UNIVERSITY
OF HAWAI'I
HILO

MAR 08 2011

February 17, 2011

Gary Hooser
Director
Office of Environmental Quality Control
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Dear Mr. Hooser,

Subject: **Draft Environmental Assessment for University of Hawai`i at Hilo Acquisition of Student Housing Complex, TMK (3rd.) 2-4-057: 024 and 028, Hilo, Island of Hawai`i**

The University of Hawai`i at Hilo has prepared the draft environmental assessment for the subject project and anticipates a Finding of No Significant Impact (FONSI) determination. Please publish notice of availability for this project in the next available edition of the Environmental Notice. We have enclosed the following:

- One paper copy of the Draft EA
- A CD containing the .pdf file for the EA and a WORD file with the OEQC transmittal documents, including OEQC Environmental Notice Publication Form, project summary, the distribution list for the Draft EA, and a sample "Dear Participant" letter
- Hardcopies of the OEQC transmittal material

Please contact Harry Yada of the Office of Real Property at 933-3267, if you have questions.

Sincerely,

Debra L. Fitzsimons

Debra L. Fitzsimons
Vice Chancellor for Administrative Affairs

Attach: As noted above

cc: (w/o attach) Ron Terry, Ph.D, Project Environmental Consultant
(w/o attach) Harry Yada, Director of Real Property

DRAFT ENVIRONMENTAL ASSESSMENT

University of Hawai‘i at Hilo
Acquisition of Student Housing Complex

TMK: (3rd) 2-4-057:028 & 028
South Hilo District, Hawai‘i Island, State of Hawai‘i

March 2011

Prepared for:
State of Hawai‘i
University of Hawai‘i at Hilo
200 W. Kawili Street
Hilo, Hawai‘i 96720

DRAFT ENVIRONMENTAL ASSESSMENT

University of Hawai‘i at Hilo
Acquisition of Student Housing Complex

TMK: (3rd) 2-4-057:024 & 028
South Hilo District, Hawai‘i Island, State of Hawai‘i

PROPOSING/
APPROVING AGENCY:

State of Hawai‘i
University of Hawai‘i at Hilo
200 W. Kawili Street
Hilo, Hawai‘i 96720

CONSULTANTS:

Geometrician Associates LLC
PO Box 396
Hilo, Hawai‘i 96721

CLASS OF ACTION:

Use of State Land
Use of State Funds

This document is prepared pursuant to:

The Hawai‘i Environmental Protection Act,
Chapter 343, Hawai‘i Revised Statutes (HRS), and
Title 11, Chapter 200, Hawai‘i Department of Health Administrative Rules (HAR).

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SUMMARY OF THE PROPOSED ACTION, ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

The University of Hawai‘i at Hilo (UH Hilo) proposes to acquire the existing privately owned, 31-unit University Palms apartment complex and an adjacent single-family home and convert both properties to student housing. UH Hilo will renovate the University Palms to house 102 students and demolish the single-family home and then redevelop the property as multi-unit housing to accommodate an additional 34 students. The facilities are needed to reduce a shortage of on- or near-campus student housing, which inconveniences students and hampers the increase in enrollment critical to the orderly growth plans of UH Hilo.

Acquisition of the facility is not expected to have a significant effect on traffic. The University Palms is already fully occupied, and the traffic generated by the future facility next-door would not markedly degrade the level of service, parking availability or pedestrian for local streets and intersections, given the proposed improvements. The location is directly across the UH Hilo campus; given a parking shortage on campus, nearly all students would walk rather than drive to classes and other campus activities. Short-term noise, air, and water quality impacts associated with demolition, construction and renovation would be mitigated. Hazardous materials present in the buildings would be properly abated during demolition and renovation.

No historic properties appear to be present at the site, a finding that is being confirmed in coordination with the State Historic Preservation Division (SHPD). However, if human skeletal remains or undocumented archaeological resources are encountered during land-altering activities associated with expansion or landscaping, work in the immediate area of the discovery will be halted and SHPD will be contacted.

PART 1: PROJECT DESCRIPTION, PURPOSE AND NEED AND ENVIRONMENTAL ASSESSMENT PROCESS

1.1 Project Location and Description

Project Location and Description

The University of Hawai‘i at Hilo (UH Hilo) proposes to acquire the existing privately owned, 31-unit University Palms apartment complex and an adjacent single-family home and convert both properties to student housing (see Figures 1-3). The University Palms Apartments, located at 1377 Kapiolani Street (TMK 2-4-057:028), were built in 1973 and consist of a three-story building on a 26,000 square foot (sf) lot. The single-family home is located at 1367 Kapiolani Street (TMK 2-4-057:024) on a 17,536 sf lot. Both properties carry RM-1 zoning (Multiple-Family Residential, 1,000 sf minimum per for each separate rentable unit).

UH Hilo will renovate the University Palms to house 102 students and then demolish the single-family home and in its place build multi-unit housing to accommodate an additional 34 students. Aside from the expectation of 17 units, few design details have yet been developed for the new facility, which UH Hilo will require to be LEED (Leadership in Energy and Environmental Design) Silver compliant. The facilities are needed to reduce a shortage of on- or near-campus student housing, which inconveniences students and hampers the increase in enrollment critical to the orderly growth plans of UH Hilo.

The University Palms is already occupied mostly by UH Hilo students. The location is directly across the UH Hilo campus; given a parking shortage on campus, nearly all students at both facilities would walk rather than drive to classes and other campus activities.

A Property Condition Assessment Report was prepared for both properties by architects Fleming & Associates LLC in November 2010 in general accordance with ASTME 2018-01 *Standard Guide for Property Condition Assessments: Baseline Property Condition Assessment Process*. The report is based on a walk-through survey to identify the properties’ material physical deficiencies, and it recommends various system, components and equipment that need assessment. The report is available for inspection from UH Hilo upon request.

The University Palms Apartment complex is approximately 37 years old and appears to be in generally good condition (see Figure 3). The primary construction consists of concrete masonry units for the exterior walls and pre-stressed precast concrete planks for the ceiling/floor and ceiling/roof decks. Windows are aluminum frame jalousie units and exterior doors are painted solid-core wood. Some components including the roof, roof drainage, and exterior passage decks require repair. The interior of resident units is in fair to good condition but requires attention to paint, floors, and kitchen appliances and other

details. The acoustical spray-on ceiling material is in good condition but should be removed, as it has been identified as a Regulated Asbestos-Containing Material (RACM) (see Section 3.1.5 for discussion).

Drainage, parking and sidewalk/walkway improvements will also be required for the University Palms facility. In general, the interior plumbing and fixtures appear to be in fair condition, with water supply, water heaters, water pressure and drainage all appearing to be adequate. However, most of the mechanical ventilation systems are in poor condition and require repair or replacement. Electric and telephone services are provided via an underground infrastructure system from overhead public utilities along Kapiolani Street. CATV service is provided by overhead service drop. The entire building is powered through a single meter system from Hawaii Electric Light Co. (HELCO) with a service voltage of 240/120 volts, 1 phase, 3 wires, with a capacity estimated to be 300 amperes and with a measured use about 100 amperes. The lighting fixtures, wireless internet system and fire alarm system do not conform to current codes and standards. A Closed-Circuit-TV (CCTV) with cameras on roof and monitoring equipment in Manager's office was added in recent times. Landscaping infrastructure and plantings will require attention.

Many aspects of the facility do not comply with the requirements of the Americans with Disabilities Act (ADA) or ADAAG. The apartment complex contains 31 apartment units, and as such a minimum of five percent of the units must be made accessible to the mobility impaired. In addition, two percent of the units must be made accessible to the hearing impaired, with provisions for visual fire alarm strobe lights in each kitchen, bedroom and bathroom. Last, all public and common use areas must be made fully accessible.

The single-family home would be demolished and its current condition is mainly relevant as regards hazardous materials (see Section 3.1.5). No aspect of this property would appear to constrain its use for multiple-unit housing.

The cost to purchase both properties that make up the project site is currently estimated at $6 to $6.5 million. Renovations to the University Palms Apartments would require approximately $2.6 to $3.8 million. Construction of a new student housing facility at the site of the current single-family residence would cost approximately $3 to $4 million. It should be noted that cost estimates for construction and renovation are at this point approximate and will be refined during design. If the project is approved and funding secured, the property would be acquired fee-simple by the University of Hawai‘i. Design would begin in mid-2011 and construction and renovations would begin in 2012.

Figure 1
Location Maps

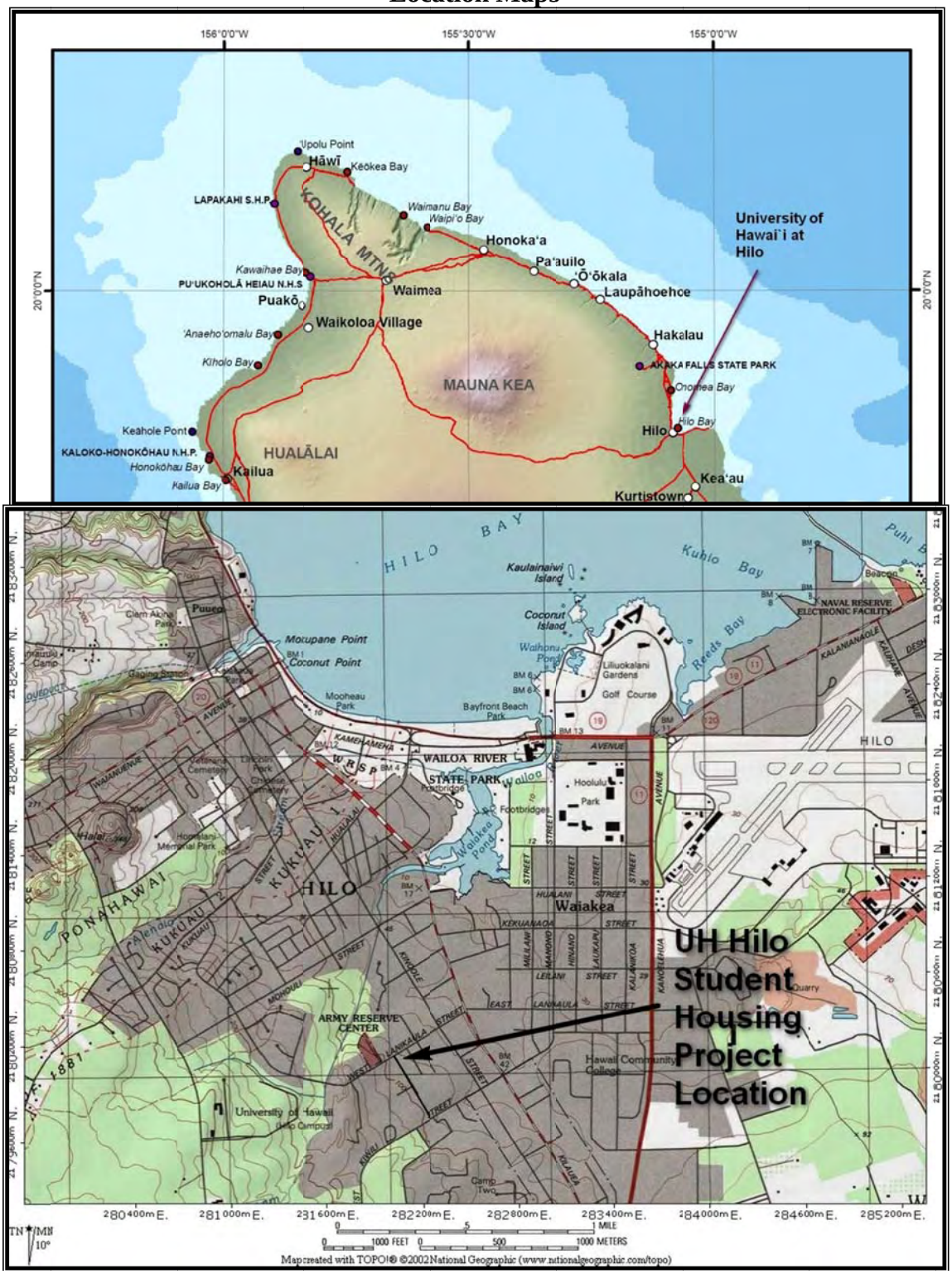
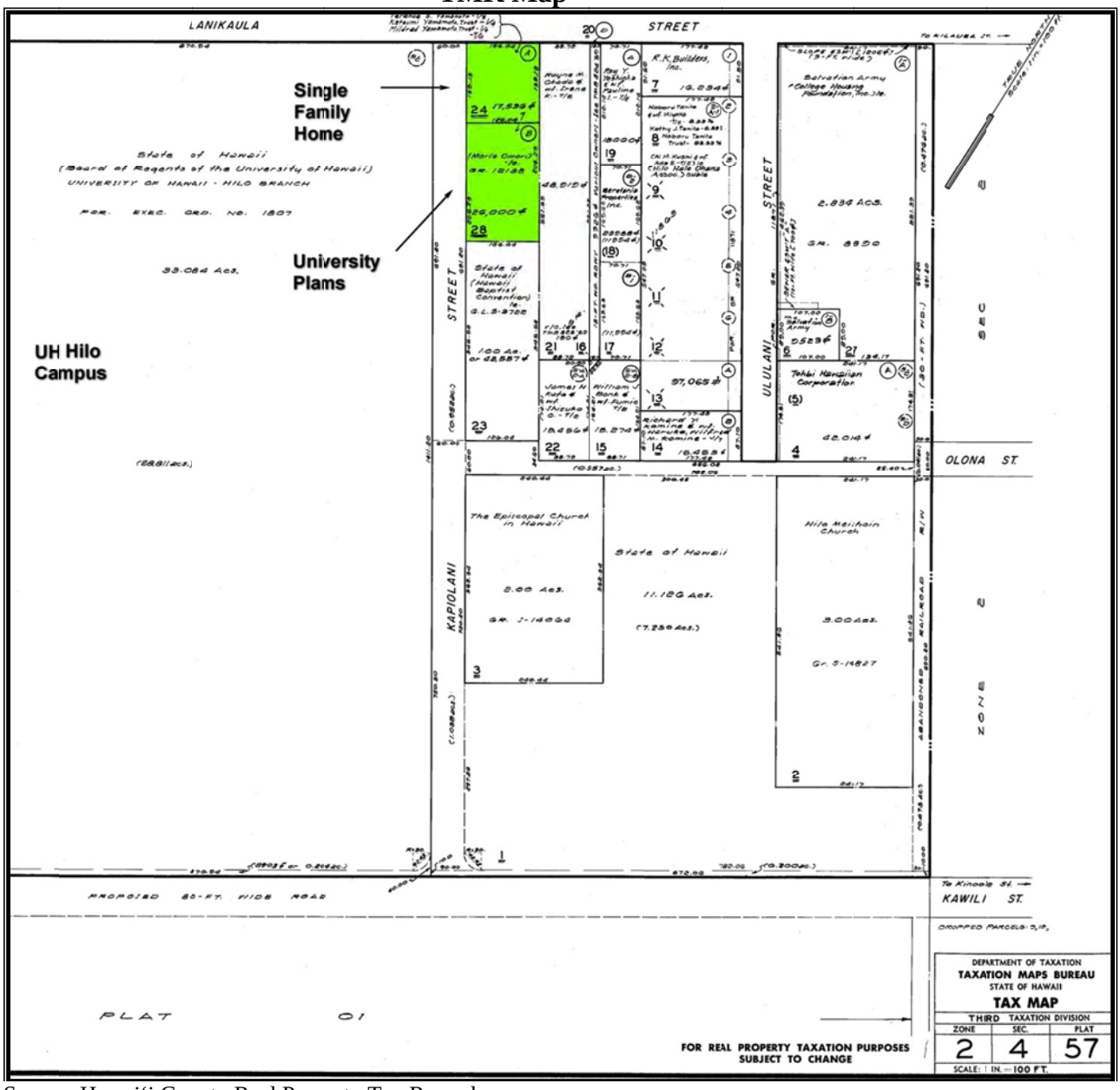


Figure 2
TMK Map



Source: Hawai‘i County Real Property Tax Records

Figure 3 – Project Site Photographs

1.2 Purpose and Need

The project is intended to help accommodate the college's current demand for student housing as well as future growth. According to UH Hilo officials, a shortage of student housing continues to hamper efforts to expand enrollment, with several hundred students on a waiting list each fall for the 620 available units of on-campus housing (http://www.uhh.hawaii.edu/news/latc/category/enrollment/). Student housing is required for most students from other states or countries, which in the Fall 2009 semester made up approximately 30 percent of UH Hilo's nearly 4,000 enrolled students (http://www.uhh.hawaii.edu/news/press/release/850). Student housing is also needed for students from other islands in the State and for students from distant areas of Hawai‘i Island who would rather not commute, who jointly make up as much as 40 percent of enrollment. Finally, many students from East Hawai‘i would also prefer to live on campus in order to have a more complete college experience. The lack of housing is particularly acute for incoming freshmen and sophomores, who are most likely to want to live on campus. The need for additional student housing is significant: a survey of newly admitted UH Hilo students in Fall 2009 found that 40 percent of respondents had experienced difficulty in finding housing. (http://www.uhh.hawaii.edu/uhh/iro/documents/IncomingF09realmain.pdf)

1.3 Environmental Assessment Process

This Environmental Assessment (EA) process is being conducted in accordance with Chapter 343 of the Hawai‘i Revised Statutes (HRS). This law, along with its implementing regulations, Title 11, Chapter 200, of the Hawai‘i Administrative Rules (HAR), is the basis for the environmental impact process in the State of Hawai‘i. According to Chapter 343, an EA is prepared to determine impacts associated with an action, to develop mitigation measures for adverse impacts, and to determine whether any of the impacts are significant according to thirteen specific criteria. Part 4 of this document states the finding (anticipated finding, in the Draft EA) that no significant impacts are expected to occur; Part 5 lists each criterion and presents the findings (preliminary, for the Draft EA) for each made by the University of Hawai‘i at Hilo, the proposing/approving agency. As part of the EA process, if the approving agency determines after considering comments to the Draft EA that no significant impacts would likely occur, then the agency issues a Finding of No Significant Impact (FONSI), and the action is permitted to occur. If the agency concludes that significant impacts are expected to occur as a result of the proposed action, then an Environmental Impact Statement (EIS) is prepared.

1.4 Public Involvement and Agency Coordination

The following agencies and organizations were consulted in development of the environmental assessment:

State:

Department of Health
Office of Hawaiian Affairs
Department of Land and Natural Resources, Land Division and Historic Preservation Division

County:

Department of Public Works
County Council
Department of Water Supply
Fire Department
Planning Department
Police Department
Department of Environmental Management

Private:

Hawai‘i Island Chamber of Commerce
Adjacent property owners

Copies of communications received during early consultation are contained in Appendix 1a.

PART 2: ALTERNATIVES

2.1 No Action

Under the No Action Alternative, the acquisition of facilities and properties on Kapiolani Street for additional student housing would not be undertaken. Students and the community would not benefit from an increase in campus student housing in this area.

2.2 Alternative Locations or Strategies

UH Hilo conducted a search of available properties within the immediate vicinity of the campus in 2009-10 and found six that would possibly be suitable to acquire. Only two of the property owners were amenable to negotiations for sale at this time. Of the two, one of the properties was found to be in poor condition. The remaining property was the University Palms. After several months of negotiation, the owners determined that they would agree to the sale on the condition that the adjacent single-family home, also under their ownership, was part of the purchase. As this satisfied the goals of UH Hilo to acquire additional land for campus housing, a preliminary agreement was made. UH Hilo officials know of no other properties in the area that are both available for sale and as suitable for the intended use. Although still under negotiation, UH Hilo may have the opportunity to gain control of State owned lands along Kapiolani Street between Kawili Street and Lanikaula Street, thereby controlling almost all property on the *makai* side of Kapiolani Street. This will then better justify UH Hilo improving that section of Kapiolani Street and making it more pedestrian friendly for students. For these reasons, and as there do not appear to be any environmental or other disadvantages associated with the particular proposed project at the proposed site, and the property is well suited to the proposed use and has been dedicated to this type of use, no alternative sites have been advanced in the Environmental Assessment.

The strategy of having UH Hilo purchase property and manage it for student housing is not the only way to encourage near-campus housing for students. In fact, UH Hilo already has memoranda of understanding with about a half-dozen private off-campus rental complexes, including the University Palms. UH Hilo solicits and displays listings for rooms and homes available for rent in the community. However, University of Hawai‘i facility ownership has many key advantages:

- Ownership allows UH Hilo to better control the quality of management and maintenance of the housing.
- Under private ownership, the owners do not have to limit the rental to students and can convert to non-student rentals at any point they may feel it would provide a better return.
- Should it deem it beneficial, UH Hilo has the option, as with any component of its housing inventory, to control occupancy for programmatic reasons such as housing for graduate students, upper classmen, athletes, international, etc.

PART 3: ENVIRONMENTAL SETTING, IMPACTS AND MITIGATION MEASURES

Basic Geographic Setting

The two properties to be acquired for student housing are referred to throughout this EA as the *project site*. The term *project area* is used to describe the general environs of UH Hilo.

The project site is located on the opposite side of Kapiolani Street from several "portable building" classrooms, including PB-7 of Hawai‘i Community College's Nursing Program, in the northeast corner of the main UH Hilo campus.

3.1 Physical Environment

3.1.1 Climate, Geology, Soils and Geologic Hazards

Environmental Setting

The climate in the area is mild and moist, with an average annual rainfall of about 140 inches (UH Hilo-Geography 1998:57). Geologically, the project site is located on the flanks of Mauna Loa volcano, and the surface consists of lava flows from 5,000 to 10,000 years before the present (Wolfe and Morris 1996). Small areas of younger lava flows are also present in the project area. The project site soils are classified by the U.S. Natural Resources Conservation Service (formerly Soil Conservation Service) as Keaukaha extremely rocky muck (rKFD, on the northern portion of the property, and Ola‘a extremely stony silty clay loam (OID) on the southern portion. The former is found on 6 to 20 percent slopes and is an organic and strongly acid soil approximately 0 to 8 inches thick, with about 25% of the area occupied by lava outcrops. Permeability is rapid, runoff is slow, and erosion hazard slight. The latter is found on slopes up to 20 percent, with approximately 9 percent covered by lava outcrops. The soil is well drained, with a medium acid surface layer to a depth of about 16 inches and a slightly acid subsoil approximately 9 inches thick. Permeability is rapid, runoff is slow and erosion hazard slight. The capability subclass for both is VIIs, which means that these soils have very severe limitations such as shallowness or stoniness that make them very unsuited for cultivation, and restrict their use to mainly pasture, woodland or wildlife. Ola‘a soils are also typically used for sugar cane cultivation (U.S. Soil Conservation Service 1973).

The entire Big Island is subject to geologic hazards, especially lava flows and earthquakes. Volcanic hazard as assessed by the United States Geological Survey in this area of Hilo is Zone 3, on a scale of ascending risk from 9 to 1 (Heliker 1990:23). The relatively high hazard risk is based on the fact that Mauna Loa is an active volcano. Volcanic hazard Zone 3 areas have had 1-5% of their land area covered by lava or ash flows since the year 1800, but are at lower risk than Zone 2 areas because of their greater

distances from recently active vents and/or because the local topography makes it less likely that flows will cover these areas.

In terms of seismic risk, the entire Island of Hawai‘i is rated Zone 4 Seismic Hazard (*Uniform Building Code, 1997 Edition*, Figure 16-2). Zone 4 areas are at risk from major earthquake damage, especially to structures that are poorly designed or built, as the 6.7-magnitude (Richter) quake of October 15, 2006, demonstrated. The project site does not appear to be subject to subsidence, landslides or other forms of mass wasting.

Impacts and Mitigation Measures

In general, geologic conditions impose no constraints on the proposed action, and the project site properties are not imprudent to acquire and develop.

3.1.2 Drainage, Water Features and Water Quality

Existing Environment

According to Flood Insurance Rate Map (FIRM) FM1551660880C, the project site is located entirely within Zone X, which is comprised of areas determined to be outside the 500-year flood plain. The intermittent Waiakea Stream, located approximately 1,500 feet west of the project site, constitutes a special hazard area inundated by the 100-year flood with base flood elevations determined (Zone AE). No known areas of local (non-stream related) flooding are present.

Impacts and Mitigation Measure

Because the property is already developed and has not been known to flood in the past, and because of the lack of sensitive waters nearby, the risks for flooding or impacts to water quality are negligible. Waiākea Stream will not be affected. Rooftop runoff is already being dealt with adequately. All construction will be required to contain any increase in runoff due to the construction of impermeable surfaces onsite, in conformance with Chapter 27 of the Hawai‘i County Code, by directing runoff toward collection points including catch basins. Three existing drywells at University Palms are not registered with the Department of Health. UH Hilo will coordinate with the Hawai‘i State Department of Health concerning these drywells and any new proposed drywells.

3.1.3 Flora, Fauna and Ecosystems

Existing Environment

Based on elevation, rainfall and geologic substrate, the area probably supported a Lowland Wet Forest (Gagne and Cuddihy 1990) dominated by *‘ohi‘a* (*Metrosideros polymorpha*) before human alteration. Agricultural activities, including sugar cane

cultivation and grazing in the late 19th and early 20th centuries, long ago destroyed the original vegetation. The present vegetation consists of landscaping and is now almost entirely alien (see Figure 3).

Because of the non-native vegetation and urban context, there is little habitat for native animal species. Most birds that could be observed on the site, including virtually all that might nest or forage there, are non-native.

Two wide-ranging endangered species, Hawaiian Hawks (*Buteo solitarius*) and Hawaiian hoary bats (*Lasiurus cinereus semotus*), can be observed in the area, as they throughout all forested locations on the island of Hawai‘i. The native trees favored by Hawaiian Hawks for nesting are not present in the alien vegetation on the project site and immediately surrounding areas. The urban setting of the project site also lessens its value as habitat for bats, which prefer forests or orchards.

In sum, no rare, threatened or endangered plant or animal species listed by the U.S. Fish and Wildlife Service are present or extensively utilize the project site, nor are there unique or valuable wildlife habitats.

Impacts and Mitigation Measures

Because of the lack of native ecosystems, or threatened or endangered plant species, no adverse impacts to botanical resources would occur as a result of acquiring the properties for use as student housing, and no endangered animal species would be harmed. Operation of the housing facilities would not cause any secondary impacts to biological resources.

3.1.4 Air Quality, Noise, and Scenic Resources

Environmental Setting

Under the Clean Air Act, the U.S. Environmental Protection Agency (EPA) establishes primary and secondary air quality standards. Primary air quality standards protect the public health, including the health of “sensitive populations, such as people with asthma, children, and older adults.” Secondary air quality standards protect public welfare by promoting ecosystems health, preventing decreased visibility, and damage to crops and buildings. EPA has set national ambient air quality standards (NAAQS) for six of the following criteria pollutants; ozone (O3), particulate matter (PM 2.5 and 10), nitrogen dioxide (NO 2), carbon monoxide (CO), sulfur dioxide (SO2), and lead (Pb). The entire state of Hawai‘i is classified as in attainment, meaning criteria air pollutants do not exceed the NAAQS.

Air pollution in East Hawai‘i is minimal, and is mainly derived from volcanic emissions of sulfur dioxide, which convert into particulate sulfate and produce a volcanic haze

(vog) that occasionally blankets the district, particularly during instances of southerly or "kona" wind conditions. The persistent tradewinds keep the project area relatively free of vog for most of the year.

Noise on the project site is low and derived mainly from motor vehicles, with occasional noise from residential uses, University and maintenance activities.

The project area does not contain any sites considered significant for their scenic character in the Hawai'i County General Plan. The project site itself has little scenic value (see photos in Figure 3).

Impacts and Mitigation Measures

The proposed project would not measurably affect air quality or noise levels beyond those present from the complex's existing use.

No important viewplanes or scenic sites recognized in the Hawai'i County General Plan would be affected. Although the character of the corner containing the single-family residence will change, effects are not likely to be adverse, as the expected student housing will be in keeping with the existing UH Hilo neighborhood.

3.1.5 Hazardous Substances, Toxic Waste and Hazardous Conditions

EKNA conducted a Phase I Environmental Site Assessment (ESA) and Limited Hazardous Material Survey at both properties that comprise the project site, the University Palms Apartments at 1377 Kapiolani Street, and the single-family residence at 1367 Kapiolani Street. Summaries of the Phase I ESAs are contained in Appendix 3.

The purpose of the Phase I ESAs was to assess the presence or likely presence of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances and petroleum products under conditions that indicate an existing release, a past release, or a material threat of a release and to identify potential sources of suspected contaminants at the both properties. Findings for the properties (each called "the Site") are summarized below. UH Hilo is prepared to undertake all of EKNA's recommendations as part of the project.

University Palms, 1377 Kapiolani Street

The Phase I ESA indicated that:

- No previous Phase 1 ESAs are known to exist for the Site.
- Based on available information, it is likely that agricultural use of the Site began in the late 1800s. The Site was used for agriculture purposes or was vacant until 1956. The Site has been used as a single family residence since 1956.

- There is no facility currently active within a ½ mile radius that is listed as a CERCLIS (Comprehensive Environmental Response, Compensation and Liability Information System) facility.
- There is no facility currently active within a ¼ mile radius that is listed as a large quantity generator of hazardous wastes.
- There are 4 LUST (Leaking underground storage tanks) facilities within a ½ mile radius of the Site. Review of these listings indicates that each of the facilities has completed clean up and none has a potential to impact the Site.
- Agricultural chemicals may have been applied to the Site in conjunction with the cultivation of sugar cane prior to 1956.

The following is a summary of the possible environmental concerns which were reviewed during this assessment:

- Asbestos containing materials (ACM) are present at the Site. At the time of the inspection, none of the ACM was friable. The acoustical spray-on ceiling material is a regulated asbestos-containing material (RACM). The EPA's NESHAP (National Emissions Standards for Hazardous Air Pollutants) regulations require that all RACM (>1% asbestos) be removed from a facility prior to demolition or renovation activities that would break up, dislodge, or similarly disturb the materials, or preclude access to the material for subsequent removal. Asbestos is not considered an REC and it does not presently pose an environmental concern at the Site.
- Lead containing paints (LCP) are present at the Site and chromium containing paints may be present at the Site. At the time of the Site inspection, building surface paints were in good condition, but yellow paint on parking area posts was in poor condition. Lead and chromium paints are not considered an REC and only the yellow paint on the parking area posts presently pose a minor environmental concern at the Site.
- Some building lighting systems consisted of fluorescent light fixtures. Fluorescent tubes may contain mercury and the fixture ballasts may contain PCBs. The fluorescent light fixtures appear to be in good condition and there was no visible leakage from the fixtures at the time of the inspection. At the time of the inspection, the fluorescent building lighting systems are not an REC and do not presently pose an environmental concern at the Site.

The following is a summary of the possible "recognized environmental conditions" that were reviewed during this assessment:

- The possible application of agricultural chemicals would be consistent with the former use of the Site for cultivation of sugar cane. Typically, applications of pesticides and herbicides to sugar crops are limited. Arsenic based pesticides and herbicides were historically used on sugar plantations between the early 1900s

through the mid-1950s. Some recent studies have indicated that there may be elevated concentrations of arsenic in the shallow surface soils on former sugar cane lands. The US EPA has stated that unless an assessed site contained an agricultural chemical mixing or storage area, the agricultural chemicals used at a site are not an REC. Therefore, for the purposes of this assessment, the possible use of agricultural chemicals on the Site is not an REC.

In view of the above, and based on a review of available information, EKNA concluded that there are no RECs present that would adversely impact the use of the Site. EKNA offered the following conclusions concerning mitigation:

- The three injection wells on the Site should be registered with the Hawai‘i State Department of Health.
- ACMs, LCPs or chromium containing paints that become friable or damaged should only be sampled by a licensed and trained asbestos, lead or hazardous materials contractor, and should only be handled, removed and disposed of, by licensed and trained asbestos, lead or hazardous materials abatement contractors, in accordance all applicable laws and regulations. The parking area posts with yellow paint in poor condition should be abated.
- Prior to demolition or during any renovation, ACMs should be handled, removed and disposed of, by licensed and trained asbestos abatement contractors, in accordance with plans and specifications based on all applicable laws and regulations. The acoustical spray-on ceiling material should be abated as a RACM prior to demolition or during any renovation.
- Prior to demolition, structures with possible lead or chromium containing paints should be tested for leachable lead or chromium to verify that the materials may be disposed of as demolition debris or by recycling.
- The possible mercury containing fluorescent lamp tubes should be removed prior to any renovation or demolition and should be handled, removed and disposed in accordance with plans and specifications based on all applicable laws and regulations. The light fixtures located in laundry rooms and exterior parking areas of the complex were not inspected as part of this project. The ballast in these fluorescent light fixtures should be considered to contain PCBs until inspected and confirmed to be labeled “No PCBs”.

Single-Family Residence, 1367 Kapiolani Street

This Phase I ESA for this property indicated that:

- No previous Phase 1 ESAs are known to exist for the Site.
- Based on available information, it is likely that agricultural use of the Site began in the late 1800s. The Site was used for agriculture purposes or was vacant until 1956. The Site has been used as a single family residence since 1956.

- There is no facility currently active within a ½ mile radius that is listed as a CERCLIS facility.
- There is no facility currently active within a ¼ mile radius that is listed as a large quantity generator of hazardous wastes.
- There are 4 LUST facilities within a ½ mile radius of the Site. Review of these listings indicates that each of the facilities has completed clean up and none has a potential to impact the Site.
- Agricultural chemicals may have been applied to the Site in conjunction with the cultivation of sugar cane prior to 1956.

The following is a summary of the possible environmental concerns which were reviewed during this assessment:

- Asbestos containing materials (ACM) are present at the Site. At the time of the Site inspection, none of the ACM was friable. Asbestos is not considered an REC and it does not presently pose an environmental concern at the Site.
- Arsenic containing materials (canec ceiling boards) are present at the Site. At the time of the Site inspection, the canec was not friable. Arsenic containing canec boards are not considered an REC and do not presently pose an environmental concern at the Site.
- Lead containing paints (LCP) may be present at the Site. At the time of the Site inspection, most surface paints were in good condition except that garage paints are in poor condition. LCPs are not considered an REC, but the garage paints do presently pose an environmental concern at the Site.

The following is a summary of the possible "recognized environmental conditions" which were reviewed during this assessment:

- The possible application of agricultural chemicals would be consistent with the former use of the Site for cultivation of sugar cane. Typically, applications of pesticides and herbicides to sugar crops are limited. Arsenic based pesticides and herbicides were historically used on sugar plantations between the early 1900s through the mid-1950s. Some recent studies have indicated that there may be elevated concentrations of arsenic in the shallow surface soils on former sugar cane lands. The US EPA has stated that unless an assessed site contained an agricultural chemical mixing or storage area, the agricultural chemicals used at a site are not an REC. Therefore, for the purposes of this assessment, the possible use of agricultural chemicals on the Site is not an REC.

In view of the above, and based on a review of available information, EKNA concluded that there are no RECs present that would adversely impact the use of the Site. EKNA offered the following conclusions concerning mitigation:

- ACMs, LCPs or canec boards that become friable or damaged should only be sampled by a licensed and trained asbestos, lead or hazardous materials contractor, and should only be handled, removed and disposed of, by licensed and trained asbestos, lead or hazardous materials abatement contractors, in accordance all applicable laws and regulations.
- Prior to demolition or during any renovation, ACMs should be handled, removed and disposed of, by licensed and trained asbestos abatement contractors, in accordance with plans and specifications based on all applicable laws and regulations.
- The garage paints that are in a poor condition are an environmental concern, especially for young children. The garage paints should be analyzed for lead content and if determined to be lead based paint, they should be abated by licensed and trained lead or hazardous materials abatement contractors, in accordance all applicable laws and regulations.
- Prior to demolition, structure surfaces with well adhered paint should be tested for leachable lead to verify that the materials may be disposed of as demolition debris or by recycling.

3.2 Socioeconomic and Cultural

3.2.1 Socioeconomic Characteristic

Table 1 provides information on the socioeconomic characteristics of Hilo along with those of Hawai‘i County as a whole for comparison, from the U.S. 2000 Census of Population. Hawai‘i County, as well as Hilo, has a diverse population and is one of the 100 fastest-growing counties in the U.S. Several segments of the population that typically exhibit disadvantaged measures of social welfare are disproportionately represented in the population of Hilo as compared to the County of Hawai‘i. Median family income is less than 65 percent that of the County as a whole. More than 15 percent of individuals have income below the poverty level, double the statewide rate. Similar patterns hold for households receiving welfare, food stamps, and disability payments.

The UH Hilo student population is a rich blend of local, mainland and international students, making it among the nation’s most diverse universities. Native Hawaiian ancestry make up about 20 percent of the UH Hilo enrollment. The second-largest employer in East Hawai‘i, UH Hilo consists of five academic colleges offering 35 baccalaureate degrees, six master degrees and two doctorates, including one approved in 2006 in Hawaiian and Indigenous Language and Culture Revitalization. UH Hilo has sustained steady growth in the statewide University of Hawai‘i system, growing 47 percent since 1977 and reaching an all-time high enrollment of 4,085 in Fall 2010, with a gain of 89 students, or 2.2 percent, over the previous year (http://www.hawaii.edu/news/article.php?aId=3878), after a 5.5 percent increase the year before year. The school has shown steady upward growth since 1998 and is also the

only campus in the University of Hawai‘i system to show consistent increases in spring enrollment. Part of the growth is attributed to the establishment in 2007 of the UH Hilo College of Pharmacy, which so far has boosted enrollment by 260 students.

Table 1
Selected Socioeconomic Characteristics

CHARACTERISTIC	ISLAND OF HAWAI‘I	HILO
Total Population	148,677	40,759
Percent Caucasian	31.5	17.1
Percent Asian	26.7	38.3
Percent Hawaiian	9.7	13.1
Percent Two or More Races	28.4	29.7
Median Age (Years)	38.6	38.6
Percent Under 18 Years	26.1	24.7
Percent Over 65 Years	13.5	16.7
Percent Households with Children	21.3	36.1
Average Household Size	2.75	2.7
Median Family Income	$39,805	$35,506
Percentage of Population Below 100% of Federal Poverty Level	15.7	11.7
Percent Housing Vacant	15.5	9.0

Source: U.S. Bureau of the Census. May 2001. *Profiles of General Demographic Characteristics, 2000 Census of Population and Housing, Hawai‘i.* (U.S. Census Bureau Web Page).

Impacts

The proposed project would benefit public welfare in the Hilo area as well as the County and State of Hawai‘i through enhancement of access to educational opportunities.

3.2.2 Cultural Setting

Existing Environment

The earliest historical knowledge of Hilo comes from legends written by Samuel Kamakau (1961) of a 16th century chief ‘Umi-a-Liloa (son of Liloa), who at that time ruled the entire island of Hawai‘i. Descendants of Umi and his sister-wife were referred

to as “Kona” chiefs, controlling Kaʻū, Kona, and Kohala, while descendants of Umi and his Maui wife were “Hilo” chiefs, controlling Hāmākua, Hilo, and Puna (Kelly 1981:1). According to Kamakau (1961), both sides fought over control of the island, desiring access to resources such as feathers, *māmaki* tapa, and canoes on the Hilo side, and *wauke* tapa and warm lands and waters on the Kona side (Kelly 1981:3).

Sometime near the end of the 16th century or early in the 17th century, the lands of Hilo were divided into *ahupuaʻa*, which till today retain their original names (Kelly 1981:3). These include the *ahupuaʻa* of Puʻuʻeo, Piʻihonua, Punahoa, Pōnohawai, Kūkūau and Waiākea. The design of these land divisions was such that residents could have access to all that they needed to live, with ocean resources at the coast, and agricultural and forest resources in the interior. However, only Piʻihonua and Waiākea provided access to the full range of resources stretching from the sea up to 6,000 feet along the slopes of Mauna Kea (Kelly 1981:5).

Historical accounts (McEldowney 1979) place the current study area in a zone of agricultural productivity. As Isabella Bird recorded upon arriving in Hilo in 1873:

> “Above Hilo, broad lands sweeping up cloudwards, with their sugar cane, *kalo*, melons, pine-apples, and banana groves suggest the boundless liberality of Nature” (Bird 1964:38).

Handy and Handy (1972) also describe the general region as an agricultural area:

> “On the lava strewn plain of Waiakea and on the slopes between Waiakea and Wailuku River, dry taro was formerly planted wherever there was enough soil. There were forest plantations in Panaewa and in all the lower fern-forest zone above Hilo town along the course of the Wailuku River” (Handy and Handy 1972:539).

Maly (1996) refers to a 1922 article from the Hawaiian Language newspaper, *Ka Nupepa Kūʻokuʻa*, where planting on *pāhoehoe* lava flats is described:

> “There are *pahoehoe* lava beds walled in by the ancestors in which sweet potatoes and sugar cane were planted and they are still growing today. Not only one or two but several times forty (*mau kaʻau*) of them. The house sites are still there, not one or two but several times four hundred in the woods of the Panaewa. Our indigenous bananas are growing wild, these were planted by the hands of our ancestors” (Maly 1996:A-2).

Waiākea Ahupuaʻa

The project site is in the *ahupuaʻa* of Waiākea, a very large land division that includes all land in and near UH-Hilo as well as the land *mauka* and *makai*. As part of an

archaeological inventory survey, Maly (1996) conducted historical research for the lands of Wainaku, Pōnohawai, Waiākea, and Pi‘ihonua. He discusses the significance of the use of the Hawaiian word *wai* in the place names: Waiākea, Pōnohawai, Wainaku, and Wailuku (River). According to Maly, the word *wai* (water) has strong metaphorical associations with the Hawaiian concept of wealth (*waiwai*), stressing its cultural importance (Maly 1996:A-2). In this context, the importance of Hilo can be better understood, with its copious streams that fed taro pondfields and its numerous fishponds.

Waiākea along with Punahoa and Pi‘ihonua were held by Kamehameha I until the time of his death in 1819, at which time his holdings, including Waiākea, were passed down to his son, Liholiho. Following the *Māhele*, the population of Hilo grew and the scattered upland habitations gave way to sugar cultivation (McEldowney 1979:37).

By 1905, according to Thrum (1923) the Hawaii Mill Company had 10 miles of cane flumes and produced twenty-five tons of sugar per day. In 1920 Hawaii Mill Company was taken over by the Hilo Sugar Company (Kelly 1981). Commercial sugar production lasted in Waiākea until the mid twentieth century, at which time many of the fields were converted to pasturage associated with cattle ranching.

Following the *Māhele*, Kamehameha IV leased large portions of Waiākea to outside interests for pasture and sugarcane cultivation (Moniz n.d.). In 1861 S. Kipi leased the Crown Lands of Waiākea for the rate of $600 dollars a year to be used as pasture land for five years (Kelly et al. 1981; Maly 1996). In 1874 the first lease for sugarcane cultivation in Waiākea was granted to Rufus A. Lyman for a term of 25 years. The lease granted him all the privileges of the land including the use of the fishponds and the cutting of firewood (Maly 1996). This lease was eventually transferred to the Waiākea Mill Company, founded by Alexander Young and Theo H. Davis, and the Waiākea sugar plantation was established.

Established in 1879, the Waiākea Mill Company started with about 350 acres of cultivated lands they had acquired from Lyman. In 1888 the company acquired a 30-year lease that increased their land holdings 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, which 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. The productive areas were interconnected with a plantation railroad system connecting fields with the mill at Wailoa Stream. A 1918 map of Waiākea Mill Company’s holdings indicates that the project site was under cultivation (Rechtman Consulting 2006:10).

No caves, springs, *pu‘u*, native forest groves, gathering resources or other natural features are present on or near the entirely developed project site. The vegetation is highly disturbed and does not contain the quality and quantity or resources that would be important for native gathering. As discussed in the next section, no archaeological remains reflecting cultural history or supporting cultural values appear to be present. The project site does not support any traditional resource uses, nor are there any Hawaiian customary and traditional rights or practices known to be associated with the property. Based on this, it would appear that no known valuable natural, cultural or historical resources are present on the project site.

Impacts and Mitigation Measures

As part of the current study, an effort was made to obtain information about any potential traditional cultural properties and associated practices that might be present, or have taken place in upper Waiākea Ahupua‘a. Property neighbors and various agencies including the Office of Hawaiian Affairs (OHA) were contacted. OHA responded on November 23, 2010, that although they needed to review the EA to provide specific comments, “we applaud the effort to provide additional student housing for those attending UH Hilo” (see Appendix 1a for full letter). Although there are no initial indications that there are any traditional cultural properties in the immediate vicinity of the current project area or current use of the area for traditional and customary practices, OHA and other parties were supplied a copy of the Draft EA in order to help finalize this finding.

As it currently appears that no resources or practices of a potential traditional cultural nature (i.e., landform, vegetation, etc.) appear to be present on or near the project site, and there is no evidence of any traditional gathering uses or other cultural practices, the proposed purchase, construction and maintenance of the properties for student housing would not likely impact any culturally valued resources or cultural practices. Instead, the perpetuation and advancement of Hawaiian culture that is part of the curriculum at UH Hilo will encourage will greatly benefit cultural resources and practices.

3.2.3 Archaeology and Historic Sites

Existing Environment

As discussed above, the project area is located in the *ahupua‘a* of Waiākea in the zone described as upland agricultural areas (McEldowney 1979). Prehistoric use of this land was likely for farming and gathering of resources, including plants for food, fiber, medicine and firewood. Housing in the area is believed to be predominately temporary use associated with agriculture. According to the Phase I Environmental Site Assessments conducted for the project, the project site was part of a large area of Waiākea used for sugar cane cultivation for some years prior to 1937 (see Appendix 3).

However, the land is rocky and poorly suited for mechanical cane cultivation, and by mid-century the plantations were no longer growing sugar cane there and grazing was taking place. For some period of time starting 1948 or prior and extending until 1956, both properties making up the project site were vacant. In 1956, the single-family home occupying 1367 Kapiolani Street was built. In 1973, the University Palms Apartments were built. Both properties appear to have been completely graded and much of the available space was built upon (see Figure 3).

No sites listed in the National or State Registers of Historic Sites are present on or near the project site.

Impacts and Mitigation Measures

UH Hilo has preliminarily determined that no significant historic sites are present, based on the relatively recent age of all current structures, the lack of any historical or architectural value associated with the single-family home built in 1956, and the extensive disturbance on the project site as a result of first sugar cane cultivation and later building construction. However, in the unlikely event that human skeletal remains or undocumented archaeological resources are encountered during future development activities within the current study area, work in the immediate area of the discovery shall be halted and the State Historic Preservation Division contacted as outlined in Hawai‘i Administrative Rules 13§13-275-12

The State Historic Preservation Division (SHPD) was contacted during early consultation to determine if they had any historic sites concerns regarding the project. The Draft EA was provided to SHPD with the request for concurrence on the University's conclusion that no significant historic sites are present and that none would be affected.

3.3 Infrastructure

3.3.1 Utilities

Existing Facilities and Services, Impacts and Mitigation Measures

As discussed in Section 1.1., all necessary utilities, including water service, wastewater, electrical, telephone, and CATV/data service are available at both properties. As the apartment complex already exists, there would be no change to utility connections and no additional impact to existing facilities. Electrical service will continue to be provided from a Hawai‘i Electric Light Company (HELCO) circuit on Kapiolani Street. Existing connections to County water and sewer services would remain unchanged. New connections including upgraded water, electrical, telephone, CATV and wastewater services would be necessary at property containing the existing single-family home in

order to convert it to multi-unit housing use. Although coordination with utility companies and agencies has just begun, it appears at this time that there are no infrastructure constraints that would preclude development of another 17 units in this location. UH Hilo is currently exploring development of a water well along with an intergovernmental agreement with the County Department of Water Supply in order to provide the water necessary for various campus facilities in development and planning.

Demolition of the single-family residence and some aspects of renovation of the University Palms apartment will generate solid waste. UH Hilo will require the design contractor to develop a Solid Waste Management Plan. All demolition of structures will be in accordance with the requirements of *Chapter 20, Refuse,* of the Hawai‘i County Code, and may require a Landfill Disposal Permit from the County Department of Environmental Management.

3.3.2 Roadways and Traffic

Introduction

A Traffic Impact Analysis Report (TIAR) for the project was prepared by Phillip Rowell and Associates; it is attached as Appendix 2 and summarized below.

Existing Facilities and Conditions

The University Palms Apartments and the single-family residence are located along the north side of Kapiolani Street east of Lanikaula Street. Street access to both properties is on Kapiolani Street. This portion of Kapiolani Street is approximately one-quarter of a mile long, with its northern terminus at West Lanikaula and its southern terminus at West Kawili Street, where Kapiolani Street ends as a County road (the intersection of Kapiolani Street and Kawili Street is four-way, also providing access to the main driveway of Waiakea High School). Besides being a connector between the two main streets flanking the campus, Kapiolani Street provides access via a secondary driveway to UH Hilo.

“Level-of-service” is a term which denotes any of an infinite number of combinations of traffic operating conditions that may occur on a given lane or roadway when it is subjected to various traffic volumes. Level-of-service (LOS) is a qualitative measure of the effect of a number of factors which include space, speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience. There are six levels-of-service, A through F, which relate to the driving conditions from best to worst, respectively.

Level-of-service analysis of the intersection of Kapiolani Street at Lanikaula Street showed that the northbound and southbound approaches along Lanikaula Street currently

operate at LOS A during both morning and afternoon peak hours. The westbound approach operates at LOS E during the morning peak hour of ambient traffic (7:15 to 8:15 AM) and LOS D during the afternoon peak hour of ambient traffic (4:15 PM to 5:15 PM).

Impacts

Because the existing University Palms Apartments are already used primarily for student housing, there would be little or no change to the proposed use nor to traffic generated by the property. Therefore, the focus of the TIAR was new housing at 1367 Kapiolani Street. The TIAR assumed 17 units with two beds per unit, with a total of 34 students. The traffic-generating characteristics of such housing were estimated by counting traffic from a close analogue – the adjacent University Palms apartments. The peak hours for traffic generation – 7:30 AM to 8:30 AM and 5:00 PM to 6:00 PM – was slightly different from that of ambient traffic. Based on the level of traffic generated from the University Palms, the new housing is expected to generate 5 inbound and 3 outbound trips during the morning peak hour, and 6 inbound and 7 outbound trips during the afternoon peak hour.

The TIAR distributed and assigned the project trips based on existing traffic approach and departure patterns of traffic currently using the intersection of Kapiolani Street at Lanikaula Street. Background plus project traffic projections were estimated by superimposing the peak hourly traffic generated by the proposed project on the background (without-project) peak hour traffic projections. This assumes that the peak hour trips generated by the project will coincide with the peak hour of the adjacent street. This represents a worse-case condition, as it assumes that the peak hours of all the intersection approaches and the peak hour of the study project coincide.

A level-of-service analysis was then conducted which concluded that the major traffic movements along Lanikaula Street will operate at LOS A without and with project generated traffic. LOS A implies good operating conditions and minimal delays. The westbound approach of Kapiolani Street at Lanikaula Street will operate at LOS E during the morning peak hour and LOS D during the afternoon peak hour. There is no change in the level-of-service as a result of project generated traffic. Given that the delay of the westbound approach is 47.7 seconds during the morning peak hour, approach will operate at LOS E for a short time during the peak hour. All movements at the intersection of Kapiolani Street at the project driveway will operate at LOS A or B. This implies good operating conditions.

It should be noted that at some point in the future, Kapiolani Street may be extended northwest of its current terminus at Lanikaula Street to connect with the portion of Kapiolani Street that terminates near Mohouli Street. This will provide an important link

in Hilo's traffic system and make access possible for currently undevelopable portions of State land that have are planned long-term for University use. If and when this extension occurs, traffic impacts may differ from current estimates; assessment of those impacts would occur as part of development of the Kapiolani Street Extension project.

In a letter of November 8, 2010, Assistant Police Chief Derek D. Pacheco noted:

> "The roadway fronting this project is narrow and insufficient. There is no sidewalk on the makai side of Kapiolani Street and a substandard sidewalk/walkway on the mauka side with vehicles parking on the county easement on the makai side of the roadway. This roadway needs to be improved, and with the anticipated increase due to this project, a study for the need for traffic signals may be required" (see Appendix 1a for letter).

Mitigation Measures: Traffic

Level-of-Service D is generally considered to be the minimum acceptable peak hour level-of-service for urban intersections. This standard is applicable to the overall intersection and major through movements at intersections. Minor movements, such as left turns and side street approaches may operate at Level-of-Service E or F for short periods during the peak hour. Using this standard, no mitigation is required. A traffic signal warrant analysis for the intersection of Kapiolani Street at Lanikaula Street concluded that traffic signals are not warranted based on current conditions. It is important to note that the TIAR used conservative, worst-case assumptions but nonetheless found the impacts to be minimal. The current owner of University Palms allows up to two renters per bedroom, while UH Hilo will limit occupancy to one student. The total generated traffic and the demand for parking demand will not increase at University Palms.

Mitigation Measures: Traffic

As stated above, University Palms currently has a slightly greater number of occupants than it would occur under UH Hilo control. The total parking demand will not increase at University Palms. When the University demolishes the single-family residence and redevelops this property for student housing, it will address the additional parking demands on-site, elsewhere on campus, or through development of parking on other properties it controls within the surrounding area. The University is continually looking at improving the availability of parking for students.

Mitigation Measures: Pedestrian Safety

As part of its larger plans, UH Hilo will be evaluating additional improvements to Kapiolani Street to make it safer and more pedestrian-friendly, subject to the availability of funding.

3.4 Secondary and Cumulative Impacts

The proposed project would not involve major secondary or cumulative impacts, such as population changes or effects on public facilities, except that it would help ease demand on existing UH Hilo on-campus housing.

Cumulative impacts result when implementation of several projects that individually have limited impacts combine to produce more severe impacts or conflicts in mitigation measures. The potential for adverse cumulative effects from induced or subsequent growth is covered in the previous section. Most of the adverse effects of the project are related to construction and are temporary – minor disturbance to air quality, traffic, noise and visual quality– and thus very limited in severity, nature and scale. However, there are a number of construction projects occurring nearby within a three-year timeframe that could generate similar construction impacts, with which these very minor and temporary effects could accumulate. This interaction thus requires attention. According to current schedules, most of the construction activity on the University Palms site would occur during 2011 and perhaps early 2012.

Most nearby projects appear to be related to new buildings on or near the UH Hilo campus. UH Hilo projects currently underway include the almost completed Science and Technology Building. Planned for the near future are new buildings for the Ka Haka ʻUla O Keʻelikōlani College of Hawaiian Language (whose $23,800,000 Phase I includes a complex of three buildings for offices, classrooms, and pre-school facilities) and the College of Pharmacy. UH Hilo is also planning a potable water well on University land located above Komohana Street adjacent to the Puainako Extension. Non-UH Hilo projects are the Puainako Street Widening, Thirty Meter Telescope base facilities, the Kapiolani Street Extension, the 12-bed, single-story Hospice of Hilo residential facility, and the possible relocation of Hawaiʻi Community College. Table 2 summarizes these projects and their potential interaction with the UH Hilo student housing project.

More uncertain in nature, timing or location is the China-U.S. Center (or an updated equivalent of this 2005 public-private partnership), which proposed student housing, commercial, conference and hotel rooms on 33 acres just across the main campus entrance on Kawili Street. Similarly uncertain is the Events Center, 22,600-square-foot structure that was originally planned adjacent to the Athletic Complex to provide an auditorium for performances and meetings.

Table 2
Projects with Potential for Cumulative Impacts

Project	Construction Timing	Location Relative to Well	Interaction Potential
College of Pharmacy	2011-2015	Nowelo Street, 4,000 feet SW	Low, due to distance.
Puainako Street Widening	Not funded or scheduled	Puainako Street, 3,500 feet S	Low, due to timing and distance.
TMT base facilities	2013-2015	Nowelo Street, 4,000 feet SW	Low, due to distance and timing.
Hawai‘i Community College relocation	Not funded or scheduled	1.2 miles SW off Puainako Ext.	Low, due to timing.
Science and Technology building	Complete in 2011	800 feet west	None, due to timing, as project would be complete before student housing begins.
College of Hawaiian Language	2011-2013	Nowelo Street, 3,800 feet NW	Low, due to distance.
Hospice of Hilo Residential Center	2011-2012	2000 feet N	Very low, due to distance and scale of 12-bed project
Kapiolani Street Extension	Uncertain	500 feet NW	Low, due to timing uncertainty, but if concurrent will generate cumulative traffic impacts.
UH Hilo Water Well	2012-2015	1.2 miles SW	Low, due to distance.

In summary, most of these projects are located at least half a mile from the project site, outside the area that would involve any potential to contribute dust, noise, runoff or similar construction impacts that might accumulate with similar impacts from the proposed water well project. Minor impacts to traffic on Kapiolani Street and/or Lanikaula Street could occur, but these could be mitigated through traffic control plans and construction timing that would be specified as construction managers neared the start date and examined the schedules of other, concurrent projects. Some other projects are fairly uncertain or will not likely overlap in terms of timing. There is little or no chance for adverse interactions or cumulative effects during construction.

On a permanent basis, traffic and parking continue to be a concern for UH Hilo and surrounding areas. Ultimate solutions will involve expansion and more incentives for use of the Hele On Bus system and projects such as the Kapiolani Street Extension and Puainako Street Widening, which will expand capacity and increase connectivity for motor vehicles and provide better facilities for bicycle and pedestrian access to UH Hilo. These long-term solutions, while important for UH Hilo to bear in mind, are beyond the scope of conversion of an existing apartment to student housing and the addition of 17 units for student housing process.

3.5 Required Permits and Approvals

The following permits and approvals would be required:

County of Hawai‘i.

Department of Public Works: Building Permit, Grading Permit, Driveway Permit, Drainage Approval
Planning Department: Plan Approval
Department of Environmental Management: Landfill Disposal Permit

State of Hawai‘i

Department of Health: Injection Well Permit

3.6 Consistency With Government Plans and Policies

3.6.1 Hawai‘i State Plan

Adopted in 1978 and last revised in 1991 (Hawai‘i Revised Statutes, Chapter 226, as amended), the Plan establishes a set of themes, goals, objectives and policies that are meant to guide the State’s long-run growth and development activities. The three themes that express the basic purpose of the *Hawai‘i State Plan* are individual and family self-sufficiency, social and economic mobility and community or social well-being. The proposed project would promote these goals by enhancing educational facilities on the Island of Hawai‘i, thereby enhancing quality-of-life and community and social well-being.

3.6.2 Hawai‘i County General Plan and Zoning

The *General Plan* for the County of Hawai‘i is a policy document expressing the broad goals and policies for the long-range development of the Island of Hawai‘i. The plan was

adopted by ordinance in 1989 and revised in 2005 (Hawai‘i County Department of Planning). The *General Plan* itself is organized into thirteen elements, with policies, objectives, standards, and principles for each. There are also discussions of the specific applicability of each element to the nine judicial districts comprising the County of Hawai‘i. Most relevant to the proposed project are the following Goal and Policies, and Courses of Action:

EDUCATION – GOALS

- Utilize publicly owned lands in the best public interest and to the maximum benefit.

EDUCATION – COURSES OF ACTION

- Encourage the establishment of additional schools as the need arises.
- Support the continued expansion of the University system and the University of Hawaii at Hilo and Hawaii Community College campus and encourage the continuing education programs throughout the community.
- Encourage continual improvements to existing educational facilities.

The Hawai‘i County General Plan, adopted in 2005, quotes a statement from the *University of Hawaii at Hilo Long Range Development Plan* that “the University continues to lack adequate student and faculty housing,” which this project would help alleviate.

Discussion: The proposed project satisfies relevant goals, policies, and courses of action related to educational facilities in Hawai‘i County.

The *Hawai‘i County General Plan Land Use Pattern Allocation Guide (LUPAG)*. The LUPAG map component of the *General Plan* is a graphic representation of the Plan’s goals, policies, and standards as well as of the physical relationship between land uses. It also establishes the basic urban and non-urban form for areas within the planned public and cultural facilities, public utilities and safety features, and transportation corridors. The project site is classified as High Density Urban in the LUPAG. The proposed project is consistent with this designation.

Hawai‘i County Zoning. Both properties have RM-1 zoning (Multiple-Family Residential, 1,000 sf minimum per for each separate rentable unit) and the proposed project is consistent with these designations. A new zoning category for the University District was approved by the County Council per Hawai‘i County Ordinance No. 07 104, effective August 1, 2007. UH Hilo may include the area in an application for a change of zone to this more appropriate district at some time in the future. The properties are not situated within the County’s Special Management Area (SMA).

3.6.3 Hawai‘i State Land Use Law

All land in the State of Hawai‘i is classified into one of four land use categories – Urban, Rural, Agricultural, or Conservation – by the State Land Use Commission, pursuant to Chapter 205, HRS. The properties are in the State Land Use Urban District. The proposed use is consistent with intended uses for this Land Use District.

PART 4: DETERMINATION

The University of Hawai‘i at Hilo has preliminarily determined that the proposed project will not significantly alter the environment, as impacts will be minimal, and intends to issue a Finding of No Significant Impact (FONSI). This determination will be reviewed based on comments to the Draft EA, and the Final EA will present the final determination.

PART 5: FINDINGS AND REASONS

Chapter 11-200-12, Hawai‘i Administrative Rules, outlines those factors agencies must consider when determining whether an Action has significant effects:

1. *The proposed project will not involve an irrevocable commitment or loss or destruction of any natural or cultural resources.* No valuable natural or cultural resources would be committed or lost. Uses in the surrounding area are mostly UH Hilo-related and will directly benefit by the project.
2. *The proposed project will not curtail the range of beneficial uses of the environment.* The proposed project expands and in no way curtails beneficial uses of the environment.
3. *The proposed project will not conflict with the State's long-term environmental policies*. The State’s long-term environmental policies are set forth in Chapter 344, HRS. The broad goals of this policy are to conserve natural resources and enhance the quality of life. The project fulfills aspects of these policies calling for an improved social environment. It is thus consistent with all elements of the State’s long-term environmental policies.
4. *The proposed project will not substantially affect the economic or social welfare of the community or State.* The project will benefit the social welfare of the community.
5. *The proposed project does not substantially affect public health in any detrimental way.* The proposed project will benefit public health by increasing access to educational opportunities.
6. *The proposed project will not involve substantial secondary impacts, such as population changes or effects on public facilities.* No secondary effects are expected to result from the proposed action, which would improve educational facilities and would not induce permanent in-migration or affect public facilities.

7. *The proposed project will not involve a substantial degradation of environmental quality*. The project is environmentally benign, and would thus not contribute to environmental degradation.
8. *The proposed project will not substantially affect any rare, threatened or endangered species of flora or fauna or habitat.* The project site supports only non-native vegetation. Impacts to rare, threatened or endangered species of flora or fauna will not occur.
9. *The proposed project is not one which is individually limited but cumulatively may have considerable effect upon the environment or involves a commitment for larger actions.* The project is not related to additional activities in the region in such a way as to produce adverse cumulative effects or involve a commitment for larger actions. Cumulative traffic impacts have been accounted for in the analysis and recommendations of the Traffic Impact Analysis Report.
10. *The proposed project will not detrimentally affect air or water quality or ambient noise levels.* No adverse effects on these resources would occur through proper adherence to construction best management practices and mitigation measures that will be contained in permits from the State Department of Health and the County Department of Public Works.
11. *The project does not affect nor would it likely to be damaged as a result of being located in environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal area.* Although the project is located in an area with volcanic and seismic risk, the entire Island of Hawai‘i shares this risk, and the project is not imprudent to construct, and employs design and construction standards appropriate to the seismic zone.
12. *The project will not substantially affect scenic vistas and viewplanes identified in county or state plans or studies.* No scenic vistas and viewplanes identified in the Hawai‘i County General Plan or any other scenic resources will be adversely affected by the project which already exists.
13. *The project will not require substantial energy consumption*. Continued operation of the apartment complex as on-campus housing will require no additional consumption of energy. The new facility will be LEED (Leadership in Energy and Environmental Design) Silver compliant.

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ENVIRONMENTAL ASSESSMENT

University of Hawai‘i at Hilo
Acquisition of Student Housing Complex

APPENDIX 1a
Comments in Response to Early Consultation

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William P. Kenoi
Mayor

Harry S. Kubojiri
Police Chief

Paul K. Ferreira
Deputy Police Chief

County of Hawai'i
POLICE DEPARTMENT
349 Kapiolani Street • Hilo, Hawai'i 96720-3998
(808) 935-3311 • Fax (808) 961-8865

November 8, 2010

Mr. Ron Terry
Principal
Geometrician Associates
P. O. Box 396
Hilo, HI 96721

Dear Mr. Terry:

Re: Early Consultation for Acquisition of University Palms Apartments and Adjacent Single-Family Residence for Student Housing for the University of Hawai'i at Hilo, Island of Hawai'i, TMK (3rd)2-4-057:024 and 028

Upon staff visiting the site, I have concerns about the following:

1) The roadway fronting this project is narrow and insufficient. There is no sidewalk on the makai side of Kapiolani Street and a substandard sidewalk/walkway on the mauka side with vehicles parking on the county easement on the makai side of the roadway. The roadway needs to be improved, sidewalks are needed, and parking in this area should be eliminated.

2) Due to the traffic levels at the intersection of Kapiolani Street and Lanikaula Street, and with the anticipated increase due to this project, a study for the need of traffic signals may be required.

If you have questions regarding these comments, please contact Captain Robert Wagner, Commander of the South Hilo District, at (808) 961-2214.

Sincerely,

DEREK D. PACHECO
ASSISTANT POLICE CHIEF
AREA I OPERATIONS BUREAU

RW:lli

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-I-3416

November 5, 2010

Mr. Ron Terry, Principal
Geometrician Associates, LLC
P.O. Box 396
Hilo, Hawaii 96721

Dear Mr. Terry:

SUBJECT: Early Consultation for Acquisition of University Palms Apartments and Adjacent Single-Family Residence for Student Housing for the University of Hawai`I at Hilo, Island of Hawai`i
TMK: (3)2-4-057:024 and 028

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 comments at this time, but reserve the right to future comments. We strongly recommend that you review all of the Standard Comments on our website: www.hawaii.gov/health/environmental/env-planning/landuse/landuse.html. Any comments specifically applicable to this application should be adhered to.

The same website also features a Healthy Community Design Smart Growth Checklist (Checklist). The Hawaii State Department of Health, Built Environment Working Group, recommends that State and county planning departments, developers, planners, engineers and other interested parties apply the healthy built environment principles in the Checklist whenever they plan or review new developments or redevelopments projects. We also ask you to share this list with others to increase community awareness on healthy community design.

If there are any questions about these comments please contact the Environmental Planning Office at 586-4337.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON, Acting Manager
Environmental Planning Office

William P. Kenoi
Mayor

Darryl J. Oliveira
Fire Chief

Glen P. I. Honda
Deputy Fire Chief

County of Hawai'i
HAWAI'I FIRE DEPARTMENT
25 Aupuni Street • Suite 2501 • Hilo, Hawai'i 96720
(808) 932-2900 • Fax (808) 932-2928

November 8, 2010

Mr. Ron Terry
Geometrican Associates, LLC
PO Box 396
Hilo, Hawai'i 96721

SUBJECT: EARLY CONSULTATION FOR ACQUISITION OF UNIVERSITY PALMS APARTMENTS AND ADJACENT SINGLE-FAMILY RESIDENCE FOR STUDENT HOUSING FOR THE UNIVERSITY OF HAWAI'I AT HILO
TMK: (3) 7-3-09:017, 025, 026 AND 028

In regards to the above-mentioned draft Environmental Assessment, no special environmental impacts or conditions however the Fire Department would require the following, at a minimum:

Fire apparatus access roads shall be in accordance with UFC Section 10.207:

"Fire Apparatus Access Roads

"**Sec. 10.207.** (a) **General.** Fire apparatus access roads shall be provided and maintained in accordance with the provisions of this section.

"(b) **Where Required.** Fire apparatus access roads shall be required for every building hereafter constructed when any portion of an exterior wall of the first story is located more than 150 feet from fire department vehicle access as measured by an unobstructed route around the exterior of the building.

"**EXCEPTIONS:** 1. When buildings are completely protected with an approved automatic fire sprinkler system, the provisions of this section may be modified.

"2. When access roadways cannot be installed due to topography, waterways, nonnegotiable grades or other similar conditions, the chief may require additional fire protection as specified in Section 10.301 (b).

"3. When there are not more than two Group R, Division 3 or Group M Occupancies, the requirements of this section may be modified, provided, in the opinion of the chief, fire-fighting or rescue operations would not be impaired.

"More than one fire apparatus road may be required when it is determined by the chief that access by a single road may be impaired by vehicle congestion, condition of terrain, climatic conditions or other factors that could limit access.

"For high-piled combustible storage, see Section 81.109.

"(c) **Width.** The unobstructed width of a fire apparatus access road shall meet the requirements of the appropriate county jurisdiction.

"(d) **Vertical Clearance.** Fire apparatus access roads shall have an unobstructed vertical clearance of not less than 13 feet 6 inches.

"**EXCEPTION:** Upon approval vertical clearance may be reduced, provided such reduction does not impair access by fire apparatus and approved signs are installed and maintained indicating the established vertical clearance.

"(e) **Permissible Modifications.** Vertical clearances or widths required by this section may be increased when, in the opinion of the chief, vertical clearances or widths are not adequate to provide fire apparatus access.

"(f) **Surface.** Fire apparatus access roads shall be designed and maintained to support the imposed loads of fire apparatus and shall be provided with a surface so as to provide all-weather driving capabilities." (20 tons)

"(g) **Turning Radius.** The turning radius of a fire apparatus access road shall be as approved by the chief." (45 feet)

"(h) **Turnarounds.** All dead-end fire apparatus access roads in excess of 150 feet in length shall be provided with approved provisions for the turning around of fire apparatus.

"(i) **Bridges.** When a bridge is required to be used as access under this section, it shall be constructed and maintained in accordance with the applicable sections of the Building Code and using designed live loading sufficient to carry the imposed loads of fire apparatus.

"(j) **Grade.** The gradient for a fire apparatus access road shall not exceed the maximum approved by the chief." (15%)

"(k) **Obstruction.** The required width of any fire apparatus access road shall not be obstructed in any manner, including parking of vehicles. Minimum required widths and clearances established under this section shall be maintained at all times.

"(l) **Signs.** When required by the fire chief, approved signs or other approved notices shall be provided and maintained for fire apparatus access roads to identify such roads and prohibit the obstruction thereof or both."

Water supply shall be in accordance with UFC Section 10.301(c):

"(c) **Water Supply.** An approved water supply capable of supplying required fire flow for fire protection shall be provided to all premises upon which buildings or portions of buildings are hereafter constructed, in accordance with the respective county water requirements. There shall be provided, when required by the chief, on-site fire hydrants and mains capable of supplying the required fire flow.

"Water supply may consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow.

"The location, number and type of fire hydrants connected to a water supply capable of delivering the required fire flow shall be protected as set forth by the respective county water requirements. All hydrants shall be accessible to the fire department apparatus by roadways meeting the requirements of Section 10.207.

DARRYL OLIVEIRA
Fire Chief

RP:lpc

PHONE (808) 594-1888

FAX (808) 594-1865

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

COPY

HRD10/5366

November 23, 2010

Ron Terry
Geometrician Associates
P.O. Box 396
Hilo, Hawai'i 96721

Re: Pre- Draft Environmental Assessment
University of Hawai'i at Hilo student housing
Hilo, Island of Hawai'i

Aloha e Ron Terry,

The Office of Hawaiian Affairs (OHA) is in receipt of your October 28, 2010 request for comments ahead of on a draft environment assessment (DEA) to support the proposed acquisition of two parcels for use as University of Hawai'i at Hilo (UHH) student housing. An existing apartment complex on one of the parcels will be renovated to meet UHH student housing standards. The existing private residence on the other parcel will be demolished and the parcel developed to its full potential for providing additional student housing. Because the use of State funds and lands is proposed, a DEA in compliance with Chapter 343, Hawaii Revised Statutes is required.

OHA has no specific comments at this time. We look forward to reviewing the DEA. In general, we applaud the effort to provide additional student housing for those attending UHH. Thank you for initiating consultation at this early stage. Should you have any questions or concerns, please contact Keola Lindsey at 594-0244 or keolal@oha.org.

'O wau iho nō me ka 'oia'i'o,

Clyde W. Nāmu'o
Chief Executive Officer

C: OHA- East Hawai'i Community Resources Coordinator

William P. Kenoi
Mayor

BJ Leithead Todd
Director

Margaret K. Masunaga
Deputy

County of Hawai'i

PLANNING DEPARTMENT

Aupuni Center • 101 Pauahi Street, Suite 3 • Hilo, Hawai'i 96720
Phone (808) 961-8288 • Fax (808) 961-8742

December 1, 2010

Mr. Ron Terry
Geometrician Associates
P.O. Box 296
Hilo, HI 96721

Dear Mr. Terry:

SUBJECT: Early Consultation for Draft Environmental Assessment
Project: Acquisition of University Palms Apartment and Adjacent Single-Family Residence for Student Housing for the University of Hawai'i at Hilo
TMK : (3) 2-4-057:024, 028; Waiākea, South Hilo, Hawai'i

Thank you for your letter dated October 28, 2010 requesting comments from this office regarding the preparation of a Draft Environmental Assessment (DEA). The University of Hawai'i at Hilo (UHH) is planning to acquire two adjacent parcels for use as student housing.

The subject parcels are zoned RM-1 (Multiple-Family-1000 square feet required per rentable unit) and are located within the State Land Use Urban district. In addition, according to the County of Hawai'i General Plan 2005 (amended December 2006), the subject parcels are designated as High Density Urban by the Land Use Pattern Allocation Guide. The subject parcels are not within the Special Management Area (SMA).

The subject parcel (TMK 2-4-057:028) consists of 26,000 square feet and has an existing multiple-family apartment building, known as The University Palms Apartments. Final Plan Approval was issued on January 19, 1972 for the 26-unit apartment building. Therefore, the parcel is at the maximum allowable density for the current zoning designation.

The neighboring subject parcel (TMK 2-4-057:024) consists of 17,536 square feet. There is an existing dwelling on the subject property. However, according to your letter, UHH is proposing to demolish the single-family residence and develop a multiple-family

structure consisting of 17 rentable units, the maximum allowed by the current zoning designation. Please note that plan approval shall be required for all new buildings and additions to existing buildings in the RM district.

The DEA should include discussion as to the disposal of the demolished single-family dwelling. The demolition of the structures and the disposal of waste material are subject to the requirements of Chapter 20 - Refuse, of the Hawai'i County Code and may require a Landfill Disposal Permit from the Department of Environmental Management.

We have no further comments to offer, at this time. However, please keep us informed and provide our department with a copy of the Final Environmental Assessment for our records.

If you have any questions or if you need further assistance, please feel free to contact Bethany Morrison of this office at 961-8138.

Sincerely,

BJ LEITHEAD TODD
Planning Director

BJM:cs
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William P. Kenoi
Mayor

William T. Takaba
Managing Director

Frank J. DeMarco, P.E.
Director

Ivan M. Torigoe
Deputy Director

County of Hawai'i
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
25 Aupuni Street • Hilo, Hawai'i 96720
(808) 961-8083 · Fax (808) 961-8086
http://co.hawaii.hi.us/directory/dir_envmng.htm

December 1, 2010

Mr. Ron Terry
Principal
GEOMETRICIAN ASSOCIATES, LLC
P. O. Box 396
Hilo, HI 96721

RE: Early Consultation for Acquisition of University Palms Apartment and Adjacent Single-Family Residence for Student Housing for the University of Hawai'i at Hilo, Island of Hawai'i, TMK: 24-057:024 and 028

Dear Mr. Terry,

We offer the following comments:

Wastewater Division
TMK 2-4-057: 028 is connected to the County sewer via private lateral.

Thank you for allowing us to review and comment on this project.

Sincerely,

Frank DeMarco

Frank J. DeMarco, P.E.
DIRECTOR

cc: WWD

DEPARTMENT OF WATER SUPPLY • COUNTY OF HAWAI'I
345 KEKŪANAŌ'A STREET, SUITE 20 • HILO, HAWAI'I 96720
TELEPHONE (808) 961-8050 • FAX (808) 961-8657

December 10, 2010

Mr. Ron Terry
Geometrician Associates, LLC
P.O. Box 396
Hilo, HI 96721

PRE-ENVIRONMENTAL ASSESSMENT CONSULTATION
UNIVERSITY PALMS APARTMENTS AND ADJACENT SINGLE-FAMILY RESIDENCE FOR STUDENT HOUSING FOR THE UNIVERSITY OF HAWAI'I - HILO
TAX MAP KEY 2-4-057:024 AND 028

We have reviewed the subject Pre-Environmental Assessment Consultation and have the following comments.

Water is available from an existing 8-inch waterline within Lanikāula Street fronting Parcel 24. An existing 5/8-inch meter serves Parcel 24, which is limited to an average daily usage of 400 gallons and suitable for only one (1) single-family dwelling. Parcel 28 is served by an existing 2-inch meter that has a maximum average daily usage capacity of 20,400 gallons.

Prior to effecting a water commitment for the project, the Department will require that the applicant submit estimated maximum daily water usage calculations for the project, prepared by a professional engineer licensed in the State of Hawai'i, for review and approval. Based on the water usage calculations provided, the Department will determine if the existing 2-inch meter is adequate to support the estimated water demand. If the estimated demand exceeds the capacity of the meter, a larger meter will need to be installed and payment of the applicable facilities charges will be required.

If one is not already installed, the proposed land use will require the installation of a reduced pressure type backflow prevention assembly within five (5) feet of the meter serving the project, on private property. The installation of the backflow prevention assembly must be inspected and approved by the Department before water service can be activated.

Should there be any questions, you may contact Mr. Finn McCall of our Water Resources and Planning Branch at 961-8070, extension 255.

Sincerely yours,

Milton D. Pavao, P.E.
Manager-Chief Engineer

FM:dfg

ENVIRONMENTAL ASSESSMENT

University of Hawai‘i at Hilo
Acquisition of Student Housing Complex

APPENDIX 2
Traffic Impact Analysis Report

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Phillip Rowell and Associates
47-273 'D' Hui Iwa Street Kaneohe, Hawaii 96744 Phone: (808) 239-8206 FAX: (808) 239-4175 Email:prowell@hawiiantel.net

December 7, 2010

Mr. Ron Terry
P.O. Box 396
Hilo, Hawaii 96721

Re: **Traffic Impact Assessment Report**
UH Hilo Purchase of University Palms Complex and Adjacent Property for Student Housing, Hilo, Hawaii

Dear Ron:

Phillip Rowell and Associates have completed the following Traffic Impact Assessment Report (TIAR) for a project referenced above. The TIAR is presented in the following format:

A. Project Location and Description
B. Purpose and Objective of Study
C. Methodology
D. Description of Existing Streets and Intersection Controls
E. Existing Peak Hour Traffic Volumes
F. Level-of-Service Concept
G. Existing Levels-of-Service
H. Project Trip Generation
I. Background Plus Project Traffic Projections
J. Impact Analysis of Background Plus Project Conditions
K. Mitigation
L. Summary and Conclusions

A. Project Location and Description

The proposed action is the purchase of the University Palms apartment building and the property adjacent property for use as student housing. The University Palms is located along the north side of Kapiolani Street east of Lanikaula Street. The property to be purchased is located between the University Palms and Lanikaula Street. See Attachment A. The adjacent property to be purchased is referred to as "University Palms Addition" on the attachment.

It is our understanding that the existing University Palms is already used primarily for student housing. As there is no change in the proposed use, there will be no change in the traffic generated by the site. Therefore, the focus of this traffic assessment is the adjacent parcel that will be converted from a single family residence to student housing. The new student housing faciltiy will have 17 units with two beds per unit.

Access and egress will be via an existing driveway along the north side of Kapiolani Street and east of Lanikaula Street.

B. Purpose and Objective of Study

1. Quantify and describe the traffic related characteristics of the proposed project.

2. Identify potential deficiencies adjacent to the project that will impact traffic operations in the vicinity of the proposed project.

C. Methodology

1. *Define the Study Area*

The first step in defining the study area was to estimate the number of peak hour trips that the proposed project will generate. It was estimated that the project will generate nine (9) trips during the morning peak hour and eleven (11) trips during the afternoon peak hour. This implies that the scope of the traffic assessment should an "access location and design review" analysis as described by the Institute of Transportation Engineers[1]. Accordingly, the traffic impact assessment is limited to the intersections of Kapiolani Street at Lanikaula Street and Kiapiolani Street at the driveway to the new student housing facility, referred to as "Project Driveway."

2. *Analyze Existing Traffic Conditions*

Existing traffic volumes at the intersection of Kapiolani Street at Lanikaula Street and the Project Driveway were estimated from manual traffic counts performed at the intersection of Kapiolani Street at Lanikaula Street on Tuesday, May 12, 2009. A level-of-service analysis was performed using the methodology described in the *Highway Capacity Manual*[2] to quantify existing traffic operating conditions.

3. *Estimate Project-Related Traffic Characteristics*

The number of peak-hour trips that the proposed project will generate was estimated using standard trip generation procedures outlined in the *Trip Generation Handbook*[3] and data provided in *Trip Generation*[4]. These trips were distributed and assigned based on existing traffic approach and departure patterns of traffic currently using the intersection of Kapiolani Street at Lanikaula Streetand traffic entering and exiting the existing University Palms, which will have traffic characteristics comparable to the new student housing.

4. *Analyze Project Related Traffic Impacts*

The project-related traffic was then superimposed on background traffic volumes. The traffic impacts of the project were assessed by analyzing changes of the levels-of-service. The purpose of this analysis was to identify potential operational deficiencies at the project driveway.

---

[1] Institute of Transportation Engineers, *Transportation and Land Development*, 2002, Washington, D.C., page 3-6

[2] Transportation Research Road, Highway Capacity Manual, 2000, Washington, D.C.

[3] *Trip Generation Handbook*, Institute of Transportation Engineers, Washington, D.C., 1998

[4] *Trip Generation*, Institute of Transportation Engineers, Washington, D.C., 2003

D. Description of Existing Streets and Intersection Controls

In the vicinity of the project, both Kapiolani Street and Lanikaula Street are two-lane, two-way streets. Both are County roads. Kapiolani Street has an east-west orientation and Lanikaula Street has a north-south orientation.

The intersection of Kapiolani Street at Lanikaula Street is an unsignalized T-intersection with Kapiolani Street as the leg. The Kapiolani Street approach is STOP sign controlled. The north-south approaches of Lanikaula Street are free flow. The existing intersection lane configuration is shown on Attachment A.

E. Existing Peak Hour Traffic Volumes

Existing peak hour traffic volumes were determined from manual traffic counts performed at the intersection of Kapiolani Street at Lanikaula Street. The counts are summarized on Attachment A and the traffic count summary worksheets are provided as Attachment B. The counts were performed on Tuesday, May 12, 2009. The existing peak hour traffic volumes along Kapiolani Street were estimated from the total approach and departure volumes at the intersection of Kapiolani Street at Lanikaula Street.

The traffic counts include buses, trucks and other large vehicles. Mopeds and bicycles are not included. Pedestrian activity was negligible.

F. Level-of-Service Concept

"Level-of-Service" is a term which denotes any of an infinite number of combinations of traffic operating conditions that may occur on a given lane or roadway when it is subjected to various traffic volumes. Level-of-service (LOS) is a qualitative measure of the effect of a number of factors which include space, speed, travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience.

There are six levels-of-service, A through F, which relate to the driving conditions from best to worst, respectively. The characteristics of traffic operations for each level-of-service are summarized in Table 1. In general, LOS A represents free-flow conditions with no congestion. LOS F, on the other hand, represents severe congestion with stop-and-go conditions. *Level-of-service D is typically considered acceptable for peak hour conditions in urban areas.*[5] This standard is applicable to the overall intersection and major through movements at intersections. Minor movements, such as left turns and side street approaches may operate at Level-of-Service E or F for short periods during the peak hour.

Corresponding to each level-of-service shown in the table is a volume/capacity ratio. This is the ratio of either existing or projected traffic volumes to the capacity of the intersection. Capacity is defined as the maximum number of vehicles that can be accommodated by the roadway during a specified period of time. The capacity of a particular roadway is dependent upon its physical characteristics such as the number of lanes, the operational characteristics of the roadway (one-way, two-way, turn prohibitions, bus stops, etc.), the type of traffic using the roadway (trucks, buses, etc.) and turning movements.

---

[5] Institute of Transportation Engineers, *Transportation Impact Analyses for Site Development: A Recommended Practice*, 2006, page 60

Table 1 Level-of-Service Definitions for Signalized Intersections[1]

Level of Service	Interpretation	Volume-to-Capacity Ratio[2]	Stopped Delay (Seconds)
A, B	Uncongested operations; all vehicles clear in a single cycle.	0.000-0.700	<20.0
C	Light congestion; occasional backups on critical approaches	0.701-0.800	20.1-35.0
D	Congestion on critical approaches but intersection functional. Vehicles must wait through more than one cycle during short periods. No long standing lines formed.	0.801-0.900	35.1-55.0
E	Severe congestion with some standing lines on critical approaches. Blockage of intersection may occur if signal does not provide protected turning movements.	0.901-1.000	55.1-80.0
F	Total breakdown with stop-and-go operation	>1.001	>80.0

Notes:
(1) Source: *Highway Capacity Manual*, 2000.
(2) This is the ratio of the calculated critical volume to Level-of-Service E Capacity.

Like signalized intersections, the operating conditions of intersections controlled by stop signs can be classified by a level-of-service from A to F. However, the method for determining level-of-service for unsignalized intersections is based on the use of gaps in traffic on the major street by vehicles crossing or turning through that stream. Specifically, the capacity of the controlled legs of an intersection is based on two factors: 1) the distribution of gaps in the major street traffic stream, and 2) driver judgement in selecting gaps through which to execute a desired maneuver. The criteria for level-of-service at an unsignalized intersection is therefore based on delay of each turning movement. Table 2 summarizes the definitions for level-of-service and the corresponding delay.

Table 2 Level-of-Service Definitions for Unsignalized Intersections[1]

Level-of-Service	Expected Delay to Minor Street Traffic	Delay (Seconds)
A	Little or no delay	<10.0
B	Short traffic delays	10.1 to 15.0
C	Average traffic delays	15.1 to 25.0
D	Long traffic delays	25.1 to 35.0
E	Very long traffic delays	35.1 to 50.0
F	See note (2) below	>50.1

Notes:
(1) Source: *Highway Capacity Manual*, 2000.
(2) When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvement of the intersection.

G. Existing Levels-of-Service

The results of the level-of-service analysis of the intersection of Kapiolani Street at Lanikaula Street are summarized in Table 3. Shown are the delays and levels-of-service of controlled movements only. The *Highway Capacity Manual* methodology for unsignalized intersections does not calculate delays and levels-of-service are not calculated for uncontrolled movements. Results are not shown for the northbound through and right turn because these are uncontrolled movements.

Based on the results of the level-of-service analysis, the northbound and southbound approaches along Lanikaula Street operate at Level-of-Service A during both morning and afternoon peak hours. The westbound approach operates at Level-of-Service E during the morning peak hour and Level-of-Service D during the afternoon peak hour.

Table 3 Existing (2010) Levels-of-Service - Kapiolani Street at Lanikaula Street (Unsignalized)

	AM Peak Hour		PM Peak Hour	
	7:15 AM to 8:15 AM		4:15 PM to 5:15 PM	
Approach and Movement	Delay	LOS	Delay	LOS
Southbound Left & Thru	8.8	A	8.5	A
Westbound Left & Right	45.9	E	27.9	D

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. Delay is in seconds per vehicle.
3. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. LOS is based on delay.
4. See Attachment D for Level-of-Service Calculation Worksheets.

H. Project Trip Generation

Future traffic volumes generated by a project are typically estimated using the methodology described in the *Trip Generation Handbook*[6] and data provided in *Trip Generation*[7]. This method uses trip generation rates and/or equations to estimate the number of trips that a project will generate during the peak hours of the project and along the adjacent street.

Trip Generation, which is the standard reference for trip generation data, does not contain data for student housing. The most comparable land use for which data are provided are apartment buildings, for which trip generation data is provided based on the number of occupied units. Trip generation data for apartments, however, would not reflect reduced peak hour trips of students that walk or bicycle to classes rather than drive. Since the study project is immediately adjacent to the UH Hilo campus, and given the limited parking available, it is likely that a significant number of students living in the student housing facility will walk to their classes. Therefore, it was decided that a trip generation study of the existing University Palms would be appropriate. The trip generation rates determined from the existing University Palms could then be applied to the new student housing, which is adjacent to University Palms.

The trip generation study determined that the morning peak hour was from 7:30 AM to 8:30 AM. During this period, eight (8) inbound and four (4) outbound trips were counted. The afternoon peak hour was from 5:00 PM to 6:00 PM, during which nine (9) inbound and eleven (11) outbound trips were counted. The resulting trip generation rates based on 26 existing units in University Palms, is summarized in Table 4. The calculated trip generation rates were then used to estimate the number of peak hour trips that will be generated by the new student housing. As shown, the proposed new student housing facility will generate 5 inbound and 3 outbound trips during the morning peak hour. During the afternoon peak hour, the new student housing will generate 6 inbound and 7 outbound trips.

[6] Institute of Transportation Engineers, *Trip Generation Handbook*, Washington, D.C., 1998, p. 7-12

[7] Institute of Transportation Engineers, *Trip Generation, 7th Edition,* Washington, D.C., 2003

The number of trips generated by the existing University Palms is not shown because the building will continue to be used as student housing. Since there is no change in use, there will be no change in the number of trips generated.

Table 4 Trip Generation Calculations for Proposed Project

Time Period	Direction	Existing University Palms			University Palms Additions	
		Trips Counted	Units	Trips per Unit	Units	Trips
AM Peak Hour	Total	12	26	0.462	17	8
	In	8		0.308		5
	Out	4		0.154		3
PM Peak Hour	Total	20		0.769		13
	In	9		0.346		6
	Out	11		0.423		7

NOTES:
(1) Institute of Transportation Engineers, *Trip Generation*, Seventh Edition, 2003.

Project trips were distributed and assigned based on existing traffic approach and departure patterns of traffic currently using the intersection of Kapiolani Street at Lanikaula Street. Project trips were distributed as follows:

AM Inbound		PM Inbound	
From North along Lanikaula St	21%	From North along Lanikaula St	38%
From South along Lanikaula St	23%	From South along Lanikaula St	20%
From East along Kapiolani Street	56%	From East along Kapiolani Street	42%
Total	100%	Total	100%

AM Outbound		PM Outbound	
To North along Lanikaula St	29%	To North along Lanikaula St	33%
To South along Lanikaula St	15%	To South along Lanikaula St	25%
To East along Kapiolani St	56%	To East along Kapiolani St	42%
Total	100%	Total	100%

The resulting project trip assignments are shown in Attachment C.

I. Background Plus Project Projections

Background plus project traffic projections were estimated by superimposing the peak hourly traffic generated by the proposed project on the background (without project) peak hour traffic projections. This assumes that the peak hourly trips generated by the project coincide with the peak hour of the adjacent street. This represents a worse-case condition as it assumes that the peak hours of all the intersection approaches and the peak hour of the study project coincide. The traffic projection calculations are shown as Tables 5 and 6. The resulting background plus project peak hour traffic projections are shown in Attachment C.

Table 5 Traffic Projection Calculations - Kapiolani Street at Lanikaula Street

Approach and Movement		Existing (2010)		Project Trips		Background Plus Project	
		AM	PM	AM	PM	AM	PM
North	Th	284	234			284	234
	Lt	97	143	1	2	98	145
East	Rt	173	89	1	2	174	91
	Lt	88	67	1	2	89	69
South	Rt	108	75	1	1	109	76
	Th	289	243			289	243
Totals		1039	851	4	7	1043	858

Table 6 Traffic Projection Calculations - Kapiolani Street at Project Driveway

Approach and Movement		Existing (2010)		Project Trips		Background Plus Project	
		AM	PM	AM	PM	AM	PM
North	Lt			2	4	2	4
	Rt			1	3	1	3
East	Rt			3	3	3	3
	Th	261	155			261	155
West	Th	205	218			205	218
	Lt			2	3	2	3
Totals		466	373	8	13	474	386

J. Traffic Impact Analysis

The assumptions used for the level-of-service analysis are:

1. The *Highway Capacity Software* (HCS) package was used to perform level-of-service.

2. As the *Highway Capacity Manual* defines level-of-service by delay, we have used the same definitions.

The results of the level-of-service analysis are summarized in Tables 7 and 8. Shown are the average vehicle delays and the levels-of-service of the controlled lane groups. The analysis concluded that the major traffic movements along Lanikaula Street will operate at Level-of-Service A without and with project generated traffic. Level-of-Service A implies good operating conditions and minimal delays. The westbound approach of Kapiolani Street at Lanikaula Street will operate at Level-of-Service E during the morning peak hour and Level-of-Service D during the afternoon peak hour. There is no change in the level-of-service as a result of project generated traffic. Given that the delay of the westbound approach is 47.7 seconds during the morning peak hour, approach will operate at Level-of-Service E for a short time during the peak hour.

Table 7 Background Plus Project Levels-of-Service - Kapiolani Street at Lanikaula Street (Unsignalized)

Approach and Movement	AM Peak Hour				PM Peak Hour			
	Without Project		With Project		Without Project		With Project	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Southbound Left & Thru	8.8	A	8.8	A	8.5	A	8.5	A
Westbound Left & Right	45.9	E	47.7	E	27.9	D	29.2	D

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. Delay is in seconds per vehicle.
3. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. LOS is based on delay.
4. See Attachment D for Level-of-Service Calculation Worksheets.

All movements at the intersection of Kapiolani Street at the project driveway will operate at Level-of-Service A or B. This implies good operating conditions.

Table 6 2015 Levels-of-Service - Kapiolani Street at Project Driveway (Unsignalized)

Approach and Movement	AM Peak Hour		PM Peak Hour	
	2015 Background With Project		2015 Background With Project	
	Delay	LOS	Delay	LOS
Eastbound Left & Thru	7.9	A	7.6	A
Southbound Left & Right	10.9	B	10.3	B

NOTES:
1. Peak hour conditions analyzed are "worst-case" conditions, which is the sum of the peak hour of the adjacent street plus the peak hour of the generator.
2. Delay is in seconds per vehicle.
3. LOS denotes Level-of-Service calculated using the operations method described in *Highway Capacity Manual*. LOS is based on delay.
4. See Attachment D for Level-of-Service Calculation Worksheets.

In response to comments for the Police Department relative to the intersection of Kapiolani Street at Lanikaula Street, a four-hour vehicular warrant analysis for a traffic signal was performed using the methodology described in the *Manual of Uniform Traffic Control Devices*. The analysis was performed assuming urban, or 100%, conditions.

The analysis is presented as Attachment D. All four points should fall above the appropriate curve to satisfy the warrant. As shown, only one point falls above the curve for one lane approaches. The conclusion is that traffic signals are not warranted. It should be noted that other factors, such as the number of accidents that may be prevented if traffic signals are provided justify a traffic signal whether the warrants are satisfied or not. Since traffic accident data are not available, this warrant cannot be assessed.

K. Mitigation

Level-of-Service D is generally considered to be the minimum acceptable peak hour level-of-service for urban intersections.[8] This standard is applicable to the overall intersection and major through movements at intersections. Minor movements, such as left turns and side street approaches may operate at Level-of-Service E or F for short periods during the peak hour. Using this standard, no mitigation is required.

[8] Institute of Traffic Engineers *Transportation Impact Analyses for Site Development, A Recommended Practice,* Washington, D.C., 2006, p 60.

L. Summary and Conclusions

The conclusions of the traffic impact assessment are:

1. The proposed action is the purchase of the University Palms apartment building and the property adjacent property for use as student housing. The University Palms is located along the north side of Kapiolani Street east of Lanikaula Street. The property to be purchased is located between the University Palms and Lanikaula Street.

2. The existing University Palms has 26 units and will continue to be used as student housing. Since there is no change in use, there will be no change in the number of peak hour trips generated. Based on a trip generation study of the existing University Palms, the site generates 12 trips during the morning peak hour and 20 trips during the afternoon peak hour.

3. The additional new student housing will consist of 17 units. Based on the trip generation study of the existing University Palms, the additional new student housing will generate 5 inbound and 3 outbound trips during the morning peak hour. During the afternoon peak hour, the project will generate 6 inbound and 7 outbound trips

4. The level-of-service analysis of future conditions concluded that there will be no changes in the levels-of-service controlled traffic movements at the intersection of Kapiolani Street at Lanikaula Street. The northbound and southbound approaches of Lanikaula Street will operate a Level-of-Service A. The westbound approach along Kapiolani Street will operate at Level-of-Service E for a short time during the morning peak hour and Level-of-Service D during the afternoon peak hour with no changes in the intersection configuration.

5. At the driveway for the proposed new student housing, the eastbound approach along Kapiolani Street will operate at Level-of-Service A. Traffic using the driveway will operate at Level-of-Service B. It was assumed that there a no separate turn lane into or out of the project at the driveway.

6. A traffic signal warrant analysis for the intersection of Kapiolani Street at Lanikaula Street concluded that traffic signals are not warranted based on current conditions.

Respectfully submitted,
PHILLIP ROWELL AND ASSOCIATES

Phillip J. Rowell, P.E.
Principal

List of Attachments

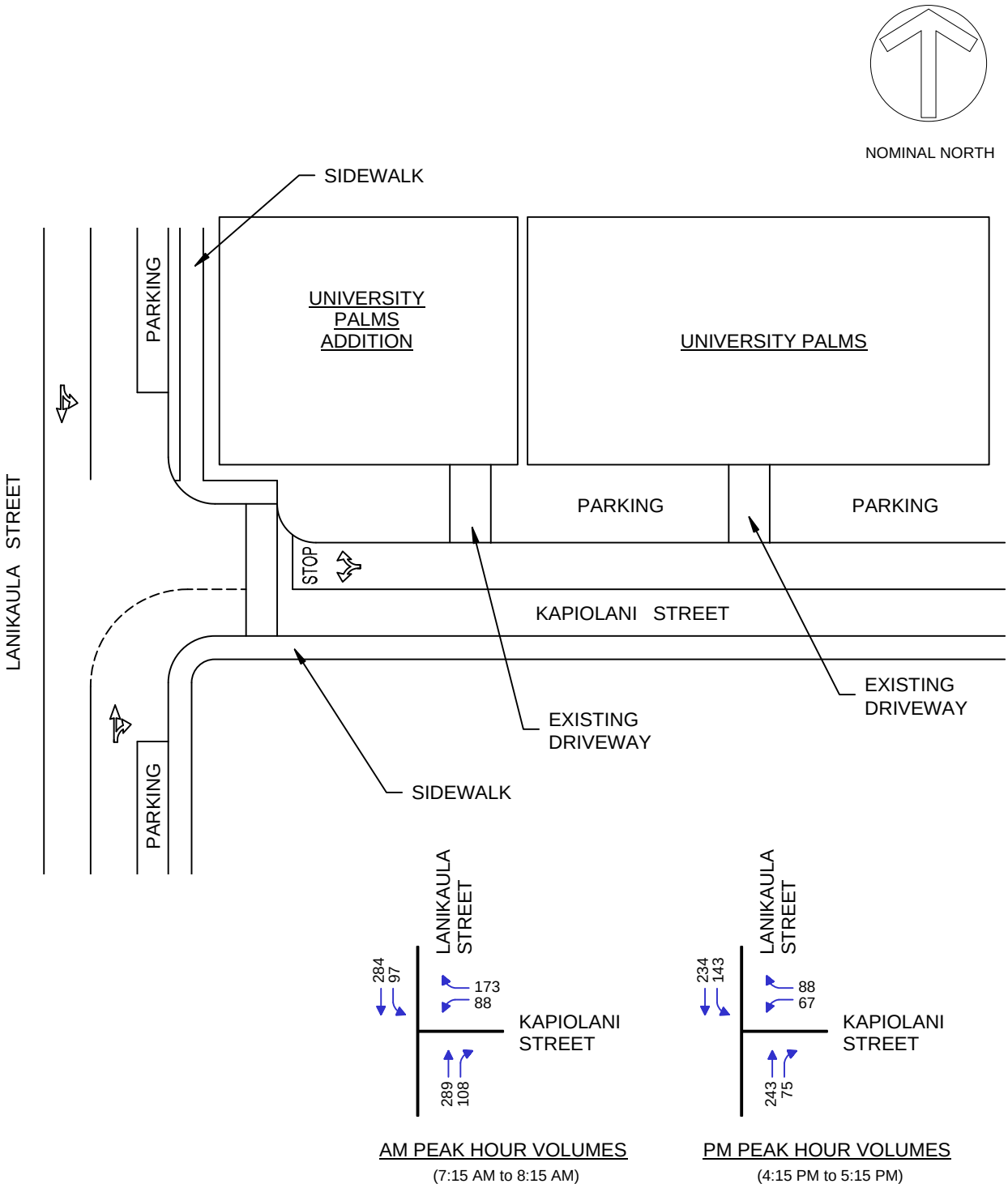
A. Existing Lane Configuration and 2010 Peak Hour Traffic Volumes

B. Traffic Count Summary Worksheets

C. Peak Hour Traffic Volumes, Project Trip Assignments and Peak Hour Traffic Projections

D. Level-of-Service Calculation Worksheets

E. Four-Hour Vehicular Warrant for Traffic Signals Kapiolani Street at Lanikaula Street



Attachment A
EXISTING LANE CONFIGURATION AND
2010 PEAK HOUR TRAFFIC VOLUMES

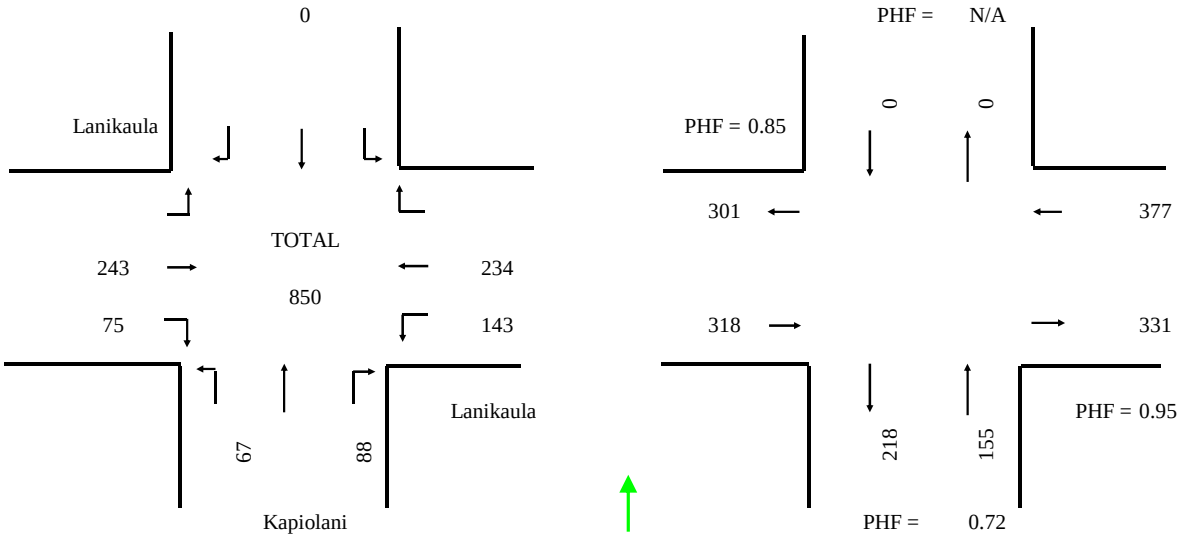
Attachment B

TRAFFIC COUNT SUMMARY WORKSHEETS

INTERSECTION TURNING MOVEMENT SUMMARY

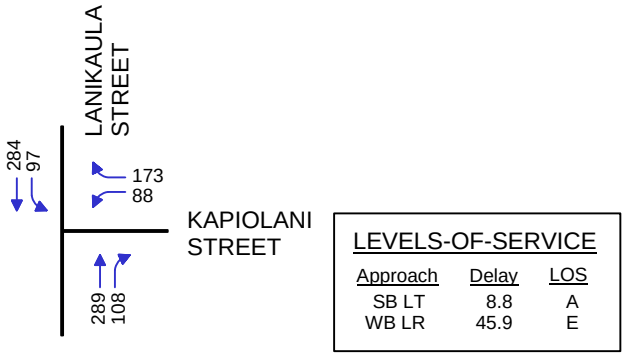
INTERSECTION:	**Lanikaula + Kapiolani**	**TIME:**	**3:30 PM to 5:30 PM**
JURISDICTION:		**DATE:**	**5-8-09, Fri**
PROJECT TITLE:		**PROJECT NO:**	

PEAK HOUR PERIOD: 4:15 PM to 5:15 PM
PEAK 15 MINUTE PERIOD: 4:30 PM to 4:45 PM



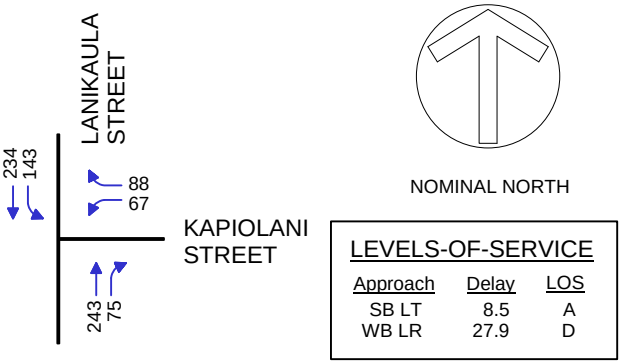
INTERSECTION .
PEAK HOUR FACTOR: 0.87

RUNNING COUNTS	Lanikaula Eastbound			Lanikaula Westbound			Kapiolani Northbound			Southbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Period End	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**TOTAL**
3:45 PM		68	17	24	58		24		20				211
4:00 PM		128	35	53	118		41		38				413
4:15 PM		180	49	79	175		54		54				591
4:30 PM		235	70	107	246		69		77				804
4:45 PM		308	91	147	303		97		103				1049
5:00 PM		371	109	183	359		109		126				1257
5:15 PM		423	124	222	409		121		142				1441
5:30 PM		461	138	250	459		153		150				1611
PERIOD COUNTS													
Period End	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**TOTAL**
3:45 PM		68	17	24	58		24		20				211
4:00 PM		60	18	29	60		17		18				202
4:15 PM		52	14	26	57		13		16				178
4:30 PM		55	21	28	71		15		23				213
4:45 PM		73	21	40	57		28		26				245
5:00 PM		63	18	36	56		12		23				208
5:15 PM		52	15	39	50		12		16				184
5:30 PM		38	14	28	50		32		8				170
HOURLY TOTALS													
Beginning At	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**TOTAL**
3:30 PM		235	70	107	246		69		77				804
3:45 PM		240	74	123	245		73		83				838
4:00 PM		243	74	130	241		68		88				844
4:15 PM		243	75	143	234		67		88				850
4:30 PM		226	68	143	213		84		73				807



LEVELS-OF-SERVICE		
Approach	Delay	LOS
SB LT	8.8	A
WB LR	45.9	E

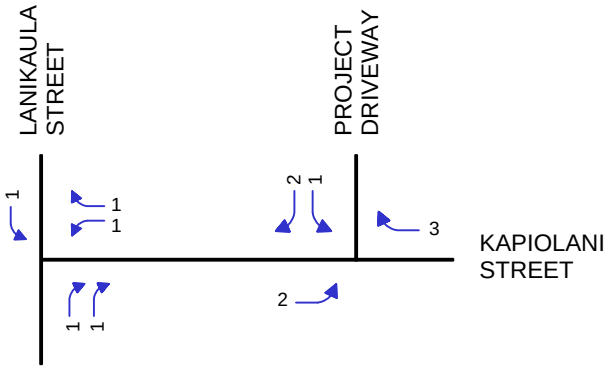
AM PEAK HOUR VOLUMES
(7:15 AM to 8:15 AM)



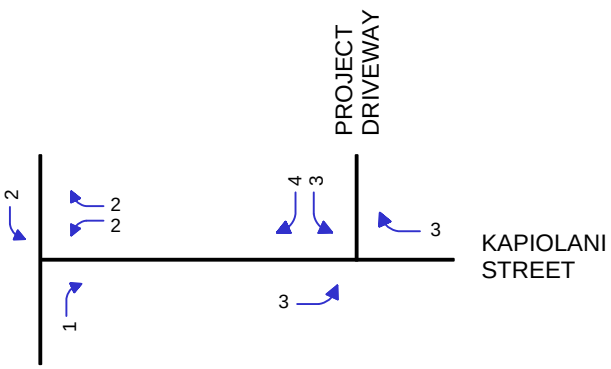
NOMINAL NORTH

LEVELS-OF-SERVICE		
Approach	Delay	LOS
SB LT	8.5	A
WB LR	27.9	D

PM PEAK HOUR VOLUMES
(4:15 PM to 5:15 PM)



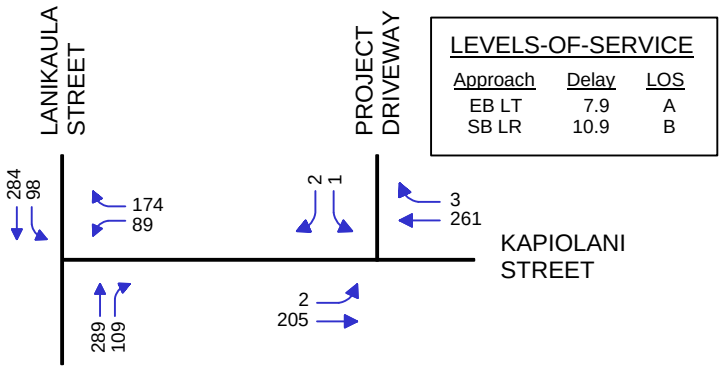
BACKGROUND PLUS PROJECT
AM PEAK HOUR PROJECTIONS



BACKGROUND PLUS PROJECT
PM PEAK HOUR PROJECTIONS

LEVELS-OF-SERVICE		
Approach	Delay	LOS
SB LT	8.8	A
WB LR	47.7	E

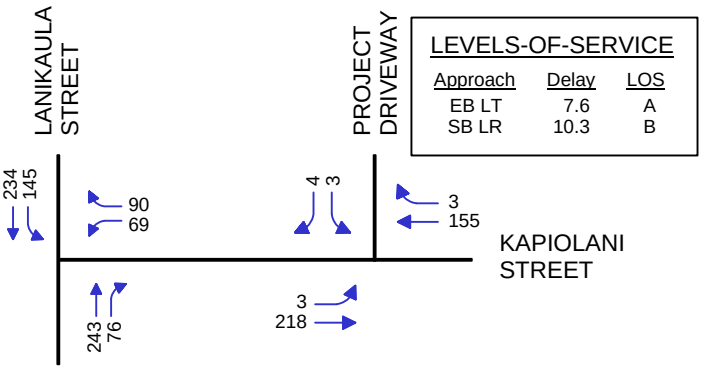
LEVELS-OF-SERVICE		
Approach	Delay	LOS
EB LT	7.9	A
SB LR	10.9	B



BACKGROUND PLUS PROJECT
AM PEAK HOUR PROJECTIONS

LEVELS-OF-SERVICE		
Approach	Delay	LOS
SB LT	8.5	A
WB LR	29.2	D

LEVELS-OF-SERVICE		
Approach	Delay	LOS
EB LT	7.6	A
SB LR	10.3	B



BACKGROUND PLUS PROJECT
PM PEAK HOUR PROJECTIONS

Attachment C
EXISTING VOLUMES, FUTURE TRAFFIC PROJECTIONS
AND LEVELS-OF-SERVICE

Attachment D

LEVEL-OF-SERVICE CALCULATION WORKSHEETS

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*PJR*	Intersection	*Case1am.Int1*
Agency/Co.	*PRA*	Jurisdiction	
Date Performed	*11/30/2010*	Analysis Year	
Analysis Time Period	*AM Peak Hour*		

Project Description *University Palms Addition*

East/West Street: *Kapiolani* | North/South Street: *Lanihaula*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*289*	*108*	*97*	*284*	
Peak-Hour Factor, PHF	*1.00*	*0.77*	*0.87*	*0.84*	*0.76*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*106*	*0*	*227*
Percent Heavy Vehicles	*0*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*88*		*173*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.83*	*1.00*	*0.76*
Hourly Flow Rate, HFR (veh/h)	*115*	*373*	*0*	*0*	*375*	*124*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*115*		*333*				
C (m) (veh/h)		*1065*		*399*				
v/c		*0.11*		*0.83*				
95% queue length		*0.36*		*7.79*				
Control Delay (s/veh)		*8.8*		*45.9*				
LOS		*A*		*E*				
Approach Delay (s/veh)	--	--		*45.9*				
Approach LOS	--	--		*E*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*PJR*	Intersection	*Case1pm.Int1*
Agency/Co.	*PRA*	Jurisdiction	
Date Performed	*11/30/2010*	Analysis Year	
Analysis Time Period	*PM Peak Hour*		

Project Description *University Palms Addition*

East/West Street: *Kapiolani* | North/South Street: *Lanihaula*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*243*	*75*	*143*	*234*	
Peak-Hour Factor, PHF	*1.00*	*0.83*	*0.87*	*0.89*	*0.82*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*111*	*0*	*103*
Percent Heavy Vehicles	*0*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*67*		*88*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.60*	*1.00*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*160*	*285*	*0*	*0*	*292*	*86*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*160*		*214*				
C (m) (veh/h)		*1180*		*365*				
v/c		*0.14*		*0.59*				
95% queue length		*0.47*		*3.57*				
Control Delay (s/veh)		*8.5*		*27.9*				
LOS		*A*		*D*				
Approach Delay (s/veh)	--	--	*27.9*					
Approach LOS	--	--	*D*					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*PJR*	Intersection	*Case2am.Int1*
Agency/Co.	*PRA*	Jurisdiction	
Date Performed	*11/30/2010*	Analysis Year	
Analysis Time Period	*AM Peak Hour*		

Project Description *University Palms Addition*

East/West Street: *Kapiolani* | North/South Street: *Lanihaula*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*289*	*109*	*98*	*284*	
Peak-Hour Factor, PHF	*1.00*	*0.77*	*0.87*	*0.84*	*0.76*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*107*	*0*	*228*
Percent Heavy Vehicles	*0*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*89*		*174*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.83*	*1.00*	*0.76*
Hourly Flow Rate, HFR (veh/h)	*116*	*373*	*0*	*0*	*375*	*125*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*116*		*335*				
C (m) (veh/h)		*1064*		*396*				
v/c		*0.11*		*0.85*				
95% queue length		*0.37*		*8.03*				
Control Delay (s/veh)		*8.8*		*47.7*				
LOS		*A*		*E*				
Approach Delay (s/veh)	--	--	*47.7*					
Approach LOS	--	--	*E*					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*PJR*	Intersection	*Case2am.Int2*
Agency/Co.	*PRA*	Jurisdiction	
Date Performed	*11/30/2010*	Analysis Year	
Analysis Time Period	*AM Peak Hour*		

Project Description *University Palms Addition*

East/West Street: *Kapiolani* | North/South Street: *Lanihaula*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*2*	*205*			*261*	*3*
Peak-Hour Factor, PHF	*0.86*	*0.86*	*1.00*	*0.60*	*0.80*	*0.80*
Hourly Flow Rate, HFR (veh/h)	*2*	*238*	*0*	*0*	*326*	*3*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*1*		*2*
Peak-Hour Factor, PHF	*1.00*	*0.83*	*0.87*	*0.86*	*0.82*	*0.86*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*1*	*0*	*2*
Percent Heavy Vehicles	*0*	*0*	*0*	*2*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*2*						*3*	
C (m) (veh/h)	*1242*						*617*	
v/c	*0.00*						*0.00*	
95% queue length	*0.00*						*0.01*	
Control Delay (s/veh)	*7.9*						*10.9*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--					*10.9*	
Approach LOS	--	--					*B*	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*PJR*	Intersection	*Case2pm.Int1*
Agency/Co.	*PRA*	Jurisdiction	
Date Performed	*11/30/2010*	Analysis Year	
Analysis Time Period	*PM Peak Hour*		

Project Description *University Palms Addition*

East/West Street: *Kapiolani* | North/South Street: *Lanihaula*

Intersection Orientation: *North-South* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*243*	*76*	*145*	*234*	
Peak-Hour Factor, PHF	*1.00*	*0.83*	*0.87*	*0.89*	*0.82*	*1.00*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*114*	*0*	*105*
Percent Heavy Vehicles	*0*	--	--	*2*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*69*		*90*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*0.60*	*1.00*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*162*	*285*	*0*	*0*	*292*	*87*
Percent Heavy Vehicles	*0*	*0*	*0*	*3*	*0*	*3*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LR*				
v (veh/h)		*162*		*219*				
C (m) (veh/h)		*1179*		*361*				
v/c		*0.14*		*0.61*				
95% queue length		*0.48*		*3.81*				
Control Delay (s/veh)		*8.5*		*29.2*				
LOS		*A*		*D*				
Approach Delay (s/veh)	--	--	*29.2*					
Approach LOS	--	--	*D*					

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*PJR*	Intersection	*Case2pm.Int2*
Agency/Co.	*PRA*	Jurisdiction	
Date Performed	*11/30/2010*	Analysis Year	
Analysis Time Period	*PM Peak Hour*		

Project Description *University Palms Addition*

East/West Street: *Kapiolani* | North/South Street: *Lanihaula*

Intersection Orientation: *East-West* | Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*3*	*218*			*155*	*3*
Peak-Hour Factor, PHF	*0.88*	*0.88*	*1.00*	*0.60*	*0.73*	*0.73*
Hourly Flow Rate, HFR (veh/h)	*3*	*247*	*0*	*0*	*212*	*4*
Percent Heavy Vehicles	*0*	--	--	*3*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)				*3*		*4*
Peak-Hour Factor, PHF	*1.00*	*0.83*	*0.87*	*0.88*	*0.82*	*0.88*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*3*	*0*	*4*
Percent Heavy Vehicles	*0*	*0*	*0*	*2*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*0*
Configuration					*LR*	

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LR*	
v (veh/h)	*3*						*7*	
C (m) (veh/h)	*1366*						*684*	
v/c	*0.00*						*0.01*	
95% queue length	*0.01*						*0.03*	
Control Delay (s/veh)	*7.6*						*10.3*	
LOS	*A*						*B*	
Approach Delay (s/veh)	--	--				*10.3*		
Approach LOS	--	--				*B*		

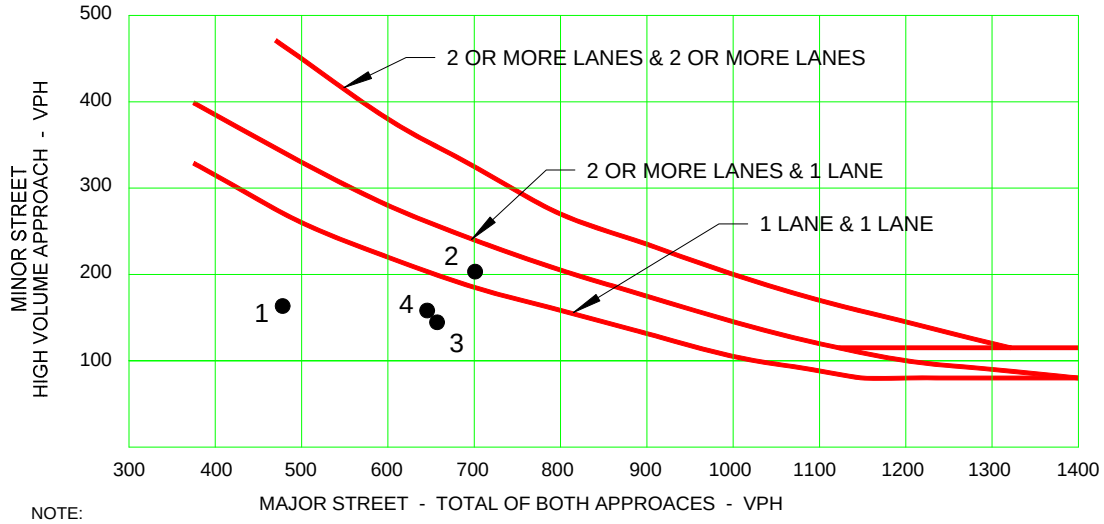
WARRANT 2 - FOUR HOUR VEHICULAR WARRANT

Satisfied YES☐ NO☑

	APPROACH LANES		HOUR			
			1	2	3	4
	one	more	6:30 to 7:30	7:30 to 8:30	3:30 to 4:30	4:30 to 5:30
Both approaches - Major Street	✔		482	698	658	650
Highest approach - Minor Street	✔		170	201	146	157

ASSUMPTIONS:
1. 100% (URBAN) CONDITIONS APPLY.

100% CONDITIONS



NOTE:
115 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 80 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPRAOCH WITH ONE LANE.

Source:
Federal Highway Adminstration, Manual of Uniform Traffic Control Devices

Attachment E
FOUR-HOUR VEHICULAR WARRANT FOR TRAFFIC SIGNALS
KAPIOLANI STREET AT LANIKAULA STREET

ENVIRONMENTAL ASSESSMENT

University of Hawai‘i at Hilo
Acquisition of Student Housing Complex

APPENDIX 3
Phase I Environmental Site Assessment Summaries

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PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
AND LIMITED HAZARDOUS MATERIAL SURVEY
University Palms Apartments
1377 Kapiolani Street
Hilo, Hawaii 96720
TMK: (3) 2 - 4 - 057: 028

Executive Summary

A Phase I Environmental Site Assessment (ESA) and Limited Hazardous Material Survey has been conducted at the University Palms Apartments, 1377 Kapiolani Street, Hilo ("the Site") in October and November 2010 by EKNA Services, Inc. at the request of Geometrician Associates, LLC, P.O. Box 396, Hilo, Hawaii, 96721. The Site is an approximately 26,000 square foot parcel identified as TMK: (3) 2 - 4 - 057: 028 in Hilo, on the island of Hawaii. This report has been prepared for the use of University of Hawaii at Hilo, Project No. UHH-2010-002 through Geometrician Associates, LLC; its tenants, successors and assigns.

The purpose of the Phase I ESA was to assess the presence or likely presence of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances and petroleum products under conditions that indicate an existing release, a past release, or a material threat of a release and to identify potential sources of suspected contaminants at the Site.

This Phase I ESA indicates that:

- No previous Phase 1 ESA's are known to exist for the Site.
- Based on available information, it is likely that agricultural use of the Site began in the late 1800s and ended prior to 1956. The Site was vacant for a period of time prior to 1956 until 1973. The Site has been used for apartment residential purposes since 1973.
- There is no facility currently active within a ½ mile radius that is listed as a CERCLIS facility.
- There is no facility currently active within a ¼ mile radius that is listed as a large quantity generator of hazardous wastes.
- There are 4 LUST facilities within a ½ mile radius of the Site. Review of these listings indicate that each of the facilities has completed clean up and none has a potential to impact the Site.
- There are three (3) injection wells on the Site used for the disposal of storm water runoff that are not indicated on the Department of Health, Underground Injection Control Map for Hilo (H-67) dated 1981.
- Agricultural chemicals may have been applied to the Site in conjunction with the cultivation of sugar cane prior to 1956.

The following is a summary of the possible environmental concerns which were reviewed during this assessment:

- Asbestos containing materials (ACM) are present at the Site. At the time of the Site inspection, none of the ACM was friable. The acoustical spray-on ceiling material is a regulated asbestos-containing material (RACM). The EPA's NESHAP regulations require that all RACM (>1% asbestos) be removed from a facility prior to demolition or renovation activities that would break up, dislodge, or

similarly disturb the materials, or preclude access to the material for subsequent removal. Asbestos is not considered an REC and it does not presently pose an environmental concern at the Site.

- Lead containing paints (LCP) are present at the Site and chromium containing paints may be present at the Site. At the time of the Site inspection, building surface paints were in good condition, but yellow paint on parking area posts was in poor condition. Lead and chromium paints are not considered an REC and only the yellow paint on the parking area posts presently pose a minor environmental concern at the Site.

- Some building lighting systems consisted of fluorescent light fixtures. Fluorescent tubes may contain mercury and the fixture ballasts may contain PCBs. The fluorescent light fixtures appear to be in good condition and there was no visible leakage from the fixtures at the time of the inspection. At the time of the inspection, the fluorescent building lighting systems are not an REC and do not presently pose an environmental concern at the Site.

The following is a summary of the possible "recognized environmental conditions" which were reviewed during this assessment:

- The possible application of agricultural chemicals would be consistent with the former use of the Site for cultivation of sugar cane. Typically, applications of pesticides and herbicides to sugar crops are limited. Arsenic based pesticides and herbicides were historically used on sugar plantations between the early 1900's through the mid-1950's. Some recent studies have indicated that there may be elevated concentrations of arsenic in the shallow surface soils on former sugar cane lands. The US EPA has stated that unless an assessed site contained an agricultural chemical mixing or storage area, the agricultural chemicals used at a site are not an REC. Therefore, for the purposes of this assessment, the possible use of agricultural chemicals on the Site is not an REC.

In view of the above, and based on a review of available information, it is concluded that there are no RECs present that would adversely impact the use of the Site.

The three (3) injection wells on the Site should be registered with the Hawaii Department of Health.

ACMs, LCPs or chromium containing paints that become friable or damaged should only be sampled by a licensed and trained asbestos, lead or hazardous materials contractor, and should only be handled, removed and disposed of, by licensed and trained asbestos, lead or hazardous materials abatement contractors, in accordance all applicable laws and regulations. The parking area posts with yellow paint in poor condition should be abated.

Prior to demolition or during any renovation, ACMs should be handled, removed and disposed of, by licensed and trained asbestos abatement contractors, in accordance with plans and specifications based on all applicable laws and regulations. The acoustical spray-on ceiling material should be abated as a RACM prior to demolition or during any renovation.

Prior to demolition, structures with possible lead or chromium containing paints should be tested for leachable lead or chromium to verify that the materials may be disposed of as demolition debris or by recycling.

The possible mercury containing flourescent lamp tubes should be removed prior to any renovation or demolition and should be handled, removed and disposed in accordance with plans and specifications based on all applicable laws and regulations. The light fixtures located in laundry rooms and exterior parking areas of the complex were not inspected as part of this project. The ballast in these flourescent light fixtures should be considered PCB containing until inspected and confirmed to be labeled "No PCBs".

I. INTRODUCTION

The objective of this field survey and report was to assess the existence and extent of asbestos-containing building material (ACBM), lead-containing paint (LCP), arsenic in canec boards and polychlorinated biphenyl (PCB) containing fluorescent light ballasts at University Palms Apartments, 1377 Kapiolani Street, Hilo, Hawaii 96720.

The field survey and sampling efforts were limited to the interior of eight (8) representative apartment units based on an agreed upon scope of work. This ACBM, LCP, arsenic and PCB survey is not intended to be a comprehensive survey for all environmental conditions throughout the entire building.

EKNA Services, Inc.'s (EKNA's) scope of work included collection and analyses of suspect ACBM, LCP and canec samples, visual observation of select interior fluorescent light ballasts, and providing a written report summarizing the survey observations, sampling and analyses results.

II. SURVEY SUMMARY

Asbestos-Containing Building Material (ACBM)

Laboratory analyses determined samples of the following materials contain asbestos at concentrations greater than one percent (>1%) asbestos (an ACBM) which are highlighted in **bold** print:

UNIT 107

Material Description	General Location(s)	Estimated Quantity
Mastic under beige/tan 12" x 12" Vinyl Floor Tile	Kitchen, Bath and Living Room Floors	Approx. 465 square feet.
Acoustical Spray-On Material, White	Throughout Unit Ceilings, except bathrooms	Approx. 975square feet.

UNIT 108

Material Description	General Location(s)	Estimated Quantity
Mastic under beige/tan 12" x 12" Vinyl Floor Tile	Kitchen, Bath and Living Room Floors	Approx. 465 square feet.
Acoustical Spray-On Material, White	Throughout Unit Ceilings, except bathrooms	Approx. 975 square feet.

UNIT 202

Material Description	General Location(s)	Estimated Quantity
Mastic under beige/tan 12" x 12" Vinyl Floor Tile	Kitchen, Bath and Living Room Floors	Approx. 475 square feet.
Acoustical Spray-On Material, White	Throughout Unit Ceilings, except bathrooms	Approx. 970 square feet.

UNIT 208

Material Description	General Location(s)	Estimated Quantity
Mastic under beige/tan 12" x 12" Vinyl Floor Tile	Kitchen, Bath and Living Room Floors	Approx. 235 square feet.
Acoustical Spray-On Material, White	Throughout Unit Ceilings, except bathrooms	Approx. 485 square feet.

UNIT 210

Material Description	General Location(s)	Estimated Quantity
Mastic under beige/tan 12" x 12" Vinyl Floor Tile	Kitchen, Bath and Living Room Floors	Approx. 470 square feet.
Acoustical Spray-On Material, White	Throughout Unit Ceilings, except bathrooms	Approx. 1,180 square feet.

UNIT 301

Material Description	General Location(s)	Estimated Quantity
Mastic under beige/tan 12" x 12" Vinyl Floor Tile	Kitchen, Bath and Living Room Floors	Approx. 480 square feet.
Acoustical Spray-On Material, White	Throughout Unit Ceilings, except bathrooms	Approx. 970 square feet.

UNIT 305

Material Description	General Location(s)	Estimated Quantity
Mastic under beige/tan 12" x 12" Vinyl Floor Tile	Kitchen, Bath and Living Room Floors	Approx. 240 square feet.
Acoustical Spray-On Material, White	Throughout Unit Ceilings, except bathrooms	Approx. 485 square feet.

UNIT 306

Material Description	General Location(s)	Estimated Quantity
Mastic under beige/tan 12" x 12" Vinyl Floor Tile	Kitchen, Bath and Living Room Floors	Approx. 240 square feet.
Acoustical Spray-On Material, White	Throughout Unit Ceilings, except bathrooms	Approx. 485 square feet.

Laboratory analyses determined that none of the remaining samples analyzed contained asbestos at trace concentrations of less than one percent (<1%). The laboratory report and sample Chain of Custody form are provided in Appendix A, Section 2.

Lead-Containing Paint (LCP)

EKNA collected sixty three (63) representative paint chip composite samples of the various building paints and substrate combinations found at University Palms Apartments interior surfaces. Paint chip analysis indicates that LCP is present on or beneath (i.e., underlaying layer) the following visible building paint colors:

UNIT 107

Paint Color	Substrate	Interior/Exterior	Room Equivalent
White	CMU	Interior	Walls
White	Gypsum Board	Interior	Walls
Light Blue	Gypsum Board	Interior	Walls
Red	Wood	Interior	Front Door

UNIT 108

Paint Color	Substrate	Interior/Exterior	Room Equivalent
White	CMU	Interior	Walls
White	Gypsum Board	Interior	Walls
Light Yellow	Gypsum Board	Interior	Bathroom Walls and Ceilings
Red	Wood	Interior	Front Door

UNIT 202

Paint Color	Substrate	Interior/Exterior	Room Equivalent
White	Metal and Wood	Interior	Windows and Trim
White	Gypsum Board	Interior	Walls
Green	Gypsum Board	Interior	Walls
Light Yellow	Gypsum Board	Interior	Bathroom Walls and Ceilings
Red	Wood	Interior	Front Door

UNIT 208

Paint Color	Substrate	Interior/Exterior	Room Equivalent
White	CMU	Interior	Walls
White	Gypsum Board	Interior	Walls
Light Blue	Gypsum Board	Interior	Walls
Red	Wood	Interior	Front Door

UNIT 210

Paint Color	Substrate	Interior/Exterior	Room Equivalent
White	CMU	Interior	Walls
White	Gypsum Board	Interior	Walls
Light Yellow	Gypsum Board	Interior	Bathroom Walls and Ceilings
Red	Wood	Interior	Front Door

UNIT 301

Paint Color	Substrate	Interior/Exterior	Room Equivalent
White	CMU	Interior	Walls
Red	Wood	Interior	Front Door

UNIT 305

Paint Color	Substrate	Interior/Exterior	Room Equivalent
White	CMU	Interior	Walls
White	Gypsum Board	Interior	Walls
Green	Gypsum Board	Interior	Walls
Light Yellow	Gypsum Board	Interior	Bathroom Walls and Ceilings
Red	Wood	Interior	Front Door

UNIT 306

Paint Color	Substrate	Interior/Exterior	Room Equivalent
White	CMU	Interior	Walls
White	Gypsum Board	Interior	Walls
Light Blue	Gypsum Board	Interior	Walls
Red	Wood	Interior	Front Door

The laboratory report and sample Chain of Custody form are provided in Appendix B, Section 2.

Arsenic in Canec

EKNA inspected the interiors of the eight (8) representative units. No canec boards were found in any of the inspected units.

Polychlorinated Biphenyl (PCB) Containing Fluorescent Light Ballasts

EKNA was tasked to visually inspect (open) fluorescent lights in the interior of eight (8) representative units. Fluorescent light ballasts that do not contain PCBs are typically identified with a "No PCBs" label.

Each of the eight (8) units inspected contained either zero, one or two fluorescent light fixtures. EKNA estimates there are approximately thirty one (31) fluorescent light fixtures having a total of approximately thirty one (31) ballasts in all of the apartment interiors at University Palms Apartments. There are six (6) fluorescent light fixtures within the eight (8) units and all six (6) ballasts were labeled "No PCBs". Drawings that depict the location of inspected interior fluorescent light fixtures are provided in Appendix C.

III. SURVEY AND SAMPLING METHODOLOGY

Asbestos-Containing Building Material (ACBM)

EKNA's certified Environmental Protection Agency (EPA) and State of Hawaii, Department of Health (DOH) asbestos inspector, Charles Brown (see Appendix D - Inspectors Certificates), provided oversight during the investigative survey of accessible building materials for the presence of suspect ACBMs.

After completing an inventory of all suspect building materials in the eight (8) representative units, EKNA collected samples of each suspect material. The number of samples collected by EKNA is determined by the extent of each homogeneous material (HM) within the survey area, in accordance with the sampling protocols contained in the Hawaii Administrative Rule (HAR), Title 11, Chapters 501 and 502. The HAR regulations require that for any homogeneous material, if one sample of a given material tests positive for asbestos (greater than 1 percent asbestos [>1%]), the entire HM must be considered positive for asbestos. For this reason, EKNA typically directs the laboratory to stop analysis at the first positive result for each HM type.

EKNA collected one hundred forty (140) samples of suspect ACBM. In general, EKNA followed the sampling protocols described below.

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT
AND HAZARDOUS MATERIAL SURVEY
1367 Kapiolani Street
Hilo, Hawaii 96720
TMK: (3) 2 - 4 - 057: 024

Executive Summary

A Phase I Environmental Site Assessment (ESA) was conducted at 1367 Kapiolani Street, Hilo ("the Site") in October and November 2010 by EKNA Services, Inc. at the request of Geometrician Associates, LLC, P.O. Box 396, Hilo, Hawaii, 96721. The Site is an approximately 17,536 square foot parcel identified as TMK: (3) 2 - 4 - 057: 024 in Hilo, on the island of Hawaii. This report has been prepared for the use of University of Hawaii at Hilo, Project No. UHH-2010-002 through Geometrician Associates, LLC; its tenants, successors and assigns.

The purpose of the Phase I ESA was to assess the presence or likely presence of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances and petroleum products under conditions that indicate an existing release, a past release, or a material threat of a release and to identify potential sources of suspected contaminants at the Site.

This Phase I ESA indicates that:

- No previous Phase 1 ESA's are known to exist for the Site.
- Based on available information, it is likely that agricultural use of the Site began in the late 1800s. The Site was used for agriculture purposes or was vacant until 1956. The Site has been used as a single family residence since 1956.
- There is no facility currently active within a ½ mile radius that is listed as a CERCLIS facility.
- There is no facility currently active within a ¼ mile radius that is listed as a large quantity generator of hazardous wastes.
- There are 4 LUST facilities within a ½ mile radius of the Site. Review of these listings indicate that each of the facilities has completed clean up and none has a potential to impact the Site.
- Agricultural chemicals may have been applied to the Site in conjunction with the cultivation of sugar cane prior to 1956.

The following is a summary of the possible environmental concerns which were reviewed during this assessment:

- Asbestos containing materials (ACM) are present at the Site. At the time of the Site inspection, none of the ACM was friable. Asbestos is not considered an REC and it does not presently pose an environmental concern at the Site.

- Arsenic containing materials (canec ceiling boards) are present at the Site. At the time of the Site inspection, the canec was not friable. Arsenic containing canec boards are not considered an REC and do not presently pose an environmental concern at the Site.

- Lead containing paints (LCP) may be present at the Site. At the time of the Site inspection, most surface paints were in good condition except that garage paints are in poor condition. LCPs are not considered an REC, but the garage paints do presently pose an environmental concern at the Site.

The following is a summary of the possible "recognized environmental conditions" which were reviewed during this assessment:

- The possible application of agricultural chemicals would be consistent with the former use of the Site for cultivation of sugar cane. Typically, applications of pesticides and herbicides to sugar crops are limited. Arsenic based pesticides and herbicides were historically used on sugar plantations between the early 1900's through the mid-1950's. Some recent studies have indicated that there may be elevated concentrations of arsenic in the shallow surface soils on former sugar cane lands. The US EPA has stated that unless an assessed site contained an agricultural chemical mixing or storage area, the agricultural chemicals used at a site are not an REC. Therefore, for the purposes of this assessment, the possible use of agricultural chemicals on the Site is not an REC.

In view of the above, and based on a review of available information, it is concluded that there are no RECs present that would adversely impact the use of the Site.

ACMs, LCPs or canec boards that become friable or damaged should only be sampled by a licensed and trained asbestos, lead or hazardous materials contractor, and should only be handled, removed and disposed of, by licensed and trained asbestos, lead or hazardous materials abatement contractors, in accordance all applicable laws and regulations.

Prior to demolition or during any renovation, ACMs should be handled, removed and disposed of, by licensed and trained asbestos abatement contractors, in accordance with plans and specifications based on all applicable laws and regulations.

The garage paints which are in a poor condition are an environmental concern, especially for young children. The garage paints should be analyzed for lead content and if determined to be lead based paint, they should be abated by licensed and trained lead or hazardous materials abatement contractors, in accordance all applicable laws and regulations.

Prior to demolition, structure surfaces with well adhered paint should be tested for leachable lead to verify that the materials may be disposed of as demolition debris or by recycling.

I. INTRODUCTION

The objective of this field survey and report was to assess the existence and extent of asbestos-containing building material (ACBM), arsenic in canec and polychlorinated biphenyl (PCB) containing fluorescent light ballasts at 1367 Kapiolani Street, Hilo, Hawaii 96720 TMK: (3) 2 - 4 - 057: 024.

The field survey and sampling efforts were limited to the residential building at the Site. This ACBM, arsenic and PCB survey is not intended to be a comprehensive survey for all environmental conditions at the subject site.

EKNA Services, Inc.'s (EKNA's) scope of work included collection and analyses of suspect ACBM, and arsenic samples, visual observation of fluorescent light ballasts, and providing a written report summarizing the survey observations, sampling and analyses results.

II. SURVEY SUMMARY

Asbestos-Containing Building Material (ACBM)

Laboratory analyses determined samples of the following materials contain asbestos at concentrations greater than one percent (>1%) asbestos (an ACBM) which are highlighted in **bold** print:

Material Description	General Location(s)	Estimated Quantity
Sink Insulation, black	Kitchen Sink	One (1) sink.
Mastic under Green 12" x 12" Vinyl Floor Tile under Beige Sheet Vinyl Flooring	Laundry and Bathroom Floor	Approx. 112 square feet.
Roof Vent Mastic, black	Roof	Six (6) vent pipes.

Laboratory analyses determined that none of the remaining samples analyzed contained asbestos at trace concentrations of less than one percent (<1%). The laboratory report and sample Chain of Custody form are provided in Appendix A, Section 2.

Arsenic in Canec

EKNA collected three (3) representative samples of canec from ceiling boards found at the residence. Analysis indicates that there are high levels of arsenic present in the canec boards. There are approximately 1,525 square feet of canec board in the residence.

The laboratory report and sample Chain of Custody form are provided in Appendix B, Section 2.

Polychlorinated Biphenyl (PCB) Containing Fluorescent Light Ballasts

EKNA was tasked to visually inspect (open) fluorescent lights to identify PCB-containing ballasts at the Site. Fluorescent light ballasts that do not contain PCBs are typically identified with a "No PCBs" label.

The residence did not contain any fluorescent light fixtures with ballasts (Appendix C).