UNIVERSITY OF HAWAI'I AT MĀNOA
John A. Burns School of Medicine
Office of the Dean

May 14, 2002

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

Dear Ms. Salmonson:

Subject: Final Environmental Assessment
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: (1) 2-1-60: 10 and por. 9

A Final Environmental Assessment (EA) for the proposed University of Hawaii Health and Wellness Center has been prepared in compliance with Chapter 343, Hawaii Revised Statutes, and Chapter 11-200, Hawaii Administrative Rules, State Department of Health. Based on the findings of the Final Environmental Assessment and associated studies conducted, a Finding of No Significant Impact (FONSI) has been determined. Please publish a notice of availability for this project in the next edition of *The Environmental Notice*.

Enclosed, please find a completed OEQC Publication Form, four copies of the Final EA, and the project summary on disk. Please call Mr. Rex Johnson, Director of Physical Facilities, The Research Corporation of the University of Hawaii, at 956-9824 if you have any questions.

Sincerely,

Edwin C. Cadman, M.D.
Dean

cc: R. Funakoshi, Wilson Okamoto & Associates

1960 East-West Road, Honolulu, Hawai'i 96822
An Equal Opportunity/Affirmative Action Institution

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Table 6

Operations Period Income Generation
Project Years 1 to 10
31 Principal Investigator Analysis

Project Year										
Income Generation										
Grant-Related Income										
Total Annual Grants	$ -	$ -	$ -	$ 31,000,000	$ 31,000,000	$ 31,000,000	$ 31,000,000	$ 31,000,000	$ 31,000,000	$ 31,000,000
Income Multiplier (1)	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Grant-related Income	$ -	$ -	$ -	$ 22,900,901	$ 22,900,901	$ 22,900,901	$ 22,900,901	$ 22,900,901	$ 22,900,901	$ 22,900,901
Indirect Support-Related Income										
Total Indirect Support Revenues	$ -	$ -	$ -	$ 13,950,000	$ 13,950,000	$ 13,950,000	$ 13,950,000	$ 13,950,000	$ 13,950,000	$ 13,950,000
Income Multiplier (2)	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Indirect Support-related Income	$ -	$ -	$ -	$ 12,114,474	$ 12,114,474	$ 12,114,474	$ 12,114,474	$ 12,114,474	$ 12,114,474	$ 12,114,474
Total Direct Income	$ -	$ -	$ -	$ 35,015,375	$ 35,015,375	$ 35,015,375	$ 35,015,375	$ 35,015,375	$ 35,015,375	$ 35,015,375
Add'l Indirect, Induced Income										
Grant-related										
Indirect, Induced Income Multiplier (3)	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Indirect, Induced Income Impact	$ -	$ -	$ -	$ 15,801,622	$ 15,801,622	$ 15,801,622	$ 15,801,622	$ 15,801,622	$ 15,801,622	$ 15,801,622
Indirect Support-related										
Indirect, Induced Income Multiplier (4)	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Indirect, Induced Income Impact	$ -	$ -	$ -	$ 6,299,526	$ 6,299,526	$ 6,299,526	$ 6,299,526	$ 6,299,526	$ 6,299,526	$ 6,299,526
Total Indirect, Induced Income Impact	$ -	$ -	$ -	$ 22,101,148	$ 22,101,148	$ 22,101,148	$ 22,101,148	$ 22,101,148	$ 22,101,148	$ 22,101,148
Total Income Impact	$ -	$ -	$ -	$ 57,116,523	$ 57,116,523	$ 57,116,523	$ 57,116,523	$ 57,116,523	$ 57,116,523	$ 57,116,523

Notes:
(1) State of Hawaii, 1992 I/O Study, research, development and testing direct income multiplier
(2) State of Hawaii, 1992 I/O Study, state and local govt. direct income multiplier
(3) State of Hawaii, 1992 I/O Study, research, development and testing direct-effect multiplier less direct-effect (1.69-1.00)
(4) State of Hawaii, 1992 I/O Study, state and local govt. direct-effect multiplier less direct-effect (1.52-1.00)

FISCAL IMPACTS

This section presents a summary of the projected fiscal impacts of the HWC-1 on the City and County of Honolulu and the State of Hawaii.

CITY AND COUNTY OF HONOLULU

The potential fiscal impact of the HWC-1 on the City and County of Honolulu includes possible effects on municipal revenues and expenses. Revenues include property taxes and other fees and assessments for services. Expenses may be operational in nature, such as public safety, transportation services, and recreation, or capital in nature, such as for infrastructure improvements for roadways and sewers.

Because of the nature of the HWC-1 as a State public facility located on State-owned and improved lands, it is projected that the HWC-1 will have a minimal impact on municipal revenues and expenses.

As a public facility, the HWC-1 will be exempt from property taxes. Tax revenues generated by the site's current commercial tenants will be relocated along with the tenants. Charges for municipal services such as water and sewer connections will be paid on an as used basis, and are not anticipated to require additional new capacity.

Public safety services and transportation services are not likely be significantly affected by the HWC-1, and in the immediate area around the HWC-1, many of the services which are normally provided by the municipal government are provided by the State agency (HCDA) which has asset management as well as regulatory responsibility for the area.

Capital improvements for the Kakaako Makai Area's infrastructure have been, or will be provided, through the HWC-1's construction budget, or by the State of Hawaii, rather than the municipal government.

STATE OF HAWAII

The potential fiscal impacts of the HWC-1 for the State of Hawaii, other than the direct University of Hawaii-related revenues and expenses of the HWC-1, include general excise and income tax revenues during the construction period, income taxes during the operational period, the cost of capital for the amortization of funds borrowed for construction, and common area fees to HCDA for the maintenance and operation of public facilities in the Kakaako Makai Area.

Off-site capital infrastructure costs for elements such as roadways, drainage, sewers, and parking have either been independently financed, or are included in the construction budget for the HWC-1.

General excise tax revenues, based on a 4.0% rate, during the construction period are projected to be $2.1 million annually. Income tax revenues, based on an average rate of 6.899%[6], during the construction period are projected to be $3.2 million annually. Income taxes during the operational period are projected to be $5.2 million annually.

$150 million of the project's development costs, including construction costs are to be indirectly financed by revenues from the funds to be received by the State over time from the Hawaii Tobacco Settlement Special Fund with the remaining $10 million to be financed from earlier appropriations. Their use represents the cost of capital for the construction of the HWC-1.

Based on a 25-year, self-amortizing bond, with an interest rate of 5.00%[7], with a present value of $160 million, the annual cost of capital, including principal, is projected to be $11.4 million.

The HCDA intends to assess common area charges to projects in the Kakaako Makai Area for the maintenance and operation of public improvements and facilities. These have not yet been determined.

Table 7 below shows the projected effects on State tax revenues, and the opportunity cost of capital on an annual basis for the total 41 principal investigator positions. Table 8 below shows the projected effects on State tax revenues, and the opportunity cost of capital on an annual basis for the net additional 31 principal investigator positions.

[6] State of Hawaii Data Book, 2000, Table 9.18. 1999 tax liability as a percentage of taxable income.
[7] Interest rates for recent bond sales by the State of Hawaii have ranged from 4.72% to 5.41%.

Table 7

State Tax And Other Revenues
Project Years 1 to 10
41 Principal Investigator Analysis

Project Year	1	2	3	4	5	6	7	8	9	10
Tax Revenues										
Construction-related Income	$ 46,323,810	$ 46,323,810	$ 46,323,810	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operations-related Income	$ -	$ -	$ -	$ 75,541,207	$ 75,541,207	$ 75,541,207	$ 75,541,207	$ 75,541,207	$ 75,541,207	$ 75,541,207
Total Income	$ 46,323,810	$ 46,323,810	$ 46,323,810	$ 75,541,207	$ 75,541,207	$ 75,541,207	$ 75,541,207	$ 75,541,207	$ 75,541,207	$ 75,541,207
Average State Income Tax Rate (1)	6.899%	6.899%	6.899%	6.899%	6.899%	6.899%	6.899%	6.899%	6.899%	6.899%
Total Annual Income Tax Revenues	$ 3,196,019	$ 3,196,019	$ 3,196,019	$ 5,211,816	$ 5,211,816	$ 5,211,816	$ 5,211,816	$ 5,211,816	$ 5,211,816	$ 5,211,816
Cumulative Income Tax Revenues	$ 3,196,019	$ 6,392,038	$ 9,588,058	$ 14,799,873	$ 20,011,689	$ 25,223,504	$ 30,435,320	$ 35,647,135	$ 40,858,951	$ 46,070,766
Total Construction Expenditures	$ 53,333,333	$ 53,333,333	$ 53,333,333	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Excise Tax Rate (2)	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Total Annual General Excise Tax Revenues	$ 2,133,333	$ 2,133,333	$ 2,133,333	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cumulative General Excise Tax Reveneus	$ 2,133,333	$ 4,266,667	$ 6,400,000	$ 6,400,000	$ 6,400,000	$ 6,400,000	$ 6,400,000	$ 6,400,000	$ 6,400,000	$ 6,400,000
Total Annual State Revenue	$ 5,329,353	$ 5,329,353	$ 5,329,353	$ 5,211,816	$ 5,211,816	$ 5,211,816	$ 5,211,816	$ 5,211,816	$ 5,211,816	$ 5,211,816
Cumulative State Revenue	$ 5,329,353	$ 10,658,705	$ 15,988,058	$ 21,199,873	$ 26,411,689	$ 31,623,504	$ 36,835,320	$ 42,047,135	$ 47,258,951	$ 52,470,766
Cost of Capital										
Development and Construction Cost	$ 53,333,333	$ 106,666,667	$ 160,000,000							
Term	25	25	25							
Interest (4)	5.00%	5.00%	5.00%							
Annual Payments	($3,784,131)	($7,568,262)	($7,568,262)	($7,568,262)	($7,568,262)	($7,568,262)	($7,568,262)	($7,568,262)	($7,568,262)	($7,568,262)

Notes:
(1) Average resident individual state income tax liability, 1999 (may be reduced by scheduled reductions in state income tax rates)
(2) State of Hawaii
(3) Assumed true interest rate for bonds sold to finance construction. Recent GO bond sales by the State of Hawaii have had true interest rates of 4.72% and 5.41%

Table 8

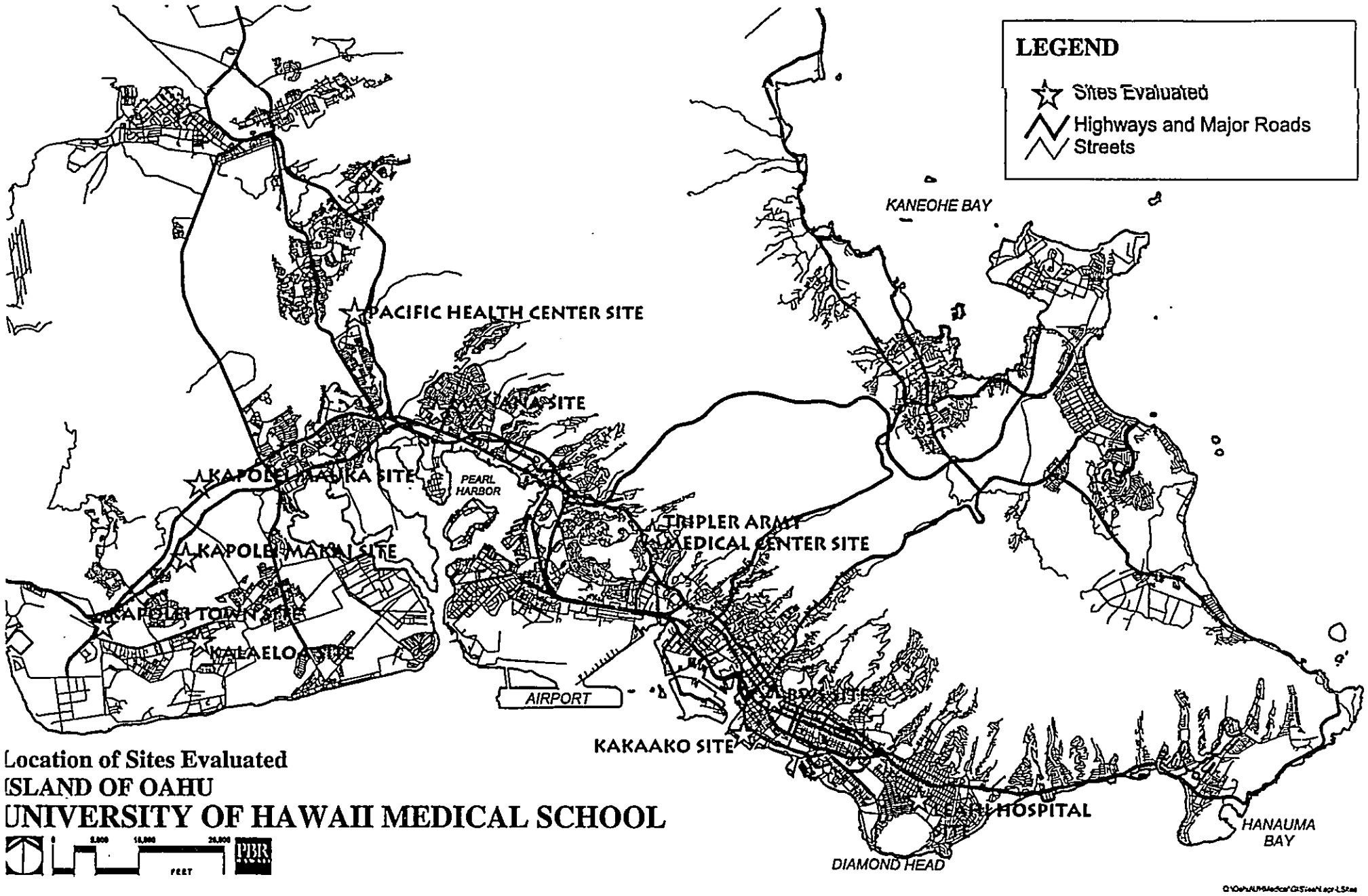
State Tax And Cost Of Capital
Project Years 1 to 10
31 Principal Investigator Analysis

Project Year	1	2	3	4	5	6	7	8	9	10
Tax Revenues										
Construction-related Income	$ 46,323,810	$ 46,323,810	$ 46,323,810	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Operations-related Income	$ -	$ -	$ -	$ 57,116,523	$ 57,116,523	$ 57,116,523	$ 57,116,523	$ 57,116,523	$ 57,116,523	$ 57,116,523
Total Income	$ 46,323,810	$ 46,323,810	$ 46,323,810	$ 57,116,523	$ 57,116,523	$ 57,116,523	$ 57,116,523	$ 57,116,523	$ 57,116,523	$ 57,116,523
Average State Income Tax Rate (1)	6.899%	6.899%	6.899%	6.899%	6.899%	6.899%	6.899%	6.899%	6.899%	6.899%
Total Annual Income Tax Revenues	$ 3,196,019	$ 3,196,019	$ 3,196,019	$ 3,940,641	$ 3,940,641	$ 3,940,641	$ 3,940,641	$ 3,940,641	$ 3,940,641	$ 3,940,641
Cumulative Income Tax Revenues	$ 3,196,019	$ 6,392,038	$ 9,588,058	$ 13,528,699	$ 17,469,340	$ 21,409,981	$ 25,350,622	$ 29,291,263	$ 33,231,904	$ 37,172,545
Total Construction Expenditures	$ 53,333,333	$ 53,333,333	$ 53,333,333	$ -	$ -	$ -	$ -	$ -	$ -	$ -
General Excise Tax Rate (2)	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%	4.00%
Total Annual General Excise Tax Revenues	$ 2,133,333	$ 2,133,333	$ 2,133,333	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Cumulative General Excise Tax Revenues	$ 2,133,333	$ 4,266,667	$ 6,400,000	$ 6,400,000	$ 6,400,000	$ 6,400,000	$ 6,400,000	$ 6,400,000	$ 6,400,000	$ 6,400,000
Total Annual State Revenue	$ 5,329,353	$ 5,329,353	$ 5,329,353	$ 3,940,641	$ 3,940,641	$ 3,940,641	$ 3,940,641	$ 3,940,641	$ 3,940,641	$ 3,940,641
Cumulative State Revenue	$ 5,329,353	$ 10,658,705	$ 15,988,058	$ 19,928,699	$ 23,869,340	$ 27,809,981	$ 31,750,622	$ 35,691,263	$ 39,631,904	$ 43,572,545
Cost of Capital										
Development and Construction Cost	$ 53,333,333	$ 106,666,667	$ 160,000,000							
Term	25	25	25							
Interest (3)	5.00%	5.00%	5.00%							
Annual Payments	($3,784,131)	($7,568,262)	($11,352,393)	($11,352,393)	($11,352,393)	($11,352,393)	($11,352,393)	($11,352,393)	($11,352,393)	($11,352,393)

Notes:
(1) Average resident individual state income tax liability, 1999 (may be reduced by scheduled reductions in state income tax rates)
(2) State of Hawaii
(3) Assumed true interest rate for bonds sold to finance construction. Recent GO bond sales by the State of Hawaii have had true interest rates of 4.72% and 5.41%

APPENDIX D

University of Hawaii John A. Burns Medical School Biomedical Science Facility Alternative Sites Evaluation - Alternative Sites Summary Sheets



Location of Sites Evaluated

ISLAND OF OAHU

UNIVERSITY OF HAWAII MEDICAL SCHOOL

3.1 CITY OF KAPOLEI

Selection Criteria

Land Ownership	The Estate of James Campbell
Land Costs	Land cost is subject to negotiation
Availability (Immediate?)/ Development Timing	The site is not available for construction until after the Kapolei Interceptor is completed, or until after December 2002. The site will likely require PRU approval and an EA.
Location	Kapolei, Oahu's Secondary Urban Center. TMK: 9-1-118:04
Surrounding Land Uses	The planned new city of Kapolei.
Proximity/ Accessibility to Major Hospitals	The site is located within approximately 15.2 miles of Straub Clinic & Hospital, 15 miles of Queen's Medical Center, 16.5 miles of Kapiolani Medical Center for Women & Children, 15 miles of Kuakini Medical Center, 15 miles of St. Francis Medical Center, 13 miles of Tripler Army Medical Center, 12.2 miles of Kaiser Medical Center, 10.2 miles of Pali Momi Medical Center, 21.5 miles of Castle Medical Center, 4.7 miles of St. Francis Medical Center-West, and 12.1 miles of Wahiawa General Hospital.
Proximity to UH Campus(es)	The site is located within approximately 17.7 miles of UH Manoa, 14 miles of Honolulu CC, 19 miles of Kapiolani CC, 8 miles of Leeward CC, 3.5 miles of UH West Oahu, and 18.5 miles of the Windward CC campus.
Accessibility/ Traffic/ Public Transit	The site is accessible via the H-1 Freeway, Kalaeloa Boulevard, Kapolei Parkway and Kamokila Boulevard. For those residing in Honolulu or Central Oahu, commuting to jobs in Kapolei is generally "contra-flow." This site is served by The Bus' "Country Express" which leaves for Honolulu every half hour and takes approximately 30-35 minutes in transit. Other bus routes to the area include the #40, #41, #94, #411, #412, and #413. The western end of the BRT route is planned to terminate at the Kapolei Transit Center, which is 2 blocks from the site.

Parcel Size & Configuration	The parcel is an approximately thirty (30) acres site adjoining Big K (Mart) in a developable configuration.
Allowable Floor Area Ratio	2.5
Buildable Area in square feet (SF)	3,267,000 SF
Topography/Slopes/ADA	The site is relatively flat and would easily be ADA accessible.
Expansion Potential	There are many acres of planned, but as yet undeveloped land in the City of Kapolei for possible expansion.
Soils	Several major multi-story buildings have been built in the City of Kapolei, including the State Office Building, the Bank of Hawaii building and the Campbell Square building. The existing soils do not appear to present significant constraints to construction of major buildings.
Flooding/ Tsunami Inundation	According to the Flood Insurance Rate Map (FIRM), the site (and the entire City of Kapolei) is located in Zone D areas, in which flood hazards are undetermined.
Need to Relocate Businesses/ Tenants?	There are no businesses or tenants to relocate on site.
Hazardous Materials/ Contaminants	The City of Kapolei was developed on lands formerly used for sugarcane cultivation, and it is likely pesticides and herbicides were applied until cultivation stopped. The nearest "hazardous sites" are the Chevron pipeline which runs through Kapolei and possible sites/sources in Campbell Industrial Park.
Water	Potable water is available from the existing water system by the Board of Water Supply (BWS), however a facilities charge would have to be paid for source and transmission. Non-potable water would also be available from the BWS reclaimed facility.

Sewer	Sewer service is available from the existing system some time after December 2002. This is when the construction for the Kapolei Interceptor is anticipated to be completed. The developer would need to pay the sewer connection charge to the City. The Kapolei sewer system is constrained by the Makakilo Interceptor, which is at capacity. The Campbell Estate, along with Finance Realty and HCDCH will be constructing the Kapolei Interceptor to serve the City of Kapolei, East Kapolei, and UHWOC, so this constraint pertains to any facility located within these three sites.
Drainage	Drainage infrastructure would be provided by Campbell Estate.
Electrical	All the electrical lines in the City of Kapolei are underground and provided for by Campbell Estate.
Communications	The City of Kapolei is wired with underground telephone lines, CATV, and fiber optic lines.
Infrastructure Costs	Infrastructure should cost around $5,767,000, not including facilities charges.
Endangered Species/Critical Habitat	No endangered species or critical habitats are known to exist on the proposed site.
Streams/Wetlands	No streams or wetlands exist on the proposed site.
Archaeological/Historical Resources	No archaeological or historically significant resources are known to exist on the proposed site.
Nearby Noise Sources	Nearby noise sources include the H-1 Freeway, Kamokila Boulevard, and aircraft flyovers.
Visual Impact	The Waianae Mountains are clearly visible from the site. Depending on the location and the height of the building, Honolulu, Diamond Head, and Ko Olina may also be visible. The site is very visible from the H-1 Freeway.
Social Impacts	The site is located in a planned new city, in an area planned for public and private offices and commercial uses. As such, it is not likely to adversely impact the closest

	uses. As such, it is not likely to adversely impact the closest residential areas. Area Neighborhood Boards are likely to support any project that will help UH West Oahu become established in Kapolei, as the project will offer more and different employment opportunities in the area. The project will have a beneficial impact on the stature of the University of Hawaii.
Hospital Industry Support	The hospitals are not in support of this site.
Economic Impacts	The project will generate both construction and permanent employment and may attract biotechnical businesses to Oahu. The project represents the type of stimulus needed in an area like Kapolei, which has been designated as Oahu's Secondary Urban Center.
DOD/DVA Support	The DOD/DVA is not in support of this site.
State Land Use District Boundary	The project site is located in the Urban land use district.
County General Plan/Development Plan	Secondary Urban Center/ (City of Kapolei [High Density Residential and Commercial])
County Zoning	The parcel is listed as B-2, or Community Business. A PRU will be required.
Special Management Area	The site is not located within the SMA.
Environmental Impact Statement Required?	According to OEQC, Chapter 343 HRS will need to be addressed because of the use of state funds.
Other	Location of JABSOM in the City of Kapolei helps to establish this area as the "Secondary Urban Center."
References	Henry Eng, Estate of James Campbell

3.3 KAPOLEI MAKAI

Selection Criteria

Land Ownership	Department of Land and Natural Resources
Land Costs	$1 a year
Availability (Immediate?)/ Development Timing	Drainage problems with Kaloi Gulch may require that no development take place mauka of Ewa Villages until some time after 2008 or 2010. This site will likely require a PRU and an EA.
Location	The site is located on the eastern edge of Kapolei, Oahu's Secondary Urban Center. TMK: 9-1-16: 25 & 120.
Surrounding Land Uses	The surrounding lands are mostly undeveloped, except for Kapolei Golf Course. The surrounding area is planned mostly for residential use.
Proximity/ Accessibility to Major Hospitals	The site is located within 13.8 miles of Straub Clinic & Hospital, 13.6 miles of Queen's Medical Center, 15miles of Kapiolani Medical Center for Women & Children, 13.2miles of Kuakini Medical Center, 13.4miles of St. Francis Medical Center, 10.8 miles of Tripler Army Medical Center, 10.3 miles of Kaiser Medical Center, 8miles of Pali Momi Medical Center, 19.5 miles of Castle Medical Center, 2.5 miles of St. Francis Medical Center-West, and 10.3 miles of Wahiawa General Hospital.
Proximity to UH Campus(es)	The site is located within 16.1 miles of UH Manoa, 12.3 miles of Honolulu CC, 17.5 miles of Kapiolani CC, 5.6 miles of Leeward CC, 1.7 miles of UH West Oahu campus, and 16.3 miles of the Windward CC campus.
Accessibility/ Traffic/ Public Transit	The site is inaccessible from the H-1 Freeway, but is accessible via Farrington Highway. There are plans for a North-South Road that would run along the eastern edge of this site and connect the proposed interchange with Kapolei Parkway. An access roadway from the proposed North-South (N/S) Road interchange at the H-1 freeway to the site is required. The cost does not include the interchange. The construction of the N/S Road or the new interchange is not expected for 5 to 7 years. There is also presently no bus service to the site and no plans to extend the BRT route into the site.

Parcel Size & Configuration	The site consists of approximately 30 acres in a developable configuration.
Allowable Floor Area Ratio	Say 1.0
Buildable Area in square feet (SF)	1,306,800 SF
Topography/Slopes/ADA	The site is flat, with an average slope throughout site of one percent, and would easily be ADA Accessible.
Expansion Potential	The site is part of 1,300 acres planned as "East Kapolei" and can easily expand.
Soils	The site consists of mostly Honouliuli Series soils, clay soils with moderately low permeability and high shrink-swell potential.
Flooding/Tsunami Inundation	According to the Flood Insurance Rate Map (FIRM), flood hazards are undetermined on the site (Zone D). According to an agreement with EJC, the State shall provide for drainage for the Kaloi drainage basin. Detention and retention basins as well as the realignment of Kaloi Gulch would be required in order to develop the property.
Need to Relocate Businesses/Tenants?	Some small-scale melon production is presently being cultivated near the H-1 Freeway under short-term leases.
Hazardous Materials/ Contaminants	The site was formerly used for sugarcane cultivation, and pesticides and herbicides were probably applied up until cultivation stopped.
Water	The site will require new water infrastructure along the N/S Road from Farrington Hwy. The UH should try to negotiate for the VWS to provide the offsite infrastructure and only pay facilities charges.
Sewer	The site will require a new sewer line down the N/S Road to the proposed Kapolei Interceptor. Facility charges will also be required.
Drainage	As previously noted, in its agreement with EJC, the state has

	agreed to provide for drainage for Kaloi drainage basin. However, drainage problems with the Kaloi Gulch may require that no development take place mauka of Ewa Villages until some time after 2008 or 2010.
Electrical	The site will require a new substation.
Communications	Road, telephone, CATV, and fiber optic cable facilities must be extended to the site from facilities along Farrington Highway.
Infrastructure Costs	Infrastructure costs are approximately $5,022,000.
Endangered Species/Critical Habitat	Abutilon menziesii, or *Kooloaula* was recently discovered on small portions of the lower part of the site. Abutilon is a federally listed endangered species. While a Habitat Conservation Plan is currently being reviewed and approved, the habitats of the Abutilon can probably be avoided.
Streams/ Wetlands	Kaloi Gulch is an intermittent stream. It is unknown whether Kaloi Gulch would be regulated by the U.S. Army Corps of Engineers as "Waters of the United States" (or wetland).
Archaeological/ Historical Resources	No historical resources or archaeological sites are known to exist on the site.
Nearby Noise Sources	According to the East Kapolei Final EIS, the site experiences noise from traffic (from H-1 Freeway and Farrington Highway), wind in foliage, and occasional aircraft flybys or flyovers. In its agreement with EJC, "The state acknowledges overflights, noise [emphasis added] and vibration and agrees to give notice to all."
Visual Impact	The site offers views of Diamond Head, the Koolau Mountains, Puu Kapuai, and Kapolei Golf Course. The site itself is highly visible from the H-1 Freeway.
Social Impacts	The site is located on the outskirts of a planned new city. Area Neighborhood Boards are likely to support any project that will help UH West Oahu to be established in Kapolei, as the project will offer more and different employment opportunities in this area. The project will have a beneficial impact on the stature of the University of Hawaii.
Hospital Industry Support	The hospital industry does not support this site.

Economic Impacts	The project will generate both construction and permanent employment and may attract biotechnical businesses to Oahu. The project represents the type of stimulus needed in an area like Kapolei, which has been designated as Oahu's Secondary Urban Center.
DOD/DVA Support	The DOD/DVA does not support this site.
State Land Use District Boundary	The site is in the Urban land use district.
County General Plan/Development Plan	Secondary Urban Center/ (Low and Medium Residential/High Density Residential)
County Zoning	The site is listed as Ag-1, or Restricted Agriculture zoning. A PRU would be required.
Special Management Area	The site is not within the SMA.
Environmental Impact Statement Required?	According to OEQC, because State funds will be utilized, and the JABSOM facility is very different in nature from what was covered in the East Kapolei EIS, Chapter 343, HRS will need to be addressed.
Other	The location of JABSOM in Kapolei would help to establish the proposed UHWO campus and in turn the "Secondary Urban Center."
References	HCDCH East Kapolei Master Plan FEIS

3.7 KAKAAKO

Selection Criteria

Land Ownership	The site is owned by the State of Hawaii.
Land Costs	Cost of the cleared site with all utilities would be $1 a year.
Availability (Immediate?)/ Development Timing	The site is under State control and will not need County zoning. It is also under the jurisdiction of HCDA. Infrastructure improvements would be relatively minor, basically consisting of laterals. It is anticipated that the site could be turned over by the last quarter of 2002 with all infrastructure improvements in place.
Location	The site is in Ala Moana, between Downtown Honolulu and Waikiki. TMK: 2-1-59: por. of 9, 22, por. of 28, 43 and 44; 2-1-60: 9 & 10.
Surrounding Land Uses	The site is in a former waterfront industrial area being redeveloped by the State, and is surrounded by a waterfront industrial, park, and commercial uses.
Proximity/Accessibility to Major Hospitals	The site is located within approximately 1.1 miles of Straub Clinic & Hospital, 1.2 miles of Queen's Medical Center, 2 miles of Kapiolani Medical Center for Women & Children, 1.9 miles of Kuakini Medical Center, 2.5 miles of St. Francis Medical Center, 4.8 miles of Tripler Army Medical Center, 6 miles of the Department of Veterans Affairs, 5.2 miles of Kaiser Medical Center, 7.8 miles of Pali Momi Medical Center, 9 miles of Castle Medical Center, 11.8 miles of St. Francis Medical Center-West, and 17.5 miles of Wahiawa General Hospital.
Proximity to UH Campus(es)	The site is located within approximately 3 miles of UH Manoa, 1.9 miles of Honolulu CC, 4.4 miles of Kapiolani CC, 10.2 miles of Leeward CC, 14 miles of UH West Oahu, and 8.5 miles of the Windward CC campus.
Accessibility/Traffic/Public Transit	The site is accessible from Ilalo Street. The site is presently served by TheBus routes #6, 8, 19, 20, 47, 55, 56, 57, 65, 88A, 201 and 202. It is also on the current route for the In-Town BRT System.

Parcel Size & Configuration	The site consists of approximately 24 acres in a developable configuration.
Allowable Floor Area Ratio	Varies: 0.6, 1.5, 2.0, 3.0, 3.5
Buildable Area in square feet (SF)	2,322,200 SF
Topography/Slopes/ADA	The site is relatively flat, and easily ADA accessible.
Expansion Potential	Expansion of the site could occur either: 1) vertically (taller buildings), 2) adjoining State (76.5 acres) and Kamehameha Schools lands (12.1 acres available now or by 2002; additional 19.9 acres available).
Soils	The soils on site consist of Fill Land. The mid-rise Gold Bond building was built on this type of soil.
Flooding/Tsunami Inundation	According to the Flood Insurance Rate Map (FIRM), the site is shown as Zone X (areas determined to be outside the 500-year floodplain).
Need to Relocate Businesses/Tenants?	The Legislature funded $3 million in 2001 to initiate condemnation, displacing tenants. The condemnation process will be been initiated to relocate Hawaii Produce if necessary. The Department of Agriculture relocation is currently underway.
Hazardous Materials/ Contaminants	Portions of the site may be contaminated with fuel oil, asbestos, and lead paint.
Water	Water service is readily available via a connection to the waterline in Ilalo Street. BWS facilities charges will be required.
Sewer	Sewer service is readily available via a connection to the sewer line in Ilalo Street. Facility charges will be required.
Drainage	Drainage is controlled by the Kakaako Improvement District.
Electrical	No improvements are required.
Communications	Telephone, and cable TV lines are being installed in Ilalo Street.

Infrastructure Costs	Infrastructure costs are $3,436,200.
Endangered Species/Critical Habitat	No endangered species or critical habitats are known to exist on the site.
Streams/Wetlands	No streams or wetlands exist on the site.
Archaeological/Historical Resources	No archaeological or historical resources are likely to exist because the site is on Fill Land.
Nearby Noise Sources	Noise to the site consists of traffic noise from the heavily traveled Ala Moana Boulevard, and eventually from Ilalo Street as well. An alternative flightpath at Honolulu International Airport during non-tradewind conditions would also add to the site noise.
Visual Impact	The project will not obstruct views towards Kakaako Park from Ala Moana Boulevard or Ilalo Street. Mid-rise buildings will offer views towards the waterfront, parks and ocean.
Social Impacts	The site is located in a high traffic area consisting of a major roadway and predominately commercial and light industrial neighborhood. The project is not likely to adversely impact the closest residential areas. Kakaako Neighborhood Board is in favor/support of the project. The project will offer more and different employment opportunities to the area, and will have a beneficial impact on the stature of the University of Hawaii.
Hospital Industry Support	Castle Medical Center, Kaiser Permanente, Kapiolani Medical Center for Women and Children, Kapiolani Medical Center Pali Momi, Queen's Medical Center all strongly prefer a site in Kakaako. Kuakini Medical Center and St. Francis Center both prefer sites in Downtown Honolulu.
Economic Impacts	Current tenants will be displaced to an area at Kapalama Military Reservation purchased in part for this purpose. On the other hand, the project will generate both construction and permanent employment and may attract biotechnical businesses to Oahu. The project represents the type of stimulus needed in a redevelopment area like Kakaako. This project may have a synergistic relationship between the project and the neighboring parcels to the benefit of both.
DOD/DVA Support	The Kakaako site is good for proximity.

State Land Use District Boundary	The site is in the Urban land use district.
County General Plan/Development Plan	Primary Urban Center/ Kakaako Makai (Mix of Parks&Open Space, Commercial, Industrial and Institutional)
County Zoning	This site is considered part of the "Kakaako Community Development District." A PRU is not required.
Special Management Area	The site is inside the SMA, but HCDA has jurisdiction.
Environmental Impact Statement Required?	According to OEQC, because State funds and lands will be utilized and the JABSOM facility is very different in nature from what was covered in the Kakaako Makai Area Plan EIS, Chapter 343, HRS will need to be addressed.
Other	Nearby surfing spots and jogging route (Ala Moana Park). Nearby retail and dining (Ward Warehouse, Ward Center, Ala Moana Shopping Center) and greatest concentration of hotels (Waikiki).
References	1) Biomedical Science Facility Master Facility Development Plan Report; 2) Biomedical Science Facility Draft Project Development Report

5.0 ADDENDUM – BOARD OF WATER SUPPLY SITE

5.1 INTRODUCTION

Subsequent to the finding that Kakaako was the best of the eight sites evaluated, the University of Hawaii asked the Committee to consider a ninth site. This site is referred to as the Board of Water Supply (BWS) site but actually consists of two smaller sites: the BWS parcels and the Alapai parcels. The BWS parcels are identified as TMK: 2-1-36: 1, 4, 5 & 6. The Alapai parcels are identified as TMK: 2-1-42: 4 & 13. As with the other parcels, we conducted research on the opportunities and constraints of this particular site, based upon the committee-approved evaluation criteria. Maps of the BWS site can be found in Appendix I.

5.2 SITE ASSESSMENT

SELECTION CRITERIA

Land Ownership	The parcels are owned by the City and County of Honolulu.
Land Costs	$?
Availability (Immediate?)/ Development Timing	The parcels are presently occupied by the Board of Water Supply (BWS) and an open parking lot (makai of the Honolulu Police Station, which will be referred to as the "Alapai parcels"). BWS is presently planning for the redevelopment of the BWS parcels, including a new, major pumping station, new office space and a parking structure. Another factor that may affect the development of the BWS parcels is that a major portion of one of the parcels was set side for public purpose ("the use of the City and County of Honolulu for water pumping station and municipal garage") under Executive Order No. 107. The Alapai parcels are open and appear available for development.
Location	The parcels are located in Downtown Honolulu. The BWS parcels are identified as TMK: 2-1-36: 1, 4, 5 & 6. The Alapai parcels are identified as TMK: 2-1-42: 4 & 13.
Surrounding Land Uses	The BWS parcels are surrounded by Beretania Street (and the City and County of Honolulu's Municipal Building beyond), medical office buildings, apartment buildings, and retail uses. The Alapai parcels are

surrounded by Alapai Street (and the City and County of Honolulu's Municipal Building beyond), a closed off portion of Hotel Street (and the Honolulu Police Station), Kealamakai Street (and commercial and residential uses), and South King Street (and commercial uses).

Proximity/Accessibility to Major Hospitals

The parcels are located within .5 mile of Straub Clinic & Hospital, .5 mile of Queen's Medical Center, 1.3 miles of Kapiolani Medical Center for Women & Children, 1.2 miles of Kuakini Medical Center, 1.7 miles of St. Francis Medical Center, 4.3 miles of Tripler Army Medical Center, 4.8 miles of Kaiser Medical Center, 7.7 miles of Pali Momi Medical Center, 8 miles of Castle Medical Center, 12.1 miles of St. Francis Medical Center-West, and 17.3 miles of Wahiawa General Hospital.

Proximity to UH Campus(es)

The parcels are located within 2.5 miles of UH Manoa, 1.6 miles of Honolulu CC, 4.2 miles of Kapiolani CC, 10.3 miles of Leeward CC, 14.4 miles of UH West Oahu, and 7.5 miles of the Windward CC campus.

Accessibility/Traffic/Public Transit

The BWS parcels are accessible from Lauhala, Lisbon, Lusitana and Beretania streets. The Alapai parcels are accessible from Kealamakai Street. Beretania and King streets are presently served by numerous TheBus routes. Beretania and King streets are also on the planned route for the In-Town BRT System.

Parcel Size & Configuration

The BWS parcels consist of two blocks of land separated by Lisbon Street. One block has a total area of 170,947 square feet (or approximately 3.9 acres). The other block consists 102,491 square feet (or almost 2.4 acres), however, 50,548 square feet (or almost 1.2 acres) is under Executive Order No. 107 (which limits use to a water pumping station and municipal garage). In addition, the BWS has plans for the redevelopment of the BWS parcels (new pumping station, new office space, and a parking structure), which not only affects the net available land area but also the maximum floor area developable on the BWS parcels. If Lisbon Street could be closed, the site could be more developable (besides gaining land area

	– approximately 23,200 square feet), since it is essentially split in half by a street. The Alapai parcels consist of a total of 161,499 SF (or 3.7 acres) in a developable configuration.
Allowable Floor Area Ratio	Based on A-2 zoning, the BWS parcels have an allowable floor area ratio of 1.9. Based on BMX-3 zoning, the Alapai parcels have an allowable floor area ratio of 2.5.
Buildable Area in square feet (SF)	The BWS parcels have a gross buildable area of 511,700 SF (however, BWS has requirements for approximately 130,000 SF – leaving a net of 381,700 square feet buildable area). The Alapai parcels have a buildable area of 365,380 SF, with a maximum height of 150 feet.
Topography/Slopes/ADA	The BWS parcels are sloping, and will probably require ramps and/or elevators to provide accessibility to individuals with disabilities. The Alapai parcels are flat and will be ADA accessible.
Expansion Potential	Expansion of the parcels could occur either: 1) vertically (taller buildings), or 2) on nearby private land.
Soils	The soils on the parcels consist of Makiki Clay Loam and Tantalus Silty Clay Loam. Many high-rise buildings are built nearby on similar soils.
Flooding/Tsunami Inundation	According to the Flood Insurance Rate Map (FIRM), the parcels are shown as Zone X (areas determined to be outside the 500-year floodplain).
Need to Relocate Businesses/Tenants?	To make the BWS parcels more developable, it may be possible to "rescind" Executive Order No. 107 and to move BWS facilities elsewhere.
Hazardous Materials/ Contaminants	Portions of the BWS and Alapai parcels may be contaminated with fuel oil, asbestos, and lead paint.
Water	Water service is readily available via a connection to the waterlines in Lusitana and Hotel streets. BWS facilities charges may be required.

Sewer	Sewer service is readily available via a connection to the sewer lines in Beretania and King streets.
Drainage	Drainage is available in Beretania and King streets.
Electrical	No improvements are required.
Communications	Telephone, and cable TV lines are available on King and Beretania streets.
Infrastructure Costs	The BWS site is estimated at $3,159,000 and the Alapai site is estimated at $2,357,000 not including parking, which is expected to be structured at a cost of $15,000 per stall. (1,000 stalls would cost $15 million)
Endangered Species/Critical Habitat	No endangered species or critical habitats are known to exist on the site.
Streams/Wetlands	There is an underground stream under the BWS parcels. No wetlands exist on either of the parcels.
Archaeological/Historical Resources	No archaeological or historical resources are likely to exist because the parcels have already been significantly altered.
Nearby Noise Sources	Noise to the parcels consists of traffic noise from the heavily traveled Beretania, South King and Alapai streets.
Visual Impact	Development of the BWS parcels will not likely alter views of Punchbowl from Beretania Street (which are already obstructed from view), but development of the Alapai parcels could obstruct views of Punchbowl.
Social Impacts	The parcels are located in a high traffic area consisting of major roadways and predominately institutional, commercial and apartment uses. The BWS parcels are likely to have more impact on surrounding areas than the Alapai parcels. The project will offer more and different employment opportunities to the area, and will have a beneficial impact on the stature of the University of Hawaii.

Hospital Industry Support	The JABSOM Biomedical Science Facility Master Facility Development Report (December 2000) evaluated another site close to Queen's Medical Center, the Department of Health (DOH), Punchbowl site. The DOH/Punchbowl site was considered a positive as well as a negative location. The location would be an advantage for the Queen's Medical Center, but not for the other hospitals. In a similar fashion, the BWS site would probably be viewed as a favorable site to Queen's Medical Center and Straub Hospital but not to the other hospitals.
Economic Impacts	The project will generate both construction and permanent employment and may attract biotechnical businesses to Oahu.
DOD/DVA Support	The site is good for proximity.
State Land Use District Boundary	The site is in the Urban land use district.
County General Plan/Development Plan	Primary Urban Center/ (Shown as Institutional on the Draft Primary Urban Center Development Plan)
County Zoning	The BWS parcels are zoned A-2 Apartment District and Alapai parcels are zoned BMX-3 Community District and are under additional controls of the Hawaii Capitol Special District. A PRU will be required.
Special Management Area	The parcels are outside of the SMA.
Environmental Impact Statement Required?	Because State funds and lands (County) will be utilized, Chapter 343, HRS will need to be addressed (environmental assessment and/or EIS).
Other	Within walking distance of Straub Medical Clinic and Queen's Medical Center.

5.3 COMPARISON WITH KAKAAKO SITE

The Committee decided that the BWS site did not have to be compared to the City of Kapolei and Kapolei Makai sites because in the earlier evaluation, the Kakaako

site was the most desirable of those evaluated. As a result, the Committee only compared the BWS site with the Kakaako site. Utilizing the same criteria that was used to select the Kakaako site, the Committee used a 1 to 3 numbering system where 1 represented "the least suitable" and 3 represented "the most suitable." The results are shown below:

Selection Criteria	BWS	Kakaako
Land Costs	2	3
Location	3	2
Proximity/ Accessibility to Major Hospitals	3	1
Parcel Size & Configuration	2	3
Expansion Potential	1	3
Infrastructure Costs	2	3
Hospital Industry Support	3	3
Totals	**16**	**18**

5.4 FINDINGS

In comparing the two sites, the Committee found that the Kakaako site was slightly more desirable than the BWS site. This can mostly be attributed to the small size and disjointed configuration of the BWS Site along with its limited potential for expansion (except vertically). Each site has advantages and disadvantages and either could probably accommodate the program that was originally proposed for the Kakaako site.

The Committee clearly appreciated the potential land use and development impact that the proposed facility will have, wherever it is located. For instance, locating the proposed JABSOM facility at the BWS site could impact the planned and necessary improvements to the BWS facilities (new pump station, additional office space and parking) or block the expansion potential of Queen's Medical Center. It is public policy to establish a secondary urban center in Kapolei and to establish a UH West Oahu Campus, so the siting of the proposed JABSOM facility in these areas would serve to implement and further these public policies.

Finally, key considerations in deciding the location of the proposed JABSOM facility might be how soon development would occur and how much funding will be available for land acquisition, infrastructure improvements and other construction costs.

6.0 ADDENDUM – LEAHI HOSPITAL SITE

6.1 INTRODUCTION

Subsequent to the addition and evaluation of the Board of Water Supply site, the University of Hawaii asked the Committee to consider a tenth site. This site is referred to as the Leahi Hospital site. As with the other parcels, we conducted research on the opportunities and constraints of this particular site, based upon the committee-approved evaluation criteria. Maps of the Leahi Hospital site can be found in Appendix J.

6.2 SITE ASSESSMENT

Selection Criteria

Land Ownership	The University of Hawaii owns the parcels comprising the site.
Land Costs	$0
Availability (Immediate?)/ Development Timing	The site houses health-related programs managed and operated by the Hawaii Health System Corporation (a semi-autonomous agency under the Department of Health), the Department of Health and the University of Hawaii. The UH Board of Regents recently gave authorization to proceed with the lease of its land to the Hawaii Health System Corporation. To use the site for a new UH JABSOM facility, existing non-UH users will have to be relocated (permanently, but possibly in phases). The site will require a PRU and a Chapter 343, HRS EA.
Location	The site is in Kaimuki, near Kapiolani Community College. TMK: 3-2-30:1, 3-2-31: 1, 3-2-32:1, 3-2-33: 1, and 3-2-33: 3.
Surrounding Land Uses	The site is an established hospital with medical and social services facilities surrounded mostly by residential development and Kapiolani Community College.

Proximity/Accessibility to Major Hospitals	The site is on the grounds of Leahi Hospital. It is located within 4 miles of Straub Clinic & Hospital, 5 miles of Queen's Medical Center, 3 miles of Kapiolani Medical Center for Women & Children, 5 miles of Kuakini Medical Center, 5.5 miles of St. Francis Medical Center, 9 miles of Kaiser Medical Center, 12 miles of Pali Momi Medical Center, 8 miles of Castle Medical Center, 16 miles of St. Francis Medical Center-West, and 22 miles of Wahiawa General Hospital.
Proximity to UH Campus(es)	The site is adjacent to Kapiolani Community College and located within 2 miles of UH Manoa, 6 miles of Honolulu CC, 15 miles of Leeward CC, 15 miles of UH West Oahu, and 10 miles of the Windward CC campus.
Accessibility/Traffic/Public Transit	The site is accessible via the H-1 Freeway (Exit 26A[East] Koko Head), Koko Head Avenue and Sunset Avenue. The site is served by TheBus, route #3, Kaimuki/Pearl Harbor. There are presently no plans to extend the BRT route to the area.
Parcel Size & Configuration	The parcel consists of 16.4 acres in a disjointed configuration (the parcels are located on five "blocks" separated by roads). According to the UH Diamond Head Health Science Campus Master Plan Report Volume I Site and Facility Development Plan, the maximum building area of this site is 358,200 SF. **The site is not large enough to accommodate the space program for the proposed JABSOM facility.** In the latter report, the partial closure of Maunalei Street (between Makapuu Avenue and Pokole Avenue) was proposed.
Allowable Floor Area Ratio	50 percent of the zoning lot.
Buildable Area in square feet (SF)	358,183 SF.
Topography/Slopes/ADA	The site has an average slope of 8 percent, and will require ramps and elevators to be ADA accessible. Retaining walls may be required to

	create yard space.
Expansion Potential	Future expansion is probably very limited and may only be possible by: 1) expansion onto the Kapiolani Community College campus; or 2) acquisition of private land.
Soils	The site consists of mostly Molokai Silty Clay Loam, 15 to 25 percent slopes. Most of the Kapiolani Community College campus is classified as having the same soils.
Flooding/Tsunami Inundation	According to the Flood Insurance Rate Map (FIRM), the site is shown as Zone X (areas determined to be outside the 500-year floodplain).
Need to Relocate Businesses/Tenants?	The following users will have to be relocated: Hawaii Health Systems Corporation, Department of Health and Leahi Hospital.
Hazardous Materials/ Contaminants	Hazardous materials may be present in the existing buildings.
Water	There are existing 8-inch and 6-inch water mains along public roadways that service the project site.
Sewer	There are existing 8-inch and 6-inch sewer mains along Kilauea Avenue, Pokole Avenue and Sunset Avenue which service the project site
Drainage	There is no existing storm drain system within the public roadways. The project site presently drains onto public roadways by sheet flow and by standard sidewalk culverts. According to hospital staff, storm water runoff is conveyed off-site during storms (probably since the rainfall is low in this area and the site is sloping).
Electrical	The existing distribution system is antiquated and no longer supported by HECo for any new projects. Major upgrades are required.
Communications	There are existing Verizon telephone lines and Oceanic CATV lines along public roadways.

Infrastructure Costs	$3,619,000, not including parking. At nearly $18,000 per stall, the provision of 1,350 parking stalls (per the proposed new UH JABSOM program) in a parking structure would cost approximately$24,277,000.
Endangered Species/Critical Habitat	No endangered species or critical habitats are known to exist at the project site.
Streams/Wetlands	No streams or wetlands exist on the site.
Archaeological/Historical Resources	No archaeological sites are known to exist or are expected since most of the site is fully developed with buildings and parking. None of the existing buildings is on the State Register of Historic Places.
Nearby Noise Sources	No major noise sources, since this is a mostly residential neighborhood, with slower speed residential streets.
Visual Impact	Depending on the parcel, the site is very visible and also offers panoramic views of Waikiki.
Social Impacts	The site is in a mostly residential setting with residential-type streets. The site adjoins Kapiolani Community College, which is a major traffic generator in the community. Any facility that would generate more traffic (than current conditions) and more demand for on-street parking may be viewed as being undesirable.
Hospital Industry Support	The site is not centrally located to most of the hospitals in urban Honolulu.
Economic Impacts	The project will generate both construction and permanent employment and may attract biotechnical businesses to Oahu.
DOD/DVA Support	The site is not as conveniently located as Kakaako or the BWS site.
State Land Use District Boundary	The site is in the Urban land use district.
County General Plan/Development Plan	Primary Urban Center/ (Institutional)

County Zoning	The site is zoned R-5, Residential. A PRU would be required. Most of the site is also in the Diamond Head Special District that limits heights to 25 feet maximum.
Special Management Area	The site is not in the SMA.
Environmental Impact Statement Required?	Chapter 343, HRS, environmental requirements will have to be addressed because of the use of State funds and lands.
Other	Surrounding community may have concerns about any increase in traffic attributable to a new JABSOM facility in this neighborhood (especially with its narrow streets), additional demand for on-street parking, and a parking structure(s) in a residential neighborhood.
References	University of Hawaii Diamond Head Health Science Campus Master Plan Report Volume I Site and Facility Development Plan, June 1998

6.3 SITE OPPORTUNITIES AND CONSTRAINTS

The Leahi Hospital site has a number of characteristics that make it attractive for the development of a new UH JABSOM facility, these include:

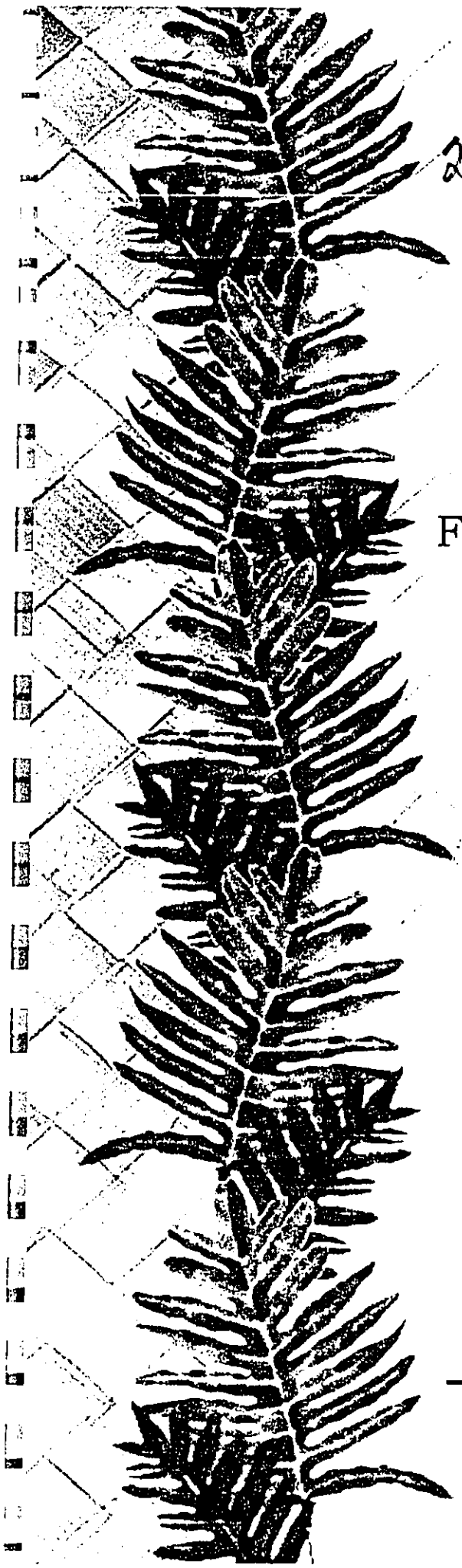
1) no costs to acquire the land;
2) its proximity to Kapiolani Community College;
3) its proximity to the UH Manoa Campus; and
4) its accessibility to the H-1 Freeway.

These positive attributes must be weighed against the constraints presented by the site, these include:

1) the need to displace current users (Hawaii Health Systems Corporation, Department of Health and Leahi Hospital);
2) the setting of the site within an older, well-established, and quiet single-family residential area;
3) the narrow roadways and competition with Kapiolani Community College for the use of these roads for access and parking;
4) the limited development potential of the site (because of the height limit established by the Diamond Head Special District and the maximum floor area ratio allowed by the residential zoning);
5) the limited expansion potential of the site and surrounding area; and
6) the topography of the site (affecting both ADA accessibility and development costs).

Since the constraints appear to be greater than the opportunities presented by the site, the Leahi Hospital site does not appear to be as attractive for development as either the Kakaako or Board of Water Supply sites.

2002-06-08-OA-FEA



University of Hawaii

Health and Wellness Center

Final Environmental Assessment

May 2002

UNIVERSITY OF HAWAII

HEALTH AND WELLNESS CENTER

FINAL ENVIRONMENTAL ASSESSMENT

Proposing Agency

State of Hawaii
University of Hawaii
John A. Burns School of Medicine

Prepared by:

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1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

May 2002

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PREFACE

This Final Environmental Assessment was prepared in accordance with the requirements of Chapter 343, Hawaii Revised Statutes (HRS). The University of Hawaii proposes to construct a new campus in the Makai Area of the Kakaako Community Development District, incorporating the John A. Burns School of Medicine, a Biomedical Research Center, and the Cancer Research Center of Hawaii.

Pursuant to Chapter 343, HRS, the project requires compliance with environmental assessment requirements based on the use of State funds. Use of the State-owned land was covered by the *Kakaako Community Development District Makai Area Plan, Final Supplemental Environmental Impact Statement* prepared in June 1998 which encompassed the subject property.

This Final EA has been processed as a Finding of No Significant Impact (FONSI) by the University of Hawaii, John A. Burns School of Medicine. No significant impacts are anticipated from the construction or operation of the proposed project.

Portions of the Final EA that have been substantially revised from the Draft EA are bold and italicized.

PROJECT SUMMARY

Proposing Agency:	State of Hawaii University of Hawaii John A. Burns School of Medicine
Location:	Kakaako, Oahu, Hawaii
Tax Map Key:	(1) 2-1-060: 10 and ***portions of 7 and 9***
Land Area:	***9.9 acres***
Recorded Fee Owner:	State of Hawaii
Existing Uses:	*Food distribution warehouses, parking, storage, and* support facilities, a State Department of Agriculture building with office and facilities for animal quarantine and laboratories.
State Land Use Classification:	Urban
HCDA Makai Area Plan Land Use Designation:	Commercial
Proposed Action:	Development of a new campus for the University of Hawaii to be known as the University of Hawaii Health and Wellness Center incorporating facilities to house the John A. Burns School of Medicine (JABSOM), a Biomedical Research Center, and the Cancer Research Center of Hawaii. The campus will also include a Visitors Center, and café/restaurant open to the public. The campus will be designed in two phases. During Phase I, the Biomedical Research Building and a building for the JABSOM will be constructed. During Phase II, a parking structure and a Future Research Center will be constructed.

Impacts:

No significant impacts are anticipated. Short-term impacts to air quality, water quality, and ambient noise levels may occur during the construction phase of the project. Impacts will be mitigated by applying appropriate Best Management Practices and by complying with required permit conditions.

In the long-run, the project is anticipated to have beneficial socio-economic and fiscal impacts. The project will allow the JABSOM to upgrade its facilities, which have become outdated, and enable the JABSOM and Cancer Research Center of Hawaii to significantly expand their research activities. The project will also allow the JABSOM and Cancer Research Center of Hawaii to compete more effectively for grant funds and may serve as a catalyst for development of Hawaii's biotechnology industry and as an anchor for development in the Kakaako Makai area.

Parties Consulted During Pre-Assessment Consultation:

Federal Agencies
Fish and Wildlife Service
National Marine Fisheries Service
U.S. Army Corps of Engineers

State Agencies
Department of Agriculture
Department of Accounting and General Services
Department of Business, Economic Development and Tourism
Office of Planning
Department of Health (DOH)
DOH, Environmental Management Division
Department of Land and Natural Resources
Historic Preservation Division
Office of Hawaiian Affairs
Department of Transportation

Hawaii Community Development Authority
Foreign Trade Zone No. 9

City & County of Honolulu Agencies
Board of Water Supply
Department of Design and Construction
Department of Environmental Services
Department of Planning & Permitting
Department of Transportation Services
Ala Moana/Kakaako Neighborhood Board No. 11
Downtown Neighborhood Board No. 13

Other
Children's Discovery Center
Hawaiian Electric Company, Inc.
KSBE Properties
Oceanic Cable
Verizon Hawaii, Inc.

Parties Consulted During Draft EA Consultation:

Federal
Fish and Wildlife Service
National Marine Fisheries Service
U.S. Army Corps of Engineers

State
Department of Agriculture
Department of Accounting and General Services
Department of Business, Economic Development and Tourism (DBEDT)
DBEDT, Office of Planning
Department of Health (DOH)
DOH, Environmental Management Division
DOH, Office of Environmental Quality Control
Department of Land and Natural Resources (DLNR)
DLNR, Historic Preservation Division
Department of Transportation
Foreign Trade Zone No. 9
Hawaii Community Development Authority

Office of Hawaiian Affairs
University of Hawaii, Environmental Center

City & County of Honolulu
Board of Water Supply
Department of Design and Construction
Department of Environmental Services
Department of Parks and Recreation
Department of Planning & Permitting
Department of Transportation Services
Ala Moana/Kakaako Neighborhood Board No. 11
Downtown Neighborhood Board No. 13

Other
State Main Library
Children's Discovery Center
Hawaiian Electric Company, Inc.
Kakaako Improvement Association
KSBE Properties
Oceanic Cable
Verizon Hawaii, Inc.

1 INTRODUCTION

The University of Hawaii (UH) is proposing to develop a new campus in the Makai Area of the Kakaako Community Development District. The campus, known as the University of Hawai`i Health and Wellness Center, will incorporate the John A. Burns School of Medicine (JABSOM), a Biomedical Research Center, and the Cancer Research Center. The JABSOM is presently located at the University of Hawaii, Manoa campus, while the Cancer Research Center of Hawaii is located near Queens Hospital. The campus is being designed to be a park-like development evoking a Hawaiian sense of place with 4 to 5 story buildings, winding paths, and extensive landscaping. The campus will also include a Visitors Center and Café/Restaurant open to the public. The facility will be developed in two phases. Phase I includes the Biomedical Research Building and a building accommodating the John A. Burns School of Medicine (JABSOM). Phase II will include construction of a Future Research Center and parking structure.

The special session of the State legislature during the week of October 22, 2001 funded the Health and Wellness Center as one of Governor Cayetano's projects under the State's Economic Revitalization Package and embodies the UH's commitment to economic development and job creation. The proposed project offers an opportunity to expand Hawaii's biotechnology industry, thereby diversifying the State's economy. The project would also strengthen UH's educational and research facilities, generate additional research funds for the State, and serve as an economic stimulus by supporting public-private partnerships.

This Draft Environmental Assessment has been prepared in accordance with the requirements of Chapter 343, Hawaii Revised Statutes. Pursuant to Chapter 343, HRS, the project requires compliance with environmental assessment requirements due to the use of State funds. Use of the State-owned land was covered by a Supplemental Environmental Impact Statement for the Kakaako Makai Area prepared in June 1998 which encompassed the subject property.

Following preliminary consultation with the State Office of Environmental Quality Control, this Environmental Assessment was prepared to address the potential economic and related impacts of the subject development. Based on this environmental review and associated studies conducted, a finding of no significant impact has been determined.

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2 SETTING AND PROJECT DESCRIPTION

2.1 Project Location

The site for the University of Hawaii Health and Wellness Center is in the Makai Area of the Kakaako Community Development District, under the jurisdiction of the State's Hawaii Community Development Authority (HCDA). See Figure 1. The approximately ***9.9-acre*** project site encompasses two parcels identified as tax map keys 2-1-60: 10 and ***portions of 7 and 9***. The project site is bound by the Kakaako Waterfront Park to the south, Ilalo Street to the north, Fort Armstrong to the west, and Cooke Street and the Kakaako Makai Gateway Park to the east.

2.2 Project Description

The UH Health and Wellness Center is a new campus for the University of Hawaii at Manoa, dedicated to integrated education and research in the health sciences. Phase I of the project includes the construction of two buildings that will house the JABSOM, biomedical research facilities, and the Cancer Research Center of Hawaii (see Figure 2, Site Plan). A third building housing the campus' Central Plant will also be constructed. The buildings will be 4 to 5 stories and up to about ***100*** feet in height (see Figures 3 to 5). The Research and JABSOM buildings are described below:

- The Biomedical Research Building will have approximately ***216,304*** gross square feet of area and will be located at the northwest corner of the project site. The Research Building will consist primarily of laboratory, laboratory support spaces, and a small vivarium. The loading dock, material management/general storage, fitness center, and a childcare center will also be located in the Research Building.

- The Education/Administration (JABSOM) building will be located on the northeast corner of the project site and will have approximately ***138,108*** gross square feet of area. The JABSOM building will house the School of Medicine, and related educational and administrative activities. Space may also be allocated for collaboration programs with the School of Nursing and College of Business Administration Masters in Business Administration (MBA) night program. The JABSOM building will also have a Learning Resource Center, Café/Restaurant and a Bookstore located on the ground floor to increase public awareness of the JABSOM facility and enhance the pedestrian experience along Ilalo Street.

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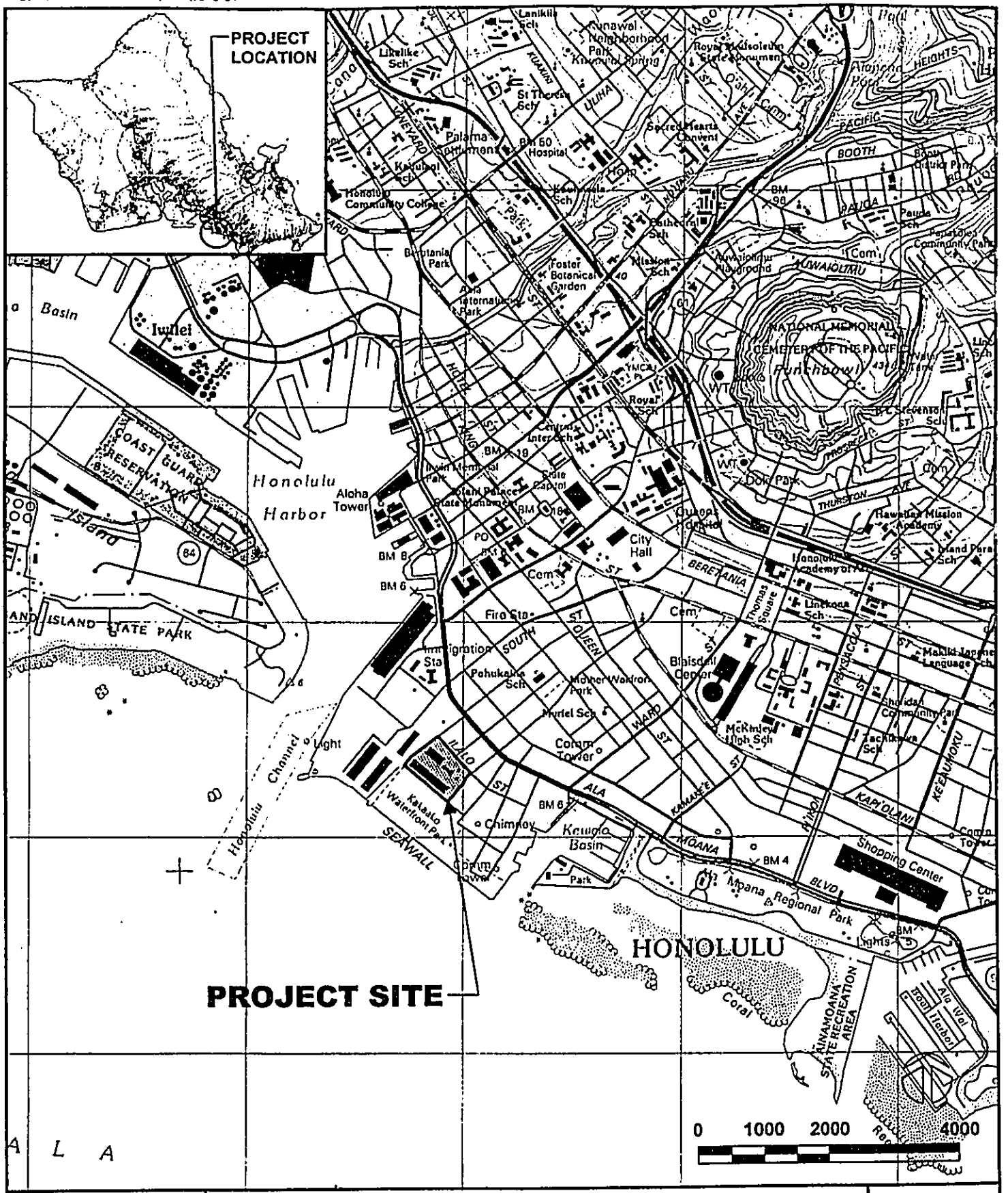
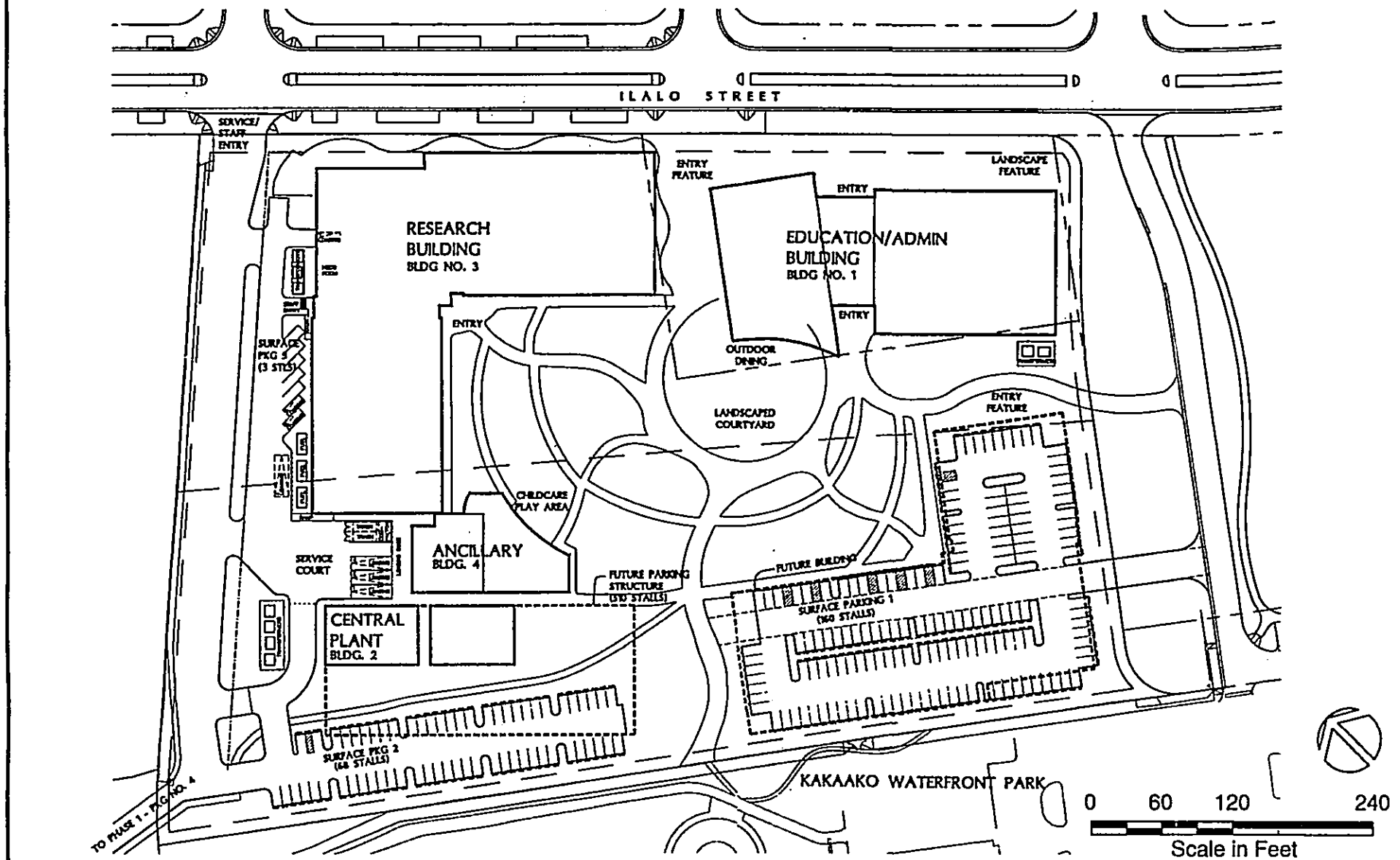
LOCATION MAP.PPT M:\WOA\6573-01



WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	UNIVERSITY OF HAWAII HEALTH AND WELLNESS CENTER LOCATION MAP	FIGURE 1

Site Plan.dwg 2/6/02 11:25 M:\WOA\6573-01\Figures



Source: Architects Hawaii Limited 5/9/02

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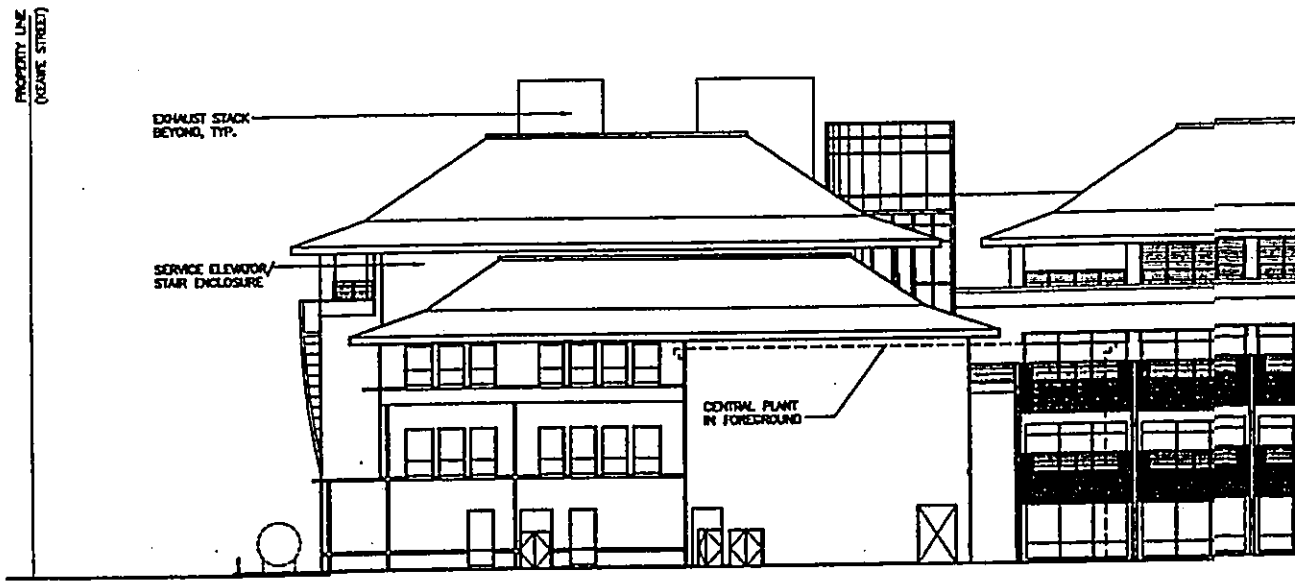
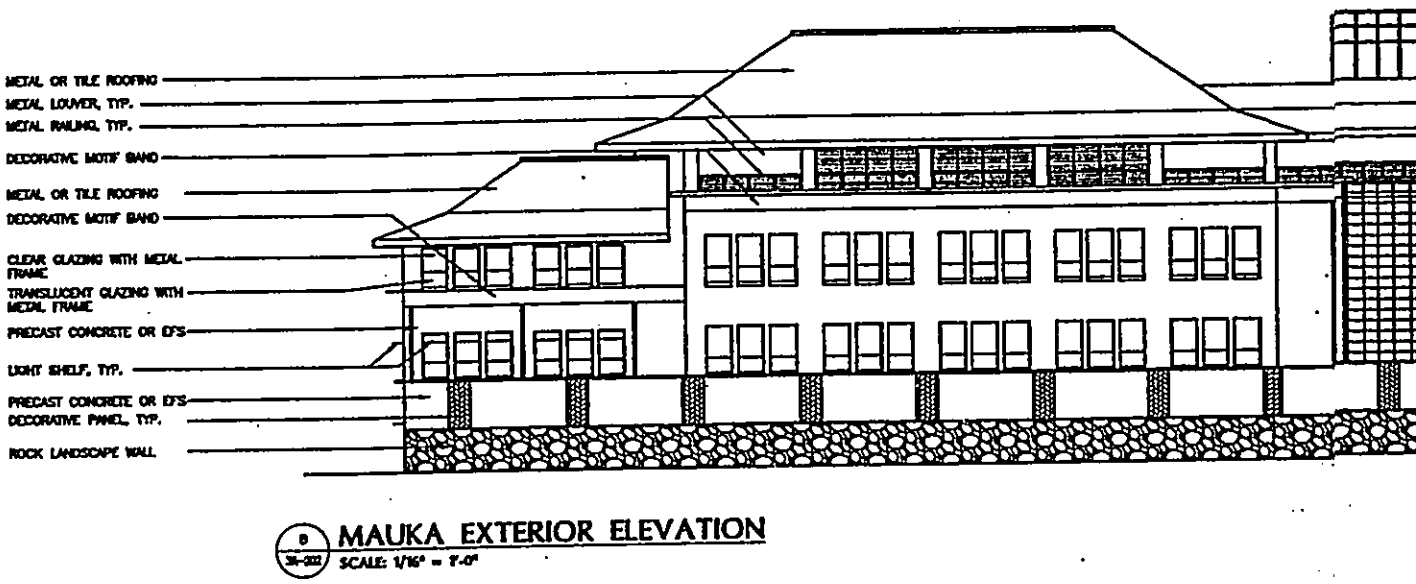
UNIVERSITY OF HAWAII HEALTH AND WELLNESS CENTER

SITE PLAN

FIGURE 2



A 34-202 **MAKAI EXTERIOR ELEVATION**
SCALE: 1/16" = 1'-0"



B 34-202 **MAUKA EXTERIOR ELEVATION**
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Source: Architects Hawaii Limited, May 2002

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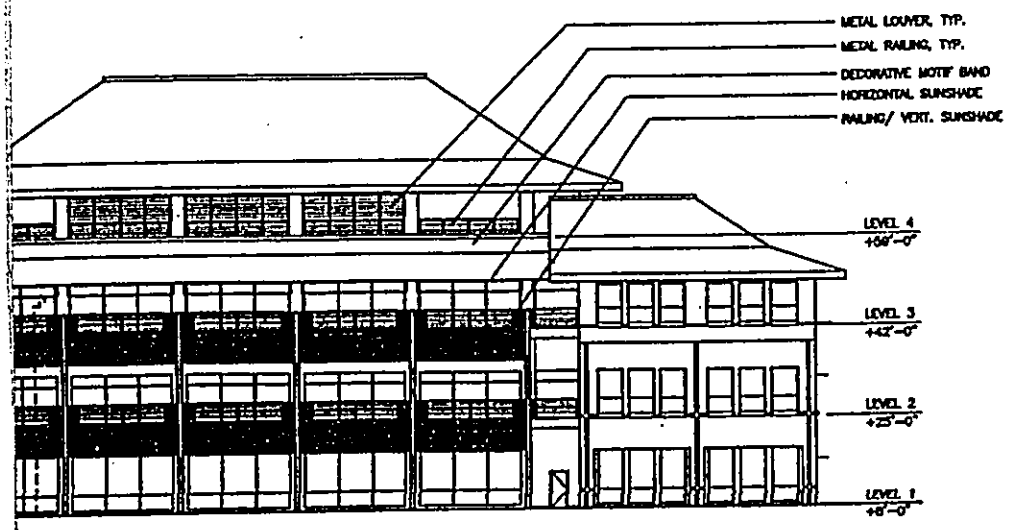
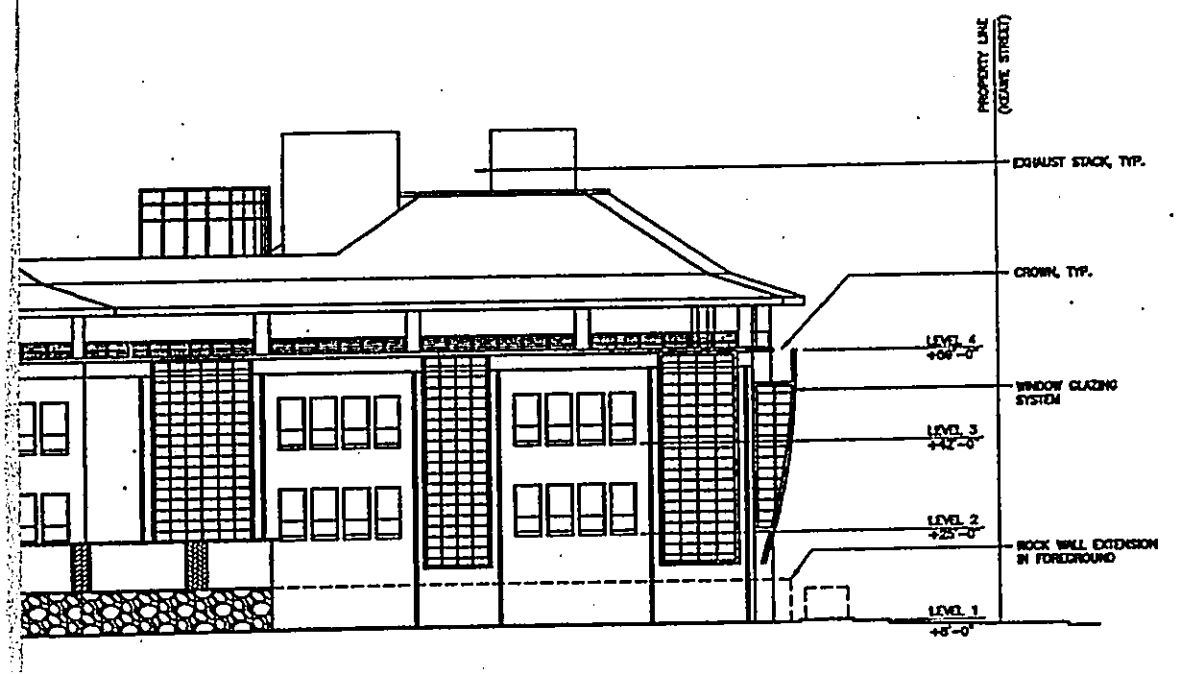
BUILDING ELEVATIONS

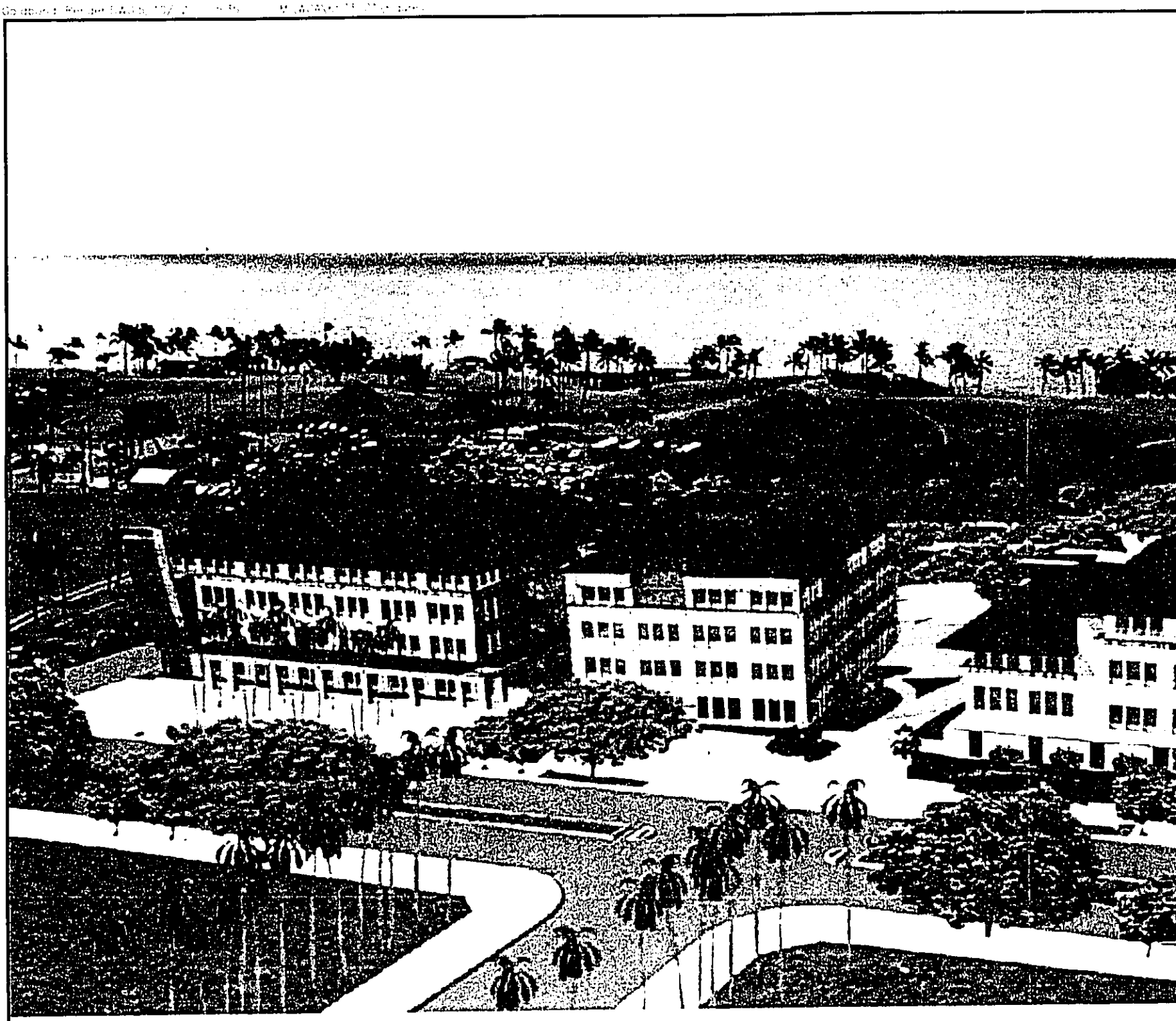




H AND WELLNESS CENTER

EVATIONS

FIGURE
3



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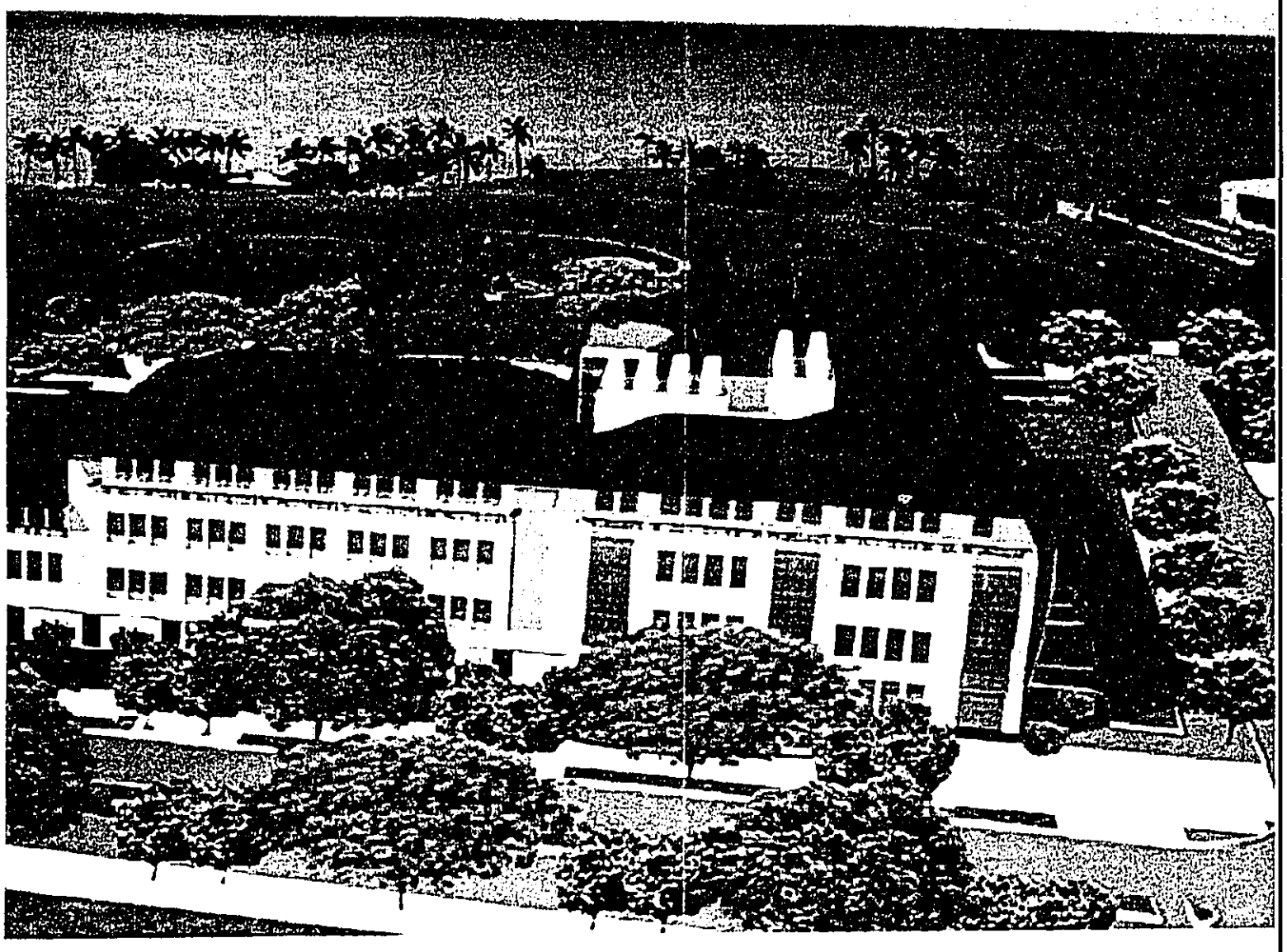
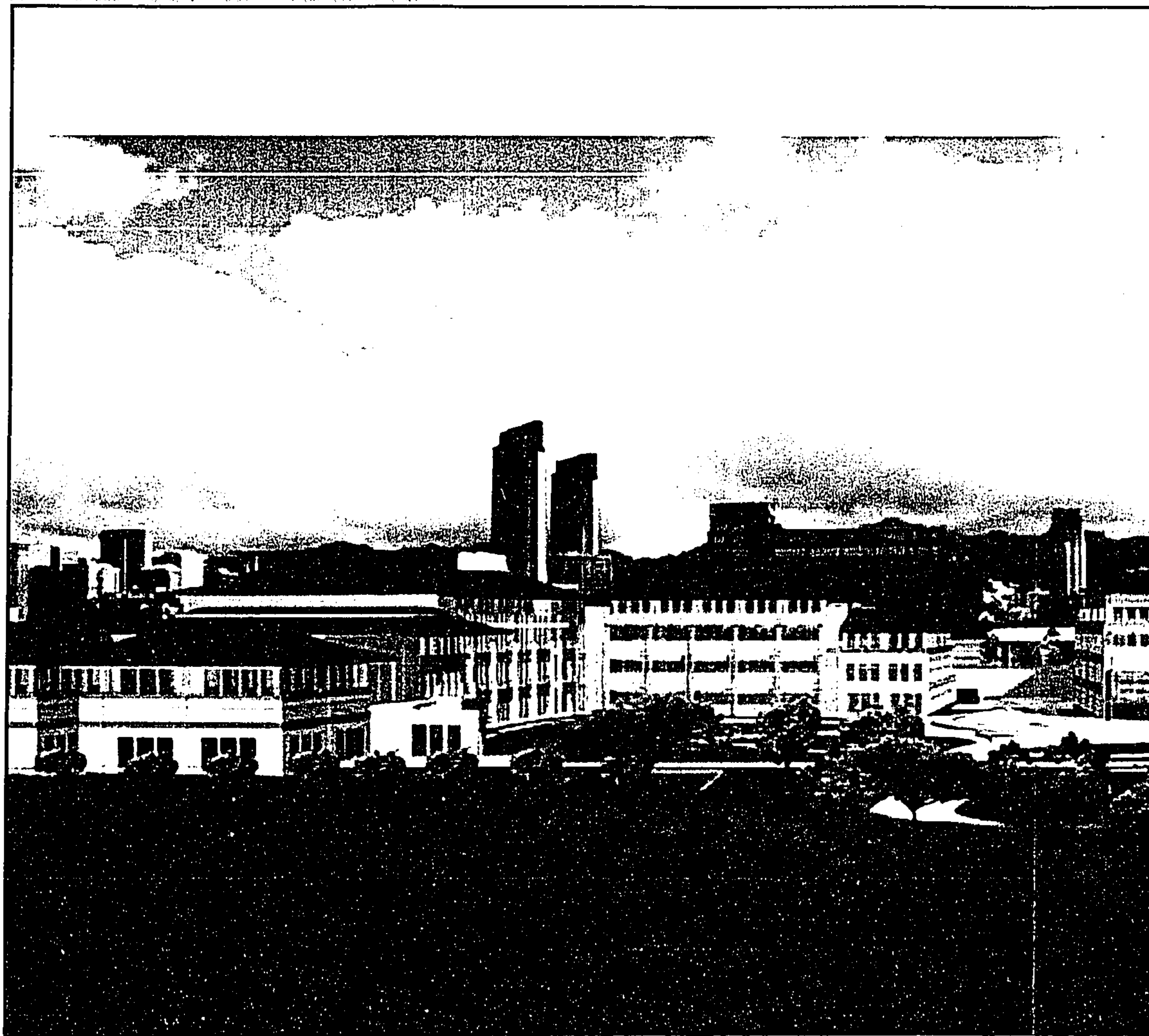
MAKAI VIEW



TH AND WELLNESS CENTER

VIEW

FIGURE
4



Source: Architects Hawaii Limited, May 2002

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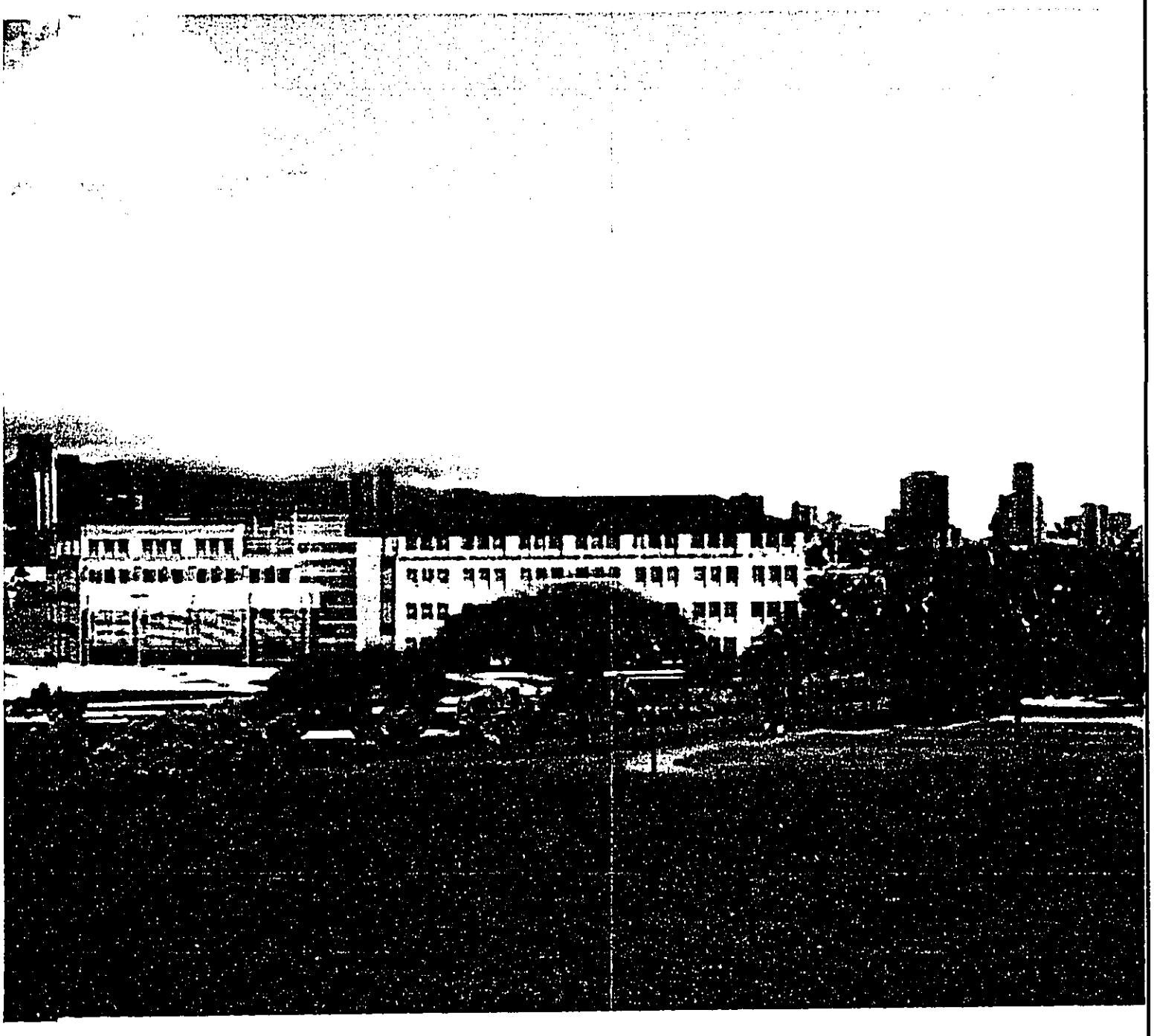
MAUKA VIEW



TH AND WELLNESS CENTER

VIEW

FIGURE
5

Water features, tropical landscaping including palm trees and flowering trees, and winding paths will be used to enhance the natural park-like appearance of the campus. A la'au Hawaiian medical herb garden will be developed to complement the healing environment aspect of the Biomedical Campus. ***Approximately 230 parking stalls will be provided on-site and a minimum of 471 parking stalls will be provided at Fort Armstrong on the current site of the Foreign Trade Zone makai warehouse.***

Phase II of the project will include construction of a parking structure and a Future Research Center. This phase of the project is still in the planning phase.

2.3 Project Schedule and Cost

Construction of Phase I of the UH Health and Wellness center is expected to begin in Fall 2002 and will require about three years to complete. The estimated construction cost for the Phase I facilities is estimated at $150,000,000. Phase II of the project is currently in the planning phase and will be constructed when funds become available.

2.4 Existing and Surrounding Uses

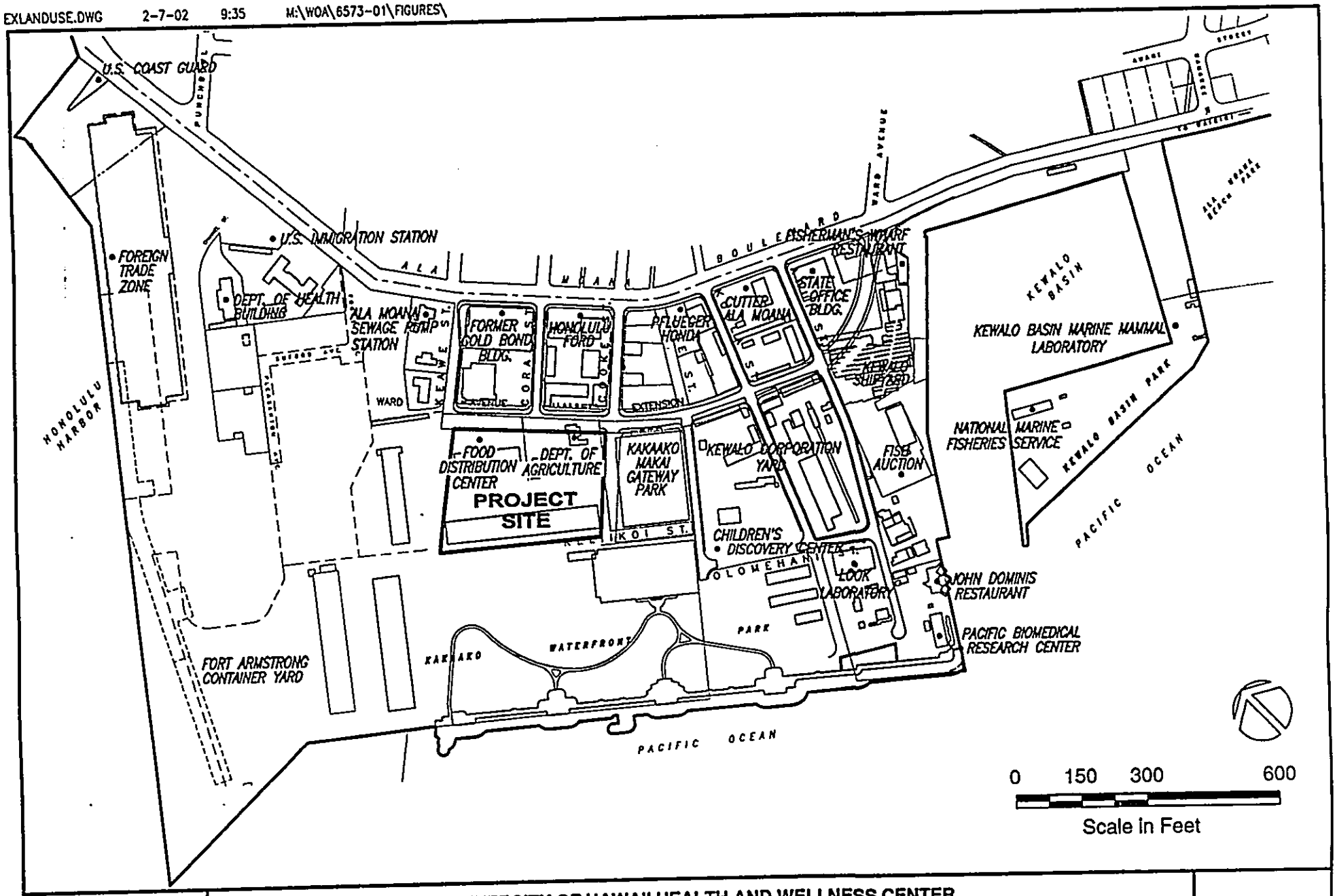
2.4.1 Existing Uses

Two metal warehouses and a building used by the State Department of Agriculture are currently located at the project site. The warehouse closest to Kakaako Waterfront Park houses Y. Fukunaga Produce, Armstrong Produce, the Dole Distribution Center and Japan Foods. The warehouse fronting Ilalo Street houses APL Florist, S. Yamaguchi Produce, Armstrong Produce, Aloha Products, and Manson Products. The Department of Agriculture Building houses the Measurement Standards Branch and the Plant Quarantine Branch of the DOA. Existing and surrounding uses are shown in Figure 6.

2.4.2 Surrounding Uses

Uses immediately adjacent to the project site include the Kakaako Waterfront Park to the south, the Kakaako Makai Gateway Park to the east, the Fort Armstrong Container Yard to the west, and the former Gold Bond building and Honolulu Ford Dealership to the north.

EXLANDUSE.DWG 2-7-02 9:35 M:\WOA\6573-01\FIGURES\



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EXISTING LAND USES

FIGURE 6

Other uses in the Kakaako Makai area include the Children's Discovery Center, Foreign Trade Zone No. 9, Pacific Biomedical Research Center, Kewalo Basin Marine Mammal Laboratory, National Marine Fisheries Service, Look Laboratory, office buildings, and several automobile dealerships.

3 DESCRIPTION OF THE EXISTING ENVIRONMENT, PROJECT IMPACTS AND MITIGATION MEASURES

3.1 Climate

The climate of the project site, similar to that of other coastal areas in Honolulu, is characterized by abundant sunshine, persistent trade winds, relatively constant temperatures, and moderate humidity. The mean temperature in Honolulu ranges from 73 degrees Fahrenheit (°F) in the winter to 81°F in the summer. The mean annual rainfall is approximately 23 inches with most of the rainfall occurring between the months of November and April. Relative humidity ranges between 56 and 72 percent. Cooling tradewinds from the northeast prevail throughout most of the year, while occasional "Kona" winds from the south bring warm, humid air.

Cooler microclimatic conditions have resulted from the replacement of large paved areas with the parks and landscaping. These cooling conditions are anticipated to continue with the addition of landscaped park and buffer areas planned throughout the Kakaako Makai Area.

3.2 Geology, Topography and Soils

The Kakaako Peninsula lies on the Honolulu coastal plain, an emerged fossil reef formed approximately 120,000 years ago (MacDonald and Abbott, 1970). A geotechnical exploration of the project site found that the project site is underlain by variable surface fill materials of medium dense and stiff consistency extending to depths of about 5 to 10 feet below the existing ground surface. The surface fill materials were generally underlain by highly compressible lagoonal deposits consisting of soft sandy silts and loose silty sands extending to depths of about 45 to 55 feet below the existing ground surface. The lagoonal deposits were generally underlain by a relatively thick lower coral ledge, about 10 to 20 feet thick, extending between depths of about 40 and 70 feet below the existing ground surface. Below the lagoonal deposits and/or coral ledges, the exploration generally encountered coralline detritus materials consisting of medium dense silty coralline sands and gravel extending to depths of about 110 to 135 feet below the existing ground surface.

The terrain of the project site is approximately 15 feet above mean sea level and flat. The United States Department of Agriculture, Soil Conservation Service, classifies the soils underlying the project site as Fill Land, Mixed (FL). Areas with

this designation include those filled with material dredged from the ocean or hauled from nearby areas, garbage, or general material from other sources.

A Phase I Environmental Site Assessment prepared for the proposed project concluded that indications of potential environmental concern exist at the subject property (Kimura International, *Phase I Environmental Site Assessment Report, Produce Center & Departmen tof Agriculture Facility*, May 8, 2001). The study recommended that the soil and groundwater at the project site be analyzed to determine if contaminants exceeding State Department of Health (DOH) Action Levels are present. Subsequent to the Phase I Environmental Site Assessment, a limited Phase II Environmental Site Assessment Report was prepared (Kimura International, *Limited Phase II Environmental Site Assessment Report*, January 16, 2002). The Phase II investigation confirmed the presence of contamination on the project site. Although most of the tested contaminants were found to be below the laboratory detection limit or below the DOH Tier action levels, some constituents exceeded the DOH Tier 1 action level. The DOH recommended that additional investigations should be performed to further characterize potential contaminants that may be present at the project site. Recommendations provided by the DOH include:

- Determine the extent of the landfill on the project site and further characterize the levels of potential contamination in the soil and groundwater.
- Conduct a methane gas survey of the site.
- Verify the presence and levels of potential pesticide contamination.
- Verify that any potential release from the site is not migrating and will not migrate into adjacent storm drains and ultimately into state waters.

In response to DOH recommendations, Kimura International conducted additional investigation of historical data, reviewed information obtained from an additional geotechnical exploration, and conducted additional sampling.

Landfill Delineation. Review of historical maps identified a sea wall, approximately 60-feet within the southern fence line, which was the northern boundary of the former Kakaako Landfill. A geotechnical exploration confirmed that the site generally consisted of fill material with minimal amounts of material that suggested landfill material (ash, glass). Additional sampling confirmed that lead levels in soil which exceeded DOH Tier I action levels were confined to an area mauka of the sea wall at depth of 2.5 to 6.5 feet with one exception. Lead levels above DOH Tier I action levels will be addressed by a construction management plan which will be drafted by Kimura International.

Methane Gas Survey. An active soil vapor survey conducted throughout the site confirmed that all samples were below the Lower Explosive Limit for methane.

Pesticide Contamination. Review of historical maps identified areas of potential historical pesticide usage. Sampling confirmed that most pesticides were below the laboratory detection limit or below the DOH Tier I action levels. Dieldrin was identified in soil above Tier I action levels in the specific area of two former cattle pens. Dieldrin was below the laboratory detection limit or below DOH Tier I action levels at all other sample locations on the site. The dieldrin will be addressed by a construction management plan which will be provided to the DOH.

Verification that contaminants will not migrate into State waters. The site has two areas of storm drain collection and transport. Based on the groundwater sample results obtained to date, there is no evidence that contaminants are migrating from the site into adjacent storm drains and ultimately into State waters.

Copies of the Phase I and Phase II Environmental Site Assessment Reports are available for review at the Office of Environmental Quality Control.

Impacts and Mitigation Measures

Development of the proposed project will require clearing of existing structures and grading for lot preparation. Areas designated for building foundations that have soft and/or yielding soils may need to be over-excavated to expose firm material and backfilled with well-compacted soils. Excavated soils will either be used for landscape areas on-site or disposed of off-site.

The geotechnical exploration recommended that because the moderate to heavy column loads of the proposed structures could cause foundation settlement, the proposed structures should be supported by a deep foundation system consisting of driven piles. The driven piles would bear on the lower coral ledge (encountered between about 45 and 70 feet below the ground surface) or on the underlying basalt formation (encountered between about 110 and 135 feet below ground level.)

As explained above, a construction management plan will be prepared to address the presence of contamination at the site.

3.3 Hydrology

The nearest surface stream in the vicinity of the project site is Nuuanu Stream, located about 1.2 miles north of the project site. Southern Oahu's coastal plain, which includes the Kakaako Peninsula, is underlain by sedimentary deposits that form a caprock that retards the seaward movement of fresh groundwater from the basal aquifer. The caprock extends along the coastline to about 800 to 900 feet below sea level.

Urbanization of the Kakaako Makai Area and upland areas has increased runoff to the nearshore coastal waters. Although drainage improvements in the Kakaako area have been undertaken, much of the area is still subject to localized flooding because of its flat topography and inadequate drainage facilities.

Impacts and Mitigation Measures

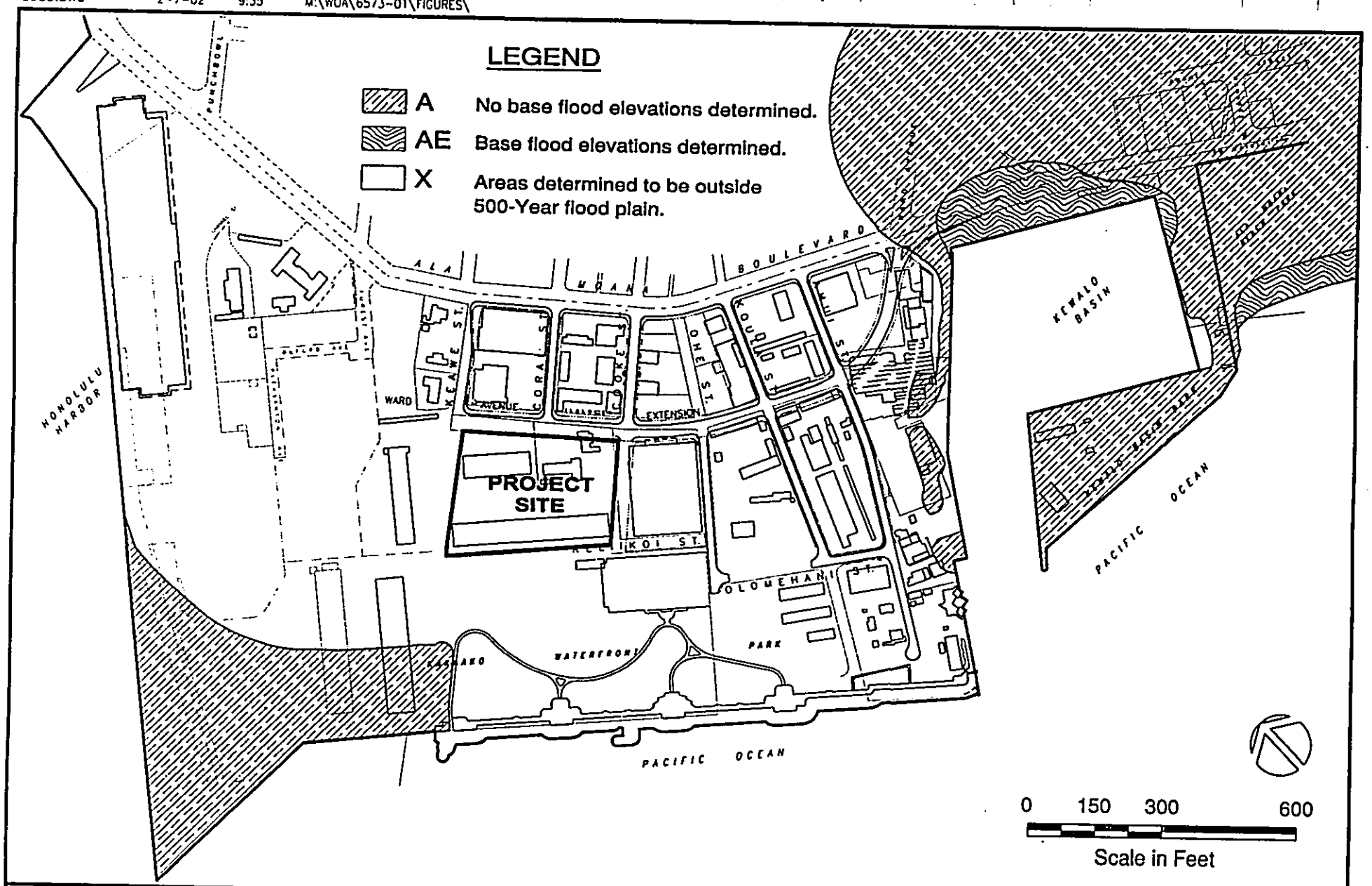
Presently, because much of the project site is covered with structures or paved, the majority of rainfall falling on the project site flows onto nearby streets or the onsite drainage system, and is eventually discharged to the ocean. Due to the proposed project's provision of generous landscaping and open space, stormwater runoff from the project site is expected to decrease.

Construction of the proposed project is anticipated to have no significant impact on surface or groundwater sources. A National Pollutant Discharge Elimination System (NPDES) for stormwater runoff specifying Best Management Practices to be implemented during construction will be procured from the State Department of Health prior to construction. The long-term operation of the Health and Wellness Center will not result in the discharge of pollutants into surface or groundwater resources.

3.4 Flood and Tsunami Hazard

According to the *Flood Insurance Rate Maps* prepared by the Federal Emergency Management Agency, the project site is designated Zone X (see Figure 7). Zone X includes areas subject to 500-year floods, areas of 100-year floods with average depths of less than 1-foot, or areas with drainage areas less than 1 square mile. According to the Tsunami Evacuation Zone maps for Oahu, the *makai* boundary of the project site is on the border of the evacuation zone (see Figure 8).

FLOOD.DWG 2-7-02 9:35 M:\WOA\6573-01\FIGURES\



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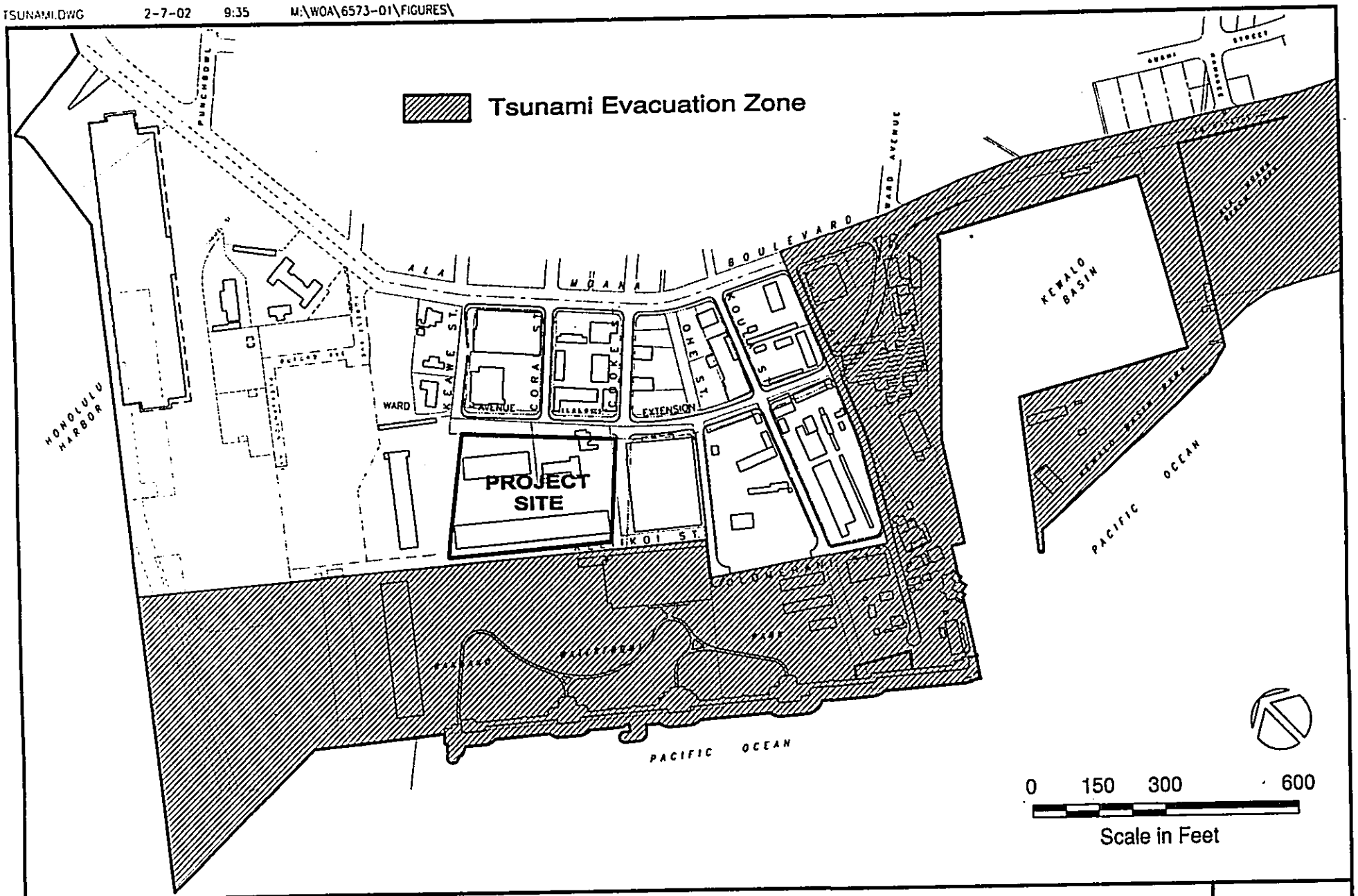
FLOOD HAZARD MAP

FIGURE 7

TSUNAMI.DWG 2-7-02 9:35 M:\WOA\6573-01\FIGURES\



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TSUNAMI EVACUATION ZONE

FIGURE 8

Impacts and Mitigation Measures

The flood hazard at the project site is considered to be minimal. The risk of damage by tsunami inundation is mitigated to some degree by the elevated topography of the adjacent Kakaako Waterfront Park which serves as a buffer between the ocean and the project site.

3.5 Flora and Fauna

The project site is a highly altered urban environment that provides little habitat for flora or fauna. With the exception of a few landscaped areas and ornamental plants, the majority of the surface area at the project site has been paved over. Flora species present at the site include Coconut, Banyan, Pink Tecoma, Octopus Tree, and Thatch and Fan Palms.

Feral cats and mice, common to inner city environments, are likely present at the project site. Avifauna species that are known to inhabit the Kakaako Makai area include mynahs, finches and doves. No threatened or endangered flora or fauna species exist at the project site or nearby areas.

Impacts and Mitigation Measures

Under the proposed project, extensive landscaping will be used to provide the campus with a park-like setting. Coconut trees will provide the major planting theme and character for the project, continuing the general scheme established by previous Kakaako Makai Area developments. Canopy trees, such as Monkeypods, will provide shade as well as give a sense of scale to the buildings. Flowering accent trees and palms will be used to add to the visual interest of the landscape and shrubs and ground cover mass plantings will be used adjacent to buildings as a transition from structure to the exterior spaces. In addition, a la'au Hawaiian medical herb garden will be developed. Where possible, existing trees that are deemed to be valuable or significant will be saved or relocated.

Provision of these landscaped areas in turn will enhance the habitat for avifauna and faunal species.

3.6 Air Quality

An air quality impact study prepared in conjunction with the Honolulu Waterfront Master Plan in 1989, describes the Honolulu waterfront area as having a variety of stationary and mobile sources of air pollution. Hawaiian Electric Company's downtown power plant is the primary stationary source, while vehicular traffic represents the principal mobile contributor. Emissions from the power plant are

in compliance with State and Federal air pollution control regulations. Vehicular traffic on Nimitz Highway/Ala Moana Boulevard, however, has contributed to carbon monoxide levels that have occasionally exceeded State standards. Air quality at the project site is generally considered to be good due to the presence of fairly constant northeasterly tradewinds that disperse pollutants seaward.

Impacts and Mitigation Measures

Short-term construction related air quality impacts may include dust from grading and excavation activities and emission of hydrocarbons and exhaust fumes from construction equipment and employee vehicles. Under normal tradewind conditions, dust and fumes will be dispersed away from the project site toward the ocean. However, during the presence of Kona winds, pollutants would be blown landward which may contribute towards a decline in air quality. Impacts from fugitive dust will be mitigated by complying with the provisions of the State Department of Health, Hawaii Administrative Rules, Chapter 11-60.1 "Air Pollution Control." Possible mitigative measures include erecting dust screens, watering down loose soils, and establishing temporary groundcover. In addition, all construction equipment must meet the requirements of the State emission control laws in order to mitigate the effects of construction on air quality.

In the long-term, the increase in vehicular traffic associated with the proposed project may have localized air quality impacts, particularly during the morning and evening peak hours of traffic. Planned roadway improvements in the Kakaako area, such as the ongoing improvements to Ilalo street scheduled for completion in December 2002, however, will mitigate air quality impacts by facilitating the flow of traffic through the area, thus reducing the potential for accumulation of carbon monoxide.

3.7 Noise Quality

The primary sources of noise in the vicinity of the project site are vehicular traffic, industrial equipment, and aircraft. An Acoustic Study prepared for the Honolulu Waterfront Master Plan and the 1990 Supplemental EIS for the Kakaako Makai Area found that the existing 24-hour average noise level for traffic within the Makai Area is approximately 60 Ldn at a 50-foot distance from the centerline of streets makai of Ala Moana Boulevard. Aircraft noise levels are between 60 and 65 Ldn and noise levels estimated from industrial equipment averaged between 72 and 80 decibels.

Impacts and Mitigation Measures

During construction, ambient noise levels may increase temporarily. Noise generating equipment that may be used include pile drivers and earth moving

equipment such as bulldozers and diesel-powered trucks. Since noise levels during construction are anticipated to exceed allowable limits, a permit must be obtained from the Department of Health.

The long-term operation of the Health and Wellness Center is anticipated to have a negligible impact on ambient noise levels. Vehicular traffic is anticipated to be the primary generator of noise associated with the project. However, since the majority of traffic associated with the project will occur during the morning and evening peak hours of traffic, the majority of traffic-generated noise will be confined to these hours.

3.8 Open Space and Scenic Resources

The Kakaako Makai Area consists of low-rise structures with the exception of the ten-story former Gold Bond Building. Although there are pockets of open spaces in the Makai Area, the major open spaces are in the Fort Armstrong area and the Kakaako Makai Area Gateway Park and Waterfront Park.

The *Coastal View Study* prepared by the City and Cunty of Honolulu identifies significant views within the Special Management Area boundary on Oahu. Significant views identified in the Downtown and Ala Moana study areas include:

- Continuous and intermittent views of Honolulu Harbor from Nimitz Highway
- Stationary views from Sand Island Park looking east, west and mauka.

Existing views identified in the Makai Area Plan include:

- Ala Moana Boulevard to Kewalo Basin
- Kewalo Basin Park along the shoreline
- Kakaako Waterfront Park along the shoreline
- Kakaako Waterfront Park lookout in all directions
- Mauka views from local streets

The plan also calls for the creation of a mauka-makai view corridor along Cooke Street.

The project site itself does not possess scenic resources although it does provide intermittent mauka views.

Impacts and Mitigation Measures

Development of the proposed project is anticipated to have no significant impact on open space or scenic resources identified in the *Coastal View Study* or

Kakaako Community Development District Makai Area Plan. Buildings to be constructed will be 4 to 5 stories tall and ***up to about 100*** feet in height, within the 100 and 200-foot height limits established by the Makai Area Plan.

3.9 Socio-Economic Environment

3.9.1 Economic Characteristics

Oahu and the State of Hawaii as a whole are experiencing an economic slump brought about by the recent decline in travel and tourism. For the month of October 2001, domestic visitor arrivals were down 19.4%, international visitor arrivals were down 50.3 percent, and total visitor arrivals were down 30.3% from one year earlier. For the month of November 2001, the overall visitor arrivals were about 20% lower than the year earlier and for 2001 as a whole, total visitor arrivals were down 9.1% from the levels recorded in 2000. This decline was partially offset by a longer length of stay, resulting in visitor days decreasing by about 6.3% in 2001. The slowdown in the travel and tourism industry is reflected in the State's unemployment rate which rose from 4.4% in September 2001 to 4.8% in January 2002.

The primary economic activities in the Kakaako Makai Area include commercial uses along the Ala Moana Boulevard corridor and light industrial and warehousing activities in the interior of the peninsula.

Impacts and Mitigation Measures

The special session of the State Legislature during the week of October 22, 2001 funded the UH Health and Wellness Center as one of Governor Cayetano's projects under the State's Economic Revitalization Package. The proposed project would have a positive impact on the State's economy by expanding Hawaii's biotechnology industry, diversifying the State's economy, and generating additional research funds for the State.

The proposed project is anticipated to have positive short and long-term impacts on employment and income. An economic and fiscal impact analysis report for the project projected that during the construction phase, the project would create 484 direct jobs each year over a three-year construction period and an additional 624 jobs each year from indirect and induced effects (Appendix C, *Economic and Fiscal Impact Analysis of the University of Hawaii John A Burns School of Medicine Biomedical Science Facility, Phase 1,* Strategy Pacifica, February 2002). Direct, indirect and induced income generation from the proposed project is projected to total $46.3 million during each year of the construction period.

Once operational, the research component of the Health and Wellness Center is projected to generate 451 direct research-related jobs and an additional 257 jobs per year from indirect and induced job generation from research activities. Funds for Indirect Support are projected to generate 469 direct jobs and another 529 jobs from indirect and induced effects. Of these figures, the net 31 additional principal investigator positions will account for 341 direct research-related jobs, 355 jobs from indirect support, and an additional 400 jobs from indirect and induced effects. Direct, indirect, and induced income generation from the proposed project is projected to total $75.5 million at full utilization during the operational period of the project, of which $57.1 million will be attributable to the net 31 additional principal investigator postions.

The project is anticipated to have a minimal impact on municipal revenues since as a public facility, the project would be exempt from property taxes. Municipal public services are also not anticipated to be affected since the HCDA has underway and planned upgrades to the sewer, water, drainage, and roadway systems in the Kakaako Makai Area with or without the proposed project.

Fiscal impacts of the project to the State of Hawaii, other than direct revenues and expenses related to the Health and Wellness Center, include general excise and income tax revenues during construction, income taxes during the operational period, the cost of capital for amortization of funds borrowed for construction, and common area fees to HCDA for the maintenance and operation of the project.

Based on a 4.0% rate, general excise tax revenues are projected to be $3.0 million annually during the construction period. Income tax revenues are projected to be $4.5 million annually during the construction period and $5.2 million annually during the operational period, based on an average rate of 6.899%.

Construction costs will be financed by revenues received from the Hawaii Tobacco Settlement Special Fund. The cost of capital for the $160 million to be used for construction of the project is estimated to be approximately $11.4 million annually based on a 5.0% interest rate for self-amortizing bonds with a 25-year term.

The HCDA intends to assess common area charges to projects in the Kakaako Makai Area for the maintenance and operation of public improvements and facilities. These have not yet been determined.

3.9.2 Displacement of Existing Tenants

Existing tenants at the project site include Produce Center Development, Ltd. and the State Department of Agriculture's Quality Assurance Division Measurement Standards Branch, Commodities Branch, and the Plant Quarantine Branch. Produce Center Development subleases its facility to eight subtenants including Y. Fukunaga Products, Armstrong Produce, Dole Distribution Center, Japan Food (Hawaii), APL Florist, S. Yamauchi Produce, Aloha Products, and Manson Products.

Impacts and Mitigation Measures

Development of the proposed project will require the relocation of existing tenants. The deadline for final possession of the property is August 31, 2002. The State Department of Agriculture is presently constructing a new building on a 3.92-acre site at the Kapalama Military Reservation that is anticipated to be completed in July 2002.

Under the terms of a lease termination agreement executed on March 8, 2002, Produce Center Development and its subtenants will receive up to $6.8 million for its improvements and up to an additional $200,000 to assist in temporary relocation until a permanent replacement facility is completed. The HCDA is currently working with Produce Center to determine if a warehouse in the Foreign Trade Zone at Fort Armstrong is feasible as a temporary site to conduct business until a permanent site is found.

3.9.3 Historic, Archaeological and Cultural Resources

There are no significant historic or archaeological resources present at the project site or traditional customary practices occurring at the site. Significant historic resources in the vicinity of the project site include the Department of Health Building next to the Foreign Trade Zone, the U.S. Immigration Station, and the former Ala Moana Wastewater Pump Station. The latter two structures are currently listed on the National Register of Historic Places, although all of the buildings are considered to have "high" preservation potential, historic significance, and can be feasibly maintained and sustained in their present condition.

A cultural impact assessment for the project has been prepared and is attached to this EA as appendix B. The project site is located in what were the nearshore waters of the 'ili of Ka'ākaukukui, of which the majority of the lands, or 125 acres, were awarded to Victoria Kamāmalu through Land Commission Award 7713. Smaller kuleana lands were also awarded to seven other native tenants. A

review of Native and Foreign Register and Testimony records revealed that claimants registered for house lots, fishponds, salt beds and cultivation areas including mauka kalo patches. By 1919, a seawall had been constructed near the present alignment of Olomehani Street and the area makai of Ala Moana Boulevard, including the project site, had been filled. In the early 1900's these lands supported an unauthorized fishing village until the Territorial government evicted the squatters in 1926. Cultural activities that continue to be practiced in the vicinity of the project site include fishing, shoreline gathering, and recreational activities including swimming and surfing.

Impacts and Mitigation Measures

Development of the proposed project is anticipated to have no impact on historic, archaeological, or cultural resources. Because the project site consists of fill land, it is unlikely that any archaeological resources will be uncovered during construction of the project. Should any archaeological deposits be found, however, work in the immediate vicinity will cease and the State Historic Preservation Division will be notified immediately.

The Cultural Impact Assessment determined that the project would have no impact on cultural resources or activities since the project will not affect access to the Kakaako Waterfront Park or the shoreline and adequate parking for the project is being provided so public parking for the Kakaako Waterfront Park will not be affected.

3.9.4 Recreational Resources

The primary recreational resource in the vicinity of the project site is the 30-acre Kakaako Waterfront Park and the adjacent Kakaako Makai Gateway Park which provide opportunities for surfing, bodyboarding, fishing, walking, bicycling, sightseeing, and picnicking. Another resource is the Children's Discovery Center which provides interactive educational exhibits for children.

Impacts and Mitigation Measures

The proposed project will have no impact on recreational resources available to the public. ***A minimum of 720*** on-site and off-site parking stalls will be provided for faculty, staff, and students to ensure that public parking at the Kakaako Waterfront Park is not be affected.

3.10 INFRASTRUCTURE SYSTEMS AND SERVICES

3.10.1 Transportation System

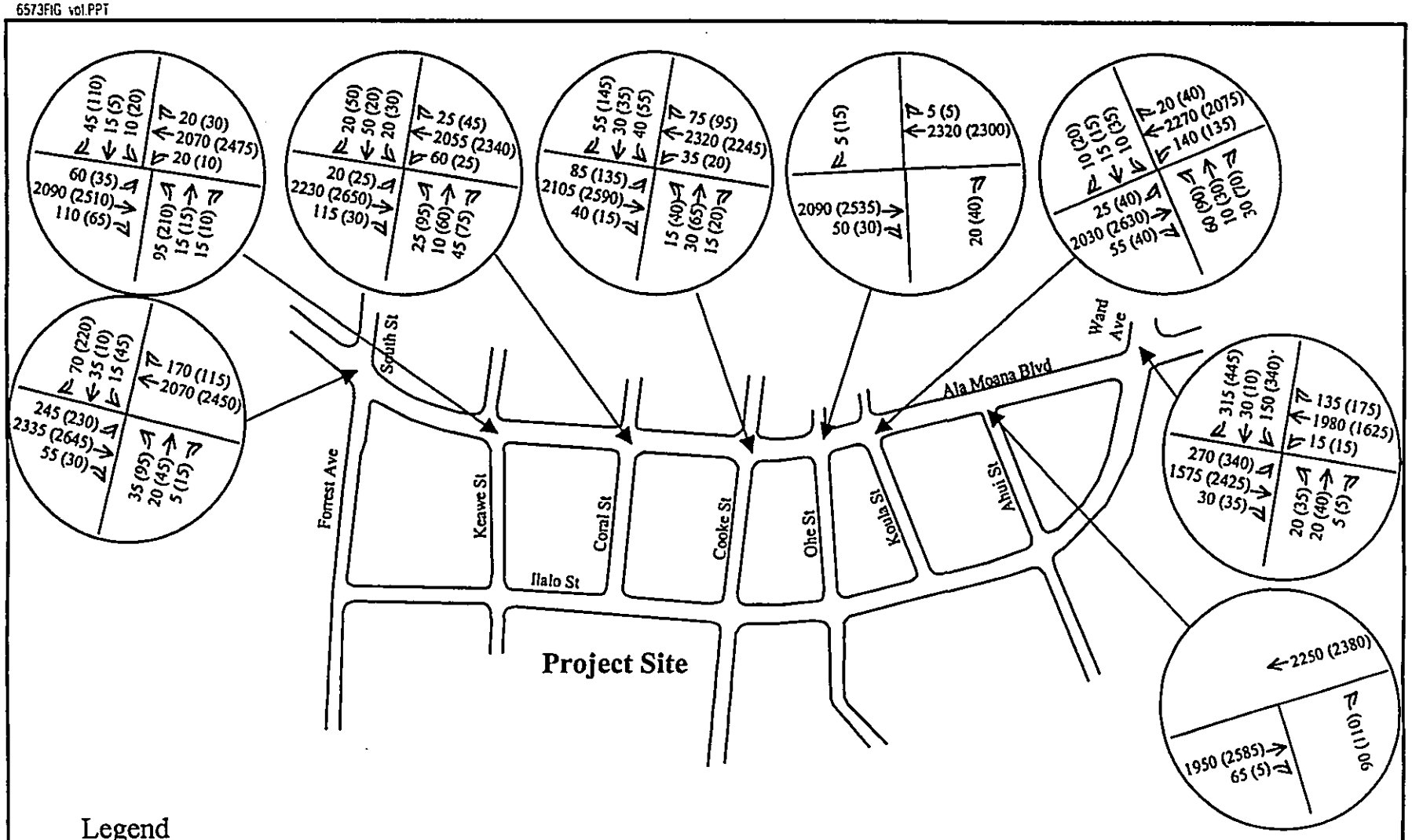
Major roadways in the vicinity of the project site include Ala Moana Boulevard, Ilalo Street, Ward Avenue, and South Street. Ala Moana Boulevard is a six-lane principal arterial that provides access in an east-west direction. Ilalo Street, the principal collector in the Kakaako Makai Area, is currently being reconstructed as a four-lane roadway with a center median. ***The current Ilalo Street project will improve the infrastructure of Ilalo Street from Ahui Street to Forrest Avenue. The Hawaii Community Development Authority has plans to extend Ilalo Street to Punchbowl Street, although the timing of this improvement has not been determined.*** Ward Avenue is a four-lane mauka-makai minor arterial and South Street is a four-lane two-way minor arterial from Ala Moana Boulevard to Pohukaina Street, and a one-way mauka bound roadway beyond Pohukaina Street.

A Traffic Impact Analysis Report for the project was prepared to assess traffic impacts anticipated to result from development of Phase I and Phase II of the proposed project (Appendix A). The Level of Service (LOS) for intersections in the vicinity of the project site was determined for year 2005 and 2020 with and without the proposed project. LOS is a quantitative and qualitative assessment of traffic operations, ranging from excellent or free flow conditions at LOS A to overloaded conditions at LOS F. Existing roadway traffic volumes are depicted in Figure 9.

Impacts and Mitigation Measures

According to the Traffic Impact Analysis, in year 2005 (the year that Phase I of the project is anticipated to be completed), delays at intersections in the study area with the proposed project will increase slightly over Without Project conditions. Overall intersection operations, however, will experience minimal change. Intersections that provide access to the project site including Cooke Street, Keawe Street and South Street/Forrest Avenue are projected to experience the highest increase of delays with the proposed project. A summary of the projected LOS and delay experienced by vehicles (in seconds) at each of the study intersections is provided in Table 1.

6573FIG vol.PPT



Legend

10 (10) AM (PM) Peak Hour Traffic Volume

WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	UNIVERSITY OF HAWAII HEALTH AND WELLNESS CENTER	FIGURE 9
	EXISTING PEAK HOUR TRAFFIC VOLUMES	

Table 1 Year 2005 Intersection Level of Service Summary – Phase I				
Intersection/Movement	**Background**		**With Phase I**	
	AM Peak	**PM Peak**	**AM Peak**	**PM Peak**
Ward Avenue/Ala Moana Boulevard	**D (39.6)**	**E (68.8)**	**D (44.5)**	**E (72.2)**
Diamond Head Bound (Ala Moana Blvd.)	*C (23.3)*	*E (63.3)*	*C (23.3)*	*E (68.9)*
Ewa Bound (Ala Moana Blvd.)	*D (47.3)*	*D (44.3)*	*E (55.5)*	*D (45.7)*
Mauka Bound (Ilalo Street)	*D (52.7)*	*E (57.2)*	*D (51.6)*	*E (55.3)*
Makai Bound (Ward Avenue)	*E (67.5)*	*F (>80)*	*E (73.7)*	*F (>80)*
Ahui Street/Ala Moana Boulevard*				
Mauka Bound Right (Ahui Street)	*C (18.4)*	*D (28.1)*	*C (18.6)*	*D (29.7)*
Koula Street/Ala Moana Boulevard	**B (17.2)**	**C (28.4)**	**B (18.6)**	**C (30.2)**
Diamond Head Bound (Ala Moana Blvd.)	*B (17.7)*	*C (33.4)*	*B (17.8)*	*D (36.2)*
Ewa Bound (Ala Moana Blvd.)	*B (14.9)*	*B (17.5)*	*B (17.5)*	*B (18.2)*
Mauka Bound (Koula Street)	*D (52.7)*	*E (76.8)*	*D (52.7)*	*E (76.8)*
Makai Bound (Koula Street)	*D (48.7)*	*D (53.4)*	*D (48.7)*	*D (53.4)*
Ohe Street/Ala Moana Boulevard*				
Mauka Bound Right (Ohe Street)	*C (16.1)*	*C (20.4)*	*C (16.2)*	*C (21.1)*
Makai Bound Right (Ohe Street)	*C (16.6)*	*C (16.8)*	*C (16.9)*	*C (17.0)*
Cooke Street/Ala Moana Boulevard	**B (18.2)**	**C (25.8)**	**B (18.7)**	**C (32.7)**
Diamond Head Bound (Ala Moana Blvd.)	*B (14.7)*	*C (24.7)*	*B (14.9)*	*C (30.6)*
Ewa Bound (Ala Moana Blvd.)	*B (19.5)*	*C (23.8)*	*C (20.0)*	*C (28.0)*
Mauka Bound (Cooke Street)	*D (45.7)*	*D (53.6)*	*D (46.7)*	*F (>80)*
Makai Bound (Cooke Street)	*D (42.9)*	*D (45.0)*	*D (44.7)*	*D (48.2)*
Coral Street/Ala Moana Boulevard	**B (16.0)**	**C (28.4)**	**B (16.3)**	**C (29.9)**
Diamond Head Bound (Ala Moana Blvd.)	*B (17.0)*	*C (30.0)*	*B (17.5)*	*C (32.0)*
Ewa Bound (Ala Moana Blvd.)	*B (12.5)*	*C (23.5)*	*B (12.6)*	*C (24.7)*
Mauka Bound (Coral Street)	*D (42.6)*	*D (53.6)*	*D (42.6)*	*D (53.6)*
Makai Bound (Coral Street)	*D (50.4)*	*D (44.6)*	*D (50.4)*	*D (44.6)*
Keawe Street/Ala Moana Boulevard	**C (23.1)**	**E (59.1)**	**C (26.3)**	**E (70.0)**
Diamond Head Bound (Ala Moana Blvd.)	*C (20.2)*	*E (60.9)*	*C (21.9)*	*E (65.3)*
Ewa Bound (Ala Moana Blvd.)	*C (22.3)*	*D (51.7)*	*C (22.9)*	*E (59.7)*
Mauka Bound (Keawe Street)	*E (62.0)*	*F (>80)*	*E (69.0)*	*F (>80)*
Makai Bound (Keawe Street)	*E (68.8)*	*F (>80)*	*F (>80)*	*F (>80)*

Table 1 (cont.) Year 2005 Intersection Level of Service Summary – Phase I				
Intersection/Movement	**Without Project**		**With Project**	
	AM Peak	**PM Peak**	**AM Peak**	**PM Peak**
South St/Forrest Ave/Ala Moana Blvd	**C (30.6)**	**D (37.9)**	**C (31.5)**	**D (46.1)**
Diamond Head Bound (Ala Moana Blvd.)	*C (29.6)*	*C (28.3)*	*C (30.9)*	*C (29.1)*
Ewa Bound (Ala Moana Blvd.)	*C (31.1)*	*D (48.4)*	*C (31.3)*	*D (53.9)*
Mauka Bound (Forrest Avenue)	*D (45.2)*	*D (47.7)*	*D (47.0)*	*F (>80)*
Makai Bound (South Street)	*D (35.5)*	*D (35.1)*	*D (36.8)*	*D (35.3)*
Punchbowl Street/Ala Moana Blvd	**C (21.9)**	**C (26.3)**	**C (23.6)**	**C (30.3)**
Diamond Head Bound (Ala Moana Blvd.)	*B (19.4)*	*C (20.4)*	*C (22.7)*	*C (21.3)*
Ewa Bound (Ala Moana Blvd.)	*B (16.8)*	*C (23.0)*	*B (17.2)*	*C (31.3)*
Makai Bound (Punchbowl Street)	*D (47.5)*	*D (53.9)*	*D (47.6)*	*D (53.9)*
Ahui Street/Ilalo Street*	**A (7.3)**	**A (7.4)**	**A (7.4)**	**A (7.6)**
Diamond Head Bound (Ilalo Street)	*A (7.1)*	*A (7.0)*	*A (7.3)*	*A (7.6)*
Ewa Bound (Ilalo Street)	*A (7.5)*	*A (7.6)*	*A (7.5)*	*A (7.7)*
Mauka Bound (Ahui Street)	*A (7.3)*	*A (7.4)*	*A (7.4)*	*A (7.6)*
Makai Bound (Ahui Street)	*A (7.4)*	*A (7.4)*	*A (7.5)*	*A (7.6)*
Koula Street/Ilalo Street*	**A (7.2)**	**A (7.3)**	**A (7.2)**	**A (7.5)**
Diamond Head Bound (Ilalo Street)	*A (7.3)*	*A (7.4)*	*A (7.5)*	*A (7.6)*
Ewa Bound (Ilalo Street)	*A (7.1)*	*A (7.3)*	*A (7.4)*	*A (7.4)*
Makai Bound (Koula Street)	*A (7.2)*	*A (7.0)*	*A (7.2)*	*A (7.0)*
Ohe Street/Ilalo Street*	**A (7.2)**	**A (7.2)**	**A (7.5)**	**A (7.5)**
Diamond Head Bound (Ilalo Street)	*A (7.2)*	*A (7.3)*	*A (7.4)*	*A (7.6)*
Ewa Bound (Ilalo Street)	*A (7.3)*	*A (7.4)*	*A (7.5)*	*A (7.5)*
Mauka Bound (Ohe Street)	*A (7.1)*	*A (6.8)*	*A (7.3)*	*A (7.0)*
Makai Bound (Ohe Street)	*A (7.3)*	*A (7.4)*	*A (7.5)*	*A (7.6)*
Cooke Street/Ilalo Street*	**A (7.3)**	**A (7.5)**	**A (8.1)**	**A (8.4)**
Diamond Head Bound (Ilalo Street)	*A (7.2)*	*A (7.3)*	*A (7.7)*	*A (8.2)*
Ewa Bound (Ilalo Street)	*A (7.3)*	*A (7.4)*	*A (8.2)*	*A (8.2)*
Mauka Bound (Cooke Street)	*A (7.4)*	*A (7.5)*	*A (8.1)*	*A (8.6)*
Makai Bound (Cooke Street)	*A (7.4)*	*A (7.5)*	*A (8.2)*	*A (8.2)*
Coral Street/Ilalo Street*	**A (7.2)**	**A (7.2)**	**A (7.5)**	**A (7.6)**
Diamond Head Bound (Ilalo Street)	*A (7.4)*	*A (7.4)*	*A (7.5)*	*A (7.6)*
Ewa Bound (Ilalo Street)	*A (7.1)*	*A (7.1)*	*A (7.5)*	*A (7.5)*
Makai Bound (Coral Street)	*A (7.0)*	*A (7.3)*	*A (7.3)*	*A (7.6)*

Table 1 (cont.) Year 2005 Intersection Level of Service Summary – Phase I				
Intersection/Movement	**Without Project**		**With Project**	
	AM Peak	*PM Peak*	*AM Peak*	*PM Peak*
Keawe Street/Ilalo Street*	**A (7.2)**	**A (7.3)**	**A (8.9)**	**A (8.9)**
Diamond Head Bound (Ilalo Street)	*A (7.2)*	*A (7.2)*	*A (8.4)*	*A (8.2)*
Ewa Bound (Ilalo Street)	*A (7.1)*	*A (7.2)*	*A (8.7)*	*A (8.6)*
Mauka Bound (Keawe Street)	*A (7.4)*	*A (7.4)*	*A (8.4)*	*A (9.1)*
Makai Bound (Keawe Street)	*A (7.2)*	*A (7.5)*	*A (9.7)*	*A (8.4)*
Forrest Avenue/Ilalo Street*	**A (7.5)**	**A (7.6)**	**A (8.1)**	**A (8.1)**
Ewa Bound (Ilalo Street)	*A (6.6)*	*A (6.6)*	*A (7.1)*	*A (7.9)*
Mauka Bound (Forrest Avenue)	*A (7.5)*	*A (7.8)*	*A (7.7)*	*A (8.4)*
Makai Bound (Forrest Avenue)	*A (7.7)*	*A (7.5)*	*A (8.5)*	*A (8.3)*

*unsignalized intersection

Traffic conditions under full build-out of the Makai Area with Phase II of the project were also assessed. The full build-out traffic analysis also factored in the City's Bus Rapid Transit project, which proposes to provide service along Ilalo Street with transit stations at Cooke Street and Ahui Street. The analysis found that under full build-out conditions without Phase II of the project, intersection operations along Ala Moana Boulevard would be approaching the capacity of the roadway system during the morning peak hour and surpassing the capacity of the roadway during the afternoon peak hour. Traffic along Ilalo Street without Phase II would be operating acceptably at LOS D or better, except at Ohe Street and Cooke Street where the intersections would be operating at LOS F.

The Traffic Impact Analysis Report concluded that construction of Phase II of the project would minimally affect traffic operations in the vicinity of the project site. During the morning peak, the Cooke Street and Coral Street intersections would be at or over the storage capacity of the existing left-turn storage lanes both with and without Phase II of the project. This would result in overflow of left-turn vehicles within the through lanes of traffic. The Keawe Street intersection would be at capacity without the project, and exceed the existing storage capacity with the Phase II traffic. The project LOS and delay experienced by vehicles at study intersections with and without Phase II of the project is provided in Table 2.

Table 2

Buildout of Makai Area

Intersection Level of Service Summary – Phase II

Intersection/Movement	Without Phase II		With Phase II	
	AM Peak	PM Peak	AM Peak	PM Peak
Ward Avenue/Ala Moana Boulevard	**E (59.8)**	**F (>80)**	**E (57.5)**	**F (>80)**
Diamond Head Bound (Ala Moana Blvd.)	*D (50.4)*	*F (>80)*	*D (49.3)*	*F (>80)*
Ewa Bound (Ala Moana Blvd.)	*D (53.2)*	*D (46.1)*	*D (53.3)*	*D (48.4)*
Mauka Bound (Ilalo Street)	*E (55.2)*	*E (74.7)*	*D (54.6)*	*E (79.7)*
Makai Bound (Ward Avenue)	*F (>80)*	*F (>80)*	*F (>80)*	*F (>80)*
Ahui Street/Ala Moana Boulevard*				
Mauka Bound Right (Ahui Street)	*C (19.4)*	*F (>50)*	*C (19.4)*	*F (>50)*
Koula Street/Ala Moana Boulevard	**C (26.1)**	**F (>80)**	**C (25.8)**	**F (>80)**
Diamond Head Bound (Ala Moana Blvd.)	*C (32.5)*	*F (>80)*	*C (32.6)*	*F (>80)*
Ewa Bound (Ala Moana Blvd.)	*B (18.8)*	*C (22.3)*	*B (18.1)*	*C (20.7)*
Mauka Bound (Koula Street)	*D (53.9)*	*F (>80)*	*D (53.9)*	*F (>80)*
Makai Bound (Koula Street)	*D (46.1)*	*D (42.4)*	*D (46.1)*	*D (42.4)*
Ohe Street/Ala Moana Boulevard*				
Mauka Bound Right (Ohe Street)	*C (18.1)*	*E (37.2)*	*C (18.1)*	*E (38.0)*
Makai Bound Right (Ohe Street)	*C (17.9)*	*C (18.7)*	*C (18.3)*	*C (18.7)*
Cooke Street/Ala Moana Boulevard	**C (22.5)**	**E (59.9)**	**C (24.5)**	**E (57.5)**
Diamond Head Bound (Ala Moana Blvd.)	*B (17.8)*	*D (53.0)*	*B (18.8)*	*E (60.8)*
Ewa Bound (Ala Moana Blvd.)	*C (24.6)*	*D (46.2)*	*C (27.8)*	*D (50.9)*
Mauka Bound (Cooke Street)	*D (46.4)*	*F (>80)*	*D (45.0)*	*F (>80)*
Makai Bound (Cooke Street)	*D (44.5)*	*E (70.7)*	*D (44.0)*	*D (41.9)*
Coral Street/Ala Moana Boulevard	**C (21.9)**	**D (40.9)**	**C (21.8)**	**D (41.3)**
Diamond Head Bound (Ala Moana Blvd.)	*C (25.4)*	*D (47.3)*	*C (24.6)*	*D (51.1)*
Ewa Bound (Ala Moana Blvd.)	*B (16.2)*	*C (33.2)*	*B (16.9)*	*D (29.6)*
Mauka Bound (Coral Street)	*D (39.3)*	*D (48.8)*	*D (40.2)*	*D (48.8)*
Makai Bound (Coral Street)	*D (49.9)*	*D (39.9)*	*D (49.9)*	*D (39.9)*
Keawe Street/Ala Moana Boulevard	**D (39.0)**	**E (66.9)**	**D (46.1)**	**E (75.5)**
Diamond Head Bound (Ala Moana Blvd.)	*D (40.5)*	*D (44.4)*	*D (45.8)*	*D (44.5)*
Ewa Bound (Ala Moana Blvd.)	*C (25.3)*	*D (50.7)*	*C (29.8)*	*E (52.8)*
Mauka Bound (Keawe Street)	*E (73.5)*	*F (>80)*	*E (76.9)*	*F (>80)*
Makai Bound (Keawe Street)	*F (>80)*	*F (>80)*	*F (>80)*	*F (>80)*

Table 2 (cont.)
Buildout of Makai Area
Intersection Level of Service Summary – Phase II

Intersection/Movement	Without Phase II		With Phase II	
	AM Peak	PM Peak	AM Peak	PM Peak
South St/Forrest Ave/Ala Moana Blvd	**D (43.2)**	**E (67.1)**	**D (46.9)**	**E (74.4)**
Diamond Head Bound (Ala Moana Blvd.)	*D (43.1)*	*C (30.9)*	*D (49.8)*	*C (31.2)*
Ewa Bound (Ala Moana Blvd.)	*D (41.2)*	*F (>80)*	*D (40.8)*	*F (>80)*
Mauka Bound (Forrest Avenue)	*D (50.4)*	*F (>80)*	*D (50.9)*	*F (>80)*
Makai Bound (South Street)	*E (68.2)*	*E (64.7)*	*E (62.8)*	*E (64.7)*
Punchbowl Street/Ala Moana Blvd	**C (34.4)**	**D (52.8)**	**D (38.3)**	**D (54.5)**
Diamond Head Bound (Ala Moana Blvd.)	*D (43.8)*	*C (27.8)*	*D (51.3)*	*C (26.3)*
Ewa Bound (Ala Moana Blvd.)	*B (17.2)*	*E (74.0)*	*B (17.3)*	*E (77.1)*
Makai Bound (Punchbowl Street)	*D (47.6)*	*D (53.8)*	*D (47.6)*	*E (58.0)*
Ahui Street/Ilalo Street*	**B (12.6)**	**D (26.9)**	**B (12.9)**	**D (28.1)**
Diamond Head Bound (Ilalo Street)	*B (12.5)*	*D (27.6)*	*B (12.6)*	*D (29.5)*
Ewa Bound (Ilalo Street)	*B (13.6)*	*C (16.6)*	*B (14.0)*	*C (17.1)*
Mauka Bound (Ahui Street)	*B (11.1)*	*D (31.1)*	*B (11.2)*	*D (32.0)*
Makai Bound (Ahui Street)	*B (10.5)*	*B (11.4)*	*B (10.6)*	*B (11.5)*
Koula Street/Ilalo Street*	**B (12.6)**	**C (17.9)**	**B (12.5)**	**C (18.3)**
Diamond Head Bound (Ilalo Street)	*B (13.4)*	*B (13.3)*	*B (13.2)*	*B (13.4)*
Ewa Bound (Ilalo Street)	*B (12.2)*	*C (23.2)*	*B (12.3)*	*C (23.8)*
Makai Bound (Koula Street)	*B (12.0)*	*B (11.3)*	*B (12.0)*	*B (11.2)*
Ohe Street/Ilalo Street*	**C (19.3)**	**F (>50)**	**C (19.0)**	**F (>50)**
Diamond Head Bound (Ilalo Street)	*C (22.2)*	*E (38.8)*	*C (21.9)*	*E (40.0)*
Ewa Bound (Ilalo Street)	*C (18.1)*	*F (>50)*	*C (17.7)*	*F (>50)*
Mauka Bound (Ohe Street)	*B (11.5)*	*F (>50)*	*B (11.4)*	*F (>50)*
Makai Bound (Ohe Street)	*B (11.0)*	*B (13.0)*	*B (11.0)*	*B (13.0)*
Cooke Street/Ilalo Street*	**B (13.6)**	**F (>50)**	**B (12.9)**	**F (>50)**
Diamond Head Bound (Ilalo Street)	*B (14.9)*	*B (14.9)*	*B (13.8)*	*B (14.3)*
Ewa Bound (Ilalo Street)	*B (12.7)*	*F (>50)*	*B (12.2)*	*F (>50)*
Mauka Bound (Cooke Street)	*B (10.3)*	*B (12.6)*	*B (10.3)*	*B (11.3)*
Makai Bound (Cooke Street)	*B (12.5)*	*B (13.9)*	*B (12.2)*	*B (13.2)*

Table 2 (cont.)
Buildout of Makai Area
Intersection Level of Service Summary – Phase II

Intersection/Movement	Without Phase II		With Phase II	
	AM Peak	PM Peak	AM Peak	PM Peak
Coral Street/Ilalo Street*	**B (11.3)**	**B (14.0)**	**B (11.2)**	**B (14.0)**
Diamond Head Bound (Ilalo Street)	*B (11.8)*	*B (11.8)*	*B (11.7)*	*B (12.0)*
Ewa Bound (Ilalo Street)	*B (10.8)*	*C (15.9)*	*B (11.0)*	*C (16.0)*
Makai Bound (Coral Street)	*B (10.9)*	*B (10.2)*	*B (10.7)*	*B (10.2)*
Keawe Street/Ilalo Street*	**B (13.3)**	**C (17.2)**	**B (11.7)**	**C (16.5)**
Diamond Head Bound (Ilalo Street)	*B (11.7)*	*B (11.4)*	*B (10.9)*	*B (10.9)*
Ewa Bound (Ilalo Street)	*B (10.8)*	*C (21.6)*	*B (10.6)*	*C (20.6)*
Mauka Bound (Keawe Street)	*B (10.1)*	*B (13.2)*	*A (9.8)*	*B (12.6)*
Makai Bound (Keawe Street)	*C (17.7)*	*B (13.8)*	*B (14.4)*	*B (13.0)*
Keawe Street/Ilalo Street*	**B (10.9)**	**B (13.2)**	**B (10.3)**	**C (12.0)**
Ewa Bound (Ilalo Street)	*A (8.1)*	*B (14.8)*	*A (7.9)*	*B (13.2)*
Mauka Bound (Forrest Avenue)	*A (8.1)*	*B (10.2)*	*A (8.0)*	*B (10.0)*
Makai Bound (Forrest Avenue)	*B (11.7)*	*B (10.7)*	*B (11.0)*	*B (10.3)*

*unsignalized intersection

The Traffic Impact Analysis proposed the following mitigation measures for Phase I of the project:

- Adjust traffic signal timing along Ala Moana Boulevard in the vicinity of the project site, particularly during the afternoon peak period.
- Due to the offset alignment of Keawe Street at Ala Moana Boulevard, a split phase signal is required. To minimize delays caused by the split signal timing, restricting left-turns from Ala Moana Boulevard during the afternoon peak period is recommended.
- Re-stripe Forrest Avenue at Ilalo Street to provide a left-turn, a shared left-through lane and a right turn lane. This striping change would occur with a revision of the traffic signal to split phases for South Street and Forrest Avenue.
- The driveways opposite of Keawe Street and Cooke Street leading to the parking areas should be constructed with a section capable of accommodating emergency and delivery vehicles. Driveway approaches

should remain consistent with the Makai Area Circulation Plan; left-turn pocket and a shared through-right turn lane. A pedestrian path should also be provided from the campus to the off-site parking facility.

- Implement measures to reduce single occupant vehicles, such as staggered work hours and programs to promote ridesharing and/or BRT usage.

For Phase II of the project, the Traffic Impact Analysis proposed the following mitigation measures:

- The off-site parking facility for Phase II of the project was assumed to be located mauka of Ilalo Street between Forrest Avenue and Keawe Street. To reduce impacts created by the facility, appropriate intersection improvements should be made to address increases in vehicle queues and delay. Left turn pockets at the parking entrances should be provided to remove turning vehicles from the through traffic movements. The appropriate length of the pockets should be determined when plans for the parking facility are developed. ***An update to the Traffic Impact Analysis Report will be prepared by the University of Hawaii when plans for the Phase II parking facility are finalized.***
- As vehicular traffic increases within the Kakaako Makai Area, traffic signal warrant analyses should be performed. Installation of a traffic signal, when warranted, should be installed by all new Makai Area projects affecting the intersection.
- As vehicular traffic increases to the Kakaako Makai Area, measures to facilitate left-turn vehicle queues on Ala Moana Boulevard should be applied. Traffic signal or intersection geometry changes, when warranted, should be installed by all new Makai Area projects affecting the intersections.

In addition, the City and County of Honolulu will be undertaking improvements to the Ala Moana Wastewater Pump Station from November 2002 to February 2005. The City will be kept apprised of the construction phasing and schedule of the Health and Wellness Center to minimize the potential for traffic impacts.

3.10.2 Water System

The project site is presently served by 8-inch waterlines located in Keawe Street and Ilalo Street. The HCDA is installing a new 12-inch waterline in Ilalo Street. ***The nearest Board of Water Supply potable water source in the vicinity of the project site is the Beretania Station.***

Impacts and Mitigation Measures

The proposed project is anticipated to have no significant impact on the water system as the existing system is adequate to serve the project. ***The estimated water demand for the project is approximately 183,390 gallons per day.*** The project will be required to obtain a water supply allocation from the State Department of Land and Natural Resources and to pay the Board of Water Supply's Water System Facilities charges.

3.10.3 Wastewater System

Wastewater disposal at the project site is provided by the City Department of Environmental Services. Wastewater flows are routed to the Ala Moana Wastewater Pump Station which conveys flows to the Sand Island Wastewater Treatment Plant.

Impacts and Mitigation Measures

The project is anticipated to have no significant impact on the wastewater system as the collection and disposal system is adequate to serve the proposed development.

3.10.4 Drainage System

Presently, stormwater runoff at the project site flows into a system of drain inlets that convey flows to the drainage channel located to the west of the project site.

Impacts and Mitigation Measures

No significant impact to the drainage system is anticipated. Runoff entering the drainage system may be reduced slightly since the majority of the project site is presently paved and a portion of this area will be replaced with landscaping and grassed open space.

3.10.5 Solid Waste Collection and Disposal System

Solid waste collection and disposal service is provided by the City Department of Environmental Services and numerous private companies. Solid waste collected in the Honolulu area is hauled to the Campbell Industrial Park H-POWER Plant for eventual disposal at the Waimanalo Gulch Sanitary Landfill.

Impacts and Mitigation Measures

Solid waste collection will be provided by a private hauler under contract with the University of Hawaii. The project is not anticipated to significantly affect the City's solid waste collection and disposal service.

Medical solid waste will be disposed of in accordance with Federal and State regulations.

4 RELATIONSHIP TO LAND USE PLANS AND POLICIES

4.1 State Plans, Policies and Controls

A number of State plans, policies and controls provide guidelines for development within the State of Hawaii. These guidelines include the Hawaii State Plan, State Functional Plans, State Land Use Districts, Coastal Zone Management Act, and the Kakaako Makai Area Plan. The following describes the relationship of the proposed project to each of these plans/regulations.

4.1.1 Hawaii State Plan

The Hawaii State Plan was developed to serve as a guide for future development of the State of Hawaii in the areas of population growth, economic benefits, enhancement and preservation of the physical environment, facility systems maintenance and development, and socio-cultural advancement. The Plan identifies the goals, objectives, policies and priorities for the development and growth of the State, for which guidelines have been provided to give direction to the overall development of the State.

The proposed UH Health and Wellness Center is consistent with the objectives and policies of the Hawaii State Plan. Described in the following sections are the relationship and compatibility of the UH Health and Wellness Center with the objectives and policies set forth in the Hawaii State Plan.

4.1.1.1 Economy (HRS §226-6, -10)

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

(b) to achieve the general economic objectives, it shall be the policy of this State to: (2) Promote Hawaii as an attractive market for environmentally and socially sound investment activities that benefit Hawaii's people; (9) Foster greater cooperation and coordination between the government and private sectors in developing Hawaii's employment and economic growth opportunities;

(11) Maintain acceptable working conditions and standards for Hawaii's workers; (13) Encourage businesses that have favorable financial multiplier effects within Hawaii's economy; (15) Increase effective communication between the educational community and the private sector to develop relevant curricula and training programs to meet future employment needs in general, and requirements of new, potential growth industries in particular; and, (16) Foster a business climate in Hawaii—including attitudes, tax and regulatory policies, and financial and technical assistance programs—that is conducive to the expansion of existing enterprises and the creation and attraction of new business and industry.

§226-10 Objectives and policies for the economy—potential growth activities. (a) Planning for the State's economy with regard to potential growth activities shall be directed towards achievement of the objective of development and expansion of potential growth activities that serve to increase and diversify Hawaii's economic base.

(b) To achieve the potential growth activity objective, it shall be the policy of this State to: (5) Promote Hawaii's geographic, environmental, social, and technological advantages to attract new economic activities into the State; (6) Provide public incentives and encourage private initiative to attract new industries that best support Hawaii's social, economic, physical, and environmental objectives; (8) Develop, promote, and support research and educational and training programs that will enhance Hawaii's ability to attract and develop economic activities of benefit to Hawaii; and, (9) Foster a broader public recognition and understanding of the potential benefits of new, growth-oriented industry in Hawaii.

The UH Health and Wellness Center is projected to create numerous short-term and long-term employment opportunities. During the three-year construction period, the project is anticipated to generate 680 direct construction jobs and another 877 jobs from indirect and induced effects. In the long-term, the project is projected to generate about 1,450 jobs from direct funding and, indirect and induced economic effects.

In addition to generating employment opportunities, the project will maintain the competitiveness of the UH JABSOM research facilities. The new facilities will help to avoid any reductions of the JABSOM's existing level of research activity due to inadequate facilities and provide space and support for a substantial increase in new research activity. Furthermore, it is anticipated that the project may serve as an "anchor" for development in the surrounding Kakaako Makai Area. Commercial activities that may benefit from close proximity to the project,

such as private research operations and biotechnology businesses, may support the development of private commercial facilities in the area.

4.1.1.2 Physical Environment (HRS §226-11, -12, & -13)

§226-11 Objectives and policies for the physical environment—land-based, shoreline, and marine resources. (a) Planning for the State's physical environment with regard to land-based, shoreline, and marine resources shall be directed towards achievement of the following objectives: (1) Prudent use of Hawaii's land-based, shoreline, and marine resources; (2) Effective protection of Hawaii's unique and fragile environmental resources.

(b) To achieve the land-based, shoreline, and marine resources objectives, it shall be the policy of this State to: (2) Ensure compatibility between land-based and water-based activities and natural resources and ecological systems; (3) Take into account the physical attributes of areas when planning and designing activities and facilities; and, (8) Pursue compatible relationships among activities, facilities, and natural resources.

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

(b) To achieve the scenic, natural beauty, and historic resources objective, it shall be the policy of this State to: (3) Promote the preservation of views and vistas to enhance the visual and aesthetic enjoyment of mountains, ocean, scenic landscapes, and other natural features; and, (5) Encourage the design of developments and activities that complement the natural beauty of the islands.

§226-13 Objectives and policies for the physical environment—land, air, and water quality. (a) Planning for the State's physical environment with regard to land, air, and water quality shall be directed towards achievement of the following objectives: (1) Maintenance and pursuit of improved quality in Hawaii's land, air, and water resources; and, (2) Greater public awareness and appreciation of Hawaii's environmental resources.

(b) To achieve the land, air and water quality objectives, it shall be the policy of this State to: (2) Promote the proper management of Hawaii's land and water resources; and, (7) Encourage urban developments in close proximity to existing services and facilities.

The proposed project will not significantly intrude upon viewplanes identified in the City's *Coastal View Study* or those identified in the Kakaako *Makai Area Plan*. Buildings to be developed at the site will be 4 to 5 stories tall and within the 100 and 200-foot height limits specified in the Makai Area Plan.

The project site is centrally located in the urban core of Honolulu. Because the project site and adjacent lands are highly urbanized, development of the project represents redevelopment of urbanized land, rather than urbanization of undeveloped lands.

4.1.1.3 Socio-Cultural Advancement (HRS §226-20, -21, & -25)

§226-20 Objectives and policies for socio-cultural advancement—health. (a) Planning for the State's socio-cultural advancement with regard to health shall be directed towards achievement of the following objectives: (1) Fulfillment of basic individual health needs of the general public; and, (2) Maintenance of sanitary and environmentally healthful conditions in Hawaii's communities.

(b) To achieve the health objectives, it shall be the policy of this State to: (3) Encourage improved cooperation among public and private sectors in the provision of health care to accommodate the total health needs of individuals throughout the State; and, (4) Foster an awareness of the need for personal health maintenance and preventive health care through education and other measures.

§226-21 Objectives and policies for socio-cultural advancement—education. (a) Planning for the State's socio-cultural advancement with regard to education shall be directed towards achievement of the objective of the provision of a variety of educational opportunities to enable individuals to fulfill their needs, responsibilities, and aspirations.

(b) To achieve the educational objective, it shall be the policy of this State to: (1) Support educational programs and activities that enhance personal development, physical fitness, recreation, and cultural pursuits of all groups; (2) Ensure the provision of adequate and accessible educational services and facilities that are designed to meet individual and community needs; (4) Promote educational programs which enhance understanding of Hawaii's cultural heritage; (5) Provide higher educational opportunities that enable Hawaii's people to adapt to changing employment demands; (8) Emphasize quality educational programs in Hawaii's institutions to promote academic excellence; and, (9) Support

research programs and activities that enhance the education programs of the State.

§226-25 Objectives and policies for socio-cultural advancement—culture. (a) Planning for the State's socio-cultural advancement with regard to culture shall be directed toward the achievement of the objective of enhancement of cultural identities, traditions, values, customs, and arts of Hawaii's people.

(b) To achieve the culture objective, it shall be the policy of this State to: (1) Foster increased knowledge and understanding of Hawaii's ethnic and cultural heritages and the history of Hawaii; and, (2) Support activities and conditions that promote cultural values, customs, and arts that enrich the lifestyles of Hawaii's people and which are sensitive and responsive to family and community needs.

The proposed Health and Wellness Center will promote awareness of health-related issues and foster education and research programs that will benefit residents Statewide. The project will also maintain the competitiveness of the UH JABSOM, allow the school to substantially increase its research activity, and create opportunities for public-private partnerships. The project may also create opportunities to study Native Hawaiian health issues and allow students to study traditional healing methods.

4.1.2 State Land Use Districts

The State Land Use Law, Chapter 205, HRS, is intended to preserve, protect, and encourage the development of lands in the State for uses that are best suited to the public health and welfare for Hawaii's people. All lands in the State are classified into four land use districts by the State Land Use Commission: Urban, Agricultural, Conservation, and Rural.

The project site is within the "Urban" district and conforms to the Urban district standards.

4.1.3 Special Management Area

Pursuant to the Hawaii Coastal Zone Management Act (Chapter 205A, Hawaii Revised Statutes) all counties have enacted ordinances establishing Special Management Areas. Any development within the SMA, including development proposed by the State, requires an SMA permit. Although normally administered by the City and County of Honolulu, because the project site is located within the

HCDA Kakaako Community Development District, the approving agency for the SMA permit will be the State Office of Planning. The SMA boundary is shown in Figure 10.

A discussion of the project's consistency with the objectives and policies of the Coastal Zone Management Program is provided below.

(1) *Recreational Resources*

Objective:
Provide coastal recreational opportunities accessible to the public.

Policies

(A) Improve coordination and funding of coastal recreational planning and management; and

(B) Provide adequate, accessible, and diverse recreational opportunities in the coastal zone management area by:

(i) Protecting coastal resources uniquely suited for recreational activities that cannot be provided in other areas;

(ii) Requiring replacement of coastal resources having significant recreational value, including but not limited to surfing sites, fishponds, and sand beaches, when such resources will be unavoidably damaged by development; or requiring reasonable monetary compensation to the state for recreation when replacement is not feasible or desirable;

(iii) Providing and managing adequate public access, consistent with conservation of natural resources, to and along shorelines with recreational value;

(iv) Providing an adequate supply of shoreline parks and other recreational facilities suitable for public recreation;

(v) Ensuring public recreational use of county, state, and federally owned or controlled shoreline lands and waters having recreational value consistent with public safety standards and conservation of natural resources;

(vi) Adopting water quality standards and regulating point and non-point sources of pollution to protect, and where feasible, restore the recreational value of coastal waters.

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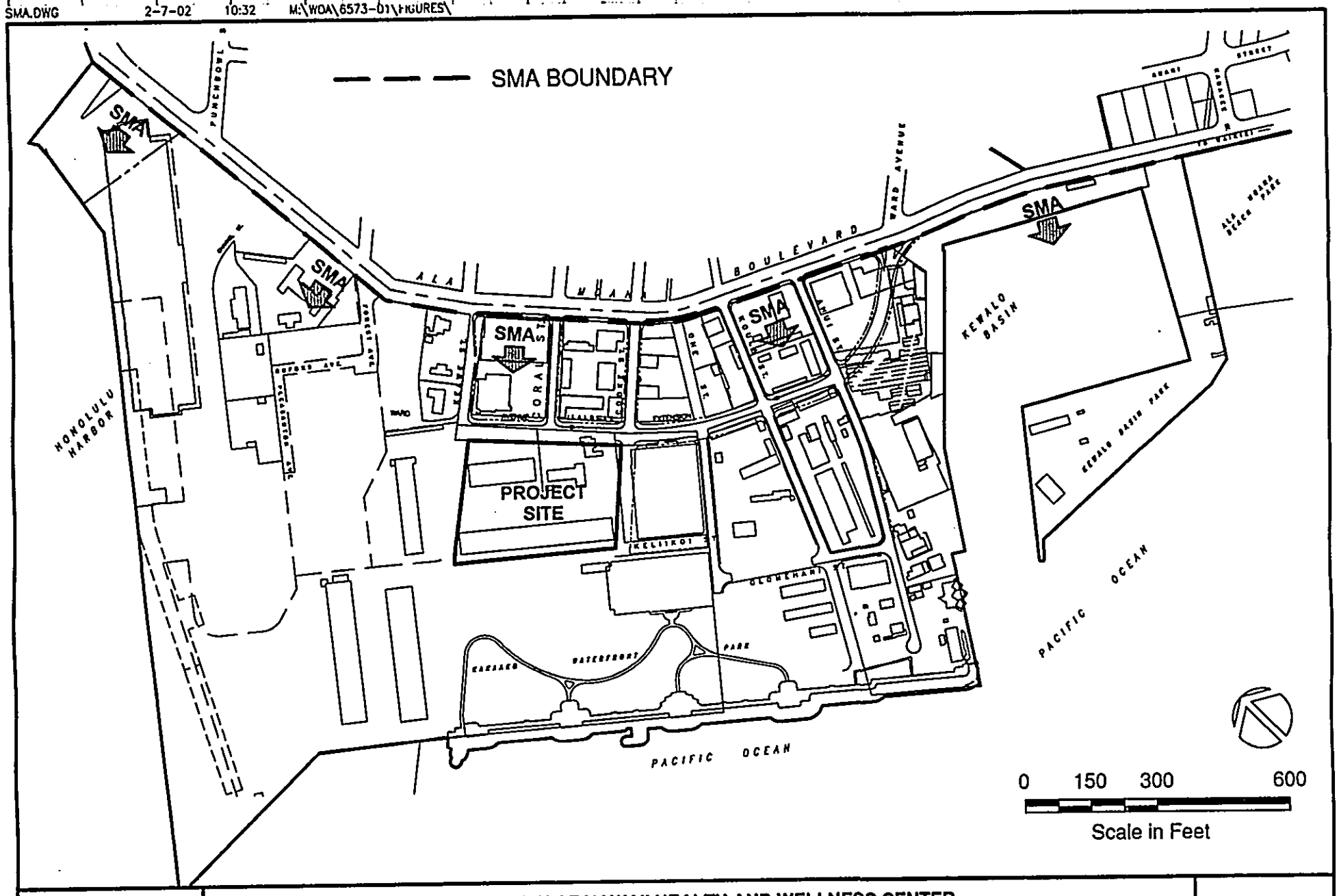


WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS • PLANNERS	UNIVERSITY OF HAWAII HEALTH AND WELLNESS CENTER SPECIAL MANAGEMENT AREA BOUNDARY	FIGURE 10

(vii) Developing new shoreline recreational opportunities, where appropriate, such as artificial lagoons, artificial beaches, and artificial reefs for surfing and fishing; and

(viii) Encouraging reasonable dedication of shoreline areas with recreational value for public use as part of discretionary approvals or permits by the land use commission, board of land and natural resources, county planning commissions; and crediting such dedication against the requirements of Section 46-6, HRS.

Development of the proposed project is anticipated to have no adverse impact on coastal recreational opportunities available to the public. Sufficient parking is being provided for the project to ensure that public parking at the Kakaako Waterfront Park will not be affected. Aesthetically, the project is anticipated to have a beneficial impact on the adjacent Kakaako Waterfront Park since landscaping and design features will seek to create a seamless transition between the project site and the park.

(2) *Historic resources*

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

Policies:
(A) Identify and analyze significant archaeological resources;
(B) Maximize information retention through preservation of remains and artifacts or salvage operations; and
(C) Support state goals for protection, restoration, interpretation, and display of historic resources.

No known archaeological or cultural resources are known to be present at the project site. Inasmuch as the project site consists of fill land, such resources are unlikely to be present. During preparation of the Supplemental Environmental Impact Statement for the 1998 Kakaako Makai Area Plan, the State Historic Preservation Division commented that "because the area makai of Ala Moana Boulevard is comprised of fill lands, we believe that the development of the area will have no effect on subsurface cultural deposits because it is unlikely that any

are present." However, should archaeological remains be discovered during construction of the project, work in the immediate vicinity will cease and the State Historic Preservation Division will be contacted immediately.

(3) Scenic and open space resources

Objective:
Protect, preserve, and where desirable, restore or improve the quality of coastal scenic and open space resources.

Policies:
(A) Identify valued scenic resources in the coastal zone management area;
(B) Ensure that new developments are compatible with their visual environment by designing and locating such developments to minimize the alteration of natural landforms and existing public views to and along the shoreline;
(C) Preserve, maintain, and, where desirable, improve and restore shoreline open space and scenic resources; and
(D) Encourage those developments which are not coastal dependent to locate in inland areas.

The proposed project is not anticipated to have a significant impact on views identified in the City's *Coastal View Study* or the Kakaako Makai Area Plan. The buildings will be 4 to 5 stories tall and are being designed to reflect Hawaiian architectural style to blend in with the Kakaako Waterfront Park.

(4) Coastal ecosystems

Objective:
Protect valuable coastal ecosystems, including reefs, from disruption and minimize adverse impacts on all coastal ecosystems.

Policies:
(A) Improve the technical basis for natural resource management;
(B) Preserve valuable coastal ecosystems, including reefs, of significant biological or economic importance;
(C) Minimize disruption or degradation of coastal water ecosystems by effective regulation of stream diversions, channelization, and similar land and water uses, recognizing competing water needs; and

(D) *Promote water quantity and quality planning and management practices which reflect the tolerance of fresh water and marine ecosystems and prohibit land and water uses which violate state water quality standards.*

Impacts to water quality that may occur during construction will be mitigated by applying appropriate Best Management Practices, such as minimizing open grading activities, grassing or paving exposed areas as soon as practicable, frequent cleaning of paved surfaces of mud and silt, and structural controls such as silt fences or temporary berms. A National Pollutant Discharge Elimination System Permit for stormwater runoff associated with construction activity will be procured from the State Department of Health.

(5) *Economic Uses*

Objective:
Provide public or private facilities and improvements important to the State's economy in suitable locations.

Policies:

(A) *Concentrate coastal dependent development in appropriate areas;*

(B) *Ensure that coastal dependent developments such as harbors and ports, and coastal related development such as visitor facilities and energy generating facilities, are located, designed, and constructed to minimize adverse social, visual, and environmental impacts in the coastal zone management area; and*

(C) *Direct the location and expansion of coastal dependent developments to areas presently designated and used for such developments and permit reasonable long-term growth at such areas, and permit coastal dependent development outside of presently designated areas when:*

(i) *Use of presently designated locations is not feasible;*

(ii) *Adverse environmental effects are minimized; and*

(iii) *The development is important to the State's economy.*

The project site is located in a highly urbanized area in an area designated for commercial use. The project site is conveniently situated in central Honolulu in close proximity to government agencies and the University of Hawaii at Manoa campus.

(6) Coastal hazards

Objectives:
Reduce hazard to life and property from tsunami, storm waves, stream flooding, erosion, subsidence and pollution.

Policies
(A) Develop and communicate adequate information about storm wave, tsunami, flood, erosion, subsidence, and point and nonpoint source pollution hazards;
(B) Control development in areas subject to storm wave, tsunami, flood, erosion, hurricane, wind, subsidence, and point and nonpoint pollution hazards;
(C) Ensure that developments comply with requirements of the Federal Flood Insurance Program;
(D) Prevent coastal flooding from inland projects; and
(E) Develop a coastal point and nonpoint source pollution control program.

The project site is not located in an area subject to tsunami hazard, storm waves, stream flooding, erosion, subsidence or pollution. Although the southern border of the project site borders the tsunami evacuation zone, the elevated topography of the adjacent Kakaako Waterfront Park serves as a buffer between the project site and the ocean.

(7) Managing Development

Objective:
Improve the development review process, communication and public participation in the management of coastal resource and hazards.

Policies:
(A) Use, implement, and enforce existing law effectively to the maximum extent possible in managing present and future coastal zone development;
(B) Facilitate timely processing of applications for development permits and resolve overlapping of conflicting permit requirements; and
(C) Communicate the potential short and long-term impacts of proposed significant coastal developments early in their life-cycle and in terms understandable to the public to facilitate public participation in the planning and review process.

Government agencies, organizations and the general public are being notified of the proposed project, and being given an opportunity to comment on the project, through the environmental review process. The Special Management Area Use Permit process will also provide an opportunity for agency and public input.

(8) *Public participation*

Objective:
Stimulate public awareness, education, and participation in coastal management.

Policies:
(A) *Maintain a public advisory body to identify coastal management problems and to provide policy advice and assistance to the coastal zone management program;*
(B) *Disseminate information on coastal management issues by means of educational materials, published reports, staff contact, and public workshops for persons and organizations concerned with coastal-related issues, developments, and government activities; and*
(C) *Organize workshops, policy dialogues, and site-specific mediations to respond to coastal issues and conflicts.*

Government agencies, organizations and the general public are being notified of the proposed project, and are provided an opportunity to comment on the project through the environmental review process. The Special Management Area Use Permit process will also provide an opportunity for agency and public input. The local media has also provided extensive coverage of the subject development.

(9) *Beach Protection*

Objective:
Protect beaches for public use and recreation.

Policies:
(A) *Locate new structures inland from the shoreline setback to conserve open space and to minimize loss of improvements due to erosion;*
(B) *Prohibit construction of private erosion-protection structures seaward of the shoreline, except when they result in improved*

aesthetic and engineering solutions to erosion at the sites and do not interfere with existing recreational and waterline activities; and

(C) Minimize the construction of public erosion-protection structures seaward of the shoreline.

The proposed project does not involve the construction of improvements in the shoreline setback or erosion-protection structures. The project will not adversely affect coastal recreational opportunities available to the public.

(10) Marine Resources

Objective:
Implement the State's ocean resources management plan.

Policies:

(A) Exercise an overall conservation ethic, and practice stewardship in the protection, use, and development of marine and coastal resources;

(B) Assure that the use and development of marine and coastal resources are ecologically and environmentally sound and economically beneficial;

(C) Coordinate the management of marine and coastal resources and activities management to improve effectiveness and efficiency;

(D) Assert and articulate the interests of the State as a partner with federal agencies in the sound management of ocean resources within the United States exclusive economic zone;

(E) Promote research, study, and understanding of ocean processes, marine life, and other ocean resources in order to acquire and inventory information necessary to understand how ocean development activities relate to and impact upon ocean and coastal resources; and

(F) Encourage research and development of new, innovative technologies for exploring, using, or protecting marine and coastal resources.

The proposed project is anticipated to have no impact on marine and coastal resources. Impacts to water quality that may occur during construction will be mitigated by applying appropriate Best Management Practices, such as minimizing open grading activities, grassing or paving exposed areas as soon as practicable, frequent cleaning of paved surfaces of mud and silt, structural controls such as silt fences or temporary berms. A National Pollutant Discharge

Elimination System Permit for stormwater runoff associated with construction activity will be procured from the State Department of Health.

4.1.4 Kakaako Makai Area Plan and Makai Area Rules

The HCDA was created by the 1976 State Legislature to bring about the timely planning, regulation and development of underutilized areas in the State. The 670-acre Kakaako District was designated as the HCDA's first "Community Development District". In 1982 and 1987, the Kakaako Community Development District was expanded by adding the area south of Ala Moana Boulevard known as the Makai Area. Separate plans specifying desired land uses, urban design guidelines, infrastructure improvements, and phasing have been prepared for the Mauka Area and Makai Area. The latest plan for the Kakaako Makai Area was adopted by the HCDA in 1998. Land use zones established by the plan are shown in Figure 11.

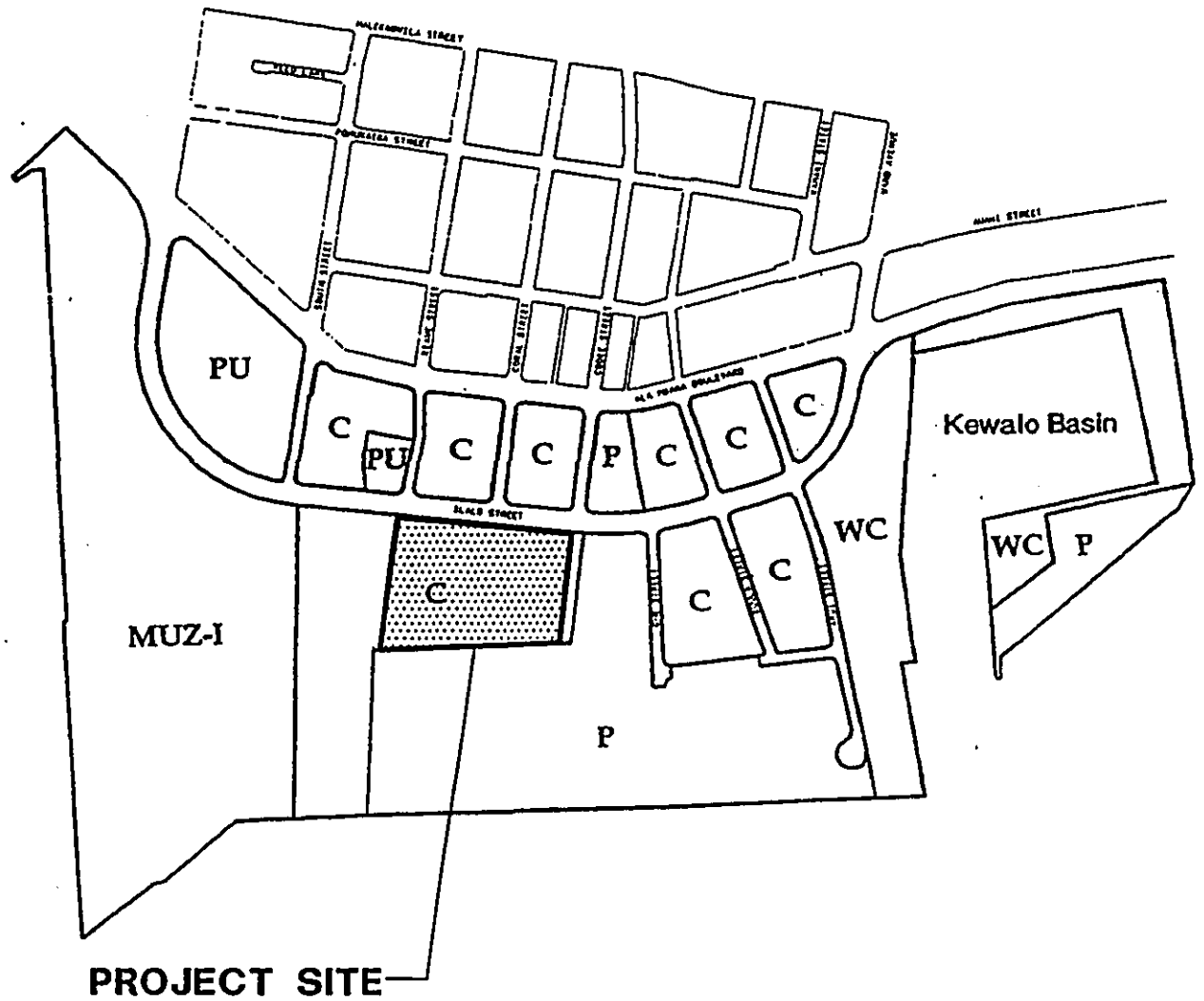
Last amended in January 2000, the Makai Area Rules set forth regulations to implement the policies and programs of the Makai Area Plan.

The proposed project is being designed to conform to the Makai Area Plan and the Makai Area Rules. The Makai Area Plan establishes the project site as being within the Commercial zone. Public uses, including educational institutions, are a permitted use within the Commercial zone. Buildings constructed at the project site will conform to density, yard, and open space requirements set forth in the Makai Area Plan and Rules. ***The maximum height of the proposed buildings is up to about 100-feet, within the 100 and 200-foot maximums established by the Makai Area Plan and Rules.***

4.2 County Plans, Policies, and Controls

Pursuant to Act 153, SLH 1976, the HCDA has the authority to supersede certain local controls, such as Development Plan and Zoning Ordinances. The project, however, will continue to foster the land use development goals of the City and County of Honolulu, as expressed in the General Plan and Primary Urban Center Development Plan.

land use zones.dwg 2-8-02 10:00 M:\WOA\6573-01\figures



LEGEND

C	Commercial
MUZ-I	Mixed-Use Zone - Industrial
WC	Waterfront Commercial
PU	Public
P	Park

0 400 800 1600

Scale in Feet

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LAND USE ZONES

FIGURE 11

4.2.1 City and County of Honolulu General Plan

The General Plan of the City and County of Honolulu sets forth broad statements of social, economic, environmental, and design objectives and policies that are desired over the long run. The proposed project is consistent with the following General Plan policies and objectives:

II. Economic Activity

Objective A: To promote employment opportunities that will enable all the people of Oahu to attain a decent standard of living.

Policy 1: Encourage the growth and diversification of Oahu's economic base.

Policy 3: Encourage the development in appropriate locations on Oahu of trade, communications and other industries of a nonpolluting nature.

Policy 6: Encourage the continuation of a significant level of Federal employment on Oahu.

Objective G: To bring about orderly economic growth on Oahu.

Policy 1: Direct major economic activity and government services to the primary urban center and the secondary urban center at Kapolei

Development of the proposed project represents an opportunity to expand Hawaii's biotechnology industry, thereby diversifying the State's economy. The project will also increase the competitiveness of the UH JASBOM and Cancer Research Center of Hawaii in their applications for Federal grant funds, thereby indirectly supporting Federal employment on Oahu. The project is sited in the Primary Urban Center, Oahu's central area of commerce and government operations.

II. Natural Environment

Objective A: To protect and preserve the natural environment.

Policy 4: Require development projects to give due consideration to natural features such as slope, flood and erosion hazards, water-recharge areas, distinctive land forms, and existing vegetation.

Policy 7: Protect the natural environment from damaging levels of air, water, and noise pollution.

Policy 9: Protect mature trees on public and private lands and encourage their integration into new developments.

No significant impacts to the natural environment are anticipated to result from construction or operation of the project. The project site is not subject to natural hazards and does not possess significant natural resources. Existing trees at the project site that are deemed to be significant will be saved in place or relocated.

VII. Physical Development and Urban Design

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

Policy 1: Plan for the construction of new public facilities and utilities in the various parts of the Island according to the following order or priority: first, in the primary urban center; second, in the secondary urban center at Kapolei; and third, in the urban-fringe and rural areas.

Policy 2: Coordinate the location and timing of new development with the availability of adequate water supply, sewage treatment, drainage, transportation, and public safety facilities.

Policy 3: Phase the construction of new developments so that they do not require more regional supporting services than are available.

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

Policy 4: Provide downtown Honolulu and other major business centers with a well-balanced mixture of uses.

Policy 9: Facilitate the redevelopment of Kakaako as a major residential, as well as commercial and light industrial area.

The proposed project is well situated in the urban core of Honolulu, in close proximity to Honolulu's Central Business District and the University of Hawaii at Manoa. Water, sewer, and drainage facilities present at the project site are adequate to support the proposed project. Improvements to the transportation system are presently being undertaken by the HCDA and are anticipated to mitigate traffic impacts resulting from development of the Kakaako Makai Area. The project is anticipated to have a minimal impact on public safety services and other municipal services.

VIII. Health and Education

Objective C: To make Honolulu the center of higher education in the Pacific.

Policy 1: Encourage continuing improvement in the quality of higher education in Hawaii.

Policy 2: Encourage the development of diverse opportunities in higher education.

Policy 3: Encourage research institutions to establish branches on Oahu.

Development of the proposed project will allow the UH JABSOM to replace its existing facilities, which have become outdated and undersized. The project will also allow the JABSOM and Cancer Research Center of Hawaii to attract more grant funds and substantially increase their research activity. It is also anticipated that the project may serve as an anchor to attract other biotechnology and research businesses/institutions to the Kakaako area.

4.2.2 Primary Urban Center Development Plan

The island of Oahu is divided into eight Development/Sustainable Communities Plan regions. Each plan implements the objectives and policies of the General Plan and serves as a guide for public policy, investment, and decision making within their respective region.

The project site is located within the region encompassed by the Primary Urban Center Development Plan (PUC-DP). The Development Plan Special Provisions for the Primary Urban Center contain the following provisions with respect to the Kakaako district:

Sec. 24-2.2(b)(6) Kakaako. (6) Kakaako. Kakaako is the area generally bounded by South Street, King Street, and Piikoi Street. It includes the entire Kewalo Peninsula makai of the Ala Moana Boulevard. Kakaako includes the entire Kewalo Peninsula makai of Ala Moana Boulevard from Pier 2 on the west to the Kewalo Basin-Ala Moana Park boundary on the east, and the area mauka of Ala Moana Boulevard bounded by Punchbowl Street, Pohukaina Street, South Street, King Street, Ward Avenue, Kapiolani Boulevard, and Piikoi Street.

The purpose of the following principles and controls is to permit the redevelopment of this area for mixed uses within an attractive setting and to preserve mauka-makai views and views of Punchbowl from within Kakaako as well as from areas beyond its boundaries.

(A) Commercial emphasis mixed-use shall be the predominant form of development in Kakaako, with limited areas also set aside for commercial-industrial emphasis mixed-use in the central portion and for marine industrial use at the Ewa end of Kewalo Peninsula.

(B) The makai portion of Kewalo Peninsula shall be developed into a regional park.

(D) A special pedestrian corridor system shall be provided for safe and pleasant access to major activity centers adjacent to this area, enhancing the compatibility of the mixed uses in the area.
The system shall also include a pedestrian walkway along the shoreline from the mouth of Honolulu Harbor into Ala Moana Park.

(E) In addition to the above, special height, design and use controls may be applied where necessary to ensure the preservation of important views, landmarks and historic structures, and the compatibility of the permitted mixture of uses within the area.

The PUC-DP Land Use Map designates the majority of the project site as "Commercial" and the portion of the site used by the Department of Agriculture as "Public Facility".

The proposed project is consistent with the principles and controls for the Kakaako Area as stated in the PUC-DP Special Provisions.

5 ALTERNATIVES TO THE PROPOSED ACTION

5.1 No Action Alternative

Under the No Action alternative, the existing UH JABSOM facilities will continue to deteriorate, hindering the ability of the school to attract new students, compete for grant funds, and hire and retain faculty and researchers. In the long-term, with no improvements to existing facilities, the viability of the UH JABSOM may be jeopardized. The possibility of creating a centralized campus for the UH JABSOM and Cancer Research Center of Hawaii which could serve as a catalyst for Hawaii's biotechnology industry and an anchor for development in the Kakaako Makai Area will also be foregone.

5.2 Rehabilitation of Existing JABSOM Facilities

Rehabilitation of the existing JABSOM facilities would allow the school to modernize and upgrade its facilities. However, due to space constraints, significant expansion of the school would not be possible. The new facilities proposed to be constructed under the project would enable the JABSOM and Cancer Research Center of Hawaii to hire additional researchers and significantly expand their research activities. Furthermore, similar to the No Action alternative, the potential of creating a centralized campus that could have positive synergistic effects for the JABSOM and Cancer Research Center of Hawaii and serve as a catalyst for Hawaii's biotechnology industry would be foregone.

5.3 Alternative Site

A study investigating alternative sites for the JABSOM was prepared early in the project development phase (University of Hawaii John A Burns Medical School Biomedical Science Facility Alternative Sites Evaluation, PBR Hawaii, August 2001). The study initially evaluated eight sites on the island of Oahu including:

- City of Kapolei
- Kakaako
- Kalaeloa
- Kapolei Mauka
- Kapolei Makai
- Manana
- Pacific Health Center
- Tripler Army Medical Center (TAMC)

Two additional sites, the Board of Water Supply Downtown Headquarters and the Leahi Hospital were later added to the study. A map showing the location of each of the sites is included in Appendix D.

A committee comprised of University faculty and staff rated each of the sites on various criteria including land cost, location, proximity/accessibility to major hospitals, parcel size and configuration, expansion potential, development costs, and hospital industry support. The committee eliminated the Kapolei Mauka, Kalaeloa, TAMC, Manana, and Pacific Health Center sites for the following reasons:

Kapolei Mauka
The site is too steep for expansion and major infrastructure improvements are required, including drainage from Kaloi Gulch. The site is also not available immediately because of required improvements to Kaloi Gulch.

Kalaeloa
The site is in the flight path of Kalaeloa Airport, exposing the site to excessive noise and vibration. The site also contains hazardous materials and contaminants, archaeological/historic sites, and endangered species. Major infrastructure improvements would be required.

TAMC
The site is too small, especially for expansion, and private biotechnical developments are not permitted on Federal lands. The TAMC also has security issues, especially during military alerts. Major infrastructure improvements would be required.

Manana
Land costs would likely be high because the landowner, the City and County of Honolulu, would need to recoup money spend on purchase of the site and infrastructure improvements. The project also may not be compatible with surrounding land uses.

Pacific Health Center
Major infrastructure improvements would be required before the site is available for development. Several years may be required to complete infrastructure improvements and obtain required land use permits.

Of the remaining sites that were initially investigated, the committee rated the Kakaako site as most favorable. The Board of Water Supply Headquarters site and Leahi Hospital Site were added as an addendum to the study and were not formally evaluated by the committee. Summary sheets for the Kakaako, City of Kapolei, Kapolei Makai, Board of Water Supply Headquarters, and Leahi Hospital sites are provided in Appendix C.

CORRECTION

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

Of the remaining sites that were initially investigated, the committee rated the Kakaako site as most favorable. The Board of Water Supply Headquarters site and Leahi Hospital Site were added as an addendum to the study and were not formally evaluated by the committee. Summary sheets for the Kakaako, City of Kapolei, Kapolei Makai, Board of Water Supply Headquarters, and Leahi Hospital sites are provided in Appendix C.

6 REQUIRED PERMITS AND APPROVALS

The following is a list of permits and approvals that may be required prior to construction of the proposed project.

State of Hawaii

- Special Management Area Use Permit
- National Pollutant Discharge Elimination System (NPDES) Permit for stormwater associated with construction activity
- NPDES Permit for construction activity dewatering
- NPDES Permit for hydrotesting water
- Noise Variance Permit
- HCDA Development Permit

City and County of Honolulu

- Building Permit
- Demolition Permit
- Excavation Permit
- Grading Permit
- Stockpiling Permit

7 DETERMINATION OF FONSI

The proposed project is not anticipated to have a significant impact based on the criteria set forth in the State Department of Health Rules, Chapter 200, Title 11, Section 12. The proposed project's relationship to each of the significance criteria is discussed below.

1. *Involves an irrevocable commitment to loss or destruction of any natural or cultural resource.*

Development of the proposed project will involve an irrevocable commitment of labor, capital and materials. Land at the project site would also be committed to the proposed project for the foreseeable future. The project site, however, does not possess significant natural or cultural resources.

2. *Curtails the range of beneficial uses of the environment.*

Development of the proposed project will increase beneficial uses available to the public. Presently, the site is primarily used for warehousing and office space and is inaccessible to the public. The inclusion of the Visitor's Center and the project's open setting is anticipated to create an inviting atmosphere to the public. Furthermore, the educational and research facilities to be developed will have long-term beneficial rewards to the public.

3. *Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS, and any revisions thereof and amendments thereto, court decisions or executive orders;*

The proposed project is consistent with the environmental policies, goals and guidance set forth in Chapter 344, HRS.

4. *Substantially affects the economic or social welfare of the community or state.*

In the short-term, the project will have beneficial economic impacts due to the hiring of construction workers and purchasing of materials from local suppliers. In the long-term, the project will have beneficial economic and social impacts due to the creation of new jobs, diversification of the State's economic base, improvement of the State's higher education system, and expansion of research activities.

5. Substantially affects public health.

The proposed project will have a positive long-term impact on public health by improving the UH's School of Medicine, and increasing resources available for health research.

6. Involves substantial secondary impacts, such as population changes or effects on public facilities.

No significant adverse impact to public facilities or services is anticipated. The project is consistent with the HCDA's Kakaako Makai Area Plan and could help to stimulate the planned economic development of the Makai Area.

7. Involves a substantial degradation of environmental quality.

The project is not anticipated to involve a substantial degradation of environmental quality. Short-term impacts to air and water quality and ambient noise levels may occur during the construction phase of the project. Impacts during construction will be mitigated by implementing appropriate Best Management Practices and complying with required permit conditions.

8. Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions.

With the exception of the relocation of existing tenants and potential employment multiplier effects, the project does not involve a commitment for larger actions nor will it trigger cumulative environmental impacts.

9. Substantially affects a rare, threatened or endangered species, or its habitat.

There are no known proposed, candidate, or listed threatened or endangered species present at the project site.

10. Detrimentally affects air or water quality or ambient noise levels.

Short-term impacts to air and water quality and ambient noise levels may occur during construction of the proposed project. Environmental impacts to air and water quality can be mitigated through proper construction techniques. In addition, National Pollutant Discharge Elimination System (NPDES) permits for

stormwater runoff, dewatering and hydrotesting will be procured if needed from the Department of Health. A noise variance permit will also be procured from the Department of Health for construction-related noise.

11. *Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.*

The project site is not located within an environmentally sensitive area. The site appears to border the tsunami evacuation zone as designated by the State Civil Defense. However, the risk of damage by tsunami inundation is mitigated by the elevated topography of the adjacent Kakaako Waterfront Park which serves as a barrier between the project site and the ocean.

12. *Substantially affects scenic vistas and viewplanes identified in county or state plans or studies.*

As discussed in section 3.7.1. of this Draft EA, the project will not have a significant impact on scenic resources identified in the City and County of Honolulu's County's *Coastal View Study*, or the Makai Area Plan.

13. *Requires substantial energy consumption.*

Development of the proposed project will result in an increase in energy consumption in the Kakaako Makai area. However, to some extent, the increase represents a replacement in energy consumed at the existing JABSOM and Cancer Research Center of Hawaii. In addition, elements of sustainable building design are being incorporated into the Health and Wellness Center including using materials that promote natural cooling, maximizing daylighting, and using energy efficient fixtures.

8 CONSULTATION

8.1 Pre-Assessment Consultation

The following agencies and organizations were consulted during the preparation of the Draft EA. Comments received and responses are attached at the end of the Draft EA.

Federal
Fish and Wildlife Service
National Marine Fisheries Service
U.S. Army Corps of Engineers

State
Department of Agriculture
Department of Accounting and General Services
Department of Business, Economic Development and Tourism
Office of Planning
Department of Health (DOH)
DOH, Environmental Management Division
Department of Land and Natural Resources
Historic Preservation Division
Office of Hawaiian Affairs
Department of Transportation
Hawaii Community Development Authority
Foreign Trade Zone No. 9

City & County of Honolulu
Board of Water Supply
Department of Design and Construction
Department of Environmental Services
Department of Planning & Permitting
Department of Transportation Services
Ala Moana/Kakaako Neighborhood Board No. 11
Downtown Neighborhood Board No. 13

Other
Children's Discovery Center
Hawaiian Electric Company, Inc.
KSBE Properties
Oceanic Cable
Verizon Hawaii, Inc.

8.2 Draft EA Consultation

The following agencies and organizations will be consulted during the public review period of the Draft EA.

Federal
Fish and Wildlife Service
National Marine Fisheries Service
U.S. Army Corps of Engineers

State
Department of Agriculture
Department of Accounting and General Services
Department of Business, Economic Development and Tourism (DBEDT)
DBEDT, Office of Planning
Department of Health (DOH)
DOH, Environmental Management Division
DOH, Office of Environmental Quality Control
Department of Land and Natural Resources (DLNR)
DLNR, Historic Preservation Division
Department of Transportation
Foreign Trade Zone No. 9
Hawaii Community Development Authority
Office of Hawaiian Affairs
University of Hawaii, Environmental Center

City & County of Honolulu
Board of Water Supply
Department of Design and Construction
Department of Environmental Services
Department of Parks and Recreation
Department of Planning & Permitting
Department of Transportation Services
Ala Moana/Kakaako Neighborhood Board No. 11
Downtown Neighborhood Board No. 13

Other
State Main Library
Children's Discovery Center
Hawaiian Electric Company, Inc.
Kakaako Improvement Association
KSBE Properties
Oceanic Cable
Verizon Hawaii, Inc.

8.3 Final EA Distribution

The Final EA has been distributed to the following agencies.

State
Department of Business, Economic Development & Tourism, Office of Planning
Department of Health (DOH)
DOH, Environmental Management Division
DOH, Office of Environmental Quality Control
Department of Land and Natural Resources (DLNR)
Department of Transportation
Hawaii Community Development Authority
University of Hawaii, Environmental Center

City & County of Honolulu
Board of Water Supply
Department of Planning & Permitting
Department of Transportation Services
Ala Moana/Kakaako Neighborhood Board No. 11
Downtown Neighborhood Board No. 13

Other
State Main Library

9 REFERENCES

Federal Emergency Management Agency. *Flood Insurance Rate Map, Community Panel No. 15003CO365 E.* November 20, 2000.

State of Hawaii, Department of Defense. *Tsunami Evacuation Zone proof maps.*

Kimura International, Inc. *Phase I Environmental Site Assessment Report, Produce Center & Department of Agriculture Facility, 651 Ilalo Street, Honolulu, Hawaii, TMK: 2-1-060: Parcels 9 & 10.* May 2001.

PBR Hawaii. *University of Hawaii John A. Burns Medical School Biomedical Science Facility Alternative Sites Evaluation.* August 2001.

State of Hawaii, Hawaii Community Development Authority. *Kakaako Community Development District Makai Area Plan.* August 1998.

State of Hawaii, Hawaii Community Development Authority. *Kakaako Community Development District Makai Area Rules.* January 2000.

United States Department of Agriculture, Soil Conservation Service. *Soil Survey of the Islands of Kauai, Maui, Molokai, and Lanai, State of Hawaii.* August 1972.

Wilson Okamoto and Associates, Inc. *Kakaako Community Development District, Makai Area Plan, Final Supplemental Environmental Impact Statement.* June 1998.

COMMENTS RECEIVED DURING PRE-ASSESSMENT CONSULTATION

BENJAMIN J. CAYETANO
GOVERNOR
SEIJI F. NAYA, Ph.D.
DIRECTOR
SHARON S. NARIMATSU
DEPUTY DIRECTOR
DAVID W. BLANE
DIRECTOR, OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

OFFICE OF PLANNING
235 South Beretania Street, 6th Floor, Honolulu, Hawaii 96813
Mailing Address: P.O. Box 2359, Honolulu, Hawaii 96804

Telephone: (808) 587-2846
Fax: (808) 587-2824

Ref. No. P-9342

January 17, 2002

Mr. Rodney Funakoshi
Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Funakoshi:

Subject: University of Hawaii Health and Wellness Center, Kakaako, Oahu
TMK: 2-1-60: 10 and por. 9

The Office of Planning has reviewed the summary description and location map for the proposed Health and Wellness Center in the Makai area of the Kakaako Community Development District. A complex of three buildings is being proposed for an area directly mauka of the Kakaako Waterfront Park. The buildings will accommodate Biomedical Research, the John A. Burns School of Medicine (JABSOM), and the Cancer Research Center of Hawaii. The property is State-owned and in the State Urban District.

The Environmental Assessment should address the proposed projects' consistency with the objectives, policies, and special management area guidelines in Chapter 205A-HRS.

The project site is located within the Special Management Area (SMA). A SMA permit will be required and will be subject to review and approval by the Office of Planning.

Thank you for the opportunity to comment. Should you have any questions, please call Heidi Meeker at 587-2802.

Sincerely,

David W. Blane, AICP
Director
Office of Planning

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

March 7, 2002

Mr. David W. Blane, AICP
Director
Office of Planning
235 South Beretania Street, 6th Floor
Honolulu, Hawaii 96813

Dear Mr. Blane:

Subject: Environmental Assessment (EA) Pre-Assessment Consultation
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of January 17, 2002 (Ref. No. P-9342) commenting on the subject project. As requested in your letter, the Draft EA will address the project's consistency with the objectives, policies, and guidelines of the Special Management Area (SMA). We also acknowledge that approval of a SMA permit by the Office of Planning will be required for the project.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

2800 Woodlawn Drive, Suite 200 • Honolulu, Hawaii 96822

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

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ERIC T. HIRANO
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AQUATIC RESOURCES
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CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION DIVISION
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE HISTORIC PRESERVATION DIVISION
601 KAMOKILA BLVD., ROOM 555
KAPOLEI, HAWAII 96707

February 4, 2002

Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
Fax: 946-2253

LOG NO: 29075
DOC NO: 0201tm14
Architecture

Attention Mr. Rodney Funakoshi, AICP, Project Manager

Dear Mr. Funakoshi:

SUBJECT: **Environmental Assessment**
Pre-Assessment Consultation
University of Hawaii Health and Wellness Center
TMK: 2-1-60:10 and portion of 9, Kakaako, Honolulu, Oahu

Thank you for the early consultation regarding the Environmental Assessment of the proposed new University of Hawaii medical center. Review of our records indicates that the buildings located on the tax map keys indicated are built in the later 1960s and 1970s. Therefore, they do not meet the criteria for listing on the Hawaii or National Registers of Historic Places. Also, as this location is filled land, we believe it is highly unlikely that any historic sites will be discovered during construction. However, please note that the Kakaako Pumping Station, listed on the Hawaii and National Registers of Historic Places is very close and consideration should be given to not adversely impact the site through street widening, parking, etc.

Thank you for the opportunity to comment. Should you have any questions, please feel free to call Tonia Moy at (808)692-8030.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

TM:jk

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

March 7, 2002

Mr. Don Hibbard
Administrator
State Historic Preservation Division
Department of Land and Natural Resources
801 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Dear Mr. Hibbard:

Subject: Environmental Assessment (EA) Pre-Assessment Consultation
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of February 4, 2002 (Log No. 29075) stating that buildings at the project site do not meet the listing criteria for the Hawaii or National Registers of Historic Places and that because the project site is comprised of fill land, it is unlikely that historic sites will be discovered during construction. The presence of the historic Kakaako Pumping Station, and other historic sites in the Kakaako Makai Area, will be included in the Draft Environmental Assessment. We do not anticipate that any historic structures will be affected by the proposed project.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

2800 Woodlawn Drive, Suite 200 • Honolulu, Hawaii 96822

BENJAMIN J. CAYETANO
GOVERNOR

BRIAN K. MINAAI
DIRECTOR

DEPUTY DIRECTORS
JEAN L. OSHITA
JADINE Y. URASAKI

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

IN REPLY REFER TO:

HWY-PS
2.5472

JAN 2 8 2002

RECEIVED
JAN 2 9 2002
WILSON OKAMOTO & ASSOC., INC.

Wilson Okamoto & Associates, Inc.
1907 South Beretania Street Suite 400
Honolulu, Hawaii 96826

Attn: Mr. Rodney Funakoshi, AICP

Gentlemen: Rodney

Subject: Environmental Assessment (EA) for University of Hawaii (UH) Health and Wellness Center, Kakaako, TMK: 2-1-60: 10 and por. 9

Thank you for consulting us. We have the following comments.

1. The Draft EA should assess the traffic impacts to Ala Moana Boulevard resulting from development of the proposed UH Health and Wellness Center and to Nimitz Highway due to the relocation of existing State lessees from the Center site to the Kapalama Military Reservation. Appropriate measures should be proposed to mitigate traffic impacts.

2. The Draft EA also should clarify Hawaii Community Development Authority plans for extension of Ilalo Street and assess potential impacts to our harbor operations.

If you have any questions, please contact Ronald Tsuzuki, Head Planning Engineer, Highways Division, at 587-1830.

Very truly yours,

Brian K. Minaai

BRIAN K. MINAAI
Director of Transportation

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

March 7, 2002

Mr. Brian K. Minaai
Director
State Department of Transportation
869 Punchbowl Street
Honolulu, Hawaii 96813-5097

Dear Mr. Minaai:

Subject: Environmental Assessment (EA) Pre-Assessment Consultation
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of January 28, 2002 commenting on the subject project. A traffic impact report assessing the impact of the proposed project on Ala Moana Boulevard has been prepared and will be appended to the forthcoming Draft Environmental Assessment for your review. With regard to your concern over the impact the relocation of existing lessees would have on Nimitz Highway, please note that the relocation of the Department of Agriculture and Produce Center, Limited to the Kapalama Military Reservation were assessed in a Final Environmental Assessment published in August 2001.

The Hawaii Community Development Authority's (HCDA) plans to extend Ilalo Street were assessed in the Final Supplemental Environmental Impact Statement prepared for the Makai Area Plan in June 1998. It is our understanding that while extension of Ilalo Street to Punchbowl is proposed in the current *Makai Area Plan*, the timing of this project has not yet been determined.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

2800 Woodlawn Drive, Suite 200 • Honolulu, Hawaii 96822
An Equal Opportunity Employer

PHONE (808) 594-1888

FAX (808) 594-1865

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

HRD02-448

January 11, 2002

Rodney Funakoshi
Project Manager
Wilson Okamato & Associates, Inc.
1907 S. Beretania St. Suite 400
Honolulu, HI 96826

Subject: Environmental Assessment (EA) Pre-Assessment Consultation
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii

Dear Mr. Funakoshi:

This is in response to your request for comments on the above-referenced project.

OHA requests that the draft EA assess cultural and archeological resources in the project area. The EA should also include a cultural impact statement based upon consultation with the Hawaiian community, as required by Act 50, Session Laws of 2000. In particular, the applicant should ensure that access to the park and shoreline is not hindered by the project. The location map does not indicate how access will be provided or if the existing availability of parking for people using the shoreline will be maintained.

Thank you for the opportunity to comment on the above referenced project. If you have questions, please contact Sharla Manley, policy analyst, at 594-1944 or email her at sharlam@oha.org.

Sincerely,

Colin C. Kippen, Jr.
Deputy Administrator

CK: sam
cc: Board of Trustees
Clyde W. Namu'o, Administrator

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

March 7, 2002

Mr. Colin C. Kippen, Jr.
Deputy Administrator
Office of Hawaiian Affairs
711 Kapiolani Boulevard, Suite 500
Honolulu, Hawaii 96813

Dear Mr. Kippen:

Subject: Environmental Assessment (EA) Pre-Assessment Consultation
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of January 11, 2002 commenting on the subject project. As requested in your letter, and as discussed with Ms. Sharla Manley of your staff, the Draft EA will include a discussion of the project's impact on cultural resources. In addition, we note that the State Historic Preservation Division has commented that because the project site is comprised of fill land, it is highly unlikely that archaeological resources will be discovered during construction. With regard to your comment on the availability of public parking, the project will include approximately 900 on- and off-site parking stalls for students, faculty and staff to ensure that public parking at the Kakaako Waterfront Park will not be affected.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

2800 Woodlawn Drive, Suite 200 • Honolulu, Hawaii 96822

BOARD OF WATER SUPPLY

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

February 5, 2002

Wilson Okamoto and Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Attention: Rodney Funakoshi

Gentlemen:

Subject: Your Transmittal of January 4, 2002 on the Pre-Assessment Consultation for the University of Hawaii Health and Wellness Center, Kakaako, TMK: 2-1-60: Portion 09, 10

Thank you for the opportunity to review the subject document for the proposed medical school and research center.

We have the following comments to offer:

1. The existing off-site water system is presently adequate to accommodate the proposed project.

2. A water allocation will be required to be obtained from the Department of Land and Natural Resources.

3. The availability of water will be determined when the Building Permit Applications are submitted for our review and approval. If water is made available, the applicant will be required to pay the applicable Water System Facilities Charges for transmission and daily storage.

4. There are two active water services consisting of 2-inch domestic water meters and an 8-inch detector check fire meter serving TMK: 2-1-60: 09. There is also one inactive water service that was ordered off in 2000 serving TMK: 2-1-60: 10.

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

6. Board of Water Supply approved Reduced Pressure Principle Backflow Prevention Assemblies are required to be installed immediately after all water meters serving the site.

7. We reserve further comment(s) until the Draft Environmental Assessment is submitted for our review and comment.

If you have any questions, please contact Scot Muraoka at 527-5221.

Very truly yours,

for CLIFFORD S. JAMILE
Manager and Chief Engineer

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

March 7, 2002

Mr. Clifford S. Jamile
Manager and Chief Engineer
Honolulu Board of Water Supply
630 South Beretania Street
Honolulu, Hawaii 96843

Dear Mr. Jamile:

Subject: Environmental Assessment (EA) Pre-Assessment Consultation
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of February 5, 2002 commenting on the subject project. We acknowledge that the existing off-site water system is presently adequate to serve the project, that a water allocation will be required from the Department of Land and Natural Resources, and that the availability of water will be determined when Building Permit applications are submitted. As requested in your letter, the on-site fire protection requirements for the project will be coordinated with the Fire Prevention Bureau of the Honolulu Fire Department. Your comment that Board of Water Supply approved Reduced Pressure Principle Backflow Prevention Assemblies are required to be installed immediately after all water meters serving the site has been forwarded to the project's civil engineer.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY OF HONOLULU
PACIFIC PARK PLAZA • 711 KAPIOLANI BOULEVARD, SUITE 1200 • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4529 • FAX: (808) 523-4730 • INTERNET www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

CHERYL D. SOON
DIRECTOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

February 6, 2002

TPD01/02-00066R

Mr. Rodney Funakoshi, AICP, Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Funakoshi:

Subject: University of Hawaii Health and Wellness Center

In response to your January 4, 2002 letter, the project information provided was reviewed. The following comments are the result of this review:

1. The City plans a new Bus Rapid Transit (BRT) route on Ilalo Street adjacent to the subject project site. Development of a BRT alignment in Kakaako is being coordinated with the Hawaii Community Development Authority to reduce the reliance on private automobiles and encourage the use of public transit and other alternative modes. Therefore, the proposed project should be planned to facilitate public transit use. Close coordination will be required during construction to minimize any impacts that these projects may have on each other.

2. In addition to discussing the impact of project generated traffic on the surrounding street network, the traffic impact assessment should also consider the traffic due to the other proposed projects in the area. The environmental assessment should also address the needs of and project impacts on pedestrians and bicyclists.

Should you have any questions regarding this matter, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

CHERYL D. SOON
Director

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

March 7, 2002

Ms. Cheryl D. Soon, Director
Department of Transportation Services
City and County of Honolulu
711 Kapiolani Boulevard, Suite 1200
Honolulu, Hawaii 96813

Cheryl

Dear Ms. Soon:

Subject: Environmental Assessment (EA) Pre-Assessment Consultation
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii - Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of February 6, 2002 (TPD01/02-00066R) commenting on the subject project. The EA will incorporate the City's plans for a Bus Rapid Transit (BRT) route along Ilalo Street adjacent to the project site. To the extent currently possible, the project is being designed to facilitate public transit use by creating a pedestrian friendly environment throughout the new campus and along Ilalo Street. Further measures to facilitate public transit use may be implemented by the University of Hawaii when the project is completed.

The traffic impact assessment report prepared for the project has taken into consideration the BRT and other projects that are expected to be constructed in the Kakaako Makai Area. The assessment will be appended to the forthcoming Draft EA.

The project is not anticipated to have an adverse impact on pedestrians or bicyclists. As previously noted, the project is being designed to create a pedestrian friendly environment on the new campus and along Ilalo Street. In addition, the HCDA has separate plans to construct bicycle lanes along Keawe and Cooke Streets up to the Kakaako Waterfront Park that would facilitate bicycle access to the new campus.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

Hawaiian Electric Company, Inc. • PO Box 2750 • Honolulu, HI 96840-0[illegible]

GEN-6 (EIS/EA)

February 7, 2002

Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Attention: Mr. Rodney Funakoshi

Subject: **University of Hawaii Health and Wellness Center**

Thank you for the opportunity to comment on the EA Pre-Assessment Consultation for the University of Hawaii Health and Wellness Center, as proposed by the University of Hawaii. We have reviewed the subject document and have no comments at this time.

HECO shall reserve further comments pertaining to the protection of existing powerlines bordering the project area until construction plans are finalized. Again, thank you for the opportunity to comment on this draft EIS.

Sincerely,

Kirk Tomita
Senior Environmental Scientist
Hawaiian Electric Company

cc: OEQC

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

March 7, 2002

Mr. Kirk Tomita
Senior Environmental Scientist
Hawaiian Electric Company
P.O. Box 2750
Honolulu, Hawaii 96840-0001

Dear Mr. Tomita:

Subject: Environmental Assessment (EA) Pre-Assessment Consultation
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of February 7, 2002 stating that you have no comments to offer at this time and will reserve further comments until construction plans are finalized.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

2800 Woodlawn Drive, Suite 200 • Honolulu, Hawaii 96822
An Equal Opportunity Employer

Oceanic CABLE

200 Akamainui Street • Mililani, Hawaii 96789-3999 • Telephone: (808) 625-2100

January 9, 2002

Wilson Okamoto & Associates, Inc.
1907 S. Beretania Street, Suite 400
Honolulu, Hawaii 96826

Attn: Mr. Rodney Funakoshi, AICP

Subject: Environmental Assessment for UH Health and Wellness Center

Dear Mr. Funakoshi,

Thank you for giving us the opportunity to comment on the proposed University of Hawaii Health and Wellness Center Project. Oceanic Cable's facilities will not be impacted by the proposed project. We are currently working with the HCDA to place CATV infrastructure on Ilalo Street so conduits will be available to serve the Health and Wellness Center. Should you have any questions, please contact me at #625-8346.

Sincerely,

Randy Makizuru
OSP Engineer

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

March 7, 2002

Mr. Randy Makizuru
OSP Engineer
Oceanic Cable
200 Akamainui Street
Mililani, Hawaii 96789

Dear Mr. Makizuru:

Subject: Environmental Assessment (EA) Pre-Assessment Consultation
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of January 9, 2002 informing us that the subject project will not affect your facilities. We acknowledge that you are currently working with the Hawaii Community Development Authority to place CATV infrastructure on Ilalo Street so that conduits will be available for the subject project.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

2800 Woodlawn Drive, Suite 200 • Honolulu, Hawaii 96822

COMMENTS RECEIVED DURING DRAFT EA CONSULTATION

GLENN M. OKIMOTO
COMPTROLLER

MARY ALICE EVANS
DEPUTY COMPTROLLER

STATE OF HAWAII
DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P.O. BOX 119, HONOLULU, HAWAII 96810

LETTER NO. PWD02.P0192

APR 10 2002

RECEIVED
APR 11 2002
WILSON OKAMOTO & ASSOC., INC.

MEMORANDUM

TO: Mr. Rex Johnson
University of Hawaii
John Burns School of Medicine

FROM: Glenn M. Okimoto
State Comptroller

SUBJECT: University of Hawaii, Health and Wellness Center
Draft Environmental Assessment (DEA)
Kakaako, Oahu, Hawaii
TMK: (1) 2-1-60: 10 and a portion of 9

Thank you for the opportunity to review the DEA. At this time, we offer no comments on the subject project. Should there be any questions, please contact Mr. Brian Isa of the Planning Branch at 586-0484.

c: Mr. Rodney Funakoshi, Wilson Okamoto & Associates
Ms. Genevieve Salmonson, OEQC

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Mr. Glenn M. Okimoto, State Comptroller
State of Hawaii
Department of Accounting and General Services
P.O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Okimoto:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 10, 2002 (Ref. PWD02.P0192) stating that you have no comments on the subject project.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
235 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

April 3, 2002

Edwin Cadman, MD, Dean
John Burns School of Medicine, UHM
1960 East West Road
Honolulu, Hawaii 96822

Attention: Rex Johnson

Dear Dr. Cadman:

Subject: Draft Environmental Assessment (EA) for **UH Health & Wellness Center at Kakaako**

We have the following comments to offer:

Two-sided pages: In order to reduce bulk and save on paper, please print on both sides of the pages in the final document.

Landscaping and irrigation: Will reclaimed water be used to for irrigation? Unthirsty plants are recommended in addition to the requirements in HRS §§103D-408. These landscaping guidelines can be accessed at *http://www.state.hi.us/health/oeqc/guidance/index.html*.

Paving materials: Please follow the guidelines entitled "Use of Recycled Glass in Paving Materials" set forth in HRS §§103D-407, which you can find at the same website address.

Sustainable building techniques: Please consider applying sustainable building techniques presented in the "Guidelines for Sustainable Building Design in Hawaii." In the final EA include a description of any of the techniques you will implement. For a paper copy contact our office or go to our homepage at *http://www.state.hi.us/health/oeqc/guidance/sustainable.htm*.

Soil contamination: Section 3.2 states that a construction management plan will address any soil contamination found. Consult with the Department of Health for approval of this plan.

Visual impacts: The proposed facilities may be as high as 200 feet. In the final EA identify public viewpoints of the project site from which visual impacts may occur, especially of mauka and makai viewplanes, in addition to the diagrams already provided of the proposed buildings. Show these impacts by superimposing renderings of the proposed facilities onto photographs taken from public vantage points.

Tsunami zones: Figure 6 is entitled *Tsunami Evacuation Zone*, but the shaded area in the figure represents the tsunami inundation zone. Are these zones the same? If not, add the mauka boundary of the evacuation zone in this figure in the final EA.

If you have any questions, call Nancy Heinrich at 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

c: Rodney Funakoshi

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

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

Dear Ms. Salmonson:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 3, 2002 commenting on the subject project. We offer the following responses in the respective order of your comments.

1. Two-sided pages. As requested, the Final EA will be printed double-sided.

2. Landscaping and irrigation. Unfortunately, reclaimed water cannot be used for irrigation because a source of reclaimed water is not available in the vicinity of the project site. The Landscape Plan being prepared for the project will incorporate the requirements of HRS ∋103D-408. Native or culturally significant plants will be used extensively throughout the project site and plant selections will also consider characteristics such as drought tolerance, adaptability to environmental conditions, and low maintenance requirements.

3. Paving materials. As required by HRS ∋103D-407, paving material with the recycled glass content requirement will be used for all roadway improvements associated with the proposed project.

4. Sustainable building techniques. The Health and Wellness Center is envisioned to be a state-of-the-art facility incorporating the latest technologies in energy conservation and sustainable design. To that end, the UH has hired a consultant to advise us on energy conservation and sustainable design techniques. The University of Hawaii is also actively evaluating a number of additional elements of sustainable design that could be used to promote conservation at the Health and Wellness Center.

5. Soil contamination. The Hawaii Community Development Authority (HCDA) is presently preparing a construction management plan for the project. A copy of the plan will be provided to the Department of Health.

6. Visual impacts. With regard to building heights, we wish to note that although the HCDA Makai Area Plan allows for structures as tall as 200 feet at the project site, all of the proposed structures will be less than 100 feet tall. As requested, the Final EA will include renderings of the project site from public vantage points.

7. Tsunami zones. The shaded area shown in Figure 6 of the Draft EA should have been labeled "Tsunami Evacuation Zone". This correction will be made to the figure in the Final EA.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

BENJAMIN J. CAYETANO
GOVERNOR

GENEVIEVE SALMONSON
DIRECTOR

STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
236 SOUTH BERETANIA STREET
SUITE 702
HONOLULU, HAWAII 96813
TELEPHONE (808) 586-4185
FACSIMILE (808) 586-4186

April 22, 2002

Edwin Cadman, MD, Dean
John Burns School of Medicine, UHM
1960 East West Road
Honolulu, Hawaii 96822

Attention: Rex Johnson

Dear Dr. Cadman:

Subject: Draft Environmental Assessment (EA) for **UH Health & Wellness Center at Kakaako**

Section 3.2 of the draft EA, *Geology, Topography and Soils*, mentions 2 environmental site assessment reports dated May 8th, 2001 and January 16th, 2002 and an additional follow-up report following recommendations of the Department of Health. Please include copies of these reports in the final EA.

If you have any questions, call Nancy Heinrich or Jeyan Thirugnanam at 586-4185.

Sincerely,

GENEVIEVE SALMONSON
Director

c: Rodney Funakoshi

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

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

Dear Ms. Salmonson:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 22, 2002 requesting that the Final Environmental Assessment include copies of the Environmental Site Assessment Reports referred to in the Draft EA. As discussed with Mr. Jeyan Thirugnanam of your staff, due to the voluminous nature of the reports, we will transmit copies of the Environmental Site Assessment reports to your office and state in the Final EA that they are available for review at the Office of Environmental Quality Control.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
File:

02-011/cpo

March 12, 2002

Mr. Rodney Funakoshi, AICP, Project Manager
Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826

Dear Mr. Funakoshi:

Subject: Pre-Environmental Assessment (PEA)
University of Hawaii and Wellness Center, Kakaako, Hawaii
Tax Map Key: 2-1-60: 10 and portion of 9

Thank you for the opportunity to review and comment on the subject proposal. The PEA was routed to the various branches of the Environmental Health Administration. We have the following comments.

Clean Water Branch

1. The applicant should contact the Army Corps of Engineers to identify whether a federal permit (including a Department of Army permit) is required for this project. A Section 401 Water Quality Certification is required for "Any applicant for Federal license or permit to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge into the navigable waters...," pursuant to Section 401(a)(1) of the Federal Water Pollution Act (commonly known as the "Clean Water Act");

2. A National Pollutant Discharge Elimination System (NPDES) general permit coverage is required for the following discharges to waters of the State:

   a. Discharge of storm water runoff associated with industrial activities, as define in Title 40, Code of Federal Regulations, Sections 122.26(b)(14)(i) through 122.26(b)(14)(ix) and 122.26(b)(14)(xi);

   b. Discharge of storm water runoff associated with construction activities that involve the disturbance of five (5) acres or greater, including clearing, grading, and excavation;

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

d. Discharge of once through cooling water less than one million gallons per day;

e. Discharge of hydro-testing water;

f. Discharge of construction dewatering effluent;

g. Discharge of treated effluent from petroleum bulk stations and terminals; and

h. Discharge of treated effluent from well drilling activities.

Any person requesting to be covered by a NPDES general permit for any of the above activities should file a Notice of Intent with the Department of Health, Clean Water Branch (CWB) at least thirty (30) days prior to commencement of any discharges to State waters;

3. If construction activities involve the disturbance of one acre or greater, including clearing, grading, and excavation, and will take place or extend after March 10, 2003, an NPDES general permit coverage is required for discharges of storm water runoff into State waters; and

4. The applicant may be required to apply for an individual NPDES permit if there is any type of activity in which wastewater is discharged from the project into State waters.

If you have any questions, please contact the Clean Water Branch at (808) 586-4309.

Clean Air Branch (CAB)

Fugitive Dust Control:

There is a significant potential for fugitive dust emissions during all phases of construction activities. It is recommended that a dust control management plan be developed which identifies and addresses activities having a potential to generate fugitive dust. Implementation of adequate dust control measures during all phases of construction is warranted.

Construction activities must comply with provisions of Hawaii Administrative Rules, Chapter 11-60.1, "Air Pollution Control," Section 11-60.1-33, Fugitive Dust.

The contractor should provide adequate measures to control dust from the road areas and during the various phases of construction. These measures include, but are not limited to:

a. Planning the different phases of construction, focusing on minimizing the amount of dust generating materials and activities, centralizing on-site vehicular traffic routes, and locating potentially dusty equipment in areas of the least impact;

b. Providing an adequate water source at the site prior to start up of construction activities;

c. Landscaping and rapid covering of bare areas, including slopes, starting from the initial grading phase;

d. Controlling of dust from shoulders and access roads;

e. Providing adequate dust control measures during weekends, after hours, and prior to daily start-up of construction activities; and

f. Controlling of dust from debris being hauled away from project site.

If you have any questions, please contact the Clean Air Branch at (808) 586-4200.

Noise, Radiation and Indoor Air Quality (NRIAQ) Branch

All project activities shall comply with the Administrative Rules of the Department of Health: Chapter 11-39, Air Conditioning and Ventilating; Chapter 11-45, Radiation Control; and Chapter 11-46, community Noise Control.

If you have any questions, please contact the Noise, Radiation and Indoor Air Quality Branch at (808) 586-4701.

Sincerely,

GARY GILL
Deputy Director
Environmental Health Administration

c: CWB
CAB
NRIAQ

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Mr. Gary Gill, Deputy Director
State of Hawaii
Department of Health
Environmental Health Administration
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Gill:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of March 12, 2002 (Ref. 02-011/epo) commenting on the subject project. We offer the following responses in the respective order of your comments:

1. The Department of the Army was consulted during the Draft Environmental Assessment (Draft EA) comment period. We do not anticipate that a Section 401 Water Quality Certification will be required for the proposed project.

2. A National Pollutant Discharge Elimination System (NPDES) general permit for storm water runoff associated with construction activities will be procured prior to construction. NPDES permits for hydro-testing and construction dewatering effluent will also be procured if they are required. We do not anticipate that an individual NPDES permit will be required.

3. As required by Hawaii Administrative Rules (HAR), Chapter 11-60.1, "Air Pollution Control", Section 11-60.1-33, "Fugitive Dust", the contractor will be required to implement adequate measures to control dust during construction of the project. Measures that may be taken include phasing grading and land-disturbing activities, frequent watering of loose soils, covering stockpiled soils, and landscaping or paving exposed soils as soon as practicable.

4. During construction of the project, ambient noise levels are expected to exceed maximum permissible levels. As required by HAR Chapter 11-46, "Community Noise Control", a Noise Variance permit will procured prior to construction. In addition, air conditioning systems and radiation-emitting equipment will be designed and operated in accordance with HAR 11-39, "Air Conditioning and Ventilating" and HAR 11-45, "Radiation Control", respectively.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

RECEIVED
'02 APR 25 AM 10:42
HAWAII COMMUNITY
DEVELOPMENT
AUTHORITY

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

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

In reply, please refer to:
HEER OFFICE
02-095-KK

April 23, 2002

Dr. Edwin Cadman, Dean
John Burns School of Medicine, UHM
1960 East West Road
Honolulu, Hawaii 96822

Attention: Rex Johnson

Ms. Jan Yokota, Executive Director
Hawaii Community Development Authority
677 Ala Moana Boulevard, Suite 1001
Honolulu, Hawaii 96813

Attention: Sandy Pfund

Dear Dr. Cadman and Ms. Yokota:

Subject: Comments to the Draft Environmental Assessment (EA) for the University of Hawaii, Health and Wellness Center, March 2002

The State of Hawaii Department of Health (DOH), Hazard Evaluation and Emergency Response (HEER) Office has the following comments:

Page 3-1: Section 3.2 Geology, Topography and Soils: The presence of dieldrin and any other hazardous substances at the proposed site must be sufficiently investigated and characterized in order to determine an appropriate removal or remedy. Contaminated soil and/or groundwater shall be addressed under the authority of Hawaii Revised Statutes Chapter 128D Part I. Environmental Response Law and the Hawaii Administrative Rules, Title 11 Department of Health Chapter 451 State Contingency Plan.

The potential exposure of these hazardous substances especially during construction should be evaluated as well as the long-term management of any residual contamination at the site.

Thank you for the opportunity to review the draft EA. If you have further questions, please contact Laura Young of the HEER Office at 586-4249.

Sincerely,

Keith E. Kawaoka, D.Env., Manager
Hazard Evaluation and Emergency Response Office

c: Gary Gill, Deputy Director for Environmental Health
Genevieve Salmonson, Office of Environmental Quality Control

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Mr. Keith E. Kawaoka, Manager
State of Hawaii
Department of Health
Hazard Evaluation and Emergency Response Office
P.O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Kawaoka:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 23, 2002 commenting on the subject project. The Hawaii Community Development Authority is currently preparing a construction management plan to address potential exposure to hazardous substances especially during construction. A copy of the plan will be provided to your office. The presence of dieldrin and any other hazardous substances at the proposed site has been investigated by a qualified environmental contractor; a copy of this report has been provided to your office.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

2800 Woodlawn Drive, Suite 200 • Honolulu, Hawaii 96822
An Equal Opportunity Employer

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF STATE PARKS
P.O. BOX 621
HONOLULU, HAWAII 96809

GILBERT S. COLOMA-AGARAN
CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

JANET T. KAWELO
DEPUTY DIRECTOR

LINNEL T. NISHIOKA
DEPUTY DIRECTOR FOR
THE COMMISSION ON WATER
RESOURCE MANAGEMENT

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
KAHOOLAWE ISLAND RESERVE COMMISSION
LAND
STATE PARKS

February 11, 2002

REF:PPB:LT

File No.: 02-10

MEMORANDUM

To: Harry Yada, Acting Administrator

From: Dan S. Quinn, State Parks Administrator

Subject: Pre-Assessment Consultation for an Environmental Assessment for the University of Hawaii's Proposed Health and Wellness Center; TMK: (1) 2-1-60: 10 and por. 09, Kaka'ako, Oahu

We have reviewed the information provided on the subject project and would like the applicant to consider our comment that there should be adequate parking available for employees of the Center and the public in order that they do not park their cars in the parking lot for Kaka'ako Waterfront Park.

If you have questions, please contact Lauren Tanaka at 7-0293, Park Planning Branch.

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Mr. Dan S. Quinn, Administrator
State of Hawaii
Department of Land and Natural Resources
Division of State Parks
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Quinn:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Your comments of February 11, 2002 in response to our pre-assessment consultation were forwarded to us from the Department of Land and Natural Resource's (DLNR) Land Division.

With regard to your concerns on the provision of adequate parking for the project, the project will include a minimum of 720 on- and off-site parking stalls for students, faculty and staff to help ensure that parking at the Kakaako Waterfront Park will not be affected.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

2800 Woodlawn Drive, Suite 200 • Honolulu, Hawaii 96822
An Equal Opportunity Employer

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

February 19, 2002

LOG-559/823/807899/753

LD-NAV/UHWELLNESS.RCM

Wilson Okamoto & Associates, Inc.
Rodney Funakoshi, AICP, Project Manager
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96813

Dear Mr. Funakoshi:

SUBJECT: Environmental Assessment (EA) Pre-Assessment Consultation
Applicant: University of Hawaii
Consultant: Wilson Okamoto & Associates, Inc.
Project: Health and Wellness Center
Location: Kakaako Island of Oahu, Hawaii
TMK: 1st/ 2-1-60: 10 and portion of 09

Thank you for your pre-consultation letter dated February 4, 2002 covering the subject proposed project.

A copy of your letter and summary description of the subject project was transmitted to the following Department of Land and Natural Resources' (DLNR) Divisions for their review and comment:

Division of Aquatic Resources - Division of Forestry & Wildlife - Division of State Parks - Historic Preservation Division - Commission on Water Resource Management - Land Division Engineering Branch - Land Division Oahu Land Office

Attached herewith is a copy of responses received from the following DLNR Divisions:

Division of Aquatic Resources - Division of State Parks - Commission on Water Resource Management - Land Division Engineering Branch and Historic Preservation.

The Department of Land and Natural Resources has no other comment to offer at this time.

Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 808-587-0438.

Very truly yours,

HARRY M. YADA
Acting Administrator

c: Oahu District Land Office

RECEIVED
LAND DIVISION

2002 FEB 11 A 11:03

DEPT. OF LAND & NATURAL RESOURCES
STATE OF HAWAII

DIVISION OF AQUATIC RESOURCES

DIRECTOR	/	Suspense Date:	
CON. FISHERIES		Draft Reply	☐
AQ RES/ENV		Reply Direct	☐
AQ RECR'N		Comments	☐
ADMIN. SVCS		Information	☐
PLAN DEV		Comp Act & File	☐
STATISTICS		Return to:	
		Copies to:	
		Remarks:	

02-02

PS X

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Land Division
Honolulu, Hawaii

January 28, 2002

LD-NAV/LOG47
Ref.: UHWELLNESS.COM

Suspense Date: 2/15/02

MEMORANDUM:

TO: XXX Division of Aquatic Resources
XXX Division of Forestry & Wildlife
XXX Division of State Parks
Division of Boating and Ocean Recreation
XXX Historic Preservation Division
XXX Commission on Water Resource Management
Land Division Branches of:
XXX Planning and Technical Services
XXX Engineering Branch
XXX Oahu District Land Office

RECEIVED
JAN 28 2002
DIV. AQUATIC RESOURCES

FROM: Harry M. Yada, Acting Administrator
Land Division

SUBJECT: Environmental Assess (EA) Pre-Assessment Consultation
Applicant: University of Hawaii
Proposed: Health and Wellness Center
Location: Kakaako, Oahu, Hawaii
TMK: 1^{st}/ 2-1-60: 10 and portion of 9

Please review the attached summary of the proposed project and submit your written comment and recommendation (if any) on Division letterhead signed and dated on or before the suspense date.

Should you need more time to review the subject matter, please contact Nick Vaccaro at ext.: 7-0438.

If this office does not receive your comments by the suspense date, we will assume there are no comments.

(X) We have no comments. at this time

( ) Comments attached.

Signed: [signature]

Date: 2/7/02

We request a copy of the DEA for review when it is available.

DLNR-LAND DIVISION
ENGINEERING BRANCH

LD-NAV/LOG47
Ref.: UHWELLNESS.COM

COMMENTS

For your information, the project site, according to FEMA Community Panel Number 15003 C 0365 E (November 20, 2000), is located in Zone X (Not Shaded). This is an area determined to be outside the 500-year flood plain.

However, if further studies determine that the project site is within the flood zone, the proposed project must comply with rules and regulations of the National Flood Insurance Program (NFIP) and all applicable County Flood Ordinances. If there are questions regarding the NFIP, please contact the State Coordinator, Mr. Sterling Yong, of the Department of Land and Natural Resources at 587-0248. If there are questions regarding flood ordinances, please contact applicable County representative.

The Draft Environmental Assessment should include project water demand and infrastructure required to meet water demands.

M:\WLD\MAKAI\SUZIE\OAHU\UH.Health.Oahu155.doc

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Mr. Harry M. Yada, Acting Administrator
State of Hawaii
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Yada:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of February 19, 2002, in response to our pre-assessment consultation, commenting on the subject project and forwarding comments from the Department of Land and Natural Resources Divisions.

We appreciate your confirmation that the project site is located in flood Zone X, an area determined to be outside of the 500-year flood plain.

Water demand for the proposed project is estimated to be approximately 183,390 gallons per day. As discussed in the Draft EA the water system at the project site, which includes an 8-inch waterline in Keawe Street and 8- and 12-inch waterlines in Ilalo Street, is sufficient to accommodate projected water demands.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

2800 Woodlawn Drive, Suite 200 • Honolulu, Hawaii 96822
An Equal Opportunity Employer

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

RECEIVED
LAND DIVISION

2002 FEB 11 P 3:45

GILBERT S. COLOMA-AGARAN
CHAIRPERSON

BRUCE S. ANDERSON
MEREDITH J. CHING
CLAYTON W. DELA CRUZ
BRIAN C. NISHIDA
HERBERT M. RICHARDS, JR.

LINNEL T. NISHIOKA
DEPUTY DIRECTOR

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

February 8, 2002

TO: Mr. Harry Yada, Acting Administrator
Land Division

FROM: Linnel T. Nishioka, Deputy Director
Commission on Water Resource Management (CWRM)

SUBJECT: Environmental Assessment Pre-Consultation
University of Hawaii, Health and Wellness Center, Kakaako, Oahu

FILE NO.: UHWELLNESS.COM

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative non-potable water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the protection of water recharge areas, which are important for the maintenance of streams and the replenishment of aquifers.

[ ] We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.

[X] We recommend coordination with the Land Division of the State Department of Land and Natural Resources to incorporate this project into the State Water Projects Plan.

[ ] We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.

[ ] A Well Construction Permit and/or a Pump Installation Permit from the Commission would be required before ground water is developed as a source of supply for the project.

[ ] The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the Commission would be required prior to use of this source.

[ ] Groundwater withdrawals from this project may affect streamflows, which may require an instream flow standard amendment.

[ ] We are concerned about the potential for degradation of instream uses from development on highly erodible slopes adjacent to streams within or near the project. We recommend that approvals for this project be conditioned upon a review by the corresponding county's Building Department and the developer's acceptance of any resulting requirements related to erosion control.

[ ] If the proposed project includes construction of a stream diversion, the project may require a stream diversion works permit and amend the instream flow standard for the affected stream(s).

[ ] If the proposed project alters the bed and banks of a stream channel, the project may require a stream channel alteration permit.

[X] OTHER:

We recommend that the Environmental Assessment disclose the projected potable and non-potable water demands and the proposed water source to meet the projected demands.

If there are any questions, please contact Lenore Nakama at 587-0218.

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Ms. Linnell T. Nishioka, Deputy Director
State of Hawaii
Department of Land and Natural Resources
Commission on Water Resources Management
P.O. Box 621
Honolulu, Hawaii 96809

Dear Ms. Nishioka:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Your comments of February 8, 2002 in response to our pre-assessment consultation were forwarded to us from the Department of Land and Natural Resource's (DLNR) Land Division.

Water demand for the proposed project is estimated to be approximately 183,390 gallons per day. Potable water for the project is anticipated to be provided by the City and County of Honolulu Board of Water Supply (BWS). The nearest BWS potable water source in the vicinity of the project site is the Beretania Station. As requested, this information will be provided in the Final EA.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

2800 Woodlawn Drive, Suite 200 • Honolulu, Hawaii 96822
An Equal Opportunity Employer

BENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

GILBERT S. COLOMA-AGARAN, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCES MANAGEMENT

DEPUTIES
ERIC T. HIRANO
LINNEL NISHIOKA

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

HISTORIC PRESERVATION DIVISION
KAKUHIHEWA BUILDING, ROOM 555
601 KAMOKILA BOULEVARD
KAPOLEI, HAWAII 96707

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
COMMISSION ON WATER RESOURCE MANAGEMENT
CONSERVATION AND RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND
STATE PARKS

April 8, 2002

University of Hawaii
John A. Burns School of Medicine
1960 East West Road
Honolulu, Hawaii 96822

LOG NO: 29570
DOC NO: 0204tm05
Architecture

Attention: Mr. Rex Johnson

Dear Mr. Johnson:

SUBJECT: Draft Environmental Assessment
University of Hawaii Health and Wellness Center
TMK: 2-1-60:10 and por. 9, Kakaako, Oahu, Hawaii

Thank you for transmitting the Draft Environmental Assessment of the above project. We concur that there are no known significant archaeological or historic resources at the project site and that since this area is fill land, it is unlikely that any historic sites will be discovered during construction. The plans indicate a possible future parking structure near the Kakaako Pumping Station. Should this parking structure become a reality, we would like to review those plans and its affect on the pumping station.

Thank you for the opportunity to comment. Should you have further questions, please feel free to call Tonia Moy at (808)692-8030.

Aloha,

DON HIBBARD, Administrator
State Historic Preservation Division

TM:jk

c: Genevieve Salmonson, Department of Health
✓Rodney Funakoshi, Wilson Okamoto & Associates, Inc.
Jan Yokota, Hawaii Community Development Authority

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Mr. Don Hibbard, Administrator
State of Hawaii
Department of Land and Natural Resources
Historic Preservation Division
601 Kamokila Boulevard, Room 555
Kapolei, Hawaii 96707

Dear Mr. Hibbard:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 8, 2002 confirming that there are no known significant archaeological or historic resources at the project site and that it is unlikely that any historic sites will be discovered during construction.

The parking structure proposed to be constructed near the Kakaako Pumping Station is a long-range project with no definite timeframe for construction. As requested, however, plans for the parking will forwarded to your office for review if and when this particular site is pursued for development.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
LAND DIVISION
P.O. BOX 621
HONOLULU, HAWAII 96809

AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
LAND DIVISION
STATE PARKS
WATER RESOURCE MANAGEMENT

April 18, 2002

LOG-2208/1653
LD-NAV
DEAUHWELLNESS.RCM

Wilson Okamoto & Associates, Inc.
Rodney Funakoshi, AICP, Project Manager
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96813

Dear Mr. Funakoshi:

SUBJECT: *Draft Environmental Assessment*
Applicant: University of Hawaii
Consultant: Wilson Okamoto & Associates, Inc.
Project: Health and Wellness Center John Burns School of Medicine and Cancer Research Center
Location: Kakaako Island of Oahu, Hawaii
TMK: 1st/ 2-1-60: 10 and portion of 09

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

A copy of the Draft Environmental Assessment covering the subject project was transmitted to the following Department of Land and Natural Resources' (DLNR) Divisions for their review and comment:

Division of Aquatic Resources - Division of Forestry & Wildlife - Division of State Parks – Historic Preservation Division - Commission on Water Resource Management Land Division Engineering Branch - Land Division Oahu District Land Office

Attached herewith is a copy of the DLNR Division of Aquatic Resources' comment.

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

Should you have any questions, please feel free to contact Nicholas A. Vaccaro of the Land Division Support Services Branch at 808-587-0438.

Very truly yours,

Charlene E. Unoki

for DIERDRE S. MAMIYA
Administrator

c: Oahu District Land Office

Suspense Date: April 16, 2002

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Aquatic Resources
Honolulu, Hawaii

MEMORANDUM

To: William Devick, Administrator
From: Richard Sixberry, Aquatic Biologist
Subject: Comments on Draft Environmental Assessment

Comments Requested By: Dede Mamiya, Land Division

Date of Request: 3/21/02 Date Received: 3/22/02

Summary of Project

Title: *Health and Wellness Center*

Proj. By: University of Hawaii

Location: Kakaako, Oahu

Brief Description:

The applicant plans to create a new campus to house the John Burns School of Medicine and the Cancer Research Center of Hawaii on 9.1 acres at Kakaako, Oahu. The project will be adjacent to Kakaako Waterfront Park.

Comments:

The project site is situated in the midst of the urbanized area which has been graded and disturbed and a part of the site was a former landfill. Significant impacts adverse to aquatic resource values are not expected from the activities proposed since adequate mitigation measures, including Best Management Practices, will be in place.

Precautions shall be taken during construction to prevent debris, eroded soil, petroleum products, landscaping chemicals, (herbicides, pesticides, etc.) and other potential contaminants from flowing, blowing or leaching into coastal waters.

Richard Sixberry
Aquatic Biologist

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Ms. Dierdre S. Mamiya, Administrator
Department of Land and Natural Resources
Land Division
P.O. Box 621
Honolulu, Hawaii 96809

Dear Ms. Mamiya:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 18, 2002 forwarding the comments from the Division of Aquatic Resources and stating that the Department of Land and Natural Resources has no other comments to offer on the subject project.

As requested by the Division of Aquatic Resources, precautions will be taken during construction to prevent debris, soils, petroleum products, chemicals, and other potential contaminants from entering coastal waters. A National Pollutant Discharge Elimination System (NPDES) permit for storm water associated with construction activity will be procured from the Department of Health prior to construction. The NPDES permit will specify Best Management Practices to be implemented to prevent adverse impacts to coastal water quality. In addition, a construction management plan is presently being prepared to address the presence of contamination at the project site.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

BENJAMIN J. CAYETANO
GOVERNOR
SEIJI F. NAYA, Ph.D.
DIRECTOR
SHARON S. NARIMATSU
DEPUTY DIRECTOR
DAVID W. BLANE
DIRECTOR, OFFICE OF PLANNING

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

FOREIGN-TRADE ZONE NO. 9
PIER 2, 521 ALA MOANA, HONOLULU, HAWAII 96813
Web site: www.hawaii.gov/dbedt/ftz

Telephone: (808) 586-2507
Fax: (808) 586-2512
E-mail: administration@ftz9.org

April 5, 2002

Attn: Mr. Rex Johnson
University of Hawaii
John A. Burns School of Medicine
1960 East West Road
Honolulu, Hawaii 96822

Dear Mr. Johnson:

Thank you for the opportunity to comment on the Draft Environmental Assessment for the University of Hawaii Health and Wellness Center. We offer the following comments.

Access to the Foreign-Trade Zone #9 at Pier 2 is from the Channel Street and Ala Moana Boulevard intersection. Other federal and state agencies make use of this intersection. During ship days, there are over 1,000 people disembarking from a cruise ship at Pier 2 and departing via tour buses, taxi cabs, and on foot. Is this type of activity covered or relevant to your study?

The crosswalks along Ala Moana Boulevard can be dangerous to pedestrians. The problem is that automobiles can run through red lights or take right-hand turns at a high rate of speed. As more traffic is anticipated along this boulevard, I hope measures can be taken to improve pedestrian safety.

Will the University of Hawaii Health and Wellness Center have any negative impacts on current or future maritime activities at Fort Armstrong? Are these potential impacts relevant to your study?

Sincerely,

Mark K. Anderson
Acting FTZ Administrator

MKA:jam—jamshare\draft ea uhhwc 04.05.02.doc

c: Ms. Genevieve Salmonson, Director
Office of Environmental Quality Control
Department of Health

Wilson Okamoto & Associates, Inc.
Attn: Rodney Funakoshi

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Mr. Mark K. Anderson, Acting Administrator
State of Hawaii
Department of Business Economic Development & Tourism
Foreign Trade Zone No. 9
521 Ala Moana Boulevard
Honolulu, Hawaii 96813

Dear Mr. Anderson:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 5, 2002 commenting on the subject project.

1. The Traffic Impact Analysis Report prepared for the project found that traffic in the Kakaako area is primarily affected by regional travel. While traffic from the Fort Armstrong area has localized traffic impacts, particularly on ship days, these impacts are anticipated to be similar with or without the proposed project.
2. We acknowledge your concerns regarding pedestrian safety along Ala Moana Boulevard. As part of the Hawaii Community Development Authority's Makai Area Plan, a major emphasis is on improving pedestrianways in the area makai of Ala Moana Boulevard, including waterfront and mauka-makai promenades. Within the project site and along Ilalo Street, steps are being taken to create a more pedestrian-friendly environment.
3. Construction and long-term operation of the Health and Wellness Center is not anticipated to negatively impact current or future maritime activities at Fort Armstrong.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

HAWAII COMMUNITY DEVELOPMENT AUTHORITY

KAKAAKO
Where Honolulu Greets The Sea

Benjamin J. Cayetano
Governor

Lori Ann C. Lum
Chair

Jan S. Yokota
Executive Director

677 Ala Moana Boulevard
Suite 1001
Honolulu, Hawaii
96813

Telephone
(808) 587-2870

Facsimile
(808) 587-8150

e-Mail
contact@hcdaweb.org

Web site
www.hcdaweb.org

Ref. No.: PL MAP 5.15.4

April 26, 2002

Mr. Rex Johnson
John A. Burns School of Medicine
1960 East West Road
Honolulu, Hawaii 96822

Dear Mr. Johnson:

Re: Draft Environmental Assessment ("EA")
University of Hawaii Health and Wellness Center

Thank you for the opportunity to comment on the draft EA for the subject project. We offer the following comments.

- The proposed University of Hawaii Health and Wellness Center ("Project") is in conformance with land use and development requirements specified in the Kakaako Community Development District Makai Area Plan and Rules, August 1998.

- We are aware that minor revisions were made to the site plan; therefore, the latest plan and project information should be included in the final EA.

- The Hawaii Community Development Authority supports the Project, as it will serve as a catalyst for the redevelopment of Kakaako, while providing an opportunity for significant economic investment and diversification.

Should you have any questions, please call Susan Tamura of our Planning Office at 587-8180.

Sincerely,

Jan S. Yokota
Executive Director

JSY/SJT
c. Ms. Genevieve Salmonson, Office of Environmental Quality Control
Mr. Rodney Funakoshi, Wilson Okamoto & Associates, Inc.

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Ms. Jan Yokota, Executive Director
State of Hawaii
Hawaii Community Development Authority
677 Ala Moana Boulevard, Suite 1001
Honolulu, Hawaii 96813

Dear Ms. Yokota:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 26, 2002 supporting the subject project and indicating that the project is in conformance with the land use and development requirements of the Makai Area Plan and Rules.

As requested, an updated site plan will be included in the Final EA.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

BOARD OF WATER SUPPLY

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

April 10, 2002

Mr. Rex Johnson
University of Hawaii
John A. Burns School of Medicine
1960 East West Road
Honolulu, Hawaii 96822

Dear Mr. Johnson:

Subject: The Letter of March 19, 2002 on the Draft Environmental Assessment for the University of Hawaii Health and Wellness Center Kakaako, TMK: 2-1-60: 10 and Portion 9

Thank you for the opportunity to review the subject document for the proposed Health and Wellness Center.

Our previous comments of February 5, 2002 have been addressed by the Draft Environmental Assessment (DEA) and the consultants response letter of March 7, 2002. Both letters have been appended in the DEA for information and records purposes.

If you have any questions, please contact Joseph Kaakua at 527-6123.

Very truly yours,

for CLIFFORD S. JAMILE
Manager and Chief Engineer

cc: Office of Environmental Quality Control
Wilson Okamoto & Associates, Inc.

Telephone: (808) 988-8300
Fax: (808) 988 8349

The Research Corporation of the University of Hawaii

May 14, 2002

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

Dear Mr. Jamile:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 10, 2002 stating that your previous comments of February 5, 2002 have been addressed.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

DEPARTMENT OF ENVIRONMENTAL SERVICES
CITY AND COUNTY OF HONOLULU
1000 ULUOHIA STREET, SUITE 308, KAPOLEI, HI 96707
(808) 692-5159, fax: (808) 692-5113

Jeremy Harris
Mayor

Timothy E. Steinberger, P.E.
Director

Frank J. Doyle, P.E.
Deputy Director

PRO 02-18

April 22, 2002

University of Hawaii
John A. Burns School of Medicine
1960 East West Road
Honolulu, HI 96822

Attn: Mr. Rex Johnson

Dear Mr. Johnson:

SUBJECT: University of Hawaii Health and Wellness Center
Draft Environmental Assessment (EA), March 2002

We have reviewed the subject Draft EA, and our comments are as follows:

1. The Ala Moana Wastewater Pump Station, and the large trunk sewer lines which convey wastewater to the station, are located within close proximity to the proposed project. It is important for the EA to identify any impacts the proposed project may have on these existing facilities, including construction related impacts, and operations impacts in the future. It may be helpful to include a utility site plan in the EA document.

2. The City and County of Honolulu will be constructing the Ala Moana Wastewater Pump Station Modifications Project from about November, 2002 to February, 2005. The EA should identify potential construction-phase conflicts between this Modifications Project and the proposed project.

Should you have any questions, please call me at 692-5159, or Jack Pobuk, Program Coordinator, at 527-5727.

Sincerely,

TIMOTHY E. STEINBERGER, P.E.
Director

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Mr. Timothy E. Steinberger, P.E., Director
Department of Environmental Services
City and County of Honolulu
1000 Uluohia Street, Suite 308
Kapolei, Hawaii 96707

Dear Mr. Steinberger:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 22, 2002 (PRO 02-18) commenting on the subject project.

1. We acknowledge that there is a 15-inch sewer line in the vicinity of the eastern boundary of the project site and a 78-inch force main in the vicinity of the western boundary of the project site. The location of the sewer lines will be shown in the construction plans for the Health and Wellness Center and necessary caution will be exercised to ensure that they are not disturbed during construction.

2. With regard to the city's Ala Moana Wastewater Pump Station Modifications project, we anticipate that construction related traffic impacts may be exacerbated slightly due to the concurrent construction of the pump station project and the proposed project. This will be noted in the Final EA. We will also endeavor to keep you apprised of our construction phasing and schedule.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

DEPARTMENT OF PLANNING AND PERMITTING
CITY AND COUNTY OF HONOLULU
650 SOUTH KING STREET • HONOLULU, HAWAII 96813
TELEPHONE: (808) 523-4414 • FAX: (808) 527-6743 • INTERNET: www.co.honolulu.hi.us

JEREMY HARRIS
MAYOR

RANDALL K. FUJIKI, AIA
DIRECTOR

LORETTA K.C. CHEE
DEPUTY DIRECTOR

2002/ELOG-790(RY)

April 22, 2002

Mr. Rex Johnson
University of Hawaii
John A. Burns School of Medicine
1960 East West Road
Honolulu, Hawaii 96822

Dear Mr. Johnson:

Subject: Draft Environmental Assessment for the University of Hawaii Health and Wellness Center, Kakaako, Oahu
Tax Map Key 2-1-60: 10 and Portion 9

We have reviewed the above document and offer the following comments:

1. Primary Urban Center Development Plan (PUCDP) Revision

Ongoing revisions to the PUCDP call for a multi-modal transportation system that traverses through the Makai Area of the Kakaako Community Development District. Proposed facilities that route through the Makai Area include the proposed Bus Rapid Transit (BRT) system and portions of bicycle and pedestrian networks. Development and design plans for the Health and Wellness Center should be coordinated with our ongoing revision to the Primary Urban Center Development Plan.

2. Special Management Area

We confirm that the site is located within the Special Management Area and that the State Office of Planning has jurisdiction over SMA permits.

3. Traffic Impact

The following should be considered and incorporated into the Final Environmental Assessment (FEA) and design plans as the project progresses:

a. The traffic impact analysis report (TIAR) should include an analysis of the individual turning movements at each critical approach for the mauka/makai streets and Ilalo Street. In particular, analyses are needed for movements at mauka/makai streets at Ala Moana Boulevard for Phase I and Ilalo Street for Phase II to establish lane lengths needed to support the anticipated demand for left and right turn movements toward the project area. And, an update to the TIAR should be performed prior to the development of Phase II.

b. Trip generation rates being provided in the TIAR should be validated utilizing the existing School of Medicine facilities currently residing on the UH Manoa campus, if possible.

c. In lieu of the recommendation to provide a split phase signal for Keawe Street at Ala Moana Boulevard or restricting left turning movements, the FEA should include an option to pursuing the realignment of the mauka/makai approach at the intersection, as had been previously proposed.

d. The anticipated timing for the construction of the Cooke and Keawe Street extensions makai of Ilalo Street should be specified in relation to the proposed completion of the UH facility. If a time schedule for the roadway extensions cannot be established, the approach may need to be constructed as a modified dropped driveway.

e. Construction plans for all work within existing and proposed City streets should be submitted for review and approval. Traffic control plans during construction should be submitted for review, as required.

4. Primary Corridor Transportation Project

The Supplemental Draft Environmental Impact State for the Primary Corridor Transportation Project indicates that the proposed Kakaako-Makai Branch alignment of the in-town BRT will be along Ilalo Street with a station located on Ilalo between Cooke Street and Coral Street. Preliminary engineering plans for the makai alignment of the BRT calls for a 2-lane roadway with a median and parking on both sides of the street.

Parking proposals for the proposed Health and Wellness Center indicate that there will be approximately 250 on-site parking spaces and another 605 off-site parking spaces at the Fort Armstrong container yard. Access to these parking lots will be available from the surrounding streets.

We are concerned that the large number of parking spaces may result in a large number of vehicle trips to and from the parking areas. This will contribute to longer vehicle queues at intersections and at driveway entrances. The result could be traffic congestion along this segment of the BRT, which will adversely affect BRT efficiency and ultimately reduce the BRT's overall attractiveness as an alternate means of transportation. We suggest that you consider implementing Travel Demand Management (TDM) measures to reduce reliance on the automobile as the primary mode of transportation to and from the site. This could reduce the large number of parking spaces being considered. It would also be helpful in the FEA to identify how the proposed number of parking spaces was generated.

The FEA should include a discussion of other mitigating measures for traffic congestion such as TDM programs to encourage use of alternate forms of transportation to and from the site, especially during the peak periods. We encourage the design team to work with the City Department of Transportation Services to coordinate design and development of the Health and Wellness Center with the plans for the BRT.

Thank you for the opportunity to comment. If you have any permit questions, please call Raymond Young at 527-5839.

Sincerely yours,

RANDALL K. FUJIKI, AIA
Director of Planning and Permitting

RKF:lh
Doc 150428

cc: Rodney Funakoshi, Wilson Okamoto & Associates
Dept. of Transportation Services
OEQC

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Mr. Randall K. Fujiki, AIA, Director
City and County of Honolulu
Department of Planning and Permitting
650 South King Street, 7th Floor
Honolulu, Hawaii 96813

Dear Mr. Fujiki:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 22, 2002 commenting on the subject project. We offer the following responses in the respective order of your comments.

1. We are aware of the City's plans to promote a multi-modal transportation system in the vicinity of the project site, including the designation of transit stations for the proposed Bus Rapid Transit system in the vicinity of Cooke Street and Ahui Street. We will continue to coordinate design plans for the project with the City to ensure that the project is consistent with the City's revisions to the Primary Urban Center Development Plan and transportation plans for the area.

2. We appreciate your confirmation that the project site is within the Special Management Area and that the State Office of Planning has jurisdiction over SMA permits in the Kakaako district.

3a. An expanded table showing the analysis of individual turning movements at the study intersections will be provided in the final traffic report for the EA.

As requested, an update to the TIAR will be prepared prior to the development of Phase II, which would include a definitive location for the off-site parking structure. The traffic report's recommendations will be revised accordingly.

3b. Obtaining trip generation data from the existing School of Medicine would be difficult. Peak hour traffic count information would not be possible to compile due to the mixture of Medical School and research-related functions with the remainder of the University's functions.

3c. The realignment of Keawe Street is a planned project for the Kakaako Makai Area, but is not being undertaken at this time as part of the UH project. The poor intersection operations are an existing problem for which the proposal to restrict the left-turn movement for Phase I would improve operations over existing conditions. Realignment of the street may be more appropriate to consider as a recommendation for the Makai Area buildout conditions. It should be noted the construction of the realignment is contingent on the availability and timing of legislative appropriations.

3d. Both the Cooke and Keawe Street extensions would be constructed as driveways to provide access to the UH Health and Wellness Facility. The Cooke Street extension is intended to be built to City and County of Honolulu roadway standards as part of the Kakaako Park redevelopment plan. The timing of the construction of these extensions will depend on the availability of funding and makai area buildout conditions.

3e. As requested, traffic control plans and construction plans for all work within existing and proposed City streets will be submitted for review and approval.

4. The parking requirement for the project was calculated by applying the requirements specified in the Hawaii Community Development Authority's (HCDA's) Makai Area Rules, January 2000. The Makai Area Rules specify that, for commercial uses (e.g. the research lab), one stall is to be provided per 400 square feet (s.f.) of gross floor area and, for educational institutions, one stall is to be provided for each ten students of design capacity, plus one stall per four hundred square feet of gross office floor area.

   While we recognize the importance of implementing Travel Demand Management (TDM) measures to reduce automobile traffic, adequate parking must be provided to ensure that parking at public use areas, such as the Kakaako Waterfront Park, are not negatively impacted by the project. To the extent possible, the project is being designed to facilitate public transit use by creating a pedestrian friendly environment throughout the new campus and along Ilalo Street. The University of Hawaii may implement further TDM measures when the facility becomes operational.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

DEPARTMENT OF TRANSPORTATION SERVICES
CITY AND COUNTY
650 SOUTH KING STREET 3RD
TELEPHONE (808) 523 4529 - FAX (80

JEREMY HARRIS
MAYOR

GEORGE "KEOKI" MIYAMOTO
DEPUTY DIRECTOR

TP3/02-01123R

April 26, 2002

Mr. Rex Johnson
University of Hawaii
John A. Burns School of Medicine
1960 East West Road
Honolulu, Hawaii 96822

Dear Mr. Johnson:

Subject: University of Hawaii Health and Wellness Center

In response to the March 19, 2002 letter from Wilson Okamoto & Associates, Inc., we have reviewed the draft environmental assessment (EA) for the subject project. The following are comments are for the Traffic Impact Analysis Report (TIAR):

1. The TIAR states that Phase I of the project will include temporary off-site parking for 605 vehicles. The disposition of this site and/or commitments related to the "temporary" off-site parking area should be clarified.

2. Figure 2 shows what appears to be a "drop-off area" on the makai side of Ilalo Street near the Coral Street intersection. All loading/unloading activities, including required turning movements, should be accommodated completely on-site.

3. Configuration of the future Keawe Street and Cooke Street extensions abutting the project site should be considered in the layout of the subject project to assure that they are coordinated.

4. The Phase I analyses seem to assume that Ilalo Street is to be extended to Forrest Avenue, with improvements to the Forrest Avenue/Ala Moana Boulevard/South Street intersection. A clarification of these improved conditions should be included in the TIAR and draft EA. Also, the Forrest Avenue/Ilalo Street intersection should be included in the traffic analysis.

5. On Page 3-22 of the draft EA and Page 35 of the TIAR, the statement is made that "all new Makai area projects" would be responsible for improvements to address issues related to traffic increases, including installation of traffic signals, measures

to facilitate turning movements, and intersection geometry changes. A further discussion on how this will be coordinated and implemented should be included, because this is not consistent with past Hawaii Community Development Authority practices.

6. The TIAR and draft EA should discuss the deterioration of the level of service (LOS), especially along Ilalo Street. Although there is some reference that traffic related congestion is "associated with regional travel and thus can only be fully addressed by regional solutions", this would not address the deterioration of LOS along Ilalo Street.

7. The first phase of the In-Town BRT system will directly serve the Kakaako Makai area. We project that this first phase will be operational by 2004 to 2005. Close coordination of the two projects is essential and should continue through development of Phase II of the medical facilities.

8. On Page 37 of the TIAR, the statement is made that Phase II impacts should be reassessed as plans become solidified for both the Kakaako Makai area and the subject project. The responsibility for doing the reassessment and when it will be done should be clarified.

9. At full build-out, users of the health and wellness center are projected to generate 725 vehicles per hour (vph) during the AM peak hour and 765 vph during the PM peak hour. Consequently, based on intersection analyses results shown in Table 5, "Year 2005 Intersection Level of Service (LOS) Summary – Phase I", the medical facilities are projected to create congested conditions for mauka-bound traffic at several Ala Moana Boulevard intersections. We encourage the establishment of programs for advanced payment of transit passes and other means of encouraging transit use, similar to what is being done at UH-Manoa.

10. To minimize the projected congested conditions on Ilalo Street, the following are recommended:

    a. As recommended in the TIAR for the subject project, signalize the Ilalo Street intersections when warranted to coordinate with traffic signals on Ala

Moana Boulevard. In conjunction with this signalization, the signals should have the ability to provide transit signal priority on Ilalo Street.

b. Locate off-street parking makai of Ilalo Street instead of mauka of Ilalo Street. This will reduce interference with roadway access segments located between Ilalo Street and Ala Moana Boulevard. Also, access to these parking areas should be directed through the main driveway of the subject project, avoiding mid-block accesses that could disrupt traffic flow on Ilalo Street.

c. Review the operation of the Ala Moana Boulevard/Forrest Avenue intersection. Based on the latest Kakaako Makai roadway plan modifications, this intersection is now a major access, replacing the previously proposed Ala Moana Boulevard/Punchbowl Street intersection. Providing exclusive turn lanes for movements and avoiding split phasing at this intersection may aid access to the Kakaako Makai area from South Street/Forrest Avenue and maintain better traffic flow on Ala Moana Boulevard.

d. The TIAR for the subject project recommends measures to reduce autos generated by the project during peak traffic hours. To encourage BRT usage, it is suggested that the subject project integrate the currently planned BRT stop into the project site.

We look forward to working together on the subject project. Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Planning Division at 527-6976.

Sincerely,

CHERYL D. SOON
Director

cc: Ms. Genevieve Salmonson, Office of Environmental Quality Control

Mr. Rodney Funakoshi, Wilson Okamoto & Associates

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Ms. Cheryl Soon, Director
City and County of Honolulu
Department of Transportation Services
650 South King Street
Honolulu, Hawaii 96813

Dear Ms. Soon:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 26, 2002 (TP3/02-01123R), commenting on the subject project. We offer the following responses in the respective order of your comments.

1. The proposed site for temporary off-site parking is owned by the State of Hawaii through the Hawaii Community Development Authority. A five-year lease between HCDA and the University of Hawaii is being negotiated.

2. The drop-off area shown in Figure 2 of the Draft EA is no longer proposed.

3. Both the Cooke and Keawe Street extensions will be constructed as driveways to provide access to the Health and Wellness Center. In the future, the Cooke Street extension is intended to be built to City and County of Honolulu roadway standards as part of the Kakaako Park redevelopment plan, the timing of which is currently unknown. The roadway extensions are being coordinated with the Hawaii Community Development Authority.

4. A clarification of the Ilalo Street and Forrest Avenue projects will be included in the Traffic Impact Analysis Report (TIAR) and Final EA. The Forrest Avenue/Ilalo Street intersection analysis will also be added to the TIAR. The current Ilalo Street project will improve the infrastructure of Ilalo Street from Ahui Street to Forrest Avenue. Ilalo Street is planned to be a landscaped boulevard that would serve as the principal collector street for the Makai Area and would also provide an attractive and comfortable pedestrian environment. Construction is slated for completion in December 2002.

5. We assume that the HCDA will continue its oversight role in coordinating roadway improvements with the City as Makai Area developments are pursued.

6. A discussion of the planned projects in the Kakaako Makai Area and the associated traffic related to the projects will be added to the text.

   The buildout conditions of the Makai Area include the following assumed land uses:

   - An entertainment center in the area along Kewalo Basin
   - Ocean Research Center
   - Science Tech Center
   - Children's Discovery Center
   - The University of Hawaii Medical School
   - Research oriented office facilities
   - Office development by Bishop Estate

   The combination of these Makai Area projects would increase delays along Ilalo Street. Most intersections along Ilalo Street, however, would continue to operate acceptably at LOS D or better. Installation of traffic signals, when warranted, is recommended to address the intersections that do not operate within acceptable levels.

7. As requested, we will continue to coordinate plans for the Health and Wellness Center with the City's Bus Rapid Transit (BRT) project.

8. The Final EA will clarify that the University of Hawaii will prepare a TIAR update prior to the implementation of Phase II.

9. The University of Hawaii is very interested in applying Travel Demand Management (TDM) measures that could reduce automobile traffic. We appreciate your suggestion with regard to establishing programs for advanced payment of transit passes and will consider this option, as well as other TDM measures, when the facility becomes operational.

10a. Your support for the signalization of intersections in the Makai Area as traffic volume increases, as recommended in the project's traffic impact analysis report, is acknowledged. As recommended, the signals will be coordinated with traffic signals on Ala Moana Boulevard and will have the ability to provide transit signal priority on Ilalo Street.

10b. For Phase I of the project, all off-street parking will be located makai of Ilalo Street with access provided by driveways opposite of Keawe and Cooke Streets. Although the site for the Phase II off-site parking structure has not yet been finalized, the site selection will consider impacts to traffic operations and a Traffic Impact Assessment Report will be prepared.

10c. The Ala Moana Boulevard/Punchbowl Street intersection is still planned to be one of the primary intersections for the Makai area. The timing of the improvement, however, has yet to be determined.

Based on our review of existing conditions and operations at the Ala Moana Boulevard/Forrest Avenue intersection, the geometry of the area may limit the improvements at this location.

10d. To the extent currently possible, measures are being taken to encourage BRT usage by creating a pedestrian-friendly environment throughout the new campus and along Ilalo Street. As stated earlier, we will continue to coordinate plans for the Health and Wellness Center with the City's BRT project.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

Kakaako
IMPROVEMENT ASSOCIATION
P.O. Box 3776 Honolulu, Hawai'i 96812

April 12, 2002

Mr. Rex Johnson
John A. Burns School of Medicine
University of Hawaii
1960 East West Road
Honolulu, Hawaii 96822

Re: Draft EA, Health & Welfare Center

Dear Mr. Johnson:

The Kakaako Improvement Association (KIA) submits the following comments on the above-referenced Draft EA:

Due to the extensive data supplied in the EA regarding the critical area of traffic impacts, we concur that an EIS is not necessary. However the following areas in the traffic evaluation need further discussion and disclosure.

1. The off-site parking element of the project requires additional disclosure regarding its final location, i.e., how will that be determined and when? Who will own the land it is located on? Under what circumstances will the location be available to the project if not owned by the University? Is the off-site area an expansion of the project site that should be included in its acreage?

2. The Traffic Analysis Report (Appendix) includes the recommendation that a widening of Queen St. would be a long term improvement to the traffic situation yet it does not appear in the main body of the EA. The "widening" is not specified (where, how much) but a reference is made to "providing an alternate route" to Ala Moana Boulevard. Providing an "alternate route" is not the same as widening Queen St. We agree that the provision of an alternate route to Ala Moana Boulevard would be a positive improvement to mitigate future traffic conditions in Kakaako. This can be accomplished by connecting Queen St. to the stub of Queen St. that comes off Ala Moana Boulevard at present then dissipates into Auahi St. If the connection to the mauka part of Queen St. was made, an alternate route would be provided and our analysis of traffic projections indicates that it could operate adequately without widening Queen St. beyond the already planned 4 lanes. This recommendation should be clarified and retained in the main body of the EA.

In addition, we are taking this opportunity to hope that the name of the project might be changed to better reflect recognizable entities, such as The University of Hawaii Medical School Complex. Why not advertise the fact that this project is anchored by the UH Med School (funded by public money) and enhance its image accordingly, It would be more explanatory and meaningful particularly for out of state people if it was identified as the UH Medical School. A Health and Welfare Center is really a misnomer since only indirect health and wellness applications will be going on there.

Thank you for your consideration of these comments.

Don Bremner, Government Affairs Chair
Kakaako Improvement Association

Cc: Office of Environmental Quality Control
Deaprtment of Health
235 South Beretania St. # 702
Honolulu, Hawaii 96813
FAX 586-4186

Mr. Rodney Funakoshi
Wilson Okamoto & Associates, inc.
1907 South Beretania St. # 400
Honolulu, Hawaii 96826
FAX 946-2253

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Mr. Don Bremner, Government Affairs Chair
Kakaako Improvement Association
P.O. Box 3776
Honolulu, Hawaii 96812

Dear Mr. Bremner:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of April 12, 2002 commenting on the subject project. We offer the following responses in the respective order of your comments.

1. Interim off-site parking for Phase I of the project will be provided at Fort Armstrong on the current site of the Foreign-Grade Zone makai warehouse. The area proposed for parking is owned by the State of Hawaii, Hawaii Community Development Authority (HCDA) and will be leased to the University of Hawaii. The off-site parking area was not included in the project's acreage because it is considered to be a temporary parking area that will only be used until permanent parking facilities are constructed.

   During Phase II of the project, a 510-stall parking structure will be constructed on the western portion of the project site and a second parking structure will be constructed off-site. As stated in the Traffic Impact Analysis Report (TIAR), three potential sites for the off-site parking facility have been identified. The location of the off-site parking structure will be determined after detailed plans for Phase II are developed and construction funds have been raised.

2. We wish to clarify that the Queen Street widening project mentioned in the conclusion of the TIAR is a separate project being undertaken by the HCDA. The project involves the extension of Queen Street from Kamakee Street to Waimanu Street. We will forward your recommendation regarding the connection of Queen Street to Auahi Street to the appropriate parties at HCDA.

3. Your comments regarding the name of the project are appreciated, and we will transmit your comments to the University of Hawaii administration.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

verizon

Verizon Hawaii Inc.
P.O. Box 2200
Honolulu, HI 96841

March 27, 2002

University of Hawaii
John A. Burns School of Medicine
1960 East West Road
Honolulu, Hawaii 96822

Attention: Mr. Rex Johnson

Subject: DRAFT ENVIRONMENTAL ASSESSMENT
UNIVERSITY OF HAWAII HEALTH AND WELLNESS CENTER
KAKAAKO, OAHU, HAWAII
TAX MAP KEYS: (1) 2-1-60: 10 AND POR.9

Dear Sir:

Thank you for providing Verizon Hawaii Incorporated, the opportunity to comment on the Draft Environmental Assessment for the proposed University of Hawaii Health and Wellness Center in Kakaako, Hawaii.

We have no comments or changes to the DEA at this time.

If there are any questions, please call Glenn Morita at 840-5809.

Sincerely Yours,

Lynette Yoshida
Section Manager –
Network Engineering and Planning

c: File
G. Morita
Ms. Genevieve Salmonson
Wilson Okamoto & Associates, Inc.

Telephone: (808) 988-8300
Fax: (808) 988-8349

The Research Corporation of the University of Hawaii

May 14, 2002

Ms. Lynette Yoshida, Section Manager
Verizon Hawaii, Inc.
P.O. Box 2200
Honolulu, Hawaii 96841

Dear Ms. Yoshida:

Subject: Draft Environmental Assessment (EA)
University of Hawaii Health and Wellness Center
Kakaako, Oahu, Hawaii
Tax Map Keys: 2-1-60: 10 and por. 9

Thank you for your letter of March 27, 2002 stating that you have no comments on the subject project at this time.

We appreciate your interest and participation in the Environmental Review process.

Sincerely,

Rex Johnson
Director of Physical Facilities

cc: Rodney Funakoshi, Wilson Okamoto & Associates

2800 Woodlawn Drive, Suite 200 • Honolulu, Hawaii 96822
An Equal Opportunity Employer

APPENDIX A

Traffic Impact Assessment Report

TRAFFIC IMPACT ANALYSIS REPORT

FOR THE

University of Hawaii Health and Wellness Center

Kakaako, Oahu, Hawaii

Tax Map Keys: 2-1-60:10 and Portion 9

Prepared by:

Wilson Okamoto & Associates, Inc.
1907 South Beretania Street, Suite 400
Honolulu, Hawaii 96826
WOA: 6573-01

May 2002

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LIST OF FIGURES TABLES AND APPENDICES

I. INTRODUCTION

The University of Hawaii (UH) is proposing to develop a new campus in the Makai area of the Kakaako Community Development District. The campus, known as the University of Hawaii Health and Wellness Center, will incorporate the John A. Burns School of Medicine (JABSOM) Biomedical Research Center and the Cancer Research Center. The components of the new campus are presently located at the University of Hawaii, Manoa Campus. Figure 1 shows the location of the proposed UH Health and Wellness Center.

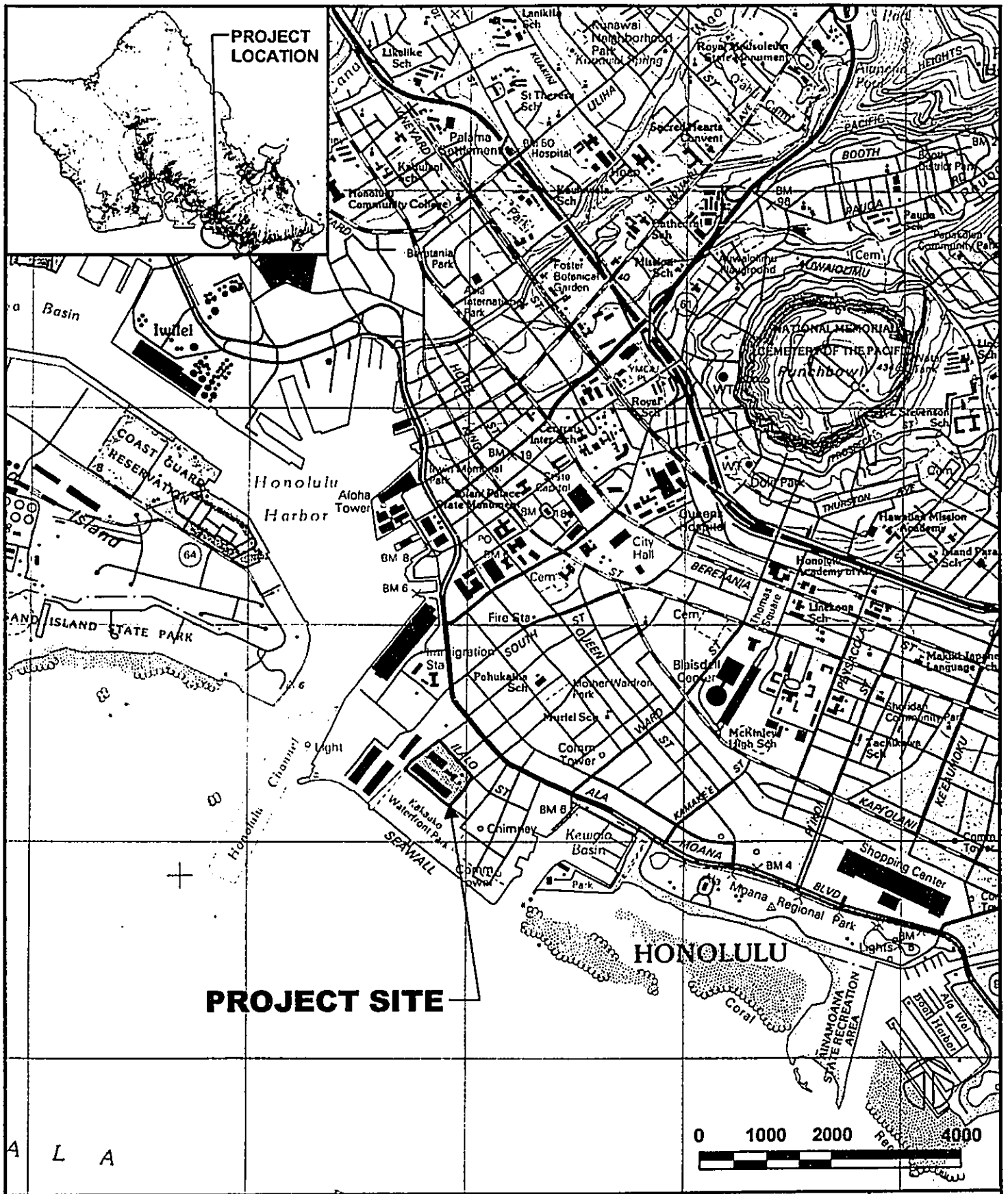
Development of the Health and Wellness Center is proposed to be completed in two phases. Phase I would relocate the JABSOM graduate school, biomedical research facilities and administrative support spaces. Phase II would comprise a facility for the Cancer Research Center. Phase I is estimated to be completed in 2005. The completion of Phase II is undetermined, and would occur as funding becomes available.

The purpose of this study is to identify and assess the traffic impacts resulting from the proposed UH Health and Wellness Center.

This report presents the findings and conclusions of the traffic impact study including:

1. Description of the proposed development.
2. Evaluation of existing roadway and traffic operations in the vicinity.
3. Analysis of future traffic operations without the proposed project.
4. Trip generation and distribution characteristics of the proposed project.
5. Analysis of future traffic operations with the proposed project.
6. The identification of traffic impacts resulting from the proposed project.
7. Recommendations of improvements, if appropriate, that would mitigate the traffic impacts resulting from the proposed project.

LOCATION MAP.PPT M:\WOA\6573-01



TRAFFIC ANALYSIS REPORT FOR THE UNIVERSITY OF HAWAII HEALTH AND WELLNESS CENTER

LOCATION MAP

FIGURE 1

WILSON OKAMOTO & ASSOCIATES, INC.
ENGINEERS - PLANNERS

II. PROJECT DESCRIPTION

The site for the UH Health and Wellness Center is in the Makai Area of the Kakaako Community Development District, under the jurisdiction of the State's Hawaii Community Development Authority (HCDA). The approximately 9.1 acre project site encompasses two parcels identified as Tax Map Keys 2-1-60:10 and Portion 9. The project site is bound by the Kakaako Waterfront Park to the south, Ilalo Street to the north, Fort Armstrong to the west, and Cooke Street and the Kakaako Makai Gateway Park to the east.

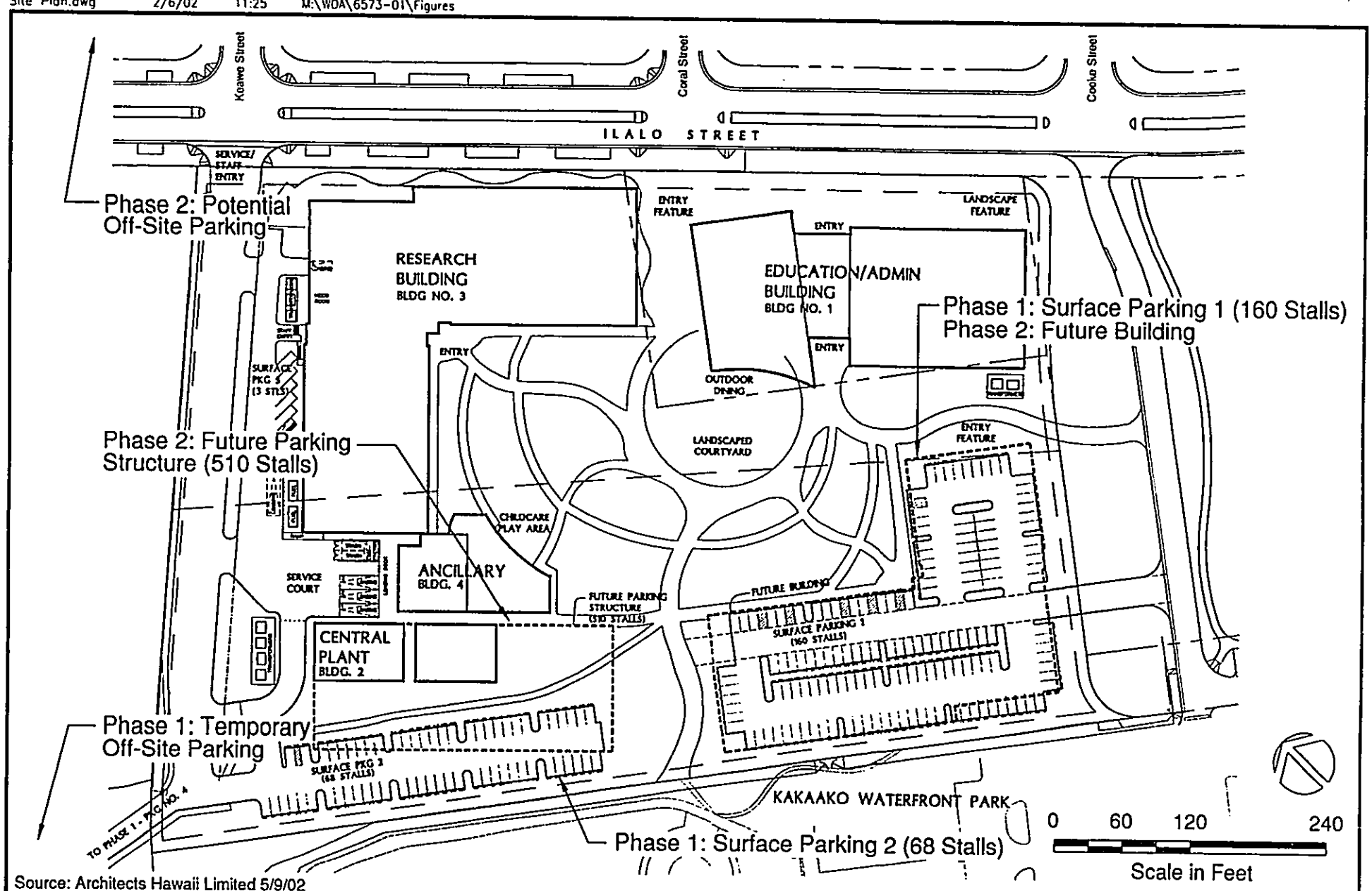
Phase I, which would consist of the School of Medicine and the Biomedical Research Center would also include approximately 228 parking stalls on-site, and a minimum of 471 parking stalls off-site. The on-site parking includes 68 surface parking stalls on the west side of the site. Access would occur off of a private driveway aligned opposite of Keawe Street. A temporary surface parking lot located on the proposed Cancer Research Center site would consist of approximately 160 stalls. Access for the temporary lot would occur off of a private driveway opposite Cooke Street. The off-site parking would be temporarily located adjacent to the Fort Armstrong parcel. Access to the parking would also occur from the private driveway aligned with Keawe Street.

Phase II, which would complete the campus with the Cancer Research Center, would include construction of a 510 stall parking structure on the west side of the site. The remainder of the parking requirements, approximately 680 stalls would be accommodated off-site at a location yet to be determined. Three potential parcels have been identified for the off-site parking facility:

- Mauka of Ilalo Street, between Forrest Avenue and Keawe Street
- Mauka of Ilalo Street, between Keawe Street and Coral Street
- Mauka of Ilalo Street, between Coral Street and Cooke Street

For the purpose of this analysis, it was assumed that the Phase II parking facility would be located on the Fort Armstrong site, mauka of Ilalo Street between Forrest Avenue and Keawe Street. Access to the parking facility would occur from both Forrest Avenue and Keawe Street. Figure 2 depicts the proposed development.

Site Plan.dwg 2/6/02 11:25 M:\WOA\6573-01\Figures



Source: Architects Hawaii Limited 5/9/02

WILSON OKAMOTO & ASSOCIATES, INC.
ENGINEERS • PLANNERS

TRAFFIC ANALYSIS REPORT FOR THE
UNIVERSITY OF HAWAII HEALTH AND WELLNESS CENTER

SITE PLAN

FIGURE 2

III. EXISTING CONDITIONS

A. General

Currently, the Kakaako Makai area consists of a mix of maritime operations, light industrial, commercial and public facilities land uses. The UH Health and Wellness project site is occupied by two tenants. A one-story concrete building used by the State Department of Agriculture is located on the Diamond Head side of the parcel. A metal warehouse facility leased by Produce Center Development, Ltd., a food distribution center, is located on the ewa side. The Department of Agriculture will be relocated to a 3.92-acre site at the former Kapalama Military Reservation. The Produce Center Development Ltd. is in the process of acquiring a fee simple site to relocate its operations.

B. Area Roadway System

Three major roadways, Ala Moana Boulevard, Ward Avenue and South Street provide regional access to the project site. Ilalo Street provides local circulation within the Kakaako Makai area.

Ala Moana Boulevard provides the primary regional access to the study area. It is a six-lane principal arterial connecting Waikiki to Downtown Honolulu where it becomes Nimitz Highway and continues to Pearl Harbor and the Interstate H-1 Freeway. Within the project area, the following intersections along Ala Moana Boulevard are signalized and provide left-turn storage and signal phases: Ward Avenue, Koula Street, Cooke Street, Coral Street, Keawe Street and Punchbowl Street. Forrest Avenue/South Street is also signalized, however, the ewabound to makaibound left-turn movements are not permitted.

Ward Avenue is a four-lane mauka – makai minor arterial. It provides direct access to Ilalo Street, commercial and retail land uses and the Interstate H-1 Freeway. Major intersections along Ward Avenue are signalized.

South Street, makai of Pohukaina Street is a two-way minor arterial with two lanes in each direction. Mauka of Pohukaina Street, it is a one-way, mauka-bound

roadway. It provides access to the Interstate Freeway H-1 Freeway via Beretania Street and Punchbowl Street. Major intersections along South Street are signalized.

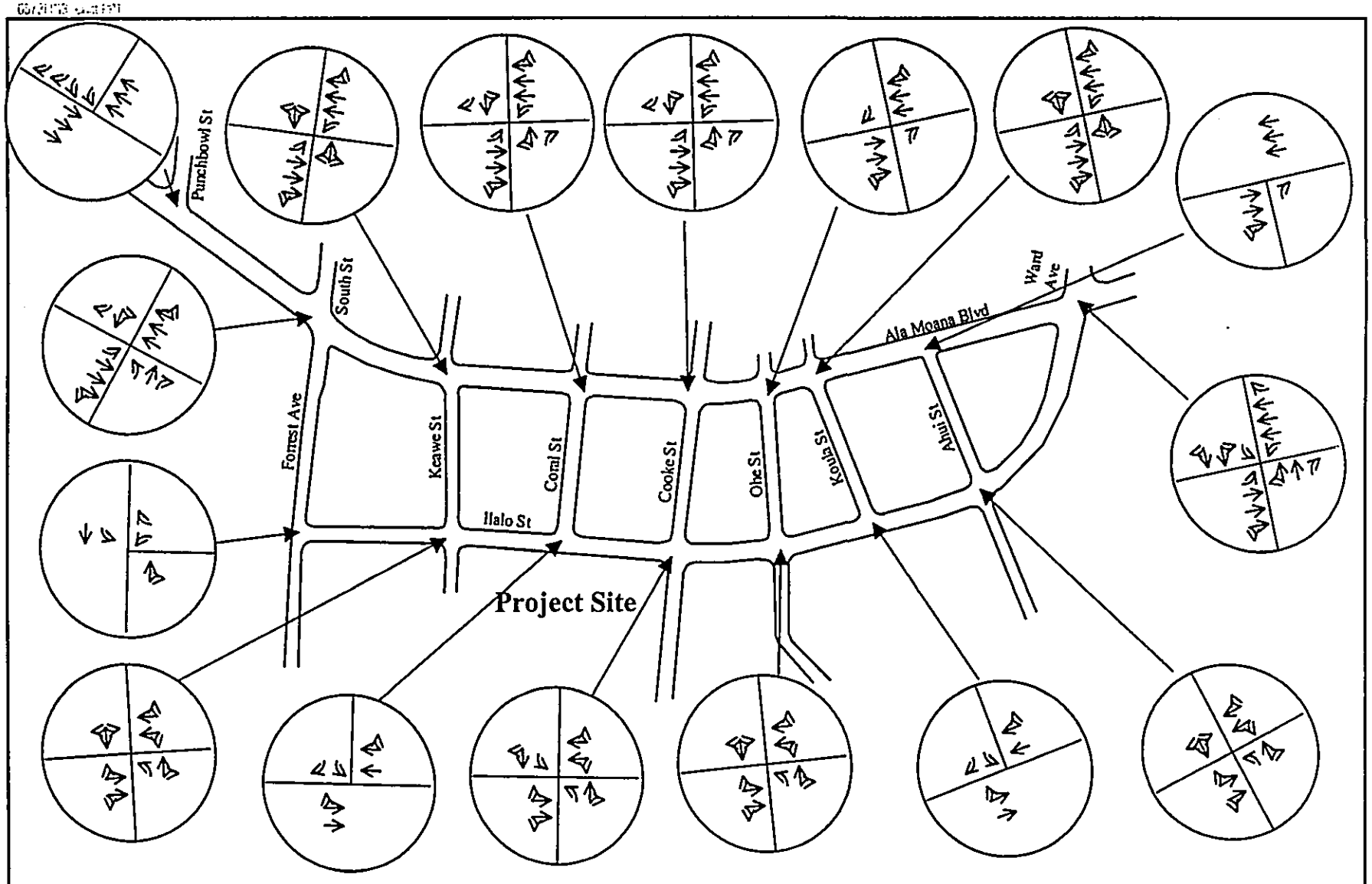
The current Ilalo Street project will improve the infrastructure of Ilalo Street from Ahui Street to Forrest Avenue. Ilalo Street is planned to be a beautifully landscaped four-lane boulevard that would serve as the principal collector for the Makai Area and would also provide an attractive and comfortable pedestrian environment. Construction is slated for completion in December 2002. All intersections along Ilalo Street are planned to be all-way stop controlled.

The mauka-makai roadways connecting Ilalo Street and Ala Moana Boulevard provide local access for the project area. These roadways include Forrest Avenue, Keawe Street, Coral Street, Cooke Street, Ohe Lane, Koula Street and Ahui Street.

The study intersections for this project include:

- Ward Avenue/Ilalo Street/Ala Moana Boulevard
- Ahui Street/Ala Moana Boulevard
- Koula Street/Ala Moana Boulevard
- Ohe Street/Ala Moana Boulevard
- Cooke Street/Ala Moana Boulevard
- Coral Street/Ala Moana Boulevard
- Keawe Street/Ala Moana Boulevard
- South Street/Forrest Avenue/Ala Moana Boulevard
- Punchbowl Street/Ala Moana Boulevard
- Ahui Street/Ilalo Street
- Koula Street/Ilalo Street
- Ohe Street/Ilalo Street
- Cooke Street/Ilalo Street
- Coral Street/Ilalo Street
- Keawe Street/Ilalo Street
- Forrest Avenue/Ilalo Street

Lane configurations at the study intersections are shown in Figure 3.



WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	TRAFFIC ANALYSIS REPORT FOR THE UH HEALTH AND WELLNESS CENTER	FIGURE 3
	Study Area Intersections	

C. Traffic Volumes

The existing traffic data contained in the *Traffic Analysis for the Kakaako Makai Area Plan*, March 1998 prepared by Kaku and Associates, Inc. was used as a basis for deriving existing 2001 traffic volume data along Ala Moana Boulevard.

The State of Hawaii Department of Transportation's (SDOT) historical traffic volume data depicts minimal traffic volume changes in the project area between 1997 and 2000. The data reflect that the intersections along the corridor have been operating near capacity. As a result, a 0.5 percent per year rate was derived from the SDOT's data as an average growth factor for the area. This growth rate accounts for traffic increases due to regional and local developments and is consistent with recent traffic volume trends.

The growth factor was applied to Kaku and Associates' 1997 traffic count data to estimate existing year 2001 volumes. Figure 4 depicts the morning and afternoon peak hour turning movement volumes for existing conditions at the study intersections.

Within the project area, peak traffic generally occurs in the morning between 7:00 – 8:00 AM, and in the afternoon, between 4:00 – 5:00 PM.

Traffic volume data along Ilalo Street was not collected due to the ongoing construction of the roadway.

D. Capacity Analysis

The capacity analysis performed in this study was based upon procedures presented in the Highway Capacity Manual 2000, Transportation Research Board and the Highway Capacity Software, developed by the Federal Highway Administration. The analysis was based on the concept of Level of Service (LOS).

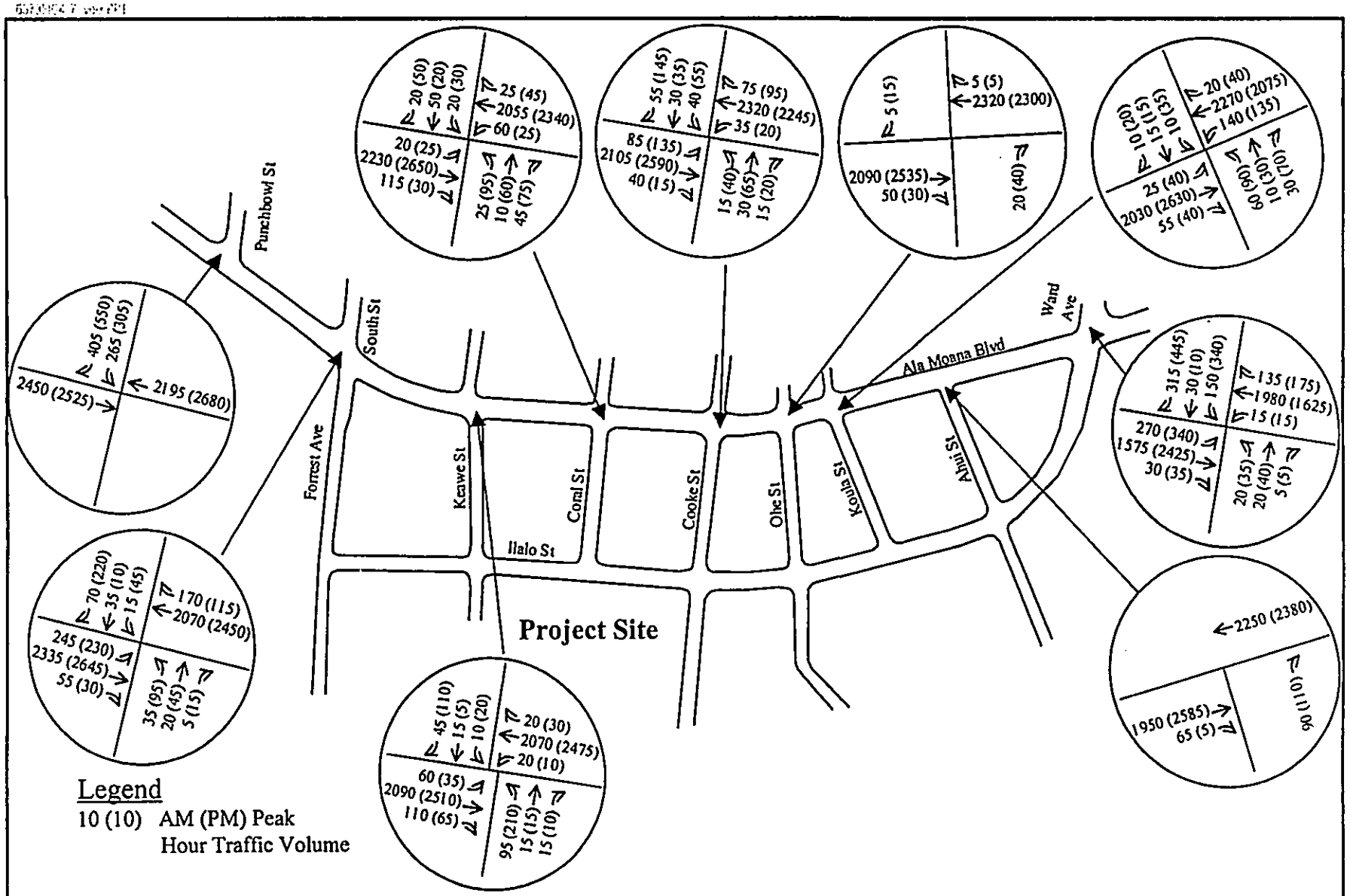
LOS is a quantitative and qualitative assessment of traffic operations. Levels of Service are defined by grades A through F. Each grade level is quantified by a range of delay experienced by the driver. LOS A represents ideal or free-flow operating conditions where drivers experience minimal delays and LOS F represents

unacceptable operating conditions where major delays are experienced. Generally, LOS E and F are considered to be undesirable operating conditions. A detailed definition of LOS is included in Appendix A.

LOS analyses were performed on the study intersections for the weekday morning and afternoon peak traffic hours. Generally, during the morning peak hour, traffic operates at better LOS and drivers experience shorter delays than during the afternoon peak hour. Overall intersection LOS for both peaks remain at LOS D or better with the exception of Ward Avenue/Ala Moana Boulevard, which operates at LOS E during the afternoon peak. However, individual movements operate with longer delays and fall within the LOS E and F ranges. The mauka-makai streets and left-turn movements from Ala Moana Boulevard are characterized by these poorer levels of service at most of the study intersections. Table 1 summarizes the peak hour levels of service and vehicle delay (seconds/vehicle), and Appendix B contains an expanded version of the Level-of-Service table.

The Highway Capacity procedures analyze intersections as isolated systems. Therefore, if queuing occurs from downstream intersections, the full vehicle delays experienced are not accounted for. Within the study area, traffic congestion and queuing from downstream intersections occur intermittently, especially during the afternoon peak period. Thus, actual intersection delays may be higher than those calculated by the Highway Capacity analyses.

Existing operational analyses were not performed for the intersections along Ilalo Street due to the current construction activities. In general, the current traffic volume demand within the Kakaako Makai area is relatively low, thus the intersections when fully constructed should operate with minimal delays.



WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	TRAFFIC ANALYSIS REPORT FOR THE UH HEALTH AND WELLNESS CENTER	FIGURE 4
	EXISTING PEAK HOUR TRAFFIC VOLUMES	

Table 1

Existing Intersection Level of Service Summary

Intersection/Movement	AM Peak LOS (Delay – sec/veh)	PM Peak LOS (Delay – sec/veh)
Ward Avenue/Ala Moana Boulevard	***D (37.5)***	***E (64.2)***
Diamond Head Bound (Ala Moana Blvd.)	C (22.9)	E (58.0)
Ewa Bound (Ala Moana Blvd.)	D (43.6)	D (43.1)
Mauka Bound (Ilalo Street)	D (53.8)	E (57.2)
Makai Bound (Ward Avenue)	E (64.7)	F (>80)
Ahui Street/Ala Moana Boulevard*		
Mauka Bound Right (Ahui Street)	C (17.8)	D (26.5)
Koula Street/Ala Moana Boulevard	***B (17.0)***	***C (26.9)***
Diamond Head Bound (Ala Moana Blvd.)	B (17.4)	C (31.2)
Ewa Bound (Ala Moana Blvd.)	B (14.7)	B (17.3)
Mauka Bound (Koula Street)	D (52.7)	E (71.5)
Makai Bound (Koula Street)	D (48.7)	D (53.4)
Ohe Street/Ala Moana Boulevard*		
Mauka Bound Right (Ohe Street)	C (15.9)	C (19.6)
Makai Bound Right (Ohe Street)	C (16.2)	C (16.6)
Cooke Street/Ala Moana Boulevard	***B (17.7)***	***C (25.0)***
Diamond Head Bound (Ala Moana Blvd.)	B (14.3)	C (23.8)
Ewa Bound (Ala Moana Blvd.)	B (18.8)	C (23.0)
Mauka Bound (Cooke Street)	D (45.7)	D (52.8)
Makai Bound (Cooke Street)	D (42.9)	D (44.5)
Coral Street/Ala Moana Boulevard	***B (15.7)***	***C (27.2)***
Diamond Head Bound (Ala Moana Blvd.)	B (16.5)	C (28.3)
Ewa Bound (Ala Moana Blvd.)	B (12.3)	C (22.7)
Mauka Bound (Coral Street)	D (42.6)	D (52.9)
Makai Bound (Coral Street)	D (50.4)	D (44.5)

Table 1 (cont.)

Existing Intersection Level of Service Summary

Intersection/Movement	AM Peak LOS (Delay – sec/veh)	PM Peak LOS (Delay – sec/veh)
Keawe Street/Ala Moana Boulevard	***C (22.6)***	***D (53.3)***
Diamond Head Bound (Ala Moana Blvd.)	B (19.7)	D (54.4)
Ewa Bound (Ala Moana Blvd.)	C (21.8)	D (46.6)
Mauka Bound (Keawe Street)	E (60.9)	F (>80)
Makai Bound (Keawe Street)	E (68.8)	F (>80)
South St/Forrest Ave/Ala Moana Blvd	***C (29.5)***	***D (35.1)***
Diamond Head Bound (Ala Moana Blvd.)	C (28.4)	C (27.2)
Ewa Bound (Ala Moana Blvd.)	C (30.1)	D (43.2)
Mauka Bound (Forrest Avenue)	D (45.2)	D (47.5)
Makai Bound (South Street)	D (35.7)	D (35.0)
Punchbowl St/Ala Moana Blvd	***C (21.4)***	***C (25.4)***
Diamond Head Bound (Ala Moana Blvd.)	B (18.8)	B (19.7)
Ewa Bound (Ala Moana Blvd.)	B (16.4)	C (22.0)
Makai Bound (Punchbowl Street)	D (47.2)	D (53.2)

*unsignalized intersection

E. Queuing Analysis

The queuing analysis performed in this study was based upon procedures presented in the Highway Capacity Manual 2000, Transportation Research Board and the Highway Capacity Software, developed by the Federal Highway Administration. The analysis estimates the average back of queue, which is the number of vehicles that are queued depending on arrival patterns of vehicles and the traffic control of the intersection.

Queuing analyses were performed for the Ala Moana Boulevard ewabound to makaibound left-turns during the weekday morning and afternoon peak traffic hours. All of the analyzed intersections have adequate storage to hold the calculated peak hour vehicle queues.

Table 2

Existing Ala Moana Boulevard (ewabound) Left-Turn Queues

Intersection	Existing Left-Turn Pocket	AM Peak	PM Peak
Ward Avenue/Ala Moana Boulevard	375 ft	25 ft	25 ft
Koula Street/Ala Moana Boulevard	250 ft	150 ft	175 ft
Cooke Street/Ala Moana Boulevard	100 ft	50 ft	25 ft
Coral Street/Ala Moana Boulevard	100 ft	50 ft	25 ft
Keawe Street/Ala Moana Boulevard	80 ft	25 ft	25 ft

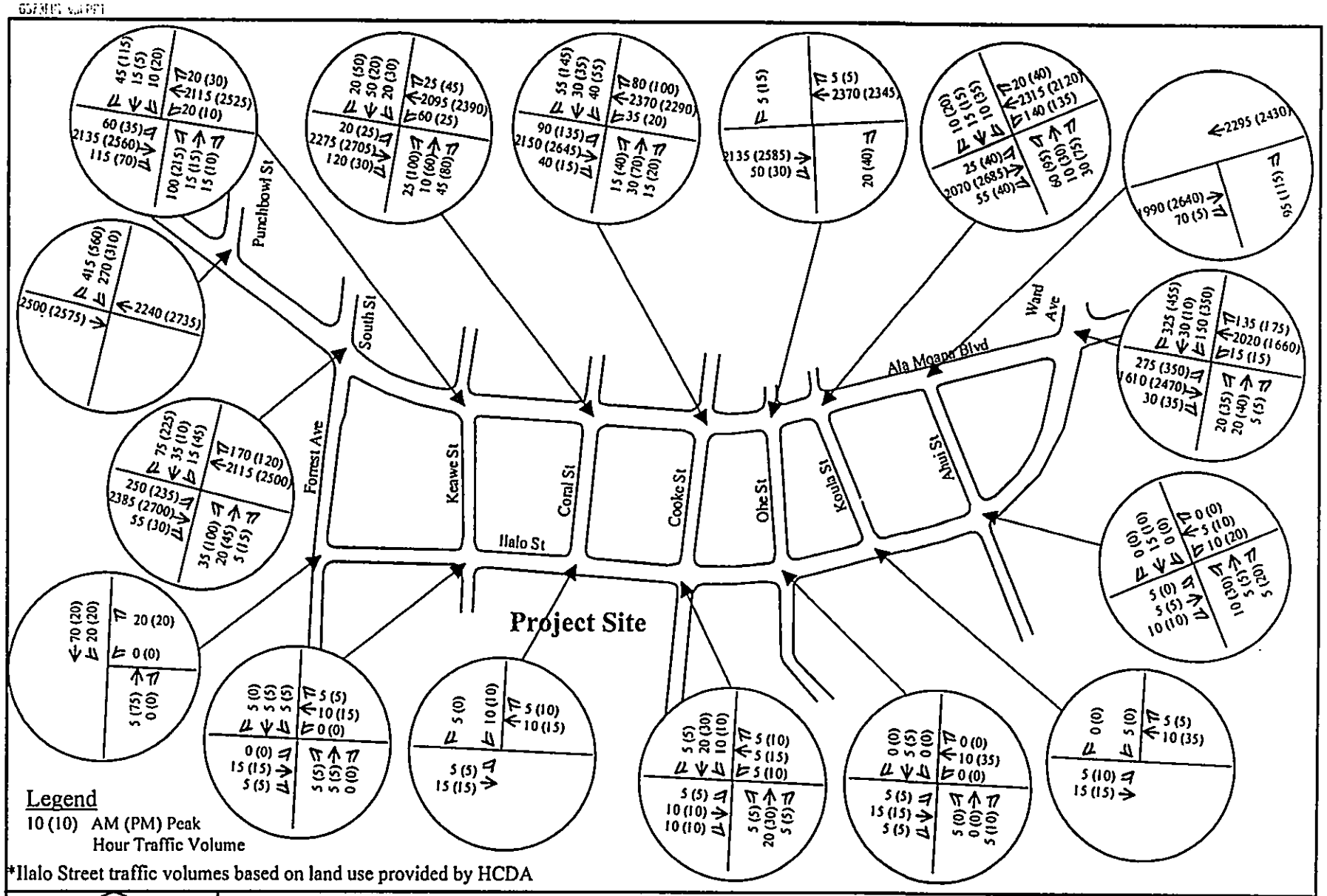
IV. PHASE I CONDITIONS

A. Background Traffic Forecast

Completion of Phase I of the UH Health and Wellness Center is projected to occur in 2005. The year 2005 background traffic volume forecast along Ala Moana Boulevard is based upon the historical traffic count growth trends obtained from the State Department of Transportation. A 0.5 percent growth factor was applied to the existing traffic volumes for each successive year to the Year 2005 to estimate growth in background traffic volumes.

Traffic volume forecasts along Ilalo Street were estimated using projected land use assumptions in the Kakaako Makai Area. The trip generation methodology was based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in Trip Generation, 6th Edition, 1995.

Figure 5 shows the AM and PM peak hour background traffic volume data for 2005.



WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	TRAFFIC ANALYSIS REPORT FOR THE UH HEALTH AND WELLNESS CENTER	FIGURE 5
	2005 BACKGROUND PEAK HOUR TRAFFIC VOLUMES	

B. Project Trip Generation

Phase I of the UH Health and Wellness Center includes the John A. Burns School of Medicine and the Biomedical Research Center. Table 3 lists the projected population of the proposed Phase I campus.

Table 3
Projected Phase I Population

	PROJECTED POPULATION
EDUCATION	
Faculty	31
Learning Center	26
HRP/GME	10
STUDENTS	237
PROGRAMS	100
ADMINISTRATION	93
Departmental	50
Contracted Services/Facility Administration	12
CONTRACTED SERVICES	130
POTENTIAL NEW PROGRAMS	39
RESEARCH	
Research Laboratories	330
Animal Facility Staff	34
POTENTIAL COLLABORATIONS (includes faculty, staff and students)	20
TOTALS	1,112

The trip generation methodology used in this study is based upon generally accepted techniques developed by the Institute of Transportation Engineers (ITE) and published in Trip Generation, 6th Edition, 1995. The ITE trip generation rates are developed empirically by correlating the vehicle trip generation data with land use characteristics such as the size of the development. Table 4 summarizes the Phase I UH Health and Wellness Center trip generation during the AM and PM peak hours of traffic. The number of employees for land use categories College/University and Research and Development Center were used to generate the project related trips.

Table 4

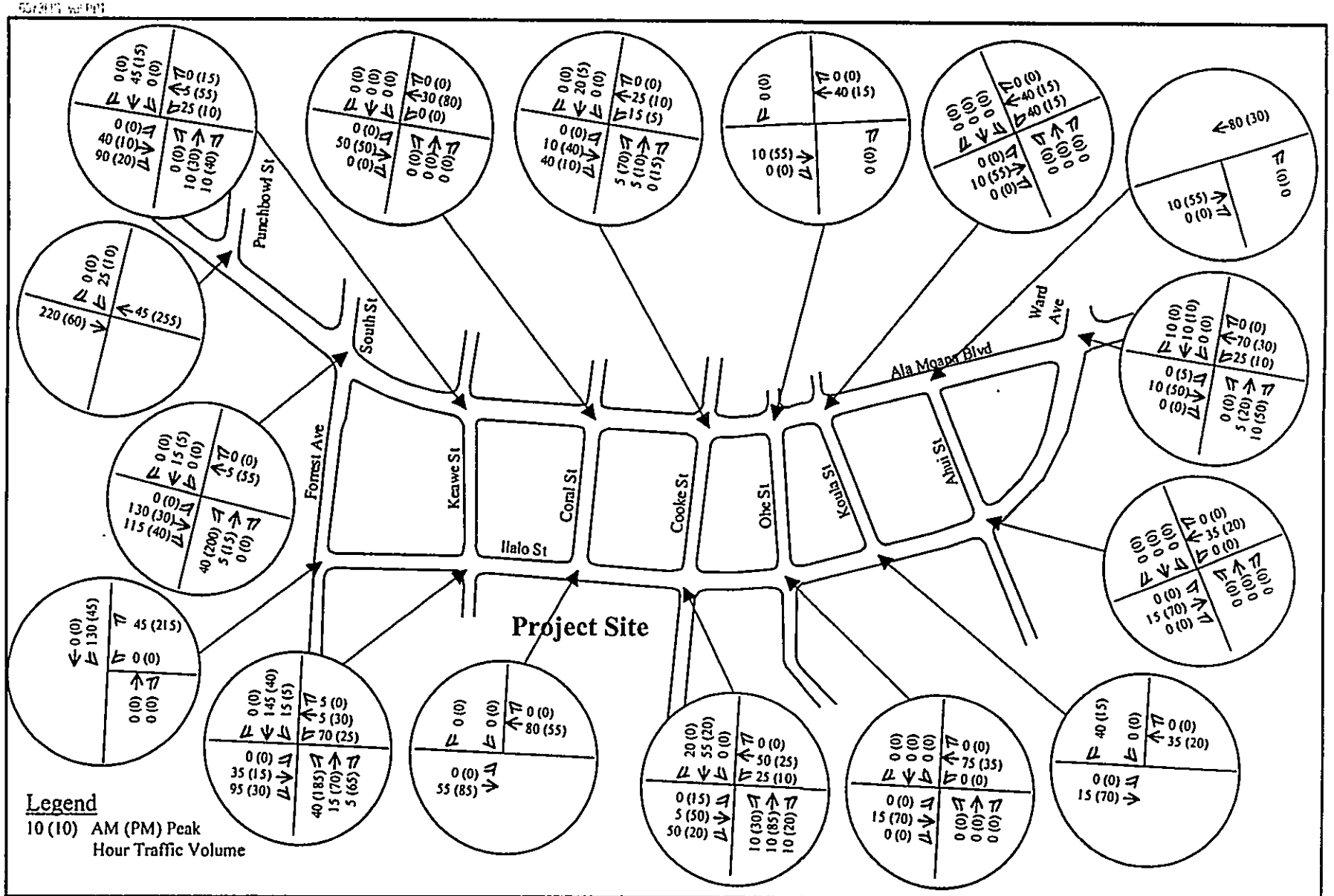
Phase I Trip Generation

	AM in	AM out	PM in	PM out
School of Medicine & Biomedical Research Center	440	90	145	455

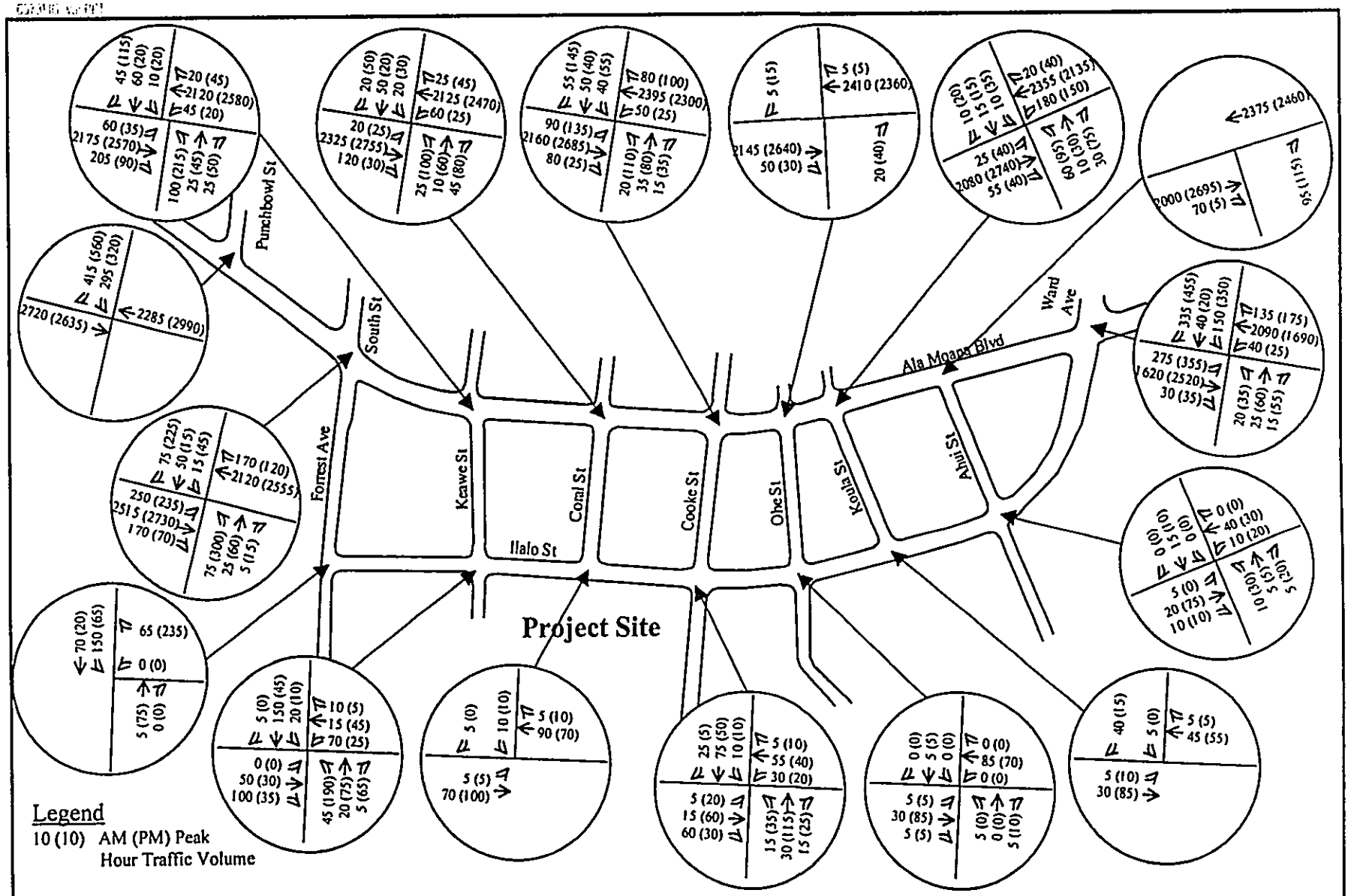
C. Total Traffic Volumes With Project

The project generated trips were distributed to the roadway network based on travel patterns established by Kaku Associates, Inc. for the Hawaii Community Development Authority (Circulation Plan for the Kakaako Makai Area Master Plan 2001 unpublished study). The travel patterns were based on information obtained from the Oahu Metropolitan Planning Organization's (OMPO) travel demand forecasting model. The distribution assumed the same percentage of trip origins/destinations on each of the roadways accessing the study area. Figure 6 shows the project generated trips distributed within the study area.

Background traffic volumes for 2005 were combined with the estimated trips generated by the proposed Health and Wellness Center. Figure 7 shows the projected AM and PM peak hour traffic at the study intersections in Year 2005 with Phase I traffic.



WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	TRAFFIC ANALYSIS REPORT FOR THE UH HEALTH AND WELLNESS CENTER	FIGURE 6
	PHASE I GENERATED TRAFFIC	



WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	TRAFFIC ANALYSIS REPORT FOR THE UH HEALTH AND WELLNESS CENTER	FIGURE 7
	2005 PEAK HOUR TRAFFIC VOLUMES WITH PHASE I	

D. Capacity Analysis

Year 2005 traffic volumes with and without the UH Health and Wellness Center were analyzed using the procedures presented in the Highway Capacity Manual 2000, Transportation Research Board, and the Highway Capacity Software, developed by the Federal Highway Administration.

The level of service of the study intersections is included in Table 5. An expanded version of the Level-of-Service table is included in Appendix B. Overall, intersection operations for the 2005 background traffic remain similar to existing conditions.

With the project, delay at the study intersections increase slightly over the background conditions. However, overall intersection operations experience minimal change. The intersections of Ala Moana Boulevard with Cooke Street, Keawe Street and South Street/Forrest Avenue exhibit the highest increases of delays with the addition of the UH Health and Wellness Center.

Table 5

Year 2005 Intersection Level of Service Summary – Phase I

Intersection/Movement	Background		With Phase I	
	AM Peak	PM Peak	AM Peak	PM Peak
Ward Avenue/Ala Moana Boulevard	***D (39.6)***	***E (68.8)***	***D (44.5)***	***E (72.2)***
Diamond Head Bound (Ala Moana Blvd.)	C (23.3)	E (63.3)	C (23.3)	E (68.9)
Ewa Bound (Ala Moana Blvd.)	D (47.3)	D (44.3)	E (55.5)	D (45.7)
Mauka Bound (Ilalo Street)	D (52.7)	E (57.2)	D (51.6)	E (55.3)
Makai Bound (Ward Avenue)	E (67.5)	F (>80)	E (73.7)	F (>80)
Ahui Street/Ala Moana Boulevard*				
Mauka Bound Right (Ahui Street)	C (18.4)	D (28.1)	C (18.6)	D (29.7)
Koula Street/Ala Moana Boulevard	***B (17.2)***	***C (28.4)***	***B (18.6)***	***C (30.2)***
Diamond Head Bound (Ala Moana Blvd.)	B (17.7)	C (33.4)	B (17.8)	D (36.2)
Ewa Bound (Ala Moana Blvd.)	B (14.9)	B (17.5)	B (17.5)	B (18.2)
Mauka Bound (Koula Street)	D (52.7)	E (76.8)	D (52.7)	E (76.8)
Makai Bound (Koula Street)	D (48.7)	D (53.4)	D (48.7)	D (53.4)

Table 5 (cont.)

Year 2005 Intersection Level of Service Summary – Phase I

Intersection/Movement	Background		With Phase I	
	AM Peak	PM Peak	AM Peak	PM Peak
Ohe Street/Ala Moana Boulevard*				
Mauka Bound Right (Ohe Street)	C (16.1)	C (20.4)	C (16.2)	C (21.1)
Makai Bound Right (Ohe Street)	C (16.6)	C (16.8)	C (16.9)	C (17.0)
Cooke Street/Ala Moana Boulevard	***B (18.2)***	***C (25.8)***	***B (18.7)***	***C (32.7)***
Diamond Head Bound (Ala Moana Blvd.)	B (14.7)	C (24.7)	B (14.9)	C (30.6)
Ewa Bound (Ala Moana Blvd.)	B (19.5)	C (23.8)	C (20.0)	C (28.0)
Mauka Bound (Cooke Street)	D (45.7)	D (53.6)	D (46.7)	F (>80)
Makai Bound (Cooke Street)	D (42.9)	D (45.0)	D (44.7)	D (48.2)
Coral Street/Ala Moana Boulevard	***B (16.0)***	***C (28.4)***	***B (16.3)***	***C (29.9)***
Diamond Head Bound (Ala Moana Blvd.)	B (17.0)	C (30.0)	B (17.5)	C (32.0)
Ewa Bound (Ala Moana Blvd.)	B (12.5)	C (23.5)	B (12.6)	C (24.7)
Mauka Bound (Coral Street)	D (42.6)	D (53.6)	D (42.6)	D (53.6)
Makai Bound (Coral Street)	D (50.4)	D (44.6)	D (50.4)	D (44.6)
Keawe Street/Ala Moana Boulevard	***C (23.1)***	***E (59.1)***	***C (26.3)***	***E (70.0)***
Diamond Head Bound (Ala Moana Blvd.)	C (20.2)	E (60.9)	C (21.9)	E (65.3)
Ewa Bound (Ala Moana Blvd.)	C (22.3)	D (51.7)	C (22.9)	E (59.7)
Mauka Bound (Keawe Street)	E (62.0)	F (>80)	E (69.0)	F (>80)
Makai Bound (Keawe Street)	E (68.8)	F (>80)	F (>80)	F (>80)
South St/Forrest Ave/Ala Moana Blvd	***C (30.6)***	***D (37.9)***	***C (31.5)***	***D (46.1)***
Diamond Head Bound (Ala Moana Blvd.)	C (29.6)	C (28.3)	C (30.9)	C (29.1)
Ewa Bound (Ala Moana Blvd.)	C (31.1)	D (48.4)	C (31.3)	D (53.9)
Mauka Bound (Forrest Avenue)	D (45.2)	D (47.7)	D (47.0)	F (>80)
Makai Bound (South Street)	D (35.5)	D (35.1)	D (36.8)	D (35.3)
Punchbowl Street/Ala Moana Blvd	***C (21.9)***	***C (26.3)***	***C (23.6)***	***C (30.3)***
Diamond Head Bound (Ala Moana Blvd.)	B (19.4)	C (20.4)	C (22.7)	C (21.3)
Ewa Bound (Ala Moana Blvd.)	B (16.8)	C (23.0)	B (17.2)	C (31.3)
Makai Bound (Punchbowl Street)	D (47.5)	D (53.9)	D (47.6)	D (53.9)

Table 5 (cont.)

Year 2005 Intersection Level of Service Summary – Phase I

Intersection/Movement	Background		With Phase I	
	AM Peak	PM Peak	AM Peak	PM Peak
Ahui Street/Ilalo Street*	***A (7.3)***	***A (7.4)***	***A (7.4)***	***A (7.6)***
Diamond Head Bound (Ilalo Street)	A (7.1)	A (7.0)	A (7.3)	A (7.6)
Ewa Bound (Ilalo Street)	A (7.5)	A (7.6)	A (7.5)	A (7.7)
Mauka Bound (Ahui Street)	A (7.3)	A (7.4)	A (7.4)	A (7.6)
Makai Bound (Ahui Street)	A (7.4)	A (7.4)	A (7.5)	A (7.6)
Koula Street/Ilalo Street*	***A (7.2)***	***A (7.3)***	***A (7.2)***	***A (7.5)***
Diamond Head Bound (Ilalo Street)	A (7.3)	A (7.4)	A (7.5)	A (7.6)
Ewa Bound (Ilalo Street)	A (7.1)	A (7.3)	A (7.4)	A (7.4)
Makai Bound (Koula Street)	A (7.2)	A (7.0)	A (7.2)	A (7.0)
Ohe Street/Ilalo Street*	***A (7.2)***	***A (7.2)***	***A (7.5)***	***A (7.5)***
Diamond Head Bound (Ilalo Street)	A (7.2)	A (7.3)	A (7.4)	A (7.6)
Ewa Bound (Ilalo Street)	A (7.3)	A (7.4)	A (7.5)	A (7.5)
Mauka Bound (Ohe Street)	A (7.1)	A (6.8)	A (7.3)	A (7.0)
Makai Bound (Ohe Street)	A (7.3)	A (7.4)	A (7.5)	A (7.6)
Cooke Street/Ilalo Street*	***A (7.3)***	***A (7.5)***	***A (8.1)***	***A (8.4)***
Diamond Head Bound (Ilalo Street)	A (7.2)	A (7.3)	A (7.7)	A (8.2)
Ewa Bound (Ilalo Street)	A (7.3)	A (7.4)	A (8.2)	A (8.2)
Mauka Bound (Cooke Street)	A (7.4)	A (7.5)	A (8.1)	A (8.6)
Makai Bound (Cooke Street)	A (7.4)	A (7.5)	A (8.2)	A (8.2)
Coral Street/Ilalo Street*	***A (7.2)***	***A (7.2)***	***A (7.5)***	***A (7.6)***
Diamond Head Bound (Ilalo Street)	A (7.4)	A (7.4)	A (7.5)	A (7.6)
Ewa Bound (Ilalo Street)	A (7.1)	A (7.1)	A (7.5)	A (7.5)
Makai Bound (Coral Street)	A (7.0)	A (7.3)	A (7.3)	A (7.6)

Table 5 (cont.)

Year 2005 Intersection Level of Service Summary – Phase I

Intersection/Movement	Background		With Phase I	
	AM Peak	PM Peak	AM Peak	PM Peak
Keawe Street/Ilalo Street*	*A (7.2)*	*A (7.3)*	*A (8.9)*	*A (8.9)*
Diamond Head Bound (Ilalo Street)	A (7.2)	A (7.2)	A (8.4)	A (8.2)
Ewa Bound (Ilalo Street)	A (7.1)	A (7.2)	A (8.7)	A (8.6)
Mauka Bound (Keawe Street)	A (7.4)	A (7.4)	A (8.4)	A (9.1)
Makai Bound (Keawe Street)	A (7.2)	A (7.5)	A (9.7)	A (8.4)
Forrest Avenue/Ilalo Street*	*A (7.5)*	*A (7.6)*	*A (8.1)*	*A (8.1)*
Ewa Bound (Ilalo Street)	A (6.6)	A (6.6)	A (7.1)	A (7.9)
Mauka Bound (Forrest Avenue)	A (7.5)	A (7.8)	A (7.7)	A (8.4)
Makai Bound (Forrest Avenue)	A (7.7)	A (7.5)	A (8.5)	A (8.3)

*unsignalized intersection

E. Queuing Analysis

Year 2005 queuing analysis with and without the UH Health and Wellness Center – Phase I was performed using the procedures presented in the Highway Capacity Manual 2000, Transportation Research Board and the Highway Capacity Software, developed by the Federal Highway Administration.

Queuing analyses were performed for the Ala Moana Boulevard ewabound to makaibound left-turns during the weekday morning and afternoon peak traffic hours. All of the analyzed intersections have adequate storage to hold the calculated peak hour vehicle queues. Table 6 summarizes the left-turn storage lengths and the projected vehicle queues.

Table 6

2005 Ala Moana Boulevard (ewabound) Left-Turn Queues

Intersection	Existing Left-Turn Pocket	Background		With Phase I	
		AM Peak	PM Peak	AM Peak	PM Peak
Ward Avenue/Ala Moana Boulevard	375 ft	25 ft	25 ft	50 ft	25 ft
Koula Street/Ala Moana Boulevard	250 ft	150 ft	175 ft	225 ft	200 ft
Cooke Street/Ala Moana Boulevard	100 ft	50 ft	25 ft	50 ft	25 ft
Coral Street/Ala Moana Boulevard	100 ft	50 ft	25 ft	50 ft	25 ft
Keawe Street/Ala Moana Boulevard	80 ft	25 ft	25 ft	50 ft	25 ft

V. PHASE II CONDITIONS

A. Background Traffic Forecast

Construction of Phase II of the UH Health and Wellness Center is projected to be completed when funding becomes available. For the purposes of this study, the future traffic volume data projected by Kaku Associates, Inc. in the Circulation Plan for the Kakaako Makai Area Master Plan (2001 unpublished study) was used to derive the background traffic volumes for Phase II. The Kaku Associates' forecast was based on the OMPO travel demand forecasting model and assumed that the following projects were completed in the Makai area:

- An entertainment center in the area along Kewalo Basin
- Ocean Research Center
- Science Tech Center
- Children's Discovery Center
- The University of Hawaii Medical School
- Research oriented office facilities
- Office development by Bishop Estate

The Circulation Plan traffic volumes were adjusted to account for several factors. The City and County of Honolulu's proposed Bus Rapid Transit project would provide service along Ilalo Street. Two transit stations are proposed within the project area in the vicinity of Cooke Street and Ahui Street. Transit ridership estimates from the Primary Corridor Study indicate approximately 1060 daily person trips utilizing the new transit system at these two stations. This estimate is conservative due to the lower density assumptions in the Primary Corridor Study than the assumed Kakaako Makai Masterplan (source: Parsons Brinckerhoff Quade and Douglas). Additionally, the UH Health and Wellness Phase II vehicle trips were removed from the Circulation Plan traffic volumes to determine operations without the Phase II completion. Figure 8 shows the future background traffic volumes including Phase I of the UH Health and Wellness Center.

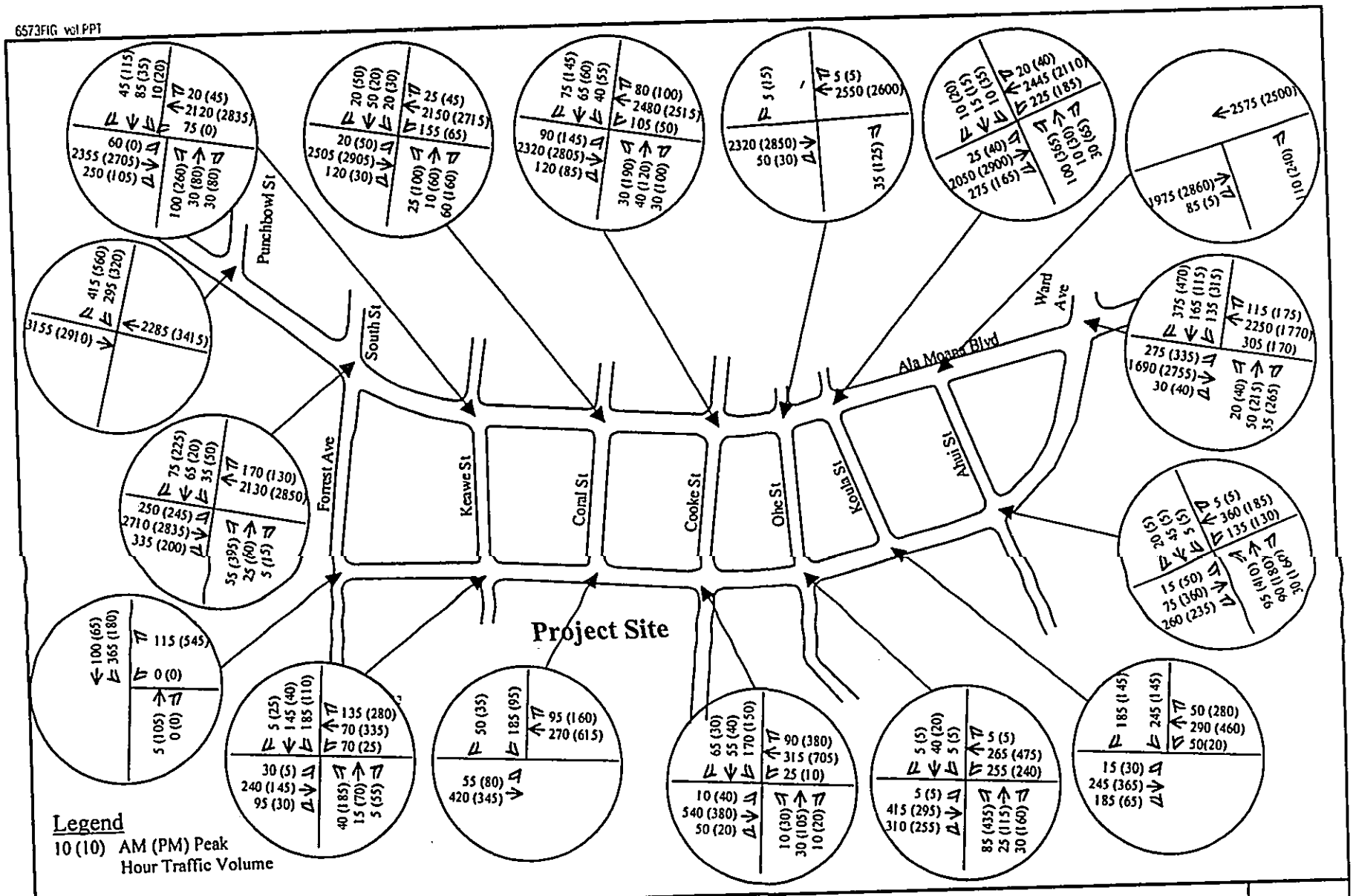
B. Project Trip Generation

Phase II of the UH Health and Wellness Center includes the Cancer Research Center. The research center is expected to consist of a total of 400 faculty and researchers.

The trip generation methodology used is based upon the Institute of Transportation Engineers (ITE) Trip Generation, 6th Edition, 1995. The Research and Development Center land use category was used to generate project trips for the Cancer Research Center. Table 7 summarizes the Phase II UH Health and Wellness Center trip generation during the AM and PM peak hours of traffic.

Table 7
Phase II Trip Generation

	AM in	AM out	PM in	PM out
Cancer Research Center	170	25	15	150



TRAFFIC ANALYSIS REPORT FOR THE UH HEALTH AND WELLNESS CENTER

Future Background Peak Hour Traffic Volumes
(ultimate Makai Area developments excluding UH Phase II)

FIGURE 8

WILSON OKAMOTO & ASSOCIATES, INC.
ENGINEERS - PLANNERS

C. Total Traffic Volumes With Project

The project generated trips were distributed to the roadway network based on travel patterns established in the Circulation Plan for the Kakaako Makai Area Master Plan, December 2001 by Kaku Associates, Inc. The distribution assumed the same percentage of trip origins/destinations on each of the roadways accessing the study area. Figure 9 shows the project generated trips distributed within the study area.

Background traffic volumes for the future conditions were combined with the estimated trips generated by the Cancer Research Center. Figure 10 shows the projected future AM and PM peak hour traffic at the study intersections with the project.

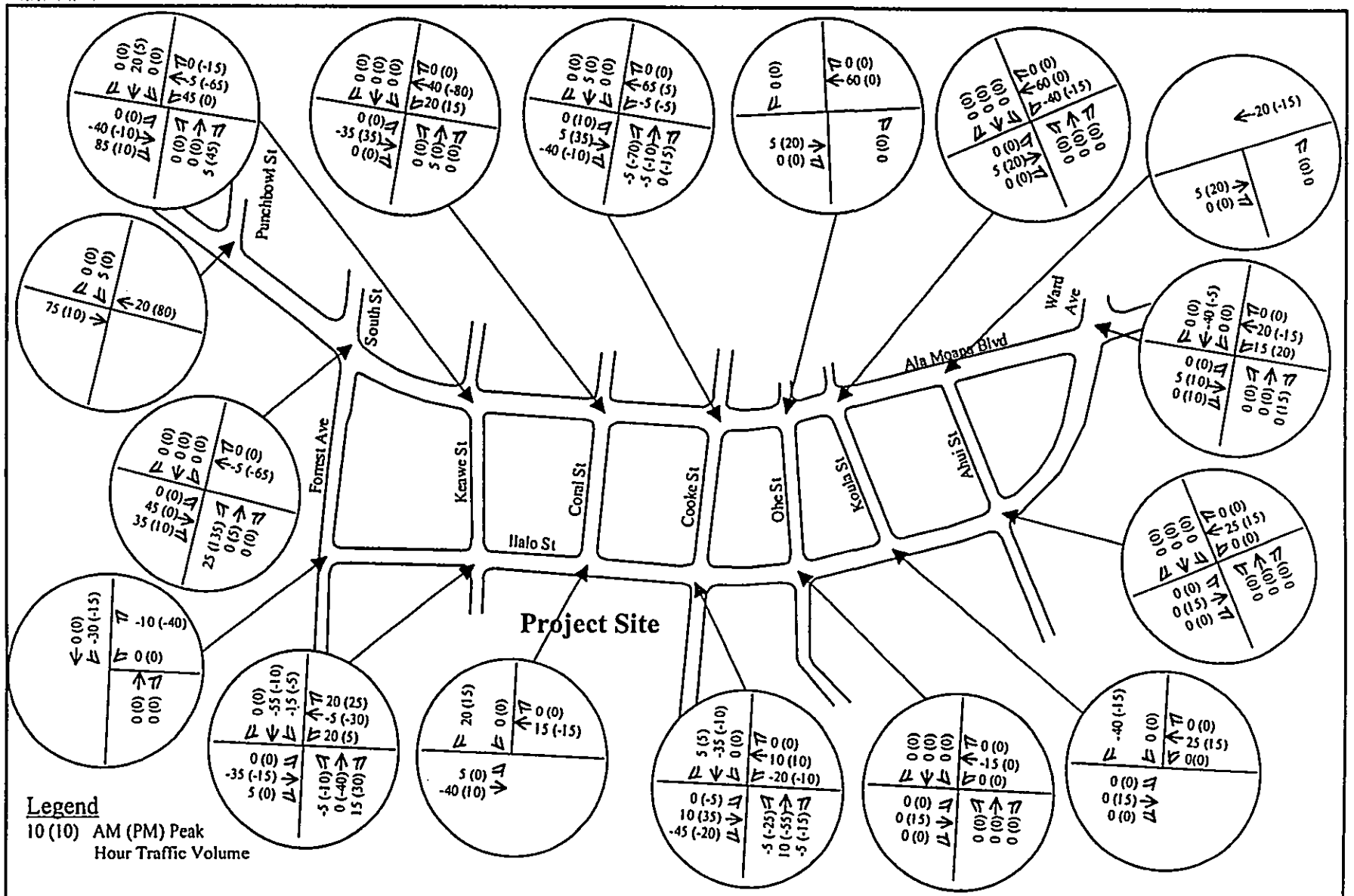
D. Capacity Analysis

Future traffic volumes with and without the UH Health and Wellness Center Phase II were analyzed using the procedures presented in the Highway Capacity Manual 2000, Transportation Research Board, and the Highway Capacity Software, developed by the Federal Highway Administration.

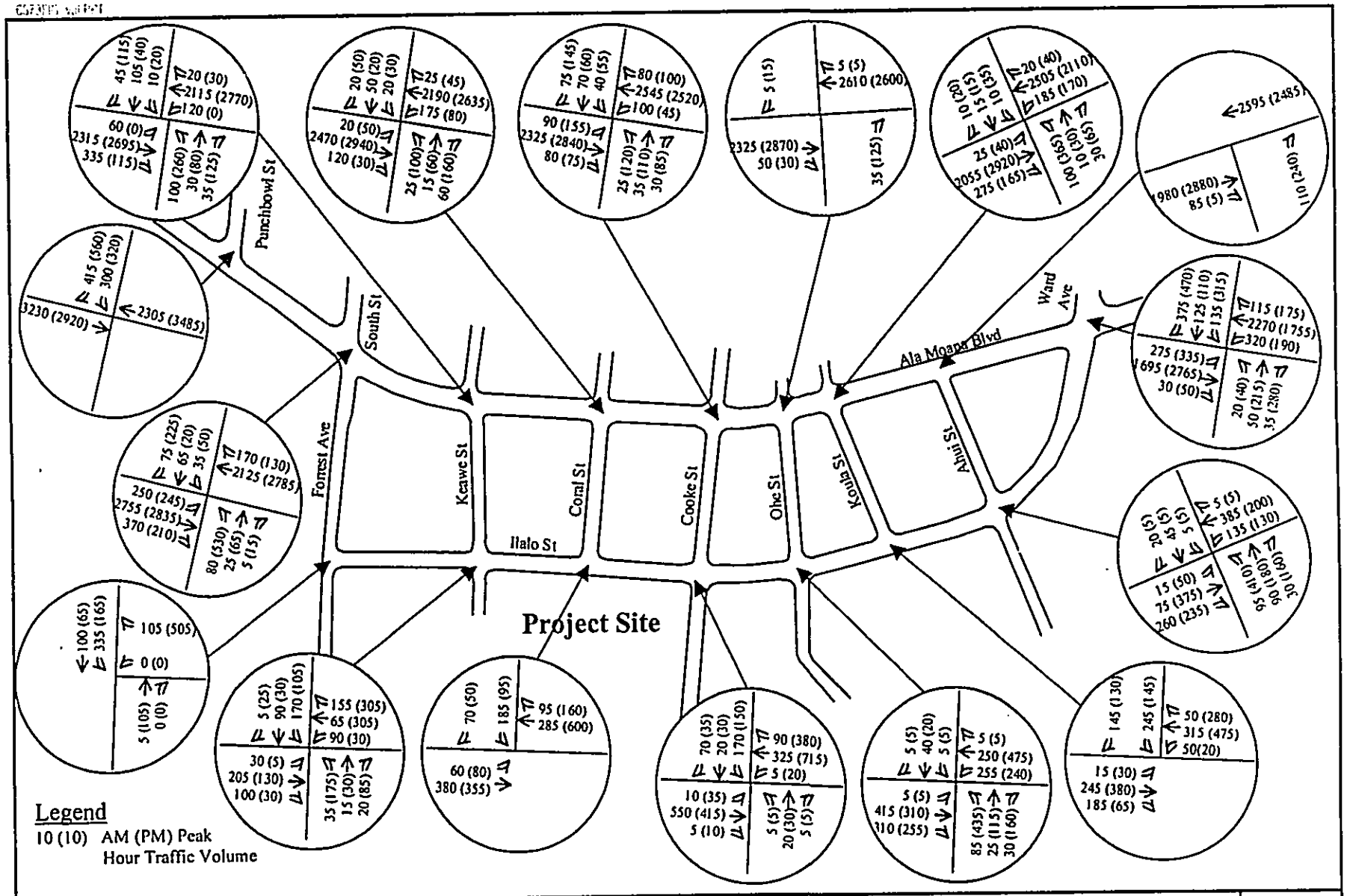
The level of service of the study intersections is included in Table 8. An expanded version of the Level-of-Service table is included in Appendix B. Overall, intersection operations for the future conditions without the project reflect that the during the morning peak hour, traffic along Ala Moana Boulevard would be approaching capacity of the roadway system. The afternoon peak hour traffic would be at or surpass the capacity of the roadway.

The combination of the assumed Makai Area projects would increase delays along Ilalo Street. Most of the study intersections, however, would continue to operate acceptably at LOS D or better. Ohe Street and Ccoke Street are the exception, estimated to operate at LOS F during the afternoon peak hour. Heavy traffic volumes at these intersections cause them to operate at LOS F.

Addition of the Health and Wellness Center Phase II traffic would minimally affect intersection operations within the study area. Overall intersection LOS would remain the same as without Phase II traffic conditions at all of the study intersections.



WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	TRAFFIC ANALYSIS REPORT FOR THE UH HEALTH AND WELLNESS CENTER	FIGURE 9
	Phase II Generated Traffic	



WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	TRAFFIC ANALYSIS REPORT FOR THE UH HEALTH AND WELLNESS CENTER	FIGURE 10
	Future Peak Hour Traffic Volumes with Phase II	

Table 8

Buildout of Makai Area

Intersection Level of Service Summary – Phase II

Intersection/Movement	Without Phase II		With Phase II	
	AM Peak	PM Peak	AM Peak	PM Peak
Ward Avenue/Ala Moana Boulevard	***E (59.8)***	***F (>80)***	***E (57.5)***	***F (>80)***
Diamond Head Bound (Ala Moana Blvd.)	D (50.4)	F (>80)	D (49.3)	F (>80)
Ewa Bound (Ala Moana Blvd.)	D (53.2)	D (46.1)	D (53.3)	D (48.4)
Mauka Bound (Ilalo Street)	E (55.2)	E (74.7)	D (54.6)	E (79.7)
Makai Bound (Ward Avenue)	F (>80)	F (>80)	F (>80)	F (>80)
Ahui Street/Ala Moana Boulevard*				
Mauka Bound Right (Ahui Street)	C (19.4)	F (>50)	C (19.4)	F (>50)
Koula Street/Ala Moana Boulevard	***C (26.1)***	***F (>80)***	***C (25.8)***	***F (>80)***
Diamond Head Bound (Ala Moana Blvd.)	C (32.5)	F (>80)	C (32.6)	F (>80)
Ewa Bound (Ala Moana Blvd.)	B (18.8)	C (22.3)	B (18.1)	C (20.7)
Mauka Bound (Koula Street)	D (53.9)	F (>80)	D (53.9)	F (>80)
Makai Bound (Koula Street)	D (46.1)	D (42.4)	D (46.1)	D (42.4)
Ohe Street/Ala Moana Boulevard*				
Mauka Bound Right (Ohe Street)	C (18.1)	E (37.2)	C (18.1)	E (38.0)
Makai Bound Right (Ohe Street)	C (17.9)	C (18.7)	C (18.3)	C (18.7)
Cooke Street/Ala Moana Boulevard	***C (22.5)***	***E (59.9)***	***C (24.5)***	***E (57.5)***
Diamond Head Bound (Ala Moana Blvd.)	B (17.8)	D (53.0)	B (18.8)	E (60.8)
Ewa Bound (Ala Moana Blvd.)	C (24.6)	D (46.2)	C (27.8)	D (50.9)
Mauka Bound (Cooke Street)	D (46.4)	F (>80)	D (45.0)	F (>80)
Makai Bound (Cooke Street)	D (44.5)	E (70.7)	D (44.0)	D (41.9)
Coral Street/Ala Moana Boulevard	***C (21.9)***	***D (40.9)***	***C (21.8)***	***D (41.3)***
Diamond Head Bound (Ala Moana Blvd.)	C (25.4)	D (47.3)	C (24.6)	D (51.1)
Ewa Bound (Ala Moana Blvd.)	B (16.2)	C (33.2)	B (16.9)	D (29.6)
Mauka Bound (Coral Street)	D (39.3)	D (48.8)	D (40.2)	D (48.8)
Makai Bound (Coral Street)	D (49.9)	D (39.9)	D (49.9)	D (39.9)

Table 8 (cont.)

Buildout of Makai Area

Intersection Level of Service Summary – Phase II

Intersection/Movement	Without Phase II		With Phase II	
	AM Peak	PM Peak	AM Peak	PM Peak
Keawe Street/Ala Moana Boulevard	***D (39.0)***	***E (66.9)***	***D (46.1)***	***E (75.5)***
Diamond Head Bound (Ala Moana Blvd.)	D (40.5)	D (44.4)	D (45.8)	D (44.5)
Ewa Bound (Ala Moana Blvd.)	C (25.3)	D (50.7)	C (29.8)	E (52.8)
Mauka Bound (Keawe Street)	E (73.5)	F (>80)	E (76.9)	F (>80)
Makai Bound (Keawe Street)	F (>80)	F (>80)	F (>80)	F (>80)
South St/Forrest Ave/Ala Moana Blvd	***D (43.2)***	***E (67.1)***	***D (46.9)***	***E (74.4)***
Diamond Head Bound (Ala Moana Blvd.)	D (43.1)	C (30.9)	D (49.8)	C (31.2)
Ewa Bound (Ala Moana Blvd.)	D (41.2)	F (>80)	D (40.8)	F (>80)
Mauka Bound (Forrest Avenue)	D (50.4)	F (>80)	D (50.9)	F (>80)
Makai Bound (South Street)	E (68.2)	E (64.7)	E (62.8)	E (64.7)
Punchbowl Street/Ala Moana Blvd	***C (34.4)***	***D (52.8)***	***D (38.3)***	***D (54.5)***
Diamond Head Bound (Ala Moana Blvd.)	D (43.8)	C (27.8)	D (51.3)	C (26.3)
Ewa Bound (Ala Moana Blvd.)	B (17.2)	E (74.0)	B (17.3)	E (77.1)
Makai Bound (Punchbowl Street)	D (47.6)	D (53.8)	D (47.6)	E (58.0)
Ahui Street/Ilalo Street*	***B (12.6)***	***D (26.9)***	***B (12.9)***	***D (28.1)***
Diamond Head Bound (Ilalo Street)	B (12.5)	D (27.6)	B (12.6)	D (29.5)
Ewa Bound (Ilalo Street)	B (13.6)	C (16.6)	B (14.0)	C (17.1)
Mauka Bound (Ahui Street)	B (11.1)	D (31.1)	B (11.2)	D (32.0)
Makai Bound (Ahui Street)	B (10.5)	B (11.4)	B (10.6)	B (11.5)
Koula Street/Ilalo Street*	***B (12.6)***	***C (17.9)***	***B (12.5)***	***C (18.3)***
Diamond Head Bound (Ilalo Street)	B (13.4)	B (13.3)	B (13.2)	B (13.4)
Ewa Bound (Ilalo Street)	B (12.2)	C (23.2)	B (12.3)	C (23.8)
Makai Bound (Koula Street)	B (12.0)	B (11.3)	B (12.0)	B (11.2)

Table 8 (cont.)

Buildout of Makai Area

Intersection Level of Service Summary – Phase II

Intersection/Movement	Without Phase II		With Phase II	
	AM Peak	PM Peak	AM Peak	PM Peak
Ohe Street/Ilalo Street*	***C (19.3)***	***F (>50)***	***C (19.0)***	***F (>50)***
Diamond Head Bound (Ilalo Street)	C (22.2)	E (38.8)	C (21.9)	E (40.0)
Ewa Bound (Ilalo Street)	C (18.1)	F (>50)	C (17.7)	F (>50)
Mauka Bound (Ohe Street)	B (11.5)	F (>50)	B (11.4)	F (>50)
Makai Bound (Ohe Street)	B (11.0)	B (13.0)	B (11.0)	B (13.0)
Cooke Street/Ilalo Street*	***B (13.6)***	***F (>50)***	***B (12.9)***	***F (>50)***
Diamond Head Bound (Ilalo Street)	B (14.9)	B (14.9)	B (13.8)	B (14.3)
Ewa Bound (Ilalo Street)	B (12.7)	F (>50)	B (12.2)	F (>50)
Mauka Bound (Cooke Street)	B (10.3)	B (12.6)	B (10.3)	B (11.3)
Makai Bound (Cooke Street)	B (12.5)	B (13.9)	B (12.2)	B (13.2)
Coral Street/Ilalo Street*	***B (11.3)***	***B (14.0)***	***B (11.2)***	***B (14.0)***
Diamond Head Bound (Ilalo Street)	B (11.8)	B (11.8)	B (11.7)	B (12.0)
Ewa Bound (Ilalo Street)	B (10.8)	C (15.9)	B (11.0)	C (16.0)
Makai Bound (Coral Street)	B (10.9)	B (10.2)	B (10.7)	B (10.2)
Keawe Street/Ilalo Street*	***B (13.3)***	***C (17.2)***	***B (11.7)***	***C (16.5)***
Diamond Head Bound (Ilalo Street)	B (11.7)	B (11.4)	B (10.9)	B (10.9)
Ewa Bound (Ilalo Street)	B (10.8)	C (21.6)	B (10.6)	C (20.6)
Mauka Bound (Keawe Street)	B (10.1)	B (13.2)	A (9.8)	B (12.6)
Makai Bound (Keawe Street)	C (17.7)	B (13.8)	B (14.4)	B (13.0)
Forrest Avenue/Ilalo Street*	***B (10.9)***	***B (13.2)***	***B (10.3)***	***C (12.0)***
Ewa Bound (Ilalo Street)	A (8.1)	B (14.8)	A (7.9)	B (13.2)
Mauka Bound (Forrest Avenue)	A (8.1)	B (10.2)	A (8.0)	B (10.0)
Makai Bound (Forrest Avenue)	B (11.7)	B (10.7)	B (11.0)	B (10.3)

*unsignalized intersection

E. Queuing Analysis

Queuing analysis for the buildout conditions of the Kakaako Makai area with and without the UH Health and Wellness Center – Phase II was performed using the procedures presented in the Highway Capacity Manual 2000, Transportation Research Board and the Highway Capacity Software, developed by the Federal Highway Administration.

Queuing analyses were performed for the Ala Moana Boulevard ewabound to makaibound left-turns during the weekday morning and afternoon peak traffic hours. During the morning peak, the Cooke Street and Coral Street intersections would be at or over the storage capacity of the existing left-turn storage lanes both with and without the addition of the UH Health and Wellness Center Phase II trips. This would result in overflow of left-turn vehicles within the through lanes of traffic. The Keawe Street intersection would be at capacity without the project, and exceed the existing storage capacity with the Phase II traffic. Table 9 summarizes the left-turn storage lengths and the projected vehicle queues.

Table 9

Buildout Ala Moana Boulevard (ewabound) Left-Turn Queues

Intersection	Existing Left-Turn Pocket	Without Phase II (incl. Makai development)		With Phase II	
		AM Peak	PM Peak	AM Peak	PM Peak
Ward Avenue/Ala Moana Boulevard	375 ft	325 ft	225 ft	350 ft	275 ft
Koula Street/Ala Moana Boulevard	250 ft	250 ft	250 ft	200 ft	200 ft
Cooke Street/Ala Moana Boulevard	100 ft	125 ft	50 ft	100 ft	50 ft
Coral Street/Ala Moana Boulevard	100 ft	175 ft	75 ft	175 ft	75 ft
Keawe Street/Ala Moana Boulevard	80 ft	75 ft	Restrict turns	175 ft	Restrict turns

VI. RECOMMENDATIONS

Based upon the analysis of the traffic data and roadway conditions, the following are the proposed recommendations for Phase I of the UH Health and Wellness Center:

- Within the study area, the land use along Ala Moana Boulevard, and the geometrics of the roadway make physical improvements to the corridor difficult to implement. Adjustments, however, can be made to the traffic signal timing. In particular, signal timing adjustments at the Ala Moana Boulevard intersections during the afternoon peak period are recommended.
- Due to the offset alignment of Keawe Street at Ala Moana Boulevard, a split phase signal is required. To minimize the delays caused by the split signal timing, restricting left-turns from Ala Moana Boulevard during the afternoon peak period is recommended.
- The reconstructed Ilalo Street will connect to Forrest Avenue/South Street. This connection is projected to be one of the major outlets of the Kakaako Makai area. It is recommended to re-stripe the Forrest Avenue leg from a left-turn, through and right-turn lane to a left-turn, a shared left-through and a right turn lane. This striping change would occur with a revision of the traffic signal to split phases for South Street and Forrest Avenue.
- The driveways opposite Keawe Street and Cooke Street, leading to the project parking should be constructed, at a minimum, with a section capable of accommodating emergency and delivery vehicles. Driveway approaches should remain consistent with the Makai Area Circulation Plan; left-turn pocket and a shared thru-right turn lane. A pedestrian path along the driveway should be provided for pedestrian access between the off-site parking facility and the project site.

Table 10 summarizes the intersection levels of service with the Phase I recommendations. An expanded version of the Level-of-Service table is contained in Appendix B. Figure 11 depicts the Phase I recommendations.

Table 10

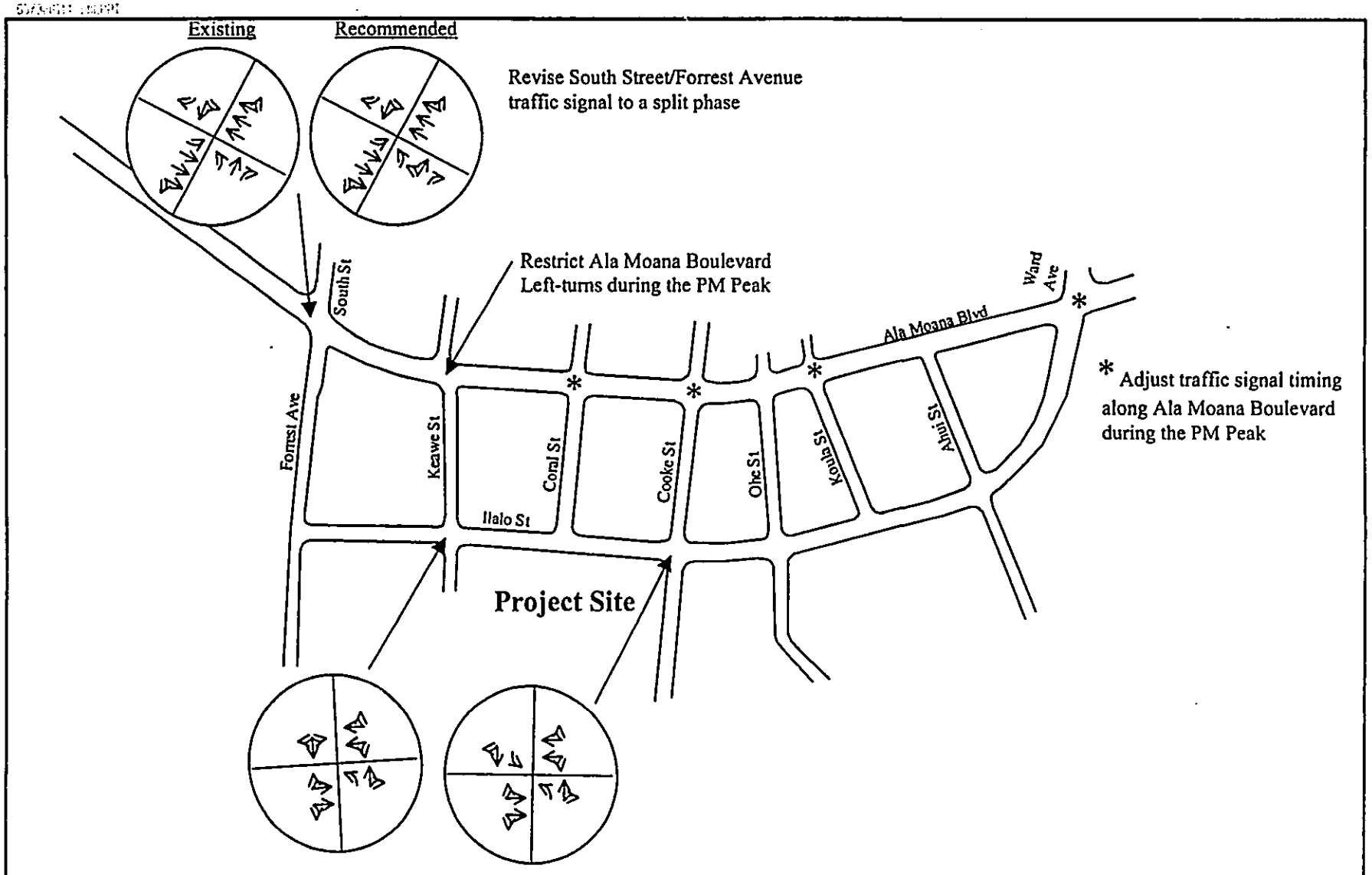
Year 2005 Recommendations – Phase I

Intersection/Movement	With Phase I	With Recommendations
	PM Peak	PM Peak
Ward Avenue/Ala Moana Boulevard	***E (72.2)***	***E (61.0)***
Diamond Head Bound (Ala Moana Blvd.)	E (68.9)	E (72.6)
Ewa Bound (Ala Moana Blvd.)	D (45.7)	D (38.3)
Mauka Bound (Ilalo Street)	E (55.3)	D (54.7)
Makai Bound (Ward Avenue)	F (>80)	E (73.7)
Koula Street/Ala Moana Boulevard	***C (30.2)***	***D (39.0)***
Diamond Head Bound (Ala Moana Blvd.)	D (36.2)	D (53.7)
Ewa Bound (Ala Moana Blvd.)	B (18.2)	B (19.8)
Mauka Bound (Koula Street)	E (76.8)	D (54.0)
Makai Bound (Koula Street)	D (53.4)	D (42.9)
Cooke Street/Ala Moana Boulevard	***C (32.7)***	***D(43.1)***
Diamond Head Bound (Ala Moana Blvd.)	C (30.6)	D (46.2)
Ewa Bound (Ala Moana Blvd.)	C (28.0)	D (38.5)
Mauka Bound (Cooke Street)	F (>80)	E (63.6)
Makai Bound (Cooke Street)	D (48.2)	C (33.1)
Coral Street/Ala Moana Boulevard	***C (29.9)***	***D (43.4)***
Diamond Head Bound (Ala Moana Blvd.)	C (32.0)	D (54.1)
Ewa Bound (Ala Moana Blvd.)	C (24.7)	C (32.0)
Mauka Bound (Coral Street)	D (53.6)	D (42.4)
Makai Bound (Coral Street)	D (44.6)	D (35.5)
Keawe Street/Ala Moana Boulevard	***E (70.0)***	***D (52.5)***
Diamond Head Bound (Ala Moana Blvd.)	E (65.3)	D (52.1)
Ewa Bound (Ala Moana Blvd.)	E (59.7)	D (47.6)
Mauka Bound (Keawe Street)	F (>80)	E (79.0)
Makai Bound (Keawe Street)	F (>80)	F (>80)

Table 10 (cont.) Year 2005 Recommendations – Phase I		
Intersection/Movement	**Phase I**	**With Recommendations**
	PM Peak	**PM Peak**
South St/Forrest Ave/Ala Moana Blvd	***D (46.1)***	***D (43.1)***
Diamond Head Bound (Ala Moana Blvd.)	C (29.1)	C (28.2)
Ewa Bound (Ala Moana Blvd.)	D (53.9)	D (54.7)
Mauka Bound (Forrest Avenue)	F (>80)	E (72.4)
Makai Bound (South Street)	D (35.3)	E (58.9)

Based upon the analysis of the traffic data and roadway conditions, the following are the proposed recommendations for Phase II of the UH Health and Wellness Center:

- The off-site parking for Phase II of the UH Health and Wellness Center was assumed to be located mauka of Ilalo Street between Forrest Avenue and Keawe Street. To reduce impacts created by the Phase II off-site parking facility, appropriate intersection improvements should be made to address increases in vehicle queues and delay. Left-turn pockets at the parking entrances should be provided to remove turning vehicles from the through traffic movements. When plans for Phase II of the Health and Wellness Center become more definitive, an update to the Traffic Impact Analysis Report will be performed by the University of Hawaii. The appropriate improvements will be identified by the update..
- As vehicular traffic increases within the Kakaako Makai area, traffic signal warrant analyses should be performed. Installation of traffic signals, when warranted should be installed by all new Makai area projects affecting the intersections.
- As vehicular traffic increases to the Kakaako Makai area, measures to facilitate left-turn vehicle queues on Ala Moana Boulevard should be applied. Traffic



WILSON OKAMOTO & ASSOCIATES, INC. ENGINEERS - PLANNERS	TRAFFIC ANALYSIS REPORT FOR THE UH HEALTH AND WELLNESS CENTER	FIGURE 11
	Phase I Recommendations	

signal or intersection geometry changes, when warranted should be installed by all new Makai area projects affecting the intersections.

Measures to reduce single occupant vehicles generated by the project during peak traffic hours should also be implemented. These measures could include staggered work hours and programs to promote ridesharing and/or BRT usage.

VII. CONCLUSION

Current and projected traffic congestion along Ala Moana Boulevard is primarily related to regional travel. The development of the UH Health and Wellness Center is projected to increase vehicular delays on Ala Moana Boulevard only slightly. Changes to the overall intersection operations would be minimal. Appropriate measures have been identified to address the impacts created by the Phase I project related traffic.

Phase II impacts to the project area should be reassessed in an update to the Traffic Impact Analysis Report as plans become solidified for both the Kakaako Makai area, and the UH Health and Wellness Center. Improvements to mitigate traffic created by the off-site parking structure will be identified by the update. Other improvements including the installation of traffic signals on Ilalo Street and improvements to facilitate turn movements on Ala Moana Boulevard should be implemented, when warranted, by the all of the Makai Area projects.

The primary traffic related congestion within the study area is associated with regional travel, and thus can only be fully addressed by regional solutions. Two improvements that could improve overall travel within the area include the Queen Street widening and the Bus Rapid Transit project. The Queen Street extension project is a separate project being undertaken by the HDCA. The project involves the extension of Queen Street from Kamakee Street to Waimanu Street. Once constructed, the project is anticipated to provide an alternate route to Ala Moana Boulevard. The BRT project would provide frequent and expedited transit service between Waianae and Waikiki, which would create a high capacity travel alternative.

APPENDIX A

LEVEL OF SERVICE DEFINITIONS

Level-of-Service Definition

Level-of-Service (LOS) is a qualitative measurement used to characterize traffic operations. LOS describes operational conditions within a traffic stream, generally in terms of service measures such as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience.

Control delay is the principal service measure for evaluating LOS at signalized and unsignalized intersections. Control delay quantifies the time that drivers are required to reduce their speed and/or stop due to traffic controls.

Six LOS are defined for each type of facility. Letter designations of A through F define each of the levels, with LOS A representing the best operating conditions, and LOS F, the worst.

Unsignalized Intersection Level-of-Service

At an unsignalized intersection, control delay is the total elapsed time from a vehicle joining a queue until its departure from the stopped position at the head of the queue. Control delay also includes the time required to decelerate to a stop and to accelerate to the free-flow speed. LOS is defined for each minor traffic movement (minor street movements and left turns from the major street of a two-way stopped controlled intersection). LOS is not defined for the intersection as a whole.

Level of Service	Average Control Delay (Sec/veh)
A	0-10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

Signalized Intersection Level-of-Service

At a signalized intersection, control delay is the delay attributed to traffic signal operations. Control delay includes delay due to deceleration, queue move-up time, stopped time and acceleration. The average control delay per vehicle is estimated for each lane group and aggregated for each approach as well as the entire intersection.

Level of Service	Average Control Delay (Sec/veh)
A	0-10
B	>10-20
C	>20-35
D	>35-55
E	>55-80
F	>80

Criteria for an unsignalized intersection are slightly different from a signalized intersection due to driver perception. Drivers perceive a signalized intersection to carry higher traffic volumes and experience greater delay than an unsignalized intersection.

Source: Transportation Research Board, Highway Capacity Manual (HCM 2000), 2000.

APPENDIX B

EXPANDED LEVEL OF SERVICE TABLES

EXPANDED TABLE 1

Existing Level of Service Summary

Intersection/Movement	AM Peak	PM Peak
Ward Avenue/Ala Moana Boulevard	***D (37.5)***	***E (64.2)***
Diamond Head Bound (Ala Moana Blvd.)	*C (22.9)*	*E (58.0)*
Left	E (55.1)	F (>80)
Thru/Right	B (17.5)	D (49.4)
Ewa Bound (Ala Moana Blvd.)	*D (43.6)*	*D (43.1)*
Left	D (53.8)	E (66.5)
Thru	D (45.7)	D (45.7)
Right	B (12.0)	B (16.1)
Mauka Bound (Ilalo Street)	*D (53.8)*	*E (57.2)*
Left/Thru	D (53.8)	E (57.9)
Right	D (53.2)	D (48.2)
Makai Bound (Ward Avenue)	*E (64.7)*	*F (>80)*
Left	D (54.4)	F (>80)
Left/Thru/Right	E (68.8)	F (>80)
Ahui Street/Ala Moana Boulevard*		
Mauka Bound Right (Ahui Street)	*C (17.8)*	*D (26.5)*
Koula Street/Ala Moana Boulevard	***B (17.0)***	***C (26.9)***
Diamond Head Bound (Ala Moana Blvd.)	*B (17.4)*	*C (31.2)*
Left	E (63.4)	E (70.4)
Thru/Right	B (16.8)	C (30.6)
Ewa Bound (Ala Moana Blvd.)	*B (14.7)*	*B (17.3)*
Left	E (64.9)	E (69.0)
Thru/Right	B (11.6)	B (14.0)
Mauka Bound (Koula Street)	*D (52.7)*	*E (71.5)*
Makai Bound (Koula Street)	*D (48.7)*	*D (53.4)*
Ohe Street/Ala Moana Boulevard*		
Mauka Bound Right (Ohe Street)	*C (15.9)*	*C (19.6)*
Makai Bound Right (Ohe Street)	*C (16.2)*	*C (16.6)*
Cooke Street/Ala Moana Boulevard	***B (17.7)***	***C (25.0)***
Diamond Head Bound (Ala Moana Blvd.)	*B (14.3)*	*C (23.8)*
Left	E (58.0)	E (62.8)
Thru/Right	B (12.6)	C (21.8)
Ewa Bound (Ala Moana Blvd.)	*B (18.8)*	*C (23.0)*
Left	E (60.4)	E (59.3)
Thru/Right	B (18.2)	C (22.7)
Mauka Bound (Cooke Street)	*D (45.7)*	*D (52.8)*
Left/Thru	D (49.0)	E (56.2)
Right	D (36.0)	C- (35.0)
Makai Bound (Cooke Street)	*D (42.9)*	*D (44.5)*
Left/Thru	D (50.5)	E (60.1)
Right	C (33.4)	C (34.9)

EXPANDED TABLE 1

Existing Level of Service Summary

Intersection/Movement		AM Peak	PM Peak
Coral Street/Ala Moana Boulevard		***B (15.7)***	***C (27.2)***
	Diamond Head Bound (Ala Moana Blvd.)	*B (16.5)*	*C (28.3)*
	Left	E (57.1)	E (67.4)
	Thru/Right	B (16.2)	C (27.9)
	Ewa Bound (Ala Moana Blvd.)	*B (12.3)*	*C (22.7)*
	Left	D (54.3)	E (67.4)
	Thru/Right	B (11.1)	C (22.3)
	Mauka Bound (Coral Street)	*D (42.6)*	*D (52.9)*
	Left/Thru	D (52.9)	E (59.6)
	Right	C (34.6)	D (38.9)
	Makai Bound (Coral Street)	*D (50.4)*	*D (44.5)*
	Left/Thru	D (54.0)	D (51.0)
	Right	D (37.6)	D (38.2)
Keawe Street/Ala Moana Boulevard		***C (22.6)***	***E (53.3)***
	Diamond Head Bound (Ala Moana Blvd.)	*B (19.7)*	*D (54.4)*
	Left	E (58.7)	E (71.5)
	Thru/Right	B (18.7)	D (54.1)
	Ewa Bound (Ala Moana Blvd.)	*C (21.8)*	*D (46.6)*
	Left	E (61.4)	E (68.2)
	Thru/Right	C (21.4)	D (46.5)
	Mauka Bound (Keawe Street)	*E (60.9)*	*F (>80)*
	Makai Bound (Keawe Street)	*E (68.8)*	*F (>80)*
South St/Forrest Ave/Ala Moana Blvd		***C (29.5)***	***D (35.1)***
	Diamond Head Bound (Ala Moana Blvd.)	C (28.4)	C (27.2)
	Left	F (>80)	F (>80)
	Thru/Right	B (14.7)	B (17.4)
	Ewa Bound (Ala Moana Blvd.)	*C (30.1)*	*D (43.2)*
	Mauka Bound (Cooke Street)	*D (45.2)*	*D (47.5)*
	Left	D (45.7)	D (48.9)
	Left/Thru	D (44.6)	D (45.4)
	Right	D (44.3)	D (44.6)
	Makai Bound (Cooke Street)	*D (35.7)*	*D (35.0)*
	Left/Thru	D (45.7)	D (46.3)
	Right	C (28.5)	C (32.2)
Punchbowl Street/Ala Moana Blvd		***C (21.4)***	***C (25.4)***
	Diamond Head Bound (Ala Moana Blvd.)	*B (18.8)*	*B (19.7)*
	Ewa Bound (Ala Moana Blvd.)	*B (16.4)*	*C (22.0)*
	Makai Bound (Punchbowl Street)	*D (47.2)*	*D (53.2)*
	Left	D (44.2)	D (44.9)
	Right	D (49.2)	E (57.8)

EXPANDED TABLE 5

Year 2005 Intersection Level of Service Summary – Phase I

Intersection/Movement	Without Project		With Phase I	
	AM Peak	PM Peak	AM Peak	PM Peak
Ward Avenue/Ala Moana Boulevard	*D (39.6)*	*E (68.8)*	*D (44.5)*	*E (72.2)*
Diamond Head Bound (Ala Moana Blvd.)	*C (23.3)*	*E (63.3)*	*C (23.3)*	*E (68.9)*
Left	E (56.4)	F (>80)	E (56.4)	F (>80)
Thru/Right	B (17.7)	D (54.1)	B (17.8)	D (59.9)
Ewa Bound (Ala Moana Blvd.)	*D (47.3)*	*D (44.3)*	*E (55.5)*	*D (45.7)*
Left	D (53.8)	E (66.5)	E (55.4)	E (67.4)
Thru	D (49.6)	D (47.1)	E (58.4)	D (48.5)
Right	B (12.0)	B (16.1)	B (12.0)	B (16.1)
Mauka Bound (Ilalo Street)	*D (52.7)*	*E (57.2)*	*D (51.6)*	*E (55.3)*
Left/Thru	D (53.8)	E (57.9)	D (54.0)	E (58.3)
Right	D (44.3)	D (48.2)	D (44.7)	D (50.2)
Makai Bound (Ward Avenue)	*E (67.5)*	*F (>80)*	*E (73.7)*	*F (>80)*
Left	D (54.4)	F (>80)	D (54.4)	F (>80)
Left/Thru/Right	E (72.7)	F (>80)	F (>80)	F (>80)
Ahui Street/Ala Moana Boulevard*				
Mauka Bound Right (Ahui Street)	*C (18.4)*	*D (28.1)*	*C (18.6)*	*D (29.7)*
Koula Street/Ala Moana Boulevard	***B (17.2)***	***C (28.4)***	***B (18.6)***	***C (30.2)***
Diamond Head Bound (Ala Moana Blvd.)	*B (17.7)*	*C (33.4)*	*B (17.8)*	*D (36.2)*
Left	E (63.4)	E (70.4)	E (63.4)	E (70.4)
Thru/Right	B (17.1)	C (32.8)	B (17.2)	D (35.7)
Ewa Bound (Ala Moana Blvd.)	*B (14.9)*	*B (17.5)*	*B (17.5)*	*B (18.2)*
Left	E (64.9)	E (69.0)	F (>80)	E (74.2)
Thru/Right	B (11.9)	B (14.3)	B (12.1)	B (14.4)
Mauka Bound (Koula Street)	*D (52.7)*	*E (76.8)*	*D (52.7)*	*E (76.8)*
Makai Bound (Koula Street)	*D (48.7)*	*D (53.4)*	*D (48.7)*	*D (53.4)*
Ohe Street/Ala Moana Boulevard*				
Mauka Bound Right (Ohe Street)	*C (16.1)*	*C (20.4)*	*C (16.2)*	*C (21.1)*
Makai Bound Right (Ohe Street)	*C (16.6)*	*C (16.8)*	*C (16.9)*	*C (17.0)*
Cooke Street/Ala Moana Boulevard	***B (18.2)***	***C (25.8)***	***B (18.7)***	***C (32.7)***
Diamond Head Bound (Ala Moana Blvd.)	*B (14.7)*	*C (24.7)*	*B (14.9)*	*C (30.6)*
Left	E (58.4)	E (62.8)	E (57.6)	E (66.3)
Thru/Right	B (12.9)	C (22.8)	B (13.3)	C (28.8)
Ewa Bound (Ala Moana Blvd.)	*B (19.5)*	*C (23.8)*	*C (20.0)*	*C (28.0)*
Left	E (60.4)	E (59.3)	E (61.8)	E (62.1)
Thru/Right	B (18.9)	C (23.5)	B (19.2)	C (27.6)
Mauka Bound (Cooke Street)	*D (45.7)*	*D (53.6)*	*D (46.7)*	*F (>80)*
Left/Thru	D (49.0)	E (56.9)	D (49.6)	F (>80)
Right	D (36.0)	C- (35.0)	D (36.0)	C- (34.2)
Makai Bound (Cooke Street)	*D (42.9)*	*D (45.0)*	*D (44.7)*	*D (48.2)*
Left/Thru	D (50.5)	E (61.4)	D (51.6)	E (70.5)
Right	C (33.4)	C (34.9)	C (33.4)	C (33.7)

EXPANDED TABLE 5

Year 2005 Intersection Level of Service Summary – Phase I

Intersection/Movement	Without Project		With Phase I	
	AM Peak	PM Peak	AM Peak	PM Peak
Coral Street/Ala Moana Boulevard	***B (16.0)***	***C (28.4)***	***B (16.3)***	***C (29.9)***
Diamond Head Bound (Ala Moana Blvd.)	*B (17.0)*	*C (30.0)*	*B (17.5)*	*C (32.0)*
Left	E (57.1)	E (67.4)	E (57.1)	E (67.4)
Thru/Right	B (16.7)	C (29.7)	B (17.2)	C (31.7)
Ewa Bound (Ala Moana Blvd.)	*B (12.5)*	*C (23.5)*	*B (12.6)*	*C (24.7)*
Left	D (54.3)	E (67.4)	D (54.3)	E (67.4)
Thru/Right	B (11.3)	C (23.0)	B (11.4)	C (24.3)
Mauka Bound (Coral Street)	*D (42.6)*	*D (53.6)*	*D (42.6)*	*D (53.6)*
Left/Thru	D (52.9)	E (60.8)	D (52.9)	E (60.8)
Right	C (34.6)	D (39.1)	C (34.6)	D (39.1)
Makai Bound (Coral Street)	*D (50.4)*	*D (44.6)*	*D (50.4)*	*D (44.6)*
Left/Thru	D (54.0)	D (51.1)	D (54.0)	D (51.1)
Right	D (37.6)	D (38.2)	D (37.6)	D (38.2)
Keawe Street/Ala Moana Boulevard	***C (23.1)***	***E (59.1)***	***C (26.3)***	***E (70.0)***
Diamond Head Bound (Ala Moana Blvd.)	*C (20.2)*	*E (60.9)*	*C (21.9)*	*E (65.3)*
Left	E (58.7)	E (71.5)	E (58.7)	E (71.5)
Thru/Right	B (19.2)	E (60.7)	B (20.9)	E (65.2)
Ewa Bound (Ala Moana Blvd.)	*C (22.3)*	*D (51.7)*	*C (22.9)*	*E (59.7)*
Left	E (61.4)	E (68.2)	E (64.6)	E (69.3)
Thru/Right	C (21.9)	D (51.6)	C (22.0)	E (59.7)
Mauka Bound (Keawe Street)	*E (62.0)*	*F (>80)*	*E (69.0)*	*F (>80)*
Makai Bound (Keawe Street)	*E (68.8)*	*F (>80)*	*F (>80)*	*F (>80)*
South St/Forrest Ave/Ala Moana Blvd	***C (30.6)***	***D (37.9)***	***C (31.5)***	***D (46.1)***
Diamond Head Bound (Ala Moana Blvd.)	C (29.6)	C (28.3)	C (30.9)	C (29.1)
Left	F (>80)	F (>80)	F (>80)	F (>80)
Thru/Right	B (15.1)	B (18.1)	B (17.8)	B (19.3)
Ewa Bound (Ala Moana Blvd.)	*C (31.1)*	*D (48.4)*	*C (31.3)*	*D (53.9)*
Mauka Bound (Cooke Street)	*D (45.2)*	*D (47.7)*	*D (47.0)*	*F (>80)*
Left	D (45.7)	D (49.2)	D (47.9)	F (>80)
Left/Thru	D (44.6)	D (45.4)	D (44.8)	D (45.9)
Right	D (44.3)	D (44.6)	D (44.3)	D (44.6)
Makai Bound (Cooke Street)	*D (35.5)*	*D (35.1)*	*D (36.8)*	*D (35.3)*
Left/Thru	D (45.7)	D (46.3)	D (46.2)	D (46.5)
Right	C (28.6)	C (32.3)	C (28.6)	C (32.3)
Punchbowl Street/Ala Moana Blvd	***C (21.9)***	***C (26.3)***	***C (23.6)***	***C (30.3)***
Diamond Head Bound (Ala Moana Blvd.)	*B (19.4)*	*B (20.4)*	*C (22.7)*	*C (21.3)*
Ewa Bound (Ala Moana Blvd.)	*B (16.8)*	*C (23.0)*	*B (17.2)*	*C (31.3)*
Makai Bound (Punchbowl Street)	*D (47.5)*	*D (53.9)*	*D (47.6)*	*D (53.8)*
Left	D (44.3)	D (45.0)	D (44.7)	D (45.2)
Right	D (49.6)	E (58.8)	D (49.6)	E (58.8)

EXPANDED TABLE 5

Year 2005 Intersection Level of Service Summary – Phase I

Intersection/Movement	Without Project		With Phase I	
	AM Peak	PM Peak	AM Peak	PM Peak
Ahui Street/Ilalo Street*	***A (7.3)***	***A (7.4)***	***A (7.4)***	***A (7.6)***
Diamond Head Bound (Ilalo Street)	*A (7.1)*	*A (7.0)*	*A (7.3)*	*A (7.6)*
Left/Thru	A (7.5)	A (7.4)	A (7.5)	A (7.6)
Thru/Right	A (6.9)	A (7.0)	A (7.1)	A (7.6)
Ewa Bound (Ilalo Street)	*A (7.5)*	*A (7.6)*	*A (7.3)*	*A (7.7)*
Left/Thru	A (7.5)	A (7.7)	A (7.4)	A (7.8)
Thru/Right	A (7.3)	A (7.4)	A (7.3)	A (7.5)
Mauka Bound (Ahui Street)	*A (7.3)*	*A (7.4)*	*A (7.4)*	*A (7.6)*
Left	A (7.6)	A (7.7)	A (7.7)	A (7.9)
Thru/Right	A (7.0)	A (7.0)	A (7.2)	A (7.2)
Makai Bound (Ahui Street)	*A (7.4)*	*A (7.4)*	*A (7.5)*	*A (7.6)*
Koula Street/Ilalo Street*	***A (7.2)***	***A (7.3)***	***A (7.2)***	***A (7.5)***
Diamond Head Bound (Ilalo Street)	*A (7.3)*	*A (7.4)*	*A (7.5)*	*A (7.6)*
Left/Thru	A (7.4)	A (7.5)	A (7.5)	A (7.6)
Thru/Right	A (7.3)	A (7.3)	A (7.4)	A (7.5)
Ewa Bound (Ilalo Street)	*A (7.1)*	*A (7.3)*	*A (7.4)*	*A (7.4)*
Left/Thru	A (7.3)	A (7.3)	A (7.4)	A (7.5)
Thru/Right	A (7.0)	A (7.2)	A (7.4)	A (7.4)
Makai Bound (Koula Street)	*A (7.2)*	*A (7.0)*	*A (6.7)*	*A (6.7)*
Left	A (7.2)	A (7.0)	A (7.3)	A (7.2)
Right	A (7.0)	A (7.0)	A (6.6)	A (6.7)
Ohe Street/Ilalo Street*	***A (7.2)***	***A (7.2)***	***A (7.5)***	***A (7.5)***
Diamond Head Bound (Ilalo Street)	*A (7.2)*	*A (7.3)*	*A (7.4)*	*A (7.6)*
Left/Thru	A (7.4)	A (7.4)	A (7.5)	A (7.6)
Thru/Right	A (7.1)	A (7.1)	A (7.3)	A (7.5)
Ewa Bound (Ilalo Street)	*A (7.3)*	*A (7.4)*	*A (7.5)*	*A (7.5)*
Left/Thru	A (7.3)	A (7.4)	A (7.5)	A (7.5)
Thru/Right	A (7.3)	A (7.4)	A (7.5)	A (7.5)
Mauka Bound (Ohe Street)	*A (7.1)*	*A (6.8)*	*A (7.3)*	*A (7.0)*
Left	A (7.5)	A (7.3)	A (7.7)	A (7.6)
Thru/Right	A (6.7)	A (6.8)	A (6.9)	A (7.0)
Makai Bound (Ohe Street)	*A (7.3)*	*A (7.4)*	*A (7.5)*	*A (7.6)*
Cooke Street/Ilalo Street*	***A (7.3)***	***A (7.5)***	***A (8.1)***	***A (8.4)***
Diamond Head Bound (Ilalo Street)	*A (7.2)*	*A (7.3)*	*A (7.7)*	*A (8.2)*
Left/Thru	A (7.5)	A (7.6)	A (8.0)	A (8.4)
Thru/Right	A (7.0)	A (7.1)	A (7.7)	A (8.0)
Ewa Bound (Ilalo Street)	*A (7.3)*	*A (7.4)*	*A (8.2)*	*A (8.2)*
Left/Thru	A (7.6)	A (7.7)	A (8.3)	A (8.3)
Thru/Right	A (7.0)	A (7.2)	A (7.9)	A (7.9)
Mauka Bound (Cooke Street)	*A (7.4)*	*A (7.5)*	*A (8.1)*	*A (8.6)*
Left	A (7.6)	A (7.6)	A (8.3)	A (8.2)
Thru/Right	A (7.3)	A (7.5)	A (7.8)	A (8.8)
Makai Bound (Cooke Street)	*A (7.4)*	*A (7.5)*	*A (8.2)*	*A (8.2)*
Left	A (7.6)	A (7.6)	A (8.1)	A (8.1)
Thru/Right	A (7.3)	A (7.5)	A (8.3)	A (8.2)

EXPANDED TABLE 5

Year 2005 Intersection Level of Service Summary – Phase I

Intersection/Movement	Without Project		With Phase I	
	AM Peak	PM Peak	AM Peak	PM Peak
Coral Street/Ilalo Street*	*A (7.2)*	*A (7.2)*	*A (7.5)*	*A (7.6)*
Diamond Head Bound (Ilalo Street)	*A (7.4)*	*A (7.4)*	*A (7.5)*	*A (7.6)*
Left/Thru	A (7.4)	A (7.4)	A (7.6)	A (7.6)
Thru	A (7.3)	A (7.3)	A (7.5)	A (7.6)
Ewa Bound (Ilalo Street)	*A (7.1)*	*A (7.1)*	*A (7.5)*	*A (7.5)*
Thru	A (7.3)	A (7.3)	A (7.6)	A (7.5)
Thru/Right	A (7.0)	A (7.0)	A (7.5)	A (7.4)
Makai Bound (Coral Street)	*A (7.0)*	*A (7.3)*	*A (7.3)*	*A (7.6)*
Left	A (7.2)	A (7.3)	A (7.5)	A (7.6)
Right	A (6.4)	A (7.0)	A (6.7)	A (7.3)
Keawe Street/Ilalo Street*	*A (7.2)*	*A (7.3)*	*A (8.9)*	*A (8.9)*
Diamond Head Bound (Ilalo Street)	*A (7.2)*	*A (7.2)*	*A (8.4)*	*A (8.2)*
Left/Thru	A (7.3)	A (7.3)	A (8.2)	A (8.4)
Thru/Right	A (7.1)	A (7.1)	A (8.4)	A (8.4)
Ewa Bound (Ilalo Street)	*A (7.1)*	*A (7.2)*	*A (8.7)*	*A (8.6)*
Left/Thru	A (7.3)	A (7.3)	A (8.9)	A (8.8)
Thru/Right	A (7.0)	A (7.1)	A (7.8)	A (8.3)
Mauka Bound (Keawe Street)	*A (7.4)*	*A (7.4)*	*A (8.4)*	*A (9.1)*
Left	A (7.5)	A (7.5)	A (8.6)	A (9.7)
Thru/Right	A (7.3)	A (7.3)	A (8.1)	A (8.4)
Makai Bound (Keawe Street)	*A (7.2)*	*A (7.5)*	*A (9.7)*	*A (8.4)*
Forrest Avenue/Ilalo Street*	*A (7.5)*	*A (7.6)*	*A (8.1)*	*A (8.1)*
Ewa Bound (Ilalo Street)	*A (6.6)*	*A (6.6)*	*A (7.1)*	*A (7.9)*
Left	A (7.1)	A (7.2)	A (7.4)	A (7.3)
Right	A (6.6)	A (6.6)	A (7.1)	A (7.9)
Mauka Bound (Forrest Avenue)	*A (7.5)*	*A (7.8)*	*A (7.7)*	*A (8.4)*
Makai Bound (Forrest Avenue)	*A (7.7)*	*A (7.5)*	*A (8.5)*	*A (8.3)*
Left	A (7.6)	A (7.6)	A (8.8)	A (8.5)
Thru	A (7.7)	A (7.4)	A (7.8)	A (7.9)

EXPANDED TABLE 8

Buildout Intersection Level of Service Summary – Phase II

Intersection/Movement	Without Phase II		With Phase II	
	AM Peak	PM Peak	AM Peak	PM Peak
Ward Avenue/Ala Moana Boulevard	*E (74.8)*	*F (>80)*	*E (74.8)*	*F (>80)*
Diamond Head Bound (Ala Moana Blvd.)	*D (42.0)*	*F (>80)*	*D (42.0)*	*F (>80)*
Left	F (>80)	F (>80)	F (>80)	F (>80)
Thru/Right	C (34.0)	F (>80)	C (34.2)	F (>80)
Ewa Bound (Ala Moana Blvd.)	*F (>80)*	*E (59.5)*	*F (>80)*	*E (66.5)*
Left	F (>80)	F (>80)	F (>80)	F (>80)
Thru	F (>80)	D (44.8)	F (>80)	D (44.8)
Right	B (10.9)	B (11.9)	B (10.9)	B (11.9)
Mauka Bound (Ilalo Street)	*D (50.3)*	*F (>80)*	*D (50.3)*	*F (>80)*
Left/Thru	E (56.9)	E (77.3)	E (56.9)	E (77.3)
Right	D (37.1)	F (>80)	D (37.1)	F (>80)
Makai Bound (Ward Avenue)	*F (>80)*	*F (>80)*	*F (>80)*	*F (>80)*
Left	D (49.2)	F (>80)	D (49.2)	F (>80)
Left/Thru/Right	F (>80)	F (>80)	F (>80)	F (>80)
Ahui Street/Ala Moana Boulevard*				
Mauka Bound Right (Ahui Street)	*C (19.4)*	*F (>50)*	*C (19.4)*	*F (>50)*
Koula Street/Ala Moana Boulevard	*C (26.1)*	*F (>80)*	*C (25.8)*	*F (>80)*
Diamond Head Bound (Ala Moana Blvd.)	*C (32.5)*	*F (>80)*	*C (32.6)*	*F (>80)*
Left	E (63.4)	E (61.0)	E (63.4)	E (61.0)
Thru/Right	C (32.1)	F (>80)	C (32.3)	F (>80)
Ewa Bound (Ala Moana Blvd.)	*B (18.8)*	*C (22.3)*	*B (18.1)*	*C (20.7)*
Left	E (61.1)	F (>80)	D (54.0)	F (>80)
Thru/Right	B (14.9)	B (15.9)	B (15.5)	B (15.9)
Mauka Bound (Koula Street)	*D (53.9)*	*F (>80)*	*D (53.9)*	*F (>80)*
Makai Bound (Koula Street)	*D (46.1)*	*D (42.4)*	*D (46.1)*	*D (42.4)*
Ohe Street/Ala Moana Boulevard*				
Mauka Bound Right (Ohe Street)	*C (18.1)*	*E (37.2)*	*C (18.1)*	*E (38.0)*
Makai Bound Right (Ohe Street)	*C (17.9)*	*C (18.7)*	*C (18.3)*	*C (18.7)*
Cooke Street/Ala Moana Boulevard	*C (22.5)*	*E (59.9)*	*C (22.8)*	*E (57.5)*
Diamond Head Bound (Ala Moana Blvd.)	*B (17.8)*	*D (53.0)*	*B (17.4)*	*E (60.8)*
Left	E (56.0)	E (61.7)	E (56.0)	E (58.0)
Thru/Right	B (16.3)	D (52.6)	B (15.9)	E (61.0)
Ewa Bound (Ala Moana Blvd.)	*C (24.6)*	*D (46.2)*	*C (25.5)*	*D (50.9)*
Left	E (75.7)	E (56.5)	E (71.9)	D (53.9)
Thru/Right	C (22.5)	D (46.0)	C (23.8)	D (50.3)
Mauka Bound (Cooke Street)	*D (46.4)*	*F (>80)*	*D (45.4)*	*F (>80)*
Left/Thru	D (51.4)	F (>80)	D (50.6)	F (>80)
Right	C (34.9)	C (28.6)	C (34.9)	C (27.6)
Makai Bound (Cooke Street)	*D (44.5)*	*E (70.7)*	*D (44.6)*	*D (41.9)*
Left/Thru	D (53.0)	F (>80)	D (52.9)	E (62.5)
Right	C (32.5)	C (26.2)	C (32.5)	C (25.5)

EXPANDED TABLE 8

Buildout Intersection Level of Service Summary – Phase II

Intersection/Movement	Without Phase II		With Phase II	
	AM Peak	PM Peak	AM Peak	PM Peak
Coral Street/Ala Moana Boulevard	***C (21.9)***	***D (40.9)***	***C (21.8)***	***D (41.3)***
Diamond Head Bound (Ala Moana Blvd.)	*C (25.4)*	*D (47.3)*	*C (24.6)*	*D (51.1)*
Left	D (54.2)	E (56.5)	D (54.2)	D (56.5)
Thru/Right	C (25.2)	D (47.2)	C (24.3)	D (51.1)
Ewa Bound (Ala Moana Blvd.)	*B (16.2)*	*C (33.2)*	*B (16.9)*	*D (36.3)*
Left	E (55.3)	E (57.6)	E (58.4)	E (59.6)
Thru/Right	B (13.4)	C (32.6)	B (13.7)	C (28.7)
Mauka Bound (Coral Street)	*D (39.3)*	*D (48.8)*	*D (40.2)*	*D (48.8)*
Left/Thru	D (52.9)	E (62.0)	D (53.2)	E (62.0)
Right	C (31.4)	D (35.5)	C (31.4)	D (35.5)
Makai Bound (Coral Street)	*D (49.9)*	*D (39.9)*	*D (49.9)*	*D (39.9)*
Left/Thru	D (54.0)	D (47.7)	D (54.0)	D (47.7)
Right	D (35.4)	C (32.4)	D (35.4)	C (32.4)
Keawe Street/Ala Moana Boulevard	***D (39.0)***	***E (66.9)***	***D (46.1)***	***E (75.5)***
Diamond Head Bound (Ala Moana Blvd.)	*D (40.5)*	*D (44.4)*	*D (45.8)*	*D (44.5)*
Left	E (63.0)	-	E (63.0)	-
Thru/Right	D (40.0)	D (44.4)	D (45.4)	D (44.5)
Ewa Bound (Ala Moana Blvd.)	*C (25.3)*	*D (50.7)*	*C (29.8)*	*D (52.8)*
Left	E (69.1)	-	F (>80)	-
Thru/Right	C (23.8)	D (50.7)	C (23.7)	D (52.8)
Mauka Bound (Keawe Street)	*E (73.5)*	*F (>80)*	*E (76.9)*	*F (>80)*
Makai Bound (Keawe Street)	*F (>80)*	*F (>80)*	*F (>80)*	*F (>80)*
South St/Forrest Ave/Ala Moana Blvd	***D (43.2)***	***E (67.1)***	***D (46.9)***	***E (74.4)***
Diamond Head Bound (Ala Moana Blvd.)	D (43.1)	C (30.9)	D (49.8)	C (31.2)
Left	F (>80)	F (>80)	F (>80)	F (>80)
Thru/Right	D (36.4)	C (22.5)	D (43.9)	C (22.9)
Ewa Bound (Ala Moana Blvd.)	*D (41.2)*	*F (>80)*	*D (40.8)*	*F (>80)*
Mauka Bound (Cooke Street)	*D (50.4)*	*F (>80)*	*D (50.9)*	*F (>80)*
Left	D (50.2)	F (>80)	D (50.8)	F (>80)
Left/Thru	D (50.7)	F (>80)	D (51.2)	F (>80)
Right	D (49.2)	D (50.9)	D (49.2)	D (50.9)
Makai Bound (Cooke Street)	*E (68.2)*	*E (64.7)*	*E (62.8)*	*E (64.7)*
Left/Thru	F (>80)	F (>80)	F (>80)	F (>80)
Right	D (39.3)	D (52.2)	D (39.3)	D (52.2)
Punchbowl Street/Ala Moana Blvd	***C (34.4)***	***D (52.8)***	***D (38.3)***	***D (54.5)***
Diamond Head Bound (Ala Moana Blvd.)	D (43.8)	C (27.8)	D (51.3)	C (26.3)
Ewa Bound (Ala Moana Blvd.)	*B (17.2)*	*E (74.0)*	*B (17.3)*	*E (77.1)*
Makai Bound (Punchbowl Street)	*D (47.6)*	*D (53.8)*	*D (47.6)*	*E (58.0)*
Left	D (44.7)	D (45.2)	D (44.8)	D (47.8)
Right	D (49.6)	E (58.8)	D (49.6)	E (63.9)

EXPANDED TABLE 8

Buildout Intersection Level of Service Summary – Phase II

Intersection/Movement	Without Phase II		With Phase II	
	AM Peak	PM Peak	AM Peak	PM Peak
Ahui Street/Ilalo Street*	*B (12.6)*	*D (26.9)*	*B (12.9)*	*D (28.1)*
Diamond Head Bound (Ilalo Street)	*B (12.5)*	*D (27.6)*	*B (12.6)*	*D (29.5)*
Left/Thru	A (9.5)	C (16.7)	A (9.5)	C (17.3)
Thru/Right	B (13.0)	D (33.7)	B (13.2)	D (36.3)
Ewa Bound (Ilalo Street)	*B (13.6)*	*C (16.6)*	*B (14.0)*	*C (17.1)*
Left/Thru	C (15.1)	C (18.3)	C (15.6)	C (19.0)
Thru/Right	B (11.1)	B (12.7)	B (11.4)	B (13.0)
Mauka Bound (Ahui Street)	*B (11.1)*	*D (31.1)*	*B (11.2)*	*D (32.0)*
Left	B (11.2)	E (38.8)	B (11.3)	E (40.1)
Thru/Right	B (11.1)	C (21.8)	B (11.2)	C (22.3)
Makai Bound (Ahui Street)	*B (10.5)*	*B (11.4)*	*B (10.6)*	*B (11.5)*
Koula Street/Ilalo Street*	*B (12.6)*	*C (17.9)*	*B (12.5)*	*C (18.3)*
Diamond Head Bound (Ilalo Street)	*B (13.4)*	*B (13.3)*	*B (13.2)*	*B (13.4)*
Left/Thru	B (11.0)	B (13.0)	B (10.9)	B (13.1)
Thru/Right	B (14.5)	B (13.5)	B (14.3)	B (13.7)
Ewa Bound (Ilalo Street)	*B (12.2)*	*C (23.2)*	*B (12.3)*	*C (23.8)*
Left/Thru	B (12.4)	B (13.1)	B (12.5)	B (13.2)
Thru/Right	B (12.0)	D (28.1)	B (12.1)	D (29.0)
Makai Bound (Koula Street)	*B (12.0)*	*B (11.3)*	*B (12.0)*	*B (11.2)*
Left	B (13.3)	B (12.0)	B (13.4)	B (12.0)
Right	B (10.2)	B (10.5)	A (9.7)	B (10.4)
Ohe Street/Ilalo Street*	*C (19.3)*	*F (>50)*	*C (19.0)*	*F (>50)*
Diamond Head Bound (Ilalo Street)	*C (22.2)*	*E (38.0)*	*C (21.9)*	*E (40.0)*
Left/Thru	B (11.7)	C (15.4)	B (11.7)	C (15.8)
Thru/Right	D (26.5)	E (46.5)	D (26.1)	E (49.5)
Ewa Bound (Ilalo Street)	*C (18.1)*	*F (>50)*	*C (17.7)*	*F (>50)*
Left/Thru	C (20.7)	F (>50)	C (20.1)	F (>50)
Thru/Right	B (10.6)	C (20.0)	B (10.5)	C (20.0)
Mauka Bound (Ohe Street)	*B (11.5)*	*F (>50)*	*B (11.4)*	*F (>50)*
Left	B (12.0)	F (>50)	B (12.0)	F (>50)
Thru/Right	B (10.7)	C (20.5)	B (10.6)	C (20.6)
Makai Bound (Ohe Street)	*B (11.0)*	*B (13.0)*	*B (11.0)*	*B (13.0)*
Cooke Street/Ilalo Street*	B (13.6)	F (>50)	B (12.9)	F (>50)
Diamond Head Bound (Ilalo Street)	*B (14.9)*	*B (14.9)*	*B (13.8)*	*B (14.3)*
Left/Thru	B (14.3)	C (15.4)	B (14.0)	B (14.8)
Thru/Right	C (15.4)	B (14.4)	C (13.7)	B (13.8)
Ewa Bound (Ilalo Street)	*B (12.7)*	*F (>50)*	*B (12.2)*	*F (>50)*
Left/Thru	B (12.0)	C (20.2)	B (11.3)	C (18.3)
Thru/Right	B (13.2)	F (>50)	B (12.8)	F (>50)
Mauka Bound (Cooke Street)	*B (10.3)*	*B (12.6)*	*B (10.3)*	*B (11.3)*
Left	B (10.6)	B (11.5)	B (10.3)	B (11.0)
Thru/Right	B (10.2)	B (13.0)	B (10.3)	B (11.3)
Makai Bound (Cooke Street)	*B (12.5)*	*B (13.9)*	*B (12.2)*	*B (13.2)*
Left	B (13.4)	B (14.8)	B (13.2)	B (14.2)
Thru/Right	B (11.2)	B (11.1)	B (10.3)	B (11.1)

EXPANDED TABLE 8

Buildout Intersection Level of Service Summary – Phase II

Intersection/Movement	Without Phase II		With Phase II	
	AM Peak	PM Peak	AM Peak	PM Peak
Coral Street/Ilalo Street*	***B (11.3)***	***B (14.0)***	***B (11.2)***	***B (14.0)***
Diamond Head Bound (Ilalo Street)	*B (11.8)*	*B (11.8)*	*B (11.7)*	*B (12.0)*
Left/Thru	B (12.4)	B (12.5)	B (12.3)	B (12.8)
Thru	B (11.1)	B (10.7)	B (10.9)	B (10.8)
Ewa Bound (Ilalo Street)	*B (10.8)*	*C (15.9)*	*B (11.0)*	*C (16.0)*
Thru	B (10.1)	B (12.7)	B (10.2)	B (12.7)
Thru/Right	B (11.2)	C (18.1)	B (11.5)	C (18.1)
Makai Bound (Coral Street)	*B (10.9)*	*B (10.2)*	*B (10.7)*	*B (10.2)*
Left	B (11.6)	B (10.7)	B (11.5)	B (10.7)
Right	A (8.5)	A (8.9)	A (8.7)	A (9.1)
Keawe Street/Ilalo Street*	***B (13.3)***	***C (17.2)***	***B (11.7)***	***C (16.5)***
Diamond Head Bound (Ilalo Street)	*B (11.7)*	*B (11.4)*	*B (10.9)*	*B (10.9)*
Left/Thru	B (11.2)	B (11.2)	B (10.5)	B (10.8)
Thru/Right	B (12.0)	B (11.5)	B (11.2)	B (11.0)
Ewa Bound (Ilalo Street)	*B (10.8)*	*C (21.6)*	*B (10.6)*	*C (20.6)*
Left/Thru	B (10.7)	B (12.6)	B (10.6)	B (12.0)
Thru/Right	B (10.9)	D (25.5)	B (10.6)	C (24.0)
Mauka Bound (Keawe Street)	*B (10.1)*	*B (13.2)*	*A (9.8)*	*B (12.6)*
Left	B (10.4)	B (14.3)	B (10.1)	B (13.6)
Thru/Right	A (9.7)	B (11.6)	A (9.4)	B (10.9)
Makai Bound (Keawe Street)	*C (17.7)*	*B (13.8)*	*B (14.4)*	*B (13.0)*
Forrest Avenue/Ilalo Street*	***B (10.9)***	***B (13.2)***	***B (10.3)***	***B (12.0)***
Ewa Bound (Ilalo Street)	*A (8.1)*	*B (14.8)*	*A (7.9)*	*B (13.2)*
Left	A (8.0)	A (7.9)	A (7.9)	A (7.8)
Right	A (8.1)	B (14.8)	A (7.9)	B (13.2)
Mauka Bound (Forrest Avenue)	*A (8.1)*	*B (10.2)*	*A (8.0)*	*B (10.0)*
Makai Bound (Forrest Avenue)	*B (11.7)*	*B (10.7)*	*B (11.0)*	*B (10.3)*
Left	B (12.6)	A (9.6)	B (11.8)	A (9.4)
Thru	A (8.2)	B (11.1)	A (8.2)	B (10.6)

EXPANDED TABLE 10

Year 2005 Intersection Level of Service Summary – Phase I With and Without Recommendations

Intersection/Movement		With Phase I PM Peak	With Phase I Recommendations PM Peak
Ward Avenue/Ala Moana Boulevard		***E (72.2)***	***E (61.0)***
	Diamond Head Bound (Ala Moana Blvd.)	*E (68.9)*	*E (72.6)*
	Left	F (>80)	F (>80)
	Thru/Right	D (59.9)	E (62.8)
	Ewa Bound (Ala Moana Blvd.)	*D (45.7)*	*D (38.3)*
	Left	E (67.4)	E (57.0)
	Thru	D (48.5)	D (40.8)
	Right	B (16.1)	B (11.0)
	Mauka Bound (Ilalo Street)	*E (55.3)*	*D (54.7)*
	Left/Thru	E (58.3)	E (58.0)
	Right	D (50.2)	D (48.9)
	Makai Bound (Ward Avenue)	*F (>80)*	*E (73.7)*
	Left	F (>80)	F (>80)
	Left/Thru/Right	F (>80)	E (59.9)
Koula Street/Ala Moana Boulevard		***C (30.2)***	***D (39.0)***
	Diamond Head Bound (Ala Moana Blvd.)	*D (36.2)*	*D (53.7)*
	Left	E (70.4)	E (59.4)
	Thru/Right	D (35.7)	D (53.6)
	Ewa Bound (Ala Moana Blvd.)	*B (18.2)*	*B (19.8)*
	Left	E (74.2)	E (63.5)
	Thru/Right	B (14.4)	B (16.8)
	Mauka Bound (Koula Street)	*E (76.8)*	*D (54.0)*
	Makai Bound (Koula Street)	*D (53.4)*	*D (42.9)*
Cooke Street/Ala Moana Boulevard		***C (32.7)***	***D (43.1)***
	Diamond Head Bound (Ala Moana Blvd.)	*C (30.6)*	*D (46.2)*
	Left	E (66.3)	D (52.9)
	Thru/Right	C (28.8)	D (45.9)
	Ewa Bound (Ala Moana Blvd.)	*C (28.0)*	*D (38.5)*
	Left	E (62.1)	D (52.0)
	Thru/Right	C (27.6)	D (38.3)
	Mauka Bound (Cooke Street)	*F (>80)*	*E (63.6)*
	Left/Thru	F (>80)	E (70.1)
	Right	C- (34.2)	C (25.3)
	Makai Bound (Cooke Street)	*D (48.2)*	*C (33.1)*
	Left/Thru	E (70.5)	D (46.8)
	Right	C (33.7)	C (24.2)

EXPANDED TABLE 10

Year 2005 Intersection Level of Service Summary – Phase I With and Without Recommendations

Intersection/Movement	With Phase I PM Peak	With Phase I Recommendations PM Peak
Coral Street/Ala Moana Boulevard	***C (29.9)***	***D (43.4)***
Diamond Head Bound (Ala Moana Blvd.)	*C (32.0)*	*D (54.1)*
Left	E (67.4)	E (55.7)
Thru/Right	C (31.7)	D (54.0)
Ewa Bound (Ala Moana Blvd.)	*C (24.7)*	*C (32.0)*
Left	E (67.4)	E (56.1)
Thru/Right.	C (24.3)	C (31.6)
Mauka Bound (Coral Street)	*D (53.6)*	*D (42.4)*
Left/Thru	E (60.8)	D (48.9)
Right	D (39.1)	C (29.5)
Makai Bound (Coral Street)	*D (44.6)*	*D (35.5)*
Left/Thru	D (51.1)	D (42.3)
Right	D (38.2)	D (28.9)
Keawe Street/Ala Moana Boulevard	***E (70.0)***	***D (52.5)***
Diamond Head Bound (Ala Moana Blvd.)	*E (65.3)*	*D (52.1)*
Left	E (71.5)	Restricted
Thru/Right	E (65.2)	D (52.1)
Ewa Bound (Ala Moana Blvd.)	*E (59.7)*	*D (47.6)*
Left	E (69.3)	Restricted
Thru/Right	E (59.7)	D (47.6)
Mauka Bound (Keawe Street)	*F (>80)*	*E (79.0)*
Makai Bound (Keawe Street)	*F (>80)*	*F (>80)*
South St/Forrest Ave/Ala Moana Blvd	***D (46.1)***	***D (43.1)***
Diamond Head Bound (Ala Moana Blvd.)	C (29.1)	C (28.2)
Left	F (>80)	F (>80)
Thru/Right	B (19.3)	B (17.3)
Ewa Bound (Ala Moana Blvd.)	*D (53.9)*	*D (54.7)*
Mauka Bound (Cooke Street)	*F (>80)*	*E (72.4)*
Left	F (>80)	E (72.6)
Left/Thru	D (45.9)	E (72.8)
Right	D (44.6)	D (50.9)
Makai Bound (Cooke Street)	*D (35.3)*	*E (58.9)*
Left/Thru	D (46.5)	F (>80)
Right	C (32.3)	D (52.2)

APPENDIX B

Cultural Impact Assessment

6573-01
March 7, 2002

University of Hawai'i Health and Wellness Center

CULTURAL RESOURCES

The project site is located on fill land that is identified as the near-shore waters and coral reef of Ka'ākaukukui on early historical maps. Ka'ākaukukui is an 'ili awarded to Victoria Kamāmalu in the Great Mahele of 1848 that is situated between the areas traditionally referred to as Kewalo and Kaka'ako. Historical maps of the area from the 1800s indicate a "Beach Road" that follows along the shoreline and makai boundary of the 'ili (see Figure 1). This road approximately coincides with the present day alignment of Ala Moana Boulevard.

The lands of Ka'ākaukukui, Kaka'ako and Kewalo were in close proximity to Kou, a favorite sheltered harbor of O'ahu's chiefly class. In 1809 under the reign of King Kamehameha I, the seat of government was moved from Hawai'i Island to Kou which quickly developed into Honolulu Harbor and Downtown Honolulu. The surrounding area, which included Ka'ākaukukui, grew from a coastal fishing village to support the new maritime industry and increased activities.

In the 1840s during the reign of Kauikeaouli Kamehameha III, son of Kamehameha I, land tenure in Hawai'i entered a transitional period terminating in the "Great Mahele" of 1848. King Kamehameha III who inherited from his brother control of all the lands with the kingdom chose to provide the opportunity for fee simple ownership of land to his chiefs and people. The maka'āinana, the native tenants, were able to make claims for and receive title to their kuleana, the areas of land which they personally used. Kauikeaouli Kamehameha III after reserving certain lands for himself as his own private property, surrendered the majority of the lands to his chiefs and people. The project site is located in what were the nearshore waters of the 'ili of Ka'ākaukukui, of which the majority of the lands, or 125 acres, was awarded to Victoria Kamāmalu through Land Commission Award 7713. Smaller kuleana lands were also awarded to seven other native tenants.

Claims by native tenants are recorded in the *Native and Foreign Registers* which typically includes information regarding the location of the claim, and sometimes information regarding the type of use. Additional information regarding the claims and use of the land can also be found in *Native and Foreign Testimony* records. A review of Native and Foreign Register and Testimony records revealed that claimants registered for house lots, fishponds, salt beds and cultivation areas including mauka kalo patches.

In 1919 the Territory of Hawai'i acquired the land from Bishop Estate which included the lands inherited by Princess Bernice Pauahi Bishop from Victoria Kamāmalu. By this time a retaining wall had been constructed along the approximate alignment of the present Olomehani Street and the area makai of Ala Moana Boulevard was filled (see

Figure 2). During this period of development a large settlement of squatters became established and by 1924 the Territorial government was evicting people from "Squattersville." The following history of this period of change for the area can be found in *The Beaches of O'ahu* by John R.K. Clark.

> "The shoreline land that Squattersville occupied was known as Ka'ākaukukui, commonly shortened to 'Ākaukukui. The majority of the homes were comfortable and sturdily built. The dwellings that lined the seashore, where the present Olomehani Street now runs, were protected from the ocean by a low sea wall about three feet high. Relatives and friends of the residents often went there to spend weekends and summers. By the mid-1920s, the community numbered about 700 Hawaiians and part-Hawaiians, but because of the illegality of their settlement all of the families were evicted by May 1926 and all of the dwellings were razed.
>
> During the 1930s and 1940s, the Ka'ākaukukui area continued to be heavily utilized as a fishing and swimming area, especially by children from the nearby community of Kaka'ako. The children surfed on redwood planks in the break they called 'Stonewall.' Many varieties of fish were abundant. Younger divers were warned by old-time residents to stay away from the large shark hole on the Waikīkī side of Kewalo Channel. Many people came to this area to pick *limu* and *wana*, and also to catch squid on the shallow reef.
>
> In August 1948 a severe change took place. The City and County began work on a project to provide a dump for the noncombustible material from the nearby incinerator. A huge seawall was constructed, 10 feet high, 10 feet wide on top, and 30 feet wide at the base, and it extended 500 feet seaward from the old shoreline. From its outer extremity, along the edge of Kewalo Channel, the wall was continued parallel to the coast all the way to Fort Armstrong... With the completion of the seawall in 1949, filling operations began and in the mid-1950s the shallow reef of Ka'ākaukukui was completely covered over. Twenty-nine acres of new land had been added to the old shoreline. (Clark, p. 64)

Since the area makai of Ala Moana Boulevard is comprised of fill land, the project site is located on previously submerged lands. Nevertheless, in the early 1900s these lands supported an unauthorized fishing village until the Territorial government eventually evicted the squatters in 1926.

Although the existing shoreline is the result of land-filling activities that took place in the early 1900s and mid-1950s, the coastline continues to be used for fishing, shoreline gathering and recreational activities including swimming and surfing.

In the vicinity of the project site, these ocean-related activities primarily occur at Kaka'ako Waterfront Park which is located immediately makai of the project site.

Access to the Park and shoreline is via surface streets terminating at the Park's parking lot which is typically where ocean goers leave their cars.

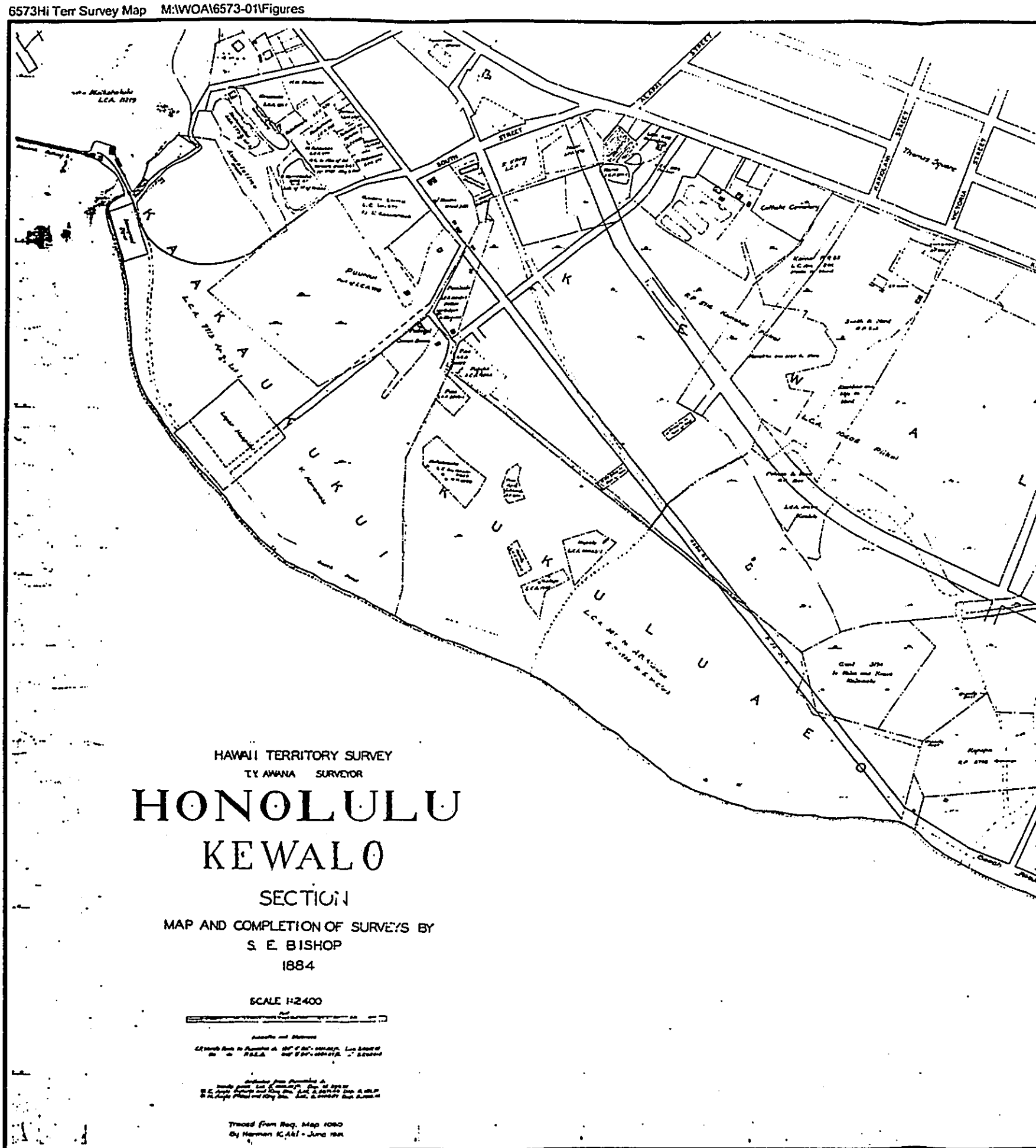
Impacts and Mitigation Measures

The proposed project will have no impact on cultural resources or activities. In their letter dated February 18, 1998 the State Historic Preservation Division determined that "because the area makai of Ala Moana Boulevard is comprised of fill lands, we believe that the development of the area will have 'no effect' on subsurface cultural deposits because it is unlikely any are present."

The proposed project will not affect access to Kaka'ako Waterfront Park or the shoreline. In addition, approximately 850 on-site and off-site parking stalls will be provided for faculty, staff, and students to help ensure that public parking at the Park is not affected.

Bibliography

Clark, John R.K. *The Beaches of O'ahu.* 1977



HAWAII TERRITORY SURVEY
T.Y. AWANA SURVEYOR

HONOLULU
KEWALO
SECTION

MAP AND COMPLETION OF SURVEYS BY
S. E. BISHOP
1884

SCALE 1:2400

Traced from Reg. Map 1080
By Herman K. Aki - June [illegible]

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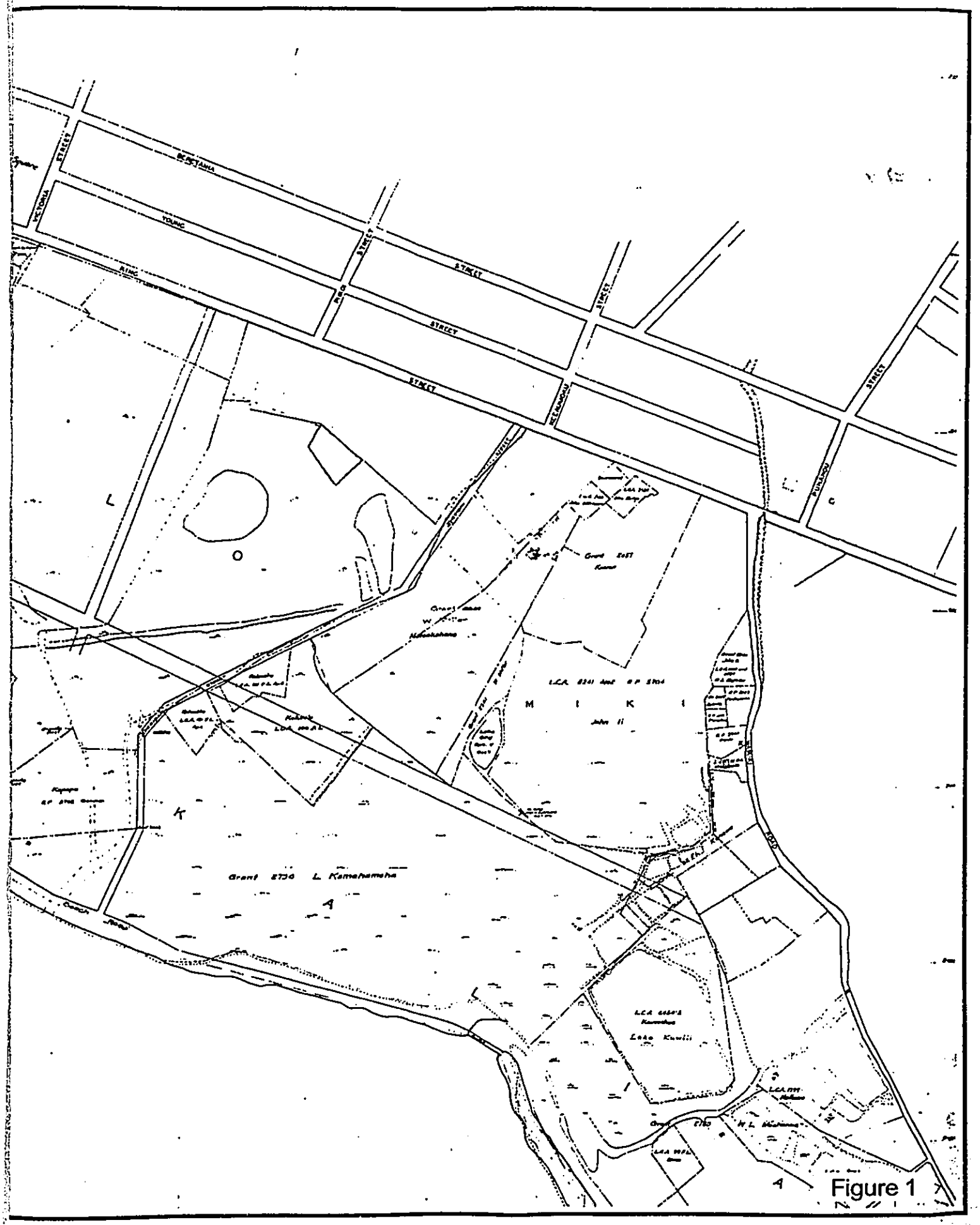

Figure 1

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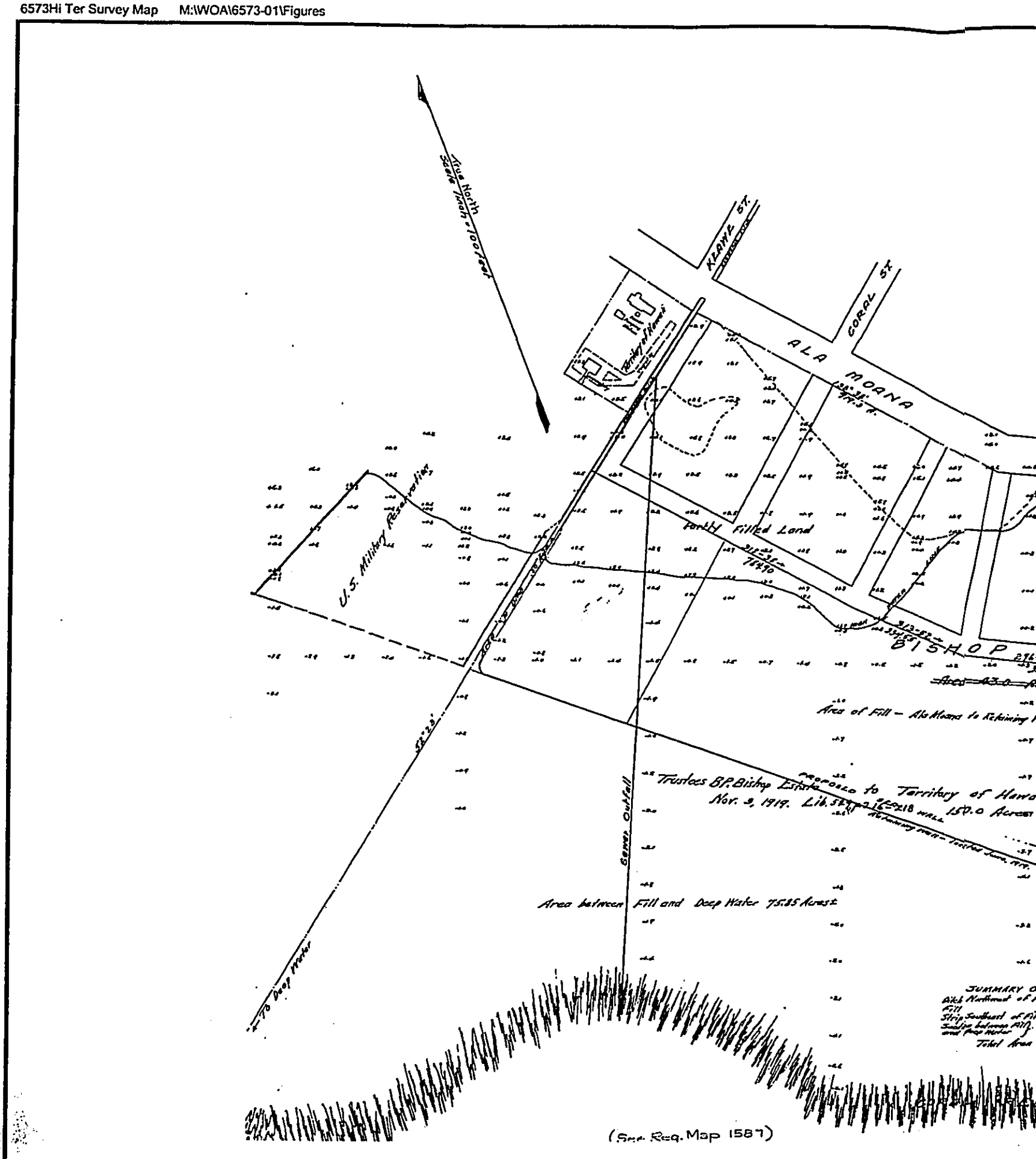


HAWAII TERRITORY SURVEY
Walter E. Wall Surveyor
Elevations on
B.P. BISHOP ESTATE PROPERTY
South of Ala Moana and between
Keawe and Ward Sts.
Scale 1 inch = 100 feet
Survey by S.W.Tay July 1911
Tracing by O. Padmore July 1911.
Note:- Location of Retaining Walls, and Areas
determined by survey June 1911
By H.E. Newton.

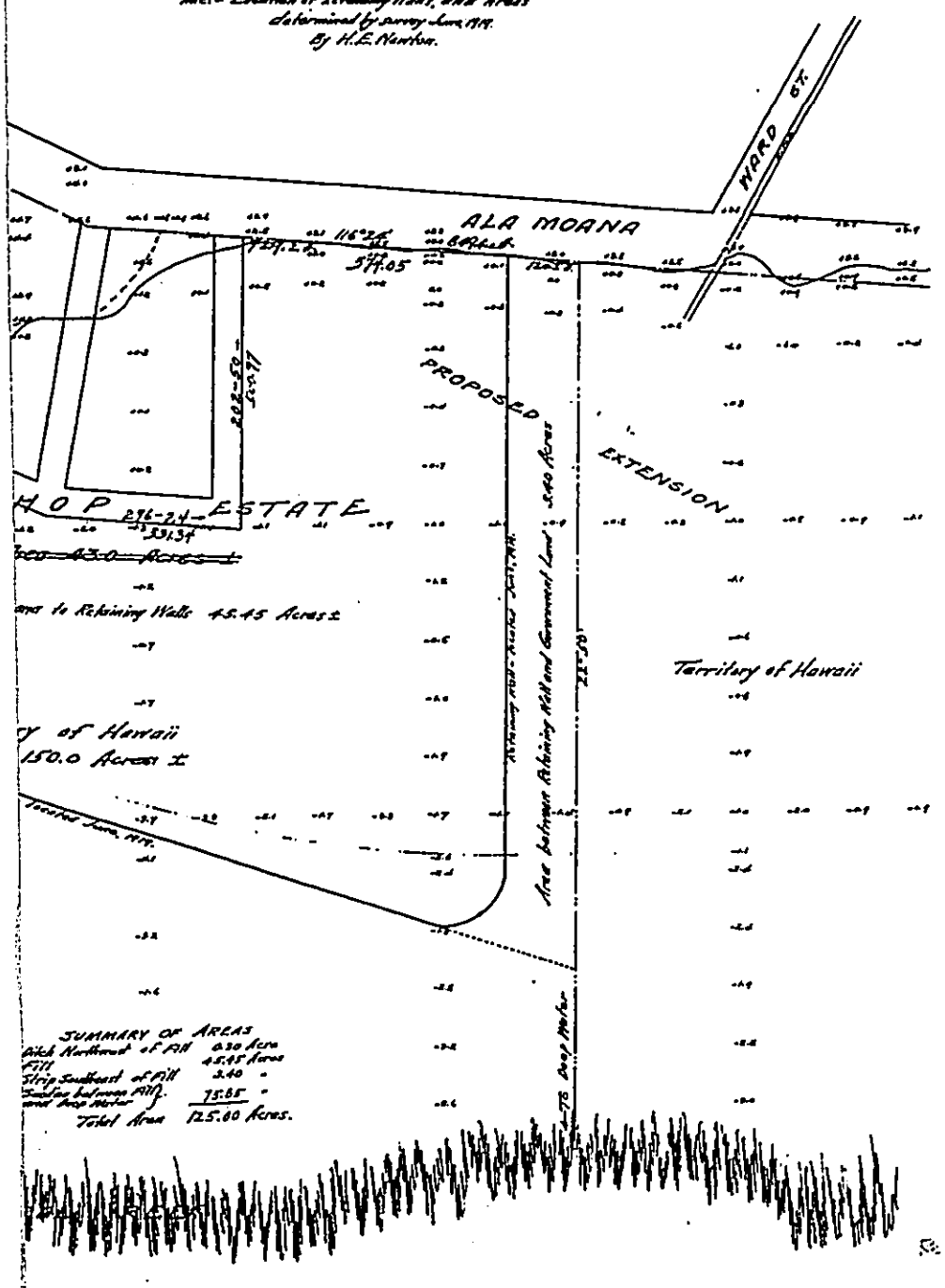


Figure 2

APPENDIX C

Economic and Fiscal Impact Analysis of the University of Hawaii John A. Burns School of Medicine Biomedical Science Facility, Phase 1

ECONOMIC AND FISCAL IMPACT ANALYSIS OF THE UNIVERSITY OF HAWAII HEALTH AND WELLNESS CENTER, PHASE 1 INCLUDING THE JOHN A. BURNS SCHOOL OF MEDICINE BIOMEDICAL RESEARCH FACILITY

FOR

WILSON OKAMOTO & ASSOCIATES
MARCH 2002

Prepared by:

STRATEGY PACIFICA, INC.

March 13, 2002

ECONOMIC AND FISCAL ANALYSIS
OF THE UNIVERSITY OF HAWAII
HEALTH AND WELLNESS CENTER, PHASE 1
INCLUDING THE JOHN A. BURNS SCHOOL OF MEDICINE
BIOMEDICAL RESEARCH FACILITY

TABLE OF CONTENTS

DRAFT: March 7, 2002

EXECUTIVE SUMMARY

This section provides an executive summary of the projected economic and fiscal impacts and benefits of the University of Hawaii, Health and Wellness Center, Phase 1, including the John A. Burns School of Medicine and Biomedical Research Facility (HWC-1) to be built in the Kakaako Makai Area of Honolulu, Hawaii, during the project's initial ten-year construction and operational period. This study does not address the impacts of the planned facilities for the Cancer Research Center of Hawaii (CRCH) which will be Phase 2 in the development of the site.

PROJECT DESCRIPTION

The HWC-1 is to be located in the Makai Area of Kakaako bounded by Kakaako Waterfront Park on the makai side, Ilalo Street on the mauka side, the Foreign Trade Zone on the Ewa side and the Kakaako Gateway Park on the Diamond Head side. The Hawaii Community Development Authority (HCDA) controls and determines regulations relating to land use, zoning, and planning for buildings and the development of all properties within the Makai Area.

The HWC-1's site has an area of 395,370 sf, or approximately 9.08 acres, and is zoned for commercial use. The HWC-1's floor area of 332,000 sf is significantly less than the 1,121,926 sf in floor area allowed for the site. Phase 2, which will house the Cancer Research Center of Hawaii's research activities, will add 131,000 sf in floor area to the site for a total floor area of 563,000 sf, which will still be well within the allowed floor area for the site.

The HWC-1 will include research, education/administration and ancillary building. It is anticipated that the new research facilities will accommodate up to 41 principal investigators and 410 associated support staff for research activities, and that approximately 31 of the principal investigator positions and associated research support staff will represent net new additional activity for the University of Hawaii and the State of Hawaii. The new education/administration facilities will provide replacement facilities for existing medical school education and administration activities.

This report focuses on the potential economic and fiscal impacts of the new research facilities and the activities they could support. Where applicable, separate analyses are made of the impacts of the total 41 principal investigator positions and the 31 net additional principal investigator positions.

The new education and administration facilities represent the replacement of outdated existing facilities with modern facilities to carry on these activities into the foreseeable future.

ECONOMIC IMPACTS

The projected economic impacts of the HWC-1 relate to job and income generation during the HWC-1's construction and operational periods.

Based on an assumption of a three-year construction period, an average of 484 direct jobs are projected to be created in each year, with an additional 624 jobs each year generated from indirect and induced effects. During the operational period, at full utilization with 41 principal investigator positions, it is projected to generate 451 direct research-related jobs, 469 jobs from indirect support funds, and an additional 529 jobs each year from indirect and induced effects. Of those figures, the net 31 additional principal investigator positions will account for 341 direct research-related jobs, 355 jobs from indirect support, and an additional 400 jobs from indirect and induced effects.

Direct, indirect and induced income generation from the HWC-1 is projected to total $46.3 million for each year of the construction period, and $75.5 million at full utilization during the operational period, of which $57.1 will be attributable to the net 31 additional principal investigator positions.

These impacts are summarized in Table 1 below.

FISCAL IMPACTS

The fiscal impacts of the HWC-1 are anticipated to relate primarily to the State of Hawaii. This is due to the HWC-1 being a State program located on State property that has been improved with State-financed infrastructure and that is regulated and managed by a State agency.

State income and excise tax revenues are projected to be $5.3 million during each year of the construction period, and $5.2 million during the operational period at full utilization, with $3.9 million attributable to the net 31 additional principal investigator positions.

The cost of capital for the $160 million to be used in the construction of the HWC-1 is estimated to be approximately $11.4 million annually based on a 5.00% interest rate for self-amortizing bonds with a 25-year term.

The HCDA intends to assess common area charges to projects in the Kakaako Makai Area for the maintenance and operation of public improvements and facilities. These have not yet been determined.

As a public facility on State land, the HWC-1 is not anticipated to generate property taxes for the City and County of Honolulu.

Table 1 also summarizes the projected annual State tax revenues to be generated by the HWC-1.

Table 1.

Summary of Projected Impacts Construction and Operations Years 1 to 10

	Construction Annual Years 1 to 3	Operations Annual Years 3 to 10
Construction Related		
Jobs		
Direct	484	
Indirect and Induced	624	
Total	1,108	
Income		
Direct ($M)	$24.1	
Indirect and Induced ($M)	$22.2	
Total	$46.3	
Gov't Revenues		
Income Taxes ($M)	$3.2	
Excise Taxes ($M)	$2.1	
Operations Related		
41 Principal Investigators		
Jobs		
Direct		920
Indirect and Induced		529
Total		1,449
Income		
Direct ($M)		$46.3
Indirect and Induced ($M)		$29.2
Total ($M)		$75.5
Gov't Revenues		
Income Taxes ($M)		$5.2
Operations Related		
31 Principal Investigators		
Jobs		
Direct		696
Indirect and Induced		400
Total		1,096
Income		
Direct ($M)		$35.0
Indirect and Induced ($M)		$22.1
Total ($M)		$57.1
Gov't Revenues		
Income Taxes ($M)		$3.9

PROJECT DESCRIPTION

This section provides a summary description of the HWC-1, including the HWC-1's purpose, location, floor area, construction costs, method of finance, and operational period activities.

PROJECT PURPOSE

The HWC-1 will serve as the new headquarters for the University of Hawaii's John A. Burns School of Medicine (JABSOM) with modern facilities and a closely related Biomedical Research Facility. Activities at the campus will be educational and research-related. The HWC-1's research facilities will support a variety of research protocols and activities.

The HWC-1's research facility will provide laboratory and laboratory support space, with a facility for small animals. It will accommodate up to 41 principal investigators and 410 support staff.

The HWC-1 will allow JABSOM to replace old and outdated existing facilities, and to significantly increase the number of principal investigators it can support. The new research facilities will help to avoid an erosion of JABSOM's existing level of research activity due to inadequate facilities, and will provide space and support for a substantial increase in new research activity.

LOCATION

The HWC-1 will be located in the Makai Area of Kakaako bounded by Kakaako Waterfront Park on the makai side, Ilalo Street on the mauka side, Ft. Armstrong on the Ewa side and the Kakaako Gateway Park on the Diamond Head side. Figure 1 below shows the plot plan for the HWC-1 prepared by Architects Hawaii Ltd.

The HWC-1 site currently has existing tenants on the site. The condemnation and relocation process has been initiated by the HCDA to relocate the existing tenants. The two existing structures – a one-story concrete building used by the State Department of Agriculture on the Diamond Head side, and a metal warehouse facility leased by Hawaii Produce – will be demolished to make way for the HWC-1 facilities.

BUILDING PROGRAM

The HWC-1 includes a research building, and an education/administration building. Theses buildings will include a cafeteria, a child care facility and a visitor center. Surface parking will also be provided.

The HWC-1's floor area of will be approximately 346,200 sf. This is significantly less than the 981,700 sf in floor area allowed for the site. Phase 2, which will house the Cancer Research Center of Hawaii's research activities, will add approximately 182,400 sf in floor area to the site for a total floor area of approximately 528,600 sf. This total will be well within the allowed floor area for the site. Approximately 855 parking stalls will be provided for Phase I.

CONSTRUCTION COSTS

The total project costs, including construction, for the HWC-1 is projected to total $160,000,000. For purposes of this report, these funds are projected to be spent evenly on an annual basis over a three-year time period. The actual time period and distribution of expenditures for construction may differ.

METHOD OF FINANCE

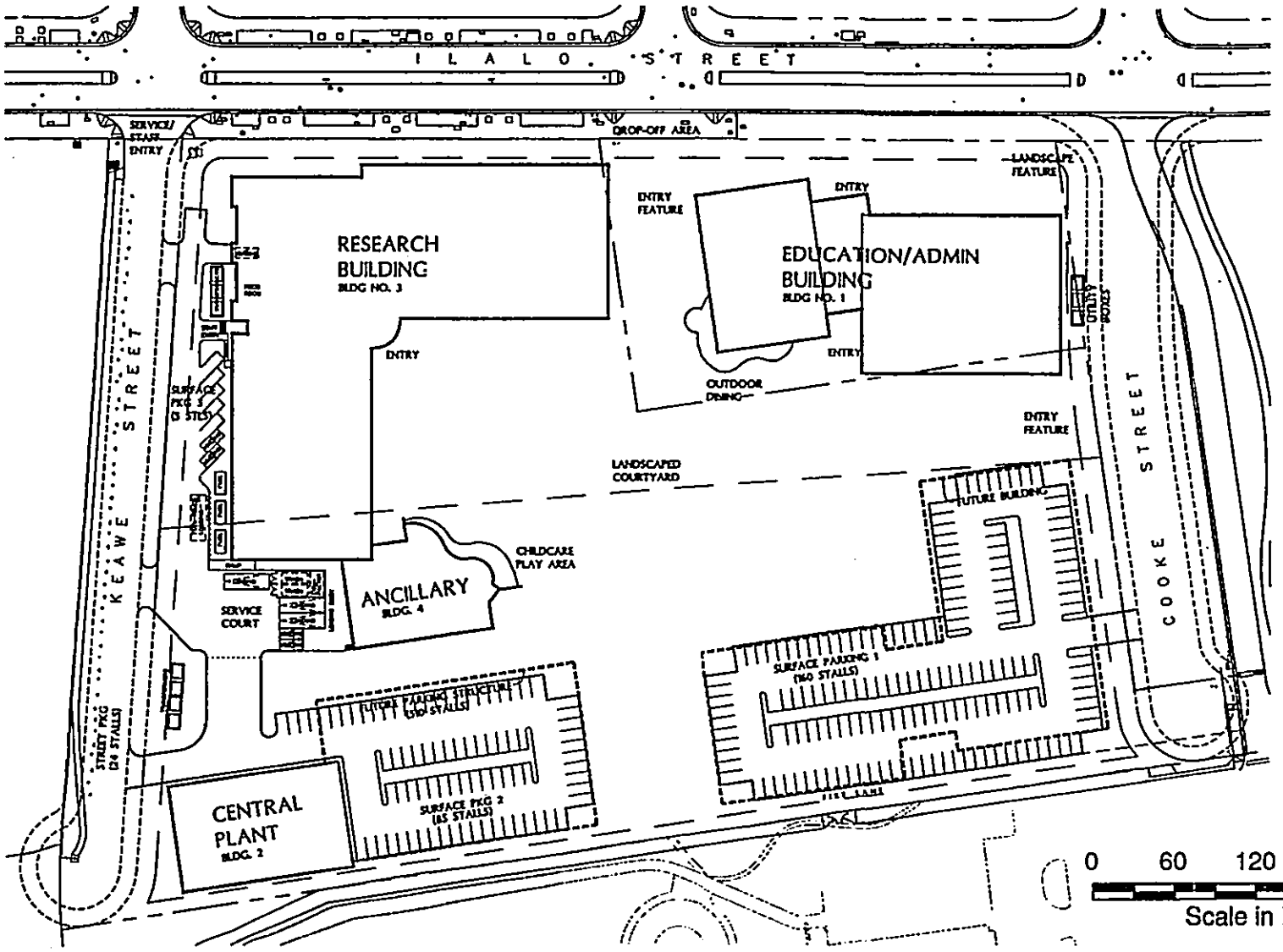
The University of Hawaii has been authorized to issue $150 million in revenue bonds to pay for the HWC-1 in addition to prior appropriations. Funds from the Hawaii Tobacco Settlement Special Fund have been earmarked to pay the principal and interest on the $150 million in revenue bonds. The remaining funds are financed by State general obligation bonds.

OPERATIONAL PERIOD ACTIVITIES

The HWC-1 will provide facilities to allow for the transfer of JABSOM educational and administrative activities from existing facilities, and a combined transfer and expansion of its research activities.

The research activities will be the HWC-1's primary generators of economic impacts due to their ability to bring out-of-state funds into the State's economy. The new research facilities will provide modern laboratory and laboratory support space to accommodate an estimated 41 principal investigators and 410 research support staff.

Site Plan.dwg 2/6/02 11:25 M:\WOA\6573-01\Figures



WILSON OKAMOTO & ASSOCIATES, INC.
ENGINEERS • PLANNERS

UNIVERSITY OF HAWAII HEALTH AND WELLNESS CENTER

SITE PLAN

FIGURE 1

ECONOMIC IMPACTS

The HWC-1's projected economic impacts over the initial ten-year construction and operational period have been measured in terms of job and income generation. These impacts include direct, indirect and induced effects, and are examined separately for the HWC-1's construction period and its operational period.

CONSTRUCTION EMPLOYMENT AND INCOME

This section provides a summary description of the projected employment and income impacts for the HWC-1 during its construction period.

EMPLOYMENT

The direct employment effects of the HWC-1 during the construction period are measured by the product of the actual funds to be spent on the HWC-1 during a given annual period, and by applying a direct employment coefficient to those funds on a number of total-jobs-per-$1 million (in 1992 construction dollars) basis. The direct employment coefficient for "New Industrial and Commercial Buildings" is 11.43[1].

With a total HWC-1 construction cost of $160 million to be spent over an assumed three-year time period, it is projected that $53.3 million will be spent in each of the three years of the construction period. To adjust those figures to a 1992 basis, the construction price index for 2000 was divided by the 1992 construction price index for an inflation factor of 1.26[2]. The projected annual expenditures for each of the three years, on an inflation-adjusted basis will be $42.3 million. With a coefficient of 11.43 total jobs for every $1 million in inflation-adjusted expenditures, it is projected that the HWC-1 will generate 484 jobs annually on a direct basis.

Indirect and induced job creation effects result from the changes in the economy created by the direct construction-related expenditures. Using the Type II direct effect total employment multiplier of 2.29 (less the direct effect employment figures) it is projected that the HWC-1 will generate 624 jobs annually on an indirect and induced basis.

On a combined basis, total direct, indirect and induced job creation during the construction period is projected to be 1,108 jobs annually.

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[1] "The Hawaii Input-Output Study 1992 Benchmark Report," State of Hawaii, Department of Business Economic Development and Tourism, December 1998.
[2] State of Hawaii Data Book, 2000, Table 21.08.

INCOME GENERATION

Direct income projections for the HWC-1's construction period use a labor income coefficient of 0.45[3] for a direct impact of $24.1 million on an annual basis.

Indirect and induced income effects during the HWC-1's construction period, using a Type II multiplier (less the direct effect income figures), are projected to generate $22.2 million in income on annual basis.

On a combined basis, total direct, indirect and induced income generation during the construction period is projected to be $46.3 million annually.

Table 2 below shows the projected construction period job and income effects by annual period.

[3] "The Hawaii Input-Output Study 1992 Benchmark Report," by the State of Hawaii's Department of Business Economic Development and Tourism., December 1998

Table 2

Construction-Related Employment and Income Impacts
Project Years 1 to 10
31 Principal Investigator Analysis

Project Year	1	2	3	4	5	6	7	8	9	10
Construction Costs (1)										
% of Total	33%	33%	33%							
Phase I	$ 53,333,333	$ 53,333,333	$ 53,333,333							
Phase 2	$ -	$ -	$ -							
Total Construction	$ 53,333,333	$ 53,333,333	$ 53,333,333							
Total Construction Value	$ 53,333,333	$ 53,333,333	$ 53,333,333							
Inflation Factor in Construction (2000/1992) (2)	1.26	1.26	1.26							
1992 Adjusted Construction Value	42,328,042	42,328,042	42,328,042							
Employment										
Direct Employment Coefficient (3)	11.43	11.43	11.43							
Direct Employment	484	484	484							
Add'l Indirect, Induced Multiplier (4)	1.29	1.29	1.29							
Indirect, Induced	624	624	624							
Total Jobs	1,108	1,108	1,108							
Income										
Total Construction Value	$ 53,333,333	$ 53,333,333	$ 53,333,333							
Direct Income Coefficient (5)	0.45	0.45	0.45							
Direct Income Impact	$ 24,126,984	$ 24,126,984	$ 24,126,984							
Indirect, Induced Income Multiplier (6)	0.92	0.92	0.92							
Indirect, Induced Income Impact	22,196,825	22,196,825	22,196,825							
Direct, Indirect and Induced Income Impact	$ 46,323,810	$ 46,323,810	$ 46,323,810							

Notes:
(1) Architects Hawaii, Limited, "Biomedical Science Facility Project Development Report," August 20, 2001, Project Cost Scenario 3B, 6 Aug 01
(2) State of Hawaii, Department of Business Economic Development and Tourism (DBEDT), Data Book, 2000, Table 21.08
(3) State of Hawaii, DBEDT, Hawaii Input/Output Model Study, 1992 Benchmark Report (1992 I/O Study), employment per $1 M commercial construction
(4) State of Hawaii, 1992 I/O Study, Type II direct-effect employment multiplier less direct-effect (2.29-1.00)
(5) State of Hawaii, 1992 I/O Study, labor income coefficient, new industrial and commercial buildings
(6) State of Hawaii, 1992 I/O Study, direct-effect income multiplier less direct-effect (1.92-1.00)

OPERATIONS EMPLOYMENT AND INCOME

This section provides a summary description of the projected employment and income impacts for the HWC-1 during its operational period. This section focuses on the impacts of the research-related activities which bring in funds from out-of-state in the form of federal or private research grants.

The HWC-1's educational/administration facilities will accommodate the relocation of JABSOM and its students, and are not expected to generate significant changes in the State's economy. The HWC-1's new research facilities however, will help JABSOM expand its levels of research activity from approximately 10 principal investigators and support staff to 41 principal investigators and support staff.

Research grant generation is a competitive activity that depends, in part, on the quality of the research facilities to be used, and it has been noted that JABOM's existing research facilities are outmoded and inadequate to sustain the existing level of research activity. To reflect the project's role in preventing an erosion of the level of existing activity, as well providing additional capacity for research activities, this report analyzes the impact of both the 31 net additional positions and the total 41 principal investigator positions on the economy.

The HWC-1 will accommodate up to 41 principal investigators and their support staff (at an average of 10 staff per investigator)[4] with each investigator projected to bring in an average of $1.0 million in grants each year with an additional $0.45 million in funds for Indirect Support that goes to the University for its institutional and administrative overhead. This represents a total of $1.45 million per year per principal investigator in direct revenues.

EMPLOYMENT

At full utilization, the research facilities will accommodate 41 principal researchers, with an average of 10 research support staff for each principal researcher. This represents a net increase of 31 principal investigator positions and 310 research support staff. These positions are supported by the $1.0 million per principal investigator of non-Indirect Support grant funds. Total direct employment at full utilization will be 451 jobs, with 341 jobs attributable to the net 31 additional principal investigator positions.

Based on a Type II multiplier of 1.57 for research, development and testing activities, less the direct effect jobs, the projected indirect and induced job generation from the

[4] State of Hawaii, DBEDT and UH JABSOM, Preliminary Analysis, March 12, 2001

research activities at full utilization is projected to be 257 jobs per year, with 194 jobs attributable to the net 31 additional principal investigator positions.

At full utilization, the funds for Indirect Support, based on a direct total jobs coefficient of 28.92 jobs per $1.0 million (in 1992 dollars), and using an inflation adjustment of 1.14 for the 1992 to 2000 period, it is projected that at full utilization, Indirect Support will generate 469 direct jobs, with 355 jobs attributable to the net 31 additional principal investigator positions. Using a Type II multiplier of 1.58 for state and local government activities, less the direct effect jobs, the projected indirect and induced job generation from Indirect Support at full utilization is projected to be 272 jobs per year, with 206 jobs attributable to the net 31 additional principal investigator positions. The higher jobs per dollar level from the Indirect Support funds reflects the more labor intensive nature of general government activity relative to research and testing activities.

Total direct, indirect and induced jobs at full utilization are projected to be 1,450 jobs annually, with 1,096 jobs attributable to the net 31 additional principal investigator positions.

Table 3 below shows the projected operational period job generation effects by annual period for all 41 principal investigator positions. Table 4 below shows the project operation period job generation effects by annual period for the net additional principal investigator positions.

INCOME GENERATION

Direct income projections for the HWC-1's operational period use a labor income multiplier of 0.74[5] for research, development and testing. At full utilization the direct income generation impact from non-Indirect Support revenues is projected to be $30.3 million annually, with $22.9 million attributable to the net 31 additional principal investigator positions. For Indirect Support-related revenues at full utilization, using a labor income multiplier of 0.87 for state and local government, the direct income generation impact is projected to be $16.0 million annually, with $12.1 million attributable to the net 31 additional principal investigator positions. The combined direct income generation impact is projected to be $46.3 million annually, with $35.0 million attributable to the net 31 additional principal investigator positions.

Based on a Type II multiplier for research, development and testing of 0.69 for indirect and induced income it is projected that at full utilization grant-related income will generate $20.9 million annually, with $15.8 million attributable to the net 31 additional principal investigator positions. Based on a Type II multiplier of 0.52 for state and local government, it is projected that at full utilization "indirect support will generate $8.3 million annually, with $6.3 million attributable to the net 31 additional principal

[5] "The Hawaii Input-Output Study 1992 Benchmark Report," by the State of Hawaii's Department of Business Economic Development and Tourism., December 1998

investigator positions. The combined indirect and induced income generation impact is projected to be $29.2 million annually, with $22.1 million attributable to the net 31 additional principal investigator positions

On a combined basis, direct, indirect and induced income generation at full utilization is projected to be $75.5 million annually, with $57.1 attributable to the net 31 additional principal investigator positions.

Table 5 below shows the projected operational period income effects by annual period for all 41 principal investigator positions. Table 6 below shows the projected operation period income effects by annual period for the net additional 31 principal investigator positions.

OTHER ECONOMIC IMPACTS – LOCAL ECONOMIC DEVELOPMENT

The HWC-1, including its research operations, the full operation of JABSOM's school activities, and associated office activities will create a daily on-site population of over 900 persons. This will help HWC-1 to serve as an "anchor" for development in the surrounding Kakaako Makai Area.

Commercial activities that benefit from close proximity to the HWC-1's research and educational activities, such as private research operations and biotechnology businesses, may support the development of private commercial facilities in the area. Commercial retail and business service activities may also help support commercial facility development.

Table 3

Operations Period Revenue and Employment
Project Years 1 to 10
41 Principal Investigator Analysis

Project Year	1	2	3	4	5	6	7	8	9	10
Revenues										
Number of Principal Investigators (PI) (1)	-	-	-	41	41	41	41	41	41	41
Annual Grant Amounts per PI (1)	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000
Total Annual Grants	$ -	$ -	$ -	$ 41,000,000	$ 41,000,000	$ 41,000,000	$ 41,000,000	$ 41,000,000	$ 41,000,000	$ 41,000,000
Indirect Support as % of Grants (1)	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%
Total Indirect Support	$ -	$ -	$ -	$ 18,450,000	$ 18,450,000	$ 18,450,000	$ 18,450,000	$ 18,450,000	$ 18,450,000	$ 18,450,000
Total Revenues	$ -	$ -	$ -	$ 59,450,000	$ 59,450,000	$ 59,450,000	$ 59,450,000	$ 59,450,000	$ 59,450,000	$ 59,450,000
Employment										
Grant-Related Employment										
Number of Primary Investigators (PI) (1)	-	-	-	41	41	41	41	41	41	41
Support Staff per PI (1)	10	10	10	10	10	10	10	10	10	10
Number of Support Staff	-	-	-	410	410	410	410	410	410	410
Total Direct Employment	-	-	-	451	451	451	451	451	451	451
Add'l Indirect, Induced Multiplier (2)	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
Indirect, Induced Jobs	-	-	-	257	257	257	257	257	257	257
Total Grant-Related Employment	-	-	-	708	708	708	708	708	708	708
Indirect Support-Related Employment										
Total Indirect Support	$ -	$ -	$ -	$ 18,450,000	$ 18,450,000	$ 18,450,000	$ 18,450,000	$ 18,450,000	$ 18,450,000	$ 18,450,000
Inflation Factor 2000/1992	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
1992 Adjusted Value	$ -	$ -	$ -	$ 16,231,395	$ 16,231,395	$ 16,231,395	$ 16,231,395	$ 16,231,395	$ 16,231,395	$ 16,231,395
Indirect Support Employment Coefficient per $1 M final demand (3)	28.92	28.92	28.92	28.92	28.92	28.92	28.92	28.92	28.92	28.92
Indirect Support Employment	-	-	-	469	469	469	469	469	469	469
Add'l Indirect, Induced Multiplier (4)	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Indirect, Induced Jobs	-	-	-	272	272	272	272	272	272	272
Total Indirect Support-Related Employment	-	-	-	742	742	742	742	742	742	742
Total Employment	-	-	-	1,450	1,450	1,450	1,450	1,450	1,450	1,450

Notes:
(1) State of Hawaii, DBEDT and UH JABSOM, Preliminary Analysis, 12 March 2001
(2) State of Hawaii, 1992 I/O Study, research, development and testing direct-effect multiplier less direct-effect (1.57-1.00)
(3) State of Hawaii, 1992 I/O Study, state and local govt. direct total jobs per $1 M
(4) State of Hawaii, 1992 I/O Study, state and local govt. total jobs direct-effect multiplier less direct-effect (1.58-1.00)

Table 4

Operations Period Revenue and Employment
Project Years 1 to 10
31 Principal Investigator Analysis

Project Year	1	2	3	4	5	6	7	8	9	10
Revenues										
Number of Principal Investigators (PI) (1)	-	-	-	31	31	31	31	31	31	31
Annual Grant Amounts per PI (1)	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000	$ 1,000,000
Total Annual Grants	$ -	$ -	$ -	$ 31,000,000	$ 31,000,000	$ 31,000,000	$ 31,000,000	$ 31,000,000	$ 31,000,000	$ 31,000,000
Indirect Support as % of Grants (1)	45%	45%	45%	45%	45%	45%	45%	45%	45%	45%
Total Indirect Support	$ -	$ -	$ -	$ 13,950,000	$ 13,950,000	$ 13,950,000	$ 13,950,000	$ 13,950,000	$ 13,950,000	$ 13,950,000
Total Revenues	$ -	$ -	$ -	$ 44,950,000	$ 44,950,000	$ 44,950,000	$ 44,950,000	$ 44,950,000	$ 44,950,000	$ 44,950,000
Employment										
Grant-Related Employment										
Number of Primary Investigators (PI) (1)	-	-	-	31	31	31	31	31	31	31
Support Staff per PI (1)	10	10	10	10	10	10	10	10	10	10
Number of Support Staff	-	-	-	310	310	310	310	310	310	310
Total Direct Employment	-	-	-	341	341	341	341	341	341	341
Add'l Indirect, Induced Multiplier (2)	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57	0.57
Indirect, Induced Jobs	-	-	-	194	194	194	194	194	194	194
Total Grant-Related Employment	-	-	-	535	535	535	535	535	535	535
Indirect Support-Related Employment										
Total Indirect Support	$ -	$ -	$ -	$ 13,950,000	$ 13,950,000	$ 13,950,000	$ 13,950,000	$ 13,950,000	$ 13,950,000	$ 13,950,000
Inflation Factor 2000/1992	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14	1.14
1992 Adjusted Value	$ -	$ -	$ -	$ 12,272,518	$ 12,272,518	$ 12,272,518	$ 12,272,518	$ 12,272,518	$ 12,272,518	$ 12,272,518
Indirect Support Employment Coefficient per $1 M final demand (3)	28.92	28.92	28.92	28.92	28.92	28.92	28.92	28.92	28.92	28.92
Indirect Support Employment	-	-	-	355	355	355	355	355	355	355
Add'l Indirect, Induced Multiplier (4)	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58	0.58
Indirect, Induced Jobs	-	-	-	206	206	206	206	206	206	206
Total Indirect Support-Related Employment	-	-	-	561	561	561	561	561	561	561
Total Employment	-	-	-	1,096	1,096	1,096	1,096	1,096	1,096	1,096

Notes

(1) State of Hawaii, DBEDT and UH JABSOM, Preliminary Analysis, 12 March 2001
(2) State of Hawaii, 1992 I/O Study, research, development and testing direct-effect multiplier less direct-effect (1.57-1.00)
(3) State of Hawaii, 1992 I/O Study, state and local govt. direct total jobs per $1 M
(4) State of Hawaii, 1992 I/O Study, state and local govt. total jobs direct-effect multiplier less direct-effect (1.58-1.00)

Table 5

Operations Period Income Generation
Project Years 1 to 10
41 Principal Investigator Analysis

Project Year	1	2	3	4	5	6	7	8	9	10
Income Generation										
Grant-Related Income										
Total Annual Grants	$ -	$ -	$ -	$ 41,000,000	$ 41,000,000	$ 41,000,000	$ 41,000,000	$ 41,000,000	$ 41,000,000	$ 41,000,000
Income Multiplier (1)	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74	0.74
Grant-related Income	$ -	$ -	$ -	$ 30,288,288	$ 30,288,288	$ 30,288,288	$ 30,288,288	$ 30,288,288	$ 30,288,288	$ 30,288,288
Indirect Support-Related Income										
Total Indirect Support Revenues	$ -	$ -	$ -	$ 18,450,000	$ 18,450,000	$ 18,450,000	$ 18,450,000	$ 18,450,000	$ 18,450,000	$ 18,450,000
Income Multiplier (2)	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Indirect Support-related Income	$ -	$ -	$ -	$ 16,022,368	$ 16,022,368	$ 16,022,368	$ 16,022,368	$ 16,022,368	$ 16,022,368	$ 16,022,368
Total Direct Income	$ -	$ -	$ -	$ 46,310,657	$ 46,310,657	$ 46,310,657	$ 46,310,657	$ 46,310,657	$ 46,310,657	$ 46,310,657
Add'l Indirect, Induced Income										
Grant-related										
Indirect, Induced Income Multiplier (3)	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
Indirect, Induced Income Impact	$ -	$ -	$ -	$ 20,898,919	$ 20,898,919	$ 20,898,919	$ 20,898,919	$ 20,898,919	$ 20,898,919	$ 20,898,919
Indirect Support-related										
Indirect, Induced Income Multiplier (4)	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52	0.52
Indirect, Induced Income Impact	$ -	$ -	$ -	$ 8,331,632	$ 8,331,632	$ 8,331,632	$ 8,331,632	$ 8,331,632	$ 8,331,632	$ 8,331,632
Total Indirect, Induced Income Impact	$ -	$ -	$ -	$ 29,230,550	$ 29,230,550	$ 29,230,550	$ 29,230,550	$ 29,230,550	$ 29,230,550	$ 29,230,550
Total Income Impact	$ -	$ -	$ -	$ 75,541,207	$ 75,541,207	$ 75,541,207	$ 75,541,207	$ 75,541,207	$ 75,541,207	$ 75,541,207

Notes:
(1) State of Hawaii, 1992 I/O Study, research, development and testing direct income multiplier
(2) State of Hawaii, 1992 I/O Study, state and local govt. direct income multiplier
(3) State of Hawaii, 1992 I/O Study, research, development and testing direct-effect multiplier less direct-effect (1.69-1.00)
(4) State of Hawaii, 1992 I/O Study, state and local govt. direct-effect multiplier less direct-effect (1.52-1.00)