to address the needs of a resort destination. District 6 continues to hold orientation classes for new officers on the unique history of Waikiki and its role in Hawaiian tourism. The classes provide historical and cultural information that gives officers added respect for and pride in their assignment to the district.

In addition, the CRU conducts sensitive investigations. For example, the CRU worked with the management and owners of a small hotel that was being used by drug dealers and prostitutes. This effort expedited the eventual demolition of the building.[20]

District 6 comprises twelve beats from Beat 650 to 662. One officer per shift is assigned to each beat. The project area is part of Beats 655 and 656, as follows:

- Beat 655 is located makai of Kalakaua Avenue and extends to the ocean. It runs from Saratoga Road to Lewers Street and includes the Ewa, Central and Makai sub-areas of this study.
- The Diamond Head sub-area is part of Beat 656, which is also entirely makai of Kalakaua Avenue. This beat extends from Lewers Street to the Moana Surfrider Hotel.

[20] *Honolulu, Police Department, Honolulu Police Department 2000 Annual Report (available online at www.honolulupd.org/ar2000/2000ar.htm).*

In 2000, there were 5,386 reported offenses in District 6. The majority of the offenses were related to larceny (4,235 offenses) and burglary (608 offenses). These were reported to the police an average of eight to ten times per day.

Beats 655 and 656 accounted for 17 percent of the total reported offenses for District 6. At the project site, parking violations are predominant, and includes delivery trucks, taxis, rental cars and tour buses.[21]

Potential impacts generated by the project are two-fold:

Increase in on-site population

The proposed project will increase the on-site population by adding more visitor units to the region, and adding retail and entertainment gathering opportunities for residents and visitors. The increase in visitor population is nominal and requires little or no mitigation.

The addition of retail and entertainment gathering opportunities will require additional security and police protection services. This potential impact can be mitigated in three ways. First, private security services can lessen the need for public police protection. Second, the Aloha Patrol Officers program established by the Waikiki Special Improvement District can provide additional security and protection. Third, design measures can ensure that public spaces are well-lit and visible thereby minimizing crime opportunities.

In addition, the HPD is already coordinating traffic and security for over 40 major events in Waikiki, such as the Aloha Week Parade, the Honolulu Marathon and the Pacific Basin Economic Council. Major events related to the Waikiki Beach Walk would therefore be part of this effort.

Change in traffic and pedestrian circulation

The proposed redevelopment will result in a decrease in vehicular circulation and an increase in pedestrian traffic. In that illegal parking and traffic are currently problems requiring police attention, the proposed changes can be viewed as a positive change.

The positive value of these improvements can be enhanced by an effective circulation plan. The preparation of such a plan should include consultation with the HPD.

[21] *Beat crime information is available in the Honolulu Police Department 2000 Annual Report and was supplemented by Patrol Officer Paul Goo of the Waikiki Police Sub-station.*

5.4.2 Fire Protection

The Waikiki region is in the 2nd Battalion area designated by the Honolulu Fire Department. The region is served by three fire stations as follows:

- Station 2: The Pawaa Fire Station is located at Makaloa Street near Daiei Holiday Mart. It has a ladder and engine company, as well as a rescue company.
- Station 7: The Waikiki Fire Station is located at the corner of Kapahulu Avenue and Paki Street. It has a ladder and engine company.
- Station 29: The Moiliili Fire Station is located on Date Street, between University Avenue and Kapiolani Boulevard. It has a ladder and engine company.

First response for medical and fire emergencies at the project site and the surrounding area is provided by Station 2, the Pawaa Fire Station. In the event of a first response or alarm fire, Station 2 would send a ladder and engine company. Stations 7 and 29 would both send engine companies. If the fire is on the sixth or a higher story, this would constitute a second alarm fire, and an additional ladder company and two engine companies would respond.

At Station 2, there are 15 firefighters present in each of the three shifts. The medical responses at this station outnumber those at other stations. When available, ladder companies are the first to respond to medical calls. HFD works with the Emergency Medical Services, or EMS, who dispatches the closest available unit. This may be either an EMS ambulance or a fire company and depends on the type of emergency and location. Since there are only 16 EMS stations on Oahu, fire companies are frequently the first responder.

It is estimated that Station 2 averages one response per shift. Depending on the traffic, it takes about five to eight minutes to reach the project site environs. Table 10 contains information on the responses from the three stations over a six-week period.

Table 10: HFD Responses of Stations 2, 7 and 29 by Waikiki and Total Responses: August 1, 2001 to September 13, 2001

	Station 2 *(first response to project site and surrounding area)*		Station 7		Station 29	
	Waikiki	Total	Waikiki	Total	Waikiki	Total
Fires	21	38	13	18	4	20
EMS/Rescues	71	123	55	79	8	40
Hazard Conditions	4	13	2	4	3	10
Service Calls	3	8	6	6	0	0
Good Intent	43	69	33	38	0	25
False Alarms	9	16	40	43	2	5
Total	151	267	149	188	17	100

Source: Provided by Assistant Chief Charles Wassman, Planning and Development Division, Honolulu Fire Department.

Station 2 responded to 151 calls in the Ewa end of Waikiki. Of these, 47 percent were emergencies and rescues.

The Waikiki Beach Walk will impact fire protection services by increasing the de facto service population. By adding more hotel rooms, the project will increase the structural occupancy capacity. This impact is unavoidable and can be mitigated by meeting fire flow and relevant building requirements.

Another potential impact is related to circulation and the accommodation of emergency vehicles. To ensure emergency access, HFD officials should be consulted during the preparation of the project's traffic and circulation plan.

5.4.3 Emergency Medical Services

The Honolulu Emergency Services Department, hereafter referred to as EMS, is responsible for providing the following:

- an efficient, effective and economical operation of the pre-hospital emergency medical care and emergency ambulance service,
- a comprehensive aquatic safety program at 19 City beach parks, including lifeguard services,
- injury prevention, public education and public health programs, and

- coordination with other agencies and jurisdictions [22]

EMS has 16 vehicles in and around Honolulu and maintains a staff of 200 trained personnel. In an emergency response, either EMS personnel or the nearest fire station is notified. EMS uses a global tracking system that places each vehicle within 30 feet of its current location. The average EMS response time is four minutes; for HFD, eight minutes.

Waikiki is covered primarily by an EMS unit at Fire Station 7 at the corner of Kapahulu Avenue and Paki Street and, secondarily, by an EMS unit located at Young Street and Kalakaua Avenue. This latter unit is planned for expansion that will include a medical van staffed by an EMS trained personnel. [23]

The Waikiki Beach Walk will impact medical emergency services by increasing the de facto service population through the addition of hotel rooms and the provision of public gathering spaces. To some extent, this impact will be mitigated by the planned EMS facility expansion.

Another potential impact is related to circulation and the accommodation of emergency vehicles. To ensure emergency access, EMS officials should be consulted during the preparation of the project's traffic and circulation plan.

5.4.4 Social Services

Various agencies provide social services throughout the Waikiki region, and the Waikiki. The Waikiki Health Center located on Ohua Avenue at the Diamond Head end of Waikiki is classified as a Community Health Center and provides the following services:

- Elderly: The Waikiki Health Center provides general services that help approximately 100 elderly people, most of whom are in their eighties. Services include grocery shopping and transportation and are provided by one staff person and about 100 volunteers.
- Homeless: The facility provides medication and ongoing outpatient services to approximately 100 homeless people, most of whom are males between 30 and 40 years old.

[22] *Salvatore S. Lanzilotti, Emergency Services Department (undated).*

[23] *Personal communication with Robin McCulloch, Chief of Operations at EMS, August 30, 2001.*

- Runaways: Programs for runaways include health services by the Waikiki Health Center, social services by Hale Kipa and drop-in services on Keoaniana Street.
- HIV / AIDS: The Waikiki Health Center provides condoms, health information and limited physical exams for people with HIV / AIDS. [24]

The proposed project is not expected to impact these services or the related service populations and no mitigation is necessary.

[24] *Personal communication with Reverend Frank Chong, Executive Director of the Waikiki Health Center, August 22, 2001.*

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APPENDIX N

Market and Economic/Fiscal Impact Assessment- Waikīkī Beach Walk

Hospitality Advisors

October 2001

Outrigger Enterprises, Inc.

Market and Economic/Fiscal Impact Assessment

Waikiki Beach Walk

October 15, 2001

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October 15, 2001

Mr. Eric Masutomi
Outrigger Enterprises, Inc.
c/o Jeffrey Overton
Group 70 Architects
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813

Re: Market and Economic/Fiscal Impact Assessment for the Outrigger Waikiki Beach Walk

Dear Mr. Masutomi:

Hospitality Advisors LLC is pleased to present this study to Outrigger Enterprises, Inc. ("Outrigger") regarding a market, economic and fiscal impact assessment for the proposed Waikiki Beach Walk development. The study was completed with the assistance of Mikiko Corporation, which prepared the economic and fiscal impact assessment, and SMS Research, which provided certain research assistance related to the Waikiki visitor retail industry.

Terms and Conditions

Our work and written product is based on information provided by secondary research sources, industry interviews, our extensive database and knowledge of the Hawaii market as well as other sources as appropriate. Information provided to us was not audited nor verified by us and is assumed to be correct for the purposes of this engagement. Where appropriate, the source of information provided to us was stated. We have no responsibility to update any report, presentation or analyses prepared by us for economic, market or physical factors or receipt of new information after the date of our fieldwork, which was completed on August 30, 2001.

Information, estimates and opinions furnished to us are assumed to be obtained from sources considered reliable and is assumed to be considered to be true and correct.

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However, no representation, liability or warranty for the accuracy for such items, as well as any information, estimates or opinions prepared by Hospitality Advisors, or its subcontractors, is assumed by or imposed on us, and may be subject to corrections, errors, omissions and withdrawals without notice.

Any information and analysis provided to Outrigger in this report is solely for your information and use, with the understanding that the report may be used in connection with public and regulatory meetings related to the EIS and therefore may be subject to State sunshine laws. The information and analyses should not be relied upon for any other purpose or by any other entity except in the proceedings described above. Neither our report nor any reference to our firm may be included or quoted in any offering circular or registration statement, prospectus, sales brochure, appraisal, loan or other agreement or document except in relation to the EIS and related proceedings.

Outrigger agrees to hold Hospitality Advisors LLC, its subcontractors, members and employees harmless from any and all liabilities, costs and expenses relating to this engagement, and expenses (and those of our legal counsel) incurred by reason of any action taken or committed to be taken by us in good faith. In no event will Hospitality Advisors LLC or its subcontractors, members and employees be liable for incidental or consequential damages even if we have been advised of the possibility of such damages.

Any disputes arising from this engagement letter will be presented to the American Arbitration Association for resolution, and any judgment by an arbitration panel will be considered binding on all parties.

Thank-you for giving us the opportunity to be of service to you. Should you have any questions concerning this proposal, please do not hesitate to contact me at 550-8955.

Very truly yours,

Joseph M. Toy
President & CEO
Hospitality Advisors LLC

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SECTION I

EXECUTIVE SUMMARY

SECTION I: EXECUTIVE SUMMARY

INTRODUCTION

Hospitality Advisors LLC (Hospitality Advisors") was engaged by Outrigger Hotels & Resorts ("Outrigger") to assist in the preparation of an Environmental Impact Statement in regards to the proposed Waikiki Beach Walk ("WBW") development. Hospitality Advisors and its sub-consultants were requested to prepare a market assessment and an analysis of the potential economic impacts of the proposed development. Hospitality Advisors has requested its sub-consultant, Mikiko Corporation, to prepare the economic/fiscal impact assessment. The study prepared by Mikiko is presented as the Appendix of this report. SMS Research was engaged by Hospitality Advisors to provide research support for the Waikiki retail market.

We note that the U.S. was the target of a major terrorist attack on September 11, 2001, subsequent to the completion of our research fieldwork on August 30, 2001 on which our analyses and conclusions are based. While we are not obligated to revise our research findings for events occurring after the date of completion of our field work as provided in our engagement letter, we note that the continued rapid evolution of these events would make such an undertaking problematic. The report and conclusions provided in this report therefore reflect market conditions as of August 30, 2001, and accordingly no references or consideration were made in our report to the tragic events that occurred September 11, 2001.

BACKGROUND

The WBW represents a major re-development of Outrigger's Lewers Street hotel inventory. It also will become a major component in the continuing repositioning and redevelopment of Waikiki. Phase I of the project includes demolition of three existing hotels and the renovation and repositioning of two others. It will also include the development of a new anchor retail and entertainment complex that will support 71,800 square feet of retail, including 10,000 square feet of restaurant space, a 10,000 square foot showroom, meeting space, and a multi-level promenade deck that will link the hotel and retail elements together. Phase I of the project is expected to open at the beginning of 2005.

Phase II primarily consists of the development of the new 891 room Outrigger Saratoga Hotel. It also includes the development of an additional 30,200 square feet of retail, almost half of which will be used for guest amenities, such as a business center, spa and a sundry store. Phase II is expected to be completed at the beginning of 2010.

The objective of the market assessment is to prepare overall market demand estimates for the hotel, retail and showroom elements of the project for both Phase I and Phase II. An

analysis of the economic impacts resulting from the project also to be prepared. As directed by Group 70 Architects, Outrigger's consultant leading the EIS preparation, the market and economic estimates are to be made at specific points in time for the years ended 2005, 2010, and 2015.

FINDINGS AND CONCLUSIONS

1. *Phase I Hotel Market Estimates*

As part of the re-development, the Ohana Waikiki Tower and Ohana Waikiki Village Hotels are to be substantially renovated. Currently positioned as economy hotels, the renovation is expected to permit the two hotels to be repositioned as an upper-tier mid-priced Ohana hotel. In addition to analysis of the Waikiki hotel market, a competitive set of hotels based on the expected repositioning was selected to analyze occupancy and average daily rate of the competitive market. The following are market estimates for the Phase I hotel components on a combined basis based on the research conducted.

Exhibit 1 - Estimate of Market Occupancy, WBW Hotels, Phase I

	Overall Market	Competitive Market	WBW Hotels
2005	82.0%	81.0%	70.0%
2010	82.5%	81.5%	82.0%
2015	82.9%	82.4%	82.0%

Source: DBEDT, Hospitality Advisors LLC

The lower occupancy for the WBW hotels reflects the first year of reopening after the redevelopment of Phase I. The WBW hotels are expected to stabilize at 82 percent in the fourth year after reopening based on our past experience with other hotels. The WBW hotels are expected to perform slightly below its competitive market in occupancy due to higher room rate premiums it may achieve due to its renovated product within the WBW and its location relative to Waikiki Beach compared to the other hotels in the competitive set. Note that all estimates are presented in uninflated 2001 dollars.

Exhibit 2 - Estimate of Average Daily Rate, WBW Hotels, Phase I

	Competitive Market	WBW Hotels
2005	$111.40	$110.00
2010	$115.92	$125.55
2015	$115.92	$125.55

Source: Hospitality Advisors LLC

2. *Phase I Retail Estimates*

Retail estimates were based on a survey of retail sales in Waikiki prepared by SMS Research, as well as other research and industry interviews conducted by Hospitality Advisors. Adjustments to sales per square foot data was applied where appropriate based on location and economic considerations to arrive at sales estimates for the WBW. Separate surveys and research was conducted for retail store by location and by floor, as well as by restaurant category and showrooms in Waikiki. Individual sales per square foot estimates were prepared for WBW based on type of retail and floor location. These estimates were then weighted to arrive at an overall blended retail sales per square foot estimate. The following is a summary of the blended estimate for WBW.

Exhibit 3 - Estimate of Blended Sales per Square Foot for Phase I

Phase I Retail	GLA	%	Per S.F. Estimate	Weighted Contrib. Estimate	2001 Inflation %	2001 Blended Estimate
1st Floor	23,080	34%	$1,072	$367		
2nd Floor	24,400	36%	$ 425	$154		
Restaurant	10,000	15%	$ 583	$ 86		
Showroom	10,000	15%	$ 900	$133		
Total*	67,480	100 %		$740	2.3%	$757.02

Note: Total excludes 4,320 square feet of total retail of 71,800 square feet that is assumed to be hotel-specific retail leaving a balance of 67,480 square feet of retail space for the WBW.

Source: Hospitality Advisors LLC

3. *Phase II Hotel Market Estimate*

Under Phase II, three small hotels will be demolished to permit the development of the 891-room Outrigger Saratoga. It is expected to be positioned as an upscale Outrigger brand hotel. The hotel is expected to open at the beginning of 2010. After analyzing the overall and competitive market, the following market estimates were developed for the Outrigger Saratoga:

Exhibit 4 - Estimate of Market Occupancy

	Overall Market	Competitive Market	Outrigger Saratoga
2010	82.5%	87.6%	65.0%
2015	83.0%	86.0%	80.0%

Source: DBEDT, Hospitality Advisors LLC

The lower occupancy for the Outrigger Saratoga Hotel reflects the first year of opening. The WBW hotels are expected to stabilize at 80 percent in the fourth year after reopening. The occupancy is somewhat behind the competitive market due in part to on-beach locations several of the competitive hotels enjoy.

Exhibit 5 - Estimate of Average Daily Rate

	Competitive Market	Outrigger Saratoga
2010	$163.26	$130.50
2015	$165.82	$165.63

Source: Hospitality Advisors LLC

The above are stated in ~~1991~~ 2001 dollars. It is assumed that given the higher product profile of several of the competitive hotels, the Outrigger Saratoga will perform in the mid-range of the group with respect to average daily rate. The on-beach orientation of some of the competitive hotels will also likely lead the Outrigger Saratoga to perform somewhat below its on-beach competitors. The estimated achieved room rate for the Outrigger Saratoga at stabilization is assumed to be 100 percent of the average daily rate for the competitive set. Room rates for the opening year for the hotel is assumed to be discounted at $130.50, then gradually increasing to the assumed stabilized average daily rate of $165.63 by the fourth year after opening. The analyses above estimates that the Outrigger Saratoga will achieve an occupancy penetration rate of 90.8 percent of the competitive market at stabilization

4. Phase II Retail Market Estimates

Phase II includes the development of 30,200 square feet of retail. Of this, 13,000 square feet are to be used for hotel guest amenities, such as a spa, business center, and sundry store. The remaining 17,200 square feet of retail is split between restaurant and Kalia Road frontage retail. Retail estimates for Phase II are as follows:

Exhibit 6 - Estimate of Blended Sales per Square Foot for Phase II

Phase II Retail	GLA	%	Per S.F. Estimate	Weighted Contrib. Estimate	2001 Inflation % (DBEDT)	2001 Blended Estimate
1st Floor	7,500	44%	$871	$379.80		
Restaurant	9,700	56%	$583	$ 328.78		
Total	17,200	100%		$708.58	2.3%	$724.88

Source: Hospitality Advisors LLC

5. Summary of Economic Analysis Prepared by Mikiko Corporation

As proposed, WBW would generate significant, on-going economic and fiscal benefits for residents of the islands, as well as for the County and State governments. Development of new and renovated facilities would generate employment and consequent income and taxes during the Project's two phases from 2002 to 2005 and 2006 to 2010. Further, operations of the new and repositioned facilities are expected to

generate significant, permanent impacts, including additional visitor expenditures, employment opportunities, personal income and government revenue enhancement.

For the County, net additional government operating revenues are projected at over $2 million per year in 2015 and each year thereafter. New revenues could represent 3.4 times the new government operating expenditures required to support the additional population attracted to the islands by the Project. For the State, there could be some $8.18 net additional annual operating revenues per year by 2015. This could represent a State government operating revenue/expenditure ratio of 7.0. These and other key findings of the study are summarized in the table below.

Exhibit 7 - Summary of Economic and Fiscal Impacts at Project Stabilization In 2015[1]

	Comment	Direct Impacts	Total Impacts	Report reference
Annual visitor expenditures	*Same impacts for County and State, net additional over 2000*	$84.02	$143.67	*Exhibit H*
FTE employment:				
Development-related	*Average annual 2002 to 2009*	270 to 350	650 to 840	*Exhibit K*
Operations-related	*Annual, on-going*	509	876	*Exhibit M*
Personal income:	*Includes wage, salaried & proprietary earnings*			
Development-related	*Average annual 2002 to 2009*	$11.17 to $14.35	$22.11 to $28.35	*Exhibit L*
Operations-related	*Annual, on-going*	$12.48	$27.99	*Exhibit N*
In-migrant resident population:	*"Direct impacts" – employees; "Total impacts" – includes dependents*			
To the City and County		10	20	*Exhibit O*
To the State		5	10	*Exhibit O*
Net additional government operating revenues:	*Operating revenues less operating expenditures*			
For the City and County		$2.04	Not applicable	*Exhibit W*
For the State		$8.18	Not applicable	*Exhibit W*
Revenue/expenditure ratio:	*For government operations*			
For the City and County		3.4	Not applicable	*Exhibit W*
For the State		7.0	Not applicable	*Exhibit W*

Source: Mikiko Corporation

[1] Development-related impacts stated as average annual during development period (2002 to 2010).

SECTION II

HAWAII MARKET OVERVIEW

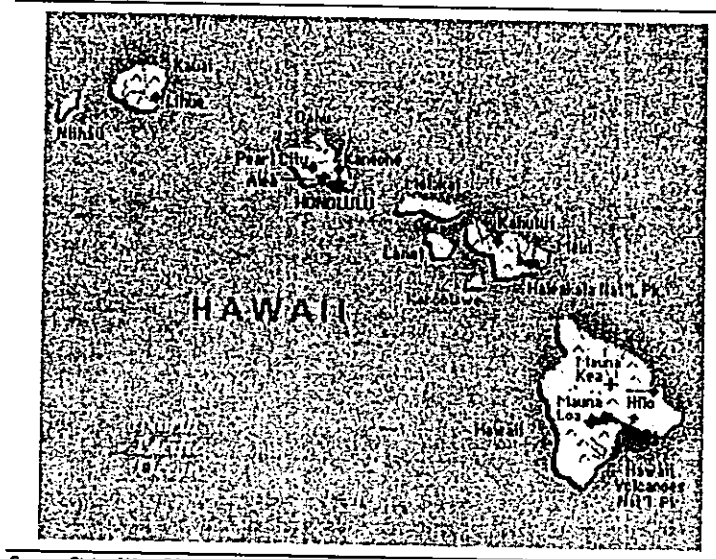
SECTION II: HAWAII MARKET OVERVIEW

INTRODUCTION

This section provides an overview of the Hawaii visitor market as it relates to current and historical visitor market performance, market characteristics, and drivers. This section also provides "snapshot" comparisons of key industry statistics for 1990 and 2000, as well as year-to-date statistics through June 2001 where appropriate. The overview is presented both on a Statewide and on an individual island basis.

PROFILE OF THE STATE OF HAWAII

Exhibit 8 - Map of State of Hawaii



Source: State of Hawaii Department of Business, Economic Development & Tourism

Admitted into Statehood in 1959, Hawaii is comprised of eight major islands divided into five counties: the City & County of Honolulu (representing the Island of Oahu), the County of Maui (consisting of the Islands of Maui, Lanai, and Molokai), the County of Hawaii (representing the Island of Hawaii, also referred to as the "Big Island"), the County of Kauai (consisting of the Islands of Kauai and Niihau, a privately owned island inaccessible to the public), and Kalawao County (consisting of only the Kalaupapa Peninsula on the Island of Molokai).

Hawaii is approximately 2,300 miles to the east of the West Coast of the continental U.S. and approximately 3,700 miles to the west of Japan. To the south are the South Pacific island chains including the Kiribati Islands, French Polynesia, Samoa, the Marshall Islands, and Micronesia (ranging between 1,000 and 2,500 miles from Hawaii).

Tourism is an approximately $11 billion industry, representing about one-third of Hawaii's total Gross State Product. The State lodging supply consists of 71,455 visitor accommodation units, including full and limited service hotel rooms, condominium hotels, vacation rentals, and timeshare. Approximately half of these units are located on Oahu. Total room revenues in 2000 set a record at $2.7 billion, driven by an increase of over 10 percent growth in room revenue per available room ("RevPAR") due to both an increase in visitors and a shift to higher yield visitor markets.

The State consists of four primary islands as follows:

- Island of Oahu: Oahu is the third largest island in the Hawaiian chain, but is the State's primary economic and tourism center with Honolulu serving as the State's capital. Waikiki is located within the City and County of Honolulu and supports approximately half of the State's 71,455 hotel rooms.

- Island of Maui: Maui is the State's second largest island and is the primary destination for Neighbor Island travel.

- Island of Hawaii: The Island of Hawaii is commonly referred to as the "Big Island," as its total land area is larger than all of the other major Hawaiian islands combined. The Island of Hawaii is noted for its active volcanoes, deep-sea fishing, and scuba diving.

- Island of Kauai: The Island of Kauai lies to the northwest of Oahu and is noted for its spectacular Na Pali coastal mountain range.

There is direct U.S. mainland air service to each of the major islands, and charter service from Canada is also permitted statewide. Honolulu serves as the primary international gateway for the State of Hawaii. The Island of Hawaii has been granted limited authority as a second gateway city for non-stop flights from Japan.

Visitor arrivals to the State approached 7 million in 2000. High season for the visitor industry generally spans mid-December through mid-March and secondarily mid-June

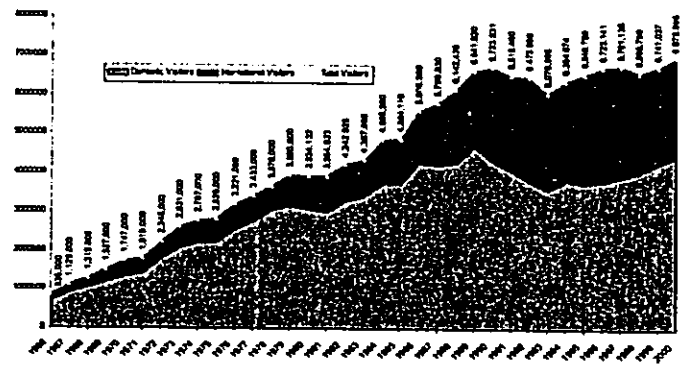
through mid-August. U.S. mainland visitors comprised approximately 57 percent of total arrivals to Hawaii in 2000 and stayed, on average, 10 days. Japanese visitors comprised over 26 percent of the market in 2000, staying close to six days per visit.

CURRENT AND HISTORICAL VISITOR MARKET

Statewide Visitor Arrivals

Exhibit 9 below presents historical visitor arrivals to Hawaii through 2000:

Exhibit 9 - State of Hawaii Visitor Arrivals - 1966 through 2000



Source: State of Hawaii Department of Business, Economic Development & Tourism

The development of Hawaii's tourism industry can be characterized by several milestone periods:

- 1965 to 1979: Introduction of flights from the U.S. mainland utilizing wide-bodied aircraft during this period helped Hawaii evolve into a mass tourism destination. The market for this time frame can be characterized as primarily wholesale and charter-driven leisure that traveled predominately to Oahu and Waikiki. Much of the Waikiki hotel inventory was developed during this period.

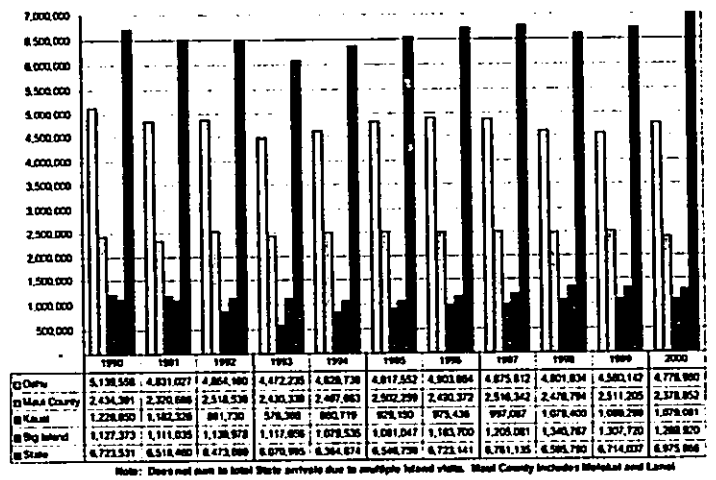
- 1980: United Airlines, the largest air carrier to Hawaii, experienced a three-month employee strike, which curtailed growth for the year.

- 1983 to 1990: This period reflected the following:
  - Hawaii enjoyed an unprecedented period of tourism growth and development at a time when the U.S. mainland economy was suffering from a deep and prolonged recession combined with substantial hotel over-building.
  - Driven by a strong economy and a 60 percent appreciation of the yen against the dollar, Japanese visitor arrivals to Hawaii increased dramatically, from 380,000 Japanese visitors in 1983 to over 1.4 million Japanese visitors in 1990.
  - Japanese investment into Hawaii rose sharply, primarily in the acquisition and/or development of luxury hotels and golf courses. Most of the new hotel development occurred on the Neighbor Islands.
  - Westbound arrivals, primarily from the U.S. mainland, began to flatten during the latter half of the 1980s due to a deep recession on the U.S. mainland.
- 1991 to 1993: The Gulf War, the bursting of the Japanese "bubble" economy, and persistent recession in the western region of the U.S. mainland caused visitor arrivals to drop approximately 10 percent during this period.
- 1994 to 1996: This period saw a recovery of the visitor market for Hawaii, due in part to a sharp strengthening of the yen to the dollar exchange rate and economic recovery of the west coast U.S. mainland. Japanese divestment started to occur, replaced primarily by U.S. investors.
- 1997 to 2000: Growth in arrivals by U.S. visitors accelerated, driven by strong growth in corporate meetings and FIT markets. Japanese arrivals weakened due to a persistent weak economy and weakening yen to dollar exchange rate. Hotel transactions accelerate as Japanese divestment continues.
- Year-to-Date June 2001: Through the first half of 2001, the U.S. economy has begun to slow. Visitor arrivals and hotel occupancy has begun to fall behind the record pace set in 2000. Subsequent to our fieldwork ended August 30, 2001, terrorist attacks were conducted against the U.S. on September 11, 2001. While travel markets worldwide have been impacted severely, we have not prepared an analysis of what the long-term impacts, if any, these attacks may have on Hawaii's travel market as these events occurred after the date of our fieldwork.

Visitor Arrivals by Island

Exhibit 10 presents historical and current visitor arrivals by island:

Exhibit 10 - State of Hawaii Visitor Arrivals by Island - 1990 through 2000



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Oahu	5,138,558	4,831,027	4,864,160	4,472,235	4,628,736	4,817,552	4,903,884	4,875,812	4,801,834	4,580,147	4,778,980
Maui County	2,434,391	2,320,666	2,514,536	2,430,338	2,467,983	2,502,299	2,430,372	2,516,342	2,478,794	2,511,205	2,378,953
Kauai	1,228,850	1,162,326	881,730	576,300	665,719	929,150	975,436	997,087	1,079,400	1,089,299	1,079,081
Big Island	1,127,373	1,111,035	1,138,978	1,117,856	1,079,535	1,081,047	1,163,700	1,205,081	1,340,767	1,307,720	1,288,920
State	6,723,531	6,518,480	6,473,888	6,079,995	6,364,674	6,548,736	6,723,141	6,761,135	6,585,760	6,714,037	6,975,866

Note: Does not sum to total State arrivals due to multiple island visits. Maui County includes Molokai and Lanai

Source: State of Hawaii Department of Business, Economic Development & Tourism

Visitor arrivals by island experienced declines due to the economic downturn of the early 1990s. Arrivals to Hawaii began to rebound in 1994, driven primarily by increasing arrivals from the U.S. mainland to the Neighbor Islands. Key issues related to individual islands include the following:

- Oahu has yet to achieve the level of visitation experienced in 1990, primarily due to the continued softness in the Japanese market. There has, however, been a strong increase in U.S. arrivals to Oahu over the past several years, with particular strength from visitors arriving from the eastern half of the U.S. mainland.
- The sharp decline and relatively slower recovery of visitor arrivals to Kauai was due to Hurricane Iniki, which destroyed much of Kauai's lodging infrastructure in 1992. Several hotels continue to be closed from the hurricane as of the date of this report.

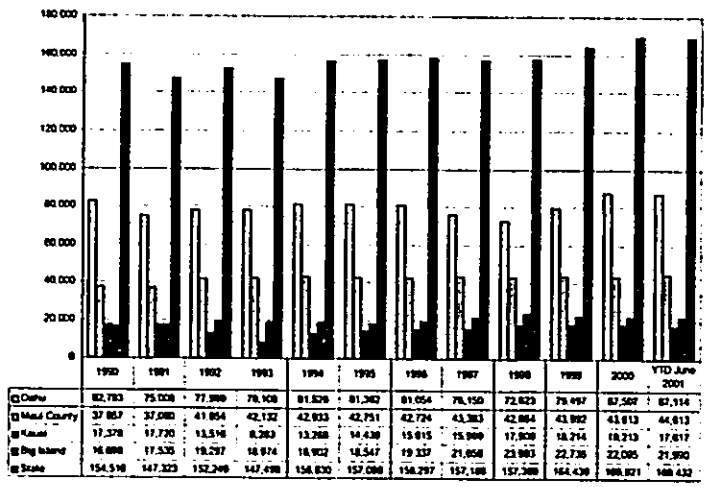
- In general, Maui County saw visitor arrivals fluctuate in a relatively consistent range during most of the 1990s. However, the market mix shifted to a much higher yielding mix during the last several years, including strong increases in the corporate meetings market and independent travelers ("FIT").

- The Island of Hawaii experienced a boost in visitor arrivals in 1996 after the island was granted authority to permit international flights into the Kona International Airport at Keahole (KOA). As a result, daily non-stop flights from Japan helped increase the number of visitor arrivals to the Island of Hawaii through the current period.

Average Daily Census

The average daily census provides an estimate of the number of visitors present in the State and by each island on an average day. Exhibit 11 provides the average daily census for Hawaii:

Exhibit 11 - State of Hawaii Average Daily Census by Island - 1990 through Year-to-Date June 2001



	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	YTD June 2001
Oahu	82,783	75,008	77,999	78,108	81,526	81,362	81,054	78,150	72,823	79,497	87,587	87,114
Maui County	37,857	37,080	41,864	42,132	42,933	42,751	42,724	43,383	42,864	43,992	43,813	44,813
Kauai	17,378	17,720	13,516	8,283	13,268	14,439	15,815	15,999	17,909	18,214	18,213	17,617
Big Island	16,698	17,535	19,297	18,974	18,902	18,547	19,337	21,658	23,993	22,736	22,095	21,990
State	154,516	147,323	152,249	147,498	156,630	157,098	158,297	157,188	157,589	164,439	169,821	169,432

Source: State of Hawaii Department of Business, Economic Development & Tourism

The average daily census generally increased along with increases in visitor arrival. The increase also can be attributed to a shift in visitors choosing single-island visits rather

than multiple island travel. Additionally the average length of stay grew slightly during the 1990s for both the U.S. and Japan markets.

Visitor Arrivals by Major Market Area ("MMA")

The Hawaii Tourism Authority ("HTA") was formed by the State of Hawaii in 1999 as a public-private entity to manage Hawaii's tourism industry. As part of its strategic planning, the HTA segmented the market into major market areas, or MMAs. The four principal MMAs are U.S. West (states in the Pacific and Mountain time zones); U.S. East (other U.S. states and territories), Japan, and Canada. In 2000, these four MMAs comprised approximately 85 percent of the market. The remaining MMAs are Other Asia, Oceania, Latin America, Europe, and Other. Presented below are profiles of the top four MMA arrivals to Hawaii for the period 1990 through 2000.

Exhibit 12 - State of Hawaii Visitor Arrivals by Selected Major Market Areas - 1990 through Year-to-Date June 2001

	US-WEST	US-EAST	JAPAN	CANADA	STATEWIDE
1990	2,219,649	1,934,996	1,492,786	229,918	6,723,531
1991	2,225,838	1,891,128	1,438,585	180,784	6,518,460
1992	2,034,510	1,613,254	1,705,860	193,229	6,473,669
1993	1,909,811	1,419,605	1,666,275	214,379	6,070,995
1994	2,049,341	1,461,094	1,819,332	213,091	6,364,674
1995	2,035,329	1,457,608	2,048,411	198,213	6,546,759
1996	2,065,147	1,523,516	2,146,883	210,083	6,723,141
1997	2,071,423	1,444,346	2,216,890	211,205	6,761,135
1998	2,125,993	1,508,698	2,004,354	232,592	6,595,790
1999	2,308,836	1,601,238	1,825,588	252,777	6,741,037
2000	2,423,653	1,755,689	1,856,119	268,225	6,975,866
YTD June 2001	1,187,050	904,456	849,748	151,325	3,409,050

Source: State of Hawaii Department of Business, Economic Development & Tourism

Exhibit 13 - State of Hawaii Average Length by Island - 1990 through Year-to-Date June 2001

	Oahu	Maui	Molokai	Lanai	Kauai	Big Island
1990	5.88	5.93	3.86	2.08	5.16	5.41
1991	5.67	5.96	5.80	5.76	5.47	5.76
1992	5.85	6.33	4.71	4.78	5.59	6.18
1993	6.37	6.56	5.42	5.00	5.25	6.20
1994	6.43	6.48	5.33	5.35	5.63	6.39
1995	6.16	6.39	6.10	6.56	5.67	6.26
1996	6.03	6.35	7.16	7.34	5.84	6.07
1997	5.70	6.45	6.99	6.48	5.86	6.56
1998	5.76	6.58	5.61	4.75	6.06	6.53
1999	6.36	6.71	4.98	4.34	6.10	6.35
2000	6.69	6.81	5.15	4.70	6.16	6.35
YTD June 2001	6.81	6.93	4.70	4.41	6.06	6.29

Source: State of Hawaii Department of Business, Economic Development & Tourism

Exhibit 14 - State of Hawaii Average Length of Stay for US, Japan, and Canada MMAs - 1990 through Year-to-Date June 2001

	U.S. West	U.S. East	Japan	Canada
1990	9.34	9.40	5.90	13.09
1991	9.15	9.20	5.87	13.26
1992	9.92	9.82	5.74	14.14
1993	9.98	9.72	6.20	14.37
1994	10.00	10.31	6.11	14.48
1995	9.98	10.29	6.02	14.22
1996	9.87	10.11	5.76	13.99
1997	9.73	10.23	5.51	13.55
1998	9.72	10.27	5.68	10.99
1999	9.71	10.23	5.68	13.26
2000	9.88	10.24	5.56	12.53
YTD June 2001	9.81	10.33	5.79	12.59

Source: State of Hawaii Department of Business, Economic Development & Tourism

HAWAII VISITOR EXPENDITURES

Total visitor expenditures for the State of Hawaii are as follows:

Exhibit 15 - Total Visitor Expenditures – 1990 through 2000

Year	Total Visitor Expenditures (in millions of dollars)	% Change From Previous Year
1990	9,082.1	
1991	9,817.7	8.10%
1992	9,310.9	-5.16%
1993	8,472.3	-9.01%
1994	10,253.9	21.03%
1995	11,107.2	8.32%
1996	10,166.8	-8.47%
1997	10,491.0	3.19%
1998	10,309.2	-1.73%
1999	10,279.7	-0.29%
2000	10,918.1	6.21%

Source: State of Hawaii Department of Business, Economic Development & Tourism

Driven by a booming U.S. economy, total visitor expenditures in Hawaii amounted to over $10.9 billion in 2000, resulting in a 6.2 percent increase from 1999. The 21 percent jump in visitor expenditures in 1994 over 1993 was the result of an increase of 300,000 visitor arrivals in 1994. Also contributing was an increase in Japanese daily spending of $340 in 1994 compared to $305 in 1993 due to a gain in the yen to dollar exchange ratio. U.S. visitors also increased their daily spending from $117 in 1993 to $133 in 1994 due in large measure to the expanding economy. Visitor retail expenditures will be analyzed in more depth later in this study.

OTHER VISITOR INDUSTRY ISSUES AND TRENDS

Other major issues and trends that impact Hawaii's visitor industry include the following:

Air Capacity

Honolulu International Airport ("HNL") is the primary port of entry to the State of Hawaii for both domestic and international visitors arriving by air, and Oahu is affected by airlift issues related to other Hawaii airports, as increased flight segments to Neighbor Islands may translate to modified or reduced airlift to HNL.

Airlift has been a controversial issue for Hawaii, given that airlines are the primary transportation method to the State. As with other predominately leisure-driven destinations, yields on air routes generally are lower for Hawaii due to a high proportion of discounted seats, wholesale blocks, and award redemptions. The ability to sell high-

yield business and first class seats is limited, but improving, as corporate meetings and other business travel to Hawaii is expected to continue to grow.

Hawaii had experienced a net reduction in city-pair non-stop routes during the 1990s, particularly to the interior U.S. mainland, as airlines implemented route strategies to drive revenue per passenger mile through increased shorter travel route strategies to increase productivity. In general, the new fleet deployments and route segmentation has transformed the U.S. west coast as the primary gateway to Hawaii during the past decade, although there has been a slight trend over the past two years in re-establishing non-stop routes to selected interior cities.

All islands provide non-stop service to the U.S. mainland, as well as regular and chartered service to Canada. The Island of Hawaii is the only island to be granted authority to have direct service to Japan. Maui was under consideration for establishing non-stop Japan service, but the State withdrew its support to extend the runway to accommodate fully loaded wide-bodied aircraft due to community opposition. ~~An Environmental Impact Study is currently being prepared to allow international flights for Kauai.~~

Nonstop flights to various gateways in Asia have decreased due to the increase in over-flights from the U.S. mainland and Asia. Most Asia routes require a transit stop in Japan, although there is non-stop service between Hawaii and Korea, Taiwan, Guam, New Zealand, Australia and several South Pacific Islands.

Presented below is scheduled airline seat capacity for Hawaii for 1990 and 1995 through 2000. The data shows a relative decline in capacity reflecting the introduction of newer but smaller aircraft and higher load factors in the face of rising visitor arrivals.

Exhibit 16 - Airline Seat Capacity – 1995 through 2000

Year	Total Seats	Westbound Seats	Eastbound Seats	Total Arrivals	% Arrivals/ Capacity
1990	10,303,647	N/A	N/A	6,723,531	65.3%
1995	9,055,953	5,214,698	3,841,255	6,546,759	72.3%
1996	9,297,363	5,408,371	3,888,992	6,723,141	72.3%
1997	9,345,041	5,357,752	3,987,289	6,761,135	72.3%
1998	8,789,685	5,322,048	3,467,637	6,595,790	75.0%
1999	8,704,503	5,559,183	3,145,320	6,741,037	77.4%
2000	9,315,014	N/A	N/A	6,975,866	74.9%

Note: Air seat capacity reported as Domestic and International in 2000

Source: Hawaii Visitors & Convention Bureau

Hawaii Convention Center

The Hawaii Convention Center ("HCC") opened in 1998 as a means of diversifying Hawaii's visitor product. With approximately 200,000 square feet in meeting space and another 100,000 square feet in exhibition space, the HCC is positioned to attract medium-sized conventions with a maximum capacity of 30,000. Extensive meeting space at the Sheraton Waikiki, the Hilton Hawaiian Village, and other Waikiki hotels supplements the HCC in satisfying demand for function space.

Given the seven-year booking horizon for conventions, the full benefit of the HCC will not be realized until at least 2005. However, the growing successful track record of conventions held at the HCC, combined with more focused marketing, should help accelerate the center's booking pace over the medium term.

Transactions and Investment

Hawaii is undergoing a strong period of investment, primarily from U.S. mainland investors. These investments include development of new resort residential projects along the Kohala Coast, visitor-oriented retail and entertainment facilities in Maui and Oahu, and a substantial number of hotel sales on all islands.

Transactions in Hawaii have been accelerating during the latter half of the 1990s due in part to pressure on substantial non-performing debt held by its previous owners (typically Japanese) and a surge in U.S. public and private investment capital created in the mid-1990s. Because of the over-investment primarily by Japanese owners during the bubble period, many of the hotels sold during the latter half of the 1990s were sold at substantial discounts from the seller's construction, acquisition cost, or outstanding loan value. Current pricing discounts generally have been at the 30 to 50 percent range, although such discounts have been as high as 85 percent.

Timeshare

During the mid-1970s and 80s, the timeshare industry in Hawaii was largely unregulated and often represented a bulk purchase of condominium units within a larger complex converted to timeshare use. The industry languished due to poor publicity and misconduct of its sales force. Beginning in the early 1990s, the first "purpose built" timeshare was developed by the Shell Group in Kona and proved highly successful. Since then, the timeshare market has evolved into a new and an increasingly important visitor product for Hawaii, and with the move toward chain-managed timeshare, including Hilton and Marriott, acceptance of timeshare has expanded rapidly.

While the primary timeshare market is located in Kauai, Oahu is seeing rapid changes in its timeshare supply. Hilton has announced plans to develop a new 400-room tower in Waikiki, and Marriott is currently developing a 700-unit timeshare in Ko Olina.

Demographic Shifts

Certain demographic shifts are expected to be important drivers in Hawaii's visitor industry in the near to medium term. For example, the Japanese market is entering into a mini-baby boom, which will present opportunities for increased extended family travel. As the U.S. and Japanese markets become an increasingly repeat market, the issue of product renewal and competitiveness will continue to grow in importance.

Although visitor spending and luxury travel increased dramatically in 2000, the long-term outlook expects both the U.S. and Japanese markets to be increasingly value-driven. In particular, the Japanese market has shifted accommodation preferences toward upscale and mid-scale properties, instead of luxury full service hotels. This will become more apparent as the Japanese transition into a higher repeat market and begin to exhibit some similarities in product preferences of the U.S. market.

Greater market segmentation has been occurring on the demand side, with more independent and "niche" travel segments becoming more visible. Expectations are being raised from an increasingly more sophisticated traveler with respect to accommodations, service, attractions, and activities. Increased branding and positioning in the market will become increasingly more important in helping to manage visitor expectations and service delivery.

Hawaii Tourism Authority

The HTA was formed in 1999 and has brought tremendous focus in managing Hawaii's tourism industry. The HTA is allocated a budget of approximately $60 million per year. Its funds are used for product development, marketing, and policy implementation. The efforts of the HTA will help guide Hawaii's tourism growth and well being in the long term.

Such goals and accomplishments include the development of a more focused and coordinated strategy to penetrate and market to key segments. This has already resulted in a sharp increase in the high yield US East MMA. The overall strategy of the HTA is to focus more on marketing to higher yielding markets to drive per person trip spending rather than merely focusing on increasing visitor arrivals. This strategy is consistent with initiatives in the private sector in renovation of hotel properties and the development of retail and other attractions across the State.

The HTA strategy also incorporates programs that are intended to help increase longer lengths of stay, including developing a visitor product strategy that supports private sector product initiatives that are intended to meet changing visitor expectations and demand.

SECTION III

HOTEL MARKET OVERVIEW

SECTION III: HOTEL MARKET OVERVIEW

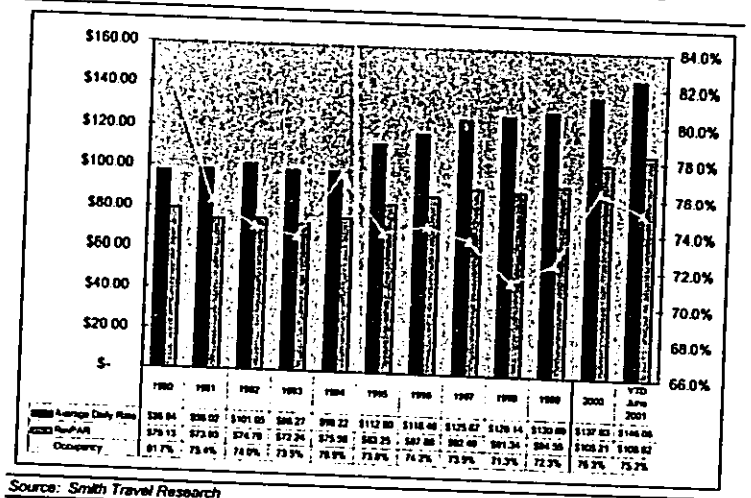
INTRODUCTION

This section provides an overview of the visitor industry on the Island of Oahu, including visitor arrivals and hotel supply and demand.

HOTEL MARKET PERFORMANCE

Presented below is a summary of hotel performance for the State of Hawaii:

Exhibit 17 - Statewide Occupancy, Average Daily Rate, and RevPAR– 1990 through Year-to-Date June 2001



Source: Smith Travel Research

Coinciding with the decline in visitor arrivals brought on by the Gulf War and persistent recession on the U.S. West Coast in the early 1990s, Statewide hotel occupancy and average daily rate ("ADR") also declined during the period. ADR and RevPAR began to recover in the mid-1990s, while occupancy data show a lag in recovery. The lag was due

in part to the re-introduction of approximately 2,500 rooms back into the Kauai market between 1994 through 1998 that were destroyed due to Hurricane Iniki in 1993. ADR growth began to exceed inflation during 1995, with stronger rate growth occurring in 2000. RevPAR experienced stronger growth as the rise in room demand more than offset the pace of room rate growth. The rise in RevPAR helped total room revenues achieve a new industry high in 2000 as noted below:

Exhibit 18 - Statewide Room Revenues – 1990 though 2000

	Statewide Room Revenue	% Change from Previous Year
1990	$1,778,376,923	
1991	$1,702,504,170	-4.3%
1992	$1,754,574,160	3.1%
1993	$1,836,683,415	4.7%
1994	$1,983,306,551	8.0%
1995	$2,106,004,378	6.2%
1996	$2,229,496,887	5.9%
1997	$2,363,316,882	6.0%
1998	$2,344,340,086	-0.8%
1999	$2,415,566,641	3.0%
2000	$2,688,563,888	11.8%

Source: Smith Travel Research

OVERVIEW OF OAHU HOTEL MARKET

Exhibit 19 - Snapshot Comparison of Oahu Arrivals – 1990 versus 2000

	1990	2000	Change
Total Visitors	5,139,558	4,776,960	-7.06%
Domestic Visitors	2,900,484	2,488,128	-14.22%
International Visitors	2,239,074	2,288,832	2.22%
Repeat Visitors	2,911,830	2,527,620	-13.2%
Repeat Visitors as a Percentage of Arrivals	56.7%	54.0%	-2.7%
Avg. Number of Prior Trips to HI	2.4 trips	3.8 trips	1.4 trips
Avg. Length of Stay	8.0 days	6.7 days	1.3 days shorter
Daily Spending Per Person	N/A	N/A	N/A

Note: 1990 repeat visitors, prior number of trips, and average length of stay based on HVCB data, as these statistics are not available for DBEDT's revised series.

Source: State of Hawaii Department of Business, Economic Development & Tourism, Hawaii Visitors & Convention Bureau

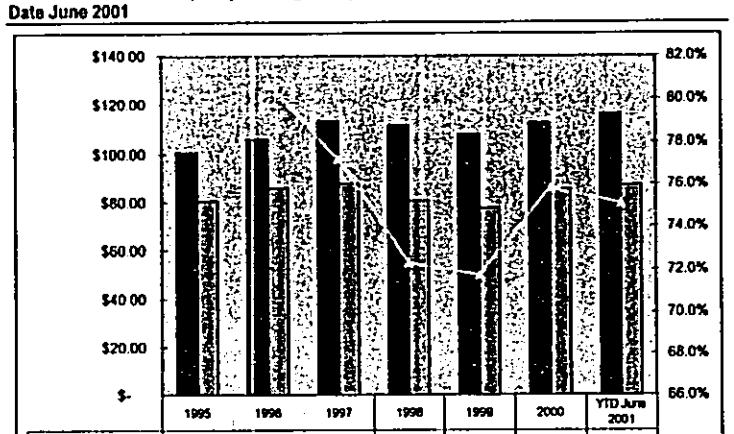
Oahu is characterized by a high concentration of Japanese on Oahu, as Honolulu is the primary gateway to Hawaii for international arrivals. The comparatively shorter length

of stay for the Japanese also helps in establishing Oahu as Japan's primary Hawaii destination. Oahu also has a higher proportion of wholesale travelers and first time visitors compared to the other islands.

The current cycle of new investment in Waikiki, combined with government tax incentives, is leading to an over-due upgrade and renovation of Waikiki necessary to preserve its stature as a world-class destination. Oahu has become more segmented, with growing business and convention, family and independent travel. The renewal of Waikiki is critical for continued success with the increasing percentage of repeat visitors for both the U.S. and Japanese markets, in addition to greater penetration of key markets such as the U.S. East MMA.

Presented below is a historical profile of Oahu's hotel market performance.

Exhibit 20 - Oahu Occupancy, Average Daily Rate, and RevPAR– 1995 through Year-to-Date June 2001



	1995	1996	1997	1998	1999	2000	YTD June 2001
Average Daily Rate	$100.65	$106.04	$113.28	$111.16	$107.93	$112.17	$115.92
RevPAR	$80.62	$85.57	$87.45	$80.38	$77.39	$85.02	$87.06
Occupancy	80.1%	80.7%	77.2%	72.3%	71.7%	75.8%	75.1%

Source: Smith Travel Research

With the bulk of the state's room supply located on Oahu, hotel statistics for Oahu, for the most part, mimic the statistics reported for the State as a whole. As visitor arrivals to Oahu softened in the late 1990s, occupancy levels in Oahu hotels also began to drop. As with the overall State of Hawaii, Oahu's hotel market rebounded in 2000 as Hawaii experienced a record-high in visitor arrivals.

There are three principal resort areas on Oahu consisting of Waikiki, Ko Olina, and Turtle Bay. A brief description of each area is presented below.

Waikiki: Waikiki is the "engine" of Hawaii's tourism destination, comprising over 33,000 hotel, condominium, and timeshare units. Waikiki is an established world-class urban resort with extensive shopping, nightlife, and wide variety of accommodations in all property categories. The Waikiki hotel market historically has out-performed all other hotel markets in the State until the late 1990s, when Maui surpassed Waikiki as the State's market leader. This was due in part to a strong corporate meetings market, which favored the Neighbor Islands, a fall-off in the Japanese market, and the deteriorated condition of many of Waikiki's hotels which to some extent eroded the market positioning of Waikiki.

Ko Olina Resort: Located on the southwest shore of Oahu, the resort initially was envisioned to be an alternative to Waikiki and was to include six hotels with 4,000 rooms, 5,000 resort residential units, a marina, and three golf courses. Initially, only the 380-room Ihilani Hotel, the Ko Olina Golf Course, and supporting infrastructure were developed before the project experienced financial difficulties. The Ko Olina development was sold several years ago to a new developer, and the project has since been revived. An upscale full-service marina was recently completed, a 700-room Marriott timeshare resort is currently under construction, and the 380-room Ihilani was sold to a new owner, with Marriott managing the resort under its JW Marriott flag.

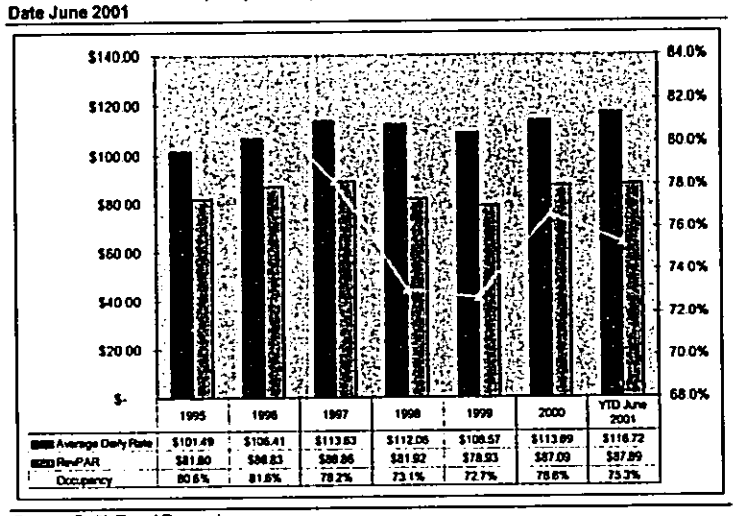
Turtle Bay Resort: The Turtle Bay Resort on the north shore of Oahu features a 450-room full service hotel managed by Hilton Hotels & Resorts. The resort includes two golf courses and has zoning for 2,000 additional rooms. The resort was recently sold to mainland investors, who are currently assessing alternative plans to reposition the resort. The hotel is currently undergoing a $30 million renovation.

Other Sub-markets: Other sub-markets include the Airport, Downtown/Aloha Tower, and the Makaha Resort area on the western shore of Oahu. These markets generally provide support for the local business and kama'aina markets rather than Hawaii's primary leisure industry. While hotel demand for these sub-markets appear static as of this report, potential does exist for expansion of hotel product at the airport and Aloha Tower at some future period. The Makaha Resort was recently sold, and the resort is currently under renovation.

OVERVIEW OF THE WAIKIKI HOTEL MARKET

This section provides a profile of hotel demand for Hawaii. Hotel performance is presented on an overall basis, as well as by class of property and geographic location. Demand is also profiled with respect to major demand segments, including U.S. and Japanese, corporate, wholesale and FIT demand.

Exhibit 21 - Waikiki Occupancy, Average Daily Rate, and RevPAR – 1995 through Year-to-Date June 2001



	1995	1996	1997	1998	1999	2000	YTD June 2001
Average Daily Rate	$101.49	$106.41	$113.63	$112.06	$108.57	$113.09	$116.72
RevPAR	$81.80	$86.83	$88.86	$81.92	$78.93	$87.09	$87.89
Occupancy	80.6%	81.6%	78.2%	73.1%	72.7%	76.6%	75.3%

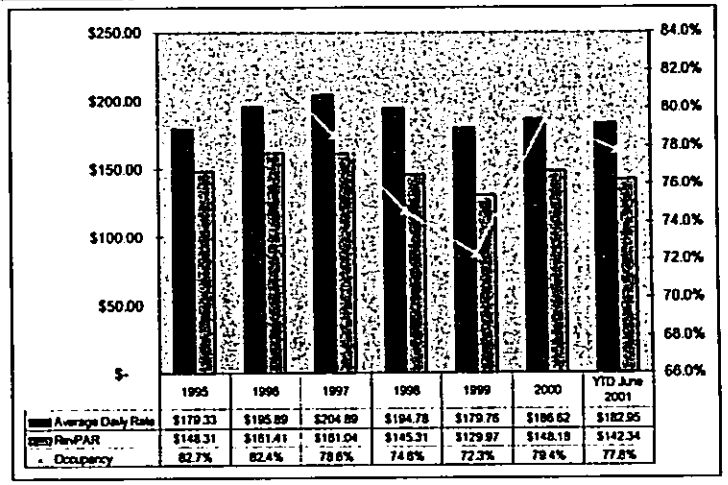
Source: Smith Travel Research

The Waikiki hotel market ended the first half of 2001 with an occupancy rate of 75.3 percent and an average daily rate of $116.72. The sharp decline in RevPAR between 1997 and 1999 was due to the combination of declines in both the ADR and occupancy rate, due primarily to a fall-off in the Japanese market during the period.

A profile of hotel performance by class of property is presented below:

Luxury

Exhibit 22 - Waikiki Luxury Hotels Occupancy, Average Daily Rate, and RevPAR– 1995 through Year-to-Date June 2001



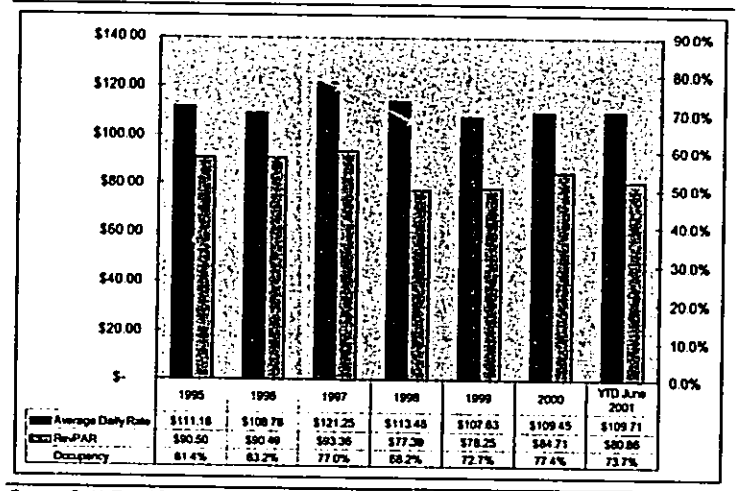
	1995	1996	1997	1998	1999	2000	YTD June 2001
Average Daily Rate	$179.33	$195.89	$204.89	$194.78	$179.76	$186.62	$182.95
RevPAR	$148.31	$161.41	$161.04	$145.31	$129.97	$148.19	$142.34
Occupancy	82.7%	82.4%	78.6%	74.6%	72.3%	79.4%	77.8%

Source: Smith Travel Research

The luxury hotel market of Waikiki appears to have had great fluctuation in ADR, occupancy rate and RevPAR from 1995 through the first half 2001. The decline in the occupancy rate from 1995 to 1999 was due in part to the decline of the Japanese market during this period.

Upscale

Exhibit 23 - Waikiki Upscale Hotels Occupancy, Average Daily Rate, and RevPAR – 1995 through Year-to-Date June 2001



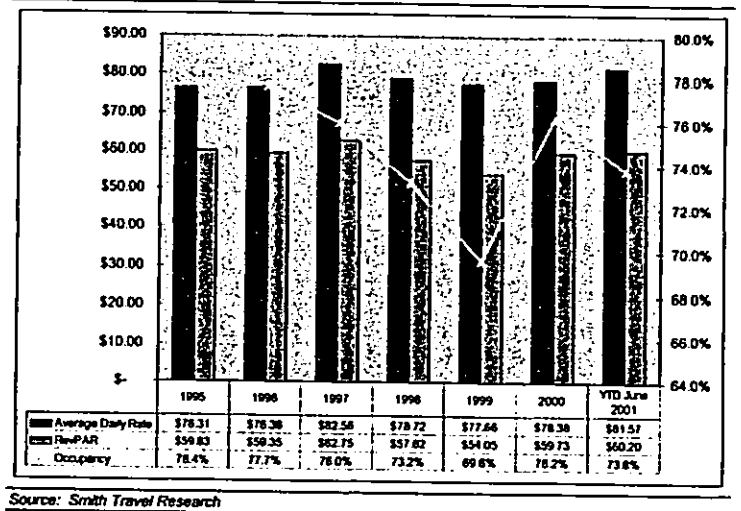
	1995	1996	1997	1998	1999	2000	YTD June 2001
Average Daily Rate	$111.18	$108.78	$121.25	$113.48	$107.83	$109.45	$109.71
RevPAR	$90.50	$90.49	$93.36	$77.39	$78.25	$84.71	$80.86
Occupancy	81.4%	83.2%	77.0%	68.2%	72.7%	77.4%	73.7%

Source: Smith Travel Research

Similar to the luxury market, Waikiki upscale hotels also exhibited a decline in ADR between 1997 and 1999 due to the soft Japanese market. However, the swings in ADR and occupancy was less dramatic as the growth in the U.S. market helped to cushion the Japanese impact to some degree for this segment of the hotel market.

Midprice

Exhibit 24 - Waikiki Midprice Hotels Occupancy, Average Daily Rate, and RevPAR – 1995 through Year-to-Date June 2001



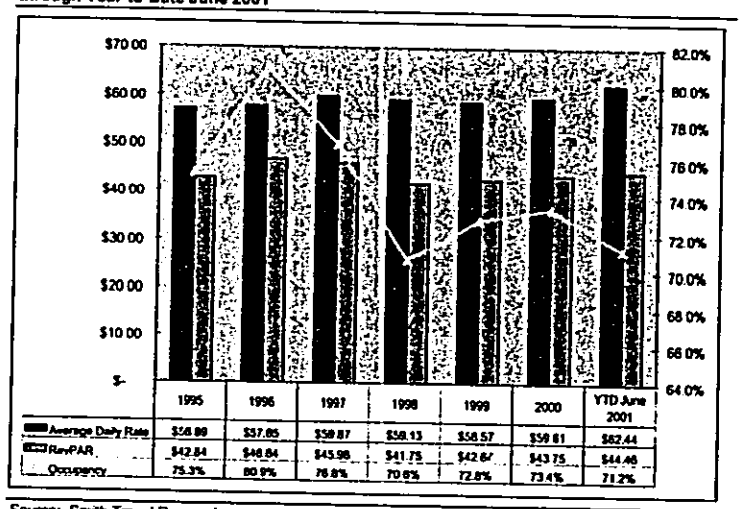
	1995	1996	1997	1998	1999	2000	YTD June 2001
Average Daily Rate	$76.31	$76.38	$82.56	$78.72	$77.66	$78.38	$81.57
RevPAR	$59.83	$59.35	$62.75	$57.82	$54.05	$59.73	$60.20
Occupancy	78.4%	77.7%	76.0%	73.2%	69.6%	76.2%	73.8%

Source: Smith Travel Research

The decline in occupancy rate for midpriced hotels in Waikiki from 1995 through 1999 was also due a fall-off in mid-tier Japanese wholesale business. Again, however, the impact was less dramatic when compared to the upper end of the Waikiki market due to strengthening U.S. visitor arrivals to Oahu.

Economy

Exhibit 25 - Waikiki Economy Hotels Occupancy, Average Daily Rate, and RevPAR – 1995 through Year-to-Date June 2001



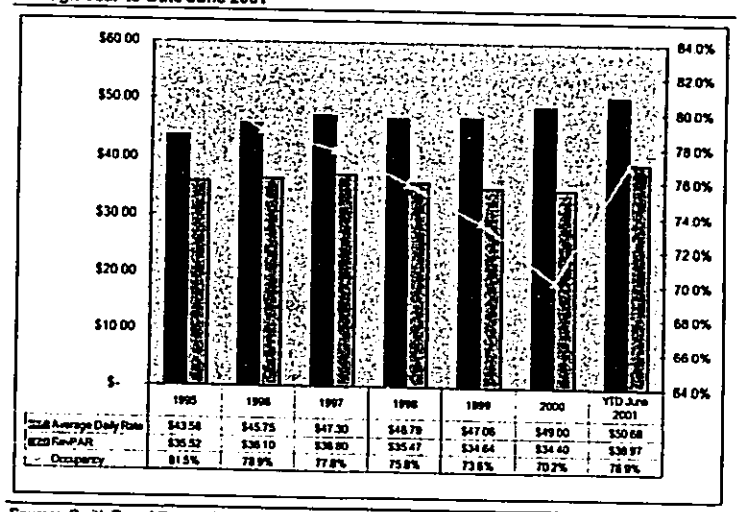
	1995	1996	1997	1998	1999	2000	YTD June 2001
Average Daily Rate	$56.89	$57.85	$59.87	$58.13	$56.57	$59.81	$62.44
RevPAR	$42.84	$46.84	$45.98	$41.75	$42.67	$43.75	$44.46
Occupancy	75.3%	80.9%	76.8%	70.6%	72.8%	73.4%	71.2%

Source: Smith Travel Research

As U.S. and Canadian visitors represent a strong market for economy hotels, Waikiki economy hotels were impacted less from the fluctuation of the Japanese market. The economy market actually strengthened over the past year due to a substantial strengthening of Canadian arrivals to Oahu, which favor more modest accommodations

Budget

Exhibit 26 - Waikiki Budget Hotels Occupancy, Average Daily Rate, and RevPAR – 1995 through Year-to-Date June 2001



	1995	1996	1997	1998	1999	2000	YTD June 2001
Average Daily Rate	$43.58	$45.75	$47.30	$46.79	$47.06	$49.00	$50.68
RevPAR	$35.52	$36.10	$36.80	$35.47	$34.64	$34.40	$38.97
Occupancy	81.5%	78.9%	77.8%	75.8%	73.6%	70.2%	76.9%

Source: Smith Travel Research

Similar to economy hotels, budget hotels in Waikiki appeared to show more consistency in terms of RevPAR given its predominate U.S. and Canadian market. Again, the strong influx of Canadian visitors over the past year helped market performance improve, particularly through the first half of 2001.

PROFILE OF HOTEL SUPPLY

As noted in the previous section, the bulk of Hawaii's visitor supply is located on Oahu and Oahu's visitor supply is located primarily in Waikiki. The exhibit below presents the current Waikiki lodging inventory by type of unit.

Exhibit 27 - Waikiki Hotel Inventory

	Hotel	Condo	Other	Total
Units	29,402	2,979	1,266	33,647
Properties	73	24	33	130

Source: State of Hawaii Department of Business, Economic Development & Tourism

As discussed previously, there is a "room cap" on Waikiki, and there is very limited additions to supply planned.

Transition of Supply

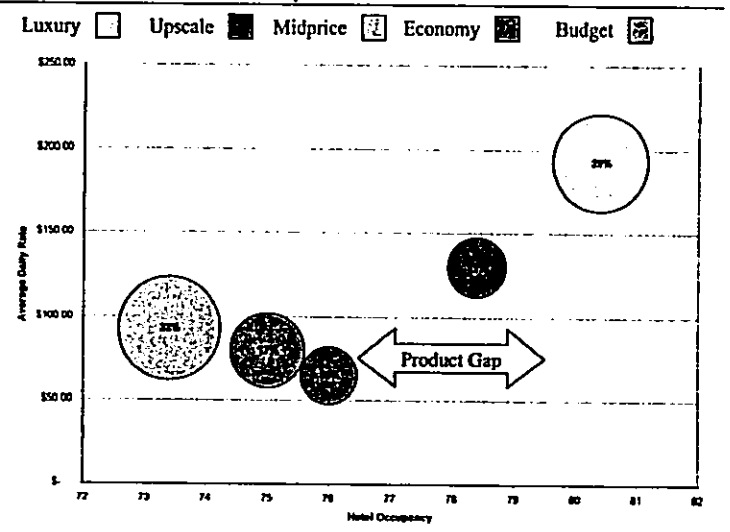
As had been previously discussed, there have been a substantial number of hotel transactions in Hawaii, including Waikiki. This has had several impacts that are likely to impact the longer-term performance of the destination:

- New, more financially stable owners are generally replacing financially weak owners. Because many of the sales result in a substantial reduction in debt, many new owners are in a much better position to maintain, and in some cases, reposition the asset to a more favorable market. The financial pressures placed on the hotels during the 1990s have helped drive a number of operational changes to improve profitability. Some of these changes will likely carry over to new owners, including increased productivity and out-sourcing of certain functions, such as laundry, food and beverage outlets, retail, and security.

- Many hotels in Hawaii are subject to ground leases, with many currently under a 10-year renegotiation cycle. However, as a concession to new owners and to protect their fee interest, many landowners are willing to renegotiate terms of the ground lease to facilitate a sale. Many fee owners, who have seen the hotel improvements deteriorate under financially strapped lessees, are willing to negotiate more attractive lease terms in order to gain a more stable new hotel owner willing to re-invest in the leasehold improvements.

- New owners have often provided substantial renovation budgets to address deferred maintenance resulting from prior ownership. A number of Waikiki hotels were under-performing and/or were "down-positioned" under the prior owners, as the hotels could not compete due to its deteriorated condition. Many Waikiki upscale and mid-priced hotels deteriorated to such an extent that a "product gap" was created between the top of the market and hotels in the lower tier, as demonstrated below:

Exhibit 28 - Waikiki Hotel Product Gap



Source: Smith Travel Research, Hospitality Advisors LLC

The above chart demonstrates the percentage of property category as it relates to the overall Waikiki market. The product gap was created due to a down positioning of hotels from the upscale to the midprice category as a result of physical deterioration.

PROFILE OF WAIKIKI DEMAND

The following points provide an overview of the general characteristics of the Waikiki market:

- As stated previously, Waikiki has historically been the core of Hawaii's visitor industry due to its international gateway airport, abundance of hotels, shopping and activity and landmark "must see" attractions including Pearl Harbor, Waikiki Beach, the North Shore, and Diamond Head.

- Waikiki generally has a higher growth rate of first time Westbound visitors than other islands as repeat westbound visitors tend to migrate more toward Neighbor Island resorts as repeat visitation grows. The Eastbound market has begun to demonstrate similar behavior, although the short length of stay and lack of non-stop international flights to the Neighbor Islands (with the limited exception of

the Island of Hawaii) prevents a major permanent shift of the Eastbound market from Oahu to the Neighbor Islands.

- Because of the abundance of budget to mid-price rooms at highly competitive rates, the Waikiki market continues to be well suited for the wholesale market, although sales within the wholesale market has declined when compared to 1990 due in part to the shift in travel purchase behavior. The decline in wholesale room nights sold represented much of the decline in Waikiki hotel occupancy during much of the 1990s. Most of this decline, however, occurred in the mid to lower-tier hotels, as ~~market~~ visitors were able to trade up in product due to a robust U.S. economy.
- Oahu has begun to see more demand segmentation led in part by the new Hawaii Convention Center, increased mainland investment in Hawaii businesses, and a trend toward more FIT and repeat travel from both the Eastbound and Westbound markets. Although demand segmentation has been growing in Waikiki, the hotel inventory for the destination has not kept pace due primarily to financial difficulties of many owners that purchased these hotels during the Japanese bubble period.

Japanese Market Trends

The Japanese market has been a major economic force in Hawaii's tourism industry, with Waikiki having benefited the most. Previously, the Japanese market favored Oahu and Waikiki due to its nightlife, shopping, and activities. With a short length of stay approximating six days, travel to the Neighbor islands is somewhat problematic. With only one regularly scheduled daily flight to Kona on the Island of Hawaii, Honolulu continues to serve as the primary gateway into the islands. Efforts to establish an international airport on the Island of Maui was derailed due to vocal opposition from many of Maui's residents.

The Japanese market is undergoing major structural changes as it evolves into a more mature market with greater segmentation when compared to the 1980s. The Japanese economic upheaval that has lasted for most of the 1990s has brought fundamental changes as the Japanese culture increasingly adopts a more Western approach to business and life styles, including greater market access and foreign ownership in core industries in Japan, the eroding of assurance of life-time employment, and the transition toward more individualistic purchase and travel behavior.

The decline of real estate prices also has created a demand for housing that had been absent in Japan for most of the 1980s due to the extremely high cost of real estate. This created substantial discretionary income for travel and high-end consumption. However, during the late 1990s and currently, the changes noted above have driven Japanese travelers and consumers to become more value-conscious rather than status-driven purchases. This is clearly demonstrated when looking at Japanese trip spending, which in 1990 was 518,000 yen compared to 331,000 yen in 2000. For Hawaii, Japanese daily spending has dropped from $280 per day in 1990 to approximately $238 per day in 2000.

This trend is exacerbated by the increase in repeat travel, where experienced travelers to Hawaii typically become more demanding with higher expectations, and place less emphasis on spending their travel budget on high-end accommodations or activities that they have done before. More emphasis has shifted to independent travel ("FIT") rather than group tours, a trend that is expected to continue and has already led to changes in how tour packages are developed and marketed, including the trend toward "stripped" packages that comprise only air travel and accommodations rather than pre-purchased activities and tours.

Westbound Market Trends

The Westbound market, comprised primarily of US mainland, Canadian and Europeans, is generally characterized as a heavy repeat market. It is also highly segmented when compared to the Eastbound market, including FIT, package and wholesale travelers, other business, Meetings, Conventions and Incentives ("MCI"), family travel, honeymooners, adventure travel, eco travel, cruise ship, charter, timeshare and government travel.

As noted earlier, the Westbound market generally prefers the Neighbor Islands due to the higher density of Waikiki. The Neighbor islands have particularly penetrated the high-yield corporate meetings and incentives market, whereas Waikiki continues to attract the larger but typically less lucrative convention market.

Most of the visitor arrivals from the mainland typically come from the US West MMA. Part of the obstacle in previously gaining greater penetration in the US East MMA was the lack of direct non-stop flights and a lack of focused marketing. With the formation of the HTA, the East US has become a priority market focus for increased market penetration. In fact, Oahu has enjoyed significant growth in visitor arrivals from the US East MMA for the past two years. This focus on the U.S. East MMA should continue to benefit Waikiki, particularly when considering that most first time travelers spend at least part of their stay in Waikiki.

While the percentage of repeat visitors is still high, the mix of first time visitors, particularly from the U.S. East MMA, has grown.

Exhibits 29 to 30 present a snapshot comparison of visitor arrivals to Oahu for the Japanese and U.S. markets:

Exhibit 29 - Snapshot Comparison of Japanese Arrivals – 1996 through 2000

Oahu Japanese Arrivals	1996	2000	Change
Total Oahu Visitors	1,977,530	1,720,362	-13.0%
As a Percentage of Oahu Arrivals	39.4%	36.5%	-2.9 percentage points
Avg. Number of Prior Trips to HI	2.4 trips	2.6 trips	0.2 trips
Avg. Length of Stay – Statewide	5.8 days	5.6 days	0.2 days shorter
Avg. Length of Stay – Oahu	5.3 days	5.0 days	0.3 days shorter
Daily Spending Per Person	$279.00	$237.00	-19.4%
Percent of Japanese Traveling Outside Japan for the First Time	68.2%	52.5%	15.7 percentage points

Source: State of Hawaii Department of Business, Economic Development & Tourism and JTB Report 2000.

Exhibit 30 - Snapshot Comparison of US Mainland Arrivals – 1996 through 2000

Oahu US Mainland Arrivals	1996	2000	Change
Total Visitors	2,163,490	2,281,998	+5.5%
As a Percentage of Oahu Arrivals	43.1%	48.4%	5.3 percentage points
Avg. Number of Prior Trips to HI	4.8 trips	5.9/3.4	N/A
Avg. Length of Stay – Statewide	9.9 days	9.9/10.3	N/A
Avg. Length of Stay – Oahu	7.0 days	7.7/7.2	N/A
Daily Spending Per Person	$157.00	$160/$186	N/A

Note: US West/ US East, respectively, for 2000 where appropriate. 1996 breakout of US West vs. US East not available.

Source: State of Hawaii Department of Business, Economic Development & Tourism.

Presented below is a further breakdown of historical U.S. arrivals to Oahu. Oahu has exhibited strong growth in the US East MMA, which tends to stay longer and spend more than US West visitors. US East visitors also tend to be first time visitors to Hawaii, and first-time visitors have a history of higher spending than repeat visitors. This higher performance of the US East MMA is due in part to HTA's strategic goal of greater penetration of this higher-yielding market. Below is a summary of US West and US East arrivals to Oahu:

Exhibit 31 - US West and US East arrivals to Oahu – 1996 through 2000

Year	US West	%	US East	%
1996	1,198,822	0.01%	920,619	5.7%
1997	1,138,463	-5.0%	825,128	-10.4%
1998	1,049,019	-7.9%	960,646	16.4%
1999	1,141,244	8.8%	971,788	1.2%
2000	1,185,742	3.9%	1,131,275	16.4%

Source: State of Hawaii Department of Business, Economic Development & Tourism

The comparative tables above summarize the structural trends that have been occurring in the market and discussed earlier in this report.

- Both the U.S. and Japanese markets to Oahu are comprised primarily of repeat visitors, which tend to be more value-driven in spending. This is particularly evident for the Japanese market, which has begun to mature as a major outbound source.
- There continues to be a strong shift towards a greater proportion of FIT travel as repeaters tend to book their own arrangements as greater familiarity with Hawaii grows.

ANTICIPATED TRENDS FOR WAIKIKI

Based on available data from the State of Hawaii, Japan Travel Bureau, the Pacific Asia Travel Association, and other sources, anticipated market demand changes for Waikiki include the following:

- Increasing demand segmentation should continue for the Waikiki market as indicated above, driven by a growing mix of FIT and FIT package travel ("stripped" tour packages), a more defined business and MCI segment, repeat market and family travel.
- The Hawaii Tourism Authority ("HTA") strategic plan places priority on the rejuvenation of Waikiki, the success of the Convention Center, and focused strategic marketing. To this end, the HTA has already initiated several long-range strategies that will support continued demand growth and diversification for Waikiki and Hawaii, including:
  - Transfer of responsibility of the convention Center to the HTA to provide professional management, which now has a full-time sales and marketing force.
  - Enacted and funded several Waikiki improvement projects, including development of a new pedestrian promenade and the widening of Waikiki beach to replace sand erosion.
  - Commitment and priority the achieve greater penetration in the Eastern US market, which historically has achieved only a 22 percent penetration rate of outbound travelers versus a 76 percent penetration rate of the US West market.
  - Stronger support and partnering with the airline industry to foster increased non-stop service to the Midwest and East Coast, such as the non-stop Continental flight between New York and Honolulu inaugurated last year.

SECTION IV

WAIKIKI RETAIL MARKET ANALYSIS

SECTION IV: WAIKIKI RETAIL MARKET ANALYSIS

INTRODUCTION

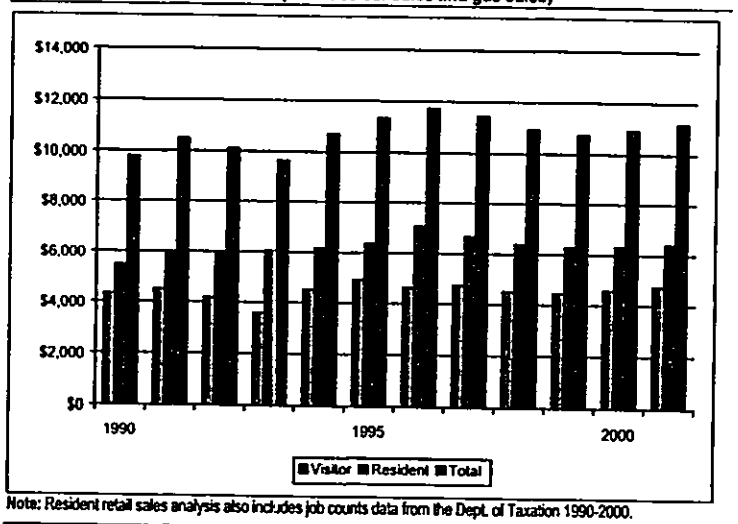
This section provides an overview of Hawaii's retail market for the visitor industry, with particular focus on the Island of Oahu. Current and expected trends are presented in this section for both the supply and demand for visitor industry-related retail. The analysis of the retail market was prepared with the assistance of SMS. Research.

OVERVIEW OF THE VISITOR RETAIL INDUSTRY

With retail sales[2] over $11 billion, the retail industry in Hawaii comprises over 20 percent of the State's total excise taxable base. According to models developed by DBEDT, these expenditures account for approximately 30 percent of Gross State Product. According to DBEDT, visitor spending approximates 26 percent of total retail sales. A profile of total retail sales for the State is presented below:

[2] Source: SMS Research. Excludes car sales, gas sales, transportation, entertainment, and lodging.

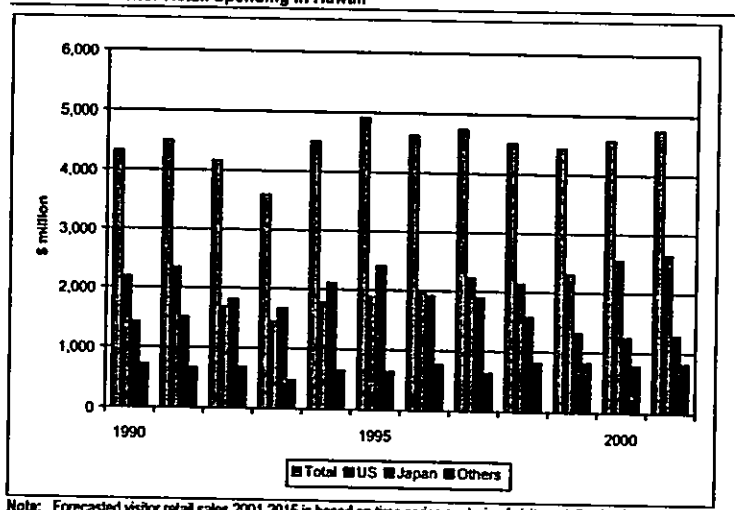
Exhibit 32 - Retail Sales in Hawaii (excludes car sales and gas sales)



Note: Resident retail sales analysis also includes job counts data from the Dept. of Taxation 1990-2000.

Source: SMS Research

Exhibit 33 - Visitor Retail Spending in Hawaii



Note: Forecasted visitor retail sales 2001-2015 is based on time series analysis of visitor retail sales for the years 1990-2000

Source: SMS Research

U.S. visitor spending accounts for the majority of overall visitor spending in Hawaii due primarily to the volume of U.S. visitors to the State. However, as noted earlier in this report, Japanese visitors spend approximately 60 percent more per visitor than the U.S. visitor. As a result Japanese visitor spending was greater than U.S. visitor spending in 1992-1995 (as shown in Exhibit 33). Many of the visitor changes that influence the hotel market discussed previously also apply to visitor retails sales, including a shift to more value-oriented visitors, higher market segmentation, and a growing repeat market. In addition to the demographic shifts already noted, changes in age distribution for both the U.S. and Japanese markets are also expected to have an impact on current and anticipated visitor retail performance. This analysis is presented below:

IMPLICATIONS OF CHANGES IN U.S. AGE DISTRIBUTION

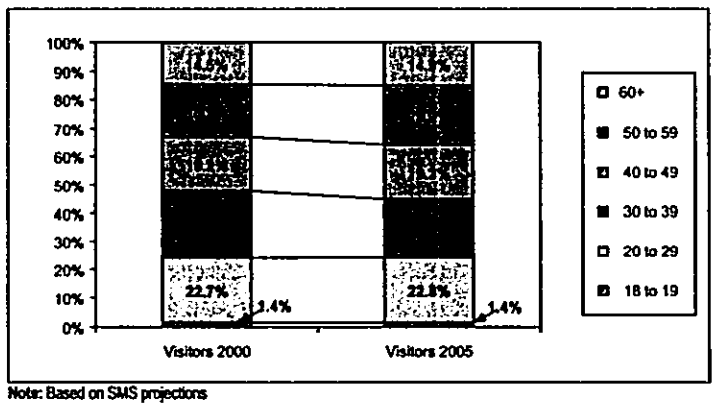
The U.S. population is getting older as the baby boom generation ages. In fact, this group represents 27 percent of the U.S. adult population. The fastest growing age group visiting Hawaii is in the 50-59 age category. The share of visitors in that category is expected to increase from 18.5 percent to 20.9 percent by 2005 as shown below.

Meanwhile, the fastest shrinking age group visiting Hawaii is in the 30-39 age category. The share of visitors in that category is expected to fall from 23.7 percent to 20.7 percent by 2005. The 20-29 age category is expected to remain relatively stable over the next five years, particularly as the children of the baby boomers mature into their adult years.

The overall implications for the U.S. visitor retail market would appear to support an increase in retail sales over the medium to long term. These implications include:

- Visitors moving into the 50-59 age category tend to have higher disposable incomes and more money to spend on vacation.
- Maturity generally implies higher demand for more sophisticated and higher value goods.
- The shrinking 30-39 age category implies a smaller market for family travel, which typically spends less on destination retail.
- The 20 to 29 year old age category will be the largest age segment in the U.S. visitor market in five years (23 percent), implying a strong demand for trendy products in their price range.

Exhibit 34 - U.S. Age Distribution as a Percentage of Total Visitors



Note: Based on SMS projections

Source: SMS Research

IMPLICATIONS OF CHANGES IN JAPANESE AGE DISTRIBUTION

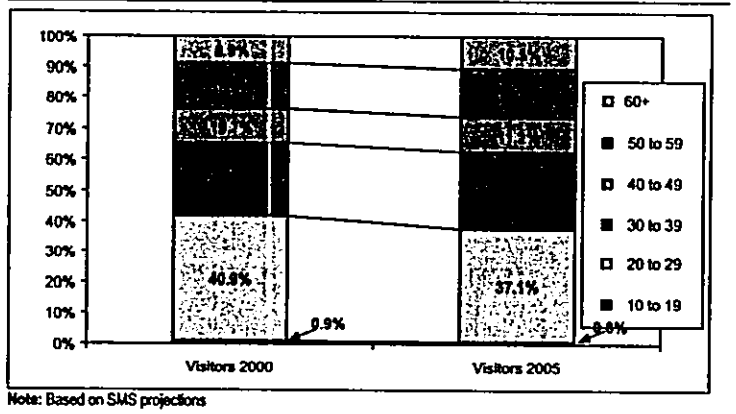
Generally, the Japanese visitor population is aging faster than the U.S. visitor population. Therefore, it is more likely that the Japanese visitor demographics will shift to a more mature market at a more rapid pace when compared to the U.S. market. Observations regarding the aging of the Japanese market include the following:

- The largest expected increase over the next five years is in the 60+ age category, gaining 18 percent from 8.98 percent to 10.5 percent.
- The 30 to 39 and 40 to 49 age categories are expected to increase their share of total visitor percentages over the next five years, as the "second" Japanese baby boomer group begins to age. This will likely lead to an increase in family travel over the mid-term.
- The 20 to 29 age category is the only category that is projected to decline (from 40.9 percent to 37.1 percent) over the next five years, reflecting in part the declining birth rate in Japan as the population has shown growing tends of marrying later and delaying the start of a family.

It is expected that the older Japanese market will continue to demonstrate demand for high-end goods. However, the market may also see a decrease in purchasing power from the traditional base of young females as they enter family and child bearing years. Nonetheless, demand for high quality goods will likely continue as the Japanese are considered a strong and sophisticated market that is willing to spend for high quality items.

The age distribution outlook for the Japanese market is presented below:

Exhibit 35 - Japanese Age Distribution as a Percentage of Total Visitors



Note: Based on SMS projections

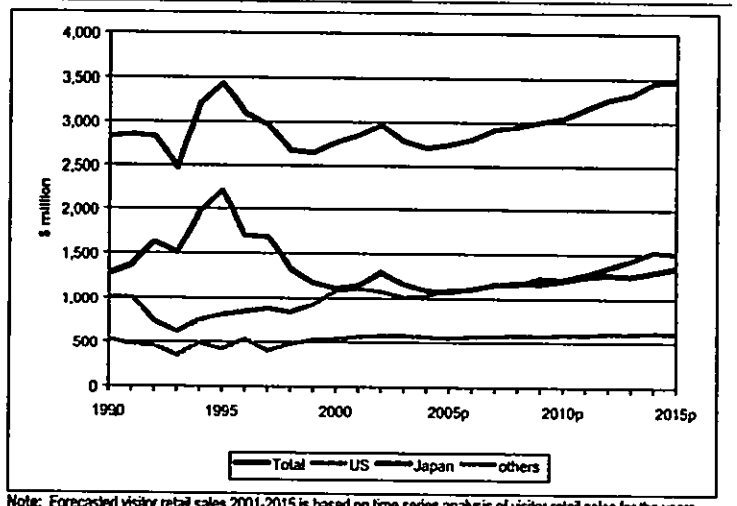
Source: SMS Research

OAHU VISITOR EXPENDITURES

Even though U.S. spending accounts for the majority of expenditures statewide, Japanese visitors dominate the retail market on Oahu at the present time. Presented below are forecasted estimates of visitor retail spending growth prepared by SMS Research. Much of the forecasted growth in U.S. visitor retail sales is expected to be on the Neighbor Islands as visitor arrival growth to the Neighbor Islands is expected to grow at a faster pace than Oahu. This is due in part to tight hotel capacity on Oahu over the long- term, as well as the expected continued growth in repeat travel to Hawaii, which tends to favor the Neighbor Islands. However, Oahu is still expected to remain a strong visitor market due to hotel capacity constraints, combined with product renewal and greater marketing focus for the island.

Prior investment aimed at the Japanese visitor market has concentrated Japanese spending on Oahu. However, Japan's expected slower growth will eventually allow U.S. expenditures to catch up by 2005 and surpass the Japanese by 2009 on Oahu, according to SMS Research.

Exhibit 36 - Oahu Visitor Retail Spending



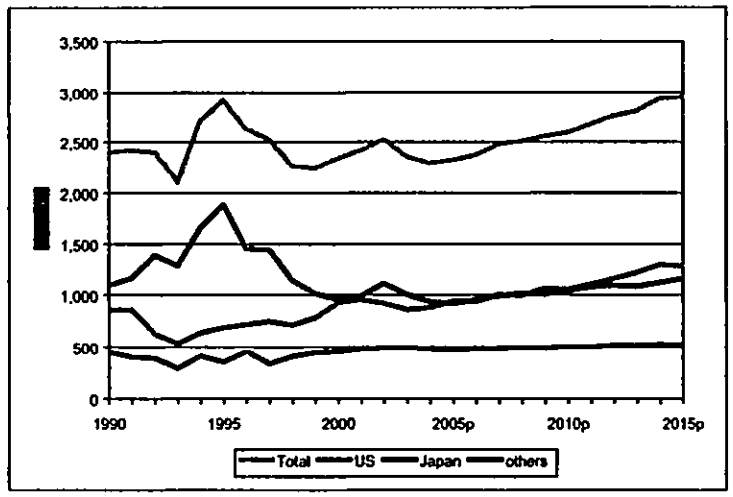
Note: Forecasted visitor retail sales 2001-2015 is based on time series analysis of visitor retail sales for the years 1990-2000

Source: SMS Research

WAIKIKI RETAIL SALES

Most visitor retail shopping on Oahu is concentrated in the Greater Waikiki area (Waikiki, Ala Moana, and Ward Complex). Visitor retail shopping in Waikiki is expected to be about 85 percent of Oahu visitor retail sales over the long term. Based on this relationship, Waikiki current and forecasted retail growth is presented below.

Exhibit 37 - Waikiki Visitor Retail Spending



Note: Forecasted visitor retail sales 2001-2015 is based on time series analysis of visitor retail sales for the years 1990-2000

Source: SMS Research

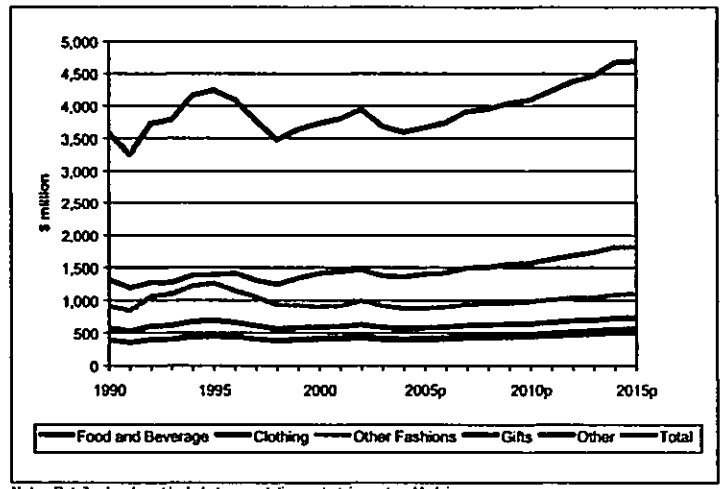
Visitor Retail Spending By Category

Oahu Spending By Category

Total visitor retail spending on Oahu is trending upwards in all categories as shown in Exhibit 38. The forecast is prepared by SMS Research and is based on historical sales growth, government forecasts of economic growth, and trends in the industry. The SMS Research forecast indicates that the upward trend in retail spending is likely to continue for the next several years. The category with the most spending is food and beverage, which accounts for 40 percent of total retail spending on Oahu. The next highest

category is "other fashions," which accounts for 22 percent of total retail spending. The "Gifts" and "other" categories each account for approximately 11 percent of total retail spending.

Exhibit 38 - Oahu Retail Spending by Product Category



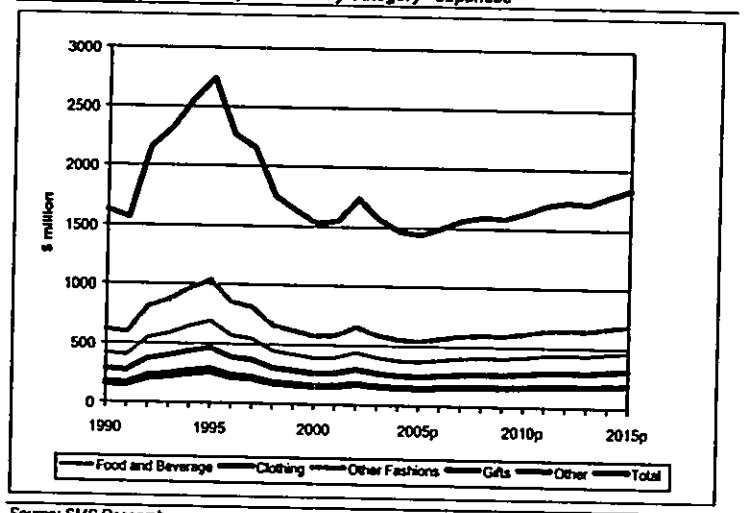
Note: Retail sales do not include transportation, entertainment and lodging expenses.

Source: SMS Research

All categories have been generally increasing since the middle of 1998, with most retail categories expected to continue to grow for modestly for the next several years. Based on longer-term economic projections for the US. And Japan markets, SMS Research projects that the rate of growth in all categories will accelerate after the year 2005.

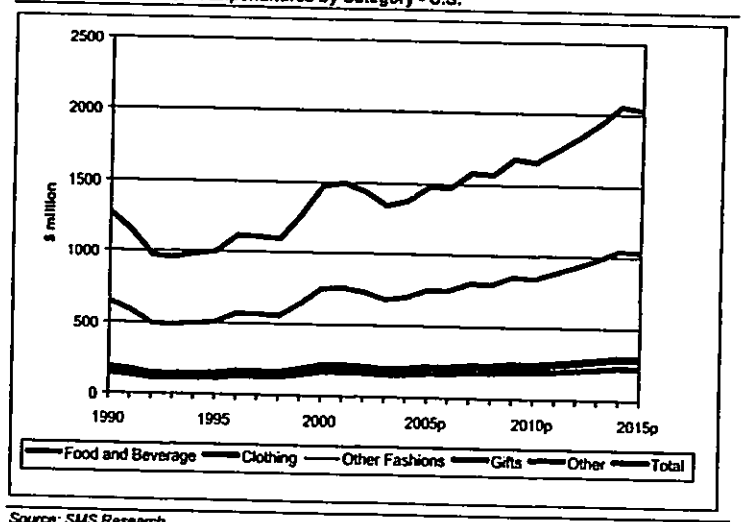
The exhibits below highlight spending patterns by the Japanese and U.S. visitor market. Traditionally, Japanese visitors tend to buy "package deals" that include discounted food and lodging, hence lower proportional spending on food and beverage, compared to US visitors. Japanese spending on "other fashions," which include shoes, handbags, and accessories is relatively high compared to expenditures on other items, and is much higher, proportionally, than US visitors for that category. Visitors from the US, spend a much higher proportion of money on food and beverage. All other categories (clothing, other fashions, gifts, and other) are generally low in comparison.

Exhibit 39 - Oahu Visitor Expenditures by Category - Japanese



Source: SMS Research

Exhibit 40 - Oahu Retail Expenditures by Category - U.S.



Source: SMS Research

RETAIL SUPPLY

Oahu has experienced strong growth in retail area over the past few years. The greater Waikiki area, including Ala Moana and Ward Avenue, is a complex mix of retail outlets. Retail facilities are found in a mix of hotel retail arcades, free-standing retail centers, mixed use projects, and open-air markets. The total gross leasable area for the greater Waikiki market is estimated to be 4.9 million square feet, according to SMS Research.

Profile of Major Waikiki Area Retail Centers

Ala Moana Shopping Center is the largest retail facility in the greater Waikiki area, which targets both local residents and the visitor industry. Ala Moana is nearly twice as large as the nearest shopping center in the Waikiki area, which is the Ward Retail Complex that continues to evolve. Both Ala Moana and the Ward Complex are outside of the primary Waikiki pedestrian district, which extends from the Hilton Hawaiian Village to the Honolulu Zoo, but is easily accessible by trolley, bus, taxi and rental car. Waikiki retail space is dominated, not by the large retail chain stores, but by smaller specialty stores. This can be clearly seen by the large number of shopping centers with

relatively small GLA, but with a comparatively high number of shops. A profile of the major retail facilities in the greater Waikiki is as follows:

Exhibit 41 - Major Waikiki Area Retail Centers

Shopping Center	Estimated GLA (square feet)
Ala Moana Center	1,800,000
Ward Complex	830,000
Royal Hawaiian S.C.	292,855
Duty Free Shopping Waikiki	185,000
Waikiki Shopping Plaza	150,000
Hilton Hawaiian Village	95,000
Hyatt Regency Waikiki	85,985
International Market Place	80,650
King Kalakaua Plaza	80,000
Waikiki Town Center	76,000

Source: Colliers Monroe Friedlander

The next several years will mark the completion of several new retail construction initiatives. These retail projects can be classified into three categories:

- Major new projects in Waikiki, aimed at the visitor market (2100 Kalakaua)
- Renovations of existing shopping centers
- Renovations of retail space located in hotel properties

➢ ***New Major Retail Projects***

- ***Duty Free Galleria:*** Duty Free Stores ("DFS") reopened its flagship Waikiki store earlier this year after an $80 million renovation and expansion. Its 182,000 square feet of retail space makes it the largest single retail project in Waikiki. The retail facility continues to target the Japanese market, although the unique atrium, aquarium, and entertainment venues has made it a popular retail attraction for Waikiki pedestrian traffic.

- ***2100 Kalakaua Avenue:*** This project represents the largest addition to Waikiki's retail industry with over 100,000 square feet. Completion for this project is expected in 2002, with most bays already pre-leased to luxury tenants such as Tiffany, Gucci, and Chanel. The project is located on the Ewa end of Kalakaua Avenue and is positioned as a luxury retail center.

- ***Ward Center:*** Ward Center ("Ward") continues its long-range expansion plans with the opening of Dave & Busters, a 30,000 square foot restaurant/entertainment attraction. Earlier this year, Ward also opened a 16 theater complex as part of the development's repositioning as a major retail and entertainment attraction.

➢ ***Retail Center Renovations***

- ***Ala Moana Shopping Center:*** The Ala Moana Shopping Center continues to renovate and undergo a re-tenanting process. The center had previously targeted the Japanese market with the signing of a number of high end luxury retailers. However, with the changes occurring in Hawaii's visitor market, the center is currently re-focusing on the residential market, as well as targeting a broader segment of Hawaii's visitor industry.

- ***Royal Hawaiian Shopping Center:*** The Royal Hawaiian Shopping Center recently announced plans for a $30 million renovation to be completed over a four year period. Details of the plan have yet to be publicly announced, although they speculate that part of the renovation will include enhancement of pedestrian traffic along Kalakaua Avenue.

- ***Waikiki Shopping Plaza:*** This shopping facility recently completed a $3 million renovation, with improvement to its Kalakaua Avenue street frontage.

➢ ***Hotel Retail Renovations***

- ***Waikiki Beach Marriott Resort:*** The Waikiki Beach Marriott Resort is currently undergoing a $60 million renovation, which will include upgrades to its public space and retail arcade. Specific renovation plans as it relates to retail has yet to be disclosed, but it is anticipated that the retail will primarily serve as support to hotel operations given the arcade's configuration.

- ***Aston Waikiki Beach Hotel:*** The Aston Waikiki Beach Hotel has begun a $30 million renovation, which will include establishing retail outlets along Kalakaua Avenue on the ground level.

In addition to the projects noted above, there are several potential large retail initiatives that could impact the Waikiki retail market. We note, however, that based on our understanding as of the date of our field research, no formal plans have been announced as to the commencement or commitment of any of these potential projects:

➢ ***International Market Place ("IMP"):*** The IMP is a major open air retail marketplace that is a signature attraction in the heart of Waikiki. However, given the economics and land values in Waikiki, it is considered a possibility that this site will eventually be redeveloped given its location, size, and upside potential.

➢ ***Consolidated Theaters:*** The Consolidated theaters site is considered a prime site for redevelopment, particularly in light of past redevelopment plans that had been announced, and then postponed in the early 1990s. Given the size of the potential development parcel, the site would appear to be a candidate for eventual development.

- ***New Tokyo/ Hilo Hattie Building:*** Hilo Hattie had previous plans to establish an anchor retail facility to serve the Waikiki market, but instead had decided to sell its interest in the property. However, the site would appear to be suitable for same form retail development.

- ***Liberty House Waikiki:*** The Liberty House retail chain was recently acquired by Federated Department Stores ("Federated"), the owners of the Macy's department store chain. While Federated has indicated that changes will be made at its newly acquired outlets, no announcements have been made with respect to its Waikiki store. We note that the Waikiki store is complicated by the fact that it is under a sublease to the Waikiki Beachcomber, which is currently for sale. It is unclear what impact, if any, the eventual sale of the hotel may have on the Liberty Store lease.

Current and Estimated Retail GLA Inventory

We again note that the potential retail development candidates above are currently uncertain as to actual development commitments at this time. [To develop any development assumptions with respect to these candidates for future development would be speculative at this time.] Therefore, for the purposes of this study, only those projects that have firm commitments for development have been considered. For the primary core area of Waikiki, these future developments are limited to the renovation of the Royal Hawaiian Shopping Center, the Ala Moana Shopping Center, the Ward Center expansion, and the 2100 Kalakaua Avenue luxury retail center. Presented below is a profile of the changes to Waikiki area retail based on the analysis above, as provided by SMS Research.

Exhibit 42 - Greater Waikiki Area GLA Historical and Planned Commitments

Year	GLA in Waikiki*	Major Additions
1997	4,549,019	
1998	4,549,019	
1999	4,849,019	Ala Moana Shopping Center
2000	4,949,019	DFS Galleria
2001p	5,096,077	Ward Complex, Hilton Hawaiian Village
2002p	5,206,077	2100 Kalakaua
2003p	5,206,077	
2004p	5,206,077	
2005p	5,206,077	

* Includes Ala Moana and Ward Complex

Source: SMS Research

Given the above, we note that should Phase I of the Outrigger Waikiki Beach Walk be developed, this would add an additional approximate 67,480 square feet of non-hotel retail in 2005, for a total of 5,273,557 square feet.

OVERVIEW OF PRIMARY WAIKIKI RETAIL GROSS LEASABLE AREA (GLA) AND SALES PER SQUARE FOOT

The Outrigger Waikiki Beach Walk is envisioned to be an anchor retail and entertainment attraction for the Waikiki the primary core area, which is bounded by the Ala Wai Canal, Kapahulu Boulevard, and Kalakaua Avenue. The proposed Outrigger Waikiki Beach Walk is assumed primarily to serve Waikiki foot traffic. This section will therefore focus on the relevant market, which excludes the outer Waikiki areas such as the Ala Moana Shopping Center and Ward Center.

Waikiki GLA

Presented below is a profile of GLA and sales per square foot:

Exhibit 43 - Waikiki GLA and Sales per Square Foot

Year	GLA	Sales (in millions)	Sales per Square Foot
1995	2,744,992	$3,783	$1,378
1996	2,744,992	$3,730	$1,359
1997	2,744,992	$3,494	$1,273
1998	2,744,992	$3,246	$1,168
1999	2,744,992	$3,274	$1,178
2000	2,599,992	$3,054	$1,175
2001(p)	2,779,992	$3,106	$1,117

Source: SMS Research; excludes outer Waikiki including Ala Moana Shopping Center, Ward Center

The above sales per square foot represent a blend of all classes of retail and floor location based on retail sales surveys conducted by SMS Research. This includes luxury retailers with sales ranging as high as $8,000 per square foot to small retailers with sales of less than $500 per square foot. While we note a decline in the overall sales per square, much of the decline has occurred from falling sales in the luxury segment, although all categories of retail has experienced declines given the overall shift in more value oriented visitors to Waikiki and the economic slow down the market has been experiencing in 2001 through the date of our field work. The primary sales inventory is along Kalakaua Avenue, which supports approximately 1.5 million square feet of Waikiki retail space, or 53 percent of total retail GLA based on 2001 inventory.

Data regarding Waikiki retail sales is generally fragmented given the wide and diverse ownership and management of Waikiki retail operations. Therefore, conducting this study, Hospitality Advisors interviewed a number of major Waikiki retail property managers, brokers, and consultants in regards to Waikiki retail sales or addition to gathering current sales data from other sources considered reliable. Furthermore, analysis of retail sales was subcontracted to SMS Research to determine retail sales per square foot based on a sampling of retail operators. Based on the interviews and the SMS Research analysis, the following is a profile of Waikiki 2000 retail sales along Kalakaua

Avenue by category sales in Waikiki, the following represents average sales per square foot on Kalakaua:

Exhibit 44 - Kalakaua Avenue Sales per Square Foot by Category

Category	Luxury Retail	Midscale/Upscale First Floor
SMS Research	$2,903 per s.f.	$1,540 per s.f.
Interview Consensus	Above $2,000	$1,000 to $2,000

Source: SMS Research, Colliers Monroe Friedlander, CB Richard Ellis, SL Sofos & Co., Graham Murata Russell

In comparing the SMS Research results to the interview results conducted by Hospitality Advisors, the SMS survey results appear to be a reasonable representation of expert opinions regarding Waikiki retail sales. Therefore, the results of the SMS Research analyses will be used throughout the remainder of this study.

Sales per square foot data were also prepared by SMS Research for Waikiki restaurants, which included independently operated restaurants, chains, and hotel operated establishments. Most of these restaurants were located along Kalakaua Avenue, although several were located in secondary streets such as Kalia Road and Kuhio Avenue. Average sales per square foot for restaurants based on type of facility were as follows. We note that fine dining restaurants were excluded in the survey given the anticipated positioning of the Waikiki Beach Walk project:

Exhibit 45 - Restaurant Sales per Square Foot

Category	Sales per Square Foot	Average Size Per S.F.
Upscale	$761	5,480
Midscale	$710	5,770
Economy	$406	4,545
Fast Food	$613	4,206

Source: SMS Research

Current and Historical Vacancy

Presented below is an absorption analysis prepared by SMS Research. Much of the vacancy is driven by space located the second floor and higher of the various facilities. Higher vacancies are also found on secondary streets in Waikiki. Ground floor Kalakaua Avenue space is still considered to be a tight market, with vacancies below 5 percent except in several hotels that have vacant interior arcade and travel agency desk space.

Exhibit 46 - Historical Vacancy Rate, 1990-2000

Year	Vacancy Rate
1990	14%
1991	13%
1992	11%
1993	10%
1994	9%
1995	9%
1996	10%
1997	10%
1998	12%
1999	12%
2000	11%

Source: SMS Research

SECTION V

MARKET PERFORMANCE ESTIMATES FOR THE OUTRIGGER WAIKIKI BEACH WALK

SECTION V: MARKET PERFORMANCE ESTIMATES FOR THE OUTRIGGER WAIKIKI BEACH WALK

INTRODUCTION

This section provides and overview of the Outrigger Waikiki Beach Walk, including project size, component mix, market positioning and overall concept. Building on the market analyses presented earlier in this report, we will develop market assumptions to estimate the overall future market performance of the project for the years 2005, 2010, and 2015.

OVERVIEW OF THE OUTRIGGER WAIKIKI BEACH WALK

The Outrigger Waikiki Beach Walk ("WBW") is envisioned to be a major retail, entertainment, and lodging complex that will serve as an anchor development fronting Lewers Street, Kalia Road, and Saratoga Road. It will also create a much stronger but more pedestrian-friendly link along heavily traveled Lewers Street, Kalakaua Avenue, and Kalia Road/Waikiki Beach.

The WBW project is consistent with the current transformation and repositioning of Waikiki from both the private and public sectors. The changes occurring in Waikiki are vital in keeping the destination competitive in the highly competitive word tourism markets. After years of deterioration of many of Waikiki's hotels and a lack of new product development, projects such as WBW are being conceived to strengthen and diversify Waikiki's tourism product. Contributions the WBW are likely to make to Waikiki include the following:

- Increases public space on the Ewa side of Lewers Street through creation of set-backs and outdoor entertainment venues on the ground level of WBW
- Creates showcase retail venue for local mid-to-upscale brands
- The Lewers Street corridor between Kalakaua Avenue and Kalia Road is one of the busiest pedestrian walkways after Kalakaua Avenue, according to several past pedestrian traffic counts. However, the street is heavily congested with tour busses, delivery truck taxis, and shuttle trolleys. Under the WBW plan, the re-routing of the delivery and hotel guest drop off traffic to Beach Walk, combined with the creation of open space and entertainment venues, will help rejuvenate and upgrade this important and highly visible section of Waikiki.

- The upgrading of the hotel components along Lewers Street will also add to the overall upgrading and repositioning of Waikiki and for the Lewers Street area specifically.

- The WBW provides a new entertainment attraction that is currently lacking in Waikiki. The goal of drawing more Hawaii residents to the WBW and Waikiki would help bring a better balance and needed visibility and interaction of Hawaii's people and culture with its visitors.

RE-DEVELOPMENT CONCEPT

In general, the re-development concept is to create a multi-tiered mixed-use retail, entertainment, and hotel complex through a two-phased development process. Most of the redevelopment will occur under Phase I. A summary of Phase I is as follows:

Phase I Re-Development

Phase I represents the primary phase of the development, which will include the development of the primary retail center, entertainment showroom, and the renovation and repositioning of two hotels. All of the Phase I elements will be inter-connected by three levels of service and promenade decks. The ground level will support the lobbies for the two remaining hotels as well as Lewers Street retail frontage. The second floor will house additional retail along with meeting space. The third level will support meeting breakout rooms, as well as additional retail and entertainment facilities. The fourth level is envisioned to provide recreational amenities, such as a deck pool, landscaping and other guest services and activities. Phase I will also require the complete demolition of three existing hotels and partial demolition and renovation of two others. Components of Phase I is as follows:

Hotels

Exhibit 47 - Change of Existing and Proposed Hotel Room Count, Phase I

Property	Number of Rooms	Demolition	Remaining Rooms
Edgewater Lanais	55	55	0
Ohana Coral Seas	109	109	0
Ohana Waikiki Village	442	33	409
Outrigger Edgewater	184	184	0
Ohana Waikiki Tower	439	55	384
Total	1,229	436	793

Source: Outrigger Hotels & Resorts

Under this first phase, the Ohana Waikiki Village and the Ohana Waikiki Tower hotels are to be renovated and repositioned as a higher-tier Ohana brand to be consistent with the positioning of the WBW. The port cochere for hotel guest movements is to be relocated to Beach Walk. A service dock for deliveries is also to be developed using Beach Walk as the access road to the development.

Retail Complex

Under the demolition plan, approximately 41,900 square feet of retail that was primarily located in the hotels being demolished or undergoing renovation will be demolished. The new retail space to be created under Phase I comprises 71,800 square feet allocated as follows:

Exhibit 48 - Phase I Retail Square Feet by Location and Use

Location	Hotel Use	Restaurant Use	Showroom	Retail Center
Ground Floor	4,320			23,080
Second Floor		10,000		24,400
Third Floor			10,000	

Source: Group 70 Architects

We note that 4,320 square feet of retail has been designed to serve hotel guests needs. This retail space is located in the lobby of the hotel rather than as part of the WBW retail center. Therefore, retail square footage specific to the WBW under Phase I totals 67,480, including the showroom and restaurant space.

Meeting and Banquet Space

A 9,000 square foot ballroom is planned on the ocean side of the second level. The space will include substantial pre-function space with views of the ocean. Two breakout rooms totaling an additional 9,000 square feet is located above the ballroom on the third level.

Showroom

A 10,000 square foot showroom and entertainment center is to be located on the third floor of the WBW toward the Kalakaua Avenue end of the complex fronting Lewers Street.

Other

The project envisions a setback of the retail frontage to create an attractive gateway and arrival into the WBW. The intent is to create an attractive promenade with possible location for entertainment venues and outdoor kiosk offerings. It is also envisioned that a walkway bridge on one of the upper decks will be allowed to cross over Kalia Road to link the WBW to the Outrigger Reef on the Beach hotel complex.

Phase II Redevelopment

The focus under Phase II will be the demolition of three budget hotels and the development of the new 891-room Outrigger Saratoga Hotel, along with an additional 30,200 square feet of retail. Components for the development are as follows:

Hotel

Exhibit 49 - Change of Existing and Proposed Hotel Room Count, Phase II

Property	Number of Rooms	Demolition	Remaining Rooms
Ohana Reef Lanai	110	110	0
Malahini Hotel	10	10	0
Ohana Royal Islander	101	101	0
Outrigger Saratoga Hotel			891
Total	221	221	891

Source: Outrigger Hotels & Resorts

The hotel is expected to be positioned as an upscale Outrigger brand hotel that will have superior ocean view and large rooms suitable to service an expected growth in the corporate business market given the development of the meeting space in the WBW.

We note also, that, when combined with the change in room inventory from Phase I, the overall increase in room inventory under both phases is 234 additional rooms.

Retail

With the demolition of the three hotels identified above under Phase II, there will be an initial reduction in retail space of 8,570 square feet. However, with the development of the Outrigger Saratoga Hotel, an additional 30,200 square feet of retail space will be developed in Phase II. The additional space will include retail to support hotel operations and retail to serve as an extension of the WBW retail complex. A breakout of the Phase II retail is as follows:

Exhibit 50 - Phase I Retail Square Feet by Location and Use

Location	Hotel Use	Restaurant Use	Retail Center
Ground Floor	5,500		7500
Second Floor		9,700	
Third Floor	7,500		

Source: Group 70 Architects

It is noted that the hotel use retail is targeted for hotel guests only, including a spa/fitness center, business center, sundries store, and other such guest support services. When

combining the net changes in retail square footage, there is a net increase in retail space of approximately 48,000 square feet upon completion of Phases I and II.

WBW Market Estimates

Market estimates for the WBW will be prepared separately for Phase I and Phase II. For purposes of the analyses for the remainder of this report, and as directed by Group 70 Architects, we will assume that construction of Phase I will be completed at the end of 2004, with opening year of Phase I of the WBW on January 1, 2005. Development of Phase II of the WBW will commence in 2005 and will be completed in 2009, with the first year of opening of the Outrigger Saratoga Hotel January 1, 2010. The analysis period will continue through the end of 2015 for the purposes of this study.

All estimates will be stated in current 1991 dollars with no adjustment for projected inflation. The relevant dates for estimating market performance will be for the years ended 2005, 2010 and 2015.

Market estimates for Phase I are as follows:

Phase I Market Estimates

Hotel Components

Phase I hotel components consist of the Ohana Waikiki Tower and the Ohana Waikiki Village. Because of their close proximity, similar size, branding, and market positioning, for the purposes of this study we will combine the two hotels to provide an overall estimate of future occupancy and average daily rate. Discussions with Outrigger management and review of data indicate that on a combined basis, the two hotels achieved an overall market performance level for the year 2000 as follows:

Occupancy Rate	72 percent
Average Daily Rate	$70.00
Market Mix	75 percent U.S. Visitors
	5 percent Japanese Visitors
	5 percent Kama'aina
	15 percent other (Canada, Europe)

When comparing to the 2000 hotel statistical data provided earlier in this report, the performance level for the two hotels are within the range of Oahu economy hotels. When observing the inventory of economy hotels on Oahu, the Outrigger hotels have location advantages that currently cannot be leveraged into higher room rates due to the current product positioning of the properties. However, the ability to leverage room rates upon the completion of Phase I should change substantially given the major shift in market environment the two hotels will operate in. The presence of new retail, entertainment, and other amenities combined with the redevelopment of the WBW into a signature

anchor for Waikiki should provide strong marketing appeal. Furthermore, the development budget provides for over $25,000 per room in guestroom and corridor renovations, and another $18,500 in other guest room and hotel infrastructure costs for a combined total of $34,500,000 in planned hotel upgrades. An additional $65 million is budgeted for the development of the remaining retail and common area elements of the first phase.

With this level of renovation commitment, combined with the integration of the hotel components with the new WBW retail and entertainment amenities, the repositioning of the two hotels from economy to a midprice/upscale level should become achievable. The emergence of a corporate meetings market as a result of the inclusion of function space at the WBW should also help support this transition.

The corporate meetings market should be further enhanced through the recent establishment of a corporate sales and marketing function to market Outrigger's meeting facilities at the Outrigger Wailea, the Outrigger Waikoloa, and the WBW. In particular, the emergence ~~if~~ of Outrigger's ability the rotate corporate groups through ~~its three corporate meetings facilities on three different islands~~ these three hotels may create new demand among smaller regional corporate and association groups on the mainland that have difficulty competing for space at the larger hotels in Hawaii.

The potential impact of the WBW meeting space becomes apparent when comparing meeting space inventory with other Waikiki hotels:

Exhibit 51 - Comparison of Waikiki Hotel Meeting Space

Hotel	Ballroom	Other	Total
Hilton Hawaiian Village	42,500	17,641	60,141
Sheraton Waikiki	26,000	13,040	39,040
Pacific Beach	12,702	10,059	22,761
Renaissance Ilikai	15,467	6,300	19,022
Marriott	15,467	3,555	19,022
Outrigger WBW	9,000	9,000	18,000
Queen Kapiolani	13,500	2,204	15,704
Radisson	8,176	2,100	10,276
Hawaii Prince	7,500	1,393	8,893

Source: Outrigger Hotels & Resorts; HVCB Meeting Planning Guide

Based on the anticipated market repositioning for the Ohana Waikiki Tower and the Ohana Waikiki Village, we have developed a prospective competitive set of hotels assuming the repositioning of the WBW hotel components is completed. The competitive set was based on several factors, including market positioning, location, size, and hotel product. The competitive set is as follows:

Exhibit 52 - Competitive Set of Hotels, Phase I

Property	Rooms
Combined Ohana Village/ Tower	793
Sheraton Princess Kaiulani	1,152
Radisson Hotel	620
Waikiki Prince	521
Outrigger Islander Waikiki	287
Renaissance Ilikai	783
Double Tree Alana	313
Total Competitive Rooms	4,469

Source: Hospitality Advisors LLC, Discussion with Outrigger Management

We note that several hotels are currently undergoing renovations, which will likely change their market positioning. In particular, the Waikiki Beach Marriott Resort is undergoing a $60 million renovation, but will likely compete in the high end of the market. The Aston Waikiki Beach Hotel is undergoing a $23 million renovation, but completion will not occur until late 2002, and the final market positioning is still being finalized due to certain changes in the renovation plan. We therefore have not included the Aston Waikiki Beach hotel in the competitive analysis. We also note that there are no pending additions to competitive supply through new construction that we are aware of.

A statistical market trend report was prepared for the competitive set for the period 1995 through June 2001. The results are presented below:

Exhibit 53 - Historical Market Performance for the Competitive Set

Year	1995	1996	1997	1998	1999	2000	YTD 6/01
Occupancy	80.7%	83.3%	77.0%	69.8%	76.3	75.2%	75.1%
Average Daily Room Rate	$101.36	$107.57	112.89	$112.28	$106.46	$108.76	$108.67

Source: Smith Travel Research

We note that the competitive set enjoyed fairly strong hotel occupancies during the mid-1990s, but softened in the latter half of the decade due to a strong Japanese market segment for several of the hotels. The decline was in part a reflection of the overall decline in Japanese arrivals during this period, although the loss in this segment was offset by gains in the U.S. market, which kept hotel occupancies at a fairly consistent level.

In preparing market estimates for the Ohana Waikiki Tower and the Ohana Waikiki Village, we used the following assumptions:

- Room demand will grow at the DBEDT projected room demand growth rate for Oahu as presented in its "Population and Economic Projections for the State of Hawaii to 2025."

- It is assumed the U.S. economy has sufficiently recovered from the economic slowdown that began in 2001 by the year 2005 and is in an economic growth cycle.

- Based on our knowledge of the average room rates of the competitive set, the achieved room rates ranged from $85 to $138 in 2000. Given the superior location, orientation and access to Waikiki Beach, substantial renovation of the hotel product and location within the new WBW attraction, the hotels in Phase I should perform on the higher range of the competitive set with respect to average daily rate on a stabilized basis.

In developing the estimated market performance for the WBW hotels, we estimated market occupancy for the competitive market, including the WBW hotels, using DBEDT room demand growth rates. The estimated market occupancy was also compared to estimated Oahu occupancy as projected by DBEDT. Using the historical demand of the competitive set and the DBEDT growth projections for Oahu room demand, the following ate occupancy estimates for the overall market, the competitive market and the WBW hotels for the relevant dates under study:

Exhibit 54 - Estimate of Market Occupancy

	Overall Market	Competitive Market	WBW Hotels
2005	82.0%	81.0%	70.0%
2010	82.5%	81.5%	82.0%
2025	82.9%	82.4%	82.0%

Source: DBEDT, Hospitality Advisors LLC

The lower occupancy for the WBW hotels reflect the first year of reopening after the redevelopment of Phase I. The WBW hotels are expected to stabilize at 82 percent in the fourth year after reopening based on our past experience with other hotels and its relation to the competitive set. The WBW hotels are expected to perform slightly below its competitive market in occupancy due to higher room rate premiums it may achieve due to its renovated product within the WBW and its location relative to Waikiki Beach compared to the other hotels in the competitive set.

Exhibit 55 - Estimate of Average Daily Rate

	Competitive Market	WBW Hotels
2005	$111.40	$110.00
2010	$115.92	$125.00
2015	$115.92	$125.00

Source: Hospitality Advisors LLC

The above are stated in 1991 dollars. It is assumed that due to product, positioning and site advantages, the WBW hotels will be able to perform in the higher range of the achieved rooms rates from the competitive set. The estimated achieved room rate for the WBW hotels at stabilization was assumed to be 97.7 percent of the top average daily rate for the competitive set. Room rates for 2005 for the WBW hotels was assumed to be discounted for the opening year, then gradually increase to the assumed stabilized average daily rate of $125 by the fourth year after opening. The analyses above therefore estimates that the WBW hotels in Phase I will achieve an occupancy penetration rate of almost 100 percent of the competitive market, and a 11.6 percent average room rate premium above the competitive set average. We note that the fairly strong estimates for the competitive and overall markets appear positive for the project. The estimates were prepared using fairly modest demand growth rates from DBEDT. This is indicative of the favorable impact of even modest demand growth in Waikiki in the absence of any meaningful additions to supply in the long-term, particularly in light of the Waikiki room cap currently in place.

At stabilization of the WBW hotels, the anticipated market mix is estimated to be the following based on the proposed repositioning of the hotel and current market trends:

U.S.	70%
Japanese	10%
Hawaii Residents	5%
Other	15%

Retail Components

- **Retail Stores**

In Section IV, we presented retail sales per square foot for Kalakaua Avenue stores. Because the WBW is to be focused on mid-to-upscale brand retail rather than luxury, our estimates will be based on analyzing sales targeted toward this market. Data regarding retail sales per square foot was presented earlier and is replicated here to facilitate the analysis:

Exhibit 56 - Sales per Square Foot Kalakaua Avenue

Location/Type	Sales per Square Foot
1st Floor/Mid/Upscale	$1,540
2nd Floor/Mid/Upscale	$567
3rd Floor/Mid/Upscale	$556

Source : SMS Research

In discussing the make-up of the sample with SMS Research it was noted that the mix of tenants were of a broad range, and included local jewelry shops, active and logo wear, photo stores, art galleries, specialty wear and gifts and apparel. The tenant mix and sales information developed is therefore considered a reasonable basis for the analysis.

In refining the analysis above, we further adjusted the sample for first class tenants to include several tenants of Outrigger that are already located in the Lewers Street project area. The refined sample to be used for the remainder of the analysis is presented below:

Exhibit 57 - Survey of Sales per Square Foot Kalakaua Avenue/Lewers Street

Location	Sales per Square Ft.	Sample Size	Average Store Size
1st Floor	$1,340	22	980
2nd Floor	$567	13	793
3rd Floor	$556	19	598

Source: SMS Research; Outrigger Hotels and Resorts

After having developed data regarding sales per square feet for Kalakaua Avenue retail sales, we applied adjustment factors to reflect changes is sales performance characteristics for the WBW Lewers Street Location. These factors were developed through our formal interviews with a number of Waikiki retail professionals as noted earlier in the study.

The adjustment factors related to the following:

Location Adjustment: Given the prominence of Kalakaua Avenue as a "shopping" promenade, retail sales per square foot typically falls for off-Kalakaua Avenue street locations. The impact on sales were cited to be from 15 percent to as much as 50 percent of Kalakaua Avenue sales. Based on our formal interviews with Waikiki retail professionals, a discount of 20 percent was considered reasonable. We note that the estimate for first floor retail already includes Lewers Street retailers leasing from Outrigger that may potentially relocate into the WBW upon completion. Therefore, a 15 percent discount factor was applied to the first floor sales estimate.

In addition to the location adjustment, retail sales in Waikiki for 2000 were reported to be substantially above the average of the prior years, and there is expectation that retail sales will fall to more sustainable levels in line with past years. Discussion with DBEDT researcher indicate that retail spending per visitor was down only slightly, although anecdotally many retailers are reporting higher declines in sales due to the current economic slow-down. SMS Research data presented earlier in this report projects a fall-off of 5 percent in retail sales per square foot for 2001. Furthermore, historical retail sales growth appears to range in the 5 to 6 percent level with 2000 retail growing almost double the historical average. Therefore, in the absence of other data, we will also apply a 5 percent discount factor to our estimates.

Exhibit 58 - Kalakaua Sales Adjusted for Lewers Street WBW Development

	2000 Sales per Square Foot	Location Adjustment	Economic Adjustment	WBW Estimate
1st Floor	$1,340	15%	5%	$1,072
2nd Floor	$567	20%	5%	$ 425
3rd Floor	$556	20%	5%	$ 417

Source: Hospitality Advisors LLC, SMS Research; Industry Interviews

We note that these adjustments are applied to retail stores only as most of the retail stores were located along Kalakaua Avenue. Adjustments were not applied to restaurant sales estimates as the location of restaurants surveyed was more widespread throughout Waikiki. Restaurant visitor spending also has had much less variability retail outlet sales, and therefore an economic adjustment was not considered necessary.

- **Restaurants**

Restaurant sales per square foot data had been presented earlier in this report and is again presented below to facilitate the analysis here.

Upscale	$761
Midscale	$710
Economy	$406

Source: SMS Research

The average size of the restaurants surveyed were in the general range of 5,000 square feet including back of the house. Phase I assumes there will be restaurant facilities comprising 10,000 square feet in total. As definitive plans for the restaurant space has yet to be developed, for the purposes of this report, we will use the average sales of the upscale and economy restaurants given the potential and wide range of restaurants the WBW could support. The average sales between the two classes of restaurants is $585 per square foot.

- **Showroom**

The WBW plan includes a 10,000 square foot showroom, which includes both back of the house and stage. The exception is kitchen facilities, which is envisioned to be supported by a common kitchen that will provide service to a restaurant and the WBW meetings business.

The showroom market in Waikiki has been lagging over the years due in part to a lack of show product and attractive venues. The rising percentage of repeat visitors, combined

with infrequent changes in entertainment product. Showroom offerings are limited to four major venues as follows:

Exhibit 59 - Waikiki Showrooms

Venue	Size Square Foot
Sheraton Princess Kaiulani Hotel	7,500
Waikiki Beachcomber	10,000
Outrigger Reef	10,000
Outrigger Polynesian Palace	12,500

Source: Hospitality Advisors LLC

Most of the showrooms provide a headline entertainer or theme show that typically is offered twice a day, six to seven nights per week. Patronage is primarily Japanese with one show achieving an 80 percent mix of Japanese for its shows. Due to proprietary reasons, we are unable to disclose performance metrics by individual showroom. On a composite basis, we note the following:

Exhibit 60 - Composite Showroom Performance

Composite Mix	Average Attendance	Revenue per Pax
55% Japan, 45% US, 5% Other	171,000, range 90,000 to 300,000 annually	$22 average, range $15 to $30 per pax

Source: Hospitality Advisors LLC

Professional showroom operators from other destinations have indicated interest in Hawaii and believe showrooms can find a successful market provided there is the right mix of product and venue. On a prior assignment, we had inspected a major showroom in Guam that catered to the Japanese. The showroom was very successful and generated revenue per pax of more that double what has been achieved in Hawaii. This indicates that, while Japanese visitor arrivals and spending have been relatively soft, there is still interest for quality showroom entertainment.

Based on the quality venue that the WBW would provide, the positioning of the WBW as a primary entertainment venue for Waikiki and its superior location, it is assumed the WBW showroom would achieve the upper performance ranges currently demonstrated in the showroom market. Therefore, it is assumed the showroom will provide an attractive venue with a quality program to achieve an annual pax count of 300,000 with revenues averaging $30 per pax. Because the WBW showroom is in close proximity to Kalakaua Avenue, and that showroom revenue per pax did not experience an upsurge in 2000 as had retail sales, no adjustments for location or economic conditions were considered necessary.

Phase I Estimate Of Blended Retail Sales Per Square Foot

We will use the market estimates developed above to prepare a blended retail sales per square foot estimate for the WBW. The blended sales estimate will be weighted based on the composition of the various components as it relates to total retail square footage of WBW. As noted earlier, 4, 320 square feet of retail in Phase I represents retail to support hotel guests and in not considered a part of WBW for the purposes of this study. Based on the estimates developed above, the blended sales per square foot for Phase I of the WBW is as follows:

Exhibit 61 - Estimate of Blended Sales per Square Foot for Phase I

Phase I Retail	GLA	%	Per S.F. Estimate	Weighted Contrib. Estimate	2001 Inflation %	2001 Blended Estimate
1st Floor	23,080	34%	$1,072	$367		
2nd Floor	24,400	36%	$ 425	$154		
Restaurant	10,000	15%	$ 583	$ 86		
Showroom	10,000	15%	$ 900	$133		
Total	67,480	100%		$740	2.3%	$757.02

Source: Hospitality Advisors LLC

Penetration And and Absorption Estimates

The favorable location of the WBW, combined with its market positioning and product offering, should help accelerate the rate of market penetration. In particular, the concentration of hotel room inventory around the WBW provides substantial market exposure. In addition to its own Outrigger properties in the Lewers Street area, there are additional 4,100 hotel rooms within one block of the project that will provide an immediate market source. Interestingly, past pedestrian traffic counts have revealed that a substantial number of visitors staying at the Hilton Hawaiian Village walk on Kalia Road and Lewers Street to get to Kalakaua Avenue. As the WBW opens, it is assumed that the project will have strong immediate market penetration, but that full penetration will occur after year two of opening once the hotels and the WBW reaches stabilization. Market penetration estimates are provided below:

Exhibit 62 - Market Penetration Estimates for Phase I

	Penetration Rate	Sales PSF	Adjusted Estimate
Opening Year	95%	$757	$719
2006	98%	$757	$742
2007	100%	$757	$757 (stabilized)

Source: Hospitality Advisors LLC

The rate of absorption of WBW I leasing its tenant space is expected to be relatively strong. This is particularly in light of the number of potential Outrigger tenants that had to move during the construction period lessees that may wish to relocate into WBW upon completion. Vacancy rates along Kalakaua Avenue have generally tight, particularly for ground level space. Second floor vacancy can be 10 percent or more, with higher vacancies on secondary streets in Waikiki. Based on discussions with Waikiki industry professionals and other professionals, presented below are our estimates of absorption, including a vacancy allowance for periods of re-tenanting:

Exhibit 63 - Market Absorption Estimates for Phase I

Year	Occupancy
2005	88%
2006	90%
2007	92%

Source: Hospitality Advisors LLC

Phase ~~II~~ II Market Estimates

Hotel Components

Phase II consists primarily of the $177 million development of the new 891 room Outrigger Saratoga Tower. The tower is to be positioned as an upscale Outrigger brand. The tower is planning to be linked to the WBW through inter-connecting bridges spanning over Beach Walk that will connect the upper decks of the new hotel to the upper decks of the WBW.

Because of its spacious rooms, greater amenities and string view planes, the hotel is expected top be marketed to upper-tier wholesale and package market, independent travelers ("FITs") and the business market. The hotel will have a business center, spa upscale restaurant, and 30,200 square feet of retail space. The hotel in particular is expected to benefit from the corporate meetings WBW should attract with its new meeting space and the establishment of a dedicated corporate marketing sales force to market the WBW, the Outrigger Wailea, and the Outrigger Waikoloa.

Given the expected market positioning of the hotel, the Outrigger Saratoga is estimated to achieve a market mix upon stabilization as follows:

Market Mix
~~65~~ 60 percent U.S. Visitors
~~15~~ 20 percent Japanese Visitors
5 percent Kama'aina
15 percent other (Canada, Europe)

Based on the anticipated market repositioning for the Outrigger Saratoga Hotel, we have developed a competitive set of hotels to assist in developing market performance

estimates. The competitive set was based on several factors, including market positioning, location, size, and hotel product. The competitive set is as follows:

Exhibit 64 - Competitive Set of Hotels, Phase II

Property	Rooms
Sheraton Waikiki	1,710
Sheraton Princess Kaiulani	1,152
Hyatt Regency Waikiki	1,230
Hilton Hawaiian Village	2,998
Outrigger Waikiki	531
Renaissance Ilikai	783
Outrigger Reef on the Beach	887
Total Competitive Rooms	9,291

Source: Hospitality Advisors LLC, Discussion with Outrigger Management

As noted previously, the Waikiki Beach Marriott Resort is currently undergoing a $60 million renovation. While it will likely compete in the luxury end of the market there could potentially some competitive market overlap, particularly with small corporate groups. Given that the renovation is still continuing with no relevant operating history, the impact of this hotel on the Outrigger Saratoga is unclear at the present time. We therefore have not included the hotel in the competitive analysis. We also note that The Aston Waikiki Beach Hotel is undergoing a $23 million renovation. While certain modifications to the renovation plans are occurring, it is expected to be positioned below the Outrigger Saratoga.

A statistical market trend report was prepared for the competitive set for the period 1995 through June 2001. The results are presented below:

Exhibit 65 - Historical Market Performance for the Competitive Set

Year	1995	1996	1997	1998	1999	2000	YTD 6/01
Occupancy	84.1%	83.8%	81.5%	75.6%	75.9%	85.8%	78.7%
Average Daily Room Rate	$145.28	$158.41	166.23	$163.97	$157.14	$165.84	$167.58

Source: Smith Travel Research

The above analysis shows the strong market performance this competitive set has historically had. With minimal new supply coming on stream in the foreseeable future, combined with moderate room demand growth projected for Oahu by DBEDT, the Outrigger Saratoga will be well positioned to accommodate demand growth for this segment over the long term.

In preparing market estimates for the Outrigger Saratoga, we have developed the following assumptions:

- Room demand will grow at the DBEDT projected room demand growth rate for Oahu as presented in its "Population and Economic Projections for the State of Hawaii to 2025."

- Room supply in Waikiki will continue to be stable, with no major hotel developments occurring during the analysis period.

- It is assumed the U.S. economy has sufficiently recovered from the economic slowdown that began in 2001 by the year 2005 and is in an economic growth cycle.

- Based on our knowledge of the average room rates of the competitive set, the range of average daily rates is estimated to be $130 to $200. It is estimated that the Outrigger Saratoga will achieve the competitive market average daily rate of approximately $165 in 2001 dollars at stabilization.

In developing the estimated market performance for the WBW hotels, we estimated market occupancy for the competitive market, including the WBW hotels, using DBEDT room demand growth rates. The estimated market occupancy was also compared to estimated occupancy as projected by DBEDT. Using the historical demand of the competitive set and the DBEDT growth projections for Oahu room demand, the following are occupancy estimates for the overall market, the competitive market and the WBW hotels for the relevant dates under study:

Exhibit 66 - Estimate of Market Occupancy

	Overall Market	Competitive Market	Outrigger Saratoga
2010	82.5%	87.6%	65.0%
2015	83.0%	86.0%	80.0%

Source: DBEDT, Hospitality Advisors LLC

The lower occupancy for the Outrigger Saratoga Hotel reflects the first year of opening. The WBW hotels are expected to stabilize at 80 percent in the fourth year after reopening, based on our past experience with other hotels.

Exhibit 67 - Estimate of Average Daily Rate

	Competitive Market	Outrigger Saratoga
2010	$163.26	$130.50
2015	$165.82	$165.63

Source: Hospitality Advisors LLC

The above are stated in 1991 dollars. It is assumed that given the higher product profile of several of the competitive hotels, the Outrigger Saratoga will perform in the mid-range of the group in terms of average daily rate. The on-beach orientation of some of the

competitive hotels will also likely lead the Outrigger Saratoga to perform slightly below its on-beach competitors. The estimated achieved room rate for the Outrigger Saratoga at stabilization is assumed to be 100 percent of the average daily rate for the competitive set. Room rates for the opening year for the hotel is assumed to be discounted at $130.50, then gradually increasing to the assumed stabilized average daily rate of $165.63 by the fourth year after opening. The analyses above estimates that the Outrigger Saratoga will achieve an occupancy penetration rate of 95.3 percent of the competitive market at stabilization

Retail Components

- **Retail Stores**

Estimated sales per square foot for Phase II retail is based on the sales data presented earlier in this report. Phase II includes 30,200 square feet of retail, of which 13,000 square feet are allocated for hotel guest support, including a spa, business center and sundry retail. The primary retail space analyzed for purposes of the EIS is 7,500 square feet of retail on the first floor that fronts Kalia Road, and 9,700 square feet of restaurant space.

As with Phase I, sales data used in the analysis will be adjusted to reflect location and economic discounts. We note that the discounts for Phase II are higher given the less preferable location on Kalia Road, and the relative lack of linkage with the main WBW complex:

Exhibit 68 - Kalakaua Sales Adjusted for Phase II Non-Hotel Retail

	2000 Sales per Square Foot	Location Adjustment	Economic Adjustment	Revised Estimate
1st Floor	$1,340	30%	5%	$871

Source: Hospitality Advisors LLC, SMS Research; Industry Interviews

We again note that these adjustments are applied to retail stores only given the much higher degree of volatility in retail outlet sales.

- **Restaurants**

The sales estimate of $583 per square foot used in Phase I will also be used to estimate a blended sales per square foot for Phase II restaurant space.

Blended Sales Per Square Foot, Phase ~~I~~II

Exhibit 69 - Estimate of Blended Sales per Square Foot for Phase II

Phase I Retail	GLA	%	Per S.F. Estimate	Weighted Contrib. Estimate	2001 Inflation % (DBEDT)	2001 Blended Estimate
1st Floor	7,500	44%	$871	$379.80		
Restaurant	9,700	56%	$583	$328.78		
Total	17,200	100%		$708.58	2.3%	$724.88

Source: Hospitality Advisors LLC

Penetration ~~And~~ and Absorption

As with Phase I, we have estimated market penetration and absorption rates as presented below:

Exhibit 70 - Market Penetration Estimates for Phase II

	Penetration Rate	Sales PSF (rounded)	Adjusted Estimate
Opening Year	95%	$725	$689
2011	98%	$725	$710
2012	100%	$725	$757 (stabilized)

Source: Hospitality Advisors LLC

The rate of absorption for Phase II is expected to be relatively strong given the new hotel and its affiliation with the WBW. Because of its limited amount of leased space, tenant turnover is expected to be less than WBW. Based on discussions with Waikiki industry professionals and other professionals, presented below are our estimates of absorption, including a vacancy allowance for periods of re-tenanting:

Exhibit 71 - Market Absorption Estimates for Phase I

Year	Occupancy
2005	88%
2006	90%
2007	93%

Source: Hospitality Advisors LLC

APPENDIX

ECONOMIC AND FISCAL IMPACT FOR OUTRIGGER ENTERPRISES, INC.'S WAIKIKI BEACH WALK DEVELOPMENT

MIKIKO CORPORATION

MIKIKO
CORPORATION

ECONOMIC AND FISCAL IMPACT ASSESSMENT FOR OUTRIGGER ENTERPRISES, INC.'S WAIKIKI BEACH WALK DEVELOPMENT

WAIKIKI, OAHU

October 15, 2001

Prepared for:

Hospitality Advisors LLC

MIKIKO
CORPORATION

October 15, 2001

Mr. Joseph Toy
Hospitality Advisors LLC
745 Fort Street
Hawaii Tower 2124
Honolulu, HI 96813

Re: Economic and Fiscal Impact Assessment for Outrigger Enterprises, Inc.'s Proposed Waikiki Beach Walk Development

Dear Mr. Toy:

Mikiko Corporation is pleased to present this assessment of the anticipated economic and fiscal impacts of Outrigger Enterprises, Inc.'s proposed Waikiki Beach Walk development (hereinafter, "WBW" or "the Project") on the island of Oahu. This executive summary letter explains the study background and scope, and summarizes its key findings. Following this letter are text and exhibits that present the analytical framework and key assumptions of the study, special terminology used within the report, and the detailed analyses and conclusions. Also attached is a statement of pertinent general limiting conditions.

STUDY BACKGROUND AND SCOPE

Hospitality Advisors LLC (Hospitality Advisors) is assisting Group 70 Inc. (G70) and Outrigger Enterprises, Inc. (Outrigger) in assembling and Environmental Impact Statement (EIS) for the WBW project. Hospitality Advisors engaged Mikiko Corporation to prepare this economic and fiscal impact assessment for use in the EIS. The Project and its anticipated market support are described in detail in the market sections of Hospitality Advisors's overall report entitled, "Market and Economic/Fiscal Impact Assessment for Waikiki Beach Walk," (hereinafter, "the market study").

This document presents the results of an economic and fiscal impact analysis for the Project. The analysis is conducted for the State of Hawaii (State) and the City and County of Honolulu (County). This assessment is based on facility performance assumptions derived from the

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market study, as well as on development cost and other assumptions and supporting data provided by G70, Outrigger or their other consultants, as referenced.

Impacts that were evaluated include:

1. Economic impacts:
   - Visitor expenditures
   - Development-related employment
   - Operations-related employment
   - Personal income deriving from development and operations
2. Population impacts:
   - In-migrant resident population
3. Fiscal impacts:
   - Property tax and other County government revenues
   - Transient accommodations tax, general excise tax, and other State government revenues
   - County and State government operating expenditures
   - County and State government net fiscal operating impacts

Estimates of State and County tax benefits and operating expenses stated herein are based on the structure of tax collections and government services in place and/or budgeted for Fiscal Year 2001-2002. The impacts estimated could differ if governmental taxing and spending policies were to be altered. The State budget, at least, is likely to be changed from that relied upon herein due to collective bargaining agreements reached subsequent to passage of the current State budget.

All dollar amounts in this report are stated in 2001 dollars unless otherwise noted.

SUMMARY OF FINDINGS

As proposed, WBW would generate significant, on-going economic and fiscal benefits for residents of the islands, as well as for the County and State governments. Development of new and renovated facilities would generate employment and consequent income and taxes during the Project's two phases from 2002 to ~~2005~~ 2004 and ~~2006~~ 2005 to ~~2010~~2009. Further, operations of the new and repositioned facilities are expected to generate significant, permanent

impacts, including additional visitor expenditures, employment opportunities, personal income and government revenue enhancement.

For the County, net additional government operating revenues are projected at over $2 million per year in 2015 and each year thereafter. New County government revenues could represent 3.4 times the new government operating expenditures required to support the additional population attracted to the islands by the Project.

For the State, there could be some $8.18 net additional annual operating revenues per year by 2015. This could represent a State government operating revenue/expenditure ratio of 7.0. These and other key findings of the study are summarized in the table on the following page.

Please see the attached text and exhibits for further details pertaining to the key assumptions, methodology and findings of this study. Thank you for the opportunity to participate in this analysis of the proposed Waikiki Beach Walk development.

Respectfully submitted,

Ann M. Bouslog
President

Enclosures

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTIONS

Summary of Economic and Fiscal Impacts at Project Stabilization in 2015[1]

(2001 dollars, in millions)

	Comment	Direct impacts	Total impacts	Report reference
Annual visitor expenditures	*Same impacts for County and State, net additional over 2000*	$84.02	$143.67	*Exhibit H*
FTE employment:				
Development-related	*Average annual 2002 to ~~2010~~*	~~260 to 270~~	~~630 to 650~~	*Exhibit K*
Operations-related	*Annual, on-going*	509	876	*Exhibit M*
Personal income:	*Includes wage, salaried & proprietary earnings*			
Development-related	*Average annual 2002 to ~~2010~~*	~~$10.75 to $11.17~~	~~$21.26 to $22.11~~	*Exhibit L*
Operations-related	*Annual, on-going*	$12.46	$27.99	*Exhibit N*
In-migrant resident population:	*"Direct impacts" – employees; "Total impacts" – includes dependents*			
To the City and County		10	20	*Exhibit O*
To the State		5	10	*Exhibit O*
Net additional government operating revenues:	*Operating revenues less operating expenditures*			
For the City and County		$2.04	Not applicable	*Exhibit W*
For the State		$8.18	Not applicable	*Exhibit W*
Revenue/expenditure ratio:	*For government operations*			
For the City and County		3.4	Not applicable	*Exhibit W*
For the State		7.0	Not applicable	*Exhibit W*

1. *Development-related impacts stated as average annual during development period (2002 to ~~2010~~).*

Summary of Economic and Fiscal Impacts at Project Stabilization in 2015[1]

(2001 dollars, in millions)

	Comment	Direct impacts	Total impacts	Report reference
Annual visitor expenditures	*Same impacts for County and State, net additional over 2000*	$84.02	$143.67	*Exhibit H*
FTE employment:				
Development-related	*Average annual 2002 to 2009*	270 to 350	650 to 840	*Exhibit K*
Operations-related	*Annual, on-going*	509	876	*Exhibit M*
Personal income:	*Includes wage, salaried & proprietary earnings*			
Development-related	*Average annual 2002 to 2009*	$11.17 to $14.35	$22.11 to $28.35	*Exhibit L*
Operations-related	*Annual, on-going*	$12.46	$27.99	*Exhibit N*
In-migrant resident population:	*"Direct impacts" – employees; "Total impacts" – includes dependents*			
To the City and County		10	20	*Exhibit O*
To the State		5	10	*Exhibit O*
Net additional government operating revenues:	*Operating revenues less operating expenditures*			
For the City and County		$2.04	Not applicable	*Exhibit W*
For the State		$8.18	Not applicable	*Exhibit W*
Revenue/expenditure ratio:	*For government operations*			
For the City and County		3.4	Not applicable	*Exhibit W*
For the State		7.0	Not applicable	*Exhibit W*

1. *Development-related impacts stated as average annual during development period (2002 to 2009).*

ECONOMIC AND FISCAL IMPACT ASSESSMENT FOR OUTRIGGER ENTERPRISES INC.'S WAIKIKI BEACH WALK DEVELOPMENT:

STUDY APPROACH AND DETAILED FINDINGS

ANALYTICAL FRAMEWORK

Key assumptions guiding the analyses presented herein are set forth below:

1. **Ballroom/meeting facilities** - The proposed ballroom and meeting facilities are considered ancillary to the Project's repositioned and new hotels. They are considered key to enabling WBW's hotels to attract market segments that have not previously visited the islands, particularly among U.S. and Japanese travelers (see also market study). Thus, while the ballroom/meeting facilities could indirectly support many economic and fiscal benefits, these benefits are best measured in terms of the additional visitors they might enable the hotel components of the Project to attract, rather than in terms of the facilities' utilization. Thus the impacts of the ballroom and meeting facilities are not assessed per se, but rather are considered to be included within those shown for the repositioned and new hotel developments at the Project.

2. **Retail and showroom –**

   a. As used in this report, "retail areas" are considered to include retail and restaurant facilities. In some cases, where specified, "retail areas" also includes the proposed showroom. Much but not all of the new retail areas planned for WBW would be included in a new retail promenade.

   b. Retail developments located within a hotel are considered ancillary to the hotel's operations and are not evaluated per se.

   c. Given the highly competitive retail market in Waikiki, the Project's planned retail promenade and showroom could result in a reallocation of visitor spending among various areas of Waikiki, and could modify the region's "retail epi-center."

      The promenade and showroom are not in themselves expected to increase visitor expenditures made in the County or State. The retail and showroom developments are shown in the exhibits in order to more fully describe the Project, but they are not among the bases for projecting additional visitor expenditures, and related impacts (see also 3 (a), below).

   d. Likewise, the planned demolition of the few non-hotel retail areas now existing in the project area will result in a loss of sales at those sites, but those "lost" sales are very likely to be immediately picked up at neighboring establishments, not necessarily within WBW. Therefore, the demolition of these areas is not considered material to the projection of retail sales, employment or other related factors at the County or State levels.

3. **Hotel rooms –**

   a. Adding more hotel rooms at a market level that has historically been limited by product availability is expected to "increase the pie" for the County and State. Waikiki has seen little or no mid-market to upscale developments in recent years, and the Project would expand the supply of such rooms, while providing them in modernized facilities (see market study). Thus, the new hotel rooms to be added are expected to attract more visitors of this market level than have been coming in the past. This in turn leads to more population and more visitor spending, which will generate more taxes, more retail-related employment (that may occur at the Project's promenade or elsewhere), and so on.

   b. By the same reasoning, the demolition of hotel rooms in Phase I of the Project is expected to result in a short-term displacement of some visitors to Oahu. In this case, this is attributed to the very limited supply of rooms in the under-$100 range, where those hotels are now positioned.

   c. However, not all hotel market segments are expected to be influenced equally by the Project. For instance, to the extent *kama'ainas* have stayed or are expected to stay in the new hotel rooms, there is assumed to be no impact on the local economy. It is expected that a *kama'aina* who stays in a Waikiki hotel would have stayed somewhere else in Waikiki even if the new rooms did not exist. Other market segment adjustments are discussed at the applicable sections of this report.

4. **Other facilities not considered** - Three hotels located within the Project area would not be directly impacted by its development. These include the Ohana Reef Tower, the Outrigger Islander Waikiki and the Outrigger Reef on the Beach. Together these hotels include 1,652 rooms. While their market performance is likely to be positively impacted by the area improvements to be put in place, they are not addressed in this analysis since no direct investments or physical changes are anticipated within these hotels. To the extent these hotels enjoy higher room rates and/or occupancies because of WBW's area improvements, the analysis of net County and State benefits presented herein may be considered conservative.

5. **Entitlement spending not considered** - Finally, Outrigger's currently on-going entitlement process for this development proposal is already generating economic and fiscal benefits by employing professionals and supporting various vendors around the State. However, since such benefits are not dependent on the outcome of the entitlement process, they are not enumerated in this analysis.

DEFINITION OF TERMINOLOGY

Within this report, the following definitions apply:

- **Direct Impacts** - Those economic, population or other impacts attributable to persons or activities that are a direct result of the proposed development. For instance, direct employment impacts would include those involved in building the proposed facilities, such as construction workers, and those who would later work at them in their operations.

  Most, but not all of direct impacts can be expected to occur on-site. For instance, a portion of the construction budget is for architects and engineers. While such persons' employment might be temporarily dependent on the contracts generated by WBW, they may do the majority of their work from offices elsewhere in Honolulu. Likewise, construction professionals working on-site would be supported by administrative and managerial staff located off-site.

- **Indirect Impacts** - Indirect impacts occur when the businesses or persons who are directly affected make expenditures for additional supplies or services. For instance, some of the additional spending by those newly attracted to Hawaii by WBW could be spent on eating out. These elevated dining out expenditures could thus indirectly increase demand for produce and seafood from Hawaii farms, fishermen and/or ranching enterprises. WBW would thus have indirectly supported new business opportunities for area providers of such goods and services.

- **Induced Impacts** - Induced impacts occur throughout the community when those persons or companies that have benefited from the direct or indirect impacts of the Project spend their associated earnings on consumer goods and services. For instance, a construction worker may spend her earned wages to buy a new pair of shoes, or to pay for her child's day care. The farmer who sells produce to a restaurant at WBW may use some of his profit to take his family out to the movies. The businesses and individuals impacted by such re-spending are said to enjoy induced economic impacts from the Project.

- **Total Impacts** - Total impacts are defined as the sum of direct, indirect and induced impacts for any given variable.

- **Resident population** - Resident population refers to all those persons who habitually reside in a given area, whether or not they may have temporarily traveled away.

- **De facto population** - De facto population refers to those persons physically present at a given time. For instance, the de facto population of Oahu includes all tourists and residents who are on the island at a given time, but it excludes residents who have traveled off-island that day. It also includes those who are residing on Oahu only short-term. This could be, for instance, a Maui resident who is employed as a construction specialist at the Project site for a month.

- **Full-time equivalent** - Although some direct, indirect and induced employment opportunities generated by WBW can be expected to be part-time and others to be on-call, this study measures employment opportunities in full-time equivalent (FTE) units. For purposes of this study, one full-time equivalent position is defined as 2,080 hours of employment (including paid vacation, sick leave, etc.) per year. This is equivalent to 40 hours per week, and may also be referred to as a "person-year" of employment. Thus, two half-time jobs are considered to together represent one FTE job.

PROJECT OVERVIEW

Specific assumptions regarding the scale, nature and timing of the Project are made in order to assess its impacts. This assessment is based on timelines and development programs provided by G70 and Outrigger.

Development Activities (Exhibit A)

The Project is proposed to occur in two phases. The first extends to December 31, ~~2005~~2004. | This phase would result in the demolition of several hotels and three small non-hotel retail areas, the renovation and administrative linking of the Waikiki Tower and Village Hotels, and the development of retail and showroom areas.

In Phase I, 381 rooms that are currently operated as hotels would be demolished:

- Ohana Coral Seas – all 109 rooms to be demolished
- Ohana Waikiki Village – 33 of 442 rooms to be demolished in renovations
- Outrigger Edgewater – all 184 rooms to be demolished
- Ohana Waikiki Tower – 55 of 439 rooms to be demolished in renovations
- (The 55-room Edgewater Lanais would also be demolished in Phase I, but its rooms are not counted among those lost since they were not operated as hotel rooms as of August 2001)

Phase II would include the development of a new hotel tower, the 891-room Outrigger Saratoga Hotel, as well as additional retail spaces. It would also demolish 211 rooms now operated as hotels, including:

- Ohana Reef Lanai – all 110 rooms to be demolished
- Ohana Royal Islander – all 101 rooms to be demolished
- (The 10-room Malihini Hotel would also be demolished in Phase I, but is not accounted for as a loss of hotel rooms since it was not operated as a hotel as of August 2001)

In summary, development activities at WBW would result in a net loss of 381 hotel rooms in Phase I but a gain of 680 during Phase II. Overall this represents a net gain of 299 new rooms at Project completion. It would also result in a net gain of 66,750 square feet of retail area, plus a 10,000 square foot showroom.

Operating Facilities (Exhibit B)

In terms of facilities in operation at any given time, the Project would include 2,656 hotel rooms in 2005 and 3,336 in 2010 and beyond. However, 1,652 of these rooms already exist and would not be directly affected by the development activities, while another 211 rooms are to be demolished between 2005 and 2010. Therefore, the net impact on hotel rooms compared to current inventories is again a loss of 381 rooms by 2005, and a net gain of 299 rooms by 2010 and beyond.

This is the last exhibit in this presentation where the 1,692 pre-existing but unaffected hotel rooms are shown (see discussion on page 2, item #4).

The Project would also add 66,750 square feet of net additional non-hotel retail areas to Waikiki, plus a 10,000 square foot showroom.

Facility Utilization (Exhibit C)

Utilization of WBW facilities is stated as average annual achieved occupancies for the hotel and retail facilities, including the showroom. Outrigger provided the 2000 figures, while the projections are as estimated by Hospitality Advisors.

Within the Project as a whole, average achieved hotel occupancies could decline slightly to 70% in 2005, as compared to 71% in 2000. This would be attributable to initially lower occupancies at the Waikiki Village and Tower immediately after its reopening in 2005, as well as to some degradation in market performance of the hotels to be demolished in Phase II. As the Waikiki Village and Tower stabilizes and the new Outrigger Saratoga Hotel is introduced, overall WBW hotel occupancies are projected to stabilize at 81%.

Hospitality Advisors also projects that the new retail areas, including the showroom, will stabilize at 92% to 93% occupancy by 2015. Although shown, utilization of these facilities is not considered to contribute directly to the Project's island-wide and Statewide impacts assessed herein, as discussed previously.

Occupied Hotel Rooms (Exhibit D)

Based on the projected occupancies shown in Exhibit C, WBW hotels could be expected to account for some 703 occupied hotel rooms per day in 2005, or up to 1,363 by 2015. However, in deriving the net impacts of the Project, adjustments are made for the following:

- **Historically occupied rooms to be demolished** – As these relatively affordable accommodations are demolished, some of their prior guests may find it hard to find similar lodging elsewhere in Waikiki, and hence may choose alternate destinations. According to Hospitality Advisors, segments most at risk of being eroded in this way include these properties' Canadian and European markets, and a portion (estimated herein at 50%) of their U.S. market. For purposes of this analysis, the hotel rooms to be demolished in Phase I are assumed to have realized a prior market mix as follows:

Assumed 2000 Market Mix, Phase I hotel demolitions

	Visitor mix	Comment
U.S. visitors	65%	Half of segment considered at risk
Japanese visitors	0%	Not considered material
Hawaii residents	5%	Expected to stay elsewhere on island
Other visitors	30%	Principally Canadians and Europeans; entire segment considered at risk
Total	100%	

Therefore, the demolition of 381 rooms in Phase I, 263 of which were estimated to have been occupied on a typical day previously, is projected to result in a loss of 164 occupied rooms for Oahu and the State. The difference between the 263 historically occupied rooms and the 164-room estimated impact is attributed to those market segments (50% of U.S. travelers and all *kama'ainas*) who are expected to stay elsewhere on the island despite the demolition of these rooms.

Likewise, the demolition of 211 rooms in Phase II is projected to result in a loss of 78 occupied rooms to the island and State in 2010 and 2015. The difference between 78 and the 148 of these rooms that are estimated to have been occupied in 2005 is again attributed

to those market segments (U.S. and *kama'aina*) that are expected to stay elsewhere on the island despite the loss of these particular rooms.

The projected 2005 market mix for the 211 rooms planned for demolition in Phase II is shown later, in Exhibit G.

- **Changes in occupancies at the Waikiki Village and Tower** – Hospitality Advisors projects that this repositioning will initially result in nominally lower occupancies, but will stabilize at higher than historical levels. Repositioning these rooms as higher-rate and more modern facilities is anticipated to attract growth in the Japanese and U.S. segments. Therefore, the Project's impact as attributable to this repositioning is considered to be only that number of occupied rooms that exceed its 2000 record, and within this number, only that share that corresponds to the percent of U.S. and Japanese guests projected for the hotel (see also Exhibit G). This net impact is assessed as a loss of 9 occupied rooms in 2005, but a net gain of 68 by 2010 and beyond.
- **Guests at the new Outrigger Saratoga Hotel** – Those market segments that can be considered new to the islands are assumed to be the U.S. and Japanese segments. *Kama'aina* and other segments projected to be accommodated at this hotel are expected to be largely already present in the island-wide marketplace (see also Exhibit G). Thus, despite the 713 rooms projected to be occupied on any given day in 2015, only 570 are considered a net gain for the County and State.

After these adjustments, the net impact of WBW on occupied hotel rooms is estimated at –173 rooms in 2005, and up to +396 rooms in 2015, as shown in Exhibit D.

Average Daily Hotel Guests (Exhibit E)

According to the accounting and consulting firm PKF Hawaii, as of May 2001 the average occupied hotel room on Oahu included 2.1 persons. Applying this figure to the occupied hotel room data developed in Exhibit D shows the Project could result in about 363 fewer out-of-State visitors on any given day in 2005, but up to 831 more by its stabilization in 2015.

It is this net change in visitors that is anticipated to generate many of the economic and fiscal impacts for the County and State.

Facility Rate Assumptions (Exhibit F)

WBW is expected to stimulate real growth in area room rates. In 2000, the affected hotels averaged about $72, according to Outrigger. In the future, Hospitality Advisors projects achieved rates for WBW hotels to average $102 in 2005, $128 in 2010, and $147 in 2015, in 2001 dollars.

Estimated future retail sales per square foot, including the showroom, are also shown in the exhibit. However, the performance of these facilities is not considered causative in the analysis of the Project's economic and fiscal impacts, as discussed previously.

ECONOMIC IMPACTS

The Project could be expected to impact the State and County economies by (1) generating development activity, which would support expenditures for goods and services, (2) attracting visitors who would make new expenditures, and (3) creating and supporting jobs and business enterprises in its ongoing operations. The new jobs would in turn generate additional personal income in the County and throughout the State.

Visitor Mix and Non-Lodging Expenditure Rate (Exhibit G)

The anticipated mix of Project visitors by place of origin is based on the findings of the market study, and presented in Exhibit G. Overall, at stabilization in 2015, the Project's hotel guests are anticipated to represent the following:

- U.S. visitors – 65%
- Japanese visitors – 15%
- Other visitors (principally Canadian and European) – 15%
- Hawaii residents – 5%

The Hawaii residents or *kama'ainas* are not expected to contribute significant new expenditures to the State or County, since it is assumed their vacation budgets would have been spent elsewhere on Oahu even if the Project were not undertaken. To the extent WBW encourages local residents to stay within the State for their budgeted vacations in lieu of traveling out-of-State, this assumption underestimates the Project's benefits and is therefore considered conservative.

Also within the projected mix (see also discussion of occupied hotel rooms on pages 6 and 7):

- As the oldest and most outdated facilities are demolished in Phases I and II, the market segments considered at most risk of being eroded are the "Other" (Canadian and European) and U.S. categories.

- The U.S. and Japanese markets at the Outrigger Saratoga and the Ohana Waikiki Village and Tower are anticipated to be the primary sources of guests that would be new market segments for the islands.

Applying 2000 data on visitor spending as presented by the State Department of Business, Economic Development and Tourism (DBEDT) to the projected market mix, the weighted average non-lodging expenditure of WBW guests, exclusive of *kama'ainas*, is estimated between $98 and $104 per person per day, in 2001 dollars. Anticipated changes in this rate over time are attributable to changes in the mix of visitors, as shown near the bottom of Exhibit G.

Annual Visitor Expenditures (Exhibit H)

Exhibit H shows the anticipated direct, indirect and induced impacts of WBW's development on visitor expenditures in the County and State.

- **Direct hotel room expenditures** – Net additional hotel room revenues are projected to increase from about $3.38 million in 2005, to $35.86 million in 2010, and to stabilize at about $51.57 million by 2015. These figures are derived from the occupied rooms and average achieved room rate estimates shown previously.

- **Other direct expenditures** – Other expenditures from the anticipated out-of-State visitor markets are based on their average daily expenditures, as derived previously. After adjustment for hotel demolitions and the particular market segments expected to be affected most directly by the various actions, the Project's impact on non-lodging expenditures in the State is expected to represent a $13.02 million loss in 2005, but a $32.45 million annual gain by stabilization in 2015.

- **Total direct expenditures** - In total, direct visitor expenditures are estimated to represent about a $9.63 million loss in 2005, but improving to a $84.02 million annual and on-going gain by 2015, in 2001 dollars.

- **Indirect, induced and total impacts** - Including the indirect and induced multiplier effects within the State, visitation shifts owing to Project developments could account for about $16.47 less in visitor expenditures in 2005, but up to $143.67 million more each year, in 2015 and thereafter.

Industry Coefficients and Multipliers (Exhibit I)

DBEDT has conducted comprehensive evaluations of the various industries within the State, their financial relationships to each other, and their rates of job and personal income creation. The latest such study is dated December 1998 and entitled, "The Hawaii Input-Output Study: 1992

Benchmark Report." Exhibit I shows the information extracted from this report for use in the analysis of development activity.

Industry coefficients can be used to show the relationship between input, or spending within any given industry category, and its resulting creation of jobs and income. Such coefficients are used to estimate the direct effects of the construction and development activities planned for WBW.

Industry multipliers show the relationship between direct jobs or income and the indirect and induced jobs or income that they can be expected to subsequently support (see definition of terminology on pages 3 and 4).

Development Expenditures (Exhibit J)

In estimates developed by Outrigger and their consultant Charles Pankow Builders, Ltd., WBW's development is anticipated to cost some $135.08 million in Phase I and $176.49 million in Phase II. This budget is in 2001 dollars and includes:

- **Professional services** – architectural, engineering, landscape design, development management, legal, and similar services.

- **Construction** – including materials and labor, and considering demolitions as well as infrastructure and facility development, furniture, fixtures and equipment, and retail tenant improvements.

- **Other** – including costs of permitting and financing the development, public relations and other "soft" costs incurred during the construction periods.

Because the DBEDT coefficients to be applied to these budgets are based on 1992 dollars, the development budgets are also estimated in 1992 dollars, as shown in the bottom half of Exhibit J.

Development Employment (Exhibit K)

WBW's development is estimated to directly generate about 1,050 FTE jobs in the State in Phase I, and another 1,370 in Phase II. Given the duration of the two phases, this would represent some ~~260 to 270~~270 to 350 Hawaii-based, FTE jobs per year over an 8~~ to 9~~-year period. The majority of this work would occur on-site. However, some, such as the professional services and administrative positions, are likely to be primarily located off-site, perhaps elsewhere on Oahu. This estimate includes wage, salaried and proprietary employment opportunities supported by WBW's development.

Considering the indirect and induced employment opportunities that these direct impacts are likely to support, the total impacts of the Project's development are expected to represent ~~630 to 650~~650 to 840 FTE jobs per year within the State.

Personal Income from Development (Exhibit L)

Direct personal income associated with these Hawaii-based positions could amount to more than $43 million during Phase I, plus another $55 to $56 million in Phase II, in 2001 dollars. On an annual basis, this would represent some ~~$10.76~~14.35 million between 2002 and ~~2005~~2004, and $11.17 million between ~~2006~~2005 and ~~2010~~2009.

Total wage, salaried and proprietary employment associated with development of the Project, including induced and indirect positions could be expected to support about $85 million in income in Phase I, and over $110 million more in Phase II. The indirect and induced benefits could be expected to be supported throughout the State, but would probably be concentrated on Oahu.

Comparing these projected income figures to the employment figures of the prior exhibit, the FTE-wages, salaries or other income generated by the Project's development are estimated to average $41,000 for its direct employees, or $34,000 considering its total, more dispersed impacts.

Operational Employment (Exhibit M)

In addition to its development-related positions, WBW would support many long-term permanent jobs in its operations. Initially, however, as some hotels are closed in Phase I, there could be a loss of jobs. Outrigger Hotels expects that it will be able to absorb all of the employees of the hotels to be demolished in its other services. However, the potential loss of a portion of the markets that had previously relied on these budget-oriented properties is expected to result in lower retail spending, which could impact retail employment on Oahu in the initial years of the Project.

Overall, WBW could initially be associated with a loss of some 84 direct operational jobs on the island, or up to 138 such jobs in total[1]. However, as the Ohana Waikiki Village and Tower begins to stabilize at higher occupancies, and the Outrigger Saratoga Hotel opens, the Project is expected to be associated with a net gain of some 509 direct, FTE operating positions. Considering indirect and induced multipliers, the islands could expect to see some 876 total FTE new jobs supported by the Project by 2015.

[1] Although the Project's operations and development are likely to impact different persons, this can be compared to the ~~630~~840 total FTE jobs expected to be supported in the Project's development about the same time.

Direct operational jobs could include a variety of types and levels of work, including opportunities in management, sales and marketing, registration/reservation, human resources, food service, maintenance and engineering, housekeeping, retail, entertainment, landscaping and activities. The majority of such jobs would be located on-site. The indirect and induced employment impacts of WBW would be spread throughout Hawaii's economy, at many levels of income and in a wide variety of industries.

Personal Income from Operations (Exhibit N)

Direct wages and salaries paid to those employed in the Project's operations, plus proprietary income earned as a direct result of the Project's visitor spending are expected to reach about $12.46 million by stabilization in 2015. Including personal income associated with the indirect and induced positions, the Project could generate about $27.99 million per year in ongoing payroll within the State thereafter. These figures do not include gratuities or employee benefits that would also be realized by many of the employees and proprietors benefiting from this economic growth.

Based on the multipliers derived from the Input-Output Study, the direct employment and proprietary opportunities generated by WBW could be expected to support average FTE earnings of about $24,000. Average annual FTE wages, salaries and proprietary earnings in positions supported via indirect or induced impacts of the Project are estimated at about $42,000, based on the DBEDT multipliers.

POPULATION IMPACTS (Exhibit O)

WBW's development could affect population in several ways:

- It is expected to attract new travelers to the State, primarily staying on-site.
- Construction and operational employment opportunities would lead to new de facto population on-site.
- Some of those taking advantage of the construction and operational employment generated by the Project might move from other counties or states because of the job opportunity, thus increasing the County and/or State resident population levels. Other household members might also accompany such in-migrating persons.

This analysis estimates WBW's impact on in-migrant population as follows:

- **Development** - Hawaii's labor market is considered to have sufficient supply and the required skills to satisfy virtually all of the Project's development labor needs. Charles Pankow Builders, Ltd. estimates that perhaps 2% of FTE staffing needs could come from the U.S. mainland. This could represent 5 to 7 or so of the ~~260 to 270~~ to 350 (ref. Exhibit K) persons required by WBW at any given time. Such persons would be temporarily resident in the islands during the Project's development.

  In addition, a small number of development employees could move between islands because of employment or business opportunities generated by the development of WBW. This would be of significance to the County but not the State, and is estimated to represent perhaps another 1% of development employees.

- **Operations** - Outrigger Hotels' reported experience is that new hires are rarely directly associated with in-migration of persons from out-of-State. For purposes of this analysis, 1% of Project operational employees were assumed to move from out-of-State due to their employment opportunity at WBW. Another 1% are assumed to move between islands because of employment or business opportunities, leading to a total of some 2% of operational employees in-migrating to the County.

- **Dependents** - In-migrant dependents are estimated at an average of 0.2 per FTE in-migrant construction worker, since the position on which the "move" is based would be temporary, and 1.0 per FTE in-migrant operations employee.

In total, by 2015, WBW is projected to be associated with about 10 in-migrants to the State and about 20 to the County.

FISCAL IMPACTS

WBW's fiscal impacts are estimated by comparing its anticipated impacts on government revenues to the government service costs associated with the additional population the Project could attract to the State and to the County.

County Real Property Tax Revenues (Exhibit P)

For the County, the Project's most significant fiscal impact would be the higher real property taxes it would generate compared to those paid under its current level of development. Net new real property taxes at the site are based on the County's Fiscal Year 2001-2002 rates, or $9.96 per thousand assessed value of land and improvements for Resort/Hotel uses.

- **Assessed land value** is assumed to remain at the current $47.17 million[2]. To the extent that the lands will realize greater value as a result of the planned improvements thereon, this basis for projecting real property taxes from the Project is understated. Additionally, Outrigger has had discussions with the City about acquiring Helumoa Street, in the middle of the Project. If this were to take place and subject this land area to real property taxes, the assessed land value and hence real property taxes supported by the Project would be greater than what is shown herein.

- **Future assessed values of the improvements** are estimated based on their currently assessed values[2], less the value of structures to be demolished, plus budgeted "hard" construction costs, less furniture, fixtures and improvements, as presented previously. Future assessed value will actually be based on the County assessor's estimate of value at a future time, and County standards of practice for establishing such values. However, given the inability to project such assessments, the current assessed values and contributions of relevant construction budgets are used as a proxy.

Based on these assessments, potential real property taxes from the affected areas of WBW could increase from about $1.98 million in 2005, to $3.23 million in 2010 and thereafter. However, since the affected properties of the Project are already supporting real property taxes of $1.09 million, only the amount to be generated above this threshold is considered a Project impact.

Additionally, a current real property tax exemption program[3] is anticipated to be extended and could provide such an exemption to qualifying construction work in Phase I of the Project. In order to qualify for this exemption, the cited ordinance would have to be extended and the construction work at WBW would have to meet additional conditions such as specified wage rates. Assuming such conditions were met, and that Phase I construction was completed by September 30, 2005, a real property tax exemption could be triggered beginning in the following fiscal year (2006-2007), and could extend for seven years thereafter. As the ordinance is currently worded, this could be expected to result in an assessed incremental increase in the value of WBW improvements of some $81 million, supporting a tax exemption

[2] Does not include land or improvements associated with hotels within the Project area but not considered in this analysis, including the Ohana Reef Tower, the Outrigger Islander Waikiki and the Outrigger Reef on the Beach

[3] Revised Ordinances of Honolulu (1990), section 8-10.26, regarding exemption for qualifying construction work

of $810,000 per year for seven years beginning in July 2006[4]. This exemption would apply therefore, in calendar year 2010, but not in 2005 or 2015.

Considering these adjustments, the estimated net additional real property taxes supported by the Project could amount to $890,000 in 2005, increasing to $1.33 million in 2005. It is projected to stabilize at an annual contribution of $2.14 million by 2015, and thereafter. If the Project does not qualify for the cited real property tax exemption program, County tax revenues in 2005 as well as the seven years between July 2006 and June 2013 could amount to some $810,000 more per year than what is shown in the exhibit.

Total New County Government Operating Revenues (Exhibit Q)

In addition to real property taxes, the County is allocated a share of the transient accommodations taxes (TAT) collected by the State, and it obtains liquid fuel, utility franchise, motor vehicle weight, and other licenses and permit fees from residents and businesses.

- **TAT** - Given the net new room revenues projected to be generated by the Project, the State's 7.25% TAT, and Honolulu County's current 20.0% share of State TAT collections, WBW could support some $750,000 in new annual TAT revenues for the County by Project stabilization in 2015.
- **Other** - Those persons who move to the County because of WBW would also pay additional liquid fuel, utility franchise, motor vehicle and other minor County taxes. These miscellaneous tax sources could represent a nominal further increase in County taxes attributable to the Project.

In summary, net new taxes earned by the County as a result of the Project's development and operations could represent some $2.89 million per year on an on-going basis by 2015.

Additional State Government Operating Revenues (Exhibit R)

Additional operating revenues accruing to the State government are expected to derive principally from the general excise tax (GET) accruing from development and new visitor expenditures, the State's share of the TAT, income taxes on new personal income generated by WBW, and GET, income and other taxes paid by those who move to the State because of the Project.

[4] The ordinance offers tax exemption on the difference between the tax assessed value of improvements after development, and the February 1999 tax assessed values of improvements thereon. For purposes of this analysis, future tax assessed values are based on: (1) estimated cost of "qualifying construction work" (as proxy for future assessed value of new improvements on-site, given lack of other available bases), (2) plus value of non-demolished improvements. Item (1) is estimated at $94.09 million (representing hotel, retail ballroom and tenant improvement construction costs, plus costs of bridge between buildings, less furniture, fixtures and equipment allowance), while current tax assessed value of non-demolished improvements is some $49.97 million. Subtracting the February 1999 tax assessed value of improvements at the affected properties of $62.73 million yields an estimated incremental increase in assessed value, for purposes of this ordinance, of $81.33 million.

In total, net new operating revenues for the State are estimated to amount to some ~~$1.32~~2.01 million in 2005, stabilizing at $9.55 million annually by 2015, as shown at the bottom of the second page of Exhibit R. The projected State tax revenues may be conservative in that they do not include:

- Potential income taxes from certain business operating incomes, including those that may be paid by the operating entity for WBW,
- Personal income tax on gratuities,
- GET or income taxes on ground lease rents earned by various non-Outrigger landowners, nor
- The State surcharges on motor and tour vehicles that could be rented by the Project's visitors.

Per Capita Government Operating Expenditures (Exhibits S and T)

Both State and County governments can be expected to incur additional operating expenses in supporting the in-migrants that are attracted by the Project. An analysis of the County's 2001-2002 fiscal year expenditures suggests that the County spends some $1,433 per resident per year, and $984 per full-time equivalent visitor-year, in 2001 dollars. These expenditures support services ranging from public safety and highways to recreation and cash capital improvements, as shown in Exhibit S.

A similar analysis of State government operating expenditures per capita suggests that the State spends about $4,909 per year to support government operations on behalf of each resident, and $1,588 per full-time equivalent visitor-year, in 2001 dollars, as shown in Exhibit T.

These per capita figures are considered likely over-stated for both the County and State, since the "service populations" on which they are based are 1999 and 2000 figures, the latest available, but presumably lower than the actual populations that the 2001-2002 fiscal year budgeted figures are serving.

Additional County and State Government Operating Expenditures (Exhibits U and V)

The per capita budgets derived above are applied to the counts of visitors and those anticipated to in-migrate to the County because of employment opportunities at the Project. This results in an estimated $350,000 potential savings in 2005, but up to $850,000 per year in additional County government operating expenditures by the time of project stabilization in 2015.

Employing an analogous methodology, the State could be expected to save some $~~580~~570,000 in 2005, but to require up to $1.37 million more per year to support the net additional visitors and residents the Project could eventually attract (as of 2015).

For purposes of estimating government costs associated with additional population, the construction workers and their dependents are treated as "non-residents." This is because their temporary presence on the island or in the State is not likely to lead to additional government expenditures in categories such as public education, public welfare, unemployment, retirement and pension programs, and the like. Rather, they are more likely to draw upon the County and State governments more like visitors do, utilizing public utilities, parks and highways, and requiring their share of police and fire protection.

Net Fiscal Benefits (Exhibit W)

County government operating revenues attributable to WBW are anticipated to exceed the additional operating expenses in each of the three benchmark years evaluated. By Project stabilization, net additional operating revenues could represent some $2.04 million per year, or a revenue/expenditure ratio of about 3.4.

With its greater taxing powers and more varied sources of income, the State government's operating revenues are anticipated to by far exceed the additional operating expenses associated with WBW throughout its development and operating periods. As for the County, new government operating revenues could exceed operating expenses in all of the years evaluated. By Project stabilization in 2015, the State's net additional revenues are projected to amount to over $8 million per year, with new revenues representing about seven times new expenditures.

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Mikiko corporation

Exhibit A

Waikiki Beach Walk

Overview of Project Development Activities

2002 to 2015

Phase / Calendar year	Basis/reference	Phase I 2002-05	Phase II 2006-10	Completion to stabilization 2011-15	Total
Comments:		■ Ph I under construction	■ Phase I operational ■ Ph II under construction	■ Phase I operational ■ Phase II operational	
Demolitions:					
Hotel rooms[1]	*Incl. demolitions @ renovation*	(381)	(211)	0	(592)
Non-hotel retail areas (sq. ft.)	*At Edgewater Lanais, Malihini Hotel and "Carl's Jr." site*	(7,930)	0	0	(7,930)
Renovation of hotel rooms	*Waikiki Tower & Village Hotels*	793	0	0	793
New construction:					
Hotel rooms	*Ohana Saratoga Hotel*	0	891	0	891
Retail areas (sq. ft.)	*Includes restaurants but excludes hotel retail areas*	57,480	17,200	0	74,680
Showroom (sq. ft.)		10,000	0	0	10,000
Net new development:	*At end of period*				
Hotel rooms		(381)	680	0	299
Non-hotel retail areas (sq. ft.)	*After netting out demolished non-hotel retail areas*	49,550	17,200	0	66,750
Showroom (sq. ft.)		10,000	0	0	10,000

1. *Does not consider the Edgewater Lanais (55 rooms, to be demolished in Phase I) and Malihini Hotel (10 rooms, to be demolished in Phase II), because neither property was operated as a hotel as of August 2001.*

Sources: *Compiled based on information provided by Outrigger Enterprises, Inc. and Group 70 International.*

Exhibit A

Waikiki Beach Walk

Overview of Project Development Activities

2002 to 2015

Phase *Calendar year*	Basis/reference	*Phase I* 2002-04	*Phase II* 2005-09	*Completion to stabilization* 2010-15	Total
Comments:		*Ph I under construction*	*Phase I operational* *Ph II under construction*	*Phase I operational* *Phase II operational*	
Demolitions:					
Hotel rooms[1]	*Incl. demolitions @ renovation*	(381)	(211)	0	(592)
Non-hotel retail areas (sq. ft.)	*At Edgewater Lanais, Makhini Hotel and "Carl's Jr." site*	(7,930)	0	0	(7,930)
Renovation of hotel rooms	*Waikiki Tower & Village Hotels*	793	0	0	793
New construction:					
Hotel rooms	*Ohana Saratoga Hotel*	0	891	0	891
Retail/showroom areas (sq. ft.)	*Incl. restaurants & showroom but excl. hotel retail areas*	67,480	17,200	0	84,680
Net new development:	*At end of period*				
Hotel rooms		(381)	680	0	299
Non-hotel retail/showroom areas (sq. ft.)	*After netting out demolished non-hotel retail areas*	59,550	17,200	0	76,750

1. Does not consider the Edgewater Lanais (55 rooms, to be demolished in Phase I) and Makhini Hotel (10 rooms, to be demolished in Phase II), because neither property was operated as a hotel as of August 2001.

Sources : Compiled based on information provided by Outrigger Enterprises, Inc. and Group 70 International.

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit B

Waikiki Beach Walk

Project Operating Facilities

2005 to 2015

Phase *Calendar year*	Basis/reference	*End of Phase I* 2005	*End of Phase II* 2010	*Stabilized* 2015
Comments:		*Phase I completed*	*Phase I stabilized* *Phase II opens*	*Both phases stabilized*
Total Inventory in Project area:				
Hotel rooms:				
Pre-existing and unaffected[1]	*Ohana Reef Tower, Outrigger Islander Waikiki, Outrigger Reef On The Beach*	1,652	1,652	1,652
Ohana Reef Lanai	*Demolished in Phase II*	110	0	0
Ohana Royal Islander	*Demolished in Phase II*	101	0	0
Ohana Waikiki Village and Tower	*88 units demolished in Phase I*	793	793	793
Outrigger Saratoga Hotel		0	891	891
Total hotel rooms		2,656	3,336	3,336
Retail areas	*Net of hotel spaces, in sq. ft.*	57,480	74,680	74,680
Showroom	*In square feet*	10,000	10,000	10,000
Net additional inventory compared to pre-existing:				
Hotel rooms	3,037 *rooms pre-existing*[2]	(381)	299	299
Non-hotel retail areas (sq. ft.)	7,930 *sq. ft. pre-existing*	49,550	66,750	66,750
Showroom (sq. ft.)	0 *sq. ft. pre-existing*	10,000	10,000	10,000

1. These hotels not considered in subsequent exhibits, since the Project would not directly affect them.
2. Does not consider the Edgewater Lanais (55 rooms, to be demolished in Phase I) and Makhini Hotel (10 rooms, to be demolished in Phase II), because neither property was operated as a hotel as of August 2001.

Sources : Compiled based on information provided by Outrigger Enterprises, Inc. and Group 70 International.

Exhibit B

Waikiki Beach Walk

Project Operating Facilities

2005 to 2015

Phase / *Calendar year*	Basis/reference	*After completion of Phase I* 2005	*After completion of Phase II* 2010	*Stabilized* 2015
Comments:		*Phase I completed*	*Phase I stabilized* / *Phase II opens*	*Both phases stabilized*
Total inventory in Project area:				
Hotel rooms:				
Pre-existing and unaffected[1]	*Ohana Reef Tower, Outrigger Islander Waikiki, Outrigger Reef On The Beach*	1,652	1,652	1,652
Ohana Reef Lanai	*Demolished in Phase II*	110	0	0
Ohana Royal Islander	*Demolished in Phase II*	101	0	0
Ohana Waikiki Village and Tower	*88 units demolished in Phase I*	793	793	793
Outrigger Saratoga Hotel		0	891	891
Total hotel rooms		2,656	3,336	3,336
Retail/showroom areas	*Net of hotel spaces, in sq. ft.*	67,480	84,680	84,680
Net additional inventory compared to pre-existing:				
Hotel rooms	*3,037 rooms pre-existing*[2]	(381)	299	299
Non-hotel retail/showroom areas (sq. ft.)	*7,930 sq. ft. pre-existing*	59,550	76,750	76,750

1 These hotels not considered in subsequent exhibits, since the Project would not directly affect them.

2. Does not consider the Edgewater Lanais (55 rooms, to be demolished in Phase I) and Makhini Hotel (10 rooms, to be demolished in Phase II), because neither property was operated as a hotel as of August 2001.

Sources : Compiled based on information provided by Outrigger Enterprises, Inc. and Group 70 International.

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Exhibit C

Waikiki Beach Walk

Facility Utilization Assumptions

2000 to 2015 (Average annual occupancies)

Phase / *Calendar year*	Basis/reference	*Historical* 2000	*End-of-Phase-I* 2005	*End-of-Phase-II* 2010	*Stabilized* 2015
Average utilization, Project facilities:					
Hotel rooms:					
Prior existing hotels[1]	*211 rooms*	71%	70%	n/a	n/a
Ohana Waikiki Village & Tower	*793 rooms*	71%	70%	82%	82%
Outrigger Saratoga Hotel	*891 rooms*	n/a	n/a	65%	80%
Overall		71%	70%	73%	81%
Non-hotel retail areas					
Phase I	*Including showroom*	n/a	88%	92%	92%
Phase II		n/a	n/a	88%	93%
Average prior occupancies, Phase I demolitions:					
Hotel rooms[2]	*(381) rooms*	69%	n/a	n/a	n/a
Non-hotel retail	*(7,930) square feet*	INA[3]	n/a	n/a	n/a

INA - Information not available; n/a - Not applicable

1. Those not renovated. Includes Ohana Reef Lanai and Ohana Royal Islander.

2. Ohana Coral Seas, Ohana Waikiki Village (33 demolished rooms), Ohana Edgewater and Ohana Waikiki Tower (55 demolished rooms).

3. Information not available. However, not considered relevant to ensuing projections since retail spending at these limited sites is expected to be reabsorbed elsewhere in Waikiki following their demolition.

Sources: Outrigger Hotels Hawaii (historical data) and Hospitality Advisors LLC (projections)

Exhibit C

Waikiki Beach Walk

Facility Utilization Assumptions

2000 to 2015 (Average annual occupancies)

Phase / *Calendar year*	Basis/reference	*Historical* 2000	*After completion of Phase I* 2005	*After completion of Phase II* 2010	*Stabilized* 2015
Average utilization, Project facilities:					
Hotel rooms:					
Prior existing hotels[1]	*211 rooms*	71%	70%	n/a	n/a
Ohana Waikiki Village & Tower	*793 rooms*	71%	70%	82%	82%
Outrigger Saratoga Hotel	*891 rooms*	n/a	n/a	65%	80%
Overall		71%	70%	73%	81%
Non-hotel retail areas					
Phase I	*Including showroom*	n/a	88%	92%	92%
Phase II		n/a	n/a	88%	93%
Average prior occupancies, Phase I demolitions:					
Hotel rooms[2]	*(381) rooms*	69%	n/a	n/a	n/a
Non-hotel retail	*(7,930) square feet*	INA[3]	n/a	n/a	n/a

INA - Information not available; n/a - Not applicable

1. *Those not renovated. Includes Ohana Reef Lanai and Ohana Royal Islander.*
2. *Ohana Coral Seas, Ohana Waikiki Village (33 demolished rooms), Ohana Edgewater and Ohana Waikiki Tower (55 demolished rooms).*
3. *Information not available. However, not considered relevant to ensuing projections since retail spending at these limited sites is expected to be reabsorbed elsewhere in Waikiki following their demolition.*

Sources: Outrigger Hotels Hawaii (historical data) and Hospitality Advisors LLC (projections)

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit D

Waikiki Beach Walk

Average Daily Occupied Hotel Rooms in State and County

2000 to 2015

Phase / *Calendar year*	Basis/reference	*Historical* 2000	*End-of-Phase-I* 2005	*End-of-Phase-II* 2010	*Stabilized* 2015
Average daily occupied rooms, Project facilities:	*All market segments*				
Prior existing hotels[1]	*211 rooms*		148	n/a	n/a
Ohana Waikiki Village & Tower	*793 rooms*	566	555	650	650
Outrigger Saratoga Hotel	*891 rooms*		n/a	579	713
Overall			703	1,229	1,363
Prior average daily occupied rooms, Phase I demolitions:	*All market segments*				
Hotel rooms[2]	*(381) rooms*	263	n/a	n/a	n/a
Project impact on average daily occupied rooms:	*Impacted market segments (ref. also Exhibit G)*				
Impact of demolitions[3]					
Phase I demolitions	*(381) rooms, @ 2000 occ.*		(164)	(164)	(164)
Phase II demolitions	*(211) rooms, @ 2005 occ.*		n/a	(78)	(78)
Impact of repositioned hotel[4]	*Projected occupancies vs. 2000*		(9)	68	68
Impact of new construction[5]	*At projected occupancies*		n/a	492	570
Net additional			(173)	318	396

INA - Information not available; n/a - Not applicable

1. *Those not renovated. Includes Ohana Reef Lanai and Ohana Royal Islander.*
2. *Ohana Coral Seas, Ohana Waikiki Village (33 demolished rooms), Ohana Edgewater and Ohana Waikiki Tower (55 demolished rooms).*
3. *Net of kama'aina and 50% of U.S. guests, since they are assumed to stay elsewhere on Oahu even if the Project were not completed. I.e., eroded market segments are expected to be primarily Canadian, European and portion of U.S. markets.*
4. *Ohana Waikiki Village and Tower. Net of kama'ainas, European and Canadian markets, which are expected to be accommodated elsewhere on-island even if the Project were not built. I.e., growth markets are expected to be primarily U.S. and Japanese.*
5. *Outrigger Saratoga Hotel. See comment above re market segment adjustments.*

Exhibit D

Waikiki Beach Walk

Average Daily Occupied Hotel Rooms in State and County

2000 to 2015

Phase / Calendar year	Basis/reference	Historical 2000	After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Average daily occupied rooms, Project facilities:	*All market segments*				
Prior existing hotels[1]	*211 rooms*		148	n/a	n/a
Ohana Waikiki Village & Tower	*793 rooms*	566	555	650	650
Outrigger Saratoga Hotel	*891 rooms*		n/a	579	713
Overall			703	1,229	1,363
Prior average daily occupied rooms, Phase I demolitions:	*All market segments*				
Hotel rooms[2]	*(381) rooms*	263	n/a	n/a	n/a
Project impact on average daily occupied rooms:	*Impacted market segments (ref. also Exhibit G)*				
Impact of demolitions[3]					
Phase I demolitions	*(381) rooms, @ 2000 occ.*		(164)	(164)	(164)
Phase II demolitions	*(211) rooms, @ 2005 occ.*		n/a	(78)	(78)
Impact of repositioned hotel[4]	*Projected occupancies vs. 2000*		(9)	68	68
Impact of new construction[5]	*At projected occupancies*		n/a	492	570
Net additional			(173)	318	396

N/A - Information not available; n/a - Not applicable

1. *Those not renovated. Includes Ohana Reef Lanai and Ohana Royal Islander.*
2. *Ohana Coral Seas, Ohana Waikiki Village (33 demolished rooms), Ohana Edgewater and Ohana Waikiki Tower (55 demolished rooms).*
3. *Net of kama'aina and 50% of U.S. guests, since they are assumed to stay elsewhere on Oahu even if the Project were not completed. I.e., eroded market segments are expected to be primarily Canadian, European and portion of U.S. markets.*
4. *Ohana Waikiki Village and Tower. Net of kama'ainas, European and Canadian markets, which are expected to be accommodated elsewhere on-island even if the Project were not built. I.e., growth markets are expected to be primarily U.S. and Japanese.*
5. *Outrigger Saratoga Hotel. See comment above re market segment adjustments.*

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Exhibit E

Waikiki Beach Walk

Average Daily Hotel Guests in State and County

2000 to 2015

Phase / Calendar year	Basis/reference	Historical 2000	End of Phase I 2005	End of Phase II 2010	Stabilized 2015
Average daily hotel guests, Project facilities:	*All market segments* *2.1 per occupied room[7]*				
Prior existing hotels[1]	*211 rooms*		310	n/a	n/a
Ohana Waikiki Village & Tower	*793 rooms*		1,166	1,366	1,366
Outrigger Saratoga Hotel	*891 rooms*		n/a	1,216	1,497
Overall			1,476	2,582	2,862
Average prior guests, Phase I demolitions:	*All market segments* *2.1 per occupied room[7]*				
Hotel rooms[3]	*(381) rooms*	552	n/a	n/a	n/a
Project impact on average daily hotel guests:	*Impacted market segments (ref. also Exhibit G)*				
Impact of demolitions[4]:					
Phase I demolitions	*At 2000 guest levels*		(345)	(345)	(345)
Phase II demolitions	*At 2005 guest levels*		n/a	(163)	(163)
Impact of repositioned hotel[5]	*Projected guest levels less 2000 guest levels*		(18)	142	142
Impact of new construction[6]	*At projected guest levels*		n/a	1,034	1,198
Net additional			(363)	668	831

N/A - Information not available; n/a - Not applicable

1. *Those not renovated. Includes Ohana Reef Lanai and Ohana Royal Islander.*
2. *PKF Hawaii, YTD average for Oahu as of May 2001, as provided by Hospitality Advisors LLC.*
3. *Ohana Coral Seas, Ohana Waikiki Village (33 demolished rooms), Ohana Edgewater and Ohana Waikiki Tower (55 demolished rooms).*
4. *Net of kama'aina and 50% of U.S. guests, since they are assumed to stay elsewhere on Oahu even if the Project were not completed.*
5. *Ohana Waikiki Village and Tower. Net of kama'ainas, European and Canadian markets, which are expected to be accommodated elsewhere on-island even if the Project were not built.*
6. *Outrigger Saratoga Hotel. See comment above re market segment adjustments.*

Exhibit E

Waikiki Beach Walk

Average Daily Hotel Guests in State and County

2000 to 2015

Phase / Calendar year	Basis/reference	Historical 2000	After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Average daily hotel guests, Project facilities:	*All market segments 2.1 per occupied room*[2]				
Prior existing hotels[1]	*211 rooms*		310	n/a	n/a
Ohana Waikiki Village & Tower	*793 rooms*		1,166	1,366	1,366
Outrigger Saratoga Hotel	*891 rooms*		n/a	1,216	1,497
Overall			1,476	2,582	2,862
Average prior guests, Phase I demolitions:	*All market segments 2.1 per occupied room*[2]				
Hotel rooms[3]	*(381) rooms*	552	n/a	n/a	n/a
Project impact on average daily hotel guests:	*Impacted market segments (ref. also Exhibit G)*				
Impact of demolitions[4]:					
Phase I demolitions	*At 2000 guest levels*		(345)	(345)	(345)
Phase II demolitions	*At 2005 guest levels*		n/a	(163)	(163)
Impact of repositioned hotel[5]	*Projected guest levels less 2000 guest levels*		(18)	142	142
Impact of new construction[6]	*At projected guest levels*		n/a	1,034	1,198
Net additional			(363)	668	831

INA - Information not available; n/a - Not applicable

1. *Those not renovated. Includes Ohana Reef Lanai and Ohana Royal Islander.*
2. *PKF Hawaii, YTD average for Oahu as of May 2001, as provided by Hospitality Advisors LLC.*
3. *Ohana Coral Seas, Ohana Waikiki Village (33 demolished rooms), Ohana Edgewater and Ohana Waikiki Tower (55 demolished rooms).*
4. *Net of kama'aina and 50% of U.S. guests, since they are assumed to stay elsewhere on Oahu even if the Project were not completed.*
5. *Ohana Waikiki Village and Tower. Net of kama'ainas, European and Canadian markets, which are expected to be accommodated elsewhere on-island even if the Project were not built.*
6. *Outrigger Saratoga Hotel. See comment above re market segment adjustments.*

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit F

Waikiki Beach Walk

Facility Rate Assumptions

2000 to 2015 (2001 dollars except historicals, not in thousands)

Phase / Calendar year	Basis/reference	Historical 2000	End-of-Phase I 2005	End-of-Phase II 2010	Stabilized 2015
Average achieved rates, Project facilities:					
Hotel rooms:	*Average daily room rate:*				
Prior existing hotels[1]	*211 rooms*	$79	$71	n/a	n/a
Ohana Waikiki Village & Tower	*793 rooms*	$70	$110	$125	$125
Outrigger Saratoga Hotel	*891 rooms*	n/a	n/a	$130	$166
Overall		$72	$102	$128	$147
Non-hotel retail areas					
Phase I	*Including showroom*	n/a	$719	$757	$757
Phase II		n/a	n/a	$689	$757
Average prior achieved rates, Phase I demolitions:					
	Average daily room rate:				
Hotel rooms[2]	*(381) rooms*	$66	n/a	n/a	n/a
Non-hotel retail[3]	*Average psf/year*	n/a	n/a	n/a	n/a

INA - Information not available; n/a - Not applicable

1. *Those not renovated. Includes Ohana Reef Lanai and Ohana Royal Islander. ADRs in 2005 based on 2000 achieved rate less 10%.*
2. *Ohana Coral Seas, Ohana Waikiki Village (33 demolished rooms), Ohana Edgewater and Ohana Waikiki Tower (55 demolished rooms).*
3. *Not considered applicable to Project's impacts, since spending and hence rents previously generated at these locations likely to migrate elsewhere in Waikiki after their demolition.*

Sources: Outrigger Hotels Hawaii (historical data) and Hospitality Advisors LLC (projections)

Exhibit F

Waikiki Beach Walk

Facility Rate Assumptions

2000 to 2015 (2001 dollars except historicals, not in thousands)

Phase / Calendar year	Basis/reference	Historical 2000	After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Average achieved rates, Project facilities:					
Hotel rooms:	*Average daily room rate:*				
Prior existing hotels[1]	*211 rooms*	$79	$71	n/a	n/a
Ohana Waikiki Village & Tower	*793 rooms*	$70	$110	$125	$125
Outrigger Saraloga Hotel	*891 rooms*	n/a	n/a	$130	$166
Overall		$72	$102	$128	$147
Non-hotel retail areas					
Phase I	*Including showroom*	n/a	$719	$757	$757
Phase II		n/a	n/a	$689	$757
Average prior achieved rates, Phase I demolitions:					
	Average daily room rate:				
Hotel rooms[2]	*(381) rooms*	$66	n/a	n/a	n/a
Non-hotel retail[3]	*Average psf/year*	n/a	n/a	n/a	n/a

N/A - Information not available; n/a - Not applicable

1. *Those not renovated. Includes Ohana Reef Lanai and Ohana Royal Islander. ADRs in 2005 based on 2000 achieved rate less 10%.*
2. *Ohana Coral Seas, Ohana Waikiki Village (33 demolished rooms), Ohana Edgewater and Ohana Waikiki Tower (55 demolished rooms).*
3. *Not considered applicable to Project's impacts, since spending and hence rents previously generated at these locations likely to migrate elsewhere in Waikiki after their demolition.*

Sources: Outrigger Hotels Hawaii (historical data) and Hospitality Advisors LLC (projections)

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit G

Waikiki Beach Walk

Projected Visitor Mix and Non-Lodging Expenditures: Average Daily Spending Per Project Hotel Guest

2001 dollars except where indicated, not in thousands

Phase / Calendar year	Basis/reference		End of Phase I 2005	End of Phase II 2010	Stabilized 2015
Visitor mix by property:	*Source: Hospitality Advisors LLC*				
Prior existing hotels[1]	*211 rooms*				
U.S. visitors			75%	0%	0%
Japanese visitors			5%	0%	0%
Hawaii residents			5%	0%	0%
Other visitors			15%	0%	0%
Ohana Waikiki Village & Tower	*793 rooms*				
U.S. visitors			75%	70%	70%
Japanese visitors			5%	10%	10%
Hawaii residents			5%	5%	5%
Other visitors			15%	15%	15%
Outrigger Saraloga Hotel	*891 rooms*				
U.S. visitors			0%	70%	60%
Japanese visitors			0%	15%	20%
Hawaii residents			0%	5%	5%
Other visitors			0%	10%	15%
Overall visitor mix and expenditures:	*2000 $*	*2001 $*[2]			
U.S. visitors	*$101.68 DBEDT*[4]	*$103.45*	75%	70%	65%
Japanese visitors	*$153.60 DBEDT*[4]	*$156.29*	5%	13%	15%
Hawaii residents[3]	*n/a*	*n/a*	5%	5%	5%
Other visitors	*$83.70 DBEDT*[4]	*$85.16*	15%	12%	15%
Total			100%	100%	100%
Weighted average expenditures	*Per person, per day, factoring Hawaii residents at $0*		$98.18	$102.70	$103.62

N/A - Information not available; n/a - Not applicable

1. *Ohana Reef Lanai and Ohana Royal Islander.*
2. *Inflated from 2000 at 1.75% per estimates provided by Paul Brewbaker, Chief Economist, Bank of Hawaii, September 6, 2001.*
3. *No expenditure allocated to Hawaii residents. Assumed to be incurred elsewhere on Oahu even if the Project is not developed*
4. *Non-lodging personal daily spending by visitor category per State of Hawaii, Department of Business, Economic Development and Tourism, "2000 Annual Visitor Research Report," as shown at www.hawaii.gov/dbedt/00vrrfe/spend.html, August 15, 2001. U.S. and Canadian/European spending averages in 2000 based on assumed mixes of hotel guests staying at the Project and other assumptions, as follows:*

	DBEDT non-lodging spending estimate	Assumed mix
US west	$92.00	55%
US east	$113.50	45%
Weighted average		$101.68

	DBEDT total spending estimate	Estimated share for non-lodging	Assumed mix
Canadian	$147.00	60%	50%
European	$132.00	60%	50%
Weighted average			$83.70

Exhibit G

Waikiki Beach Walk

Projected Visitor Mix and Non-Lodging Expenditures: Average Daily Spending Per Project Hotel Guest

2001 dollars except where indicated, not in thousands

Phase / Calendar year	Basis/reference		After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Visitor mix by property:	*Source: Hospitality Advisors LLC*				
Prior existing hotels[1]	*211 rooms*				
U.S. visitors			75%	0%	0%
Japanese visitors			5%	0%	0%
Hawaii residents			5%	0%	0%
Other visitors			15%	0%	0%
Ohana Waikiki Village & Tower	*793 rooms*				
U.S. visitors			75%	70%	70%
Japanese visitors			5%	10%	10%
Hawaii residents			5%	5%	5%
Other visitors			15%	15%	15%
Outrigger Saratoga Hotel	*891 rooms*				
U.S. visitors			0%	70%	60%
Japanese visitors			0%	15%	20%
Hawaii residents			0%	5%	5%
Other visitors			0%	10%	15%
Overall visitor mix and expenditures:	*2000 $*	*2001 $*[2]			
U.S. visitors	*$101.68 DBEDT*[4]	*$103.45*	75%	70%	65%
Japanese visitors	*$153.60 DBEDT*[4]	*$156.29*	5%	13%	15%
Hawaii residents[3]	*n/a*	*n/a*	5%	5%	5%
Other visitors	*$83.70 DBEDT*[4]	*$85.16*	15%	12%	15%
Total			100%	100%	100%
Weighted average expenditures	*Per person, per day, factoring Hawaii residents at $0*		$98.18	$102.70	$103.62

INA - Information not available; n/a - Not applicable

1. *Ohana Reef Lanai and Ohana Royal Islander.*
2. *Inflated from 2000 at 1.75% per estimates provided by Paul Brewbaker, Chief Economist, Bank of Hawaii, September 6, 2001.*
3. *No expenditure allocated to Hawaii residents. Assumed to be incurred elsewhere on Oahu even if the Project is not developed.*
4. *Non-lodging personal daily spending by visitor category per State of Hawaii, Department of Business, Economic Development and Tourism, "2000 Annual Visitor Research Report," as shown at www.hawaii.gov/dbedt/00rrtrspend.html, August 15, 2001. U.S. and Canadian/European spending averages in 2000 based on assumed mixes of hotel guests staying at the Project and other assumptions, as follows:*

	DBEDT non-lodging spending estimate	*Assumed mix*
US west	*$92.00*	*55%*
US east	*$113.50*	*45%*
Weighted average		*$101.68*

	DBEDT total spending estimate	*Estimated share for non-lodging*	*Assumed mix*
Canadian	*$147.00*	*60%*	*50%*
European	*$132.00*	*60%*	*50%*
Weighted average			*$83.70*

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit H

Waikiki Beach Walk

Projected Project Impact on Annual Visitor Expenditures in Hawaii

2005 to 2015 (2001 dollars, in millions)

Phase / Calendar year	Basis/reference	End of Phase I 2005	End of Phase II 2010	Stabilized 2015
Direct Impacts[1]:				
Room expenditures:				
Impact of hotel demolitions:				
Phase I demolitions	*(164) occ. rooms, @ 2000 ADR*	($3.96)	($3.96)	($3.96)
Phase II demolitions	*(78) occ. rooms, @ 2005 ADR*	n/a	($2.02)	($2.02)
Impact of repositioned hotel[2]	*Projected ADR & occ. vs. 2000*	$7.35	$14.36	$14.36
Impact of new construction[3]	*Projected ADR & occupancy*	n/a	$27.48	$43.19
Net change		$3.38	$35.86	$51.57
Non-lodging expenditures[4]:				
Impact of hotel demolitions:				
Phase I demolitions	*(345) average daily guests Ex's E & G*	($12.37)	($12.37)	($12.37)
Phase II demolitions	*(163) average daily guests Ex's E & G*	n/a	($5.84)	($5.84)
Impact of repositioned hotel[2]	*Av. daily guests & exp. as shown @ Ex's E & G*	($0.65)	$5.32	$5.36
Impact of new construction[3]	*Av. daily guests & exp. as shown @ Ex's E & G*	n/a	$38.75	$45.29
Net change		($13.02)	$25.88	$32.45
Total, direct		($9.63)	$61.73	$84.02
Indirect and induced impacts[5]	*0.71 multiplier*	($6.84)	$43.82	$59.65
Total impacts		($16.47)	$105.55	$143.67

INA - Information not available; n/a - Not applicable

1. *Assumes new expenditures attributable to Project's impacts to net new hotel guests only, i.e., no additional retail spending on-island hypothesized for non-Project guests. Room and other expenditures by kama'ainas and certain other hotel market segments excluded because they are assumed to stay elsewhere on Oahu even if the Project were not developed (see letter report).*
2. *Ohana Waikiki Village & Tower*
3. *Outrigger Saratoga Hotel*
4. *Project's net impact on average daily visitors as shown in Exhibit E, and non-lodging spending as shown in Exhibit G. Average spending for "lost guests" at demolished hotels set at market mix defined for 2005. Estimates may exaggerate losses, since lost market segments from demolitions are primarily expected to be lower-spending "Other" and portion of U.S. market, while projected gains from repositioned and new hotels may be conservative since "gained" markets expected to be primarily higher-spending Japanese and U.S. markets.*
5. *Indirect and induced spending effects for weighted average visitors to Hawaii, based on calculations performed by Dr. Xiyun Tien, Hawaii State Department of Business, Economic Development & Tourism (personal communication, April 8, 1999.) Calculations consider expenditures allocated to 118 industry categories, modeled in DBEDT's Input-Output Model, along with the indirect and induced impacts of each.*

Exhibit H

Waikiki Beach Walk

Projected Project Impact on Annual Visitor Expenditures in Hawaii

2005 to 2015 (2001 dollars, in millions)

Phase / Calendar year	Basis/reference	After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Direct Impacts[1]:				
Room expenditures:				
Impact of hotel demolitions:				
Phase I demolitions	*(154) occ. rooms, @ 2000 ADR*	($3.96)	($3.96)	($3.96)
Phase II demolitions	*(78) occ. rooms, @ 2005 ADR*	n/a	($2.02)	($2.02)
Impact of repositioned hotel[2]	*Projected ADR & occ. vs. 2000*	$7.35	$14.36	$14.36
Impact of new construction[3]	*Projected ADR & occupancy*	n/a	$27.48	$43.19
Net change		$3.38	$35.86	$51.57
Non-lodging expenditures[4]:				
Impact of hotel demolitions:				
Phase I demolitions	*(345) average daily guests Ex's E & G*	($12.37)	($12.37)	($12.37)
Phase II demolitions	*(163) average daily guests Ex's E & G*	n/a	($5.84)	($5.84)
Impact of repositioned hotel[2]	*Av. daily guests & exp. as shown @ Ex's E & G*	($0.65)	$5.32	$5.36
Impact of new construction[3]	*Av. daily guests & exp. as shown @ Ex's E & G*	n/a	$38.75	$45.29
Net change		($13.02)	$25.86	$32.45
Total, direct		($9.63)	$61.73	$84.02
Indirect and induced impacts[5]	*0.71 multiplier*	($6.84)	$43.82	$59.65
Total impacts		($16.47)	$105.55	$143.67

N/A - Information not available; n/a - Not applicable

1. *Assumes new expenditures attributable to Project's impacts to net new hotel guests only, i.e., no additional retail spending on-island hypothesized for non-Project guests. Room and other expenditures by kama'ainas and certain other hotel market segments excluded because they are assumed to stay elsewhere on Oahu even if the Project were not developed (see letter report).*
2. *Ohana Waikiki Village & Tower*
3. *Outrigger Saratoga Hotel*
4. *Project's net impact on average daily visitors as shown in Exhibit E, and non-lodging spending as shown in Exhibit G. Average spending for "lost guests" at demolished hotels set at market mix defined for 2005, see also market study (page 52). Estimates may exaggerate losses since lost market segments from demolitions are primarily expected to be lower-spending "Other" and portion of U.S. market, while projected gains from repositioned and new hotels may be conservative since "gained" markets expected to be primarily higher-spending Japanese and U.S. markets.*
5. *Indirect and induced spending effects for weighted average visitors to Hawaii, based on calculations performed by Dr. Xijun Tian, Hawaii State Department of Business, Economic Development & Tourism (personal communication, April 8, 1999.) Calculations consider expenditures allocated to 118 industry categories, modeled in DBEDT's Input-Output Model, along with the indirect and induced impacts of each.*

Exhibit I

Waikiki Beach Walk

Industry Coefficients and Multipliers for Development Activities

INDUSTRY COEFFICIENTS[1]

	DBEDT industry category applied	Direct impact coefficient per $1 million (1992$) project cost: Jobs[2]	FTE factor[3]	$ Income
Professional services	*#109-Engineering and architectural services*	14.77	0.94	0.58
Construction:				
Hotel/retail/ballroom/showroom	*#23-Hotel construction*	9.78	0.94	0.44
FF&E/Tenant improvements	*#25-Other construction*	11.11	0.94	0.45
Infrastructure	*#24-Road construction*	11.12	0.94	0.48
Indirect costs	*#72-Banking; #76-Real estate; #83-Advertising; #104-Legal services; #111-Management consulting; #118 State & local government; #90-Other business services*	13.90	0.95	0.40

"DIRECT-EFFECT" INDUSTRY MULTIPLIERS[4]

	DBEDT industry category applied	Indirect & induced multiplier per direct: FTE job[5]	$ Income
Professional services	*#109-Engineering and architectural services*	1.19	0.83
Construction:			
Hotel/resort	*#23-Hotel construction*	1.49	0.95
FF&E/Tenant improvements	*#25-Other construction*	1.39	0.96
Infrastructure	*#24-Road construction*	1.46	0.97
Indirect costs	*#72-Banking; #76-Real estate; #83-Advertising; #104-Legal services; #111-Management consulting; #118 State & local government; #90-Other business services*	1.24	1.25

1. *Jobs and income direct impact coefficients calculated from Hawaii State Department of Business, Economic Development & Tourism, "The Hawaii Input-Output Study: 1992 Benchmark Report," December 1998 (Appendix A, pages 60 to 84). Coefficients are based on project cost, in 1992 dollars.*
2. *Input-Output Study estimates total wage, salaried and proprietary jobs, both full- and part-time (not full-time equivalent); jobs coefficients are based on construction costs in 1992 dollars.*
3. *Adjustment factor applied in addition to the jobs coefficient to estimate full-time equivalent jobs at 40 hours per week. Factor derived from the 37.6 average weekly hours worked in the construction and mining industry and 38.0 in banking and credit agencies, Statewide, 2000, as reported by Hawaii Department of Labor and Industrial Relations, at www.state.hi.us/dlir/rs/toihi ("Average hourly earnings"), August 15 and September 18, 2001.*
4. *Indirect and induced job and income multipliers derived from Type II total jobs and income "Direct-Effect" multipliers as shown in Hawaii State Department of Business, Economic Development & Tourism, "The Hawaii Input-Output Study: 1992 Benchmark Report," December 1998 (Table 5.1, pp. 38-41). Includes wage, salaried and proprietary employment.*
5. *FTE = Full time equivalent, defined as 40 hours per week or 2,080 hours per year.*

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Exhibit J

Waikiki Beach Walk

Estimated Development Costs

2002 to 2015 (1992 and 2001 dollars, in millions)

Phase / Calendar year	Basis/reference	Phase I 2002 to 2005 Total	Phase I 2002 to 2005 Av. annual	Phase II 2006 to 2010 Total	Phase II 2006 to 2010 Av. annual
2001 budget:					
Professional services	*Arch/engineering, development management, EIS/planning*	$13.05	~~$3.26~~	$15.25	$3.05
Construction:					
Hotel/Retail/Ballroom	*Outrigger Hotels and Pankow*	$90.97	~~$22.74~~	$128.17	$25.63
FF&E/Tenant improvements	*In retail areas (OEI estimate)*	$3.91	~~$0.98~~	$1.47	$0.29
Infrastructure	*Roadwork, bridge, demolition*	$8.13	~~$2.03~~	$4.92	$0.98
Subtotal		$103.00	~~$25.76~~	$134.56	$26.91
Other	*Financing, permits, PR, etc.*	$19.02	~~$4.76~~	$26.68	$5.34
Total, rounded		$135.08	~~$33.77~~	$176.49	$35.30
In estimated 1992 dollars:	*0.75 deflation*[1]				
Professional services		$9.85	~~$2.46~~	$11.51	$2.30
Construction:					
Hotel/Retail		$68.68	~~$17.17~~	$96.77	$19.35
FF&E/Tenant improvements		$2.95	~~$0.74~~	$1.11	$0.22
Infrastructure		$6.14	~~$1.53~~	$3.72	$0.74
Other		$14.36	~~$3.59~~	$20.15	$4.03
Total, rounded		$101.98	~~$25.60~~	$133.25	$26.65

1. U.S. Census, Dept. of Commerce, implicit price deflator for construction for Honolulu, as provided by Bank of Hawaii.

Sources: Charles Pankow Builders, Ltd. and Outrigger Enterprises, Inc.

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Exhibit J

Waikiki Beach Walk

Estimated Development Costs

2002 to 2015 (1992 and 2001 dollars, in millions)

Phase / Calendar year	Basis/reference	Phase I 2002 to 2004 Total	Phase I 2002 to 2004 Av. annual	Phase II 2005 to 2009 Total	Phase II 2005 to 2009 Av. annual
2001 budget:					
Professional services	*Arch/engineering, development management, EIS/planning*	$13.05	$4.35	$15.25	$3.05
Construction:					
Hotel/Retail/Ballroom	*Outrigger Hotels and Pankow*	$90.97	$30.32	$128.17	$25.63
FF&E/Tenant improvements	*In retail areas (OEI estimate)*	$3.91	$1.30	$1.47	$0.29
Infrastructure	*Roadwork, bridge, demolition*	$8.13	$2.71	$4.92	$0.98
Subtotal		$103.00	$34.33	$134.56	$26.91
Other	*Financing, permits, PR, etc.*	$19.02	$6.34	$26.68	$5.34
Total, rounded		$135.08	$45.03	$176.49	$35.30
In estimated 1992 dollars:	*0.75 deflation*[1]				
Professional services		$9.85	$3.28	$11.51	$2.30
Construction:					
Hotel/Retail		$68.68	$22.89	$96.77	$19.35
FF&E/Tenant improvements		$2.95	$0.98	$1.11	$0.22
Infrastructure		$6.14	$2.05	$3.72	$0.74
Other		$14.36	$4.79	$20.15	$4.03
Total, rounded		$101.98	$33.99	$133.25	$26.65

1. U.S. Census, Dept. of Commerce, implicit price deflator for construction for Honolulu, as provided by Bank of Hawaii.

Sources: Charles Pankow Builders, Ltd. and Outrigger Enterprises, Inc.

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit K

Waikiki Beach Walk

Projected Development Employment
Full-time Equivalent Jobs[1]

2002 to 2015

Phase / Calendar year	Basis/reference	Phase I 2002 to ~~2005~~ Total	Phase I 2002 to ~~2005~~ Av. annual	Phase II ~~2006~~ to ~~2010~~ Total	Phase II ~~2006~~ to ~~2010~~ Av. annual
Direct jobs[2]:	*Exhibits I and J*				
Professional services		137	~~34~~	160	32
Construction:					
Hotel/Retail		631	~~158~~	890	178
FF&E/Tenant improvements		31	~~8~~	12	2
Infrastructure		64	~~16~~	39	8
Other		190	~~47~~	266	53
Total direct jobs (rounded)		1,050	~~260~~	1,370	270
Indirect and induced jobs[3]	*Exhibit I*	1,476	~~369~~	1,919	384
Total jobs (rounded)		2,530	~~630~~	3,290	650

1. FTE = Full time equivalent, defined as 40 hours per week or 2,080 hours per year.
2. Based on jobs and FTE coefficients shown on Exhibit I, and estimated development costs in 1992 dollars, as shown in Exhibit J.
3. Based on Direct-Effect jobs multipliers for each job category, as shown on Exhibit I.

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Exhibit K

Waikiki Beach Walk

Projected Development Employment
Full-time Equivalent Jobs[1]

2002 to 2015

Phase / Calendar year	Basis/reference	Phase I 2002 to 2004 Total	Phase I 2002 to 2004 Av. annual	Phase II 2005 to 2009 Total	Phase II 2005 to 2009 Av. annual
Direct jobs[2]:	*Exhibits I and J*				
Professional services		137	46	160	32
Construction:					
Hotel/Retail		631	210	890	178
FF&E/Tenant improvements		31	10	12	2
Infrastructure		64	21	39	8
Other		190	63	266	53
Total direct jobs (rounded)		1,050	350	1,370	270
Indirect and induced jobs[3]	*Exhibit I*	1,476	492	1,919	384
Total jobs (rounded)		2,530	840	3,290	650

1. FTE = Full time equivalent, defined as 40 hours per week or 2,080 hours per year.
2. Based on jobs and FTE coefficients shown on Exhibit I, and estimated development costs in 1992 dollars, as shown in Exhibit J.
3. Based on Direct-Effect jobs multipliers for each job category, as shown on Exhibit I.

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit L

Waikiki Beach Walk

Projected Personal Income from Development

2002 to 2015 (2001 dollars, in millions except average income)

Phase			Phase I		Phase II	
Calendar year			2002 to ~~2005~~		~~2006~~ to ~~2010~~	
		Basis/reference	Total	Av. annual	Total	Av. annual
Direct income[1]						
Professional services		*Coefficient & FTE factors (Ex. I)*	$5.19	~~$1.30~~	$6.06	$1.21
Construction:						
	Hotel/Retail	*Coefficient & FTE factors (Ex. I)*	$28.41	~~$7.10~~	$40.02	$8.00
	FF&E/Tenant improvements	*Coefficient & FTE factors (Ex. I)*	$1.25	~~$0.31~~	$0.47	$0.09
	Infrastructure	*Coefficient & FTE factors (Ex. I)*	$2.77	~~$0.69~~	$1.68	$0.34
Other		*Coefficient & FTE factors (Ex. I)*	$5.45	~~$1.36~~	$7.64	$1.53
Subtotal, direct			~~$43.06~~	~~$10.75~~	~~$55.87~~	~~$11.17~~
Indirect and induced income[2]			$41.99	~~$10.60~~	$54.70	$10.94
Total income			~~$85.05~~	~~$21.26~~	$110.57	$22.11
Average income/new FTE job:		*Ex. K, rounded (not in millions)*				
Direct jobs				*$41,000*		*$41,000*
Indirect and induced jobs				*$28,000*		*$28,000*
Total jobs				*$34,000*		*$34,000*

1. Based on industry coefficients and FTE factors as shown in Exhibit I and estimated construction costs in 1992 dollars, as shown in Exhibit J.
2. Sumproduct of estimated direct incomes by industry as shown above, and Direct-Effect industry multipliers shown in Exhibit I.

Exhibit L

Waikiki Beach Walk

Projected Personal Income from Development

2002 to 2015 (2001 dollars, in millions except average income)

Phase			Phase I		Phase II	
Calendar year			2002 to 2004		2005 to 2009	
		Basis/reference	Total	Av. annual	Total	Av. annual
Direct income[1]						
Professional services		*Coefficient & FTE factors (Ex. I)*	$5.19	$1.73	$6.06	$1.21
Construction:						
	Hotel/Retail	*Coefficient & FTE factors (Ex. I)*	$28.41	$9.47	$40.02	$8.00
	FF&E/Tenant improvements	*Coefficient & FTE factors (Ex. I)*	$1.25	$0.42	$0.47	$0.09
	Infrastructure	*Coefficient & FTE factors (Ex. I)*	$2.77	$0.92	$1.68	$0.34
Other		*Coefficient & FTE factors (Ex. I)*	$5.45	$1.82	$7.64	$1.53
Subtotal, direct			$43.06	$14.35	$55.87	$11.17
Indirect and induced income[2]			$41.99	$14.00	$54.70	$10.94
Total income			$85.05	$28.35	$110.57	$22.11
Average income/new FTE job:		*Ex. K, rounded (not in millions)*				
Direct jobs				*$41,000*		*$41,000*
Indirect and induced jobs				*$28,000*		*$28,000*
Total jobs				*$34,000*		*$34,000*

1. Based on industry coefficients and FTE factors as shown in Exhibit I and estimated construction costs in 1992 dollars, as shown in Exhibit J
2. Sumproduct of estimated direct incomes by industry as shown above, and Direct-Effect industry multipliers shown in Exhibit I.

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit M

Waikiki Beach Walk

Projected Operational Employment
Full-time Equivalent Jobs[1]

2005 to 2015 (2001 dollars, in millions)

Phase / Calendar year	Basis/reference	End-of-Phase I 2005	End-of-Phase II 2010	Stabilized 2015
Bases for projection:				
Net additional operating hotel rooms	*Exhibit B, cumulative*	*(381)*	*299*	*299*
Net additional direct retail/entertainment sales[2]	*69% of nonlodging @ Exhibit H*	*($8.98)*	*$17.85*	*$22.39*
Net retail/entertainment trade margin[3]	*55% of net additional direct sales*	*($4.94)*	*$9.82*	*$12.31*
Full-time equivalent jobs:				
Direct:				
Hotel & common areas[4]	*1.0 per net additional room*	0	299	299
Retail/entertainment[5]	*17.1 per $mil net margin*	(84)	167	210
Subtotal, direct jobs		(84)	466	509
Indirect and induced[6]	*Multiplier and industry category applied:*			
Hotel & common areas	*0.78 Hotels & lodging places*	0	233	233
Retail/entertainment[5]	*0.64 See footnote*	(54)	107	134
Subtotal, indirect & induced jobs		(54)	340	367
Total		(138)	806	876

1. *FTE = Full time equivalent, defined as 40 hours per week or 2,080 hours per year. Except retail estimate, does not include all proprietary employment opportunities that direct spending may also support.*
2. *Retail and entertainment sales defined as "Food & beverage," "Entertainment" and "Shopping" categories listed in DBEDT 2000 spending survey. Share of total non-lodging expenditures based on average of US West (74%), US East (69%) and Japanese visitor (64%) budgets in these categories.*
3. *Based on estimated average Waikiki mark-up of 150%, as provided by SL Sofos & Co., Ltd., September 7, 2001.*
4. *Multipliers provided by Outrigger Enterprises, Inc. Outrigger anticipates absorbing employees of closed hotels in Phase I in new common areas of Project and/or at other Outrigger properties on-island.*
5. *Due to new hotel guest spending, jobs could be located on-site or at competitive facilities. Jobs theoretically lost at demolished retail facilities expected to be re-absorbed elsewhere as visitor spending migrates. Based on average of Apparel & Accessory Stores, Eating & Drinking Places, General and Misc. retail industry segments, as defined by DBEDT in Input-Output model (see note 6).*
6. *Indirect and induced effects estimated based on Type II "Direct Effect" Multipliers for wage and salaried jobs and income, as shown by industry category, per Hawaii State Department of Business, Economic Development & Tourism, "The Hawaii Input-Output Study: 1992 Benchmark Report," December 1998 (Table 5.1, pp. 39-40).*

Mikiko corporation

Exhibit M

Waikiki Beach Walk

Projected Operational Employment
Full-time Equivalent Jobs[1]

2005 to 2015 (2001 dollars, in millions)

Phase / Calendar year	Basis/reference	After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Bases for projection:				
Net additional operating hotel rooms	*Exhibit B, cumulative*	*(381)*	*299*	*299*
Net additional direct retail/entertainment sales[2]	*69% of nonlodging @ Exhibit H*	*($8.98)*	*$17.85*	*$22.39*
Net retail/entertainment trade margin[3]	*55% of net additional direct sales*	*($4.94)*	*$9.82*	*$12.31*
Full-time equivalent jobs:				
Direct:				
Hotel & common areas[4]	*1.0 per net additional room*	0	299	299
Retail/entertainment[5]	*17.1 per $mil net margin*	(84)	167	210
Subtotal, direct jobs		(84)	466	509
Indirect and induced[6]	*Multiplier and industry category applied:*			
Hotel & common areas	*0.78 Hotels & lodging places*	0	233	233
Retail/entertainment[5]	*0.64 See footnote*	(54)	107	134
Subtotal, indirect & induced jobs		(54)	340	367
Total		(138)	806	876

1. *FTE = Full time equivalent, defined as 40 hours per week or 2,080 hours per year. Except retail estimate, does not include all proprietary employment opportunities that direct spending may also support.*
2. *Retail and entertainment sales defined as "Food & beverage," "Entertainment" and "Shopping" categories listed in DBEDT 2000 spending survey. Share of total non-lodging expenditures based on average of US West (74%), US East (69%) and Japanese visitor (64%) budgets in these categories.*
3. *Based on estimated average Waikiki mark-up of 150%, as provided by SL Sofos & Co., Ltd., September 7, 2001.*
4. *Multipliers provided by Outrigger Enterprises, Inc. Outrigger anticipates absorbing employees of closed hotels in Phase I in new common areas of Project and/or at other Outrigger properties on-island.*
5. *Due to new hotel guest spending, jobs could be located on-site or at competitive facilities. Jobs theoretically lost at demolished retail facilities expected to be re-absorbed elsewhere as visitor spending migrates. Based on average of Apparel & Accessory Stores, Eating & Drinking Places, General and Misc. retail industry segments, as defined by DBEDT in Input-Output model (see note 6).*
6. *Indirect and induced effects estimated based on Type II "Direct-Effect" Multipliers for wage and salaried jobs and income, as shown by industry category, per Hawaii State Department of Business, Economic Development & Tourism, "The Hawaii Input Output Study: 1992 Benchmark Report," December 1998 (Table 5.1, pp. 39-40).*

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Exhibit N

Waikiki Beach Walk

Projected Personal Income from Operations

2002 to 2015 (2001 dollars, in millions except average income)

Phase / Calendar year	Basis/reference	~~End of Phase I~~ 2005	~~End of Phase II~~ 2010	Stabilized 2015
Direct income[1]	*Estimated average FTE salary:*			
Hotel & common areas	*$28,783 Hotels*	$0.00	$8.61	$8.61
Retail/entertainment	*$18,356 Retail, eating & drinking*	($1.55)	$3.07	$3.86
Subtotal		($1.55)	$11.68	$12.46
Indirect and induced income[2]	*Multiplier and industry category:*			
Hotel & common areas	*1.34 Hotels & lodging places*	$0.00	$11.53	$11.53
Retail/entertainment[3]	*1.04 See note*	($1.60)	$3.19	$4.00
Subtotal		($1.60)	$14.72	$15.53
Total income		($3.15)	$26.40	$27.99
Average income/new FTE job:	*Exhibit M, rounded (not in millions)*			
Direct jobs		*n/a*	*$25,000*	*$24,000*
Indirect and induced jobs		*n/a*	*$43,000*	*$42,000*
Total jobs		*n/a*	*$33,000*	*$32,000*

I/NA - Information not available; n/a - Not applicable

1. *Exclusive of tips, bonuses, etc. Average salary based on 2,080 hours per year full time equivalent, and 2000 average hourly Honolulu wage of $9.22 retail (weighted 75%) and $7.54 eating & drinking (weighted 25%) for retail/entertainment income, and $13.60 in the hotel industry, according to the Hawaii State Department of Labor & Industrial Relations, website as of August 15, 2001; figures adjusted +1.75% to inflate to 2001 equivalent per information provided by Bank of Hawaii.*
2. *Indirect and induced effects estimated based on Type II "Direct-Effect" Multipliers for income, as shown for various industry groups indicated, in Hawaii State Department of Business, Economic Development & Tourism, "The Hawaii Input-Output Study: 1992 Benchmark Report," December 1998 (Table 5.1, pp. 39-41), plus adjustment to Hotels & lodging places multiplier per 9/25/01 communications with State of Hawaii, DBEDT economist regarding errata in Input-Output report.*
3. *Based on average of multipliers for Eating & Drinking Places, Apparel & Accessory Stores, General Merchandise and Misc. retail categories.*

Mikiko CORPORATION

Exhibit N

Waikiki Beach Walk

Projected Personal Income from Operations

2002 to 2015 (2001 dollars, in millions except average income)

Phase / Calendar year	Basis/reference	After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Direct income[1]	*Estimated average FTE salary:*			
Hotel & common areas	*$28,783 Hotels*	$0.00	$8.61	$8.61
Retail/entertainment	*$18,356 Retail, eating & drinking*	($1.55)	$3.07	$3.86
Subtotal		($1.55)	$11.68	$12.46
Indirect and induced income[2]	*Multiplier and industry category:*			
Hotel & common areas	*1.34 Hotels & lodging places*	$0.00	$11.53	$11.53
Retail/entertainment[3]	*1.04 See note*	($1.60)	$3.19	$4.00
Subtotal		($1.60)	$14.72	$15.53
Total income		($3.15)	$26.40	$27.99
Average income/new FTE job:	*Exhibit M, rounded (not in millions)*			
Direct jobs		*n/a*	*$25,000*	*$24,000*
Indirect and induced jobs		*n/a*	*$43,000*	*$42,000*
Total jobs		*n/a*	*$33,000*	*$32,000*

I/NA - Information not available; n/a - Not applicable

1. *Exclusive of tips, bonuses, etc. Average salary based on 2,080 hours per year full-time equivalent, and 2000 average hourly Honolulu wage of $9.22 retail (weighted 75%) and $7.54 eating & drinking (weighted 25%) for retail/entertainment income, and $13.60 in the hotel industry, according to the Hawaii State Department of Labor & Industrial Relations, website as of August 15, 2001; figures adjusted +1.75% to inflate to 2001 equivalent per information provided by Bank of Hawaii.*
2. *Indirect and induced effects estimated based on Type II "Direct-Effect" Multipliers for income, as shown for various industry groups indicated, in Hawaii State Department of Business, Economic Development & Tourism, "The Hawaii Input-Output Study. 1992 Benchmark Report," December 1998 (Table 5.1, pp. 39-41), plus adjustment to Hotels & lodging places multiplier per 9/25/01 communications with State of Hawaii, DBEDT economist regarding errata in Input-Output report*
3. *Based on average of multipliers for Eating & Drinking Places, Apparel & Accessory Stores, General Merchandise and Misc. retail categories.*

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit O

Waikiki Beach Walk

Projected Average In-Migrant Population

2005 to 2015

Phase / Calendar year	Basis/reference	End of Phase I 2005	End of Phase II 2010	Stabilized 2015
In-migrants to City and County[1]:				
Development employees	*3% of direct jobs (Ex. K)*	8	8	0
Direct operational employees	*2% of direct jobs (Ex. M)*	(2)	9	10
Dependents[2]	*Ratio of in-migrant employees*	0	11	10
Total In-migrants to the County		6	28	20
In-migrants to the State:				
Development employees	*2% of direct jobs (Ex. K)*	5	5	0
Direct operational employees	*1% of direct jobs (Ex. M)*	(1)	5	5
Dependents[2]	*Ratio of in-migrant employees*	0	6	5
Total In-migrants to the State		4	16	10

1. *In-migrants to the County include all those moving to the State plus any that may move between islands due to job opportunities at the Project.*
2. *In-migrant dependents estimated to average 0.2 per in-migrant construction worker, and 1.0 per in-migrant operational employee.*

Based on information provided by Charles Pankow Builders, Ltd. and Outrigger Hotels Hawaii.

Mililani Corporation

Exhibit O

Waikiki Beach Walk

Projected Average In-Migrant Population

2005 to 2015

Phase / Calendar year	Basis/reference	After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
In-migrants to City and County[1]:				
Development employees	*3% of direct jobs (Ex. K)*	11	8	0
Direct operational employees	*2% of direct jobs (Ex. M)*	(2)	9	10
Dependents[2]	*Ratio of in-migrant employees*	0	11	10
Total In-migrants to the County		9	28	20
In-migrants to the State:				
Development employees	*2% of direct jobs (Ex. K)*	7	5	0
Direct operational employees	*1% of direct jobs (Ex. M)*	(1)	5	5
Dependents[2]	*Ratio of in-migrant employees*	1	6	5
Total In-migrants to the State		7	16	10

1. *In-migrants to the County include all those moving to the State plus any that may move between islands due to job opportunities at the Project.*
2. *In-migrant dependents estimated to average 0.2 per in-migrant construction worker, and 1.0 per in-migrant operational employee.*

Based on information provided by Charles Pankow Builders, Ltd. and Outrigger Hotels Hawaii.

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OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit P

Waikiki Beach Walk

Projected Real Property Tax Revenues to the County Government Attributable to Development

2005 to 2015 (2001 dollars, in millions)

Phase / Calendar year	Basis/reference	End of Phase I 2005	End of Phase II 2010	Stabilized 2015
Potential tax revenues:				
Estimated Assessed Values for Project as to be improved:				
Improvements[1]				
Total prior assessed value	*2001-02 assessed values*	*$62.36*	*$62.36*	*$62.36*
Less value of demolitions	*Cumulative values*	*($12.39)*	*($21.41)*	*($21.41)*
Plus construction in place	*Construction budget expended by end of year (cumulative), less FF&E*[2]	*$102.02*	*$236.22*	*$236.22*
Subtotal, improvements		*$151.99*	*$277.16*	*$277.16*
Land	*2001-02 assessed values, no addition for potential Helumoa St. acquisition*	*$47.17*	*$47.17*	*$47.17*
Annual real property tax[3]:				
Improvements	*$9.96 per $1,000 AIV Hotel & Resort*	$1.51	$2.76	$2.76
Land	*$9.96 per $1,000 AIV Hotel & Resort*	$0.47	$0.47	$0.47
Total potential tax revenues associated with Project		$1.98	$3.23	$3.23
Less deductions:				
RPT payments prior to Project[4]	*$9.96 per $1,000 AIV, land & bldg*	($1.09)	($1.09)	($1.09)
Real property tax exemption	*7 year exemption, beginning 7/1/2006*	$0.00	($0.81)	$0.00
Total deductions		($1.09)	($1.90)	($1.09)
Estimated net additional RPT		**$0.89**	**$1.33**	**$2.14**

1. *Prior assessed values as provided by Outrigger Enterprises, Inc. Construction put in place based on cumulative hard costs only.*
2. *Used as proxy for future assessed value of contribution of new construction. Furniture, fixtures & improvements backed out of budget shown in Exhibit J, based on 25% of FF&E/TI line item, since FF&E budgeted at $15 psf, while TI's budgeted at $45 psf.*
3. *Fiscal Year 2002 real property tax rates for City and County of Honolulu*
4. *Based on total FY 2001-02 assessed values for area properties under evaluation of: $109,522,300 per assessment data provided by Outrigger Enterprises, Inc. and City's on-line GIS system.*

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Exhibit P

Waikiki Beach Walk

Projected Real Property Tax Revenues to the County Government Attributable to Development

2005 to 2015 (2001 dollars, in millions)

Phase / Calendar year	Basis/reference	After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Potential tax revenues:				
Estimated Assessed Values for Project as to be improved:				
Improvements[1]				
Total prior assessed value	*2001-02 assessed values*	*$62.36*	*$62.36*	*$62.36*
Less value of demolitions	*Cumulative values*	*($12.39)*	*($21.41)*	*($21.41)*
Plus construction in place	*Construction budget expended by end of year (cumulative), less FF&E*[2]	*$102.02*	*$236.22*	*$236.22*
Subtotal, improvements		*$151.99*	*$277.16*	*$277.16*
Land	*2001-02 assessed values, no addition for potential Helumoa St. acquisition*	*$47.17*	*$47.17*	*$47.17*
Annual real property tax[3]:				
Improvements	*$9.96 per $1,000 AIV Hotel & Resort*	$1.51	$2.76	$2.76
Land	*$9.96 per $1,000 AIV Hotel & Resort*	$0.47	$0.47	$0.47
Total potential tax revenues associated with Project		$1.98	$3.23	$3.23
Less deductions:				
RPT payments prior to Project[4]	*$9.96 per $1,000 AIV, land & bldg*	($1.09)	($1.09)	($1.09)
Real property tax exemption	*7 year exemption, beginning 7/1/2006*	$0.00	($0.81)	$0.00
Total deductions		($1.09)	($1.90)	($1.09)
Estimated net additional RPT		**$0.89**	**$1.33**	**$2.14**

1. *Prior assessed values as provided by Outrigger Enterprises, Inc. Construction put in place based on cumulative hard costs only*
2. *Used as proxy for future assessed value of contribution of new construction. Furniture, fixtures & improvements backed out of budget shown in Exhibit J, based on 25% of FF&E/TI line item, since FF&E budgeted at $15 psf, while TI's budgeted at $45 psf*
3. *Fiscal Year 2002 real property tax rates for City and County of Honolulu*
4. *Based on total FY 2001-02 assessed values for area properties under evaluation of: $109,522,300 per assessment data provided by Outrigger Enterprises, Inc. and City's on-line GIS system*

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit Q

Waikiki Beach Walk

Projected Total Annual Revenues to the County Government Attributable to Development & In-migrant Population

2005 to 2015 (2001 dollars, in millions)

Phase / *Calendar year*	Basis/reference	*End of Phase I* 2005	*End of Phase II* 2010	*Stabilized* 2015
Bases for projection:				
Net new room revenues	*Exhibit H (impacted market segments)*	$3.38	$35.86	$51.57
In-migrant employees and dependents to County	*Exhibit O*	~~6~~	28	20
Estimated tax revenues:				
Net new property tax revenues	*Exhibit P*	$0.89	$1.33	$2.14
Transient accommodations tax[1]	*20.0% County's share of 7.25%*	$0.05	$0.52	$0.75
Taxes and other revenue sources from in-migrant residents[2]	*$140 per person*	$0.00	$0.00	$0.00
Total County taxes		$0.94	$1.85	$2.89

1. *County's share of State transient accommodations tax collections (7.25% of net hotel revenues), based on intergovernmental allocations as presented in HRS 237D-6.5 (b).*
2. *Includes liquid fuel, utility franchise, motor vehicle weight, liquor licenses and fees, parking meter fees, fines, forfeiture and penalties, and other licenses and permits, as presented by The Tax Foundation of Hawaii, "Government in Hawaii," 1997 (Table 24). Estimated at $133 in FY1996 dollars, or $140 per person in 2001 dollars after cost-of-living adjustment based on CPI-U indices for Honolulu @ http://stats.bls.gov/cpihome.htm (9/8/2001).*

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Exhibit Q

Waikiki Beach Walk

Projected Total Annual Revenues to the County Government Attributable to Development & In-migrant Population

2005 to 2015 (2001 dollars, in millions)

Phase / *Calendar year*	Basis/reference	*After completion of Phase I* 2005	*After completion of Phase II* 2010	*Stabilized* 2015
Bases for projection:				
Net new room revenues	*Exhibit H (impacted market segments)*	$3.38	$35.86	$51.57
In-migrant employees and dependents to County	*Exhibit O*	9	28	20
Estimated tax revenues:				
Net new property tax revenues	*Exhibit P*	$0.89	$1.33	$2.14
Transient accommodations tax[1]	*20.0% County's share of 7.25%*	$0.05	$0.52	$0.75
Taxes and other revenue sources from in-migrant residents[2]	*$140 per person*	$0.00	$0.00	$0.00
Total County taxes		$0.94	$1.85	$2.89

1. *County's share of State transient accommodations tax collections (7.25% of net hotel revenues), based on intergovernmental allocations as presented in HRS 237D-6.5 (b).*
2. *Includes liquid fuel, utility franchise, motor vehicle weight, liquor licenses and fees, parking meter fees, fines, forfeiture and penalties, and other licenses and permits, as presented by The Tax Foundation of Hawaii, "Government in Hawaii," 1997 (Table 24). Estimated at $133 in FY1996 dollars, or $140 per person in 2001 dollars after cost-of-living adjustment based on CPI-U indices for Honolulu @ http://stats.bls.gov/cpihome.htm (9/8/2001).*

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OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit R

Waikiki Beach Walk

Projected Annual Revenues to the State Government Attributable to Development & In-migrant Population

2005 to 2015 (2001 dollars, in millions, except average income)

Phase / Calendar year	Basis/reference	End of Phase I 2005	End of Phase II 2010	Stabilized 2015
Bases for projection:				
Net new hotel room expenditures	Exhibit H (impacted market segments)	$3.38	$35.86	$51.57
Project development costs[1]:	Ex J, average annual for preceding period			
Professional services		~~$3.26~~	$3.05	$0.00
Construction		~~$26.75~~	$26.91	$0.00
Total development cost		~~$29.01~~	$29.96	$0.00
Net add'l visitor expenditures[2]	Exhibit H (impacted market segments)	($16.47)	$105.55	$143.67
Net add'l retail/entertainment sales	Exhibit M (impacted market segments)	($8.98)	$17.85	$22.39
Net new personal income earned:				
Development employment	Exhibit L (total personal income)	~~$21.26~~	$22.11	$0.00
Operational employment	Exhibit N (total personal income)	($3.15)	$26.40	$27.99
Av. personal income/FTE job (total):	[Not in millions]			
Development employment	Exhibit L (total personal income)	$34,000	$34,000	n/a
Operational employment	Exhibit N (total personal income)	n/a	$33,000	$32,000
Dependent in-migrants to State	Exhibit O	0	6	5

I/NA - Information not available; n/a - Not applicable

1. *Excludes indirect construction costs, some of which may also generate GET revenues.*
2. *Total visitor expenditures including room and non-lodging expenditures (this figure used for estimating GET)*

Exhibit R, continued

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Exhibit R

Waikiki Beach Walk

Projected Annual Revenues to the State Government Attributable to Development & In-migrant Population

2005 to 2015 (2001 dollars, in millions, except average income)

Phase / Calendar year	Basis/reference	After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Bases for projection:				
Net new hotel room expenditures	Exhibit H (impacted market segments)	$3.38	$35.86	$51.57
Project development costs[1]:	Ex J, average annual for preceding period			
Professional services		$4.35	$3.05	$0.00
Construction		$34.33	$26.91	$0.00
Total development cost		$38.68	$29.96	$0.00
Net add'l visitor expenditures[2]	Exhibit H (impacted market segments)	($16.47)	$105.55	$143.67
Net add'l retail/entertainment sales	Exhibit M (impacted market segments)	($8.98)	$17.85	$22.39
Net new personal income earned:				
Development employment	Exhibit L (total personal income)	$28.35	$22.11	$0.00
Operational employment	Exhibit N (total personal income)	($3.15)	$26.40	$27.99
Av. personal income/FTE job (total):	[Not in millions]			
Development employment	Exhibit L (total personal income)	$34,000	$34,000	n/a
Operational employment	Exhibit N (total personal income)	n/a	$33,000	$32,000
Dependent in-migrants to State	Exhibit O	1	6	5

I/NA - Information not available; n/a - Not applicable

1. *Excludes indirect construction costs, some of which may also generate GET revenues.*
2. *Total visitor expenditures including room and non-lodging expenditures (this figure used for estimating GET)*

Exhibit R, continued

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OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Waikiki Beach Walk

Projected Annual Revenues to the State Government Attributable to Development & In-migrant Population (Con't.)

2005 to 2015 (2001 dollars, in millions)

Phase / Calendar year	Basis/reference	End of Phase I 2005	End of Phase II 2010	Stabilized 2015
Estimated State tax revenues:				
Transient accommodations tax[3]	55.2% State's share of 7.25%	$0.14	$1.44	$2.06
General excise taxes:				
Development[4]		~~$0.83~~	$0.85	$0.00
Visitor expenditures	4.166% of expenditures shown	($0.69)	$4.40	$5.99
Retail/entertainment space rents[5]	8.5% percentage rent, @ 4.166%	($0.03)	$0.06	$0.08
Individual income taxes[6]:				
Development employment	5.8% assumed tax rate ($27K bracket)	~~$1.23~~	$1.28	$0.00
Operational employment	5.1% assumed tax rate ($18K bracket)	($0.16)	$1.33	$1.41
Income taxes & other revenues from dependent in-migrants[7]	$1,662 per person	$0.00	$0.01	$0.01
Total additional revenues		~~$1.32~~	$9.38	$9.55

3 Represents the 55.2% of TAT collections retained by the State (to the Tourism Special Fund and the Convention Center Capital Special Fund); intergovernmental allocation in effect per HRS 237D-6.5(b).

4 Based on 4.166% on 100% of professional services and 60% of construction costs, plus a wholesale construction materials tax of 0.5025% against 40% of construction costs.

5 Representative overall Waikiki percentage rent based on discussions with St. Sofos & Co., Ltd.

6 As applicable to net new jobs. Tax rates applied derived from 2000 Hawaii Tax Tables (form N-11, Hawaii Department of Tax, as of September 20, 2001). Assumes taxpayers are married, filing jointly (lowest tax-rate category available), and taxable household income is approximately 20% less than average FTE income per job as shown on the prior page. Estimated tax impact likely to be conservative due to frequency of dual incomes and multiple job-holding among Hawaii households, which could push earned income to higher tax brackets.

7. Based on total FY 1996 State revenue receipts in categories derived from individual payments, as presented in Tax Foundation of Hawaii, Government in Hawaii 1997, Table 12. Includes Specific Excise, individual income and other taxes, licenses and fees, as well as fines and forfeitures. Also GET spent for these individuals estimated based on average expenditures per 3-person "consumer unit" in Honolulu, as of 1997-98, per Department of Business Economic Development and Tourism, "State of Hawaii Data Book,1999," Table 13.21. All figures adjusted to 2001 dollars, with 2001 vs. 2000 inflation projected at 1.75% per communications with Bank of Hawaii Chief Economist.

Note: Does not consider business income taxes nor potentially applicable income tax credit per Act 195-00 (see text.)

Mikiko corporation

Waikiki Beach Walk

Projected Annual Revenues to the State Government Attributable to Development & In-migrant Population (Con't.)

2005 to 2015 (2001 dollars, in millions)

Phase / Calendar year	Basis/reference	After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Estimated State tax revenues:				
Transient accommodations tax[3]	55.2% State's share of 7.25%	$0.14	$1.44	$2.06
General excise taxes:				
Development[4]		$1.11	$0.85	$0.00
Visitor expenditures	4.166% of expenditures shown	($0.69)	$4.40	$5.99
Retail/entertainment space rents[5]	8.5% percentage rent, @ 4.166%	($0.03)	$0.06	$0.08
Individual income taxes[6]:				
Development employment	5.8% assumed tax rate ($27K bracket)	$1.64	$1.28	$0.00
Operational employment	5.1% assumed tax rate ($18K bracket)	($0.16)	$1.33	$1.41
Income taxes & other revenues from dependent in-migrants[7]	$1,662 per person	$0.00	$0.01	$0.01
Total additional revenues		$2.01	$9.38	$9.55

3 Represents the 55.2% of TAT collections retained by the State (to the Tourism Special Fund and the Convention Center Capital Special Fund); intergovernmental allocation in effect per HRS 237D-6.5(b).

4 Based on 4.166% on 100% of professional services and 60% of construction costs, plus a wholesale construction materials tax of 0.5025% against 40% of construction costs.

5 Representative overall Waikiki percentage rent based on discussions with St. Sofos & Co., Ltd.

6 As applicable to net new jobs. Tax rates applied derived from 2000 Hawaii Tax Tables (form N-11, Hawaii Department of Tax, as of September 20, 2001). Assumes taxpayers are married, filing jointly (lowest tax-rate category available), and taxable household income is approximately 20% less than average FTE income per job as shown on the prior page. Estimated tax impact likely to be conservative due to frequency of dual incomes and multiple job-holding among Hawaii households, which could push earned income to higher tax brackets.

7. Based on total FY 1996 State revenue receipts in categories derived from individual payments, as presented in Tax Foundation of Hawaii, Government in Hawaii 1997, Table 12. Includes Specific Excise, individual income and other taxes, licenses and fees, as well as fines and forfeitures. Also GET spent for these individuals estimated based on average expenditures per 3-person "consumer unit" in Honolulu, as of 1997-98, per Department of Business Economic Development and Tourism, "State of Hawaii Data Book,1999," Table 13.21. All figures adjusted to 2001 dollars, with 2001 vs. 2000 inflation projected at 1.75% per communications with Bank of Hawaii Chief Economist.

Note: Does not consider business income taxes nor potentially applicable income tax credit per Act 195-00 (see text.)

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Exhibit S

Waikiki Beach Walk

City and County of Honolulu Per Capita Executive Operating Budget and Program Net of Federal Funding Sources

Fiscal Year 2001-2002

	Appropriated expenditures ($thousands)[1]	Service population[2]	Expenditure per: Resident	Expenditure per: Non-reside
General government	$123,348	913,222	$135	$135
Public safety	$226,963	913,222	$249	$249
Highways and streets	$18,676	913,222	$20	$20
Sanitation	$157,907	913,222	$173	$173
Health and human resources	$58,563	913,222	$64	$64
Culture-Recreation	$62,243	913,222	$68	$68
Utilities or other enterprises	$113,330	913,222	$124	$124
Debt service	$137,667	913,222	$151	$151
Miscellaneous[3]	$393,256	876,156	$449	$0
Total	$1,291,953		$1,433	$984

1. City and County Ordinance 01-24; amounts budgeted are reduced by funds within each category that are anticipated to be derived from Federal Grants Fund.
2. Based on April 1, 2000 U.S. Census figures for resident populations and July 1, 1999 Hawaii DBEDT estimates for de facto population.
3. Includes retirement and pension contributions, Workers' Compensation, Unemployment compensation, vacation pay, transfers to other funds.

Note: Per capita estimates likely to be high, since service populations are based on 1999 and 2000 figures, the latest available, but presumably low

Exhibit T

Waikiki Beach Walk

State of Hawaii Per Capita Government Operating Expenditures Net of Federal Funding Sources

Fiscal Year 2001-02

	Operating expenditures ($thousands)[1]	Service population[2]	Expenditure per: Resident	Expenditure per: Non-reside
Economic development	$170,857	1,211,537	$141	$0
Employment/unemployment	$305,705	1,211,537	$252	$0
Transportation facilities	$479,741	1,307,639	$367	$367
Environmental protection	$142,413	1,307,639	$109	$109
Health	$769,398	1,307,639	$588	$588
Social services	$1,341,999	1,211,537	$1,108	$0
Lower education[3]	$1,488,461	1,211,537	$1,229	$0
Higher education[3]	$663,274	1,211,537	$547	$0
Culture & recreation	$43,025	1,307,639	$33	$33
Public safety	$181,204	1,307,639	$139	$139
Individual rights[4]	$52,946	1,211,537	$44	$0
Government-wide support[5]	$1,548,097	1,307,639	$1,184	$1,184
Less: Federal funding	($1,087,000)	1,307,639	($831)	($831)
Total	$6,100,120		$4,909	$1,588

1. State government budgeted operating expenditures for fiscal year to end June 30, 2002, prepared by Department of Budget and Finance, and provided by House Majority Staff Office, August 21, 2001. Table entitled "Program Area Appropriations, General Appropriations Act of 2001."
2. Based on April 1, 2000 U.S. Census figures for resident populations and July 1, 1999 Hawaii DBEDT estimates for de facto population.
3. Excludes budgetary impact of collective bargaining agreements reached in 2nd quarter of 2001.
4. Departmental functions including DCCA, OIP, Bureau of Conveyances, other.
5. Includes payments for debt service, health benefits and retirement for all agencies except "Lower education" and "Higher education," which include their own allowances for these.

Note: Per capita estimates likely to be high, since service populations are based on 1999 and 2000 figures, the latest available, but presumably low

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit U

Waikiki Beach Walk

Projected Annual County Government Expenditures Attributable to Population In-migrating

2005 to 2015 (2001 dollars, In millions)

Phase / Calendar year	Basis/reference		End of Phase I 2005	End of Phase II 2010	Stabilized 2015
Bases for County projection:					
Average daily visitors	Net additional hotel guests, impacted markets		(363)	668	831
In-migrant employees & dependents:					
Related to construction	Exhibit O and dependent factor:	0.2	0	10	-
Related to operations	Exhibit O and dependent factor:	1.0	(3)	19	20
Total, County population change			(357)	696	852
Annual expenditures:					
Average daily visitors	$984 per person, ref:	Exhibit S	($0.36)	$0.66	$0.82
In-migrant employees & dependents:					
Related to construction	$984 per person, ref:	Exhibit S	$0.01	$0.01	$0.00
Related to operations	$1,433 per person, ref:	Exhibit S	($0.00)	$0.03	$0.03
Total expenditures			($0.35)	$0.69	$0.85

Note: Expenditure estimates likely to be high, since service populations on which per capita estimates are based on 1999 and 2000 figures, the latest available, but presumably low

Mililani Corporation

Exhibit U

Waikiki Beach Walk

Projected Annual County Government Expenditures Attributable to Population In-migrating

2005 to 2015 (2001 dollars, In millions)

Phase / Calendar year	Basis/reference		After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Bases for County projection:					
Average daily visitors	Net additional hotel guests, impacted markets		(363)	668	831
In-migrant employees & dependents:					
Related to construction	Exhibit O and dependent factor:	0.2	13	10	-
Related to operations	Exhibit O and dependent factor:	1.0	(3)	19	20
Total, County population change			(354)	696	852
Annual expenditures:					
Average daily visitors	$984 per person, ref:	Exhibit S	($0.36)	$0.66	$0.82
In-migrant employees & dependents:					
Related to construction	$984 per person, ref:	Exhibit S	$0.01	$0.01	$0.00
Related to operations	$1,433 per person, ref:	Exhibit S	($0.00)	$0.03	$0.03
Total expenditures			($0.35)	$0.69	$0.85

Note: Expenditure estimates likely to be high, since service populations on which per capita estimates are based on 1999 and 2000 figures, the latest available, but presumably low

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OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit V

Waikiki Beach Walk

Projected Annual State Government Expenditures Attributable to Population In-migrating

2005 to 2015 (2001 dollars, in millions)

Phase / Calendar year	Basis/reference	End of Phase I 2005	End of Phase II 2010	Stabilized 2015
Bases for State projection:				
Average daily visitors	*Net additional hotel guests, impacted markets*	*(363)*	*668*	*831*
In-migrant employees & dependents:				
Related to construction	*Exhibit O and dependent factor: 1.2*	*6*	*6*	*-*
Related to operations	*Exhibit O and dependent factor: 2.0*	*(2)*	*9*	*10*
Total, State population change		*(359)*	*683*	*841*
Annual expenditures:				
Average daily visitors	*$1,588 per person, ref: Exhibit T*	($0.58)	$1.06	$1.32
In-migrant employees & dependents:				
Related to construction	*$1,588 per person, ref: Exhibit T*	$0.01	$0.01	$0.00
Related to operations	*$4,909 per person, ref: Exhibit T*	($0.01)	$0.05	$0.05
Total expenditures		($0.58)	$1.12	$1.37

Note: Expenditure estimates likely to be high, since service populations on which per capita estimates are based on 1999 and 2000 figures, the latest available, but presumably low

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Exhibit V

Waikiki Beach Walk

Projected Annual State Government Expenditures Attributable to Population In-migrating

2005 to 2015 (2001 dollars, in millions)

Phase / Calendar year	Basis/reference	After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Bases for State projection:				
Average daily visitors	*Net additional hotel guests, impacted markets*	*(363)*	*668*	*831*
In-migrant employees & dependents:				
Related to construction	*Exhibit O and dependent factor: 1.2*	*8*	*6*	*-*
Related to operations	*Exhibit O and dependent factor: 2.0*	*(2)*	*9*	*10*
Total, State population change		*(357)*	*683*	*841*
Annual expenditures:				
Average daily visitors	*$1,588 per person, ref: Exhibit T*	($0.58)	$1.06	$1.32
In-migrant employees & dependents:				
Related to construction	*$1,588 per person, ref: Exhibit T*	$0.01	$0.01	$0.00
Related to operations	*$4,909 per person, ref: Exhibit T*	($0.01)	$0.05	$0.05
Total expenditures		($0.57)	$1.12	$1.37

Note: Expenditure estimates likely to be high, since service populations on which per capita estimates are based on 1999 and 2000 figures, the latest available, but presumably low

OLD VERSION - SEE FOLLOWING PAGE FOR CORRECTION

Exhibit W

Waikiki Beach Walk

County & State Government Revenue and Expenditure Comparison

2005 to 2015 (2001 dollars, in millions)

Phase / *Calendar year*	Basis/reference	~~End of Phase I~~ 2005	~~End of Phase II~~ 2010	*Stabilized* 2015
City and County of Honolulu				
New revenues	*Exhibit Q*	$0.94	$1.85	$2.89
New expenditures	*Exhibit U*	(0.35)	0.69	0.85
Net additional revenues		$1.30	$1.16	$2.04
Revenue ÷ expenditure ratio[1]		n/a	2.7	3.4
State of Hawaii				
New revenues[2]	*Exhibit R*	~~$1.32~~	$9.38	$9.55
New expenditures	*Exhibit V*	~~(0.58)~~	1.12	1.37
Net additional revenues		~~$1.90~~	$8.26	$8.18
Revenue ÷ expenditure ratio[1]		n/a	8.4	7.0

1. *New revenues divided by new expenditures. Calculated where denominators (additional expenses) is positive.*
2. *Excludes potential income taxes from any operating entities and GET on ground lease rents.*

Note: Expenditure estimates likely to be high, and thus net revenues and ratio low, since service populations on which per capita estimates are based on 1999 and 2000 figures, the latest available, but presumably low

Exhibit V

Waikiki Beach Walk

Projected Annual State Government Expenditures Attributable to Population In-migrating

2005 to 2015 (2001 dollars, in millions)

Phase / Calendar year	Basis/reference		After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
Bases for State projection:					
Average daily visitors	*Net additional hotel guests, impacted markets*		*(363)*	*668*	*831*
In-migrant employees & dependents:					
Related to construction	*Exhibit O and dependent factor:*	*1.2*	*8*	*6*	*-*
Related to operations	*Exhibit O and dependent factor:*	*2.0*	*(2)*	*9*	*10*
Total, State population change			*(357)*	*683*	*841*
Annual expenditures:					
Average daily visitors	*$1,588 per person, ref:*	*Exhibit T*	($0.58)	$1.06	$1.32
In-migrant employees & dependents:					
Related to construction	*$1,588 per person, ref:*	*Exhibit T*	$0.01	$0.01	$0.00
Related to operations	*$4,909 per person, ref:*	*Exhibit T*	($0.01)	$0.05	$0.05
Total expenditures			($0.57)	$1.12	$1.37

Note: Expenditure estimates likely to be high, since service populations on which per capita estimates are based on 1999 and 2000 figures, the latest available, but presumably low

Exhibit W

Waikiki Beach Walk

County & State Government Revenue and Expenditure Comparison

2005 to 2015 (2001 dollars, in millions)

Phase / Calendar year	Basis/reference	After completion of Phase I 2005	After completion of Phase II 2010	Stabilized 2015
City and County of Honolulu				
New revenues	*Exhibit Q*	$0.94	$1.85	$2.89
New expenditures	*Exhibit U*	(0.35)	0.69	0.85
Net additional revenues		$1.29	$1.16	$2.04
Revenue + expenditure ratio[1]		n/a	2.7	3.4
State of Hawaii				
New revenues[2]	*Exhibit R*	$2.01	$9.38	$9.55
New expenditures	*Exhibit V*	(0.57)	1.12	1.37
Net additional revenues		$2.58	$8.26	$8.18
Revenue + expenditure ratio[1]		n/a	8.4	7.0

1. *New revenues divided by new expenditures. Calculated where denominators (additional expenses) is positive.*
2. *Excludes potential income taxes from any operating entities and GET on ground lease rents*

Note: Expenditure estimates likely to be high, and thus net revenues and ratio low, since service populations on which per capita estimates are based on 1999 and 2000 figures, the latest available, but presumably low

General Limiting Conditions

This report is subject to standard report and engagement conditions as agreed to previously and as stated in the overall document to which this report is appended ("Market and Economic/Fiscal Impact Assessment for Waikiki Beach Walk").

Those conditions most pertinent to readers of this report include:

- Every reasonable effort has been exerted to assure that the data contained in this study reflect the most accurate and timely information possible, and the data shown are believed to be reliable except as may be qualified herein. However, no responsibility is assumed for inaccuracies in reporting by government agencies or their representatives, Outrigger or its consultants, published research, or any other data source used in preparing this study.

- Since the projections are based on estimates and assumptions which are inherently subject to uncertainty and variation depending upon evolving events, Mikiko Corporation cannot represent them as results which will actually be achieved.

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