

UNIVERSITY OF HAWAII AT HILO

Facilities Planning & Construction

August 21, 2006

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

Subject: Finding of No Significant Impact (FONSI)
University of Hawaii at Hilo Student Life and Events Center
TMK: 2-4-01: 163 por., 167 por. (Hilo, Island of Hawaii,
Hawaii)

Dear Ms. Salmonson,

The University of Hawaii, at Hilo's Office of the Chancellor has reviewed the comments received during the 30-day public comment period which began on September 23, 2005. The agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the next available OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form and four copies of the final EA. Please call Mr. George Atta at 441-2103 if you have any questions.

Sincerely,



Dr. Bill Chen
University of Hawaii at Hilo

OFFICE OF ENVIRONMENTAL
QUALITY CONTROL

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University of Hawai'i at Hilo Student Life Center – Phase I

Waiākea, Hilo, Hawai'i
TMK 2-4-01:163 por., 167 por.

Draft Final Environmental Assessment

Applicant:



University of Hawai'i
1951 East West Road
Honolulu, Hawaii, 96822

August 2006



Group 70 International, Inc. • Architecture • Planning • Interior Design • Environmental Services
925 Bethel Street, Fifth Floor • Honolulu, Hawaii 96813 • Phone (808) 523-5866 FAX (808) 523-5874

University of Hawai'i at Hilo Student Life Center – Phase I

Waiākea, Hilo, Hawai'i
TMK 2-4-01:163 por., 167 por.

Draft Final Environmental Assessment

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

Applicant:

University of Hawai'i
1951 East West Road
Honolulu, Hawai'i, 96822

Accepting Authority:

University of Hawai'i
Office of Capital Improvements

Prepared By:



Group 70 International, Inc.
Architecture • Planning • Interior Design • Environmental Services
Honolulu, HI

August 2006



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TECHNICAL APPENDICES

- A. Archaeological and Cultural Impact Assessment Study (PHRI, Inc., May 2002)
- B. Addendum to the Archaeological and Cultural Impact Assessment Study (PHRI, June 2006)
- C. Preliminary Traffic Assessment for a Proposed Multi-Purpose Sports and Recreational Complex at the University of Hawai'i at Hilo (M&E Pacific, Inc., December 1999)
- BD. Traffic Assessment Report University of Hawai'i at Hilo Student Life Center (M&E Pacific, Inc., July 2005)



Section 1.0
Summary



1.0 SUMMARY

This Environmental Assessment (EA) has been prepared in accordance with the requirements of Chapter 343, HRS and Hawai'i Administrative Rules, Title 11, Department of Health.

1.1 PROJECT INFORMATION SUMMARY

Applicant:	University of Hawai'i at Hilo Facilities Planning and Construction 200 West Kawili Street Hilo, Hawai'i 96720 Contact: Loli Chih, (808) 974-7595
Accepting Authority:	University of Hawai'i Office of Capital Improvements 1951 East-West Road Honolulu, Hawai'i, 96822 Contact: Maynard Young, (808) 956-7935
Name of Action:	UH-Hilo Student Life Center – Phase I
Planning/Environmental Consultant:	Group 70 International, Inc. 925 Bethel Street, 5 th Floor Honolulu, Hawai'i 96813 Contact: George Atta, (808) 523-5866, ext. 103
Project Location:	Located on the campus of the University of Hawai'i at Hilo. Selected site for planned complex is located immediately north of the gymnasium. <i>(Figure 1-1)</i>
Tax Map Key:	2-4-01:163, 167 por. <i>(Figure 1-2)</i>
Land Area:	approximately 20 acres
Landowner:	State of Hawai'i
Request:	Construction of a multi-purpose recreational facility that would host a fitness center, human performance center, 50-meter pool, basketball and tennis courts, and necessary infrastructure improvements.
State Land Use District:	Urban
County General Plan:	University
County Zoning:	Residential (RS-10)



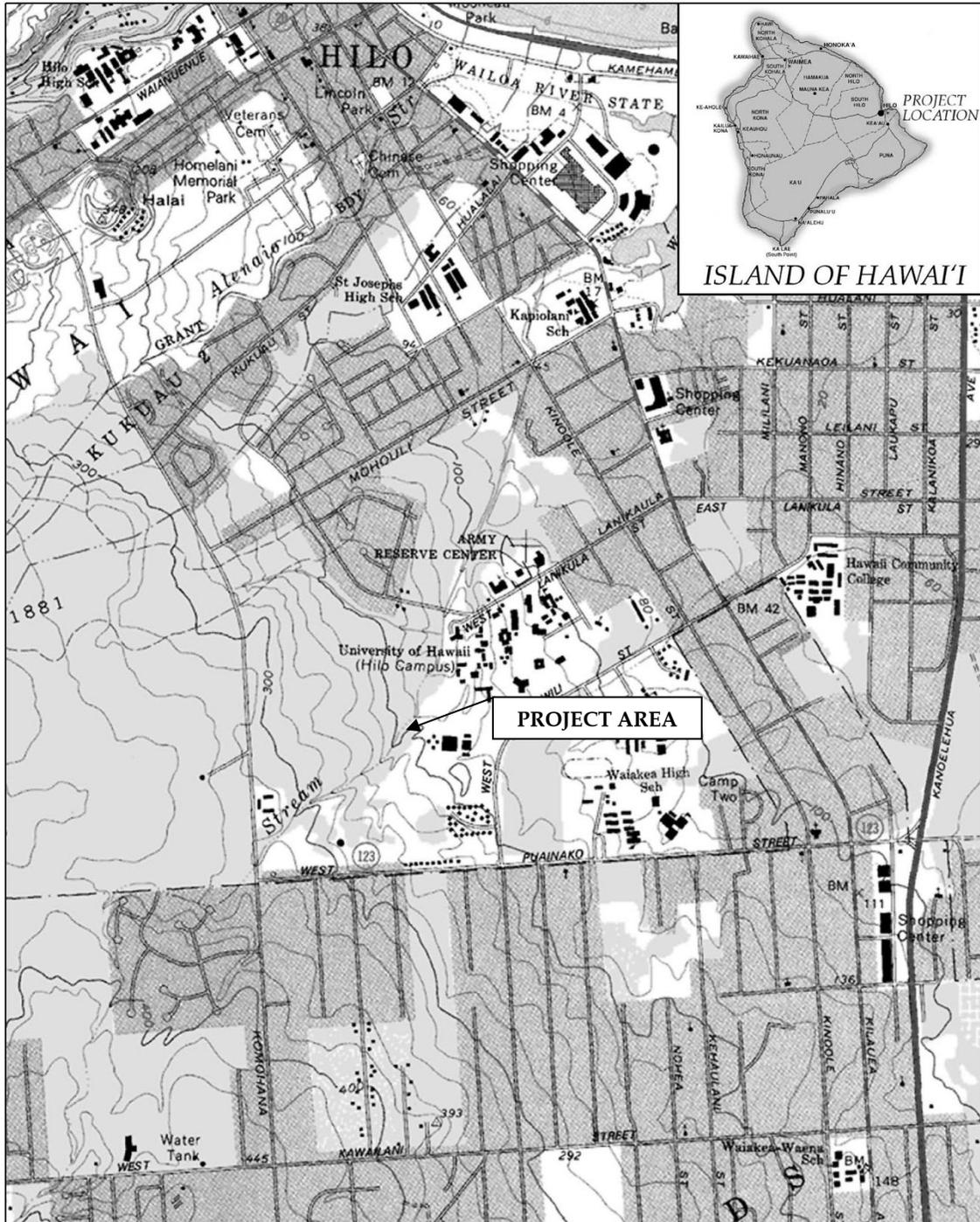
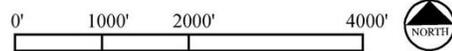


FIGURE 1-1 PROJECT LOCATION MAP





1.2 OVERVIEW OF THE PROPOSED PROJECT

Based upon the findings derived from user interviews, charrette consensus, and research, a student life center is proposed at the site north of the existing gymnasium. The student life center will include a fitness center, 50-meter outdoor pool, human performance center, basketball and tennis courts. Infrastructure improvements will also be provided.

1.3 AGENCIES CONTACTED IN PRE-CONSULTATION

Listed below are the agencies, citizen groups and individuals briefed and consulted during the preliminary staging and preparation of the Feasibility Study and Draft Environmental Assessment.

FEDERAL GOVERNMENT

U.S. Army Corps of Engineers - Honolulu District

STATE OF HAWAII

Department of Business Economic Development and Tourism

Department of Land and Natural Resources

- Land Division
- State Historic Preservation Division

Department of Transportation- Highways Division

Office of the Governor

Representative Jerry Chang (District 2- South Hilo)

University of Hawai'i Board of Regents

University of Hawai'i at Hilo

- Student Life Committee
- Conference Center Committee
- Athletic Department
- Hawaiian Language Department

Waiākea High School

COUNTY OF HAWAII

County Council

Department of Parks and Recreation

Department of Planning

Department of Public Works

Department of Research and Development

Department of Water

ORGANIZATIONS/INDIVIDUALS

Big Island Visitor Bureau

Destination Hilo

Dottie Thompson, Merrie Monarch Festival Coordinator

Gemini Observatory

Hawai'i Island Chamber of Commerce





Japanese Chamber of Commerce
John Tolmie
Kona Kohala Chamber of Commerce
Leilani Andrade, Hawai'i Naniloa Hotel
Pa'a Tokimoto, Tahiti Fete
Paul Moffett, Civic Center
Prince Kūhiō Plaza
Subaru Telescopes

Various individuals were contacted during the preparation of the Cultural Impact Assessment, which is presented in its entirety in *Appendix A*. A list of those individuals contacted is provided in this Appendix.

1.4 CONTENTS OF THE **DRAFT FINAL ENVIRONMENTAL ASSESSMENT**

This Environmental Assessment evaluates the potential impacts of the UH-Hilo Student Life Center – Phase I upon the natural and human environment. This document is presented in seven sections. *Section 1.0* contains the project overview. *Section 2.0* describes the proposed project. *Section 3.0* addresses the environmental, social and economic setting, impacts, and mitigation of the proposed project. Alternatives to the proposed project are presented in *Section 4.0*. A review of the necessary approvals and permits are discussed in *Section 5.0*. The anticipated finding is presented in *Section 6.0*. ~~A list of agencies and organizations consulted are presented in *Section 7.0*.~~ Comment letters received regarding the Draft EA are presented in *Section 7.0*. A list of references is provided in *Section 8.0*.



Section 2.0

Project Description



2.0 PROJECT DESCRIPTION

This section presents a discussion of the proposed UH-Hilo Student Life Center – Phase I, including an overview of the project area, elements of the project’s master plan, construction activities, infrastructure, and a preliminary development timetable.

2.1 PROJECT LOCATION AND CHARACTERISTICS

2.1.1 Regional Overview

Comprised of a land area of 4,038 square miles, the island of Hawai‘i is the largest island in the Hawaiian chain. Five shield volcanoes form the island’s land mass with Mauna Kea (13,796 feet) situated the highest above sea level. The other four volcanoes that form the island are Mauna Loa (13,677 feet), Hualālai (8,271 feet), Kohala (5,480 feet), and Kīlauea (4,093 feet). The dramatic change in the island’s elevation levels contributes to a varied array of climatic and environmental conditions that range from deserts to tropical rainforests and snowcapped summits.

The island of Hawai‘i is demarcated into several moku, or land districts. The project area lies within the moku of Hilo, in the ahupua‘a of Waiākea, along the eastern coast of the island. The town of Hilo is located on the shore fringes of the long slopes of Mauna Kea and Mauna Loa. The area’s low-lying shoreline is the principle natural coastal feature that complements the form of its natural bay.

From traditional to contemporary times, population settlement patterns in the area were concentrated around Hilo, considered as one of the island’s principal ports. The distinct regional identity of the Hilo area has been transformed from former plantation communities, which were created from a thriving sugar industry. Today, established pockets of financial, civic, and commercial activity defines the city of Hilo as the major urban center for the County of Hawai‘i with a resident population of approximately 46,200.

2.1.2 Project Area

The UH-Hilo campus is one of the major campuses of the University of Hawai‘i’s multi-campus system and conducts educational, research, and public service programs for local, national, and international communities. The entire campus is situated on 388 acres of land in the south Hilo area, composed of residential neighborhoods, schools, agricultural parcels, and small commercial areas with Komohana Street serving as a boundary to the west, Mohouli and Lanikāula Streets to the north, Kapi‘olani and Kāwili Streets to the east, and Pū‘āinakō Street to the south, as shown in Figure 1-1.

The Wailoa Flood Control Channel demarcates the institution into two distinct areas with the main campus situated on approximately 177 acres to the east and makai of the channel. Existing instructional and student support services are located in this area. West of the channel, research centers form the area known as University Park. Instructional facilities





are concentrated in the northeastern portion of the campus while athletic facilities, including the baseball field and tennis courts are situated in the southeastern corner of the campus. Most of the surrounding uses of land adjacent to the university campus is centered on low to mid-density residential housing with some remnants of agricultural lots located west of the campus.

2.1.3 History of the Project Area

From noted native historical accounts through early plantation journals, records indicate that the land use patterns for the South Hilo area were primarily based on agriculture. The natural geographical features of the area including a large bay, adequate sources of fresh water, and low level topography contributed to the favorable conditions for both wetland and dryland agriculture as well as the construction and maintenance of fishponds.

Although records indicate that commercial sugar ventures were established in the early 1800s, it was not until the 1890s that sugar became an established and profit-making venture within the Hilo area after several original plantations experienced financial failure and went bankrupt. With the introduction of new methods of fertilization, improved cane stocks, proper irrigation, and improvements in mechanical tillage and harvesting, the industry of sugar in the Hilo area began to flourish. For nearly three quarters of a century, most of the sugar produced on the island was shipped from Hilo Harbor.

In 1879, the Waiākea Mill Company established itself as one of the emerging leaders in the island's sugar industry. Acquiring a 30-year lease, the company quickly expanded its land base from 350 acres cultivated in 1879 to nearly 7,000 acres in 1918, including lands of the proposed project. When the lease expired in 1918, the land came under governmental control and was leased out to independent farmers. Contracts were established between the growers and the mill company that allocated 40% of the revenue from the sale of refined sugar to the company. However, by 1947, the Waiākea Mill Company ceased its operations due to a failing sugar market and residual effects from the 1946 tsunami.

The University of Hawai'i at Hilo campus began in 1941 as the Hawai'i Vocational School, serving to meet the education needs of its community. The campus began to expand and evolve, where it was organized under its present name in 1970.

2.2 DESCRIPTION OF THE PROPOSED PROJECT

2.2.1 Student Life Center – Phase I

The proposed UH-Hilo Student Life Center is a recreational complex that is intended to accommodate the needs of on-going daily campus life. The facility is projected to accommodate the basketball, swimming and tennis programs, HPE programs and offices. Plans call for the center to be developed at the site north of the existing gymnasium.





Preliminary programming of recommended activities and proposed space requirements are provided in *Table 2-1* and illustrated in *Figure 2-1*.

**Table 2-1
Preliminary Programming of Project Activities and Space Requirements**

Project Activity	Space Requirements (NSF)
<i>Fitness Center:</i>	
Aerobics	2,822
Aerobics Storage	458
Cardio Weight Training	6,041
Juice Bar	379
Juice Bar Storage	35
Lounge	2,456
Conference	330
Offices	842
Classrooms/Storage	1,953
Laundry/Gear Storage	1,200
Dressing Rooms	2,630
Mechanical/Electrical/Telecom/Janitor	564
Other	570
Total (GSF) for Fitness Center	20,280
<i>Pool Equipment Building:</i>	
Office	190
Storage	50
Janitor	125
Pool Equipment	794
Other	153
Total (GSF) for Pool Equipment Building	1,312
<i>Covered Courts Building</i>	
Total (GSF) for Covered Courts Building	14,693
<i>Human Performance Building</i>	
Total (GSF) for Human Performance Building	12,520
Grand Total (GSF) for Project Space Requirements	48,805





FIGURE 2-1 UNIVERSITY OF HAWAII' I AT HILO STUDENT LIFE CENTER, VIEW FROM WAILOA FLOOD CONTROL CHANNEL



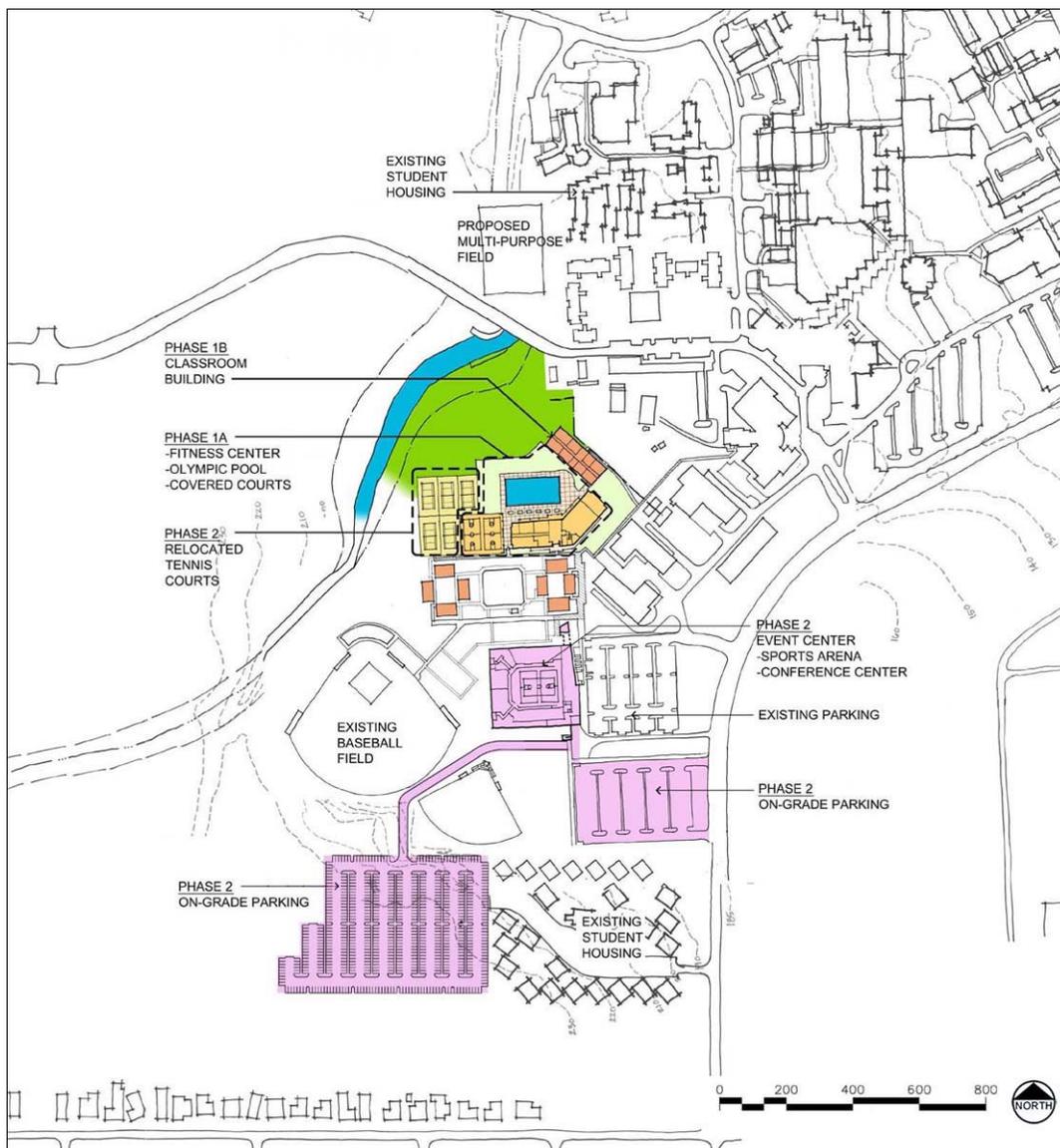


FIGURE 2-2 SITE PLAN FOR STUDENT LIFE CENTER

The Student Life Center – Phase I represents the first phase of a master plan intended to accommodate the needs of on-going campus life

Located north of the existing gymnasium, the fitness center will enhance existing athletic facilities providing both passive and recreational opportunities. Comprised of 20,280 gsf, the fitness center features aerobics rooms, a cardio/weight training room, juice bar, lounge, locker rooms, gear/laundry room, and administration offices.

The 12,520 gsf Human Performance building, located north of the fitness center, and 14,693 gsf covered courts, located west of the fitness center, will provide academic education opportunities and augment the student housing recreational services.





Future plans for the area south of the existing gymnasium include an Events Center with seating for 5,000 people. The Events Center will provide a venue for UH-Hilo Athletic events and other large group events, both for UH-Hilo as well as community gatherings.

2.2.2 50-meter Swimming Pool

A 50-meter outdoor pool, located north of the fitness center, is included as part of the Student Life Center – Phase I. The pool facility will have an office and storage area for pool equipment and machinery. The facility will be able to host a variety of swim meets, training camps, and other aquatic events.

2.2.3 Parking

There are no new parking requirements for the Student Life Center – Phase I. The existing parking lot off of Kāwili Street continues to provide parking in the vicinity of the athletic complex.

2.2.4 Circulation & Landscaping Improvements

Pedestrian access will be provided through a new sidewalk connecting the main campus with the existing athletic complex and new Student Life Center – Phase I. A selective mix of appropriate landscaping materials will be integrated into the center design.

2.2.5 Integration With Existing and Future Facilities

The Student Life Center – Phase I will complement the Health and Physical Education facilities that currently exist. The exterior design of the center and site landscaping will create a visibly active and integrated environment that encourages an efficient flow of both vehicular and pedestrian circulation through the project area and the nearby vicinity.

Development of the Student Life Center, Pool, Covered Courts Building and Human Performance Building will not require existing facilities to be relocated.

2.2.6 Overall Complex

Phase One is part of an overall multi-purpose complex plan that includes a future special event center and additional parking. Due to funding limitations the development schedule of future phases is highly questionable and no schedule has been established for their development at this time.

2.2.6.1 Space Program

The Multi-Purpose Complex will be developed to satisfy the needs of the University and Hilo communities for the next 10 to 20 years. Designed to meet the diverse needs of students, faculty, community members, businesses, and cultural groups, the facility will accommodate a wide range of activities. The recommended types of activities and preliminary space program





for the Multi-Purpose Complex are summarized in Table 2-2. The space program for Phase I is part of this overall program.

**Table 2-2
Preliminary Program**

Area	Square Feet (sq. ft.)
Exhibit Area	500
Basketball/Volleyball Courts	22,000
50m Swimming Pool w/locker/shower/toilet	22,000
Aerobics/Dance/Martial Arts 2,400 sq.ft. Spectator Seating	54,000
Weight raining 10,000 sq.ft. w/locker/shower/toilet rooms	5,500
Officials' Changing Rooms 240 sq.ft. laundry	300
Training Room	875
Nurse's Station 275 sq.ft. Conference Room	4,000
Media and Sound Room	200
Administrative Offices	2,400
Kitchen/Concession Spaces	4,000
Retail Space	300
Equipment Storage	1,000

2.2.6.2 Preliminary Building Configuration

The Complex should serve the weekend warrior as well as the competitive athlete; the hungry student late at night as well as the trade show participant during the day; ballroom dancing and classroom learning; cultural festivals and concert spectacles. Not only should the Complex accommodate such a large range of activities, it should be designed to allow these activities to take place concurrently.

To achieve the desired flexibility, a combination field house/arena type facility is proposed. Such a facility may look and operate like the one shown below. Compartmentalized spaces and retractable seating provide maximum flexibility in terms of capacity and range of activities. This conceptual building design was developed for feasibility study purposes. Detailed site planning and building design will be initiated if this project moves forward.

2.2.6.3 Parking and Circulation

Adequate parking and accessibility are critical to the success of the Complex as a venue for large events.

Parking will be designed to conveniently accommodate both cars and buses. According to the 1998 Hawai'i County Code (Section 25-4-51), the Multi-Purpose Sports and Recreational Complex has a parking requirement of 2,625 stalls (Table 2-3). Of the required stalls, 250 will be provided on grade just south of the Complex. Another 1,875 stalls will be provided in new on-





grade parking extending south and to the west of the Complex. The balance of the stalls, 535 total, will be provided in existing campus parking areas.

**Table 2-3
Parking Requirements**

Space	Approximate Seating Capacity	Parking Requirement	Total Stalls
Multi-Purpose Complex	10,000	1 stall/4 seats	2,500
Pool	500	1 stall/4 seats	1254
Total			2,625

Within the Campus, there will be a clearly defined link between the campus circulation spine and the Complex. Covered walkways will be provided between the Complex and major areas of parking to provide shelter for pedestrians during inclement weather. Vehicular circulation with the Campus should serve as a vital link in the overall Campus peripheral circulation road. Drop-off areas will be provided for both cars and buses.

Pedestrian crossings to the Complex from outside of the Campus should be clearly defined and ensure the safety of the pedestrian. From outside of the Campus, vehicular entry points into the Complex and parking should be critically placed to permit safe and smooth traffic flow. Off-site improvements will include a new access road from the realigned Puainako Street. In the event that remote parking is used for the Complex, some type of shuttle service between the remote parking and Complex will be provided.

A traffic assessment has been conducted for the Multi-Purpose Complex and is included as Appendix D. Study findings area based on the assumption that the Puainako Street extension is completed as planned. Preliminary analysis indicates that there would be desirable traffic conditions at the start of athletic events. Detailed traffic control plans will have to be developed and refined to facilitate vehicular flow into and out of the parking lot. The assessment recommends several measures to facilitate ingress and egress traffic flow, including the use of traffic officers and parking attendants during large events.

2.2.6.4 Displacement of Existing and Proposed Facilities

Development of the Multi-Purpose Complex, pool and parking will displace some existing campus facilities.

2.2.7 Generalized Summary of Construction Activities

Construction activity on the project site will require a varying degree of planning and preparation. A summary of the anticipated types of activities to be conducted during the construction period is provided below.

2.2.7.1 Clearing, Grubbing, and Grading





The area north of the existing gymnasium will be cleared to prepare for the installation of infrastructure and construction of the new facility. The site clearing will be conducted in accordance to approved grading plans, including a detailed erosion control plan. Exact earthwork quantities involved in grading are not known at this time, pending more detailed site design and civil engineering calculations.

Preliminary estimates indicate that approximately 7,200 cubic yards of material will be excavated on-site. The project will utilize most excavated material on-site within the overall grading operations, and some off-site transport is anticipated. Trenching will be required along planned utility routes within the project area. Trenching depths will be dependent upon the individual utility requirements and site conditions.

2.2.7.2 Roadway Improvements

The development of the project will not require improvements to nearby roadways as the Student Life Center – Phase I is not expected to generate any new vehicle trips on its own.

2.2.7.3 General Construction

The development of the Student Life Center – Phase I will require general construction services which include excavation, grading, masonry, carpentry, plumbing, electrical, roofing, and painting.

2.2.7.4 Planting and Landscaping

The theme for the overall landscaping plan will be coordinated with existing landscaping features as detailed in the University of Hawai'i at Hilo Long Range Development Plan.

2.3 PURPOSE AND NEED FOR THE PROPOSED PROJECT

The University of Hawai'i at Hilo Strategic Plan for 1997-2007 provides the long-term vision, which guides both University program development and capital improvements. The Vision and Ultimate Goal for the UH-Hilo is to be an “educational community that inspires creative and critical thinking and to become the premier residential campus in Hawai'i”. Several prominent themes provide the framework for exploring and defining the purpose and need of this project.

- *Enriched Residential Campus Life.* The on-going development and support of attractive and accessible facilities promotes student-oriented social, cultural, and recreational programs. It is through these concerted facility-oriented efforts that the UH-Hilo campus can achieve the goal of establishing itself as a premier residential campus.
- *Addressing Community Needs.* The continuing development of UH-Hilo's academic expertise and resource capabilities can help to address and serve the various educational, social, and cultural needs of the island community. The key cornerstone programs that will help to achieve this goal include advanced professional studies,





evening and weekend programs, distance and outreach education, and community partnerships.

- *Using Resources More Effectively and Efficiently.* The commitment to provide quality services consistent with the vision of UH-Hilo is linked to developing effective and efficient facilities, technologies, procedures, and processes. The cornerstones that can help to achieve this goal are the incorporation of state-of-the-art technology and year-round use of facilities.

The University's Academic Development Plan for the years 1992-1998 outlines four interrelated long-range goals that reinforce the themes established in the University's Strategic Plan: 1) Raise the quality of undergraduate programs; 2) Increase student retention; 3) Enhance the quality of on-campus student life; and 4) Capitalize on locational advantage and improve service to the State.

The UH-Hilo administration has translated these key themes and long-range goals into specific components to be studied for this project. In developing these components, the administration also incorporated study survey results, faculty desires, and broader community interest expressed over the years.

- *Enhance the Quality of Life for Students and Faculty at the UH-Hilo Campus.* The center should provide for various recreational activities on campus as an attractive and healthy alternative for students and faculty when they are not engaged in academic pursuits. This recognizes that students typically do not own cars and that there is an inadequate public transportation system to pursue off-campus activities.

The campus community has expressed a desire for health and fitness facilities and equipment, central meeting or gathering place/areas, and indoor or covered courts for various intramural sports and activities due to the high annual rainfall in Hilo. In addition to enhancing the quality of life for those students and faculty already committed to the University, the center should complement UH-Hilo recruitment and retention of students as well as faculty, researchers, and other staff.

- *Develop an Educational and Conference Center.* The center would help UH-Hilo's emphasis on hosting local, national and international conferences and events as an integral part of the academic experience and a vital link in producing a well-educated student body with excellent academic exposure for students, faculty/researchers, and staff.
- *Hilo becoming a "College Town" which Supports the UH-Hilo Campus.* Like many small campus communities on the mainland and abroad, the mutual benefits of the center to both the University of Hawai'i at Hilo and the Hilo community will include opportunities for social, cultural, and educational interaction. Community events, including the annual Merrie Monarch Hula Festival, will be able to utilize the center as a hosting venue.





2.4 INTEGRATION OF SUSTAINABLE SITE & BUILDING DESIGN

The planned design of the Student Life Center – Phase I will utilize technology that is appropriate to the functional need of the facility and incorporate passive energy-conserving strategies responsive to the natural resources within the local environment, specifically addressing issues pertaining to energy management, water supply and consumption, waste prevention, and long-term facility maintenance and operation. In order to encourage the development of a building that incorporates “green building” features to mitigate negative environmental impacts and to foster occupant well-being, environmental performance, and reduced operating costs, the facility should be designed to meet the minimum certification requirements of the Leadership in Energy and Environmental Design (LEED) Green Building Rating System, Version 2.1, which represents the U.S. Green Building Council’s effort to provide a national benchmark system of standards for what constitutes a “green building.” Based on a review of the components of the master plan, the following sustainable design features should be explored and incorporated into the project if found feasible in order to meet the criteria set forth in this standard:

Sustainable Site Issues

- Erosion and sedimentation should be controlled to reduce negative impacts on water and air quality.
- The roadways for access to the facility should accommodate the use of public and campus bus lines to encourage the use of public transportation to the facility.
- Bike paths, secured bicycle storage, and changing/shower facilities should also be provided to encourage alternative transportation.
- Parking should be sized to meet, but not exceed, minimum zoning requirements, and preferred parking should be provided for carpools and vanpools.
- Minimize site disturbance to avoid earthwork and clearing of vegetation to 40 feet beyond the building perimeter, 5 feet beyond roadway curbs and walkways, and 25 feet beyond constructed areas with permeable surfaces.
- Develop a storm water management plan that prevents the runoff rate from exceeding the pre-development 1.5-year, 24-hour peak discharge rate.
- Consider the use of shade or light-colored pavement materials, or open-grid pavement to reduce heat absorption and the formation of heat islands.
- Use a reflective roof coating to minimize the heat island effect on the roof. Reduce site lighting to avoid off-site lighting and night sky pollution.

Water Efficiency Issues

- Consider the use of captured rainwater from the roofs for a gray-water system for the flushing of water closets and other non-potable water use.
- Limit or eliminate the use of potable water for landscape irrigation by taking advantage of the high rainfall climate, and the proper selection of planting.
- Consider the use of waterless urinals, sensor operated plumbing fixtures, ultra low-flow fixtures, and other wastewater technologies to reduce the quantity of sewage discharge to the municipal system.





Energy and Atmosphere Issues

- Ensure that an independent commissioning authority commissions the building.
- Design the building to comply with ASHRAE/IESNA Standard 90.1-1999 or the Hawai'i Energy Code, whichever is more stringent.
- Eliminate the use of CFC refrigerants, and consider the elimination of HCFC's.
- Optimize energy performance by utilizing energy efficient technologies, including, but not limited to: high-efficiency air conditioning equipment, premium efficiency motors, variable speed drives, CO2 monitoring/outside air control system, high efficiency filters to reduce the required outside air quantity, and energy recovery using heat pipes, wrap-around controls, or enthalpy wheels.
- Consider features to enhance the performance of the building envelope, including the use of additional insulation, radiant barriers, and high performance glazing.
- Consider the use of combined heat power (CHP) systems, photovoltaic, or other renewable energy sources for on-site power generation.
- Utilize either solar heating or heat recovery from the air conditioning system to provide domestic hot water and pool heating.
- Provide a metering system and develop a measurement and verification plan to provide ongoing accountability and optimization of building energy and water consumption.

Materials and Resources Issues

- Provide an area for recyclable collection and storage.
- Recycle on-site materials to reduce landfill disposal.
- Utilize recycled materials to the maximum extent possible.
- Utilize materials that are manufactured and/or extracted from Hawai'i.
- Utilize materials that are rapidly renewable, and Forest Stewardship Council (FSC)-certified wood products.

Indoor Environmental Quality Issues

- Design the HVAC system to comply with ASHRAE 62-1999.
- Provide a CO2 monitoring system to modulate the quantity of outside air supplied to the spaces depending on occupancy and use.
- Consider designing the building to comply with ASHRAE 129-1997 to optimize air change effectiveness.
- Develop an IAQ management plan to prevent indoor air quality problems during construction and before occupancy.
- Utilize adhesives, sealants, paints, coatings, and carpets that have low volatile organic compound (VOC) emissions.
- Ensure that all composite wood products do not contain urea-formaldehyde resins.
- Minimize pollutant cross-contamination by installing permanent entryway systems to capture dirt and particulates from entering the building, providing exhaust ventilation in area where chemical use occurs, and drains with appropriate disposal for spaces where water and chemical concentrate mixing occurs.
- Provide individual air conditioning and lighting controls for occupant comfort and flexibility.





- Comply with ASHRAE STD 55-1992 to ensure that proper temperature and humidity control and comfort is maintained.
- Provide a Direct Digital Control (DDC) System to monitor and control the HVAC system to ensure that proper temperature and humidity control is maintained throughout the building.
- Utilize day lighting and lighting controls to improve illumination quality and to reduce electrical costs.
- Provide day lighting features with automatically operated shades to allow the arena, meeting rooms, and conference areas to be blacked out for presentations during the day.

2.5 PROJECT COSTS, PHASING, AND SCHEDULE

Preliminary estimates of construction cost for the development are based upon the major cost categories, including site construction, mass grading and excavation, infrastructure (roads, sewers, water, drainage), electrical utilities/communications, and building construction of the facility and support infrastructure.

As illustrated in *Table 2-4*, the total development cost for the Student Life Center – Phase I is estimated at \$19 million. The total development cost for Phase II is estimated at \$56 million. In total, the project is estimated at \$75 million.

As indicated by the costs, development of the project would occur in two distinct phases. Phase I of the project involves the integration of the new pool, fitness center, human performance center, administrative space, lockers, juice bar, covered courts, and other auxiliary services with the existing nearby campus facilities. ~~Phase I would further be broken down into two sub-phases.~~ Phase IA would include the pool, open courts, and fitness center, ~~Phase IB would include~~ the classroom, human performance building, and court canopy. During this phase, temporary access will be provided via Kāwili Street, which eventually would be extended and become a permanent part of the driveway fronting the Events Center upon completion of the second phase of construction. Phase II includes the development of the Events Center, covered mall walkway, tennis courts, multi-purpose field, campus green, service loading, entry driveway, parking areas, pedestrian accesses, and the center's landscaping. Prior to the implementation of Phase II, determinations to the relocation of the existing tennis courts will be finalized. Current plans anticipate funding of Phase IA to occur in July 2005 with construction commencing in late 2006 or early 2007. The project is anticipated to be completed 24 months thereafter.





**Table 2-4
Total Cost Summary**

Project Phase	Estimated Cost (\$ Millions)
<i>Phase I</i>	
Phase IA	\$ 12.5
Phase IB	\$ 6.9
Total Cost for Phase I	\$ 19.4
<i>Phase II</i>	
Total Cost for Phase II	\$55.9
Total Project Cost	\$ 75.3



Section 3.0

Description of the Environmental Setting, Potential Impacts, and Mitigative Measures



3.0 DESCRIPTION OF THE ENVIRONMENTAL SETTING, POTENTIAL IMPACTS, AND MITIGATIVE MEASURES

Addressed below are the environmental setting, potential impacts and mitigative measures for the proposed UH-Hilo Student Life Center – Phase I.

3.1 CLIMATE

Existing Conditions

The climate of Hilo is warm and humid and accentuated with persistent east to northeast tradewinds, particularly during the summer months. Average daily minimum and maximum temperatures range from the mid 60s to the low 80s degrees Fahrenheit (F), depending upon the time of day and the season. Precipitation is steady throughout the year. Over a fifty-year period, the months of March and November yield the most rainfall, averaging a total of 13-15 inches during those months.

Climatic conditions around the project area yield temperatures ranging from a high of 81 through a low of 66 degrees F. The months of August and September are the warmest months, with average temperatures ranging from 69 to 83 F. Conversely, the months of January and February are the coolest months, with temperatures ranging from 63 to 79 F. Annual rainfall on Hawai'i varies greatly with elevation and geography. Located on the eastern side of the island of Hawai'i, the project area has an average rainfall of 130 inches.

Anticipated Impacts and Mitigative Measures

The proposed action will have no effect on climatic conditions; therefore no mitigative measures are required.

3.2 TOPOGRAPHY

Existing Conditions

In general, the main campus can be characterized as moderately sloped with a rolling terrain. Elevations vary from a high point of 210 feet in elevation to a low of 85 feet. The project area slopes from southwest to the northeast. The slope of the area of the proposed lot for surface parking is approximately five percent.

Anticipated Impacts and Mitigative Measures

Grading and related construction activities will be conducted in a manner which will insure full compliance with the dust and erosion control requirement of applicable County, State, and Federal regulations. Prior to the issuance of a grading permit, the applicant will submit an erosion control plan for approval by the County of Hawai'i, Department of Public Works.

The project is sited on an area with gentle to moderate slopes that minimizes the amount of grading and excavation required. As a general rule, cut material from grading will remain on-site. The amount of cut and fill will be balanced in the grading plan to minimize the need to import fill or to export excavated material. Grading for the new center will be limited to providing access to the physical education facilities and to new and existing parking areas.





Finish grades will not significantly change existing conditions. Differences in elevation between the project site and the nearby areas will require ramps, upper level entrances, and retaining walls to be used to match existing elevations. Located southeast of the existing baseball stadium, the new parking area will require grading that will generally follow existing contours. Erosions control measures during construction such as silt fences, berms, siltation basins, or ditches will be used, as appropriate.

3.3 GEOLOGY AND SOILS

Existing Conditions

Hilo is situated on basalt lava flows that stemmed from the eruption activity of both Mauna Loa and Mauna Kea. Much of the Hilo area situated southeast of Waiākea Stream is covered by two broad ‘a‘ā (stony and rugged) and pāhoehoe (smooth form) lava flows. The University of Hawai‘i-Hilo campus is built upon one of these ‘a‘ā flows that occurred approximately 9,000 years ago. This flow is broadest along the makai (seaward) edge where it is overlain by the younger flow.

According to the U.S. Department of Agriculture Soil Conservation Service (SCS), soils are classified generally by type, capability classification, and permeability. Soil type describes the composite material of the soil. Capability classification defines the limitations on the choice of crops that can be grown within the soil, with a higher Roman numeral designation corresponding to stricter limitations. Permeability defines the level of runoff and the corresponding amount of erosion that can be expected with that particular soil type. Table 3-1 illustrates the various soil types located within the project area.

Table 3-1
Soil Types According to the U.S. Soil Conservation Service

Table with 5 columns: Soil, Soil Type, Capability Classification, Runoff, Erosion. It lists two soil types: rKFD (Keaukaha extremely rocky muck) and PeC (Pana'ewa very rocky silty clay loam).

As shown in Figure 3-1, the project area is comprised of two basic soil types: the Keaukaha Series (rKFD) and the Pana'ewa Series (PeC). The Keaukaha Series is comprised of a thin organic soil that usually follows the topography of underlying pāhoehoe lava forms at a depth of 10 inches or less. In contrast, the Pana'ewa Series is a shallow, moderately well drained silty clay loam that is formed in volcanic ash. This soil type usually has bedrock at a depth of less than one and half feet.



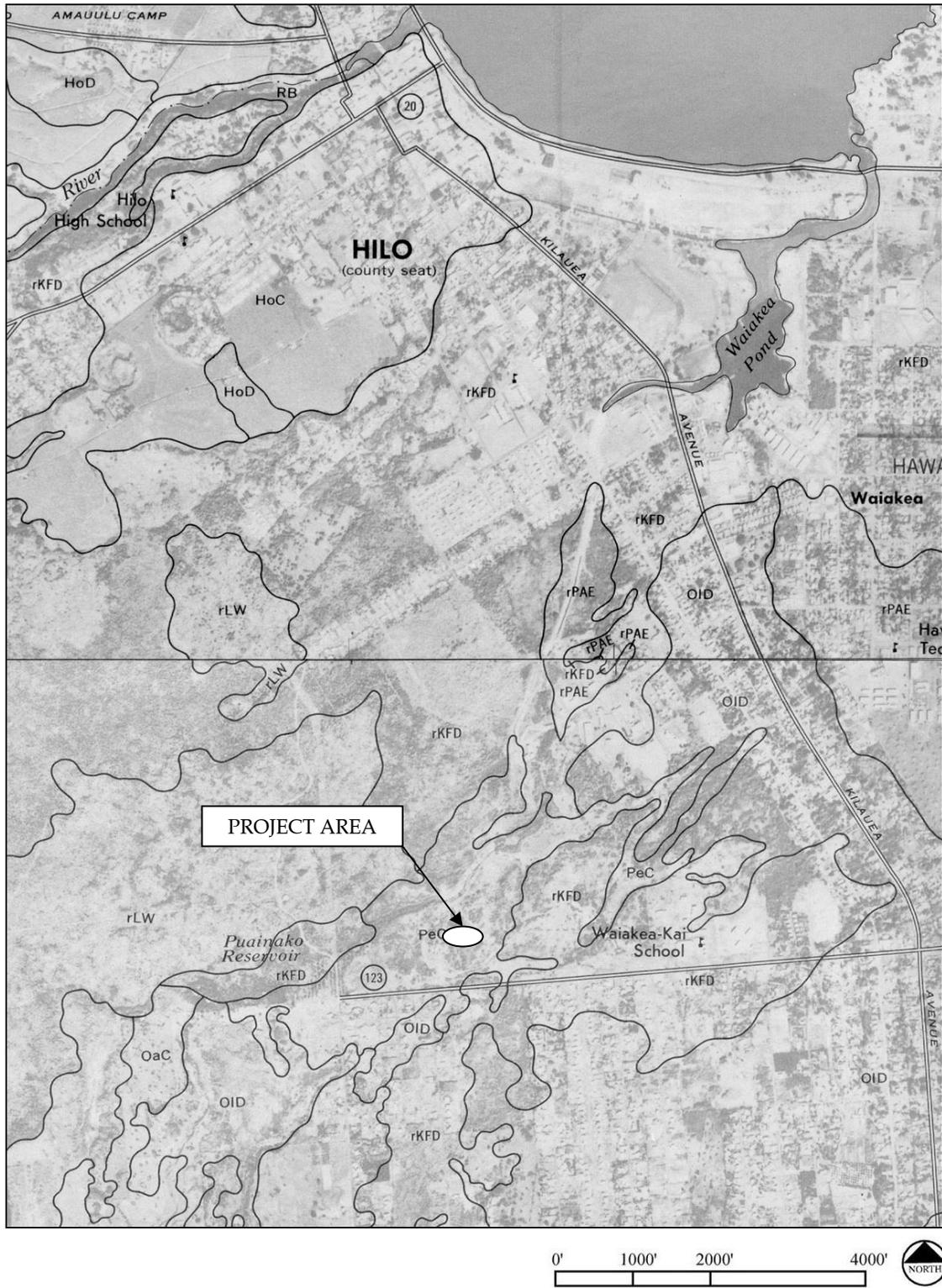


FIGURE 3-1 SOIL CONSERVATION SERVICE CLASSIFICATION





Anticipated Impacts and Mitigative Measures

The short-term impact of the proposed action on soils is limited to the small potential for erosion during construction. All earthwork operations will be conducted in compliance with dust and erosion control requirements of the County of Hawai'i. If it is determined that a grading permit must be obtained from the County, the permit will require review and approval by the Department of Public Works, whereupon specific conditions may be attached.

The impact of construction activities on soils will be mitigated by practicing strict erosion control and dust control measures, particularly those specified in the following:

- County of Hawai'i Grading Ordinance
- State of Hawai'i, Hawai'i Administrative Rules, Chapter 11-60.1, Air Pollution Control
- State of Hawai'i, Hawai'i Administrative Rules, Chapter 11-60.1-33, Fugitive Dust
- State of Hawai'i, Department of Health, Water Quality Standards, Chapter 37-A, Public Health Requirements (1968)
- USDA Soil Conservation Service, Erosion and Sediment Control Guide for Hawai'i (1968)

Primary fugitive dust control methods that will be implemented include providing an adequate source of water to regularly water exposed soil areas, good housekeeping on the job site, and prompt landscaping, covering or paving of bare soils in areas where construction is completed.

3.4 SURFACE WATER, FLOODING, AND DRAINAGE

Existing Conditions

The major tributary within the main campus area is Waiākea Stream, situated approximately 750 feet west of the site. The U.S. Fish and Wildlife Service National Wetlands Inventory also identifies parts of Waiākea Stream as wetland. According to the National Flood Insurance Program Flood Insurance Rate Map (FIRM # 155166 0880C), the stream area lies within the AE designated flood zone. As shown in *Figure 3-2*, the AE zone represents a flood area that has the potential to be inundated with a 100-year flood. For the AE designation, base flood elevations have been determined. For this portion of the stream, the base flood elevations lines are between 160 to 200 feet. The project site lies within the Zone X designation, meaning that this area lies outside of a 500-year flood plain.

Catch basins and grated inlets divert storm runoff to drywells, which are located throughout the campus area. The project area is located on an existing tier approximately level with Kāwili Street.

This tributary joins the main Waiākea Stream near the mouth of Main Stream in the Muliwai area. The stream forms a large estuary here which discharges into the South side of Hilo Bay.



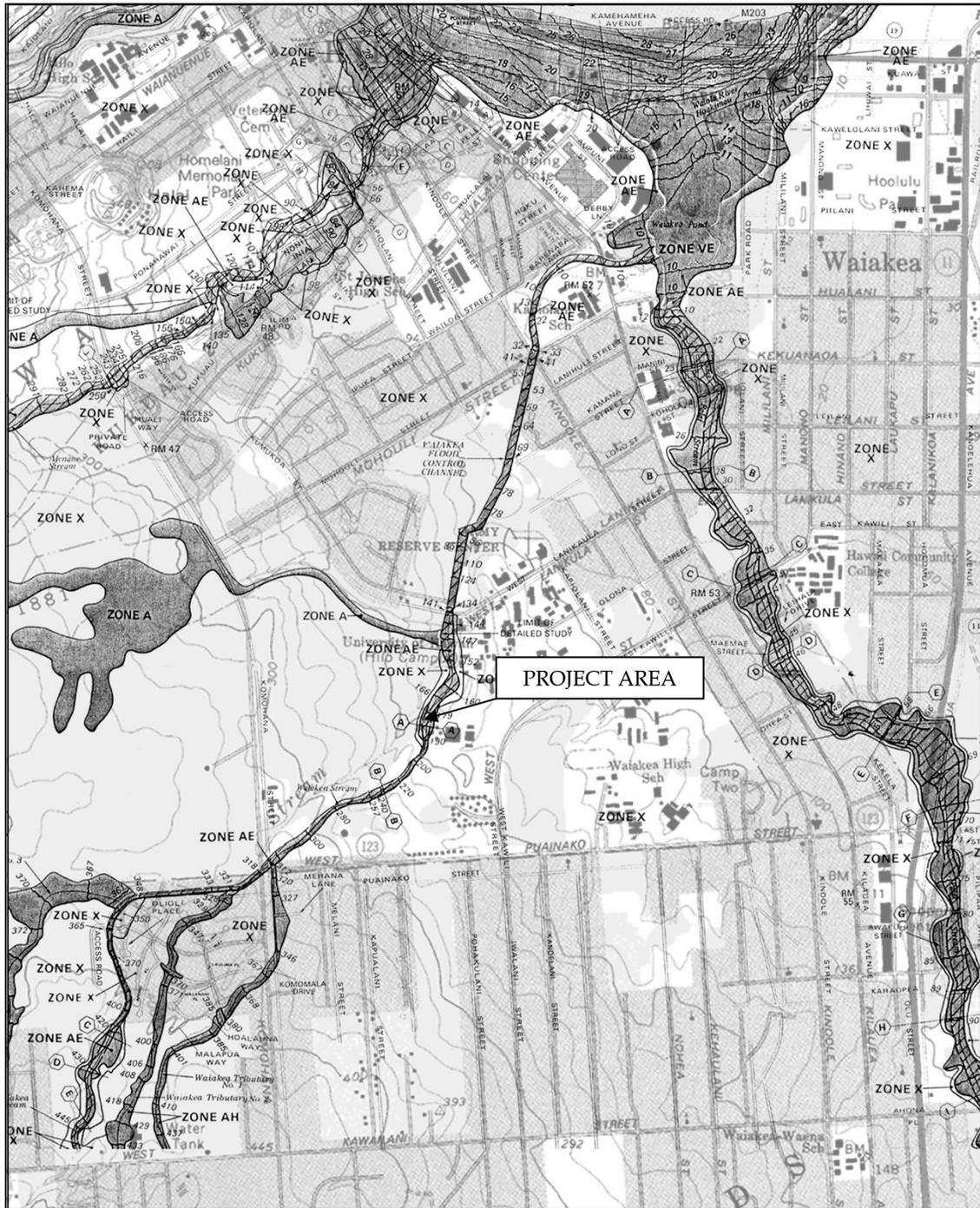


FIGURE 3-2 FLOOD INSURANCE RATE MAP CLASSIFICATION





Anticipated Impacts and Mitigative Measures

The management of surface water and drainage control measures during the project's construction and operation will meet County of Hawai'i standards. Site design will minimize runoff and collection through on-site dispersal and filtering methods. Increased surface runoff from newly paved parking and pedestrian areas will also be minimized with the use of catch basins and grated inlets that will convey runoff to new drywells. Secondary overflow drainage containment will be installed to minimize the chance of flooding of new and existing facilities. No surface water runoff is expected to drain into the stream channel. As noted, only the stream area situated to the west of the proposed project is subject to potential flooding conditions occurring every 100 years. The project site itself is an area designated as outside the 500-year flood plain.

The University of Hawai'i has received an NPDES Permit for the project issued on December 19, 2005 (Permit file # HIR10C391) which expires on November 6, 2007. The scope of work is for the UH Hilo-Student Life Complex Phase IA. The University of Hawai'i is authorized to discharge storm water associated with construction activity from the subject project to Waiākea Stream, Class 2, Inland water at the following discharge coordinates: Latitude 19 degrees, 42' 06" N and Longitude 155 degrees 05' 05" W.

3.5 NATURAL HAZARDS

3.5.1 Lava Flows

Existing Conditions

The island of Hawai'i is divided into nine hazard zones according to the level and degree of potential hazards related to lava flows. An area designated as Zone 1 is considered to be an area of greatest potential hazard. These designated zones are determined primarily from the location and frequency of past eruptions. As shown in *Figure 3-3*, the area of Hilo that lies south of the Wailuku River is designated as Zone 3, indicating that approximately 1-5% of the area has been covered by a lava flow since 1800. In 1881, pāhoehoe lava flowed from the northeast rift of Mauna Loa and migrated to within one and a half miles of Hilo Bay Hilo, just north of the UH-Hilo campus. Although erupting less frequently than Kīlauea, Mauna Loa often produces a greater volume of lava over a shorter period of time. Short-duration lava flows in 1852, 1942, and 1984 all migrated to areas within 4 miles from the outskirts of Hilo town.

Anticipated Impacts and Mitigative Measures

All developments within the Hilo area are subject to similar levels of risk associated with potential hazards of a volcanic eruption and as such, are located in similar volcanic and seismic zones. Therefore, compliance to applicable County of Hawai'i regulations and standards for building design and construction is an appropriate mitigative measure.

3.5.2 Earthquakes

Existing Conditions

The majority of earthquakes on the island of Hawai'i are directly related to volcanic activity, particularly to the movement of magma beneath Kīlauea and Mauna Loa. Other earthquakes





are the result of exerted pressures released by magma that never reaches the surface. According to previously established procedures, the United State Geological Survey conducted a probabilistic seismic-hazards assessment in 1997. From this assessment, seismic zonation were re-assigned for each county. Due to the island’s active volcanic activity, the entire County of Hawai’i lies in a seismic zone designated as a level 4, the highest zoning designation.

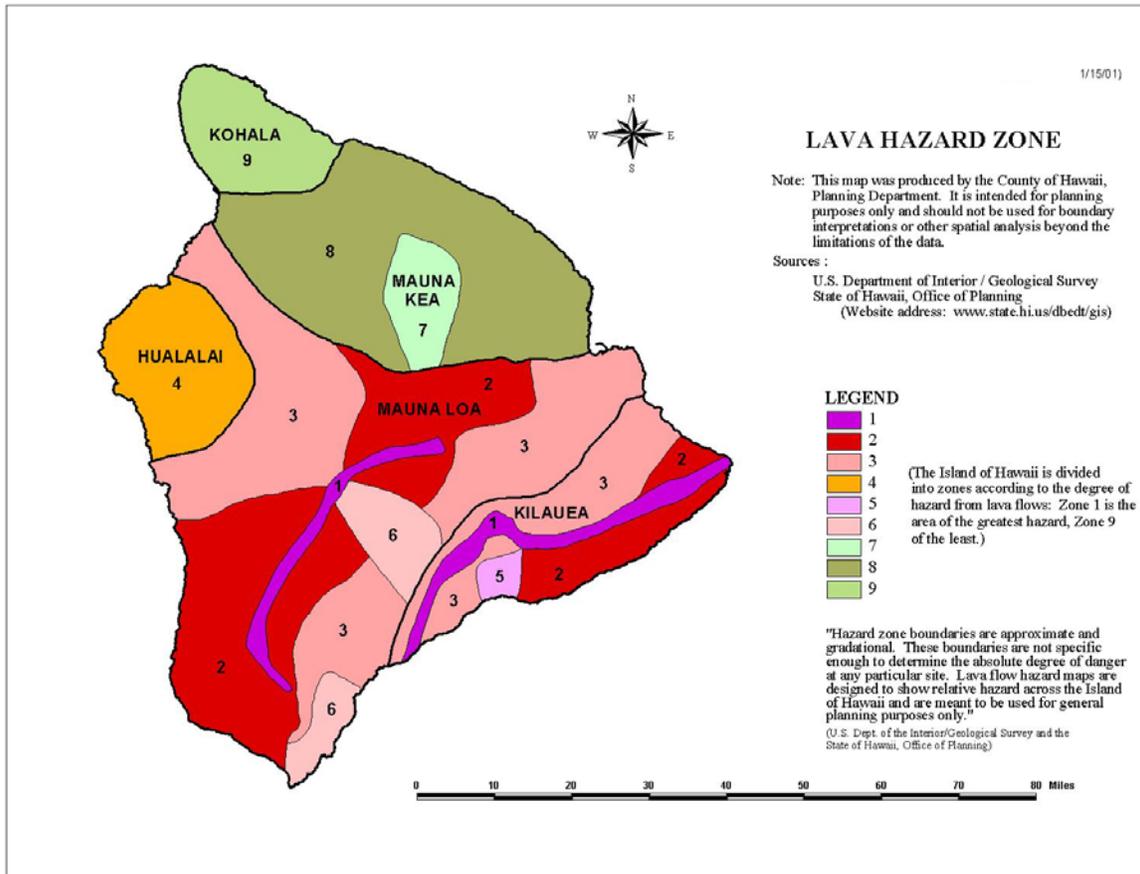


FIGURE 3-3 LAVA HAZARD ZONE

Source: County of Hawai’i, Planning Department

Anticipated Impacts and Mitigative Measures

Under the Uniform Building Code seismic provisions, a Zone 4 area could experience severe seismic activity between .30 and .40 of the earth’s gravitational acceleration (g-forces) causing major damage to poorly designed or built structures. The potential of damage incurred by strong earthquakes is a prevalent concern for the entire County of Hawai’i. As such, the proposed center will be in compliance with the UBC and County of Hawai’i structural design standards, including earthquake design provisions. Further mitigation can include university staff training.

3.5.3 Tsunami

Existing Conditions

A tsunami is a series of waves generated in a body of water by an impulsive disturbance that vertically displaces the water column. Tsunamis are characterized as shallow-water waves, with





long periods and wavelengths. A tsunami possesses the potential to have a wavelength in excess of 100 km and a period on the order of one hour. Generators of tsunamis include earthquakes, landslides, volcanic eruptions, and explosions. Within this century, two major destructive tsunamis have struck the town of Hilo in 1946 and 1960. The effects of these tsunamis were devastating, causing severe property damage and loss of life along the coastline. For the town of Hilo, tsunami risk to new developments is minimized through restrictive zoning and by flood-resistant construction. The existing demarcation of the tsunami inundation zone for the Hilo area is illustrated in Figure 3-4.

Anticipated Impacts and Mitigative Measures

The project area lies outside of the tsunami inundation zone. However, measures can be taken to ensure proper training of staff to assist facility users in the event a tsunami warning is issued for the greater Hilo area.

3.5.4 Hurricanes and Tropical Storms

Existing Conditions

Hurricanes are tropical cyclones that attain a minimum sustained wind speed of 74 mph. The term hurricane is given to tropical cyclones that churn in the Eastern and Central Pacific Waters. Hurricanes are giant whirlwinds in which air moves around a center of low pressure, reaching maximum velocity in a circular band extending outward 20 or 30 miles from the rim of the eye (center). Tropical Storms have rotating winds of 39-73 mph and usually are accompanied by heavy rains and thunderstorms.

The movement pattern of these systems can be erratic and unpredictable. The major hazards posed by a hurricane include violent winds, torrential rainfall, flooding, storm surge, and high surf. The general season for hurricanes is between the months of June to December. In the event of a potential hurricane striking the islands, the State Civil Defense will issue either a hurricane “warning” or “watch”, indicating the projected length of time before the storm’s arrival.

Anticipated Impacts and Mitigative Measures

Since 1955, there have been five major hurricanes that have caused major damage in the Hawaiian islands, primarily on the islands of O’ahu and Kaua’i. In general, as the result of unpredictability in the frequency of occurrences, intensity, and movement patterns, the potential threat of hurricanes in the project area cannot be estimated beyond the fact that hurricanes will probably hit Hawai’i as frequently as they have in the past.

The potential mitigation measures include complying with recommended building design standards that will help maintain the structural integrity during the course of a hurricane. Further mitigative measures also include the proper training of staff at the events center in assisting users of the facility if a hurricane watch or warning is issued.



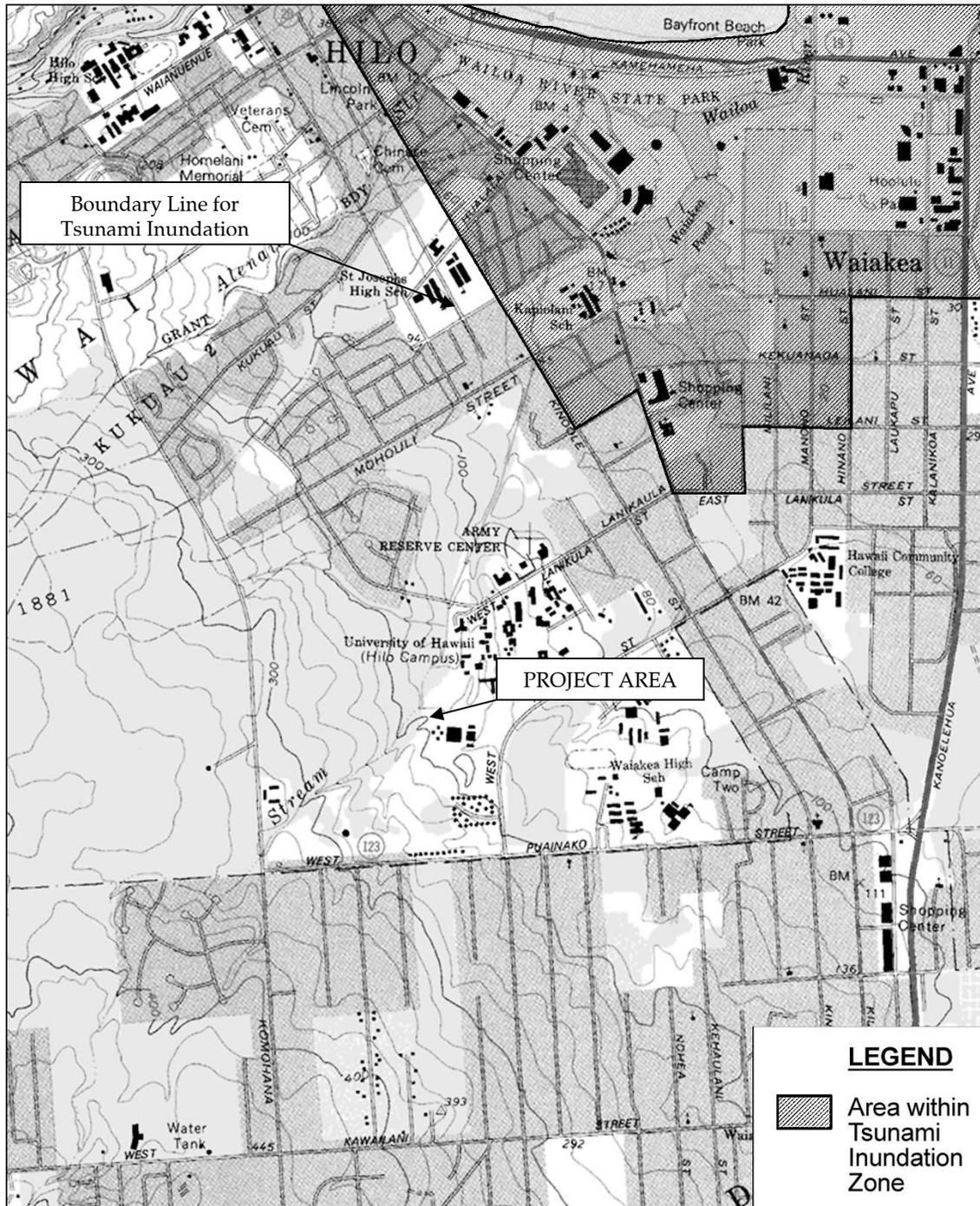


FIGURE 3-4 TSUNAMI INUNDATION ZONE





3.6 BOTANICAL RESOURCES

Existing Conditions

With consideration to the area's geologic substrate, elevation, and rainfall, the project area probably once consisted of a lowland wet forest habitat. Within this habitat, the native 'ōhi'a lehua (*Metrosideros polymorpha*) was probably the most abundant species of native forest trees in the area until the introduction of various agricultural activities. Agricultural uses of the area in the late 19th century included the development of the sugarcane (*Saccharum officinarum*) cultivation and cattle grazing which eradicated much of the original vegetation.

According to the *University of Hawai'i at Hilo Long Range Development Plan (LRDP, 1996)* and previously conducted botanical studies, various species of introduced, native Hawaiian and Polynesian-introduced shrubs, groundcovers, trees and palms are present in the main campus area, including the project area. The nearby-forested areas can be classified as a lowland mixed 'ōhi'a lehua forest, which includes several introduced species of canopy trees, shrubs, grasses, and vines such as the Chinese Banyan (*Ficus microcarpa*), the African Tulip (*Spathodea campanulata*), California grass (*Brachiaria mutica*), Thimbleberry (*Rubus rosifolius*).

Situated near the flood control channel include large canopy trees and clusters of palm trees and 'ōhi'a lehua. Native ferns such as uluhe (*Dicranopteris linearis*) and hāpu'u (*Cibotium* sp.) are present in the nearby area.

Anticipated Impacts and Mitigative Measures

The development of the center will include a new landscaped area, providing trees and plantings that may serve as habitat for area wildlife. Landscaping plans for the project area remain consistent with the overall landscape and open space plan for the general campus, which includes the use of native plant species. As appropriate, selection of flowering and accenting trees and plantings will be based upon the recommended list of approved plants in the University's Long Range Development Plan. Further efforts can be coordinated between various campus groups and organizations that currently help to maintain existing ornamental plantings and small informal gardens.

3.7 FAUNA

Existing Conditions

Mammalian

Previously conducted wildlife habitat studies within the campus area have indicated that terrestrial vertebrate fauna on the site and within the vicinity is limited to rats (*Rattus spp.*), mice (*Mus musculus domesticus*), mongoose (*Herpestes auropunctatus*), and feral cats (*Felis catus*). Although not identified specifically within the project area, the endemic ope'ape'a, the Hawaiian Hoary Bat (*Lasiurus cinereus semotus*) is locally abundant in the lowlands of the Hilo area. The United States Fish and Wildlife Service (USFWS) as well as the State Department of Land and Natural Resources, Forestry and Wildlife Division (DLNR) list the ope'ape'a as an endangered species.





Avian

The identification of avifauna that flock or reside within the project area includes the Common Myna (*Acridotheres tristis*), House Finch (*Carpodacus mexicanus*), Japanese White-Eye (*Zosterop japonicus*), and the Melodious Laughing Thrush (*Garrulax canorus*). The 'io, Hawaiian Hawk (*buteo solitarius*) has been identified by both USFWS and DLNR as an endangered species, and probably utilizes portions of the general campus area for hunting or nesting. It is also probable that the project area is included in the flight coverage of the a'o, the Newell's Shearwater (*puffinus newelli*) and the ua'u, the Dark-rumped Petrel (*Pterodroma phaeopygia sandwichensis*). Both species of seabirds fly nocturnally.

Stream Life Communities

Within the nearby Waiākea Stream, it is probable that this freshwater natural resource provides a habitat for several native stream animals including species of fish, shrimp, mollusks, and insects. The 'o'opu alamo'o (*Lentipes concolor*), the 'o'opu nopili (*Sicyopterus stimpsoni*), the 'o'opu nakea (*Awaous guamensis*), the 'o'opu naniha (*Stenogobius hawaiiensis*), the 'o'opu okuhe (*Eleotris sandwicensis*), the 'opae kuahiwi (*Atyoida bisulcata*), and the hihiwai (*nertina granosa*), and pipiwai (*theodoxus cariosus*) are some of the varieties of stream life that probably exist in the nearby stream.

Anticipated Impacts and Mitigative Measures

Mammalian

It is unlikely that the development of the project will result in any deleterious impacts on mammalian species. Stray domestic animals and other pest mammals will probably continue to pass through the site during and after construction. Unlike nocturnally flying seabirds, which often collide with man-made structures, the ope'ape'a' is uniquely adapted with ultrasonic echolocation to avoid collision with natural or man-made obstacles.

Avian

It is anticipated that during the short-term duration of construction activity, birds that frequent the nearby areas will move to nearby undisturbed areas and will return when the disturbances cease.

The development of this project has the potential to impact the a'o and ua'u with the installation of exterior lighting along the roadway and on the center. Planned lighting designs will be implemented to minimize glare effects to reduce the possibility of these nocturnally flying bird species becoming disoriented and colliding with a variety of vertical elements such as buildings, walls, fences, and trees.

To avoid impacts to nesting 'io, a study conducted by a qualified ornithologist prior to construction will be conducted to identify potential nesting areas. If a nest is located, further consultation with the USFWS will be required to determine the appropriate mitigative measures. Upon completion of the center, the secondary impacts to this species are negligible because the area impacted is minimal in relation to the larger remaining habitat available to the species.





Stream Life Communities

The construction and operation of the facility is not expected to affect or alter the existing conditions of the stream. No surface runoff will be discharged directly into the stream. As such, there are no anticipated impacts to the stream habitat.

3.8 ARCHAEOLOGICAL -HISTORICAL RESOURCES

Existing historical and cultural resources within the project area are detailed in an archaeological and cultural impact assessment completed by PHRI Inc. (May 2002) and is presented in its entirety in Appendix A.

Existing Conditions

During the archaeological assessment, only the undeveloped portions of the project area were inspected. As shown in Figure 3-5, three general field inspection areas were designated: Area A, Area B (including Sub-area B-1), and Area C. Inspection fieldwork consisted of a series of variable pedestrian transects across the project area. Table 3-2 provides details as to the identified sites with each inspection area.

**Table 3-2
Identified Archaeological Resources Within Designated Inspection Areas**

Inspection Area	State Inventory of Historic Properties	Feature Type	Chronology
Area A	18912, 18913, 18914	Alignments, terraces, mounds	Historic Period
Area B	N/A	Platform, Mounds (2)	Historic Period
Area C	N/A	Clearing Mound	Historic Period

The archaeological features identified in the current project area, including previously recorded sites and newly identified sites, are similar in size and construction to those described in previous archaeological studies. The formal functional types within these sites are alignments, terraces, and mounds comprised of stacked and piled boulders and cobbles, and appear to represent the remains of land clearance and associated activities related to the historic period of sugarcane cultivation.

Anticipated Impacts and Mitigative Measures

For the three sites identified in Area A, the State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources has previously evaluated site significance and determined the appropriate mitigation treatments.

In terms of evaluation criteria used by the SHPD, Site 18912 was determined significant for its information content only. Data recovery was the recommended scope of mitigative work.

Site 18913 was determined not significant and requires no further work.





Site 18914 was determined significant for its information content and as a good example of a site type representative of plantation-era use that had completely modified an earlier native Hawaiian landscape. The recommended scope of mitigative work is site preservation for its interpretive development potential.

Three additional historic period features (Area B) were identified in the central western portion of the project area. One feature appeared to be a platform while the other two were identified as mounds. All three were similar to features described for previously recorded sites and were assigned an historic interpretation and function as being associated with sugarcane cultivation. A fourth feature (Area C) was thought to be a clearing mound, associated with either sugarcane cultivation, or a more recent bulldozer pushed pile resulting from the construction of the University buildings and grounds.

A preliminary evaluation of significance, conducted in consultation with the SHPD staff archaeologists, indicated that the four newly identified features were likely significant for their information content only, and that the appropriate mitigative measure would be to conduct an inventory survey-level documentation.

3.9 CULTURAL RESOURCES & PRACTICES

Existing cultural resources within the project area are detailed in an archaeological and cultural impact assessment completed by PHRI Inc. (May 2002) and is presented in its entirety in *Appendix A*.

Existing Conditions

The purpose of conducting a cultural impact assessment is to evaluate the potential impacts the proposed project may have upon the cultural resources that included established practices, beliefs, and physical features that are associated to either native Hawaiians or any other ethnic group. Of some 24 potential information sources, 22 were contacted and consulted as to the extent and level of knowledge of known cultural resources associated to the project area. Five individuals were evaluated as knowledgeable individuals because of their site-specific knowledge, family associations, or use of the area for cultural purposes.

Anticipated Impacts and Mitigative Measures

Much of the information shared pertained to general traditional history and land use patterns of the general Hilo area, traditional place names, and historic period occupation. However, none of the consulted individuals had any direct knowledge of any current or recent use of the project area by any native Hawaiian cultural practitioners exercising traditional and customary access and use rights for any purposes, or were able to identify specific traditional cultural places within the project area.

In a small portion of the southwestern corner of the project area, a group of students, interested in learning and participating in aspects of traditional Hawaiian culture through the propagation and maintenance of native Hawaiian cultigens and existing botanicals, are perpetuating a contemporary use of this area as a cultural learning environment. It is recommended that consideration be given to the preservation of the area as an educational facility. Further, it is





recommended that the exact location and limits of this area be established so that the planning of the facilities can take the proposed preservation into account, addressing and resolving any potential spatial conflicts.

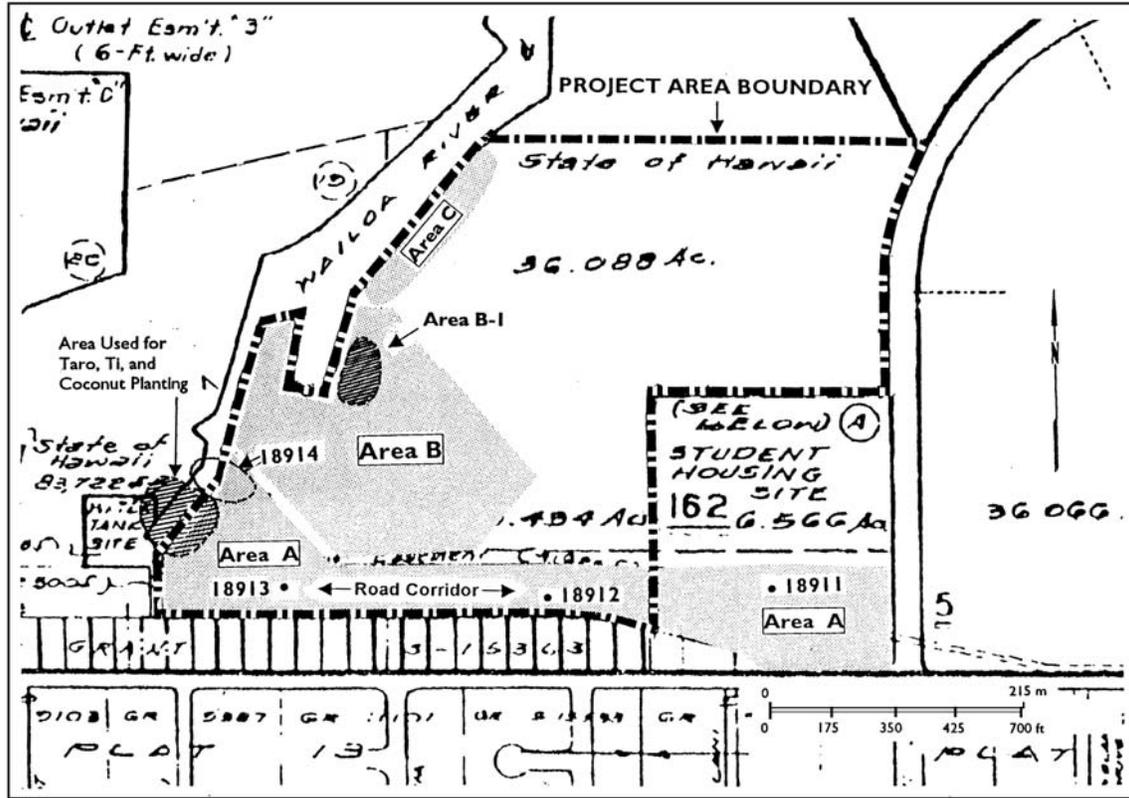


FIGURE 3-5 ARCHAEOLOGICAL STUDY AREAS

Source: PHRI, Inc. (May 2002)

3.10 TRAFFIC CONDITIONS

A traffic assessment report was prepared by M&E Pacific, Inc (July 2005) and is presented in Appendix D.

Existing Conditions

The University of Hawai'i at Hilo campus is located approximately two miles south of downtown Hilo. The campus is demarcated by West Kāwili Street on the east, Kumukoa Street/West Lanikāula Street on the north, Pū'āinakō Street on the south, and Komohana Street on the west.

West Kāwili Street

This two-lane collector roadway runs in a general north to south alignment, with a curvature that extends eastward along its boundary within the campus. To the south, West Kāwili Street intersects Pū'āinakō Street while continuing in a northeast orientation to both Kino'ole Street and Kīlauea Avenue. South of the Pū'āinakō intersection, the name of the roadway changes from West Kāwili Street to 'Iwalani Street.





Pū'āinakō Street

This street extends in an east to west alignment, beginning at Kanoelehua Avenue on the east and terminating at Komohana Street on the west. An extension project is currently underway that would widen the road to a four-lane divided roadway, providing a direct link between Kanoelehua Avenue and Kaumana Drive. The extension project involves widening the existing Pū'āinakō Street between Kilauea Avenue and 'Ānela Street; its realignment between 'Ānela Street and Komohana Street; and a new two-lane roadway from Komohana Street to Kaumana Drive. Between West Kāwili Street and Komohana Street, the alignment of the roadway would be north of the existing Pū'āinakō Street and would be situated between the residences of Pū'āinakō Street and the university dormitory complex. This section of the existing roadway will become a local street upon completion of the extension project.

Komohana Street

This north to south aligned two-lane roadway is the western boundary of the university campus. Komohana Street begins at Waiānuenu Avenue to the north and continues south past Ha'iha'i Street.

Nowelo Street

Intersecting Komohana Street between Pū'āinakō Street and Mohouli Street, this roadway serves the west campus. A bridge crossing Waiākea Stream connects Nowelo Street to the east campus roadway system.

Existing Traffic Circulation

The previous M&E Pacific, Inc., study did not analyze existing (2001) conditions at the Pū'āinakō Street/ Kāwili Street intersection because it focused on the future when the Pū'āinakō Street Extension project would be constructed.

Phillip Rowell and Associates prepared the "Traffic Impact Analysis Report, China-U.S. Center at UH-Hilo" (April 2002). This report assessed morning and afternoon peak hour traffic impacts for existing conditions and 2010 for several intersections along Pū'āinakō Street and Kāwili Street. This study found that existing (2001) traffic conditions at the Pū'āinakō Street/ Kāwili Street intersection were adequate. Most of the movements at the intersection were operating at level of service A during the morning and afternoon peak hours with the following exceptions:

- The 'Iwalani Street northbound approach was operating at level of service E in the morning.
- The Pū'āinakō Street eastbound approach was operating at level of service C in the morning.
- The Kāwili Street southbound left and through lane was operating at level of service C in the afternoon.

Several TIAR's were prepared for proposed project in the UHH University Park of Science and Technology along Komohana Street. Most of these reports focused on traffic operations along Komohana Street. The "Traffic Impact Analysis Report Mauka Kea Astronomy Education Center" (July 2002) prepared by M&E Pacific, Inc., found that the Pū'āinakō Street approach to Komohana Street was operating at level of service C in the 2001 morning peak and at level F in the afternoon peak with an unsignalized intersection. With traffic signals installed as part of the





Phase I extension project, the intersection would be operating at level of service C or better in 2003.

Anticipated Impacts and Mitigative Measures

Two other major projects are being proposed in the vicinity of the project site including a cultural center and a roadway realignment to Pū'āinakō Street.

The UHH is implementing the China-U.S. Center at UH-Hilo on a 36 acre site directly across Kāwili Street from the main campus and athletic complex. The center would include:

- 34,000 sf China-U.S. Cultural Center
- 130,000 sf Shopping and Entertainment Plaza
- 150 unit International Hostel
- 50 unit Visitor Suites
- 20 unit Family Lodging unit
- 100 unit University Inn hotel

The center was to be developed in three phases from 2001 to 2008 but construction has not yet begun in 2005.

The previous study prepared by M&E Pacific, Inc., included a preliminary assessment of the late afternoon traffic impacts of the center (2005) to supplement the expected impacts of the proposed athletic complex. The aforementioned study by Phillip Rowell and Associates, "Traffic Impact Analysis Report, China-U.S. Center at UH-Hilo" (April 2002), was prepared when the center concept became better defined. The latter report assessed morning and afternoon peak hour traffic impacts for 2010. The proposed center would generate 460 and 840 vehicle trips in the morning and afternoon peak hours, respectively, when fully developed. The report concluded that Pū'āinakō Street would be operating at unacceptable levels of service without the Pū'āinakō Street Extension project. The report also made several recommendations for roadway improvements, including:

- Widening Kāwili Street to two lanes in each direction between Pū'āinakō Street and Drive A, the main access to the center.
- Placing a traffic signal at the intersection of Kāwili Street and Drive A.
- Adding a southbound right turn lane and a second eastbound left lane at the intersection of Pū'āinakō Street and Kāwili Street.
- Aligning Drive B of the center with the driveway to the athletic complex.

1. The first phase of the Pū'āinakō Street Extension project has extended the roadway mauka from Komohana Street to Kaumana. The mauka extension does not align directly with Pū'āinakō Street, requiring drivers to make two turning movements to continue traveling on Pū'āinakō Street. The State of Hawai'i Department of Transportation has started procurement of design services for the second phase of the Pū'āinakō Street Extension project that involves the widening and realignment of the roadway between Komohana Street and Kilauea Street. The realignment of the roadway between Komohana Street and Kāwili Street would be north of the existing Pū'āinakō Street between the residences on Pū'āinakō Street and the UH-H housing complex. The existing Pū'āinakō Street would then become a local street serving the residences along





it. The design phase is expected to take three years, meaning that the realigned roadway could be realistically constructed after 2010.

3.11 ACCESS ROADS, PARKING, CIRCULATION, AND ACCESSIBILITY

Existing Conditions

The project site is in the vicinity of a surface parking lot that contains approximately 183 stalls. Vehicular access to this area is from Kāwili Street at the north end of the parking lot. The nearby tennis courts and baseball stadium are located west of the existing lot and are accessible by pedestrian access only.

Anticipated Impacts and Mitigative Measures

Pedestrian access to the center would be from existing campus buildings adjacent to the facility. Ramps, walkways, covered walkways, and stairs would be a part of the improvements.

Improvements to pedestrian circulation will meet ADA requirements.

The proposed Student Life Center – Phase I will not require any new parking. The existing parking lot off of Kāwili Street would continue to meet the parking needs for the athletic complex. Figure 2-2 illustrates the extent of new on-grade parking areas for Phase II. These parking areas will serve the Events Center and are located north and west of the UHH housing complex.

3.12 NOISE

Existing Conditions

Noise is defined as unwanted sound. Sound may be classified as noise when it damages hearing ability, causes other bodily effects detrimental to health and safety, disturbs sleeps and rest, interferes with conversation or other forms of communication, or is simply annoying or irritating. A logarithmic scale, known as the “decibel scale” (dB), is used to describe sound levels. Since humans perceive certain higher frequencies (higher pitched) sounds as being louder, an A-weighted scale (dBA) is used to describe environmental noise. Table 3-3 illustrates common noise sources, the respective decibel levels, and the relative change in sound energy.

Table 3-3
Decibel Levels (dB) for Common Noise Sources

Table with 3 columns: Noise Source, dB, and Relative Change in Sound Energy. Rows include Threshold of hearing, Whispering at 5 Foot Distance, Conversation, Food Blender, Heavy Traffic, and Jet Aircraft at 200 Foot Elevation.

Source: Ortolano, Chapter 21, Elements of Noise Impact Assessment





The Day-Night Average Sound Level (Ldn or DNL) is a rating method that is essentially the A-weighted equivalent sound level for a 24-hour period with an additional 10 dB weighting imposed on the equivalent sound levels occurring during the hours between 10 p.m. and 7 a.m. The assumption is that nighttime noises are more objectionable than daytime noises due to sleep disturbances.

In Hawai'i, the State Department of Health (DOH) regulates noise from fixed mechanical equipment and construction activities. State DOH noise regulations are expressed in maximum allowable noise limits that are measured in dBA. The State DOH noise limits for single-family residential lands equate to approximately 55 Ldn (45 dBA). For multifamily residential, commercial, and resort lands, the State DOH noise limits equate to approximately 60 Ldn (50 dBA). For light and heavy industrial lands, the State DOH noise limits equate to approximately 75 Ldn (65 dBA), respectively. Construction activities, which are typically noisier than the State DOH noise limits, are regulated through the issuance of permits for allowing excessive construction noise during limited time periods.

Anticipated Impacts and Mitigative Measures

Development of the project site will involve construction activities, such as grading and paving which will generate significant noise levels during working hours. Earth moving equipment, such as bulldozers and diesel trucks will probably be the loudest equipment used during construction, generating noise levels as high as 95 dB. However, such exposures are only a short-term condition, occurring during normal daytime hours of operation.

Construction-period noise will be mitigated in accordance with Title 11, Administrative Rules, Chapter 46, Community Noise Control of the State Department of Health. All construction equipment and on-site vehicles will be equipped with mufflers as required in Section 11-46-(b)(1)(A). Required permit conditions for construction activities, regarding hours and days of operation, will also be met.

Construction noise prevention measures are not expected to exceed allowable levels. Noise emanating from operational equipment such as air conditioning systems will be limited through facility design consistent with the Department of Health's Administrative Rules, Chapter 11-46, "Community Noise Control." Further, proper sound installation of the enclosed structure, with specific noise performance requirements, will contain interior noise levels to acceptable limits.

Long-term noise levels at the adjacent Hale Kāwili, also known as the Adult Student Housing, and the nearby Pū'āinakō residences are not expected to be excessive. Noise generated from vehicular traffic is expected to be minor since vehicles will be traveling at low speeds entering the campus parking areas. Further, it is anticipated that noise generated by facility operations will primarily emanate from exterior sources such as cooling vents and towers for the facility's air conditioning system as well as announcements being relayed on any exterior public address systems. The overall design elements of the enclosed facility should contain interior noise levels to acceptable limits.





3.13 AIR QUALITY

Existing Conditions

The State Department of Health, Clean Air Branch regularly samples ambient air quality at monitoring stations throughout the State and publishes the information in *Hawai'i Air Quality Data*. For the island of Hawai'i, there is a monitoring station located on the grounds of the Adult Rehabilitation Center in downtown Hilo designed to monitor vog, an atmospheric haze produced by the combination of volcanic gas and particles with air and sunlight. The monitor station samples levels of particulate matter, PM₁₀, and sulfur dioxide, SO₂.

Particulate matter is any dispersed matter, solid or liquid, and includes dust, soot, smoke, and liquid droplets from sources such as factories, power plants, motor vehicles, construction activities, agricultural activities, and fires. Sulfur dioxide is a colorless gas that is usually emitted from sources that burn fossil fuels such as coal and oil. However, on the island of Hawai'i, the primary source of sulfur dioxide emissions comes from the continuous eruptions of Kīlauea Volcano.

Anticipated Impacts and Mitigative Measures

Clearing activities are expected to generate short-term impacts to air quality primarily from fugitive dust emissions and on-site construction activity. The impact of construction activities on air quality will be mitigated by conforming to strict dust control measures, particularly those specified in the State Department of Health's (DOH) Ambient Air Quality Standards, Hawai'i Administrative Rules, Title 11, Chapter 59; Public Health Regulations, 1968; and the U.S. Soil Conservation Service's Erosion and Sediment Control Guide for Hawai'i, 1968.

Primary fugitive dust control measures include wetting down loose soil areas, good housekeeping on the job site and the prompt landscaping of bare soil areas. In addition, State of Hawai'i Air Pollution Control Regulations require that fugitive dust emissions be controlled to such an extent that no visible emissions of fugitive dust from construction activity should occur beyond the property line.

There is the potential for air pollution from construction equipment and vehicles, and from vehicular emissions due to traffic disruptions from construction equipment. On-site mobile and stationary equipment will also emit some air pollutants in the form of engine exhausts. The larger types of equipment are usually diesel-powered. Nitrogen oxide emissions from diesel engines can be relatively high compared to gasoline-powered equipment, but the standard for nitrogen dioxide is set on an annual basis and is not likely to be violated by short-term construction equipment emissions. Carbon monoxide emissions from diesel engines, on the other hand, are very low and should be relatively insignificant compared to normal vehicular emissions.

Moving equipment and personnel to the site during off-peak traffic hours will alleviate short-term increases in vehicular emissions due to potential disruptions of traffic by construction equipment mobilization. Further, additional measures will be taken to alleviate short-term traffic disruption generated during seasonal sporting activities and recreational events scheduled for the center. Integration of a traffic management plan that utilizes either security





personnel or police to direct in and out flow of vehicular traffic should help to alleviate potential traffic disruption. Air quality conditions in the region are not anticipated to decline and no mitigative measures are required.

3.14 SOCIO-ECONOMIC CHARACTERISTICS

Existing Conditions

According to U.S. Census 2000 data, the County of Hawai'i has a population of nearly 149,000 people. Since 1990, the resident population has increased by approximately 23% within the county. Much of the population growth within the county of Hawai'i is focused in the Puna District (increase of 50.8%), as well as the North and South Kohala Districts (increases of 40.7% and 43.7%, respectively). The area of South Hilo has a population of approximately 47,000 people, representing a 6.2% increase in its resident population over the same period.

For the year 2000, the County of Hawai'i had an average daily visitor count of approximately 22,000 people. The county welcomed 1.3 million visitor arrivals, both domestic and international guests between 1990 and 2000. Approximately one million visitors made the island of Hawai'i a destination place for recreation purposes. However, approximately 131,000 meeting, convention, or incentive (MCI) visitors were on the island to attend an organized function or event. An estimated 24,000 people, approximately 18% of identified MCI visitors attended an event in the Hilo area, staying on average for a length of four days. The remaining majority of MCI visitors attended their meetings and conferences in the area of Kona, staying on average for a length of six days.

Between 1990 and 2000, the enrollment at the UH-Hilo campus has increased from 2,564 to 2,874, an increase of approximately 12.1%. The number of awarded bachelor degrees has more than doubled, from 203 to 411 bachelor's degrees, during the same period of time. Future projections anticipate that by year 2007, the UH-Hilo campus will be supporting a Full Time Enrollment population of more than 5,000 students.

The University of Hawai'i at Hilo is a member of the National Collegiate Athletic Association, supporting various intercollegiate programs including men's basketball and women's volleyball. The campus also provides opportunities for intramural league play and competition to those interested within the campus community. Currently, the Edith Kanaka'ole Multipurpose Stadium and Afook Civic Center are the main venues for events such as athletic events, judo tournaments, tennis competitions, concerts, and the annual Merrie Monarch Hula Festival.

Anticipated Impacts and Mitigative Measures

With projections of the student population progressively increasing over the next 30 years, there is a need to supplement the growing population's academic and social needs. The proposed project will be a venue that will meet the demands of the expanding campus and community population, serving anticipated social and recreational needs.

The project will generate both short-term and long-term employment opportunities, specifically construction and operational jobs, respectively. Employment associated with both construction and operations fall into three types:





- Direct jobs are immediately involved with construction of a project or with its operations. Direct jobs are not necessarily on-site: construction supports construction company personnel in offices and base yards, as well as on site.
- Indirect jobs are created as businesses directly involved with a project purchase goods and services in the local economy.
- Induced jobs are created as direct and indirect workers spend their income for goods and services.

Economic indicators suggest that the project will yield an overall positive economic benefit to the university system as well as the general local Hilo region, providing jobs and marginal benefits in tax revenues associated with project implementation.

3.15 PUBLIC SERVICES AND FACILITIES

Existing Conditions

Police

The headquarters of the Hawai'i County Police Department is located in Hilo. The department currently has a staff of over 500 people, which includes both administrative and police officer personnel. Five police station facilities are located within or near the general Hilo area, with a sixth facility being proposed in Waiākea Uka.

Fire

Comprised of approximately 300 personnel, the Hawai'i County Fire Department provides emergency medical service, rescue service, and fire protection for the entire island of Hawai'i. Four fire station facilities are located in the general Hilo area, which include: Waiākea, Central, Kaumana, and Kawailani stations.

Health Care Services

Located on Waiānuenuenu Avenue, health care services are provided by the Hilo Medical Center, the only hospital in the general vicinity. The Queen's Health Care Center (QHCC), developed under the auspices of the Queen's Physician Group provides specialized services that include invasive cardiology, infectious disease, pulmonology, endocrinology, and oncology. The Straub Hilo Family Health Center also provides additional health care services.

Limited health service is provided by the University's Student Health Services Center, which is managed by a nurse practitioner. If a particular injury or illness is beyond the nurse's scope of practice, the patient will be referred to a medical provider within the area or to the Hilo Medical Center.

Anticipated Impacts and Mitigative Measures

It is not anticipated that the events center will create a significant impact on existing public services. Overall, the main campus is readily accessible to police, fire, and emergency response services. Routine patrols and surveillance are provided by on-campus security, thereby





eliminating the need for expanded police patrols by County police. The police department will be called when back up is needed or during special events held at the facility that may require additional law enforcement personnel to be present on-site for traffic management purposes or to maintain security.

Fire protection will be maintained by the Hawai'i County Fire Department. Mitigation measures include meeting fire flow, access, and relevant building requirements. The proximity of the Hilo Medical Center, which is located approximately 3 miles away from the campus, allows for prompt treatment of emergency patients. Overall, the anticipated tax revenues generated by the project should adequately cover the cost of additional public services that are attributable to project development and operation.

3.16 UTILITIES

Existing Conditions

Domestic Water and Fire Protection

Fire protection for the existing physical education facility is served by an 8-inch water line that runs parallel to an 8-inch sewer line, north of the existing parking lot. Domestic waterlines serving the physical education area tap off the fire protection lines. The 8-inch campus waterline connects to an 8-inch Department of Water Supply (DWS) line that runs along Kāwili Street. This line is part of the Kawailani-Ha'ihai' DWS system that serves the eastern portion of the campus and the nearby community.

A 1998 Water Study for the University of Hawai'i at Hilo Fire Safety Improvements illustrates proposed fire protection lines and fire hydrants around the tennis courts and to areas south of the tennis courts. The water study also recommended that a new reservoir be constructed east of the UH-Hilo campus. This recommendation has been accepted and construction for the new reservoir should be completed at the end of the year 2002.

Wastewater

An 8-inch sewer line currently runs along the north side of the existing parking lot that serves the physical education facility. The line does not continue south to the parking lot and tennis court areas. This sewer line connects to an 8-inch line located along Kāwili Street. This Kāwili Street line, identified as the Kāwili Trunk Sewer, incrementally increases to 10 and 12 inches as it runs east and connects to an 18-inch line at Kīlauea Avenue.

Power and Communications

The Hawai'i Electric Light Company (HELCO), a privately owned utility company that is regulated by the State of Hawai'i Public Utilities Commission, provides electrical power for the Hilo area via a power plant network. A 12.47 kV line from the HELCO substation on Komohana Street runs along Kāwili Street.

Telephone service in the project area is provided by Verizon of Hawai'i. Record information obtained from Verizon indicates that the telephone system in the area is serviced from a switching station at Kawailani Street.





Hawaiian Cablevision provides cable television to the area. The service is provided via existing trunk cable lines and feeders along Kāwili and Pū‘āinakō Streets.

Anticipated Impacts and Mitigative Measures

Domestic Water and Fire Protection

Site plans will be adjusted to accommodate necessary installation of fire hydrants near the new facility. Domestic waterlines will also be installed to support the center.

Wastewater

The center will connect to the existing sewer line. The County wastewater system situated downstream from the proposed improvements should be able to accommodate the new facility.

Power and Communications

Supply of power to the project area would be provided by HELCO’s Komohana substation. Provisions of additional telephone and cable service to the project area are not expected to create any adverse impacts on-site nor interfere with existing utility service in the general vicinity.



Section 4.0

Alternatives to the Proposed Action



4.0 ALTERNATIVES TO THE PROPOSED ACTION

4.1 NO ACTION ALTERNATIVE

The “no-action” alternative would result in the continued use of existing athletic facilities which permit a limited range of recreational opportunities. The “no-action” option does not offer a viable solution in trying to provide a facility that anchors on-campus student life activities while serving as a recreational and meeting place for the greater Hilo community. A “no-action” scenario would not adequately address existing deficiencies nor fulfill the strategies and plans of the University of Hawai’i-Hilo Long Range Development Plan.

The Student Life Center – Phase I is the first increment of a two phased project designed to address existing deficiencies and work towards fulfilling the University of Hawai’i-Hilo Long Range Development Plan. The first phase would enhance the existing athletic facilities and provide a greater range of passive, recreational, and academic education opportunities. The second phase would provide a venue for large scale athletic and community events.

The preferred proposal would result in a facility that creates a comfortable physical and social atmosphere that could support existing and host an expanding variety of specific UH-Hilo related activities such as graduations, intramural sports, health and fitness classes and programs, sporting camps, athletic competitions, and symposiums while serving the needs of the community by hosting various community sports, conferences, festivals, trade shows, and cultural events. The “no-action” alternative would stifle an opportunity that supports collegiate athletics while building bridges with the local community through the creation and establishment of the proposed venue. The ultimate result of the “no-action” alternative would be loss of competitive edge with other colleges that offer similar programs.

4.2 CONSIDERATION OF ALTERNATIVE SITES

In 2000, a study was conducted to address the cost and general feasibility of a multi-purpose sports and recreational complex. This study was part of an initial phase that attempted to identify the vision and goals of the university’s students and faculty and the greater Hilo community in having such a facility. The feasibility study was the culmination of technical research, user community interviews, project conceptualization, and designed charrettes, with a final product evaluating and recommending a potential site location, building type, and building size for the facility. After a preliminary ranking of six potential sites, two candidate sites (Baseball Field Site and the Parking Lot Site) were selected for further evaluation by participants in the first charrette. A third site (Tennis Court Site) was later recommended for further evaluation.

During these series of charrettes, which were comprised of students, faculty, administrators, community residents, and business representatives, these sites were evaluated based upon established criteria of eleven elements that were considered for the analysis. The evaluation criteria included a review and rating of the following elements:





- Adjacency and Relationship to Campus Activities: Defining the relationship between existing campus programs as well as future planned activities with the proposed Center.
- Adjacency to Existing and Proposed Parking: Utilizing existing parking in a manner that facilitates efficient traffic circulation during large functions and assuring that future parking is convenient and accessible for the various user groups.
- Visual Statement: Creating a landmark building through architectural design and scale that can serve as a visual icon for the University.
- Relationship to Kāwili Street Development: Establishing the physical and functional relationships of the proposed Center with other developments adjacent to the University campus.
- Impact on the Neighboring Community: Understanding the potential economic and social impacts, both positive and negative, that may occur on the neighboring community and the greater Hilo region.
- Adequacy of the Buildable Area: Considering the need to have adequate space to accommodate the Center, an outdoor 50 meter swimming pool, vehicular and pedestrian circulation, and necessary parking and support facilities.
- Displacement of Existing Facilities: Reviewing existing plans and estimating the cost factors of either relocating or abandoning existing and/or planned facilities.
- Probable Construction Costs: Evaluating the costs of new construction for the project's components as well as the demolition or relocation costs of existing facilities, if required.
- Accessibility: Evaluating the linkages between vehicular and pedestrian circulation with the proposed Center.
- Utilities: Reviewing the availability of existing utilities, available capacities, and anticipated requirements for wastewater, domestic water, electricity, cable, and telephone service.
- Grading: Analyzing the existing conditions of area slope, drainage, level of existing development, and anticipated grading requirements.

After each site was rated with the given criteria, the Parking Lot Site and Tennis Court Site were considered the most appropriate for the Center. Due to the close proximity and the nominal differences between the two sites, further evaluation with the given criteria was conducted, with the final preferred option chosen based upon logistical and functional reasons. A review of the various sites selected during this process and an additional alternative considered in the University's Long Range Development Plan is provided below.

Alternative A- Baseball Field Site

As one of two initially selected potential sites, the baseball field site was considered an option because it strongly addressed the established major themes in the first series of charrettes. However, in the charrette process, the site did not rate as high as compared to the other alternative sites with respect to the given evaluation criteria. In the evaluation, the baseball field site scored low in its relationship with the Kāwili Street Development, with it being a visual statement, and the probable construction costs with the relocation of the baseball field.





Alternative B-Exclusive Use of the Tennis Court Site

This site would have provided a central locale for the center, placing it in close proximity to existing and future campus sports and recreational activities, as well as existing and proposed parking. Although visible from the surrounding campus area, this site is partially shielded from view from the existing gymnasium and the baseball field. As with the preferred site, the site would displace the existing tennis facilities and would require this important facility to be relocated. Development of this site would require the installation of a new sewer line connection that would be longer, thereby more expensive than the proposed site. Issues of grading present more design requirements since the existing parking lot, campus buildings, and baseball stadium currently border this site. Ramps, upper level entrances, and retaining walls would also be required to match existing elevations.

Alternative C-Exclusive Use of the Parking Lot Site

Exclusive development of the parking lot adjacent to the tennis courts would be nominally different from Alternative B. This site would provide a much more visible location for the landmark campus facility than Alternative B. However, the location of this site would have had a more prominent impact on residents along Pū‘āinakō and Kāwili Street without creating a frontage element like the preferred option. Utility requirements would also be virtually the same as Alternative B and the preferred site.

Alternative D- UH-Hilo Long Range Development Plan Site Selection

In the UH-Hilo Long Range Development Plan Ultimate Site Plan (LRDP), an area in the University Park section of the campus was selected as the site for a multi-purpose center. The area is currently undeveloped and the proposed center, under this alternative, would be located within the portion of campus that has been reserved for future growth in research and technology and student housing. The LRDP site is remotely situated from existing campus facilities and activities, essentially disengaged from those areas on campus that serve both academic and recreational functions.

4.3 ALTERNATIVE CONFIGURATIONS TO THE PREFERRED SITE

4.3.1 Building Types

In determining the physical form and character of the Center, a review of features in other existing university facilities and municipalities was conducted, with an emphasis placed upon identifying building types that have the capacity to serve a variety of functions and operate these functions concurrently. The research yielded three building types, which included: field houses, arenas, and hybrid facilities.

Field House

The design of the field house is intended to meet the needs of the active user, serving as prime training areas for athletes during pre-season activities or during periods of inclement weather. The focus of the traditional field house has been on the function or activity rather than any supporting use, such as provisions for spectators or instructional classrooms.





Arena

Built primarily for exhibition purposes, the distinct feature of an arena is the allocation of facility space for spectator seating. Capable of accommodating large seating capacities that are provided on multiple levels, arenas can support a broad range of functions that include competitive sports, civic events, cultural performances, and other large group events. With a focal emphasis on spectatorship, this building type can limit the physical and recreational activities of the competitive staging area, usually centered at the lower level of the facility.

Hybrid

The hybrid building type is designed to support a wide range of activities to occur concurrently, with the ability to accommodate large crowds for spectator-oriented activities. Unlike an arena, the hybrid model provides retractable seating at both the lower and upper levels. This flexibility in the seating allows the hybrid building type to serve as field house and an arena, depending upon the functional needs of the user. However, the hybrid model does require higher levels of maintenance to ensure that the system that supports the flexible seating is functional. As a venue that is intended to serve a wide gamut of uses and functions, including daily student activities and larger spectator events, the hybrid building type was selected as the preferred option.

4.3.2 Seating and Sizing Capacity

Various options regarding the seating capacity of the center were considered during the initial stages of the charrette process. Based on their preliminary discussions, it was recommended that the center should be designed to a long-range capacity of 10,000 seats. However, upon further analysis of projected income as compared to projected operating expenses and reserve funding suggest that the 10,000-seat facility would not support these expenses. Further, there is a deficiency in the provisions of necessary auxiliary services to support a 10,000-seat venue such as lodging and transportation accommodations within the Hilo community. It was determined that the preferred 6,000-seat option would be capable of supporting the needs of daily recreational facilities and have the flexibility to host larger community and campus events like tournaments, graduations, concerts, and games. Although there is no timetable for the second phase, preliminary designs for the Events Center reflect a 5,000-seat facility.

4.4 ALTERNATIVE IMPLEMENTATION OF THE PREFERRED SITE

The preferred implementation option for the proposed project involves a multi-phase effort, which is based upon available funding options over two fiscal year periods. However, an alternative multi-phase option was considered when a 3,000 to 10,000 expansion was proposed. This alternative would have brought the project to full capacity in two incremental phases that allowed user demand to drive facility expansion over time. However, the projected cost for this alternative was significantly more than preferred option.

Alternative Phase I

In this first phase, the Student Life Center integrates the new pool, fitness center, human performance center, administrative space, lockers, juice bar, covered courts, and other auxiliary services with existing athletic facilities.





Alternative Phase II

In the second phase, the Events Center, on-grade parking, and tennis courts relocation would complete the new Student Life and Events Center Complex. The center would be a two-leveled facility developed with bleacher seating for approximately 5,000 spectators that could be incrementally built in sub-phases.

The first sub-phase could include the tennis courts relocation, on-grade parking, and the Events Center construction with initial seating capacity at 3,500 spectators. Designed around two central playing courts, ground floor space would include a VIP lobby, strength/weights/training area, theater, shower and locker room facilities, offices, media room, ticket office, and retail store. The second level would include concourse level spectator seating, concessions, restrooms, and administrative offices. On-grade parking located southeast and southwest of the center area, in an area adjacent to the softball field and UHH housing complex, would be provided to meet the required number of stalls. The parking area would be accessed via Kāwili Street.

The second sub-phase would include build-out of additional spectator seating above the concourse for 1,500 spectators, increasing the total seating capacity of the center to 5,000. Additional on-grade parking sited west of the first sub-phase parking and south of the existing baseball field would be provided. This parking area would be expanded to provide the required parking spaces with an exit access onto the Pū'āinakō Street extension. Due to costs of mobilization, the alternative of a phased implementation would be more costly than the preferred option of a one-time build out.



Section 5.0

Land Use Designations and Policies



5.0 LAND USE DESIGNATIONS AND POLICIES

This section reviews proposed land use policies and controls for the project area and discusses the necessary approvals and permits required for the proposed project from governmental agencies, boards or commissions or other similar groups having jurisdiction, and the status of each identified approval.

5.1 STATE LAND USE DISTRICT BOUNDARIES

The State of Hawai'i Land Use Law regulates the classification and uses of lands in the State to accommodate growth and development, and to retain the natural resources of the area. The State Land Use Commission classifies all State lands with consideration given to the General Plan of the County, as Urban, Rural, Agricultural, or Conservation. As shown in *Figure 5-1*, the project site is within the Urban District and the proposed use is consistent with this designation.

5.2 COUNTY OF HAWAI'I GENERAL PLAN

Adopted by Ordinance in 1989, the County of Hawai'i General Plan is the primary policy tool governing long-range and comprehensive development, conservation, use and allocation of land within the County. One of the primary focal points of the General Plan is addressing specific concerns and providing alternative solutions to existing and future land uses within the county sectors. The General Plan provides policies and courses of action intended to guide and coordinate growth patterns through the designation and preservation of lands for specified uses. One element of this coordination is the Zoning Code, which is the legal instrument that regulates land use within the County. The General Plan Land Use Pattern Allocation Guide (LUPAG) map illustrates the general location and relationships of various land uses to each other.

Under the General Plan, it is the policy of the County of Hawai'i to encourage continuous joint pre-planning of schools with the Department of Education and the University of Hawai'i to ensure coordination with roads, water, and other support facilities and considerations such as traffic and safety, and access for vehicles, bicycles, and pedestrians. Further, the University of Hawai'i, as a corporate body under the State Constitution, holds a unique position on land ownership unlike other State or County agencies that utilize public lands. The University, under the State Constitution, obtains in fee title the land granted it by Executive Order and can thus subdivide, lease or sell its lands provided it is in the interest of public education. As such, the goals for the long-range comprehensive development of public lands include: a) utilizing these lands in the best public interest and to the extent possible, to the maximum benefit for the greatest number of people; and b) acquiring necessary lands for public use to implement policies and programs contained in the General Plan.



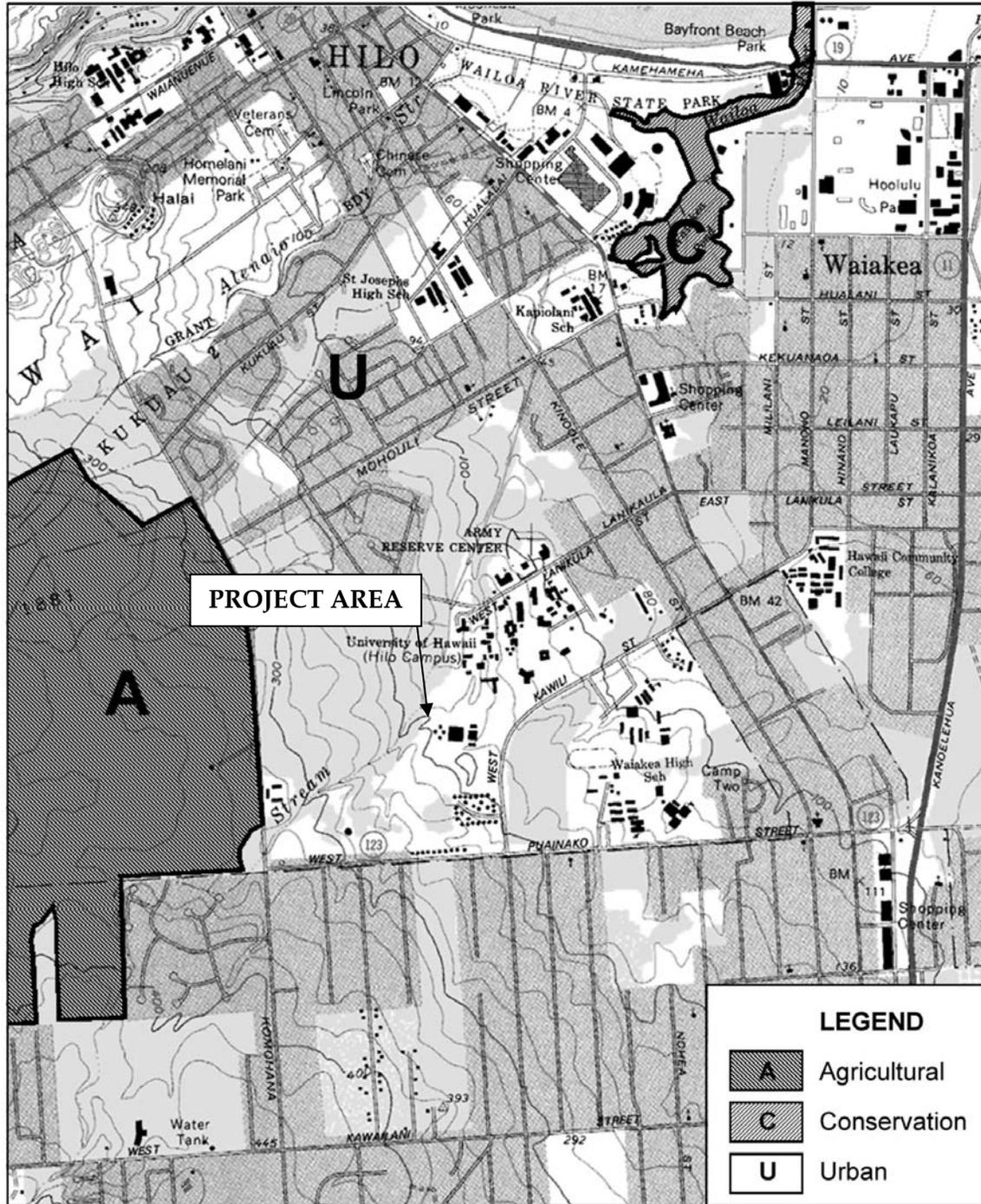
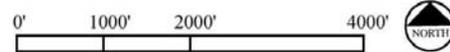


FIGURE 5-1 STATE LAND USE DISTRICT MAP





For the South Hilo area, the General Plan specifies courses of action regarding the use and development of public facilities, particularly educational institutions. These courses of action include:

- Supporting the development of a master plan for lands within the vicinity of the University of Hawai'i at Hilo to incorporate a "college town" concept utilizing an appropriate mixture of residential, commercial and other land uses to complement the university's infrastructure.
- Actively participating in the development of student and faculty housing for the university and other joint-use facilities.
- Supporting the expansion of the University system and the campus master plan, which encompasses a 600+ acre development and encouraging the continuation of education programs throughout the community.

As illustrated in *Figure 5-2*, the General Plan designation for the project site is University, which includes both university and support community service uses. The proposed project addresses public land use policies that are intended to satisfy specific public needs, particularly those associated to recreation and education. The project is consistent with the University use designation.

5.3 COUNTY OF HAWAI'I ZONING DISTRICTS

Adopted in 1967, the purpose of the Comprehensive Zoning Ordinance (CZO) for the County of Hawai'i is to implement the General Plan and its policies for growth and development. As illustrated in *Figure 5-3*, the zoning designation within the project area is Residential-Single Family (RS-10). The RS designation allows for the development of low and medium density residential use. However, under County Code (Section 25-4-11) the proposed project is exempt from county requirements for rezoning because public uses, structures, and buildings are permitted uses in any district, with the provisions that the Director of Planning reviews and approves the proposed use.

5.4 HILO COMMUNITY DEVELOPMENT PLAN

Prepared in 1975, the Hilo Community Development Plan integrated the stated objectives, policies, and goals of the 1971 County General Plan to address specific concerns for the Hilo area. Within the Development Plan, a stated objective with the plan was assuring provisions for adequate public facilities, with a direct emphasis on the expansion of the university campus. According to the Hilo Community Development Plan, the project area is designated as Low-Density Urban Expansion, reflecting the designation of the 1971 County General Plan. The updated General Plan expanded the University use designation to include the project area.



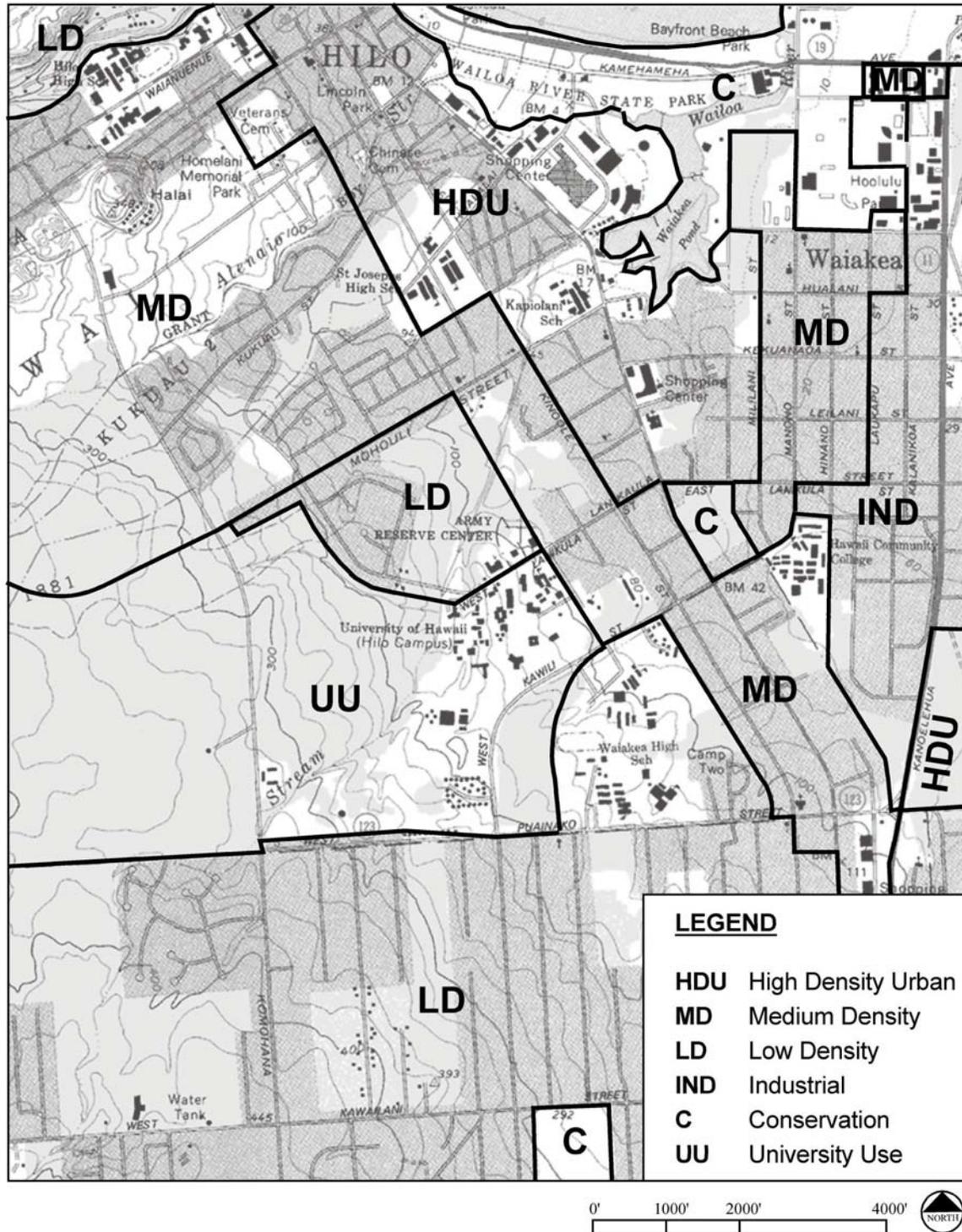


FIGURE 5-2 COUNTY OF HAWAI'I GENERAL PLAN LAND CLASSIFICATION



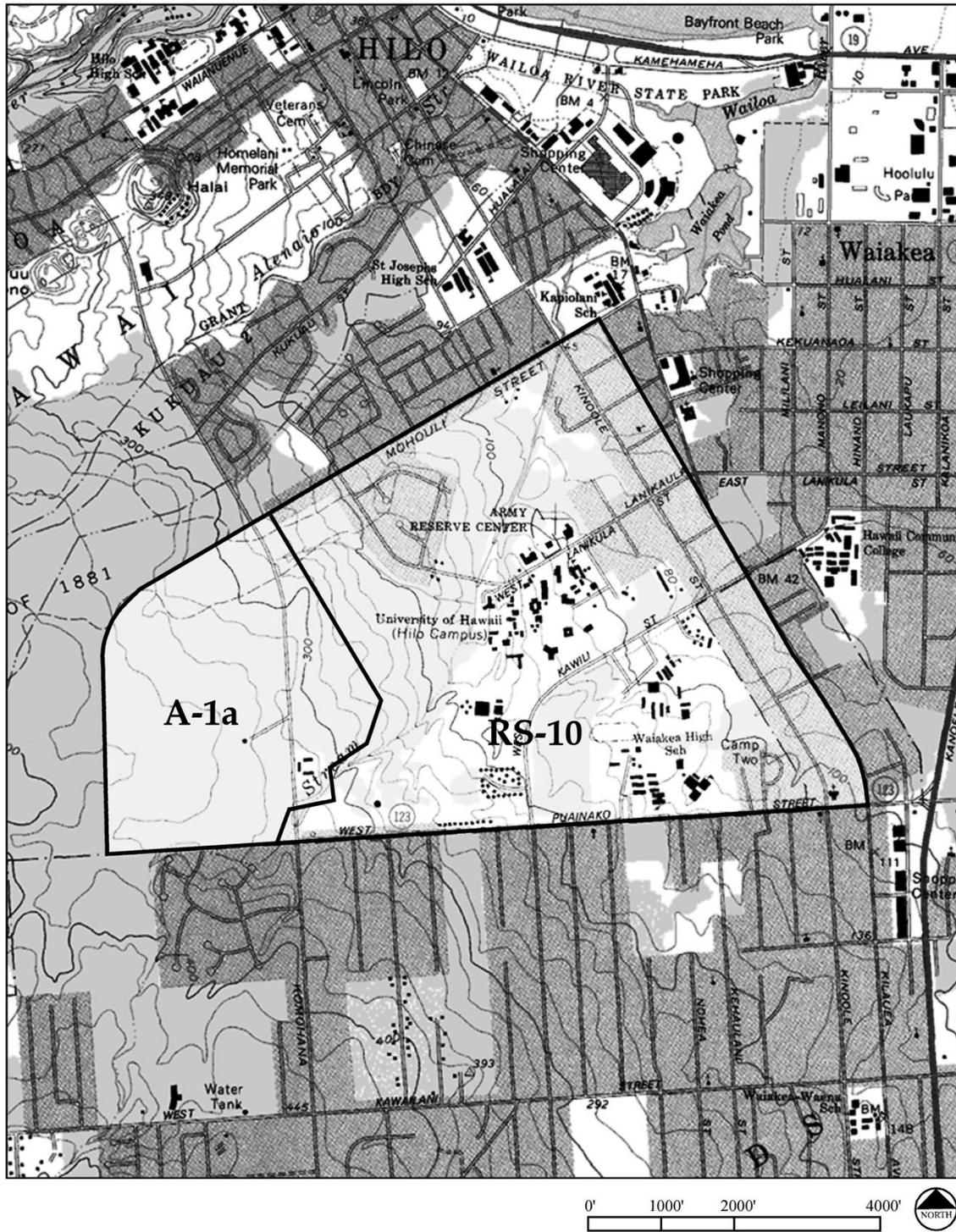


FIGURE 5-3 COMPREHENSIVE ZONING ORDINANCE DESIGNATION





5.5 UH-HILO STRATEGIC PLAN (1997-2007)

Created out of a collaborative effort between the academic and business community, the UH-Hilo Strategic Plan provides guidelines that are intended to support the university's goal to become an educational community that inspires creative and critical thinking and to become the premier residential campus in Hawai'i. The Strategic Plan also seeks to transform UH-Hilo into a residential campus by encouraging the development of a college town atmosphere surrounding the core campus area, with the goal of improving campus life by making services more accessible. As a collaborative effort, coordination of the plan includes a review of consistency with other internal university plans as well as external plans, including the County of Hawai'i General Plan.

As part of its strategic priorities, the Strategic Plan emphasizes the need to develop quality programs and services for the university through the efficient use of its facilities, which includes improving and maintaining community access to the campus and providing programs that are offered in the evenings and weekends. Further, one of the initiatives to broaden and enhance the university's programs and services is through the planned development and maintenance of attractive and accessible facilities as well as showcasing student-oriented social and cultural programs, and its recreational facilities.

The proposed Student Life and Events Center will provide a venue that will support a wide array of recreational programs and services as well as community events, facilitating the Strategic Plan's goals of developing UH-Hilo into a premier residential campus.

5.6 UH-HILO LONG RANGE DEVELOPMENT PLAN (1996)

The 1996 UH-Hilo Long Range Development Plan (LRDP) serves as a guide to the form and character of the campus in a manner supportive of the university's programs, goals and overall mission. As an update from the 1981 version, the purpose of the current LRDP is to provide design guidelines for the architectural and landscape character of the campus, with special considerations given to issues of access, safety, circulation, and parking.

In the LRDP, developable areas are divided into two categories: 1) as infill of the existing campus or 2) as an expansion to vacant lands adjacent to the main campus and are characterized as: 1) lands available for immediate development, 2) areas with some work required prior to development, and 3) areas with major work required. The project lies in the infill of the existing campus and would require some work prior to development.

As an overall visioning tool and planning model, the spine concept guides the physical development of the campus. This model supports the development of the campus in a linear organization, along a "main street" or pedestrian spine with a series of building blocks that are interconnected elements that help to shape the form of the campus. For the UH-Hilo campus, these building blocks include: the pedestrian spine and paths, plazas and open spaces, landscaping, gateways and entries, buildings, edges, and parking areas. Under this model, the LRDP provides an Ultimate Site Plan, which is the campus master plan that utilizes specific planning design guidelines for its implementation.





As shown in Figure 5-5, the development of an outdoor running track northwest of the project area and a Multi-Purpose Complex west of Waiākea Stream, on Nowelo Street has been proposed. The plan also proposes new maintenance and operations facilities south of the existing tennis courts. The development of the UH-Hilo Student Life and Events Center at the preferred parking lot site would require amending the existing LRDP.

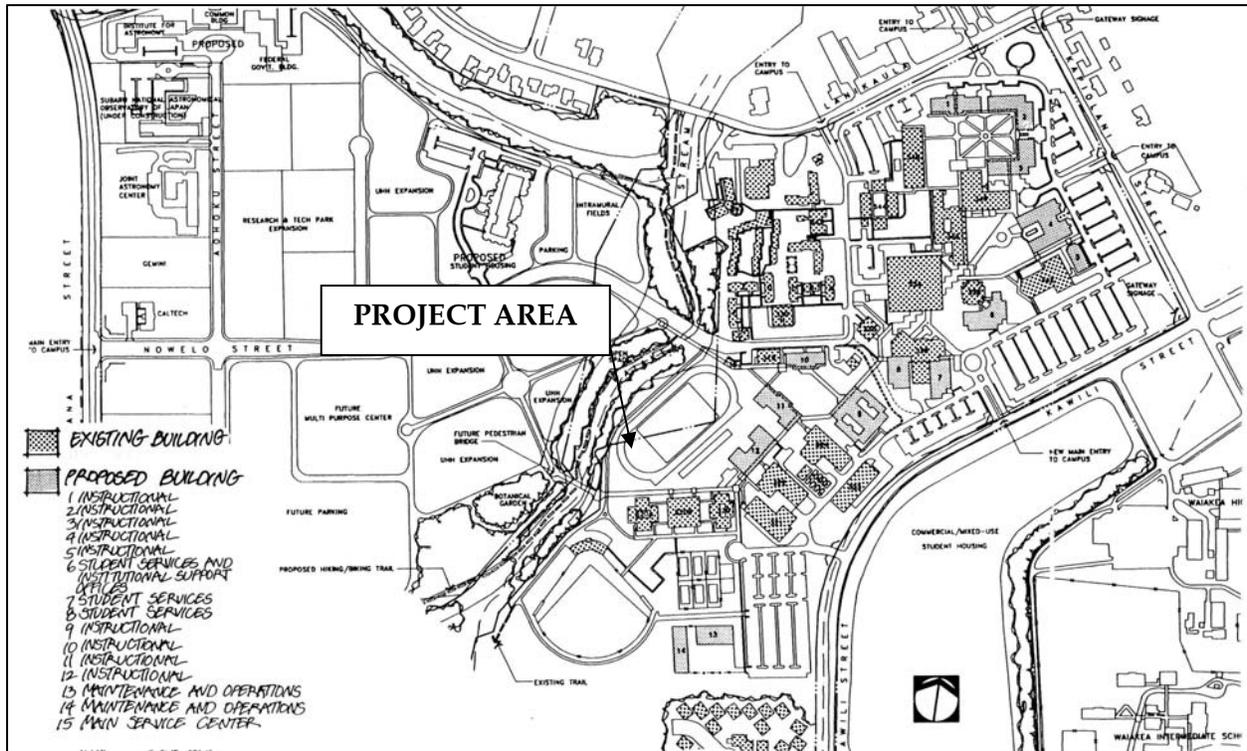


FIGURE 5-4 UH-HILO LRDP ULTIMATE SITE PLAN

5.7 APPROVALS AND PERMITS REQUIRED

The following is a list of the approvals and permits required for the development and implementation of the University of Hawai‘i at Hilo Student Life and Events Center.

- Completion of Chapter 343, HRS environmental review process, which is required for the use of state or county lands or funds.
- University of Hawai‘i, Board of Regents, review and approval of amendments to the 1996 University of Hawai‘i at Hilo Long Range Development Plan (LRDP).
- County of Hawai‘i, Planning Department, departmental plan review and approval of proposed University of Hawai‘i at Hilo Student Life and Events Center.
- County of Hawai‘i, Department of Public Works, Building Division, issuance of necessary construction permits.



Section 6.0

Findings and Reasons Supporting
Anticipated Determination



6.0 FINDINGS AND REASONS SUPPORTING ANTICIPATED DETERMINATION

6.1 ANTICIPATED DETERMINATION

In accordance with the Hawai'i Revised Statutes, Chapter 343 and Hawai'i Administrative Rules, Section 11-200-12, an applicant or agency must determine whether an action may have a significant impact on the environment. According to Section 11-200-12, an action shall be determined to have a significant impact on the environment if it meets any one of the following criteria:

- **Involve an irrevocable loss or destruction of any natural or cultural resources.**

The proposed project does not involve any known destruction of existing natural or cultural resources. Of the three previously identified sites (18912, 18913, 18914), only site 18913 requires no further work. Data recovery is recommended as a mitigation measure for Site 18192 for its information content. Site 18914 has been determined to be significant as a site type representative of plantation-era use that had completely modified an earlier Hawaiian landscape and for its information content. Site preservation is the recommended mitigative measure.

- **Curtail the range of beneficial uses of the environment.**

The center will provide a new venue that will host a variety of athletic and community programs and events that will provide social and economic benefit to the campus and the general Hilo community.

- **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 established in Chapter 344, Hawai'i Revised Statutes. The project will not create any significant adverse impacts to the natural or socio-economic environments within the campus or the general vicinity.

- **Substantially affects the economic or social welfare of the community or State.**

The proposed project will provide both short and long-term economic benefits to the local community. The development of the center will provide short-term construction-related jobs, as well requiring long-term operational employment. Further, the project will provide a new venue for social events and gatherings, strengthening the social environment through bridging community relationships both within the campus setting and the greater Hilo region.

- **Substantially affects public health.**

The project will create short-term construction-related impacts associated with primarily air and noise quality. These potential short-term impacts will be mitigated through strict erosion and dust control measures as well as establishing noise control standards, particularly those specified in the State Department of Health regulations and administrative rules. However, the





long-term benefits associated with the project, including the provision of space for fitness development and wellness, outweigh the temporary impacts to air quality and noise levels.

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

As part of the overall campus system, the proposed project is improving upon existing public facilities through an integrated design that meets the needs of the existing campus and general population with the capability and flexibility of addressing future expectations and/or needs. There will be some increase in traffic as a result of the construction of the facility. Impacts related to increased traffic conditions will be mitigated by roadway and intersection improvements in addition to traffic management measures for large events.

- **Involves a substantial degradation of environmental quality.**

The project area is situated on lands that were altered during the development and advent of the sugar industry. The design of the Center as well as the landscaping will improve the environmental quality of the area.

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

The proposed project is one element in the overall master site plan of the UH-Hilo campus. As such, the project serves a distinctive function in creating a space for social interaction and development and does not have a considerable effect on the environment or involve a commitment for larger actions.

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

Landscaping development of the project area will provide new landscaped areas, trees and plantings that may serve as habitat for area wildlife. It is expected that during the construction phase, birds that frequent nearby trees will temporarily move to nearby undisturbed areas and will return when disturbances cease. The development of this project has the potential to impact the a'o and ua'u with the installation of exterior lighting along the roadway and on the center. However, planned lighting designs will be implemented to minimize glare effects to reduce the possibility of these nocturnally flying bird species becoming disoriented and colliding with a variety of vertical elements such as buildings, walls, fences, and trees. Further, to avoid possible impacts to nesting 'io, a study conducted by a qualified ornithologist prior to construction will be conducted to identify potential nesting areas. If a nest is located, further consultation with the USFWS will be required to determine the appropriate mitigative measures. Likewise, the construction and operation of the facility is not expected to affect or alter the existing conditions of the stream. No surface runoff will be discharged directly into the stream. As such, there are no anticipated impacts to the stream habitat.

- **Detrimentially affects air or water quality or ambient noise levels;**

Short-term effects on air, water quality or ambient noise levels during the construction activity will be mitigated by compliance with the County of Hawai'i and State Department of Health rules, which regulate construction-related activities. After development, improvements to the site and related infrastructure should have no significant impacts on air and water quality, and on ambient noise levels.





- **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, fresh water, or coastal waters.**

Recognizing that the entire town of Hilo can be characterized as environmentally sensitive to the potential of damage by an inadvertent lava flow stemming from Mauna Loa, the project site is not subject to any other environmentally sensitive conditions. Improvements to the site should not alter general drainage patterns; thereby should not have any impact on conditions of the nearby Waiākea Stream.

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

The project currently houses the tennis courts, a surface parking lot, and an open field area. The improvements to the area will enhance this section of the campus and create a visual landmark. Existing scenic vistas and view-planes from some nearby locations will be partially affected by the facility but this is not expected to be significant.

- **Require substantial energy consumption.**

Construction of the project will not require substantial energy consumption relative to other similar projects. The building design will consider energy-saving techniques and guidelines, as a means to decrease energy consumption needs for the facility.

6.2 REASONS SUPPORTING THE ANTICIPATED DETERMINATION

As stated above, there are no significant environmental impacts expected to result from the proposed action. A Finding of No Significant Impact (FONSI) is anticipated. The UH-Hilo Student Life and Events Center will provide great public benefits while resulting in minimal impacts on the surrounding environment.



Section 7.0

Comment Letters



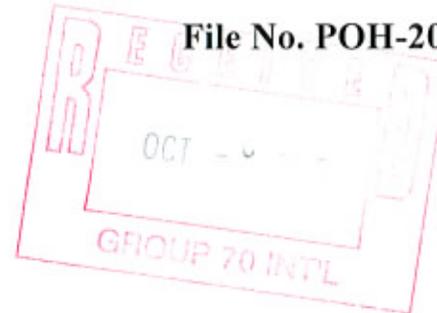
REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
U. S. ARMY ENGINEER DISTRICT, HONOLULU
FT. SHAFTER, HAWAII 96858-5440

October 4, 2005

Regulatory Branch

Mr. George Atta
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813-4307



File No. POH-2005-544

Dear Mr. Atta:

This responds to your request for comments on the Draft Environmental Assessment (DEA) for the University of Hawaii at Hilo Student Life Center – Phase I, Waiakea, Hilo, Island of Hawaii (TMK: 2-4-01: por 163, 167). We have reviewed the DEA with respect to the Corps' authority to issue a Department of Army (DA) permit under Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) and section 404 of the Clean Water Act (33 USC 1344).

Based on the information provided in the DEA, I have determined that the proposed activity will not involve the discharge of dredged or fill material into waters of the United States, namely the Waiakea Stream, and adjacent wetlands; therefore, a DA permit will not be required. This preliminary jurisdictional determination does not excuse the applicant from complying with other federal, state, or county permits, certifications or requirements that may be required.

If you have any questions regarding this preliminary determination, please contact Mr. Farley Watanebe by phone at 438-7701, by fax at 438-4060, or by electronic mail at farley.k.watanabe@usace.army.mil, and reference the above file number.

Sincerely,

George P. Young, P.E.
Chief, Regulatory Branch



Francis S. Oda,
Arch. D., FAIA, AICP

Norman G.Y. Hong, AIA

Sheryl B. Seaman, AIA, ASID

Hitoshi Hida, AIA

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Kawika McKeague

Kathryn A. Nam

Hiram C. Pajo

Donna D. Pennington

Kimberly Polkinhorn, AIA, LEED

Alvin Sakutori

Scott Tangonan

Tom Young, AIA

Ralph E. Portmore, AICP
Of Counsel

August 8, 2006

Mr. George P. Young, P.E.
Department of the Army
U.S. Army Engineer District, Honolulu
Ft. Shafter, Hawaii 96858-5440

Subject: UH Hilo Student Life Center, File No. POH-2005-544

Dear Mr. Young:

Thank you for your letter of October 4, 2005, commenting on our Draft Environmental Assessment.

We appreciate your comment that our project does not involve a discharge of dredge or fill material into the waters of the United States and therefore does not require a DA permit. We understand your comment about the need to comply with other federal, state or county permits.

Thank you again.

Sincerely,

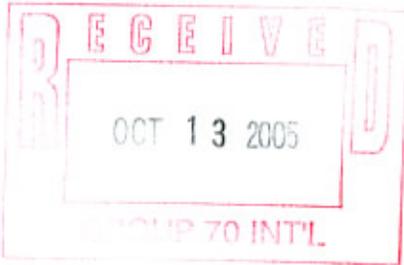
GROUP 70 INTERNATIONAL, INC

George I. Atta, AICP
Project Planner

LINDA LINGLE
GOVERNOR OF HAWAII



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



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

In reply, please refer to:
EPO-05-085

October 11, 2005

Mr. George I. Atta, Principal
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawaii 96813

Dear Mr. Atta:

SUBJECT: Draft Environmental Assessment for University of Hawaii at Hilo Student Life Center – Phase I, Waiakea, Hilo, Hawaii, TMK: 2-4-01: 163 & 167

Thank you for allowing us to review and comment on the subject document. The document was routed to the various branches of the Environmental Health Administration. We have no specific comments to offer at this time. However, our Standard Comments/areas of concern are listed below for your use and information.

Environmental Planning Office

To facilitate TMDL development and implementation, and to assist with our assessment of the potential impact of proposed actions upon water quality, pollutant loading, and biological resources in receiving waters, we suggest that environmental review documents, permit applications, and related submittals include the following standard information and analyses. Please note that these comments are also listed on our website:

www.state.hi.us/health/environmental/env-planning/landuse/landuse.html. We suggest that you may review other Standard Comments on this website.

Waterbody type and class

1. Identify the waterbody type and class, as defined in Hawaii Administrative Rules Chapter 11-54 (<http://www.state.hi.us/health/about/rules/11-54.pdf>), of all potentially affected water bodies. Potentially affected water bodies means those in which proposed project activity would take place and any others that could receive water discharged by the proposed project activity or water flowing down from the proposed site. These waterbodies can be presented as a chain of receiving waters whose top link is the project site upslope and whose bottom link is in Pacific Ocean "oceanic waters," with all receiving waters named according to conventions established by Chapter 11-54 and the

List of Impaired Waters in Hawaii Prepared under Clean Water Act § 303(d). For example, a recent project proposed for Nuhelewai Stream, Oahu (a tributary of Kapalama Canal) might potentially affect Nuhelewai Stream, Kapalama Canal, Honolulu Harbor and Shore Areas, and the Pacific Ocean.

Existing water quality management actions

2. Identify any existing National Pollutant Discharge Elimination System (NPDES) permits and related connection permits (issued by permittees) that will govern the management of water that runs off or is discharged from the proposed project site or facility. Please include NPDES and other permit numbers; names of permittees, permitted facilities, and receiving waters (including waterbody type and class as in 1. above); diagrams showing drainage/discharge pathways and outfall locations; and note any permit conditions that may specifically apply to the proposed project.
3. Identify any planning documents, groups, and projects that include specific prescriptions for water quality management at the proposed project site and in the potentially affected waterbodies. Please note those prescriptions that may specifically apply to the proposed project.

Pending water quality management actions

4. Identify all potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)* including the listed waterbody, geographic scope of listing, and pollutant(s) (See Table 5 at <http://www.hawaii.gov/health/environmental/env-planning/wqm/303dpcfinal.pdf>).
5. If the proposed project involves potentially affected water bodies that appear on the current *List of Impaired Waters in Hawaii Prepared under Clean Water Act §303(d)*, identify and quantify expected changes in the following site and watershed conditions and characteristics
 - surface permeability
 - hydrologic response of surface (timing, magnitude, and pathways)
 - receiving water hydrology
 - runoff and discharge constituents
 - pollutant concentrations and loads in receiving waters
 - aquatic habitat quality and the integrity of aquatic biota

Where TMDLs are already established they include pollutant load allocations for the surrounding lands and point source discharges. In these cases, we suggest that the submittal specify how the proposed project would contribute to achieving the applicable load reductions.

Mr. Atta
October 11, 2005
Page 3

Where TMDLs are yet to be established and implemented, a first step in achieving TMDL objectives is to prevent any project-related increases in pollutant loads. This is generally accomplished through the proper application of suitable best management practices in all phases of the project and adherence to any applicable ordinances, standards, and permit conditions. In these cases we suggest that the submittal specify how the proposed project would contribute to reducing the polluted discharge and runoff entering the receiving waters, including plans for additional pollutant load reduction practices in future management of the surrounding lands and drainage/discharge systems.

Proposed Action and Alternatives Considered

We suggest that each submittal identify and analyze potential project impacts at a watershed scale by considering the potential contribution of the proposed project to cumulative, multi-project watershed effects on hydrology, water quality, and aquatic and riparian ecosystems.

We also suggest that each submittal broadly evaluate project alternatives by identifying more than one engineering solution for proposed projects. In particular, we suggest the consideration of "alternative," "soft," and "green" engineering solutions for channel modifications that would provide a more environmentally friendly and aesthetically pleasing channel environment and minimize the destruction of natural landscapes.

If there are any questions about these standard comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346. We would like to receive a copy of the Draft Environmental Assessment when it is completed.

Sincerely,



HAROLD LAO, ACTING MANAGER
Environmental Planning Office

c: EPO



Francis S. Oda,
Arch. D., FAIA, AICP

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Ralph E. Portmore, AICP
Of Counsel

August 10, 2006

Mr. Harold Lao
Environmental Planning Office
State of Hawaii Department of Health
P.O. Box 3378
Honolulu, Hawaii 96801-3378

Subject: Draft Environmental Impact Statement for UH Hilo Student Life Center

Dear Mr. Lao:

Thank you for your letter of October 11, 2005, commenting on our Draft Environmental Assessment.

We acknowledge your comments about the standard comments and areas of concern listed in your letter.

Water body types and class: We will insert additional discussion about Chapter 11-54 and water body types from upstream areas to receiving waters in Hilo Bay.

Existing Water Quality Management Actions: The University of Hawaii has received an NPDES permit for the project issued on December 19, 2005 (Permit file # HI RIO391), which expires on November 6, 2007. The scope of work is for the UH Hilo- Student Life Complex Phase 1a.

"The University of Hawaii is authorized to discharge storm water associated with construction activity from the subject project to Wailoa Stream class 2, inland water at the following discharge coordinates: Latitude- 19 degrees, 42'06"N and Longitude- 155 degrees, 05'05"W."

Drainage plans for the project will include information on existing permits and conditions. We will comply with all permit conditions.

County drainage facility guidelines will be followed. Based on project design, we do not anticipate any direct discharges into water bodies subject to water quality standards.

Pending Water Quality Management Actions: We will identify all potentially affected water bodies. We note that Waiakea Stream Wailoa Tributary is listed in Table 5 with the pollutant listed as nutrients based on visual assessment. We note that the Total Maximum Daily Load, TMDL, is in process at this time. We will follow your recommendation that best management practices in all phases of

development to prevent project related increases in pollutant loads. We will keep the Department of Health informed on our plans for managing runoff and potential pollutant loads

Proposed Action and Alternatives Considered: We have considered soft alternatives of green buffers and retention some of this is included in our design. We concur in the need to provide environmentally friendly solutions as much as possible.

Please call me at 523-5866 if you have any further comments.

Thank you again for your comments.

Sincerely,



George I. Atta, AICP
Project Planner

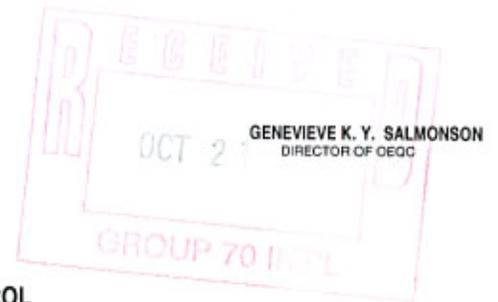
LINDA LINGLE
GOVERNOR OF HAWAII



STATE OF HAWAII
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
DEPARTMENT OF HEALTH

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ELECTRONIC MAIL - oeqc@doh.hawaii.gov



In reply, please refer to:
File: Phase I of the University of Hawaii at
Hilo Student Life Center, October 21, 2005

October 21, 2005

Ms. Jan Yokota
Office of Capital Improvements
University of Hawai'i at Manoa
1951 East West Road
Honolulu, Hawai'i 96822

Mr. George Atta
Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, Hawai'i 96813

Dear Ms. Yokota and Mr. Atta:

The Office of Environmental Quality Control has reviewed the draft environmental assessment for the University of Hawaii at Hilo, Student Life Center, Phase I, Tax Map Key (3rd) 2-4-01, parcels 163 and portion of parcel 167, situated in the judicial district of South Hilo. We offer the following comment for your consideration and response.

Project Phasing, Indirect/Cumulative Impacts: The title of the project indicates that the draft environmental assessment is for Phase I entailing the construction of the fitness center, the Olympic pool, covered courts and classroom building (Figure 2-2). Phase 2 is described in the draft environmental assessment as consisting of the construction of an event center, sports arena, conference center and on-grade parking. Page 2-12 notes that "[p]rior to the implementation of Phase 2, determinations to the relocation of the existing tennis courts will be finalized."

Given the nature of Phase II, it is possible that an environmental impact statement may be required. For the record, in 1992, your agency prepared an environmental assessment for the Special Events Arena, Phase IIA Parking Structure and Appurtenant Facilities (see, *OEQC Bulletin*, February 8, 1992, pp. 6-7). This Office subsequently advised you that the project should undergo public review as a full Environmental Impact Statement due to the parking and traffic impacts that it would generate. Despite your determination of a negative declaration (now called a Finding of No Significant Impact), traffic and parking impacts generated by events at the Manoa special events arena are still noticeable despite measures such as improvements to the intersection of University Avenue and Dole Street and the presence of police for directing traffic out of the arena onto Dole Street and University Avenue and onto the Interstate H-1 West ramp.

After careful review of this document, we respectfully recommend that you include the details of Phase II in the environmental assessment as well as a detailed analysis of direct, indirect and cumulative impacts – particularly with respect to parking and traffic flow of the proposed events center and your projected increase in parking. To avoid repeating the traffic and parking impacts that the Manoa Special Events Center engenders, scenario in Hilo, we recommend the preparation of another environmental assessment containing the Phase II details and environmental analyses with a possible determination that an environmental impact statement would be prepared.

Thank you for the opportunity to comment. If there are any questions, or if you would like to discuss this matter further, please call Mr. Leslie Segundo, Environmental Health Specialist, at (808) 586-4185.

Sincerely,


GENEVIEVE SALMONSON
Director



August 8, 2006

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

Subject: UH Hilo Student Life Center

Dear Ms. Salmonson:

Thank you for letter of October 21, 2005, commenting on our Draft Environmental Assessment.

We acknowledge your comments about the impact of the University of Hawaii Manoa Special Events Center and the subsequent traffic impacts despite the implementation of the traffic mitigation measures. We understand the need to view impacts in a holistic fashion and will include additional information about phase II. We will include the traffic study that was conducted for the events center in the phase II section of the overall project. However, please be advised that the price of phase II increased significantly in the last few years and project cost now exceeds the budget appropriation by a significant amount. Consequently, phase II has been postponed indefinitely and is questionable if it will proceed in the foreseeable future. We understand that if it proceeds in the future, a full Environmental Impact Statement may be necessary.

Please call me at 523-5866 if you have any further comments.

Thank you again.

Sincerely,

GROUP 70 INTERNATIONAL, INC

A handwritten signature in blue ink that reads "George I. Atta".

George I. Atta, AICP
Project Planner

Francis S. Oda,
Arch. D., FAIA, AICP
Norman G.Y. Hong, AIA
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Of Counsel

Harry Kim
Mayor



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OCT 26 2005

GROUP 70 INTL

Christopher J. Yuen
Director

Roy R. Takemoto
Deputy Director

County of Hawaii

PLANNING DEPARTMENT

101 Pauahi Street, Suite 3 • Hilo, Hawaii 96720-3043
(808) 961-8288 • Fax (808) 961-8742

October 21, 2005

Ms. Tracy Furuya
Executive Assistant
Group 70 International, Inc.
925 Bethel Street, Fifth Floor
Honolulu HI 96813-4307

Dear Ms. Furuya:

Draft Environmental Assessment (EA)

**Subject: University of Hawaii at Hilo
Student Life Center – Phase I**

TMK: 2-4-1:Por. of 163 and Por. of 167, Waiakea, South Hilo, Hawaii

In response to the above referenced document submitted for our review, we have the following to offer:

1. Regarding your list in Sections 1.3 and 7.0, we were not consulted during the preparation of the draft Environmental Assessment.
2. Copies of pre-consultation correspondences should have been included in the Draft EA.
3. The information on land use classifications and the list of permits and approvals required by the Planning Department is correct.
4. The number of required off street parking stalls shall be determined pursuant to Chapter 25 of the Hawaii County Code (Zoning Code) during the processing of an application for Plan Approval. Shared parking space requirements will be addressed at this time.

Hawai'i County is an equal opportunity provider and employer.

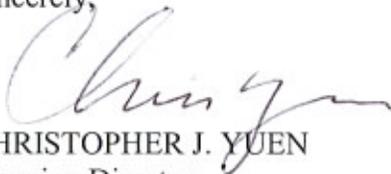
Ms. Tracy Furuya
Executive Assistant
Group 70 International, Inc.
Page 2
October 21, 2005

5. The subject parcels are not in the County's Special Management Area.

We appreciate the opportunity to comment on the Draft Environmental Assessment.

If you have questions, please feel free to contact Esther Imamura or Larry Brown of our Department at 961-8288.

Sincerely,



CHRISTOPHER J. YUEN
Planning Director

ETI:cd

P:\WPWIN60\ETI\EA\draftPre-consul\FuruyaUHStudentLifeCtr1.doc

xc: Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu HI 96813



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Alvin Sakutori
Scott Tangonan
Tom Young, AIA

Ralph E. Portmore, AICP
Of Counsel

August 8, 2006

Mr. Christopher Yuen, Director
County of Hawaii Planning Department
101 Pauahi Street, Suite 3
Hilo, Hawaii 96720-3043

Subject: UH Hilo Student Life Center, Draft Environmental Assessment

Dear Mr. Yuen:

Thank you for your letter of October 21, 2005, commenting on our Draft Environmental Assessment. With regard to your comments we offer the following responses:

Planning Department Comments: We acknowledge your comment that there were no formal comments. We did engage in phone conversations and one meeting with your staff on zoning and plan review requirements but did not ask for any official responses during those discussions.

Pre-consultation Comments: This project has been a long time in development and the EA pre-consultations with agencies were mixed in with project feasibility and project development and design. There have been lags in communications as budget estimates increased and the need for further funding and changes in phases and priorities altered with the changes. Most were in meetings with individuals and organizations and we did not ask them to send us letters. We will include all subsequent letters in the Final Environmental Assessment.

List of Permits and Land Classifications: Thank you for verifying the accuracy of the land classifications and the permits required.

Parking: We look forward to discussing the number of required off street parking stalls pursuant to Chapter 25 of the Hawaii County Code (Zoning Code) with the Planning Department.

Special Management Area (SMA): Thank you for verifying that the project site is not within the SMA area.

Please call me at 523-5866 if you have any further comments. Thank you again.

Sincerely,

GROUP 70 INTERNATIONAL, INC

George I. Atta, AICP
Project Planner

Section 8.0
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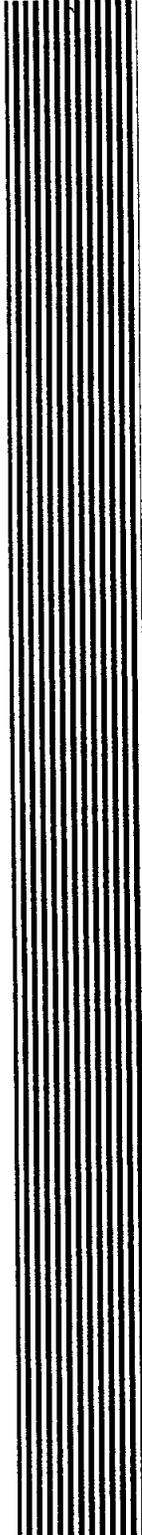
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APPENDICES

Appendix A

Archeological and Cultural
Impact Assessment Study



Archaeological and Cultural Impact Assessment Study

**University of Hawai‘i at Hilo
Student Life and Events Complex**

Land of Waiākea, South Hilo District
Island of Hawai‘i

Technical Study for Chapter 343 Environmental Assessment

PHRI

Paul H. Rosendahl, Ph.D., Inc.

Archaeological • Historical • Cultural Resource Management Studies & Services

Archaeological and Cultural Impact Assessment Study

University of Hawai‘i at Hilo
Student Life and Events Complex

Land of Waiākea, South Hilo District
Island of Hawai‘i (TMK: 3-2-4-01:163, Por.167)

Technical Study for Chapter 343 Environmental Assessment

PREPARED BY

*Paul H. Rosendahl, Ph.D., Inc. (PHRI)
224 Waiamuenue Avenue
Hilo, Hawaii 96720*

PREPARED FOR

*University of Hawai‘i
c/o Group 70 International, Inc.
925 Bethel Street, 5th Floor
Honolulu, HI 96813-4398*

MAY 2002

PHRI Paul H. Rosendahl, Ph.D., Inc.
Archaeological • Historical • Cultural Resource Management Studies & Services

HAWAII: 204 Waiamuenue Avenue • Hilo, Hawaii 96720 • (808) 969-1763 • GUAM: P.O. Box 23305 • G.M.F. Guam 96921 • (671) 472-3117

SUMMARY

At the request of Group 70 International, Inc., and on behalf of their client, the University of Hawai'i, Paul H. Rosendahl, Ph.D., Inc. (PHRI) prepared an Archaeological and Cultural Impact Assessment Study for the proposed Student Life and Event Complex for the University of Hawaii at Hilo (UH-Hilo). Located in the Land of Waiākea, South Hilo District, Hawai'i Island (TMK:3-2-4-01:163, Por.167), the project site consists of approximately 56 acres of State land situated in the old Waiākea Cane Lots section of the town of Hilo. The archaeological and cultural impact assessment study was prepared as a technical study in support of an Environmental Assessment (EA) being prepared in compliance with the requirements of *Chapter 343 (Haw.Rev.Stat.)*. Archaeological assessment fieldwork was conducted on May 1, 2002, while individual informal cultural impact assessment informant interviews were conducted during the period of late April to middle May 2002.

The archaeological field inspection of the project area identified three previously recorded and several new features. The formal functional types within these sites are alignments, terraces, and mounds constructed of stacked and piled boulders and cobbles, and all of the features of the site appear to represent the remains of land clearance and associated activities related to historic period sugarcane cultivation. Archaeological assessment findings confirmed earlier determinations of the State Historic Preservation Division; while one site (19913) was not longer significant and did not need and further work or to be preserved, the second (18912) was significant for its information content and should undergo data recovery mitigation work, and the third (18914) was significant for multiple criteria—both for information content and as a good example of a site type, and should be preserved for its interpretive development potential.

While the informal informant interviews produced a range of information relating to general traditional history and land use, traditional place names, and historic period occupation and land use of the inland portions of Hilo town, as well as to contemporary cultural practices, none of the informants consulted had any direct knowledge of any current or recent use of the project area by any native Hawaiian cultural practitioners exercising traditional and customary access and use rights for any purposes, or of any specific traditional cultural places within the project area. Based on the results of the cultural impact assessment informant consultations, it can be concluded that the project area is not being accessed by native Hawaiian cultural practitioners for any traditional and customary cultural uses, and that the proposed project would thus have no effects—much less any adverse cultural impacts—upon either the exercise of any native Hawaiian traditional and customary access and use rights or any traditional cultural properties, and therefore no mitigation measures need be proposed. With regard to the current contemporary cultural use of a small area in the southwestern corner of the project area—largely by UH-Hilo students interested in learning and participating in aspects of traditional Hawaiian culture through propagating and maintaining native Hawaiian cultigens and existing botanicals, and the use of the area as a cultural learning environment—it is recommended that consideration be given to the preservation of the area as an educational facility.

It is further recommended, with regard to the preservation of Sites 18912 and 19814T and the proposed educational area, that the exact locations and limits of all three be established as soon as possible so that planning for the facilities of the Special Events Complex can take the proposed preservation of this area into account, and any potential spatial conflicts can be identified and resolved.

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INTRODUCTION

PROJECT BACKGROUND

At the request of Group 70 International, Inc., and on behalf of their client, the University of Hawai'i, Paul H. Rosendahl, Ph.D., Inc. (PHRI) has prepared this Archaeological and Cultural Impact Assessment Study for the proposed Student Life and Event Complex for the University of Hawaii at Hilo (UH-Hilo). Located in the Land of Waiākea, South Hilo District, Hawai'i Island (TMK:3-2-4-01:163, Por.167), the project site consists of approximately 56 acres of State land situated in the old Waiākea Cane Lots section of the town of Hilo. It is generally adjacent to and on the west side of West Kāwili Street, between Pū'ainakō Street to the south and West Kāwili Street to the east, Waiākea Stream to the west, and the existing buildings of the UH-Hilo Main Campus to the north (*Figure 1*).

This archaeological and cultural impact assessment study has been done as a technical study in support of an Environmental Assessment (EA) being prepared in compliance with the requirements of *Chapter 343 (Haw.Rev.Stat.)*. The owner of the property is the State of Hawaii. The property is administered by the project applicant, University of Hawaii at Hilo (UH-Hilo); its local address is: University of Hawaii at Hilo (UH-Hilo), 200 West Kāwili Street, Hilo, Hawaii 96720-4091; and its local project contact is: Loli Chih at (808) 974-7720. The principal planning consultant for the project is Group 70 International; its address is: 925 Bethel Street, Fifth Floor, Honolulu, HI 96813-4398; and its principal project contact is: George Atta at (808) 523-5866 (ext.103). The University of Hawaii at Hilo (UH-Hilo) proposes to develop a Student Life and Events Complex on the project site; this complex would involve the construction of a multi-purpose recreational facility that would feature a 6,000-seat indoor arena, a 50-meter swimming pool, and related parking and other infrastructure.

The basic objectives of the archaeological assessment were to determine the following: (a) the general nature, extent, and potential significance of any archaeological-historical remains present, (b) the historic preservation implications of such remains for the feasibility of proposed development and land use; and (c) the general scope of work and level of effort for any subsequent archaeological-historic preservation work that might be appropriate and/or required.

The basic objectives of the cultural impact assessment were to determine the following (a) if the project area is currently being accessed by native Hawaiian cultural practitioners for any traditional and customary cultural uses; (b) if the proposed project would have any adverse impacts upon any identified current native Hawaiian cultural uses of the area; and (c) what measures might be proposed to mitigate any adverse impacts the proposed project might have upon any identified current native Hawaiian uses of the area.

Based on discussions with professional planners at Group 70 International, and with Mr. Marc Smith-State Historic Preservation Division (SHPD) Assistant Staff Archaeologist for Hawai'i Island, and PHRI familiarity with both the general project area and the current regulatory review requirements of the SHPD and the Hawaii County Planning Department, the following tasks were determined to be appropriate scope of work for the archaeological assessment survey and cultural impact assessment:

1. Appropriate background literature review and research;
2. Data collection fieldwork—including archaeological inspection fieldwork and informal cultural impact assessment informant interviews;
3. Data analysis and preparation of written report; and
4. Coordinate and consult with client, client representatives, agency staff, etc.

PHRI Supervisory Archaeologist Alan B. Corbin, M.A. conducted the archaeological assessment inspection fieldwork of the project area on May 1, 2002. PHRI Cultural Specialist Wanda Hoke Pua-Kaipō carried out the individual informal cultural impact assessment informant interviews during the period of late April to middle May 2002.

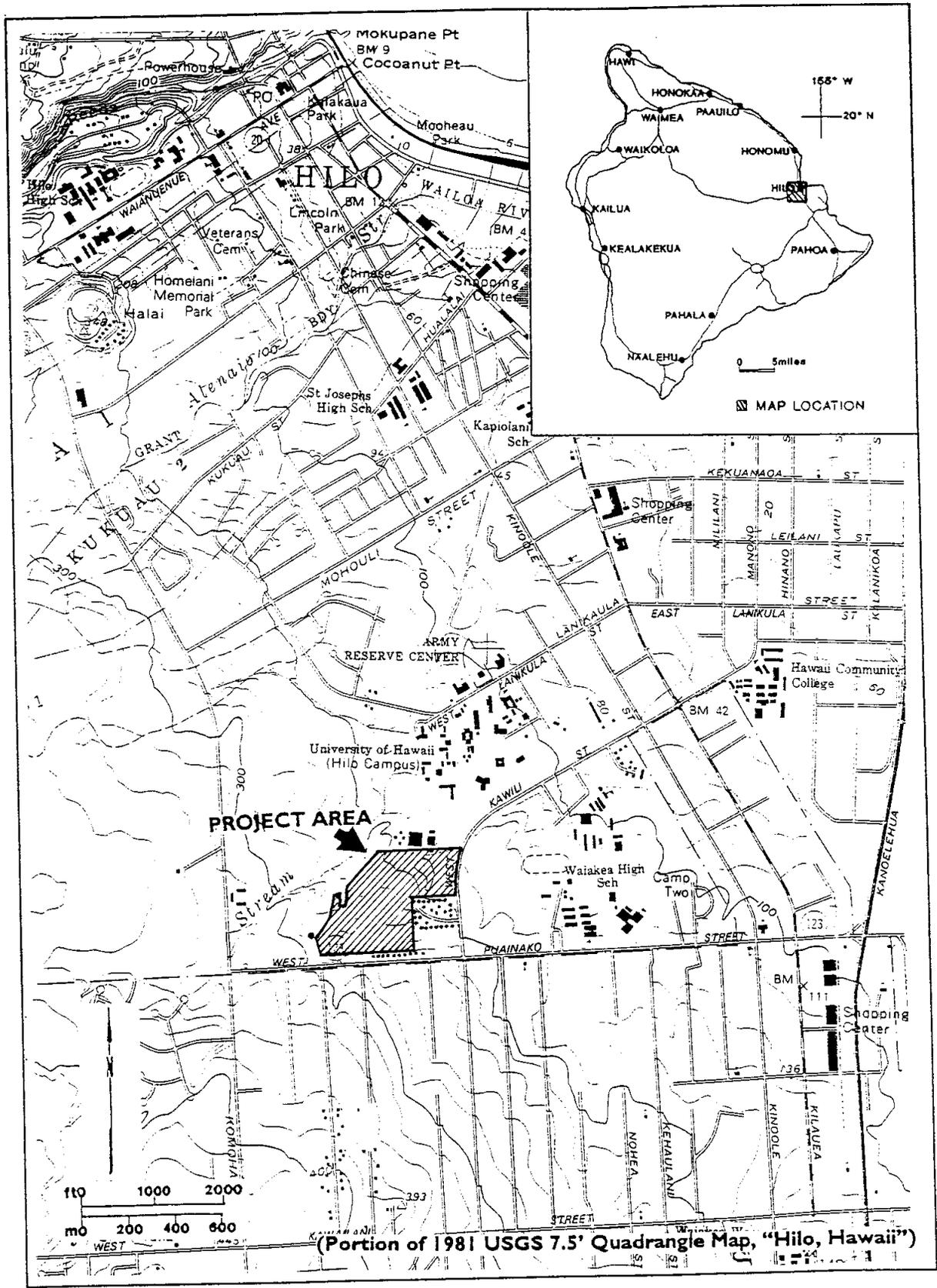


Figure 1. Project Area Location Map

PROJECT AREA DESCRIPTION

The UH-Hilo Student Life and Event Complex study area consists of approximately 56 acres of State land situated in the old Waiākea Cane Lots section of the town of Hilo; it is generally adjacent to and on the west side of West Kāwili Street, between Pū'ainakō Street to the south and West Kāwili Street to the east, Wailoa Stream to the west, and the existing buildings of the UH-Hilo Main Campus to the north (see *Figure 1*). The project site comprises the inland-most portion of the UH-Hilo Main Campus, but it is only partially developed, with a baseball complex, tennis courts, and a paved parking lot occupying the northern portion of the project site and the existing UH-H Adult Student Housing complex the southeastern portion.

The project area is part of the Hilo Lava Plain, an uncliffed volcanic coast defined by Armstrong (1983:37) as coastline with little or no cliff along the shoreline. Basaltic lava flows of the prehistoric member of the Kau Volcanic Series of Mauna Loa Volcano, which may be Recent to Latest Pleistocene in age, formed the surface of the project area and immediate vicinity. In general, these lava flows are highly permeable, but carry potable water near Hilo (Stearns and MacDonald 1946:77). For the most part, terrain in the project area is gently undulating to irregular, and consists of soils included in the Akaka-Honokaa-Kaiwiki association: these are soils which are moderately well-drained and well-drained, thin soils over lavas in the northeastern portion of the Puna District. (Sato *et al.* 1973:4). More specifically, soil in the project area consists of Opihikao extremely rocky muck (3-25% slopes), representing the Opihikao Series of well-drained, thin organic soils that have developed over pahoehoe lava bedrock. They are found on uplands from sea level to 1,000 ft (305 m), and are rapidly permeable, with slow run-off, and a slight erosion hazard. These soils are generally in forest or used for pasture (Sato *et al.* 1973:43). Rainfall in the project area is c. 100 to 125 inches (254 to 318 cm) per year, and generally greater during the period December to April, and the mean annual temperature is approximately 72 to 73 degrees F. (Armstrong 1983:63-64).

The vegetation in the project area today consists primarily of cultivated lawn, except for the southwest portion of the subject property and along the Waiākea Stream. Students of the University of Hawai'i-Hilo have recently been planted in taro and various native species the southwest portion of the subject property. Previously, the project area was probably a diverse complex of primarily historically introduced species that colonized the area following the abandonment of sugarcane cultivation. Patches of "wild" sugarcane are still present along the western end of the project area along the Wailoa River. Additional floral species observed include coconut (*Cocos nucifera*), 'akala berry (*Rubus hawaiiensis*), guava (*Psidium guajava*), passionfruit (*Passiflora* spp.), banyan (*Ficus benghalensis*), Hawaiian tree ferns *Citotium* spp.), and *ti* plants (*Cordyline terminalis*).

PREVIOUS RESEARCH

ARCHAEOLOGICAL RESEARCH

Recent Studies

Very few archaeological investigations have been conducted in the Hilo area, and since western contact, Hilo's prominence as a port-of-call has led to nearly continuous modification of the cultural landscape. Previous archaeological studies in the general vicinity of Hilo and the project area include, chronologically, the following: Thrum (1907), Stokes and Dye (1991), Hudson (1932), McEldowney (1979), Kelly, Nakamura, and Barrère (1981), Kelly and Athens (1982), Jensen (1991), Goodfellow and Fager (1992), Smith (1992), Borthwick et al. (1993), Hunt and McDermott (1993), Maly et al. (1994), Spear (1995), Robins and Spear (1996), and Rechtman and Henry (1998). The areas covered by the latter seven studies, Hunt and McDermott (1993), Borthwick et al. (1993), Maly et al. (1994), Spear (1995), Rechtman and Henry (1998), Robins and Spear (1996) and Smith (1992) are closest to the current project area and are the most relevant for the current project. Portions of both the Hunt and McDermott (1993) and the Robins and Spear (1996) study areas are partially within the current project area.

The Hunt and McDermott (1993) study was conducted *mauka* and west of the UHH Campus, within the proposed Pū'āinakō Street Extension alignments. During that survey project, 11 sites with 97 features were recorded. Four of the sites initially identified and recorded by Hunt and McDermott (1993), and subsequently revisited by Robins and Spear (1996) are situated either within or adjacent to the current project area (*Figure 2*), and potentially may be impacted during future construction of the Special Events Complex. The following site descriptions for these four sites are taken from Hunt and McDermott (1993).

Site 18911

Site 18911 consists of 11 features (A-K) located in a westward trending drainage of the Wailoa River. Vegetation is dense, and includes ferns, dense California grass, ginger, *ti*, and strawberry guava. The formal functional types within the site are alignments, terraces, and mounds constructed of stacked and piled boulders and cobbles. The features are constructed within or on the margins of the drainage. All of the features of the site appear to represent the remains of historic agriculture (sugarcane) land clearance and associated activities.

Site 18912

This is a single feature, roughly triangular mound with remnant vertical facing. Vegetation resembles that of Site 18911. Like Site 18911, the feature was assigned a historical agricultural function.

Site 18913

Site 18913 is another single feature site, similar to those recorded at Site 18911. It is a linear mound constructed of stacked and piled boulders and cobbles. The surrounding vegetation consists of guava, low grasses and ferns, *ti*, and various taller trees. The site represents an agricultural clearing mound from the historic sugarcane period.

Site 18914

This site consists of eight features constructed of stacked and piled boulders and cobbles (Fe A-K). These are terraces, mounds platforms, and modified outcrops. Vegetation

consists of ferns, guava, tall California grass, *ti*, and taller trees. The site is located in Lot 18 of the Waiākea Mill land maps, and was under sugarcane cultivation in 1925. Research has indicated that features associated with sugar cane cultivation include clearing mounds, foundations for water tanks and loading platforms, and features associated with sugarcane railroad lines. All of the features at the site indicate that they are historic features associated with sugarcane cultivation.

In summary, initially Hunt (1992) identified some of these sites as possibly prehistoric and early historic period features, but later—after excavation of some of the site features, reclassified them as historic clearing-mounds, modified outcrops, or platforms associated with the Waiākea Sugar Plantation. The investigators did report that a possible prehistoric Hawaiian component—evidenced by three volcanic glass flakes—was present below the platform of Site 50-10-35-18915, thus pre-dating the construction of the platform (Hunt and McDermott 1993); however, no other prehistoric remains were identified in the course of the project. Similarly, in a parcel at Kāwili and Kapi'olani Streets, Smith located several stacked stone walls and well-made oval and linear mounds. He also concluded that these features were historic in age, and resulted from activities associated with sugarcane or cattle pasture use (Smith 1992).

The study completed by Borthwick et al. (1993) was conducted on a UHH parcel north of and adjacent to portions of the Hunt and McDermott study area (TMK:2-4-01:40 & 157). Four sites with associated features were identified, and the recovered cultural material was of recent origin. Like the previous study, all the sites in their study area were reported as being historic in origin and associated with sugar plantation activities (Borthwick et al. 1993).

Maly et al. (1994) conducted an inventory survey of a 4.5-acre parcel located near the current study area. Four sites with 51 features were identified in that project area. All of the features were constructed of basalt cobbles, and included mounds, walls, and an enclosure. Functional feature types included both temporary and long-term habitation and agriculture. Excavation of two subsurface test units and one shovel test uncovered sparse cultural deposits (scattered charcoal and a volcanic glass knife or scraper), but no other portable remains (Maly et al. (1994). These investigators concluded, as a result of subsurface testing, that most of the features were associated with Historic Period cultivation; however, further work was recommended because a possible prehistoric layer (evidenced by the charcoal and volcanic glass artifact) was encountered below one of the features. The subsequent data recovery excavations were conducted at the four sites by Spear (1995), who concluded that all features were associated with sugarcane cultivation and more recent activities. No prehistoric deposits were identified.

Rechtman and Henry (1998) conducted an archaeological inventory survey of an approximately 40 ac Kāwili Street Project site, adjacent to the University of Hawai'i-Hilo Campus—immediately east of and adjacent to the current project area. A total of 117 features were identified within the project area—seven individual walls, five sets of parallel walls, three enclosures, and 102 mounds. These features were interpreted as being associated with the Historic Period sugarcane cultivation and were assessed within that context as significant for information content.

Robins and Spear (1996) conducted an inventory survey of the Pū'āinakō Street Realignment/Extension Project Expanded Corridor in Waiākea, Kukuau 1 and 2 and Ponahawai *ahupua'a*. Clearing mounds, foundations for water tanks, loading platforms, temporary flumes, and boundaries of cane and pastureland were found, all relating to sugar cane cultivation.

In summary, all seven of these recent studies documented similar archaeological features associated with late nineteenth and early twentieth century agriculture in the vicinity of, and partially within (Hunt and McDermott 1993), the current project area. With the exception of the previously noted volcanic glass artifact and few isolated volcanic glass flakes, no prehistoric materials were encountered during any of these studies. Hunt and McDermott (1993) interpreted the volcanic glass flakes as subtle evidence for the general use of the area during prehistoric times.

Earlier Studies

The earlier studies were of a more general nature, related to either the city or district of Hilo as a whole. In 1907, T.G. Thrum reported on *heiau* (ceremonial sites) of the Hilo region, as he had researched them in the late 1800s. In 1906–1907, J.F.G. Stokes conducted a survey of *heiau* on the island of Hawai'i,

and reported on sites within the Hilo region (Stokes and Dye 1991). Between 1930–1932, A.E. Hudson conducted archaeological and historical literature research for the eastern portion of Hawai‘i Island (Hudson Ms.). Hudson’s work included the most detailed descriptions of various sites within the Hilo area, until McEldowney (1979) prepared a subsequent archaeological and historical literature study.

Hudson’s 1932 manuscript noted: “There was an important village and trading center around Hilo bay” (Hudson Ms.:20). The following excerpts from Hudson’s manuscript present background of the general Waiākea setting earlier this century:

There are known to have been rather dense populations in Waipio, Laupāhoehoe, Hilo and Kalapana where the chief cluster of heiaus were located. House sites are usually found in close proximity to those temples located elsewhere away from the chief centers of habitation... Most of the heiaus were built close to the sea. The majority are within a hundred yards of the beach. Very few are more than 2 miles inland and these were probably of a specialized class, such as the bird catchers’ heiau traditionally located in Piihonua above Hilo... (Hudson Ms.:38);

No archaeological remains are to be found in the city of Hilo itself except a few stones which are said to have been taken from several *heiau* [Hudson’s Site 37, the *heiau* of Maka-o-kū and *pu’uhonua* (refuge) of Moku-ola].... Lyman estimates that in 1846 there were three or four thousand inhabitants in this region between Hilo and Keaau... (Hudson Ms.:226–227).

Hudson identified one of the inland *heiau* as being in Waiākea, along the old Hilo–‘Ōla‘a trail (not far from the route of modern-day Kilauea Avenue):

There was a heiau named Kapaieie near Honokawailani in Waiākea. Bloxam who passed the site on his way from Hilo to the volcano say that its center was marked by a single coconut tree. At the time of his visit nothing remained but ruined walls choked with weeds. He was told that the priests would lie in wait for passersby and dispatch them with clubs (Hudson Ms.).

Thrum had earlier stated that “ the site was famed in the Hilo-Puna wars but its size and class are unknown. No remains of any kind could be found and no Hawaiians with whom I talked had ever heard of it” (Thrum 1907:40).

Kelly et al. (1981) prepared a chronological history of Hilo Bay and vicinity, and though not specifically an archaeological study, the documentation provides valuable information for understanding land use practices of the general area. Subsequent studies, though not conducted in the immediate project area, have pointed out the extensive impact of historic period development on Hawaiian sites around the general area of Hilo town and vicinity. Most of these studies (e.g., Borthwick et al. 1993, Goodfellow and Fager 1992, Hunt and McDermott 1993, Jensen 1991, Kelly and Athens 1982) note that there is little, if any, remnant of Hawaiian archaeological sites in and around Hilo Bay. They also point out that sugar cultivation and pasturing animals during the 1860s–1940s, and increasing housing development associated with a growing population from the 1950s through the present, have substantially modified the landscape in outlying areas.

SUMMARY OF HISTORIC LAND USE PATTERNS

Early Historic Patterns

McEldowney (1979) compiled a comprehensive archaeological and historical literature search for the area of Hilo Town. In this study, she presented a basic pattern for early historic land use according to environmental zones. The current project area is situated within Zone II of her five environmental zones, and closely associated with Zone I. The following excerpts from McEldowney (1979:15-20) provide information relating to activities that occurred within the general project area zones:

Zone I – Coastal Settlement

The highest number of people in the early historic period, and subsequently the highest site probabilities, are found in this zone from sea level to roughly 20 to 50 ft elevation or 1/2 mile inland. Early descriptions, as well as the distribution of known sites, suggest that structures representing both permanent and/or temporary use occur along the entire coast....

In 1823, Ellis estimated that 2,000 people lived in 400 houses or huts along Hilo bay. Consistently, this village was described as a nearly continuous complex of native huts and garden plots interspersed with shady groves of trees, predominantly breadfruit (*Artocarpus altilis*) and coconut (*Cocos nucifera*)... Gardens, outlined by windbreaks or small plantations of banana (*Musa* hybrids), sugarcane (*Saccharum officinarum*), and *wauke* (*Broussonetia papyrifera*) were primarily planted with dryland taro, mixed with sweet potatoes (*Ipomoea batatas*) and minor vegetable crops. Other economically valuable trees, mostly Polynesian introductions (e.g., *Eugenia malaccensis*, *Pandanus odoratissimus*, *Thespesia populnea*, *Aleurites moluccana*) grew singularly or as components of these groves....

Zone II – Upland Agricultural Zone

Although estimates as to the extent of this zone vary in early journals, most confirm that an expanse of unwooded grasslands or a "plain" behind Hilo.... Scattered huts, emphasized by adjacent garden plots and small groves of economically beneficial tree species, dotted this expanse up to 1,500 ft elevation (i.e., the edge of the forest). The cumulative effects of shifting agricultural practices (i.e., slash-and-burn or swidden), prevalent among Polynesian and Pacific peoples, probably created and maintained this open grassland mixed with pioneering species and species that tolerate light and regenerate after a fire....

With remarkable consistency, early visitors to Hilo Bay describe an open parkland gently sloping to the base of the woods. This open but verdant expanse, broken by widely spaced "cottages" or huts, neatly tended gardens, and small clusters of trees... Estimates as to the extent of the extent of this unwooded expanse ranged from between five and six miles (Goodrich 1826:4) to between three and four miles (Coan 1882:29) above the coast or village, with most falling between four or five miles....

The constituents of gardens and tree crops in the village basically continued in the upland except that dry-land taro was planted more extensively and bananas were more numerous....

This same pattern occurred between Waiākea Pond and the Pana'ewa Forest in the four or five miles of open country dominated by tall grasses. Here stands of *kukui* (*Aleurites moluccana*), pandanus, and mountain apple became more conspicuous, with large areas of dryland taro planted in rocky crevices on the younger Mauna Loa flows....

Later Historic to Recent: The Sugar Industry

The two main references consulted concerning the history of the sugar industry on Hawai'i Island are Kelly et al. (1981) and Wilcox (1996). A third reference, Maly (1996), is useful in that it provides information specific to the Waiākea Mill Company lands. Together these studies contain references to many primary sources detailing industry and governmental statistics related to sugar production and export, as well as land tenure and cultivation techniques and strategies. The Maly (1996) report also contains oral history interviews with individuals familiar with the current project area as it existed during the early part of the 20th century.

The first commercial sugar ventures on Hawai'i Island were established in the early 1800s; however, large-scale sugarcane cultivation was not begun until the 1860s. And it was not until 1879 that cultivation and production was started in the vicinity of Hilo. Between 1898 and 1979, most of the sugar produced on the Big Island was shipped to the U.S. mainland from Hilo Harbor. One of the first and more prominent

Hilo-based companies was the Waiākea Mill Company. Established in 1879, the company started with about 350 acres of cultivated lands. In 1888, the company acquired a 30-year lease to operate a plantation and mill in Waiākea *ahupua'a*. When the lease ran out in 1918, the acreage under cultivation had increased to nearly 7,000, but without a lease the *ahupua'a* fell under the homesteading laws that required the government to lease the land to individual growers. Waiākea Mill Company was expected to grind the crop for the independent growers under a contract that gave the company 40% of the proceeds from the sale of the refined sugar. Contractual and legal problems, combined with a declining sugar market and the devastating tsunami of 1946, led the Waiākea Mill Company to cease operation in 1947. During the 68 years of its operation, the Waiākea Mill Company was a major force in shaping the economic and social growth of Hilo, and certainly left its mark on both the cultural and physical landscapes of the area.

As depicted on a 1922 map (*Figure 3*), the company lands were divided into house lots, cane lots, and fields. The productive areas were interconnected with a plantation railroad system. The narrow gauge railway was laid out in a dendritic pattern with all lines ultimately feeding into a main line that terminated at the mill site and barge berth at the inland end of the Waiākea Fishpond. Refined sugar was placed on barges that carried the product via the Wailoa Stream to Hilo Bay, where it was loaded onto cargo vessels bound for the U.S. mainland. The current project location appears to have been an area under cultivation by the Waiākea Mill Company, comprising a portion of land in Fields F12.B, F12.2, and F12.3 (see *Figure 3*).

A map dated 1930 (*Figure 4*) shows some change from the earlier map and provides a bit more detail. The current project area was divided into portions, comprising portions of Lots 17, 18, and 19. Historical records indicate that the Waiākea Mill Company retained these lots for cultivation, and records indicate that Lot 17 contained rock piles from clearing, Lot 18 contained rock piles, swamps, and rock outcroppings, and Lot 19 contained rock piles, gullies, and forest (Maly 1996:32). *Figure 4* also indicates that a branch line of the plantation railway system (Branch 3) ran through the current project area.

Company records also indicate that Fairview Dairy acquired a lease to Lots 11 through 20 (thus including the current project area) after Waiākea Mill Company closed its operation. The dairy used the land for cattle grazing until 1959, when the lease was transferred to William Kama'u who also grazed cattle and pastured horses on the parcel (Maly 1996). Presently, the current project land is owned by the State of Hawai'i, and is occupied by the University of Hawai'i-Hilo.

IMPLICATIONS OF PREVIOUS RESEARCH

Today, the current project area is part of the University of Hawai'i-Hilo campus, and consists primarily of cultivated lawns and buildings owned by the University. Prior to this development by the University, expectations of site types for the current project area are based upon documented land use in the traditional Hawaiian period (pre-1800), and descriptions of early to late historic period land use in the Hilo-Waiākea area (1823-1925). As mentioned, a model has been proposed (McEldowney 1979) that divided the Hilo region into five environmental zones. Along with this model are assessments of the types of archaeological features likely to be found in each zone. The project area is associated with the upland agricultural zone. Historic documents indicate that this area was an unwooded plain behind the concentrated settlement areas near the coast. Prehistoric features expected to occur in this zone would have included scattered huts, adjacent garden plots, and small groves of economically important trees (McEldowney 1979). Site types might be expected to include walls, terraces, platforms, modified outcrops, and mounds, etc. These types of sites were recorded by early visitors and inhabitants, and are compatible with land use practices such as crop cultivation and habitation. Artifacts associated with temporary and permanent habitation might include *'ulu maika*, *kukui* lamps, and *olonā* scrapers: a local informant stated that his father had a collection of these and other artifacts from Waiākea fields being cleared for cane cultivation (Maly 1996:38). Also, previous excavations near the project area revealed several volcanic glass flakes and a volcanic glass scraper (Maly 1994, Hunt and McDermott 1993).

Historic period modifications and use of the land most likely removed virtually all evidence of prior traditional occupation and utilization. Features associated with the historic use of the land would have included agricultural features associated with sugar cane cultivation such as clearing mounds and walls, or features associated with loading and transporting cane. Features associated with transporting cane include loading and other platforms, railroad tracks and flumes, and water tanks (Hunt and McDermott 1993:94). These features should also be associated with historic artifacts that date from c. AD 1880 to 1940. As

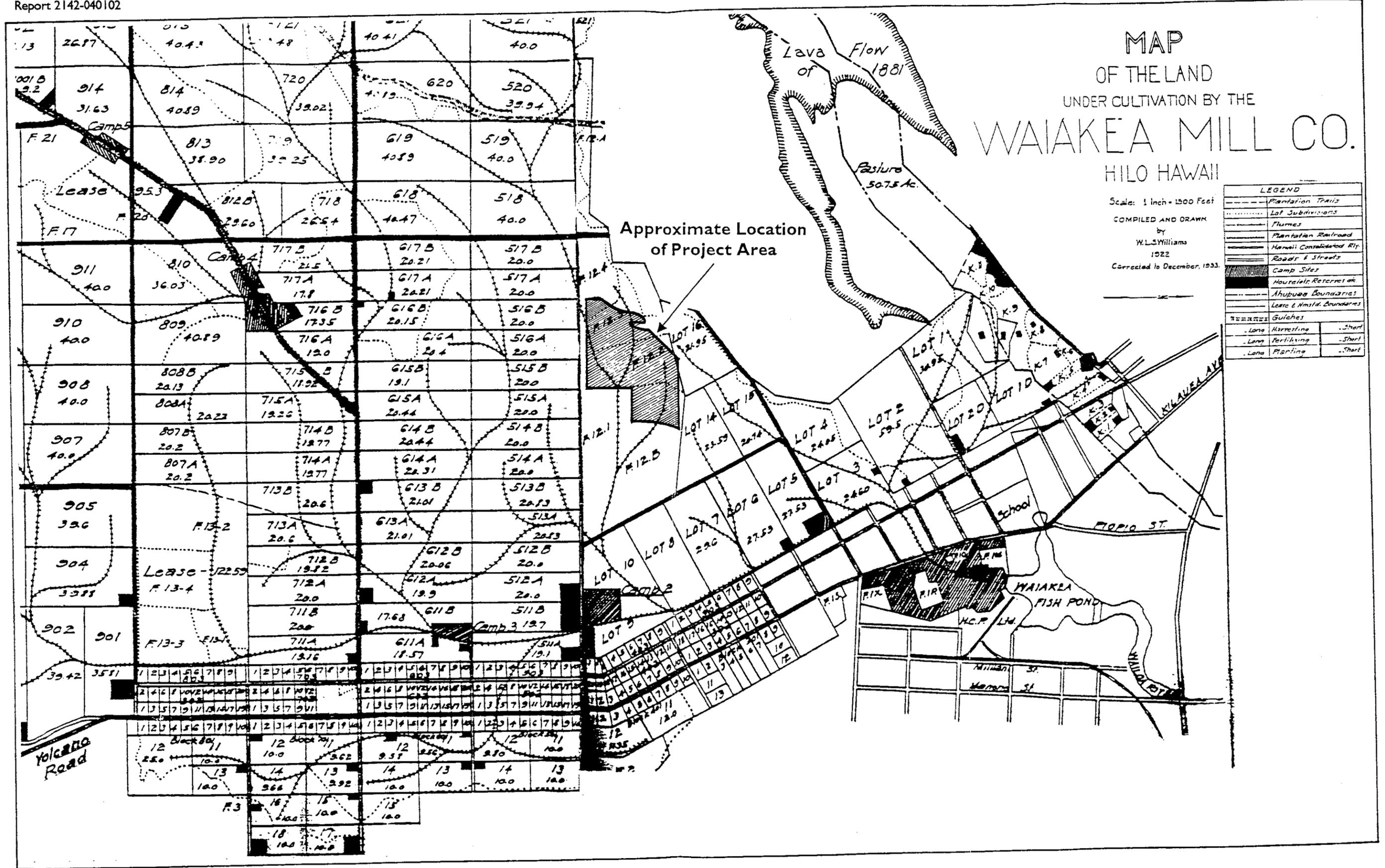


Figure 3. 1922 Waiakea Mill Company Map

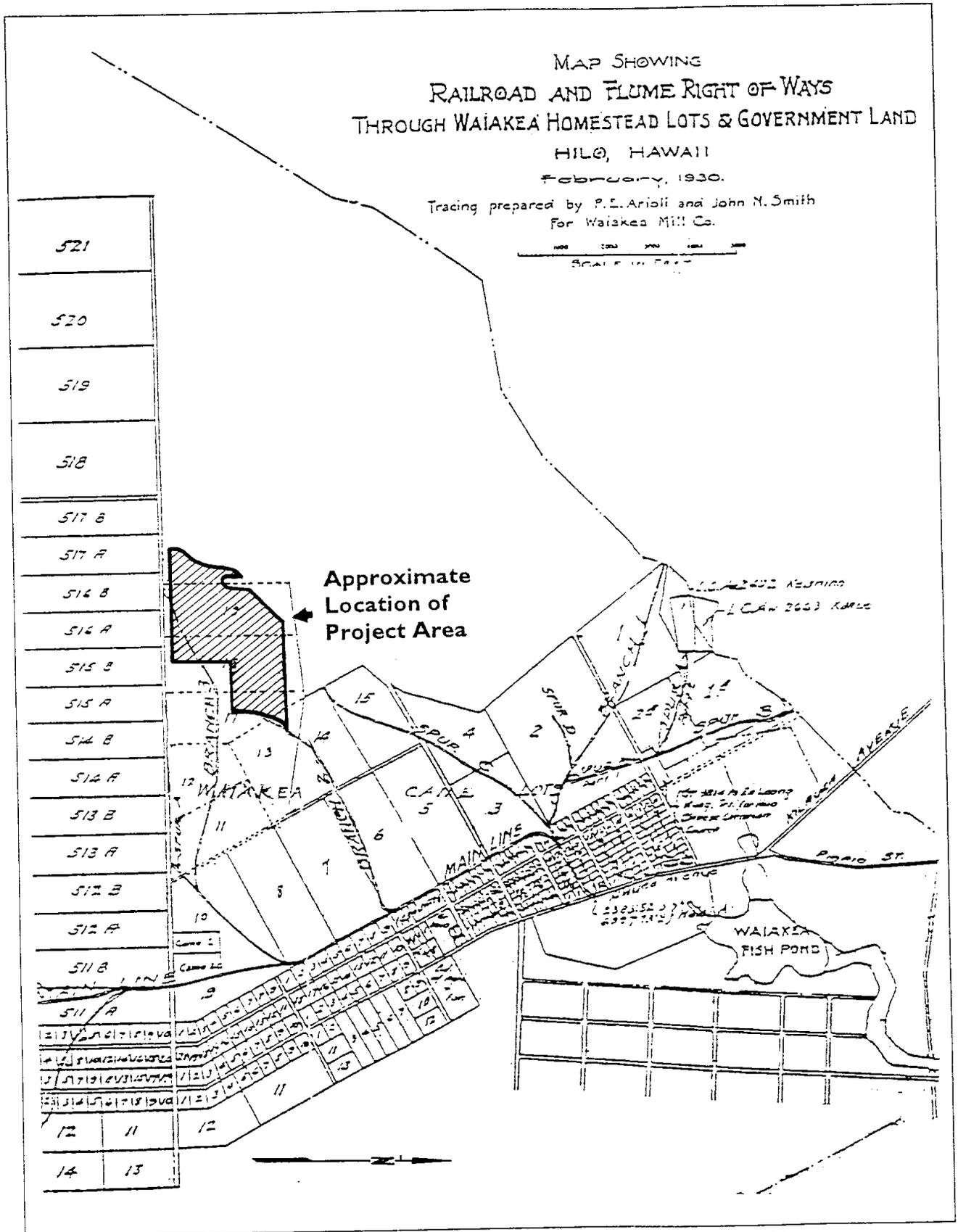


Figure 4. Portion of 1930 Map Prepared for the Waiākea Mill Company (after Maly 1996)

mentioned, an historic sugarcane train branch went through the project area. Before the previous landscaping and building construction by the University, the possibility of discovering branch ties, berms, tracks, or other railroad-associated paraphernalia would have been present.

ARCHAEOLOGICAL ASSESSMENT

OBJECTIVES AND METHODOLOGY

The basic objectives of the archaeological assessment survey were to determine the following: (a) the general nature, extent, and potential significance of any archaeological–historical remains that might be present, (b) the historic preservation implications of any such remains for the feasibility of proposed development; and (c) the general scope of work and level of effort for any subsequent archaeological–historic preservation work that might be needed.

PHRI Supervisory Archaeologist Alan B. Corbin, M.A. conducted an archaeological assessment inspection of the current project area on May 1, 2002. Only the undeveloped portions of the current project area were surveyed; i.e., those portions that were not occupied by University facilities such as cultivated lawns, currently occupied buildings, or new buildings under construction. For purposes of discussion, three general field inspection areas were designated: Area A, Area B (including Subarea B-1), and Area C (see *Figure 2*). Inspection fieldwork consisted of a series of variable intensity pedestrian transects across the project area.

FINDINGS

Area A

This area extends west from Kāwili Street, along the Pū‘āinakō Street Realignment/Extension Project Expanded Corridor (also referred to as the Saddle Road Realignment corridor). Within this area, to the westernmost portion of the project area, three archaeological sites were identified and recorded in 1993 by Hunt and McDermott (1993). These are Sites 18912, 18913, and 18914 (see *Figure 2*), and have previously been described. Previously identified Site 18911 is situated outside of the present project area. The formal functional types within these sites are alignments, terraces, and mounds constructed of stacked and piled boulders and cobbles. The features are constructed within or on the margins of the drainage. All of the features of the site appear to represent the remains of historic land clearance and associated activities related to sugar cane cultivation (Hunt and McDermott 1993:37).

Area B

During the current assessment field inspection, three additional historic period features were also located. These are located within the area designated on *Figure 2* as Area B, and specifically within Subarea B-1. One of these features appeared to be a platform similar to those described above, while two were mounds also similar to those described above. All are given an historic interpretation and function as being associated with sugarcane cultivation.

Area C

This is an area extending along the southwest side of the Waiākea Stream. Vegetation includes ‘akala berry (*Rubus hawaiiensis*), guava (*Psidium guajava*), banyan (*Ficus benghalensis*), Hawaiian tree ferns (*Citotium* spp.), and ki plants (*Cordyline terminalis*). One low mound was located. It is believed that the mound is a clearing mound, associated with either sugarcane cultivation, or a more recent bulldozer push piled resulting from construction of the University buildings and grounds.

COMMENTS

The archaeological features identified in the current project area, including previously recorded sites and newly identified features, are similar in size and construction to those described in several nearby areas (Borthwick et al. 1993, Maly et al. 1994, Spear 1995, Rechtman and Henry 1998) and in other Hawai'i Island archaeological studies (Erkelens and Athens 1994). It seems logical to assume that all of these features share a similar temporal origin and function. In all cases, these features are described as dating from the historic period and have been interpreted as being associated with sugarcane cultivation.

Erkelens and Athens (1994) obtained oral information from Kohala informants suggesting that the stone mounds (including the more formal-looking faced mounds) were the result of clearing fields for sugarcane cultivation. To test this information, they excavated four such mounds and concluded that the features served a dual function, as clearing mounds and as loading platforms. This latter function is important for the current project, as many of the previously discussed mounds are located in areas where railroad lines once existed. Oral-historical information contained in Maly (1996) also supports this interpretation and added yet another function, that of viewing platform. Interviewee Kenneth Bell (born in 1915) recalled that the field managers "...used to ride their horses all through the fields, and in some places, they would ride up the ramps on these platforms to survey the fields. From on top of the platforms sitting on their horses, they could see all over fields" (Maly 1996:58). Mr. Bell was emphatic in his interview with Maly that the neatly built stone platforms and mounds were associated with sugarcane cultivation.

CULTURAL IMPACT ASSESSMENT

PURPOSE, BACKGROUND, AND OBJECTIVES

The general purpose of the cultural impact assessment was to assess the potential impacts of the proposed Student Life and Event Complex project on any identified cultural resources in compliance with the requirements of *Chapter 343 (Haw.Rev.Stat.)*, as amended by H.B. No.2895, H.D.1 of the Hawai'i State Legislature (2000) and approved by the Governor as *Act 50* on April 26, 2000. *Chapter 343 (Haw.Rev.Stat.)* was amended by the State legislature because of the perceived need to assure that the environmental review process explicitly addressed the potential effects of any proposed project—i.e., “cultural impacts”—upon the cultural resources of the different groups comprising the multi-ethnic community of Hawaii.

Cultural resources include a broad range of often overlapping categories of cultural items —places, behaviors, values, beliefs, objects, records, stories, and so on. A traditional cultural property (“TCP”) is one specific type of cultural resource that falls within the purview of the historic preservation review process. A “TCP” is a historic property or place that is important because it possesses “traditional cultural significance”:

“Traditional” in this context refers to those beliefs, customs, and practices of a living community of people that have been passed down through the generations, usually orally or through practice. The traditional cultural significance of a historic property, then, is significance derived from the role the property plays in a community’s historically rooted beliefs, customs, and practices....

A traditional cultural property, then, can be defined generally as one that is...[important/significant]...because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community’s history, and (b) are important in maintaining the continuing cultural identity of the community (Parker and King 1990:1).

In addition, it is important to realize that sometimes a traditional cultural property may not have a visible physical manifestation:

Although many traditional cultural properties have physical manifestations that anyone walking across the surface of the earth can see, others do not have this kind of visibility, and more important, the meaning, the historical importance of most traditional cultural properties can only be evaluated in terms of the oral history of the community (Sebastian 1993:22).

There are at least two significant differences that distinguish traditional cultural properties as a subset within the larger sphere of cultural resources. First, while cultural resources such as practices and beliefs may be spatially associated with general types of geographical areas, such as the uplands above Hilo Bay, a traditional cultural property is a specific physical entity or feature with a definable boundary, such as a specific location within the current project area along the Waiālea Stream. Second, while cultural resources such as practices and beliefs can include general cultural behaviors such as the gathering of various plants for general subsistence or ceremonial uses, a traditional cultural property is a specific place or feature directly associated with specific behaviors the continuity of which over time, in either actual practice or remembrance, can be demonstrated.

Based on these two significant distinctions, it is possible to suggest three types of practitioner claims relating to cultural practices, beliefs, and features that are likely to be encountered in the course of conducting a cultural impact assessment study. These claims can be referred to as (a) traditional cultural property claims, (b) traditional and customary cultural practice claims, and (c) contemporary or neo-traditional cultural practice claims.

Traditional cultural property claims would be those which lie within the purview of the current historic preservation review process (DLNR 2001a,b); that is, they are claims involving the traditional practices and

beliefs of a local ethnic community or members of that community that (a) are associated with a definable physical property (an entity such as a site, building, structure, object, or district), (b) are founded in the history of the local community, (c) contribute to the maintenance of the cultural identity of the community, and (d) demonstrate a historical continuity of practice or belief up to the present—through either actual practice or historical documentation. Furthermore, to qualify as a legitimate traditional cultural property within the historic preservation context, a potential traditional cultural property must be able to demonstrate its historical significance in terms of established evaluation criteria, such as those of the National Register of Historic Places and/or the Hawai'i Register of Historic Places.

Traditional and customary cultural practice claims would be those native Hawaiian claims which lie within the purview of Article XII, Section 7, of the Hawai'i State Constitution (“Traditional and Customary Rights”), and various other state laws and court rulings, particularly as reaffirmed in 1995 by the Hawai'i State Supreme Court in the decision commonly referred to as the “PASH decision,” and as further clarified more recently in its 1998 decision in State of Hawai'i v. Alapa'i Hanapi and its 2000 decision in Ka Pa'akai o Ka 'Aina et al. v. Land Use Commission, State of Hawai'i et al. The notable points of the decisions in PASH and in Hanapi can be summarized as follows: (a) the reasonable exercise of ancient Hawaiian usage is entitled to protection under Article XII, Section 7 of the Hawai'i State Constitution; and (b) those persons claiming their conduct is constitutionally protected must prove that they are a native Hawaiian as defined in PASH, that the claimed right is constitutionally protected as a traditional or customary native Hawaiian practice, and that the exercise of the right is occurring on undeveloped or less than fully developed property. Ka Pa'akai generally reaffirms the same points as in the PASH and Hanapi decisions and, in addition, (a) indicates the explicit responsibility of the regulatory agency involved in any application review to arrive at affirmative and substantive conclusions regarding potential impacts upon traditional and customary native Hawaiian cultural practices and resources, and (b) suggests an “analytical framework” for the identification of and potential impacts upon any such cultural practices and resources.

Traditional native Hawaiian cultural practices can be categorized as two general types: (a) practices with active behaviors involving both observable activities with material results and their inherent values or beliefs; and (b) practices with more passive behaviors that seek to produce nonmaterial results. The former type of behaviors – practices with active behaviors, for example, would involve practices like the gathering and collecting of different animal and plant resources for various purposes, such as subsistence, medicinal, adornment, social, and ceremonial possibly other uses. Uses such as these usually have associated beliefs and values (both explicit and implicit) relating to a pervasive general theme that flows throughout traditional native Hawaiian culture and binds it together. To native Hawaiians, the natural elements of the physical environment – the land, sea, water, winds, rains, plants, and animals, and their various embodied spiritual aspects – comprise the very foundation of all cultural life and activity – subsistence, social, and ceremonial; to native Hawaiians, the relationship with these natural elements is one of family and kinship. The latter type of behaviors – practices with more passive behaviors – involves more experiential activities focused on “communing with nature”; that is, behaviors relating to spiritual communication and interaction that reaffirm and reinforce familial and kinship relationships with the natural environment.

While traditional cultural property claims, as defined above, would certainly fall within the general domain of traditional and customary cultural practice claims, not all traditional and customary cultural practice claims would necessarily qualify as traditional cultural property claims. Traditional and customary cultural practice claims subsume a broad range of cultural practices and beliefs associated with a general geographical area or region, rather than a clearly definable property or site—for example, the gathering of marine resources from along a section of shoreline for traditional subsistence or ceremonial purposes, in contrast to the gathering of a specific marine resource species for a specific use by current generation members of a family that had obtained the same resource from the same recognized site for several generations.

Contemporary, or “neo-traditional”, cultural practice claims overlap with neither traditional property claims nor traditional and customary practice claims. Contemporary cultural practice claims would be those made by cultural practitioners relating to current practices or beliefs for which no clear specific historical basis in traditional culture can be clearly established or demonstrated; for example, the conducting of ritual ceremonies of uncertain authenticity at sites or features for which no such prior use can be demonstrated.

The specific purpose of the present cultural impact assessment study is to assess the potential impacts of the proposed project upon the cultural resources—the practices, features and/or beliefs—of native

Hawaiians or any other ethnic group, that are associated with project area. To accomplish this purpose, several specific objectives were established:

1. Identify any native Hawaiian or other ethnic group cultural practices currently being conducted by individual cultural practitioners or groups;
2. Collect sufficient information so as to define the general nature, location, and authenticity of any identified cultural practices;
3. Assess the potential impacts of the proposed project upon identified cultural practices; and
4. Recommend appropriate mitigation measures for any potentially adverse impacts upon identified cultural practices.

Thus, the overall goal or objective of the present cultural impact assessment study was to identify any native Hawaiian or other cultural practices currently being conducted within or immediately adjacent to present project area that might potentially be in some manner constrained, restricted, prohibited, or eliminated if the proposed project were to be constructed. The types of practices to be identified would be inclusive; that is, claims for all three types of practices—traditional cultural property, traditional and customary cultural practices, and contemporary cultural practices—would be identified and considered. More specifically, the objectives of the cultural impact assessment were to determine the following (a) if the project area is currently being accessed by native Hawaiian cultural practitioners for any traditional and customary cultural uses; (b) if the proposed project would have any adverse impacts upon any identified current native Hawaii cultural uses of the area; and (c) what measures might be proposed to mitigate any adverse impacts the proposed project might have upon any identified current native Hawaiian uses of the area.

CULTURAL IMPACT ASSESSMENT AND OEQC GUIDELINES

As indicated previously, the general purpose of this cultural impact assessment is to assess the potential impacts of the proposed project on any identified cultural resources in compliance with the requirements of *Chapter 343 (Haw.Rev.Stat.)*, as amended by H.B. No.2895, H.D.1 of the Hawai‘i State Legislature (2000) and approved by the Governor as *Act 50* on April 26, 2000. Among other things, this amendment requires that environmental assessments (EA) and impact statements (EIS) identify and assess the potential effects of any proposed project upon the “...cultural practices of the community and State...” Guidelines previously prepared and adopted by the State Office of Environmental Quality Control (OEQC 1997) provide compliance guidance. Both *Act 50* and the *OEQC Guidelines for Assessing Cultural Impacts* mandate consideration of potential cultural impacts upon all the different groups comprising the multi-ethnic community of Hawaii. This inclusiveness, however, is generally understated, and the emphasis—as indicated by a background review of the cultural impact assessment issue—and the intent and evolution of both the legislative action and the guidelines—is clearly meant to be primarily upon aspects of Native Hawaiian culture—particularly traditional and customary access and use rights.

To understand the cultural impact assessment issue, particularly as it is addressed in the present study, a summary review of the intent and evolution of the OEQC guidelines is necessary. The guidelines evolved out of what are commonly referred to as “PASH/Kohanaiki” issues – issues relating to native Hawaiian traditional and customary access and land use rights as they were reasserted by a State Supreme Court decision in August 1995 and further clarified in its 1998 decision in *State v. Hanapi* – and the need for appropriate means to address these issues within the State environmental impact review process. For a good discussion of the issues and options involved, the “Report on Native Hawaiian Traditional and Customary Practices Following the Opinion of the Supreme Court of the State of Hawai‘i in Public Access Shoreline Hawai‘i v. Hawai‘i County Planning Commission” prepared by the PASH/Kohanaiki Study Group (1998) should be consulted.

Initial attempts to address various issues relating to native Hawaiian traditional and customary access and land use rights within the framework of the State environmental impact review process were made in the form of proposed changes to the State EIS law as contained in Chapter 343 (HRS). These attempts to require a formal cultural impact assessment failed to pass the State legislature in 1996 and 1997.

A subsequent, second attempt to address various issues relating to native Hawaiian traditional and customary access and land use rights was made in the form of proposed changes in the "Administrative Rules" for compliance with Chapter 343 (DOH Title 11, Chapter 200). This attempt to require an explicitly defined cultural impact assessment also failed, as the governor declined to approve the proposed amendments.

The third attempt to address various issues relating to native Hawaiian traditional and customary access and land use rights within the State environmental impact review process resulted in the current OEQC "Guidelines for Assessing Cultural Impacts" (OEQC 1997b). Draft guidelines were initially issued for public review and comment on September 8, 1997. The Environmental Council formally adopted the guidelines in their final form on November 19, 1997.

The relationship of the OEQC guidelines to the State Supreme Court "PASH decision" was clearly stated on the front page of the September 8, 1997 issue of the OEQC bulletin, "*The Environmental Notice*," when the draft guidelines were first issued for public review and comment:

For years, a controversy has simmered over developer's responsibility to perform a "Cultural Impact Study" prior to building a project. The recent Supreme Court "PASH" decision reaffirmed the state's duty to protect the gathering rights of native Hawaiians. In light of these events, the Environmental Council has drafted a guidance document to provide clarity on when and how to assess a project's impacts on the cultural practices of host communities.

It should be noted that the guidelines for cultural impact assessment are meant to include consideration of all the different groups comprising the multi-ethnic community of Hawai'i; however, this inclusiveness is generally understated, and the clear emphasis is meant to be upon aspects of native Hawaiian culture.

More than 20 letters were received by OEQC in response to the publication of the draft guidelines, and relevant comments were said to have been incorporated into a final version of the guidelines (OEQC n.d.). The Environmental Council formally adopted the final guidelines (OEQC 1997b) on November 19, 1997. The final guidelines are virtually identical to the draft guidelines initially published on September 8, 1997, and the degree to which any of the received comments on the draft guidelines were considered prior to issuance of the final guidelines is uncertain. In fact, the overall process through which the guidelines were prepared and adopted brings out several important questions relating to such topics as (a) the source or basis utilized for the content of the guidelines, (b) the background and qualifications of the preparer(s) of the guidelines, (c) the criteria to be used for the adequacy of cultural impact assessment studies prepared in response to the guidelines, and (d) the legal question of how compliance can be required when the standards are guidelines.

According to the Chair's Report contained in *The 1997 Annual Report of the Environmental Council*, the Cultural Impacts Committee drafted the guidelines:

The Committee drafted guidelines recommending a methodology to assess the impact of proposed actions on cultural resources, including Native Hawaiian cultural resources, values, and beliefs. The guidelines also specify the contents of a cultural impact assessment.

To prepare the Guidelines, the Committee reviewed public testimony and solicited input from interested parties. Expertise from the DLNR's Historic Preservation Division as well as Federal regulations governing the "Protection of Historic Properties" were used to model the draft guidelines.

The draft cultural impact guidelines were published for review and comment in the Sept. 8 *Environmental Notice*, and over 20 letters were received. Relevant comments were incorporated into a final draft version of the guidelines, which were adopted as a policy document by the Environmental Council on November 19, 1997 (OEQC n.d.:5).

Direct inquiries to OEQC (Gary Gill, Director) and SHPD (Dr. Holly McEldowney, Staff Specialist in the History and Culture Branch) provided additional background information relating to the formulation of the cultural impact assessment guidelines. The principal author or compiler of the guidelines was Arnold Lum, Esq., a member of the Environmental Council's Cultural Impacts Committee. Mr. Lum was also a staff attorney at the Native Hawaiian Legal Corporation. OEQC staff also assisted in the preparation of the

guidelines. Several internal drafts were prepared, reviewed, and revised. Preparation of the guidelines relied to some degree upon National Register Bulletin No. 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1990) for basic content information. Other sources, including the SHPD draft rules for conducting ethnographic surveys and dealing with traditional cultural properties (DLNR n.d.), were consulted; in fact, a copy of the SHPD draft rules was provided to OEQC and the Cultural Impacts Committee by SHPD Administrator, Dr. Don Hibbard. Professional staff in the SHPD-History and Culture Branch took part in the preparation and review of the guidelines. Certainly the inclusion of such professional anthropological and historical expertise in the preparation of the guidelines was appropriate; however, much of the professional advice on the extent to which detailed expectations—regarding study scope, content, methodology, documentation, and impact assessment—should be explicitly addressed in the guidelines was apparently discounted.

The most recent attempt to address various issues relating to native Hawaiian traditional and customary access and land use rights within the State environmental impact review process has resulted in the recent amendment to *Chapter 343 (Haw.Rev.Stat.)*, as amended by H.B. No.2895, H.D.1 of the Hawai'i State Legislature (2000) and approved by the Governor as *Act 50* on April 26, 2000. While no specific administrative rules for the implementation of this amendment have been adopted, it is generally accepted that the *Guidelines* previously prepared and adopted by the State Office of Environmental Quality Control (OEQC 1997) are meant to provide compliance guidance.

The OEQC *Guidelines* consist of three basic sections. The first section is an introduction which notes the various statutory and other bases for addressing potential impacts upon cultural resources within the context of the environmental assessment review process, and "...encourages preparers of environmental assessments and environmental impact statements to analyze the impact of a proposed action on cultural practices and features associated with the project area" (OEQC 1997:1). The second section of the guidelines discusses methodological considerations for conducting cultural impact assessments, and presents a recommended six-step protocol to be followed by the assessment preparers. The third section of the guidelines outlines eleven topics or "matters" that a cultural assessment should address; these topics basically represent the desired content and organization of a cultural impact assessment report.

As "guidelines," the OEQC *Guidelines* would seem to have neither the specific statutory authority of law, nor the regulatory authority of administrative rules. As guidelines, they can be regarded as providing general guidance; that is, they represent general suggestions and recommendations as to how to approach the assessment of potential cultural impacts. The guidelines provide little or no guidance relative to many important questions, perhaps the most significant of which would be the following:

1. How would project-specific determinations be made as to whether or not a cultural impact assessment study might even be necessary or appropriate—given the specific nature and location of a proposed project;
2. If a cultural impact assessment study is to be conducted, how does one determine what constitutes an appropriate project-specific level of effort – that is, the general scope of work or objectives for the study, and the specific tasks or activities required to accomplish successfully the scope of work or objectives;
3. What criteria are to be used for determining the credibility and reliability of potential cultural information sources (generally referred to as "informants" or "knowledgeable individuals");
4. If specific cultural practices, beliefs, or features are definitely identified as being associated with a project area, what criteria are to be applied for evaluating (a) the descriptive adequacy and (b) the cultural authenticity of the identified practices, beliefs, or features;
5. If specific culturally authentic practices, beliefs, or features are definitely identified as being associated with a project area, what criteria are to be used for assessing the nature and extent of potential impacts of a proposed project on the identified practices, beliefs, or features—that is, "no effect," "no adverse effect," or "adverse effect;"

6. If a project is determined to have potentially adverse impacts upon specific identified culturally authentic practices, beliefs, or features, what criteria are to be used for evaluating the adequacy and appropriateness of alternative potential mitigation actions;
7. Within the purview of what regulatory office or agency would the review and acceptance or rejection of a completed cultural impact assessment study legitimately fall; and
8. What standards or criteria are to be used to evaluate the overall adequacy or acceptability of a completed cultural impact assessment study?

Consideration of these questions, and their implicit implications, has direct relevance to the present cultural impact assessment study. These implications relate most importantly to (a) the level of study effort believed appropriate for the project-specific context, and (b) the rationale adopted for both the study overall, as well as for the identification and evaluation of identified cultural practice claims, the assessment of potential project-specific impacts, and the formulation of any specific recommendations for further study or other mitigation actions.

PRESENT STUDY SCOPE AND METHODOLOGY

The scope of work and methodology for the present cultural impact assessment are based on the general assumption that the level of study effort appropriate in any project-specific context should involve the consideration of several factors, the most relevant of which are the following: (a) the probable number and significance of known or suspected cultural properties, features, exploitable natural resources, practices, or beliefs within or associated with the specific project area; (b) the potential number of individuals (potential informants) with cultural knowledge of the specific project area; (c) the availability of historical and cultural information for the specific project area or immediately adjacent lands; (d) the physical size, configuration, and natural and human modification history of the specific project area; (e) the present or recent modern land use of the specific project area; and (f) the potential effects of the project on known or expected cultural properties, features, practices, exploitable natural resources, or beliefs within or related to the specific project area.

Consideration of these factors within the specific nature and context of the proposed Student Life and Event Complex project, as well as consultation with professional staff in the State Historic Preservation Division–History and Culture Branch, indicated that the appropriate level of study for an adequate assessment of potential cultural impacts would be a relatively lesser level of study effort that could be characterized as an identification study. The distinctive characteristics of an identification study are that it would be limited to (a) the identification of native Hawaiian or other ethnic group cultural practices, beliefs, properties, features, or exploitable natural resources associated with and/or present within or related to the specific project area that are currently being conducted by and/or known to individual cultural practitioners or groups, and (b) the collection of information reasonably sufficient so as to define the general nature, location, and likely authenticity of identified cultural claims.

An identification study would not involve the considerably greater level of study effort—both calendar months and hours of labor—needed to carry out what could be characterized as a full documentation study. The distinctive characteristics of the latter, which would commonly be referred to as a full ethnographic or oral history study, would be (a) the collection of detailed information regarding identified native Hawaiian or other ethnic group cultural practices by means of formal oral history interviews which are usually tape recorded and transcribed, and (b) the analysis and synthesis of all collected data – from interviews, as well as relevant historical documentary and archival research—within the general cultural-historical context of traditional native Hawaiian or other ethnic group culture and the defined specific geographical area of a specific project.

The overall rationale guiding the present identification study has been that the level of study effort should be commensurate with the potential of the proposed project for making any adverse impacts upon any native Hawaiian or other ethnic group cultural practices currently conducted by cultural practitioners within the project area. The identification study presented here is believed to comprise a reasonable approach for the assessment of potential cultural impacts within this specific project area. The potential for

the project to result in adverse impacts upon any current native Hawaiian or other ethnic group cultural practices, beliefs, or features would seem likely to be minimal or indeterminate; that is, given the past land use history of the project area and the general nature of the proposed project, it is very unlikely that the continued exercise of any current practices would be in any way constrained, restricted, prohibited, or eliminated.

Because the project is believed unlikely to have any determinable adverse impacts on any current native Hawaiian or other ethnic group cultural practices associated with the project area, the level of study effort comprising the present identification study is believed sufficient. Adequate evaluation and documentation of such practices for the present study do not require intensive ethnographic studies that would document the specific details of each identified cultural practice. Neither are exhaustive efforts needed to evaluate the authenticity of identified cultural practices, or to determine whether such practices represent traditional and customary cultural practices or more recently established contemporary cultural practices. Whatever the nature of any current native Hawaiian or other ethnic group cultural practices associated with proposed project area, the proposed project—as currently conceived—should not be likely to significantly affect the continuation of such practices.

An appropriate action plan was initially prepared for providing overall direction to the conduct of the cultural impact assessment identification study. This action plan included the following tasks:

1. Project team members assemble preliminary working lists of potential contacts, informants, and information sources (groups and individuals);
2. Compare preliminary lists and assemble prioritized final list of potential contacts, informants, and information sources;
3. Review final list with client and client representatives;
4. Conduct limited background review of readily available historical and cultural documents and reports;
5. Make initial contacts with potentially knowledgeable informants;
6. Conduct initial communications, meetings, and/or informal interviews with potentially knowledgeable informants;
7. Review and evaluate initial findings, and develop revised list of principal knowledgeable informants and cultural practice associations;
8. Select principal knowledgeable informants with whom subsequent formal oral history interviews would be appropriate for documentation purposes;
9. Develop outline of general informant oral history interview topic areas for subsequent formal oral history interviews; and
10. Prepare cultural impact assessment identification study report.

The identification study project team consisted of two individuals: PHRI Cultural Specialist Wanda Hoke Pua-Kaipō, and PHRI Principal Paul H. Rosendahl. Initial potential contact lists were formulated, compared, and finalized, and project team members were assigned primary responsibility for attempting to contact specified potential informants. The list was continually revised and expanded, as potential informants were contacted, information was obtained, and the contacted individual in turn suggested additional referrals to be contacted. The list eventually stabilized as contact referrals became largely repeated and new names became rare. The majority of the contacts were made, and information obtained, by Mrs. Pua-Kaipō. While repeated attempts were made to contact all individuals placed on the revised list of potential informants, a few did not respond to repeated attempts or could not be contacted at all.

Dr. Rosendahl prepared the present identification study report, with the assistance of Mrs. Pua-Kaipō. Mrs. Pua-Kaipō assumed primary responsibility for preparation of the sections dealing with (a) study methodology—particularly that portion dealing with potential informants contacted, (b) identification of cultural practices, beliefs, or properties associated with the project area, and (c) the broader issues and concerns of the local Hawaiian community, while Dr. Rosendahl assumed primary responsibility for preparation of most of the other sections of the report, including (a) the introduction, background, and study approach and rationale, and (b) the conclusions.

Several references were utilized as basic guidance documents for the conduct of the present cultural impact assessment identification study. The principal sources were the following:

1. The OEQC *Guidelines for Assessing Cultural Impacts* (OEQC 1997);
2. The *Native Hawaiian Rights Handbook* (MacKenzie 1991), and more specifically the discussions of traditional and customary rights contained in the two chapters on access rights (Lucas 1991a) and gathering rights (Lucas 1991b);
3. The *Report on Native Hawaiian Traditional and Customary Practices Following the Opinion of the Supreme Court of the State of Hawai'i in Public Access Shoreline Hawaii v. Hawai'i County Planning Commission* prepared by the PASH/Kohanaiki Study Group (1998);
4. The text of several relevant decisions of the Hawai'i Supreme Court, including the decision commonly referred to as the "PASH decision" (1995), and the more recent decisions in State of Hawai'i v. Alapa'i Hanapi (1998) and Ka Pa'akai o Ka 'Aina et al. v. Land Use Commission, State of Hawai'i et al. (2000);
5. The federal regulations of the Advisory Council on Historic Preservation for the *National Register of Historic Places* (CFR 1981) and the *Protection of Historic Properties* (CFR 1986);
6. National Register Bulletin No. 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1990); and
7. Recent versions of the State Historic Preservation Division (SHPD) draft administrative rules, including Chapter 275: *Rules Governing Procedures for Historic Preservation Review for Governmental Projects Covered Under Sections 6E-7 and 6E-8, HRS* (DLNR 2001a), Chapter 284: *Rules Governing Procedures for Historic Preservation Review to Comment on Chapter 6E-42, HRS, Projects* (2001b), and Chapter 284--*Rules Governing Procedures for Ethnographic Inventory Surveys, Treatment of Traditional Cultural Properties, and Historical Data Recovery* (DLNR n.d.).

While the general nature and content of the first four referenced sources are self-explanatory, further comment should be made regarding the final three items. In the absence of any formally adopted administrative rules, SHPD currently utilizes National Register Bulletin No. 38, *Guidelines for Evaluating and Documenting Traditional Cultural Properties* (Parker and King 1990), as its principal source of guidance for reviewing and evaluating the adequacy and acceptability of traditional cultural property study reports prepared in connection with various permit applications for which SHPD regulatory review is required. Bulletin No. 38 provides detailed guidance for the assessment of traditional cultural properties within the framework of the National Register significance criteria evaluation process (NPS 1990).

The SHPD draft administrative rules relating to ethnographic surveys and traditional cultural properties (DLNR n.d.) have existed in finalized draft version since at least early 1997; however, they have never been circulated openly, much less formally provided for public review, comment, and eventual adoption by the Department of Land and Natural Resources. This situation is unfortunate because the draft rules go well beyond National Register Bulletin No. 38 in providing detailed guidance for conducting traditional cultural property studies, and more specifically for dealing with the identification, evaluation, and documentation of native Hawaiian traditional cultural properties and their associated cultural practices and beliefs.

In the absence of any formally adopted administrative rules, SHPD can also be said to basically follow the federal regulations of the Advisory Council on Historic Preservation for guidance in the evaluation of significance—as contained in Section 60.4 ("Criteria for evaluation") of the "National Register of Historic Places" (CFR 1981), and for guidance in the assessment of potential effects—as contained in Section 800.9 ("Criteria of effect and adverse effect") of the "Protection of Historic Properties" (CFR 1986).

The principal sources of information utilized for this study were various individuals identified in the List of Potential Informants (*Table 1*). An effort was made to identify and contact individuals potentially knowledgeable of the project area with regard to traditional cultural properties, traditional and customary cultural practices, and/or contemporary ("neo-traditional") cultural practices. Potentially knowledgeable

Table 1. List of Potential Informants

	Name	Contact			Expertise	Potential	Affiliation
		None	WPK	PHR			
1	Kuulei Alfiche	-	+	-	NH,LC	3R	UHH,HC,LR
2	Kenneth Bell	-	+	-	NH	3	LR
3	Paulo Burns	-	+	-	NH,LC	3R	UHH,HC
4	Richard Cabane	-	+	-	NH	2	LR
5	Mary Fragas	-	+	-	NH	3	LR
6	Kaipo Frias	-	+	-	NH	1R	UHH,LR
7	Arthur Hoke, Jr.	-	+	-	NH	0R	HM,LR
8	Arthur Hoke, III	-	+	-	NH	0R	UHH,LR
9	Larry Kahalepauole	+	-	-	NH	2	LR
10	Pualani Kanahale	-	+	-	NH	1R	EKF,UHH,LR
11	Holly McEldowney	-	-	+	CRS,HDR,HPS	0R	SHPD
12	Mike Larish	-	+	-	LC	3	UHH,HC, LR
13	Pat Layton	-	+	-	NH,LC	3R	UHH,HC
14	James Leonard	-	-	+	PLN	0R	G70,LR
15	Yoshito Hanai Lhote	-	+	-	LC	2R	UHH,HC,LR
16	Gail Makuakane-Lundin	-	+	-	NH	1R	UHH,HLD,LR
17	Kepa Maly	-	+	-	CRS,HDR	1R	KPA,LR
18	Alberta Nathaniel	-	+	-	NH	1R	HCH,LR
19	Eugene Olivera	+	-	-	LC	2	LR
20	Ululani Sherlock	-	+	-	NH,CMR	2R	OHA,LR,PKD,UHH
21	Kalena Silva	-	+	-	NH	0R	UHH,LR
22	Marc Smith	-	-	+	HPS	0R	SHPD,LR
23	Joe Valente	-	+	-	LC	2R	UHH,HC,EKF
24	Jennifer Waipa	-	+	-	NH	2R	UHH,HC,NPS

KEYS

Expertise:	CMR	Community Resource Specialist
	CRS	Cultural Resources Specialist
	HDR	Historical Documentary Researcher
	HPS	Historic Preservation Specialist
	KH	Kumu Hula
	LC	Local Community
	NH	Native Hawaiian
	PLN	Planner
Potential:	0	None
	1	Limited information; possible follow-up contact
	2	Useful information; probable follow-up contact
	3	Good information; definite follow-up; potential formal interview informant
	R	Provided referral(s) to other potential informants and/or information sources
Affiliation:	DLNR	Department of Land and Natural Resources
	EKF	Edith Kanaka'ole Foundation
	G70	Group 70 International, Inc.
	HC	Ho'oikaika Club (UH-Hilo)
	HCH	Haili Church
	HLD	Hawaiian Leadership Development
	HM	Hawai'i Maoli
	KPA	Kumu Pono Associates
	LR	Local Resident
	NPS	National Park Service – Hawaii Volcanoes NP
	OHA	Office of Hawaiian Affairs
	PKD	Prince David Kawanakoa Hawaiian Civic Club
	SHPD	State Historic Preservation Division (DLNR)
	UHH	University of Hawaii at Hilo

individuals were evaluated by means of an initial contact and preliminary interview to determine which—if any—individuals had site-specific knowledge and might be candidates for formal ethnographic interviews.

The Project Team formulated an initial list of potential informants. An attempt was made to identify as many potential informants as possible. This list consists of individuals associated with State agencies, the University of Hawai'i at Hilo, associations, community groups, Hawaiian Civic Clubs, and as well as individuals from a wide number of backgrounds and expertise. Individuals contacted were asked to provide referrals and, based on this networking; the initial contact list was expanded to include 24 individuals. Given the limited time frame, a conscious, good faith effort was made to contact as many people as possible within the local Hawaiian community in the Hilo area. A special effort was made to contact *kūpuna* (elders), other knowledgeable individuals, and cultural practitioners, cultural specialists, teachers, and crafts people.

Additional sources of information consulted were prior archaeological and other reports and maps of the general project area. Of particular use were (a) recent archaeological studies done in connection with the planning for the Pū'ainakō Street Extension Project (Hunt and McDermott 1993, Robins and Spear 1996) and for other projects in the immediate vicinity (Maly et al. 1994, Rechtman and Henry 1998, Spear 1995, and (b) a recent historical documentary and oral history study of the Waiākea Cane Lots area (Maly 1996).

An inclusive final List of Potential Informants contacted for the present study is contained in *Table 1*. Numerous attempts were made to contact everyone on the Potential Informant List. Repeated attempts were made either by phone or through intermediaries. Attempts were made to follow up on all leads that were given. Those people not successfully contacted are indicated as such and their names remain on the list to show the broad spectrum of people for whom contacts were attempted. All informant interviews were done informally by telephone, and written notes were kept; no formal taped interviews were done for this identification study. A previously prepared outline of general informant interview topics was utilized for general interview guidance (see *Appendix A*, at end).

The informants presented here have diverse backgrounds, represent community groups, and include native Hawaiians and individuals of other ethnicities. Their expertise included, but was not limited to, cultural resource specialists, historians, teachers, researchers, community resource specialists, and *kūpuna*. Any potential informant who might have used the area or have specific knowledge of the area was also included in the study. Of the 24 informants included in the final, revised "List of Potential Informants," a total of 22 informants were actually contacted. Six were unable to provide any useful information; five provided limited general and cultural information; and thirteen provided useful information specific to the project area. Several in the latter category also had potential for follow-up and/or interviews. Of the total of 22 potential informants, five of them have good interview potential and are recommended for any follow-up interviews that might be considered.

Following are brief profiles of informants evaluated as knowledgeable individuals and who are recommended as candidates for detailed formal interviews that would record and document further the cultural practices and features associated with the project area at Waiākea. These individuals were selected because of their site-specific knowledge of the area and family ties to the area and/or their use of the area for cultural purposes.

Kenneth Bell – Mr. Bell is of Hawaiian and Caucasian decent. His father, William John Bell, was the superintendent of the Railroad, and Carpentry, and Blacksmith Shops of the Waiākea Mill Company. Mr. Bell has personal knowledge of the field areas and the operations of the Waiākea Railroad System, as he used to ride throughout the cane fields on the trains with his father and friends.

Paulo Burns – Mr. Burns is a resident of Hana, Maui, and a 1996 graduate of UH-Hilo, majoring in Agriculture with a minor in Hawaiian Studies. He currently teaches at Hana School. Mr. Burns was President of the Ho'oikaika Club from 1993 to 1995. Ho'oikaika, which is no longer in existence, was a student club centered on Hawaiian issues. Mr. Burns worked with others to secure an OHA grant to fund historical research and conduct oral history of the area impacted by the proposed development (see Maly 1996).

Mary Fragas – Mrs. Fragas is a local Hilo resident, born in Waiākea. Her father, Samuel Hiwauli Kama'u was a territorial surveyor. As a child growing up in Waiākea, she heard her father and mother

speak about this area of Waiākea, and recalled what her father told her about the area situated below Komohana Street and north of the homes on Pu‘ainakō Street.

Mike Larish – A teacher at UH-Hilo, Hawaii Community College, Mr. Larish was active with the Ho‘oikaika Club members in their research efforts and knows the area very well. He worked very closely with Paulo Burns and others.

Pat Layton – Formerly a night security guard at UH-Hilo, Ms. Layton worked closely with Ho‘oikaika. She is the sister of Frenchy Desoto and very active in Hawaiian issues. Ms. Layson currently resides on Maui.

FINDINGS

The information gathered during informal informant interviews was varied and reflective of the broad cross-section of people interviewed. Interviewee knowledge of the project area indicated past and current land uses were for growing sugar cane, operating a dairy farm, ranching activities, and more recently for contemporary cultural practices.

According to Kenneth Bell, whose father William John Bell was the superintendent of the Railroad, and Carpentry, and Blacksmith Shops of the Waiākea Mill Company, the area was covered with sugarcane and a railroad system utilized for transporting the cane. Subsequent use of the area, according to Mary Kama‘u Fragas, included a dairy operation under a lease by Fairview Dairy, which later transferred its lease to Mrs. Fragas’ uncle, Willam Kama‘u, Sr. Mr. Kama‘u used the land for grazing cattle and keeping horses.

Many of those interviewed were, or had been, involved in contemporary use of a portion of the project area. In 1989, a University of Hawaii-Hilo Campus student conducted a botanical survey of the area, discovering archaeological sites in the process. His find, combined with proposed plans for the Pū‘āinakō Road Extension that would virtually take the road right-of-way through those sites, prompted concerned University students and faculty to respond. Through the Ho‘oikaika Club, their efforts funded a historical documentary study and oral history interviews (see Maly 1996). In their endeavor to *mālama* (“care for”) this place, students, faculty, and *kūpuna* participated in contemporary cultural practices of using the land by propagating and maintaining plants (*kalo*, *ki*, and *niu*) and existing botanicals, and making use of the area as a learning environment. These activities were focused in the southwestern corner of the project area (see *Figure 2*).

While the informal informant interviews produced a range of information relating to general traditional history and land use, traditional place names, and historic period occupation and land use of the inland portions of Hilo town, as well as to contemporary cultural practices, none of the informants had any direct knowledge of any current or recent use of the present assessment study project area by any native Hawaiian cultural practitioners exercising traditional and customary access and use rights for any purposes, or of any specific traditional cultural places within the present assessment study project area.

CONCLUSION

DISCUSSION

The basic objectives of the archaeological assessment survey were to determine (a) the general nature, extent, and potential significance of any archaeological–historical remains that might be present, (b) the historic preservation implications of any such remains for the feasibility of proposed development and land use; and (c) the general scope of work and level of effort for any subsequent archaeological–historic preservation work that might be appropriate and/or required.

An archaeological field inspection of the project area, which consisted of a series of variable intensity pedestrian transects across the project area, was conducted on May 1, 2002. Only the undeveloped portions of the current project area were inspected. Three previously identified sites were relocated, and several new features were identified. In the southern portion of the project area—within and/or immediately adjacent to the Pū‘āinakō Street Realignment/Extension Project Expanded Corridor, three archaeological sites previously identified and recorded in 1993 by Hunt and McDermott (1993) and revisited in 1994-5 by Robbins and Spear (1996) were relocated. These are Sites 18912, 18913, and 18914. The formal functional types within these sites are alignments, terraces, and mounds constructed of stacked and piled boulders and cobbles, and all of the features of the site appear to represent the remains of historic land clearance and associated activities related to sugarcane cultivation.

Based on its review of the Hunt and McDermott (1993) and the Robbins and Spear (1996) survey reports, the State Historic Preservation Division (SHPD) had earlier evaluated site significance and determined appropriate mitigation treatments. While it determined that Site 18913 was not longer significant in terms of SHPD significance evaluation criteria and thus did not need and further work or to be preserved, SHPD did determine that Site 18912 was significant for its information content and should undergo data recovery mitigation work, and that Site 18914 was significant for multiple criteria—both for information content and as a good example of a site type (i.e., representative of plantation-era use that had completely modified an earlier native Hawaiian landscape) and should be preserved for its interpretive development potential.

During the assessment field inspection, three additional historic period features were identified in the central western portion of the project area, near Waiākea Stream. One of these features appeared to be a platform while two were mounds; all three were similar to features described for previously recorded sites, and all three were assigned an historic interpretation and function as being associated with sugarcane cultivation. Another low mound was identified in the northwest portion of the project area, also near Waiākea Stream. This feature was believed to be either a clearing mound, associated with either sugarcane cultivation, or a more recent bulldozer push pile resulting from more recent construction of University buildings and grounds in the immediate vicinity.

The basic objectives of the cultural impact assessment were to determine (a) if the project area is currently being accessed by native Hawaiian cultural practitioners for any traditional and customary cultural uses, (b) if the proposed project would have any adverse impacts upon any identified current native Hawaiian cultural uses of the area, and (c) what measures might be proposed to mitigate any adverse impacts the proposed project might have upon any identified current native Hawaiian uses of the area.

The principal sources of information utilized were various individuals identified as potentially knowledgeable of the project area with regard to traditional cultural properties, traditional and customary cultural practices, and/or contemporary (“neo-traditional”) cultural practices. These individuals had diverse backgrounds, represented community groups, and included native Hawaiians and individuals of other ethnicities, and their expertise included—but was not limited to—cultural resource specialists, historians, teachers, researchers, community resource specialists, and *kūpuna*. Of the 24 individuals included in a final, revised “List of Potential Informants,” a total of 22 informants were actually contacted. Six were unable to provide any useful information; five provided limited general and cultural information; and thirteen provided useful information specific to the project area.

The information gathered during informal informant interviews was varied and reflective of the broad cross-section of people interviewed. Interviewee knowledge of the project area indicated past and current land uses were for growing sugar cane, operating a dairy farm, ranching activities, and more recently for contemporary cultural practices.

While the informal informant interviews produced a range of information relating to general traditional history and land use, traditional place names, and historic period occupation and land use of the inland portions of Hilo town, as well as to contemporary cultural practices, none of the informants had any direct knowledge of any current or recent use of the present assessment study project area by any native Hawaiian cultural practitioners exercising traditional and customary access and use rights for any purposes, or of any specific traditional cultural places within the present assessment study project area.

Many of those interviewed were, or had been, involved in contemporary use of a portion of the project area. These activities were focused in the southwestern corner of the project area. In response to the identification of archaeological sites in the within the corridor of the proposed Pū'āinakō Road Extension, concerned University students and—through the Ho'ōikaika Club—were able to obtain funding for a historical documentary study and oral history interviews (see Maly 1996), and in their endeavor to *mālama* (“care for”) the place, participated in contemporary cultural practices of using the land by propagating and maintaining native Hawaiian cultigens and existing botanicals, and making use of the area as a learning environment.

EVALUATION AND RECOMMENDATIONS

The findings of the archaeological assessment confirmed the earlier determinations of the SHPD regarding the significance of, and appropriate mitigation treatments for, previously identified Sites 18912, 18913, and 18914. No additional information was obtained that might justify any reconsideration of the existing SHPD determinations. With regard to the preservation of Sites 18912 and 18914, it is recommended that the exact location and limits of these two sites be established as soon as possible so that planning for the facilities of the Special Events Complex (building footprints, parking areas, etc.) can take the preservation status of these two sites into account, and any potential spatial conflicts can be identified and resolved.

The four features newly identified during the archaeological assessment field inspection—a platform and two mounds in Area B and a mound in Area—were all judged most likely to be historic period features related to sugarcane cultivation. A preliminary evaluation of significance, done in consultation with SHPD staff archaeologists, indicated that all four were likely significant for their information content only, and that appropriate treatment for them would be to conduct inventory survey-level documentation (i.e., detailed recording). Such recommended documentation would likely provide the basis for an evaluation of not longer significant, and their continued physical preservation would not be required.

The findings of the cultural impact assessment indicated none of the informants consulted had any direct knowledge of any current or recent use of the project area by native Hawaiian cultural practitioners exercising traditional and customary access and use rights for any purposes. Additionally, none of the informants had any direct knowledge of any specific traditional cultural places located with the project area. Based on the results of the cultural impact assessment informant consultations, it can be concluded that the project area is not being accessed by native Hawaiian cultural practitioners for any traditional and customary cultural uses, and that the proposed project would thus have no effects—much less any adverse cultural impacts—upon either the exercise of any native Hawaiian traditional and customary access and use rights or any traditional cultural properties, and therefore no mitigation measures need be proposed.

With regard to the current contemporary cultural use of a small area in the southwestern corner of the project area—largely by UH-Hilo students interested in learning and participating in aspects of traditional Hawaiian culture through propagating and maintaining native Hawaiian cultigens and existing botanicals, and the use of the area as a cultural learning environment—it is recommended that consideration be given to the preservation of the area as an educational facility. Therefore, as previously noted for the two preservation-status archaeological sites, it is recommended that the exact location and limits of this area be established as soon as possible so that planning for the facilities of the Special Events Complex can take the proposed preservation of this area into account, and any potential spatial conflicts can be identified and resolved.

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APPENDIX A

OUTLINE OF GENERAL INFORMANT INTERVIEW CONTENT

Archaeological and Cultural Impact Assessment Study
University of Hawai'i at Hilo Student Life and Events Complex

Technical Study for Chapter 343 Environmental Assessment

Land of Waiākea, South Hilo District
Island of Hawai'i
(TMK: 3-2-4-01:163, Por.167)

General Information

- Full name
- Telephone number
- Current residence and address
- Interview date, time, location
- Other participants

Biographical Information

- Age, birthdate, birthplace
- Immediate family composition
- Education
- Occupation
- Family background: parents, grandparents, residential ties
- Previous residences: childhood to present
- Any additional family background pertinent to informant knowledge

General Sources of Informant Knowledge

Knowledge of Specific Historic/Cultural Properties, Practices, and/or Beliefs

- Name(s) of property/place or area
- Description of property/place or area
 - Present physical characteristics, setting, location, uses
 - Original/prior physical characteristics, setting, location, uses
- Practices or beliefs associated with property/place or area
- Specific sources of informant knowledge
- Individuals, families, and/or groups associated with property/place or area
 - Specific nature of association
 - Time frame/depth and intensity of association

**OUTLINE OF GENERAL INFORMANT INTERVIEW CONTENT
(Continued)**

Perceived Impact(s) of Proposed Uses on Any Properties/Places/Areas, Practices, and/or Beliefs

Possible Mitigation Measures

Any Additional Information to Provide

Any Additional Thoughts or Concerns

Appendix B

Addendum to Archeological and
Cultural Impact Assessment Study



Paul H. Rosendahl, Ph.D., Inc.

Archaeological • Historical • Cultural Resource Management Studies & Services

204 Waiānū Avenue • Hilo, Hawaii 96720 • (808) 969-1763 • FAX (808) 961-6998
P.O. Box 23305 • G.M.F., Guam 96921 • (671) 472-3117 • FAX (671) 472-3131

Proposal No.2634-062606

June 26, 2006

George Atta
Group 70 International
925 Bethel Street, Fifth Floor
Honolulu, Hawaii 96813-4307

Via Email
gatta@group70int.com
(4 pages)

Subject: Additional Archaeological Survey:
Archaeological and Cultural Impact Assessment
Study for Chapter 343 Environmental Assessment (EA)
University of Hawai'i at Hilo – Student Life Complex (Phase I)
Land of Waiākea, South Hilo District
Hawai'i Island (TMK:3-2-4-01:Por.167)

Dear Mr. Atta:

At your request and on behalf of your client, the University of Hawaii at Hilo (UH-H), Paul H. Rosendahl, Ph.D., Inc. (PHRI) proposes to conduct additional archaeological survey and prepare a revised archaeological and cultural impact assessment study for the proposed Student Life Complex (Phase I) at the University of Hawaii at Hilo (UH-H). Located within the Land of Waiākea, South Hilo District, Hawai'i Island (TMK:3-2-4-01:Por.167), the Phase I project site consists of undeveloped State land situated in the old Waiākea Cane Lots section of the town of Hilo; it is a short distance northwest of West Kāwili Street, between an existing gymnasium and the Waiākea Stream flood channel. The proposed work would be done in connection with the preparation of an Environmental Assessment (EA) in compliance with the requirements of *Chapter 343 (Haw.Rev.Stat.)*.

Scope of Work

Based on discussions with Mr. Atta, and with Mr. Mike Godfrey—Project Manager for UH-H, and our familiarity with both the general project area and the current regulatory review requirements of the SHPD and the Hawaii County Planning Department, the following tasks were determined to be appropriate scope of work for the proposed additional archaeological survey and report revision work:

1. Appropriate background literature review and research;
2. Archaeological fieldwork;
3. Data analysis and preparation of written report; and
4. Coordinate and consult with client, client representatives, agency staff, etc.

With regard to the additional archaeological field work and written report—if little or nothing is identified during the fieldwork, then the written report will be prepared to meet SHPD requirements for an archaeological assessment report. However, if archaeological remains of potential significance are identified during fieldwork, appropriate inventory survey

documentation will be completed and written report will be prepared to meet SHPD requirements for an inventory survey report.

Schedule

Tasks No. 1 and 2 would be completed within two to three weeks after receipt of notice to proceed. Upon completion of Tasks No. 1 and 2, an oral progress report will be provided within three working days. Task No. 3, analysis of data and report preparation, would begin upon completion of Tasks No. 1 and 2, and the written report would be submitted within two to three weeks after completion of Tasks No. 1 and 2. The final report would include recommendations for any additional work

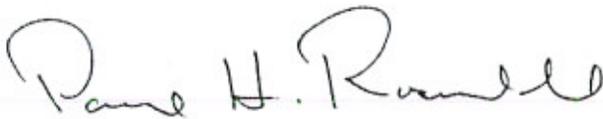
Payment

The maximum not-to-exceed fee for providing the proposed services is \$10,000.00. Costs will be invoiced on a cost-reimbursable basis, with labor costs being charged at current PHRI position rates and non-labor costs being charged at actual costs. Estimated costs range from a minimum of \$5,000.00 if assessment-level work all that is to be required, to the maximum of \$10,000.00 if inventory-level work is found to be required. Costs to date will be invoiced upon completion of fieldwork, with the balance of costs to be invoiced upon submission of the written report.

If our proposal, including the incorporated Standard Conditions, meets with your approval, please have it signed where indicated on the Acceptance Page, and return a signed copy to PHRI. Receipt of the signed Acceptance Page and the required initial payment, as well as any available items called for in Standard Condition No.1, will constitute our formal notice to proceed.

Thank you for the opportunity to provide you with archaeological and historic preservation services. Should you have any questions, or need any further information, please contact me at my Hilo office (808-969-1763).

Sincerely yours,



Paul H. Rosendahl, Ph.D.
President and Principal Archaeologist

Cc: Mike Godfrey – Via Email: godfreymik@msn.com

STANDARD CONDITIONS

1. The client shall provide copies of available (a) aerial photographs and (b) topographic maps of the project area. The client shall also provide other relevant project data, and, if available and at no cost to PHRI, project planning and development data that have been prepared in computer format adaptable to or suitable for Auto-CAD software. do we have these?
2. The client shall obtain and provide PHRI with all necessary rights-of-entry for access to the project area. The client shall also insure that all project area boundaries, including those of the desired residential development area, are clearly marked and/or easily recognizable in the field prior to the beginning of project work. ?
3. Time of completion shall be extended by one working day for each working day lost due to causes beyond the reasonable control of PHRI. ? ok w/ UH?
4. All original project records shall remain the property of PHRI. The client will be provided, upon request and at cost, with copies of any of these original project records. ?
5. PHRI shall [?] retain the right to publish or distribute any scholarly reports or articles based on the data derived directly from the work to be conducted under this proposal, subject only to the condition that no reports or articles shall be released without the written permission of the client unless they are based on information that is already public knowledge. ? check prime.
6. The maximum not-to-exceed fee for services contained within this proposal is based on the specified tasks comprising the scope of work, and does not cover attendance or participation at public meetings or hearings, or any other unspecified public or private consultations or services beyond the specified tasks. If our attendance or participation is requested or required, costs shall be charged for labor (including preparation and travel time, as well as attendance and participation time; to be charged according to the current PHRI position rates), and non-labor expenses (actual costs). 6A?
7. All payments are due within 30 days of invoice date. A late payment penalty of 1.5% per month (18.0% APR) will be charged on overdue balances at the discretion of PHRI. In the event of any default in payment of any invoice, the client agrees to pay all costs of collection, including a reasonable attorney's fee. If the client does not pay the amount owed within 45 days of invoice date, then PHRI may, upon five (5) additional days written notice to the client, stop all project work until payment of all overdue balances has been received. Contract time shall be extended appropriately, and the contract sum shall be increased by the amount of reasonable shutdown, delay, and start-up costs incurred by PHRI. } pay when paid?
8. Once in effect, this agreement may be terminated by either party upon seven (7) days written notice. If this agreement is terminated prior to completion of all project work, the client shall pay PHRI for all expenses incurred prior to the effective date of termination.
9. This proposal is firm for one month. After July 26, 2006, the specific terms of this proposal are subject to possible change.

ACCEPTANCE PAGE

Signed: Paul H. Rosendahl
for Paul H. Rosendahl, Ph.D., Inc.

Position: President and Principal Archaeologist

Date: June 26, 2006

Accepted: _____

Representing: _____

Position: _____

Date: _____

Accepted: _____

Representing: _____

Position: _____

Date: _____

Initial Payment: waived



Paul H. Rosendahl, Ph.D., Inc.

Archaeological • Historical • Cultural Resource Management Studies & Services

224 Waiuanue Avenue • Hilo, Hawai'i 96720 • (808) 969-1763 • FAX (808) 961-6998
P.O. Box 23305 • G.M.F., Guam 96921 • (671) 472-3117 • FAX (671) 472-3131

INVOICE NO.: 2634-072606-1

July 26, 2006
06-2634

INVOICE

TO: Group 70 International
925 Bethel Street, Fifth Floor
Honolulu, Hi 96813-4307
George Atta

Email:
gatta@group70int.com

FOR: Additional Archaeological Survey
Archaeological and Cultural Impact Assessment
Study for Chapter 343 Environmental Assessment (EA)
University of Hawaii at Hilo - Student Life Complex (Phase I)
Land of Waiakea, S. Hilo District
Hawaii Island (TMK:3-2-01:Por.167)



DUE PHRI: \$ 3,565.42

Yolanda K. Statler

Yolanda K. Statler
Corporate Secretary

LABOR COSTS:

\$ 3,322.83

POSITION	EMPLOYEE NAME	POSITION RATES	TOTAL HOURS	TOTAL \$
Prin Arch	Rosendahl	228.80	2.00	\$ 457.60
Prj Super	Corbin	64.35	22.00	\$ 1,415.70
Editor/Arch	Kubo	68.75	15.00	\$ 1,031.25
Draftsperson	Armstrong	42.90	9.75	\$ 418.28
			48.75	\$ 3,322.83

Employee	Date	Description	Hours
Rosendahl	07/10/06	Prj prep and meeting	1.00
Rosendahl	07/14/06	Revu report	1.00
Rosendahl Total			2.00
Corbin	07/10/06	Pre-field and meeting	1.00
Corbin	07/11/06	Fieldwork	8.00
Corbin	07/12/06	Report Writing	8.00
Corbin	07/13/06	Report Writing	5.00
Corbin Total			22.00
Kubo	07/11/06	Fieldwork	8.00
Kubo	07/13/06	Editing	4.00
Kubo	07/14/06	Produce, letter, mail	3.00
Kubo Total			15.00
Armstrong	07/13/06	drafting	5.75
Armstrong	07/14/06	drafting, revisions, production	4.00
Armstrong Total			9.75
Grand Total			48.75

NON-LABOR COSTS (copies attached)

Auto Rental 7/11/06	50.00	\$	100.00
Hawaii Historic Preservation Special Fund	50.00		

HAWAII GENERAL EXCISE TAX (4.166%):

	\$	142.59
DUE PHRI:	\$	3,565.42

PLEASE SEND CHECKS TO:
PAUL H. ROSENDAHL, PH.D., INC.
224 WAIUANUE AVENUE
HILO, HI 96720

IF PAYING BY ELECTRONIC TRANSFER:
PAUL H. ROSENDAHL, PH.D., INC.
FIRST HAWAIIAN BANK
ROUTING NO. 121301015
CHECKING: 20-059923



Date: July 14, 2006

Submittal Sheet for Historic Preservation Review Filing Fees

State Historic Preservation Division
601 Kamokila Blvd., #555, Kapolei, Hawaii 96707

2634
2005 JUL 14 1:26

Agency/Firm (Requesting Review): Paul H. Rosendahl, Ph.D., Inc. (PHRI)

Contact: Paul H. Rosendahl, Ph.D.
Phone: 808-969-1763 Fax: 808-961-8998 B-Mail: phriphr@interpac.net
Address: 224 Waiarunui Avenue, Hilo, Hawaii 96720

Title of Report/Plan: Arch. Assess. for SHPD Determination of No Historic Properties Applicant: "University of Hawaii" at Hilo Student Life Complex (PHRI Report 2634-071306)

Island: Hawaii District: S. Hilo Ahupua'a: Waialeale
TMK (1) 1-1-001-001: 3-2-4-01: Por 167

Submitted Plan/Report Fee & Type: (All reports or plans submitted to the SHPD for review shall be accompanied by the appropriate fee in accordance with HAR §13-275-4 and §284-4).

	Indicate here (X) if report is a re-submittal (no fee charged)
<input checked="" type="checkbox"/> \$50	Archaeological Assessment
<input type="checkbox"/> \$150	Archaeological Inventory Survey Plan
<input type="checkbox"/> \$450	Archaeological, Architectural or Ethnographic Survey Report
<input type="checkbox"/> \$150	Preservation Plan
<input type="checkbox"/> \$25	Monitoring Plan
<input type="checkbox"/> \$150	Archaeological Data Recovery Plan
<input type="checkbox"/> \$250	Burial Treatment Plan
<input type="checkbox"/> \$100	Archaeological Monitoring Report, if resources reported
<input type="checkbox"/> \$450	Archaeological Data Recovery Report
<input type="checkbox"/> \$450	Ethnographic Documentation Report
<input type="checkbox"/> \$25	Burial Disinterment Report
<input type="checkbox"/> \$50	Osteological Analysis Report

Fee Total: \$ 50.00 Make check payable to "Hawaii's Historic Preservation Special Fund." A service charge of \$15 will be assessed on all dishonored checks pursuant to HRS §40-35.5. A copy of this form will be mailed or faxed back to you and will serve as your receipt.

For Office Use Only:

Date Received: <u>JUL 19 2006</u>	Receipt No.: <u>1685</u>
Log. No.: <u>2006-2581</u>	Payment Method: <u>Cash \$50.00</u>
	Check: <input checked="" type="checkbox"/> Check No.: <u>24617</u>
	Receipt issued by: <u>S. Rosendahl</u>
	Treasury Deposit Receipt No. <u>✓</u>

Public Comment Due: Aug 20, 2006
Review Due: Sept 2, 2006

PAUL H. ROSENDAHL, PH.D., INC. (PHRI)
224 WAIARUNUI AVENUE
HILO, HI 96720
(808) 969-1763

FIRST HAWAIIAN BANK
HILO, HI 96720
88-1017013

24

07/14/2006

PAY TO THE ORDER OF Hawaii's Historic Preservation Special Fund \$ 50.00

*** Fifty and no/100 ***

DOLLAR

Rishi



Paul H. Rosendahl, Ph.D., Inc.

Archaeological • Historical • Cultural Resource Management Studies & Services

224 Waiianuenu Avenue • Hilo, Hawai'i 96720 • (808) 969-1763 • FAX (808) 961-6998
P.O. Box 23305 • G.M.F., Guam 96921 • (671) 472-3117 • FAX (671) 472-3131

July 14, 2006
Project 2634

Melanie Chinen, Administrator
State Historic Preservation Division
Kakuhihewa Building, Room 555
601 Kamokila Boulevard
Kapolei, Hawai'i 96707

Subject: *Submission of PHRI Report 2634-071306
Archaeological Assessment Survey for SHPD Determination
of "No Historic Properties Affected"
University of Hawai'i at Hilo Student Life Complex
Land of Wa'iākea, South Hilo District
Island of Hawai'i (TMK:3-2-4-01:Por.167)*

Dear Ms. Chinen:

On behalf of our client, Group 70 International, enclosed for your review and comment is PHRI Report 2634-071306, for an archaeological assessment survey conducted at the University of Hawai'i at Hilo.

If you have any questions, please call me at our Hilo office, (808) 969-1763.

Sincerely yours,

Paul H. Rosendahl, Ph.D.
President and Principal
Archaeologist

*Encl: One bound copy of PHRI Report 2634-071306
SHPD Filing Form and Fee for Historic Preservation Review*

*cc: Julie Taomia, Ph.D. - SHPD Kona office, with one bound copy of report
R. Michael Godfrey, P.E.*

INTER-OFFICE PAYMENT REQUEST

PAYABLE TO:	<u>PHRI</u>	PRJ #:	<u>06-2634</u>
DATE:	<u>7/11/2006</u>	AMOUNT:	<u>\$ 50.00</u>

DESCRIPTION: Rental of PHRI auto
1 day x \$50.00/day
Fieldwork performed by Corbin and Kubo

Appendix C

Preliminary Traffic Assessment

**Preliminary Traffic Assessment
for a Proposed
Multi-Purpose Sports and Recreational Complex
at the University of Hawaii at Hilo**

By:

**M&E Pacific, Inc.
100 Pauahi Street, Suite 212
Hilo, Hawaii 96720
Telephone: (808)961-2776
Fax: (808)935-5934**

December 17, 1999

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**PRELIMINARY TRAFFIC ASSESSMENT
FOR A PROPOSED
MULTI-PURPOSE SPORTS AND RECREATIONAL COMPLEX
AT THE UNIVERSITY OF HAWAII AT HILO**

The University of Hawaii at Hilo is studying the feasibility of having a multi-purpose sports and recreational complex on its campus. This preliminary traffic assessment study was undertaken to determine the anticipated traffic impacts and possible mitigating actions for the proposal.

PROJECT DESCRIPTION

The University of Hawaii at Hilo (UHH) is in the process of determining the functional and space requirements for a large multi-purpose sports and recreational complex. Based on input from its faculty, staff and students, and community representatives, they have identified a wide range of functions for the proposed facility. Some of the proposed components include basketball courts for competition and practice, indoor baseball batting cages, indoor golf tees and driving stations, indoor soccer with spectator seating, outdoor pool with spectator seating, indoor and outdoor tennis courts with spectator seating, volleyball courts for competition and practice, indoor running path, martial arts/gymnastics/dance space, weight training room, seven locker/shower/toilet rooms, training rooms, limited classroom and computer lab space, a large conference room, coaches' offices, spectator seating for 10,000, retail and concession space, and restrooms for spectators. Several of these functions would occur in the same space such as volleyball and basketball in different seasons. Also, some of the courts would be available only when the retractable seating was collapsed. The size of the building needed to accommodate these activities has not yet been determined.

The southwest corner of the UHH campus has been tentatively identified as the project site. There are several athletic facilities currently in this area including the baseball

fields and tennis courts. Other facilities in the area include a parking lot and dormitory housing, as shown schematically on Figure 1. The proposed facility would be built next to the baseball stadium and on the existing tennis courts. The site is near the intersection of West Kawili Street and Puainako Street.

The transportation infrastructure requirements for this facility have not yet been fully determined. The exact number of parking stalls would meet County code requirements but is expected to be on the order of 1200 stalls. It would occupy a large area south of the baseball field and west of the dormitories. Due to the distance of the proposed parking lot from the main campus, it is expected to be used primarily for athletic events only. The existing parking lots are adequate to serve the parking needs of the day school and few day students are expected to use the proposed lot. Several vehicular access routes to this parking area have been proposed. Two would be from the proposed Puainako Street Extension and one from West Kawili Street, as shown on Figure 1.

The University has just begun its feasibility study and has not programmed future funds for design and construction. It will take about five years to complete the project if it is put on a fast track. A 2005 time frame was used for the purposes of this study.

STUDY FOCUS

The purpose of this study was to determine the feasibility of the proposal's transportation component at this initial stage of study. Since the parking lot is expected to be used primarily for athletic competition events, its primary traffic impacts are expected to be outside the traditional morning and afternoon peak traffic periods. Athletic events are expected to be held in the early weekday evenings and on weekends. Hence, this study quantitatively analyzed before game conditions on a late afternoon weekday evening and qualitatively analyzed conditions later at night when the athletic event ended.

The study focused on two key intersections along the proposed Puainako Street Extension, West Kawili Street and Komohana Street. These two intersections are to the west and east of the major access points to the proposed parking lot.

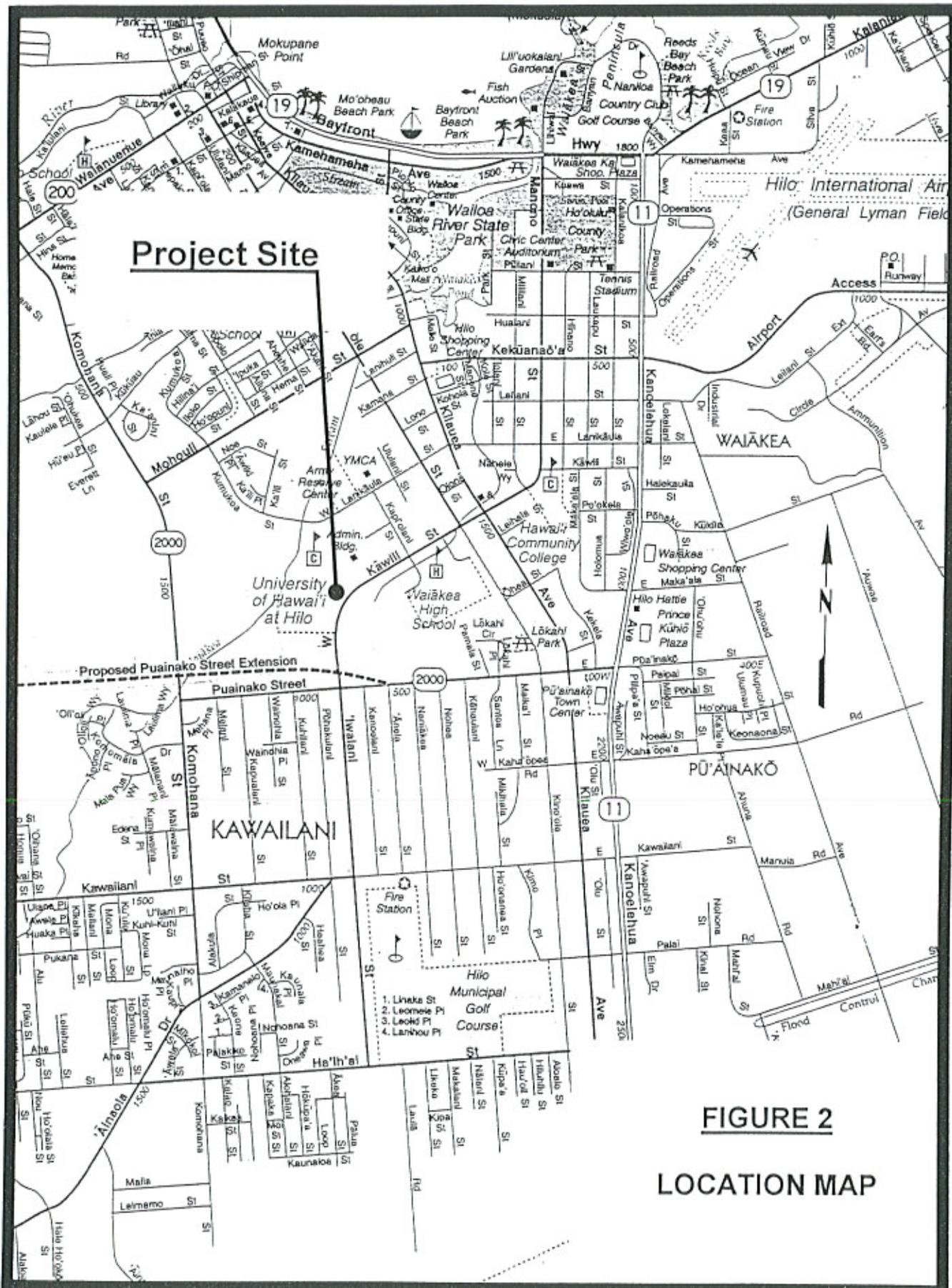
EXISTING TRANSPORTATION CONDITIONS

The UHH campus is located about two miles south of downtown Hilo. It is generally bounded by West Kawili Street on the east, Kumukoa Street/West Lanikaula Street on the north, Puainako Street on the south, and Komohana Street on the east. The main campus is along West Kawili Street, which has several access points to the campus. The campus and its surrounding roadway network are identified on Figure 2.

The Waiakea Stream flood control channel forms a major barrier through the campus, essentially splitting the school into separate west and east campuses. The east campus has the main facilities while the west campus is developing into a research park. A new roadway and bridge structure are currently being built that will straddle the drainage channel and provide access between Komohana Street and West Kawili Street. However, the roadway design has a plaza feature which will discourage through campus trips on this roadway.

West Kawili Street is a two lane collector roadway running in a generally north-south alignment, although it curves eastward along its boundary with the campus. The campus is west of the roadway while the east side of the roadway is generally undeveloped. West Kawili Street intersects Puainako Street on its south end and continues on to Kinoole Street and Kilauea Avenue to the northeast. The roadway changes its name to Iwalani Street south of Puainako Street.

Puainako Street is on an east-west alignment that begins at Kanoelehua Avenue on the east and terminates at Komohana Street on the west. It is a two lane collector road that has several areas of restricted sight distance due to rolling vertical curves. Its four-way intersection with West Kawili Street is signalized. The intersection with Komohana Street ends as a stop sign-controlled T. As discussed in a later section, this section of



Project Site

FIGURE 2

LOCATION MAP

Puainako Street is expected to become a local street with the completion of the Puainako Street Extension project.

Komohana Street is a north-south roadway along the west boundary of the campus. This two-lane roadway begins at Waianuenu Avenue to the north and continues south past Haihai Street. Nawelo Street was recently built and intersects Komohana Street between Puainako Street and Moholui Street. This new roadway serves the west campus which is developing into a research park. A bridge structure crosses the Waiakea Stream and connects Nawelo Street to the east campus roadway system. However, as noted previously, a plaza design will discourage east campus traffic from using Nawelo Street.

Traffic counts were taken at several area intersections to determine existing traffic conditions during the late afternoon after the commuter peak hour. Traffic counts were taken at the Puainako Street and West Kawili Street/Iwalani Street intersection and at the mauka driveway to the UHH campus on West Kawili Street on November 16, 1999, from 4:00 to 6:00 PM. These counts were taken later than normal to obtain traffic information after the commuter peak. The Komohana Street intersection with Puainako Street was counted on June 8, 1999, from 3:30 to 5:30 PM as part another study. This traffic count was taken during the regular counting period. The results from the last hour of these traffic counts are shown on Figure 3. The worksheets of the traffic counts are included in the Appendix.

PROPOSED CONDITIONS

Two major changes have been proposed in the vicinity of the project site, one land use and one roadway improvement.

The UHH China-U.S. Center has been proposed for the 36 acre undeveloped parcel across West Kawili Street from the UHH campus. This center would include a 500 bed dormitory; a 100 unit college inn/hotel; a conference center with a 250 seat auditorium, conference rooms (10,000 s.f.), offices/classrooms (20,000 s.f.); and a commercial

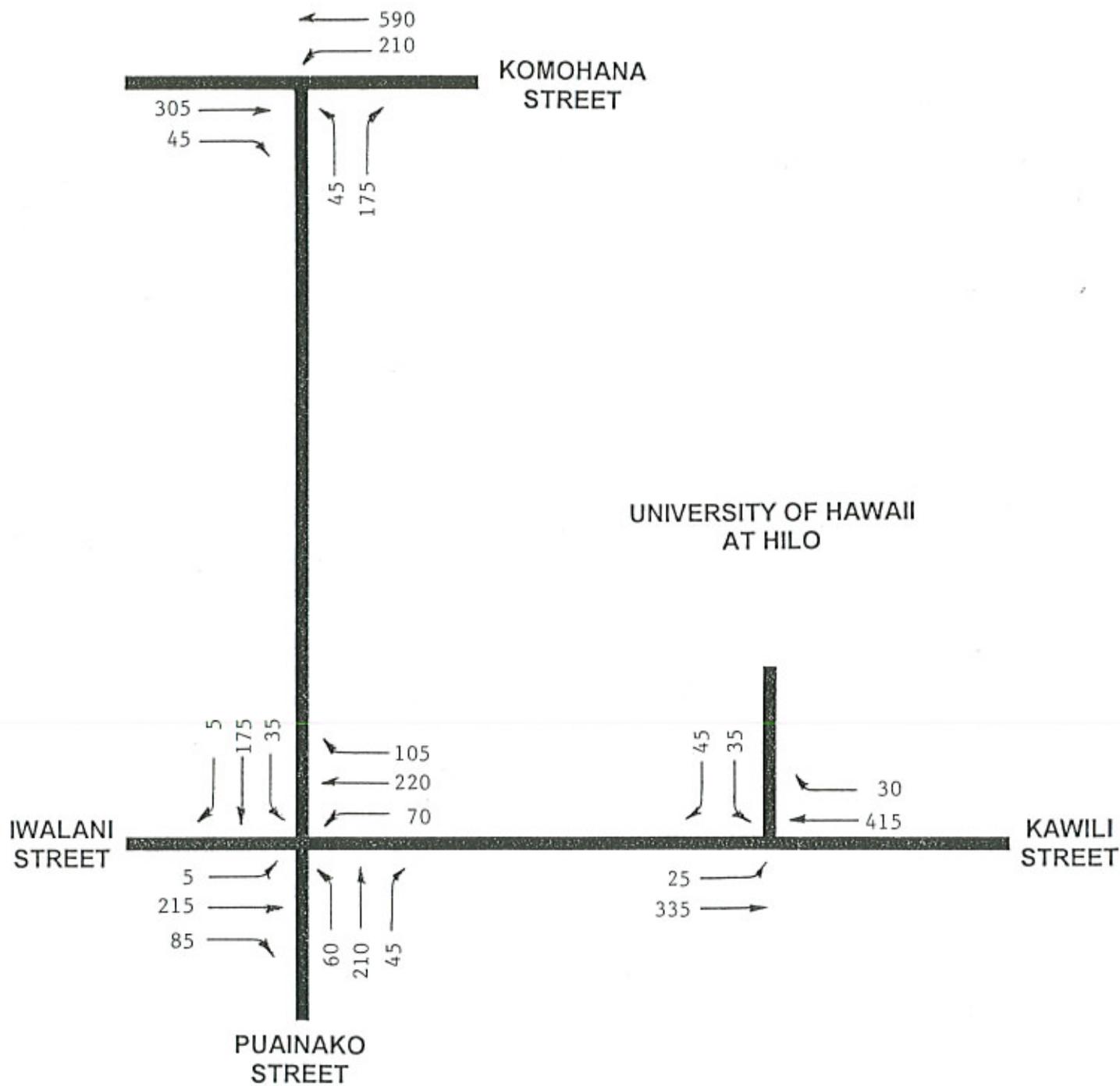


FIGURE 3

EXISTING LATE AFTERNOON TRAFFIC VOLUMES

plaza (65,000 s.f.). The dormitory would be for UHH students while the inn would primarily support conference activities. A schematic of the proposal is shown on Figure 4.

The Puainako Street Extension is currently under design and is expected to be operational within five years. According to the Traffic Impact Analysis Report for the Proposed Puainako Street Extension (February 1997) prepared by the Traffic Management Consultant, this proposed four-lane, divided roadway will provide a direct link between Kanoelehua Avenue and Kaumana. This project would involve widening of the existing Puainako Street between Kilauea Avenue and Anela Street; its realignment between Anela Street and Komohana Street; and a new two lane roadway from Komohana Street to Kaumana Drive, as shown on Figure 2. Its alignment between West Kawili Street and Komohana Street would be north of the existing Puainako Street and would be between the residences on Puainako Street and the UHH dormitory complex. This existing section of Puainako Street would become a local road serving the residents along the roadway.

The year 2020 PM peak hour traffic forecasts and the recommended laneage at the two intersections are shown on Figure 5. This improvement will substantially increase the traffic on Puainako Street and upgrade it from a collector street to a lower class arterial.

The study recommended many supporting roadway improvements. Exclusive left turn lanes were recommended at all approaches of the Puainako Street Extension. Komohana Street was recommended to be widened to four lanes with exclusive left turn lanes on the approaches to the proposed Extension. The West Kawili Street approaches to the Puainako Street Extension were recommended to be widened to four lanes with exclusive left turn lanes. However, the former roadway would return to a two lane width in front of the UHH campus and at Iwalani Street. The realigned Puainako Street Extension and all the recommended improvements were assumed to be in place for the purposes of this study. The proposed sports complex parking area will not be feasible without this new roadway. Vehicles using the parking lot will not be

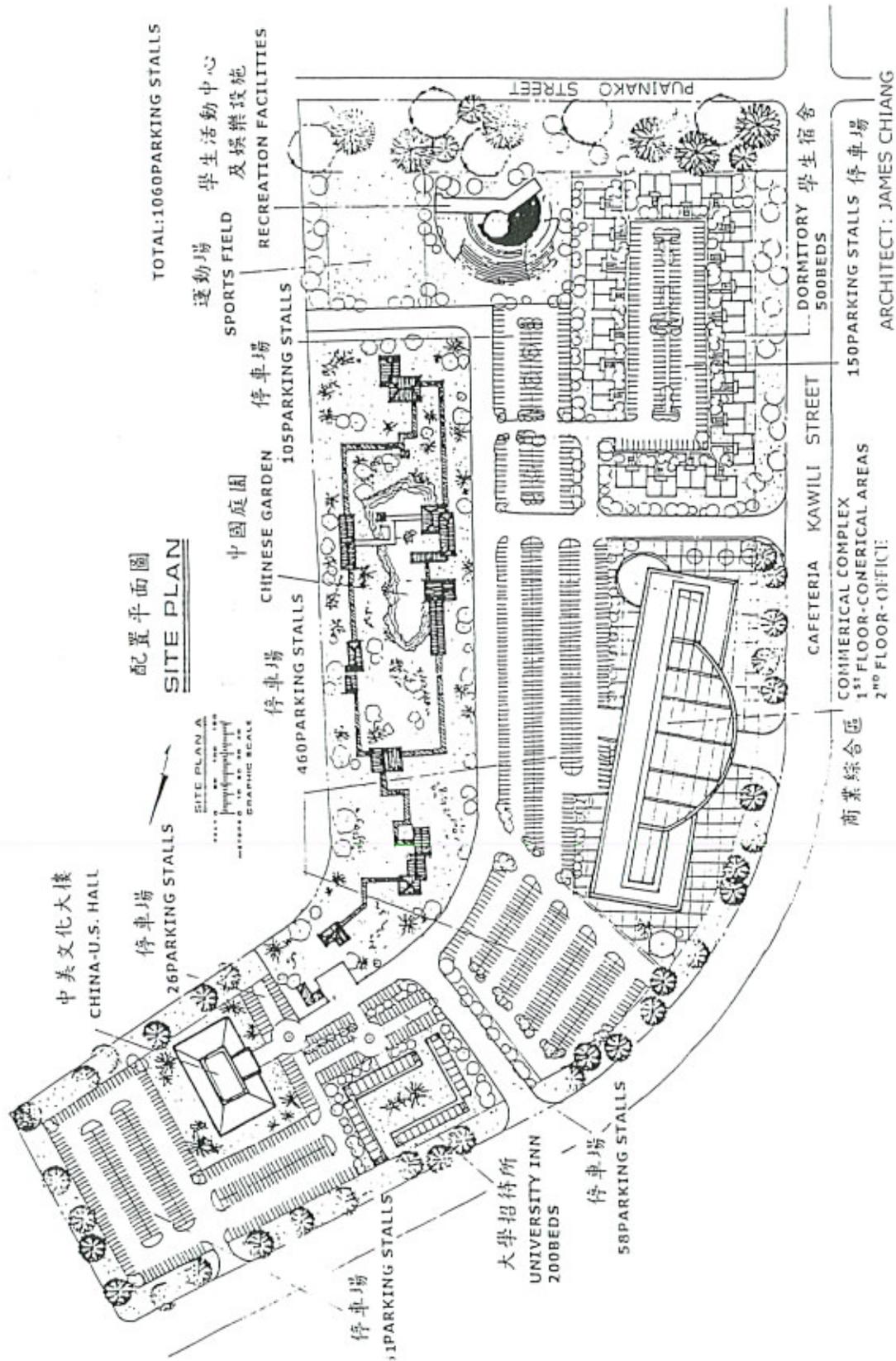


FIGURE 4

PROPOSED UHH CHINA-U.S. CENTER

able to access the current Puainako Street due to the residential houses along the north side of the roadway.

TRAFFIC FORECAST

Both the realigned roadway and the sporting complex we assumed to be ready by the year 2005 for the purposes of this study. A forecast of late afternoon traffic conditions was made to consider the impact of the proposed land use changes on the new roadway network.

The ambient traffic forecast for a late weekday afternoon hour in 2005 is shown on Figure 6. The ambient traffic is the traffic which can be expected without the proposed athletic complex. The ambient traffic forecast was obtained by interpolating the existing traffic volumes on Figure 3 with the year 2020 volumes on Figure 5. The peak hour volumes on Figure 5 and at the Puainako Street/Komohana Street intersection of Figure 3 were multiplied by 85% to convert them from peak hour to late afternoon volumes. Traffic counts taken by the State Department of Transportation at Dole Street near the University of Hawaii at Manoa indicates that the 5:00 to 6:00 PM volumes are about 85% of the peak hour volumes.

The land use forecast assumptions used to develop the Puainako Street Extension forecasts in the forementioned TIAR are not specifically stated, but were assumed not to include the proposed China-U.S. Center. The traffic which can be expected to be generated by the proposed center was calculated using the traditional three step trip generation, distribution and assignment procedure. The trip generation step forecasts the number of new trips the proposed project is expected to produce in the analysis hour. The trip distribution step allocates these new trips by direction of travel. Finally, the trip assignment step assigns the project generated trips to specific turning movements on the roadway system.

The traffic generation rates from the Institute of Transportation Engineers Trip Generation (Fourth Edition, 1987) were used to calculate the number of trips that would

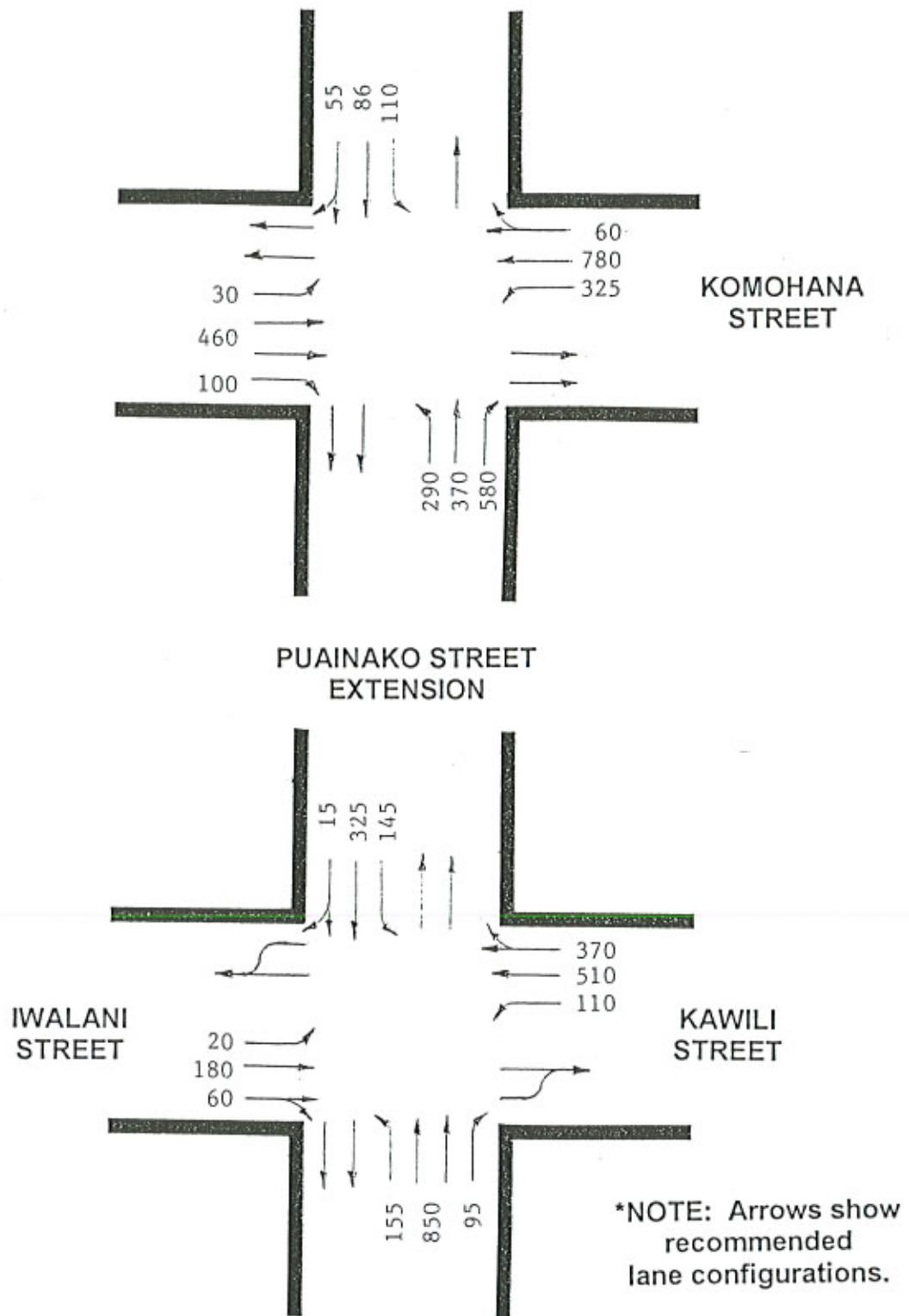


FIGURE 5

2020 PM PEAK HOUR FORECAST VOLUMES

Source: Traffic Management Consultant, Traffic Impact Analysis Report for the Proposed Puainako Street Extension (February 1997)

be generated by the proposed project. Since the handbook did not have trip rates for college dormitories and college inns, rates for low rise apartment buildings and all-suite hotels were respectively used instead. The rate for a shopping center less than 175,000 s.f. was used for the commercial complex. These rates were then reduced 15% to account for the late afternoon hour. The conference complex was not expected to be a major traffic generator and was not included. This is a reasonable assumption given the small number of trips that enter and leave the UHH campus driveway in the late afternoon, as shown on Figure 3.

The trip generation analysis is summarized below:

100 room university inn x 0.367 trips/room = 37 trips
125 unit dormitory x 0.58 trips/unit = 72 trips
65,000 sf commercial plaza = 410 trips.

It was assumed that two-thirds of the trips to the commercial plaza were bypass trips, traffic already on Kawili Street that turned into the center and then returned to the roadway. These trips would not add new traffic volumes to Kawili Street since they were already on the roadway. The net additional trips added to Kawili Street from the commercial plaza were 65 trips an hour.

The trips generated by these three uses in the proposed China-U.S. enter were then combined and distributed to the roadway system. The assignment of these trips is shown on Figure 6.

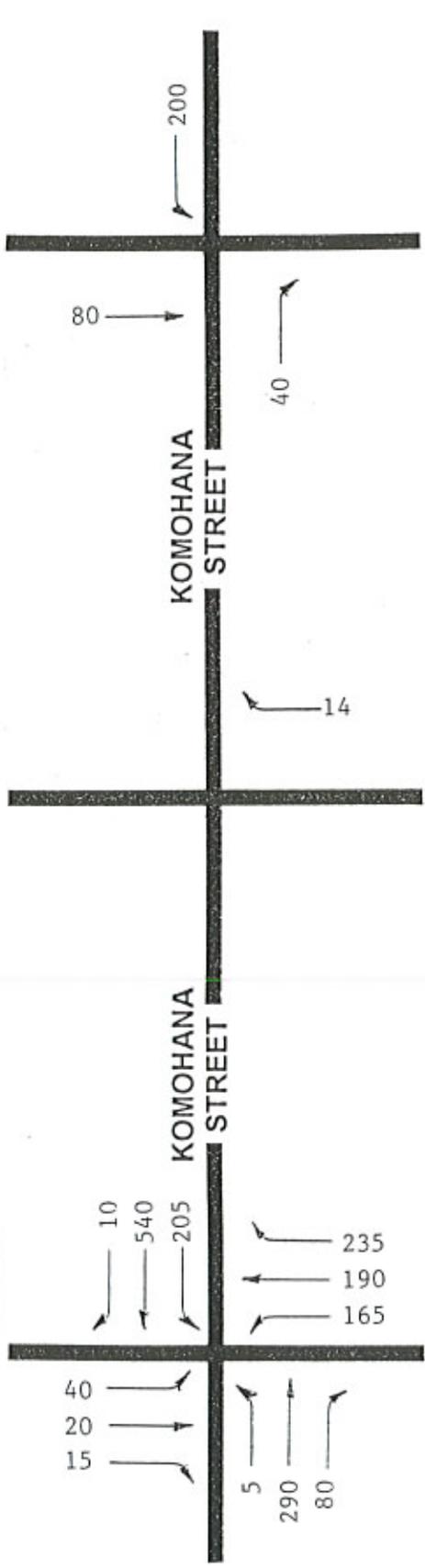
Finally, the traffic which can be expected from the proposed sports complex was calculated. Since the parking lot is expected to be about 1200 stalls, it was expected that about 800 vehicles would arrive during the analysis hour. These trips were distributed to the following origin sources:

- o from Puainako Street, east 35% - 280 trips
- o from Puainako Street, west 10% - 80 trips
- o from Komohana Street, north 25% - 200 trips
- o from Komohana Street, south 5% - 40 trips

EVENT GENERATED TRAFFIC

CHINA-U.S. CENTER GENERATED TRAFFIC

AMBIENT TRAFFIC



PUAINAKO STREET EXTENSION

PUAINAKO STREET EXTENSION

PUAINAKO STREET EXTENSION

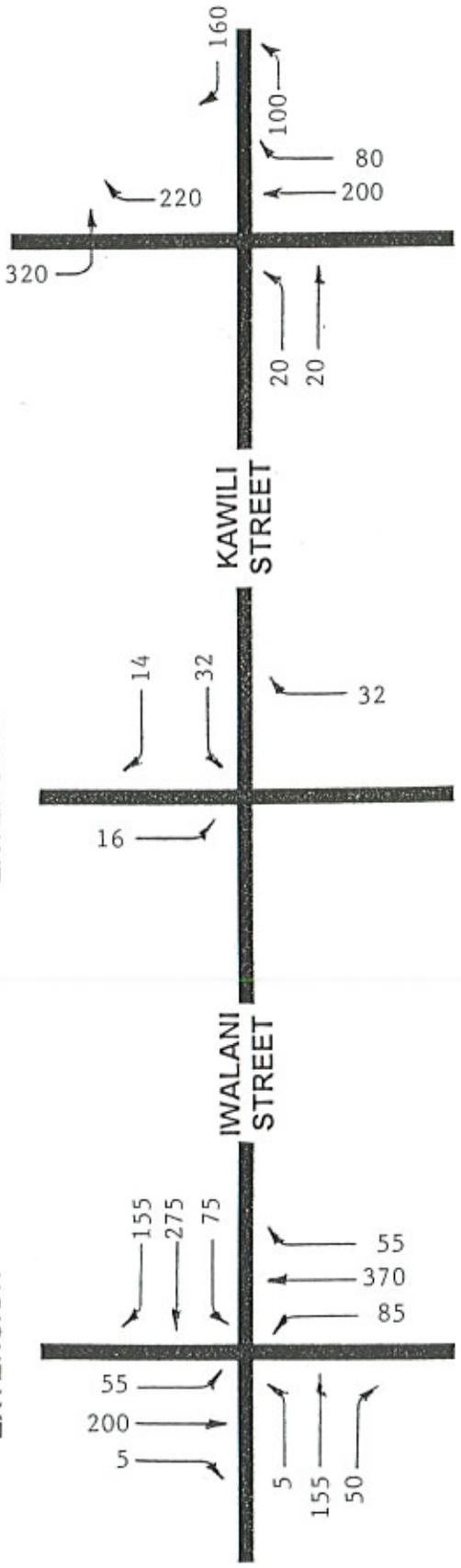


FIGURE 6

COMPONENTS OF 2005 FORECAST TRAFFIC VOLUMES

- o from Kawili Street, north 20% - 160 trips
- o from Iwalani Steet, south 5% - 40 trips

The assignment of these trips to the street system is shown on Figure 6.

The ambient traffic, China-US Center, and sports complex volumes were combined and are shown on Figure 7.

LATE AFTERNOON TRAFFIC ANALYSIS

A traffic level of service analysis was conducted on the late afternoon traffic forecast shown on Figure 7 to determine the cumulative traffic impact of the proposed projects. The methodology for analyzing signalized intersections from the TRB Highway Capacity Manual, Special Report 209 (Third Edition, 1994) was utilized. This methodology calculates levels of service for the through and turning lanes on each approach, the approach as a whole, and the entire intersection, based on travel delays. The methodology is summarized in the Appendix. Levels of service A to B are considered very acceptable, levels of service C and D are acceptable, level of service E is unacceptable, and level of service F is very unacceptable and implies the need for corrective actions.

The analysis indicated that both intersections would be operating at level of service B for the assumed roadway conditions and the traffic volumes. The worksheets for these analyses are included in the Appendix. This indicates very desirable traffic conditions during the late afternoon when fans would be arriving for the athletic event. It also indicates that special traffic controls would not be required. However, traffic backups will take place depending on how peaked the arrivals are. There are several mitigating measures which should be in place for athletic events, particularly well attended events:

1. Detailed ingress traffic control plans will need to be developed for different attendance levels and refined through experience. Parking lot attendants should

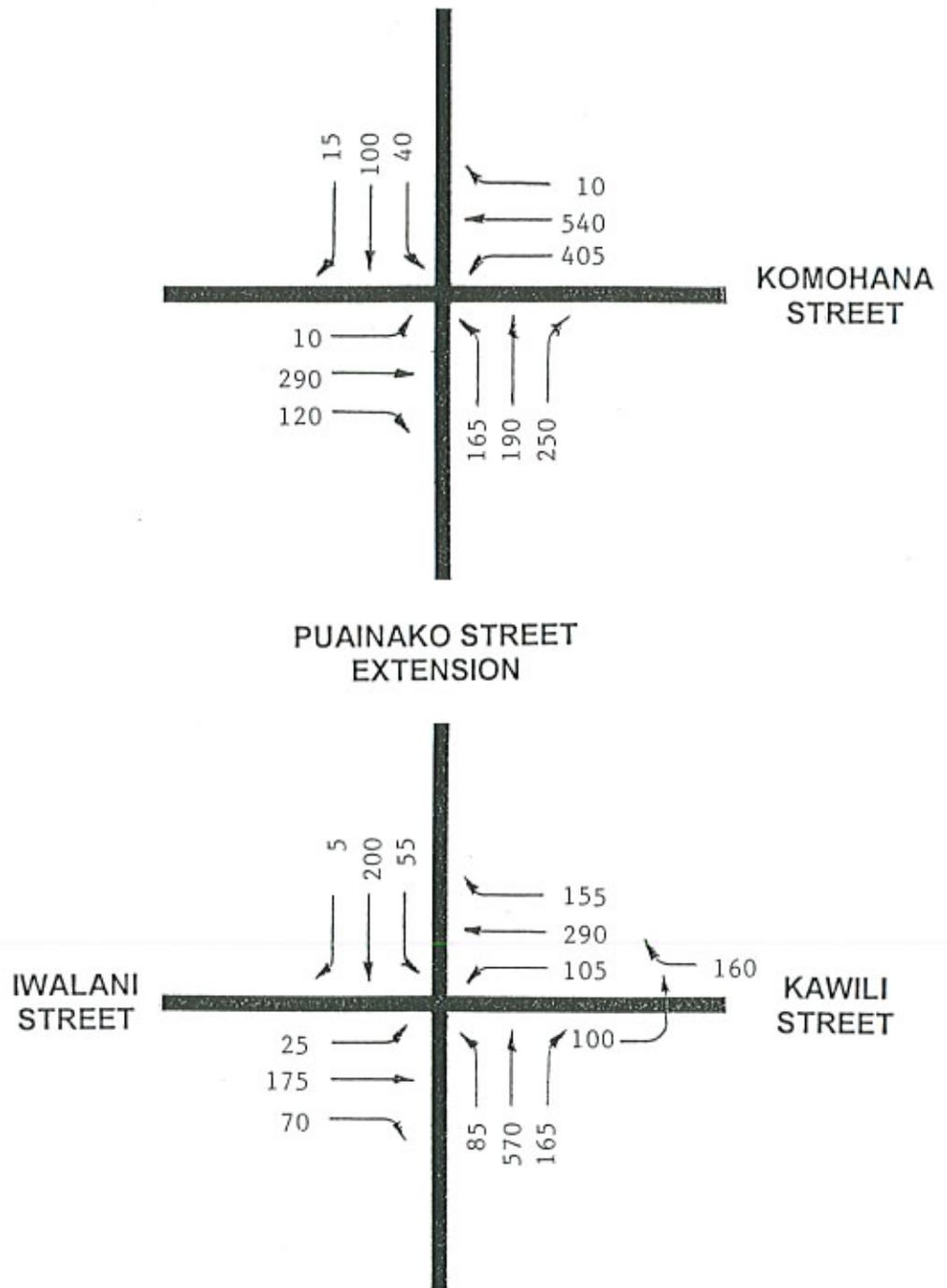


FIGURE 7

2005 LATE PM PEAK FORECAST TRAFFIC VOLUMES

be available to guide drivers into the parking areas. For very large events, traffic officers may need to be stationed at the driveway entrances.

2. Left turn lanes should be provided at the access driveways on Puainako Street Extension and on Kawili Street. The left turn lanes on Puainako Street Extension could be built in the median. A future detailed study may indicate the need for a right turn lane into one of the access driveways on Puainako Street Extension.
3. In the event that Komohana Street is not immediately widened, an exclusive left turn lane should be added to the Komohana Street approach to Puainako Street Extension to accommodate the large number of left turn movements expected. For the same reason, in the event that the Puainako Street Extension and Komohana Street intersection is not immediately signalized, a traffic officer should be stationed at it to handle the before game traffic.
4. Two access driveways to Puainako Street Extension are recommended. One could serve as a backup in case the other was blocked for some reason. And for very large events, each driveway could be made to exclusively handle traffic from their direction. The west driveway would handle traffic from the west and the east driveway would handle traffic from the east. Adding a second egress lane to a driveway would not double the outflow rate but can be expected to increase capacity by 50 to 80%. If a second lane is added, careful planning will be required to minimize traffic conflicts at the street merge.
5. Traffic ingress rates will be slowed considerably if parking charges were implemented. Then multiple entry lanes would be required.

LATE EVENING TRAFFIC ANALYSIS

Most weekday events are expected to end late in the evening when traffic volumes on the roadways are light. However, special traffic controls will be required to handle the

surge in traffic, and to allow traffic to leave in an orderly manner and reasonable length of time. Detailed egress traffic control plans will need to be developed and refined through experience.

The following analysis provides an optimistic estimate of the length of time which would be required to clear a full parking lot:

Assumptions

1. Three exit driveways available, two on Puainako Street Extension and one on Kawili Street.
2. Exit rate of 1500 vehicles per hour per driveway.
3. Parking lot size of 1200 stalls

Calculation

$$3 \text{ exits} \times \frac{1200 \text{ vehicles}}{1500 \text{ vehicles/hour}} \times \frac{60 \text{ minutes}}{\text{hour}} = 16 \text{ minutes}$$

Result

Sixteen (16) minutes is considered to be a reasonable length of time to clear a large parking lot, especially in a small town environment where people may be less tolerant of waiting in traffic. A more reasonable estimate may be on the order of 20 minutes.

To facilitate vehicular exit, particularly for large events, specific movements could be assigned to each driveway. For example, only right turns could be made from the west exit driveway to Puainako Street Extension, only left turns could be made from the east exit driveway to Puainako Street Extension, and only left turns could be made from the exit driveway to Kawili Street. This would minimize traffic conflicts and maximize traffic flow.

Traffic officers may be required at the Puainako Street Extension and Kawili Street intersection if the traffic signal phasing cannot be changed to accommodate the surge of traffic.

CONCLUSIONS

The above preliminary analysis indicated that there would be desirable traffic conditions at the start of athletic events at the proposed athletic complex if the Puainako Street Extension is built as recommended. However, detailed traffic control plans will have to be developed and refined to facilitate vehicular flow into and out of the parking lot. Several mitigating measures are recommended to facilitate ingress and egress traffic flow:

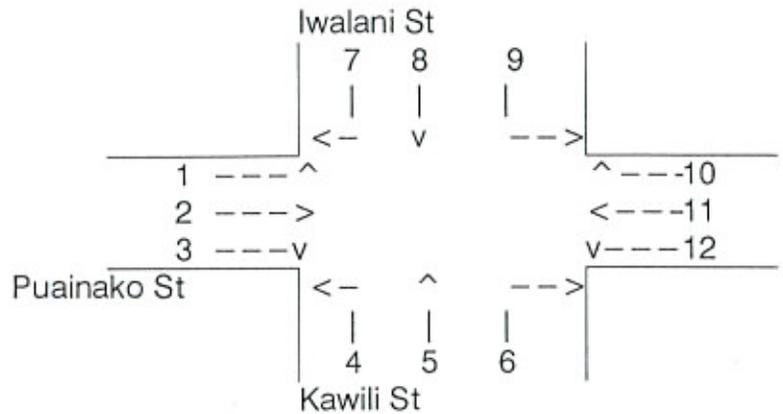
1. Left turn lanes on Puainako Street Extension and Kawili Street at the parking lot access driveways.
2. If Komohana Street at Puainako Street Extension is not widened and the intersection not signalized as recommended, then an exclusive left turn lane should be added on Komohana Street. A traffic officer may be required before games to direct traffic at this intersection.
3. There should be a minimum of two access driveways on Puainako Street Extension and one on Komohana Street. Assigning specific ingress and egress traffic movements to each driveway may be necessary for large events. Certain movements that would conflict with these assigned movements will have to be prohibited. This would require parking attendants or traffic officers to implement.
4. Traffic officers may be required at the Puainako Street Extension and Kawili Street intersection after the game.

APPENDIX A

TRAFFIC TURNING MOVEMENT COUNTS

TRAFFIC TURNING MOVEMENT COUNT
UHH ATHLETIC COMPLEX

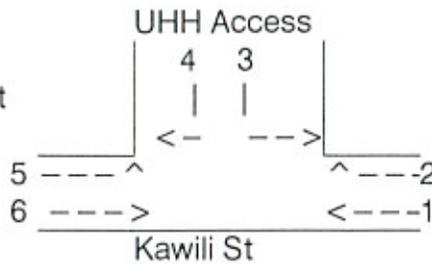
LOCATION: Kawili/Iwalani/Puainako
 DATE: November 16, 1999
 TIME: 4:00- 6:00 pm
 WEATHER:
 RECORDER:



TIME PERIOD	MOVEMENT NUMBER												TOTAL	
	1	2	3	4	5	6	7	8	9	10	11	12		
6:30-6:45														0
6:45-7:00														0
7:00-7:15														0
7:15-7:30														0
7:30-7:45														0
7:45-8:00														0
8:00-8:15														0
8:15-8:30														0
6:30-8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30-7:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30-8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00- 4:15	12	41	7	7	40	13	28	67	18	10	20	2		265
4:15- 4:30	4	42	19	21	48	25	21	54	7	6	44	0		291
4:30- 4:45	12	49	21	19	67	30	14	65	5	2	36	4		324
4:45- 5:00	17	70	11	14	81	36	12	68	1	1	37	5		353
5:00- 5:15	21	46	10	15	64	24	21	52	2	4	37	14		310
5:15- 5:30	5	50	9	15	49	27	20	53	2	0	39	6		275
5:30- 5:45	18	60	10	21	63	32	20	54	0	1	40	10		329
5:45- 6:00	16	56	18	17	42	20	26	55	1	2	60	7		320
4:00- 6:00	105	414	105	129	454	207	162	468	36	26	313	48		2467
5:00- 6:00	60	212	47	68	218	103	87	214	5	7	176	37		1233
4:30- 5:30	60	212	47	68	218	103	87	214	5	7	176	37		1234

TRAFFIC TURNING MOVEMENT COUNT
UHH ATHLETIC COMPLEX

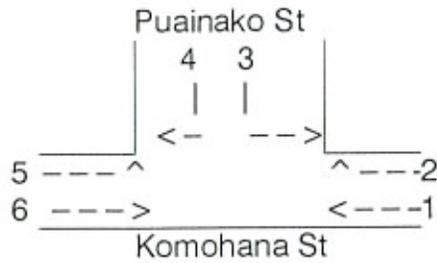
LOCATION: UHH upper access on Kawili St
 DATE: November 16, 1999
 TIME: 4:00-6:00 pm
 WEATHER:
 RECORDER:



TIME PERIOD	MOVEMENT NUMBER						TOTAL
	1	2	3	4	5	6	
6:30-6:45							0
6:45-7:00							0
7:00-7:15							0
7:15-7:30							0
7:30-7:45							0
7:45-8:00							0
8:00-8:15							0
8:15-8:30							0
6:30- 8:30	0	0	0	0	0	0	0
6:30- 7:30	0	0	0	0	0	0	0
4:00- 4:15	120	15	9	26	10	67	247
4:15- 4:30	88	12	12	14	10	98	234
4:30- 4:45	161	8	18	14	9	66	276
4:45- 5:00	136	11	9	1	4	80	241
5:00- 5:15	107	4	1	6	3	74	195
5:15- 5:30	114	5	8	8	8	79	222
5:30- 5:45	98	12	10	8	4	74	206
5:45- 6:00	96	8	16	21	11	107	259
4:00- 6:00	920	75	83	98	59	645	1880
5:00- 6:00	415	29	35	43	26	334	882

TRAFFIC TURNING MOVEMENT COUNT
UHH ATHLETIC COMPLEX

LOCATION: Komohana St @ Puainako St
 DATE: June 8, 1999
 TIME: 3:30-5:30 pm
 WEATHER:
 RECORDER: K. Duffy



TIME PERIOD	MOVEMENT NUMBER						TOTAL
	1	2	3	4	5	6	
6:30-6:45							0
6:45-7:00							0
7:00-7:15							0
7:15-7:30							0
7:30-7:45							0
7:45-8:00							0
8:00-8:15							0
8:15-8:30							0
6:30- 8:30	0	0	0	0	0	0	0
6:30- 7:30	0	0	0	0	0	0	0
3:30- 3:45	104	12	16	48	35	105	320
3:45- 4:00	179	25	27	69	90	198	588
4:00- 4:15	21	8	7	18	22	55	131
4:15- 4:30	51	8	7	29	21	52	168
4:30- 4:45	79	7	4	55	68	150	363
4:45- 5:00	80	10	12	29	61	162	354
5:00- 5:15	71	13	18	40	48	145	335
5:15- 5:30	76	16	9	49	34	133	317
3:30- 5:30	661	99	100	337	379	1000	2576
4:30- 5:30	306	46	43	173	211	590	1369

APPENDIX B

ABSTRACT OF METHODOLOGY
for the
CAPACITY ANALYSIS FOR SIGNALIZED INTERSECTIONS

ABSTRACT OF METHODOLOGY
for the
LEVEL OF SERVICE ANALYSIS OF SIGNALIZED INTERSECTIONS

A very complex methodology is used to determine the capacity and level of service of signalized signals. The procedure is divided into the five modules shown on Figure 9-3. The input data required for the analysis is shown on Figure 9-4. The level of service criteria is shown below:

LEVEL OF SERVICE (LOS)
CRITERIA FOR SIGNALIZED INTERSECTIONS

<u>Level of Service</u>	<u>Stopped Delay Per Vehicle (Seconds)</u>
A	≤ 5.0
B	5.1 to 15.0
C	15.1 to 25.0
D	25.1 to 40.0
E	40.1 to 60.0
F	≥ 60.0

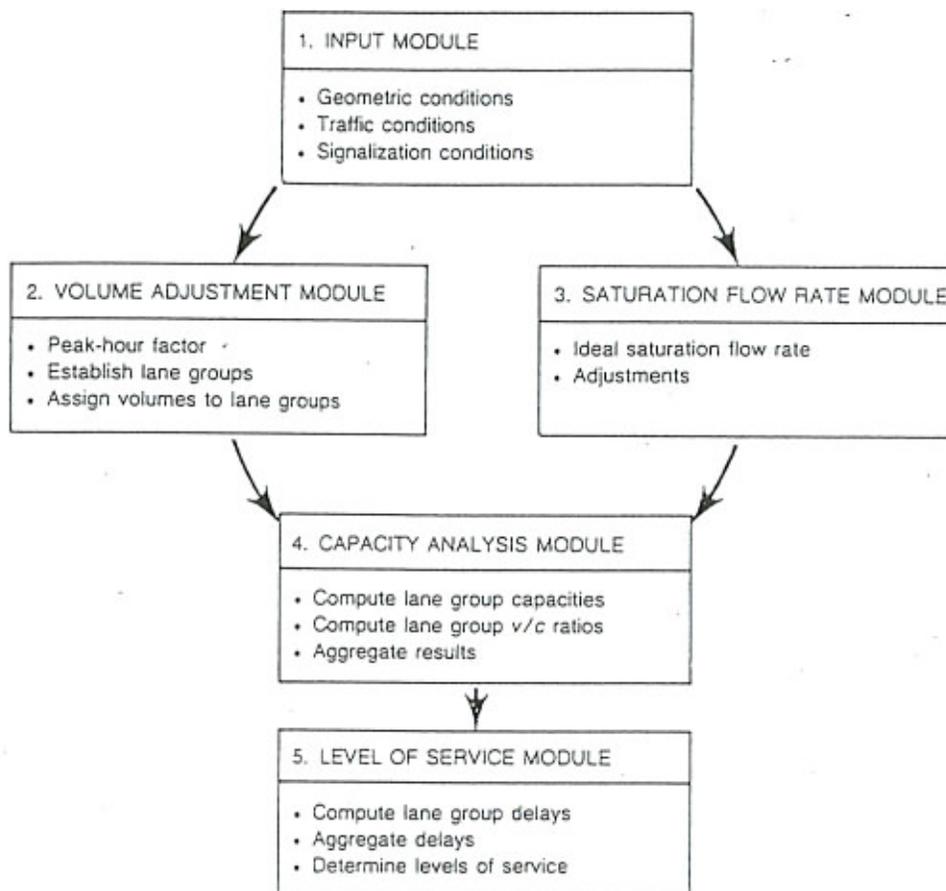


Figure 9-3. Operational analysis procedure.

<u>TYPE OF CONDITION</u>	<u>PARAMETER</u>	<u>SYMBOL</u>
Geometric conditions	Area Type	CBD, Other
	Number of Lanes	N
	Average Lane Widths, ft.	W
	Grades, %	%G
	Existence of Exclusive LT or RT Lanes	None
	Length of Storage Bay, LT or RT Lane	L _s
	Parking Conditions	Yes, No
Traffic conditions	Volumes by Movement, vph	V
	Ideal Saturation Flow Rate by Mov't, pcphgpl	S _i
	Peak Hour Factor	PHF
	Percent Heavy Vehicles	%HV
	Conflicting Pedestrian Flow Rate, ped/hr	PEDS
	Local Buses Stopping in Intersection	N _b
	Parking Activity, pkg maneuvers/hr	N _m
	Arrival Type (1-6)	AT
	Proportion of Vehicles Arriving on Green	P
	Signalization conditions	Cycle Length, sec
Green Time, sec		G
Yellow change interval		Y
All-red clearance interval		AR
Actuated or Pretimed Operation		A or P
Pedestrian Push-Button?		Yes, No
Minimum Pedestrian Green		G _p
Phase Plan		None

Figure 9-4. Input data needs for each analysis lane group.

APPENDIX C

TRAFFIC CALCULATIONS

SIGNALIZED INTERSECTION LEVEL OF SERVICE (LOS)
CALCULATIONS

Streets: (N-S) komohana street (E-W) Puinako extension
 Analyst: Wy File Name: KOMOHANA.HC9
 Area Type: Other 12-12-99 5-6 pm
 Comment: late pm peak with uhh athletic events arrivals

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	< 0	1	1	1	1	2	< 0
Volumes	10	290	120	405	540	10	40	100	15	165	190	250
Lane W (ft)	12.0	12.0	12.0	12.0	12.0		12.0	12.0	12.0	12.0	12.0	
RTOR Vols			60			5			15			100
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left	*				EB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds					Peds	*		
SB Left		*			WB Left	*		
Thru		*			Thru	*		
Right		*			Right	*		
Peds					Peds			
EB Right					NB Right			
WB Right					SB Right			
Green		38.0P			Green	23.0P		
Yellow/AR		4.0			Yellow/AR	5.0		
Cycle Length:	70 secs Phase combination order: #1 #5							

Intersection Performance Summary

	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:		
								Mvmts	Cap	Flow
NB	L		329	591	0.033	0.557	5.3	B	5.7	B
	T		2096	3762	0.153	0.557	5.7	B		
	R		891	1599	0.071	0.557	5.4	B		
SB	L		534	959	0.797	0.557	15.1	C	9.9	B
	TR		2093	3756	0.288	0.557	6.2	B		
EB	L		284	796	0.148	0.357	11.6	B	11.6	B
	T		665	1862	0.158	0.357	11.7	B		
	R		665	1862	0.000	0.357	0.0	A		
WB	L		488	1366	0.357	0.357	12.8	B	12.5	B
	TR		1267	3548	0.297	0.357	12.3	B		

Intersection Delay = 9.9 sec/veh Intersection LOS = B
 Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.625

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 12-12-1999
 Center For Microcomputers In Transportation

Streets: (N-S) kawili Street (E-W) Puinako extension
 Analyst: Wy File Name: PUAINAKO-KAWILI.HC9
 Area Type: Other 12-12-99 5-6 pm
 Comment: late pm peak with uhh athletic events arrivals

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	1
Volumes	25	175	70	165	290	155	55	200	5	85	570	165
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			30			50			0			60
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
NB Left	*				EB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds					Peds	*		
SB Left	*				WB Left	*		
Thru	*				Thru	*		
Right	*				Right	*		
Peds					Peds	*		
EB Right					NB Right			
WB Right					SB Right			
Green	28.0P				Green	32.0P		
Yellow/AR	5.0				Yellow/AR	5.0		
Cycle Length:	70 secs	Phase combination order: #1 #5						

Intersection Performance Summary

	Lane	Group:	Adj Sat	v/c	g/C	Delay	LOS	Approach:		
								Mvmts	Cap	Flow
NB	L		318	741	0.082	0.429	9.0	B	9.3	B
	TR		1567	3657	0.151	0.429	9.3	B		
SB	L		471	1099	0.369	0.429	10.6	B	10.1	B
	TR		1548	3613	0.282	0.429	9.9	B		
EB	L		254	522	0.229	0.486	8.0	B	7.6	B
	TR		1802	3711	0.126	0.486	7.5	B		
WB	L		549	1130	0.162	0.486	7.6	B	8.3	B
	T		1846	3800	0.341	0.486	8.5	B		
	R		784	1615	0.142	0.486	7.6	B		

Intersection Delay = 8.9 sec/veh Intersection LOS = B
 Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.354

Appendix BD

Traffic Assessment Report

TRAFFIC ASSESSMENT REPORT (5 JUL 05 DRAFT) UNIVERSITY OF HAWAII AT HILO STUDENT LIFE CENTER

The University of Hawaii at Hilo (UHH) is proposing a Student Life Center to meet the recreational needs of campus life. This traffic assessment study was undertaken to identify the anticipated traffic impacts and possible mitigating actions for the proposal.

This study updates a previous study, "Preliminary Traffic Assessment for a Proposed Multi-Purpose Sports and Recreational Complex at the University of Hawaii at Hilo" (February 2001) prepared by M&E Pacific, Inc. The original study was done to determine the feasibility of the transportation component of the originally proposed sports complex. It focused on the impact of the special events center and analyzed the late afternoon and late night traffic conditions for 2005. It also assumed that the Puainako Street Extension project would be completed. This study develops qualitative assessments of the traffic impacts based on the previous and other traffic assessment studies prepared for UHH.

PROJECT DESCRIPTION

The University of Hawaii at Hilo (UHH) plans to implement a recreational complex to accommodate the needs of on-going daily campus life. This Student Life Center would accommodate the basketball, swimming and tennis programs, HPE programs, and offices. It would complement the existing Health and Physical Education facilities and would not require the relocation of existing facilities.

The first phase of the project would include a fitness center, a pool and equipment building, a covered courts building, and a Human Performance building. The fitness center would be located in a 20,280 gsf structure north of the existing gymnasium. It would feature aerobics rooms, a cardio/weight training room, juice bar, lounge, lockers, gear/laundry room, and administrative offices.

A 50-meter outdoor pool would be located north of the fitness center and would be supported by a 1,300 gsf building housing offices and storage area for pool equipment and machinery. The pool would host a variety of swim meets, training camps, and other aquatic events. The 14,693 gsf covered courts building would be located west of the fitness center and the 12,520 gsf Human Performance building would be located north of the fitness center. Both facilities would provide academic education opportunities and augment the student recreational services.

The Student Life Center would not require any new parking. The existing parking lot off of Kawili Street would continue to meet the parking needs for the athletic complex.

The proposed first phase of the project would be developed in two subphases. Phase 1A would include the pool, open courts and fitness center. Phase 1 B would include the classrooms, Human Performance building, and court canopy. Phase 1A is expected to be funded in July 2005 with construction commencing in late 2006 or early 2007. Project completion is anticipated two years thereafter. There is no current timetable for Phase 1B. A site plan for the Student Life Center Phase 1 is shown on Figure 1.

Phase 2 of the project would include an events center, additional parking and other related amenities. This phase is not included in this study. The previous study prepared by M&E Pacific, Inc., focused on the traffic impact of the special events center in 2005.

The proposed project is located in the southwest corner of the UHH campus with the current athletic facilities. Access to the site is from a driveway off of Kawili Street. The main academic campus is located north and west of the athletic complex while an existing student housing area is located to the east. The closest street intersection is at Puainako Street and Kawili Street to the east of the project site. This intersection became the focus of this study. A location map of the project site in relationship to these other campus uses and roadway system is shown on Figure 2-2.

EXISTING ROADWAY CONDITIONS

Kawili Street is a two lane collector road running in a generally north-south direction at Puainako Street but turning eastward as it approaches Kinoole Street. The roadway name changes to Iwalani Street south of Puainako Street. The four way intersection at Puainako Street/Kawili Street/Iwalani Street is signalized.

Puainako Street is on an east-west alignment that begins at Railroad Avenue on the east and terminates at Komohana Street on the west. This roadway provides access to some of the major roadways in the Hilo area. It is a two lane collector road at Kawili Street with several areas of restricted sight distance due to rolling vertical curves. This section of Puainako Street would become a local street with the completion of the Puainako Street Extension project, as discussed in the next section.

The previous M&E Pacific, Inc., study did not analyze existing (2001) conditions at the Puainako Street/Kawili Street intersection because it focused on the future when the Puainako Street Extension project would be constructed.

Phillip Rowell and Associates prepared the "Traffic Impact Analysis Report, China-U.S. Center at UH-Hilo" (April 2002). This report assessed morning and afternoon peak hour traffic impacts for existing conditions and 2010 for several intersections along Puainako Street and Kawili Street. This study found that

existing (2001) traffic conditions at the Puainako Street/Kawili Street intersection were adequate. Most of the movements at the intersection were operating at level of service A during the morning and afternoon peak hours with the following exceptions:

- o The Iwalani Street northbound approach was operating at level of service E in the morning.
- o The Puainako Street eastbound approach was operating at level of service C in the morning.
- o The Kawili Street southbound left and through lane was operating at level of service C in the afternoon.

Several TIAR's were prepared for proposed project in the UHH University Park of Science and Technology along Komohana Street. Most of these reports focused on traffic operations along Komohana Street. The "Traffic Impact Analysis Report Mauka Kea Astronomy Education Center" (July 2002) prepared by M&E Pacific, Inc., found that the Puainako Street approach to Komohana Street was operating at level of service C in the 2001 morning peak and at level F in the afternoon peak with an unsignalized intersection. With traffic signals installed as part of the Phase 1 extension project, the intersection would be operating at level of service C or better in 2003.

PROPOSED CONDITIONS

Two other major projects are being proposed in the vicinity of the project site including a cultural center and a roadway realignment to Puainako Street.

The UHH is implementing the China-U.S. Center at UH-Hilo on a 36 acre site directly across Kawili Street from the main campus and athletic complex. The center would include:

- o 34,000 sf China-U.S. Cultural Center
- o 130,000 sf Shopping and Entertainment Plaza
- o 150 unit International Hostel
- o 50 unit Visitor Suites
- o 20 unit Family Lodging unit
- o 100 unit University Inn hotel

The center was to be developed in three phases from 2001 to 2008 but construction has not yet begun in 2005.

The previous study prepared by M&E Pacific, Inc., included a preliminary assessment of the late afternoon traffic impacts of the center (2005) to supplement the expected impacts of the proposed athletic complex. The aforementioned study by Phillip Rowell and Associates, "Traffic Impact Analysis Report, China-U.S. Center at UH-Hilo" (April 2002), was prepared when the center concept became better defined. The latter report assessed morning and afternoon peak hour traffic impacts for 2010. The proposed center would

generate 460 and 840 vehicle trips in the morning and afternoon peak hours, respectively, when fully developed. The report concluded that Puainako Street would be operating at unacceptable levels of service without the Puainako Street Extension project. The report also made several recommendations for roadway improvements, including:

- o Widening Kawili Street to two lanes in each direction between Puainako Street and Drive A, the main access to the center.
- o Placing a traffic signal at the intersection of Kawili Street and Drive A.
- o Adding a southbound right turn lane and a second eastbound left lane at the intersection of Puainako Street and Kawili Street.
- o Aligning Drive B of the center with the driveway to the athletic complex.

The first phase of the Puainako Street Extension project has extended the roadway mauka from Komohana Street to Kaumana. The mauka extension does not align directly with Puainako Street, requiring drivers to make two turning movements to continue traveling on Puainako Street. The State of Hawaii Department of Transportation has started procurement of design services for the second phase of the Puainako Street Extension project that involves the widening and realignment of the roadway between Komohana Street and Kilauea Street. The realignment of the roadway between Komohana Street and Kawili Street would be north of the existing Puainako Street between the residences on Puainako Street and the UHH housing complex. The existing Puainako Street would then become a local street serving the residences along it. The design phase is expected to take three years, meaning that the realigned roadway could be realistically constructed after 2010.

TRAFFIC ASSESSMENT

The three primary components of interest to this study are the Student Life Center, the China-U.S. Center at UH-Hilo, and the second phase of the Puainako Street Extension project. The implementation timetables for each of the components are tentative, with realistic completion dates for the latter two projects being after 2010. Therefore, this study assessed the traffic impacts for a planning year before 2010, and focused on the Puainako Street/Kawili Street intersection.

The proposed Student Life Center is not expected to generate any new vehicle trips on its own. Its primary users are expected to be students already on campus. These could include faculty and students in HPE classes, participating in sports programs, or casual users of the facility. Therefore, the current traffic conditions would continue in the absence of additional traffic generated from other sources. In the same manner, the existing parking lots are considered to be adequate for serving the proposed project. This was an implicit assumption of

the previous study prepared by M&E Pacific, Inc., and was the reason for analyzing only the late afternoon and late night traffic impacts of a special event.

The Student Life Center would be capable of hosting special events. As previously stated, the pool could host a variety of swim meets, training camps, and other aquatic events so that they would not conflict with other athletic activities. Also the fitness center, covered courts and Human Performance buildings also could be used for small special events. However, these events would be on a scale that would not cause long-term traffic disruptions.

Traffic growth in Hilo has been moderate at best and ambient traffic growth should not add major traffic volumes at the study intersection. However, the China-U.S. Center at UH-Hilo would increase traffic considerably within the study area and would eventually require mitigating measures as described above .