

Final ENVIRONMENTAL ASSESSMENT

Puakō Marine Education and Research Center

Puakō, Island of Hawai'i, State of Hawai'i

University of Hawai'i at Hilo

March 2009



Project Summary

Applicant:	University of Hawai'i at Hilo Kalakaua Marine Education Center c/o Facilities Planning and Construction Office University of Hawai'i at Hilo 200 West Kawili Street Hilo, HI 96720 Mr. Ted LeJeune (808) 974-7595
EA Preparer:	Helber Hastert & Fee, Planners 733 Bishop Street, Suite 2590 Honolulu, HI 96813 (808) 545-2055 Tom Fee / Martha Spengler
Accepting Authority:	University of Hawai'i at Hilo
Proposed Action:	The University of Hawai'i at Hilo proposes to design and build a state-of-the-art marine education and research center. The Center would be operated as a field station and laboratory by the Kalakaua Marine Education Center for the Marine Science Department and other university departments (e.g., Biology Department) carrying out marine-related education and research activities, largely in support of the UHH's undergraduate science programs and community outreach programs.
Chapter 343, Hawai'i Revised Statutes "Trigger":	Use of public land and funds, use of land classified as Conservation District
Location:	Five acres site near the intersection of Puakō Beach Drive and access road to State-owned Puakō Boat Ramp, Puakō, Lālāmilo ahupua'a, South Kohala District, Island of Hawai'i, State of Hawai'i (Figure 1-1)
Tax Map Key:	Undivided portion of (3) 6-9-01: 01 (Figure 1-2)
Landowner:	State of Hawai'i
Existing Land Uses:	Vacant, undeveloped
State Land Use District:	Urban and Conservation (General Subzone) (Figure 1-3), Land Use Commission Boundary Interpretation No. 07-11 (June 19, 2007)
Hawai'i County Zoning:	Open (Figure 1-4)

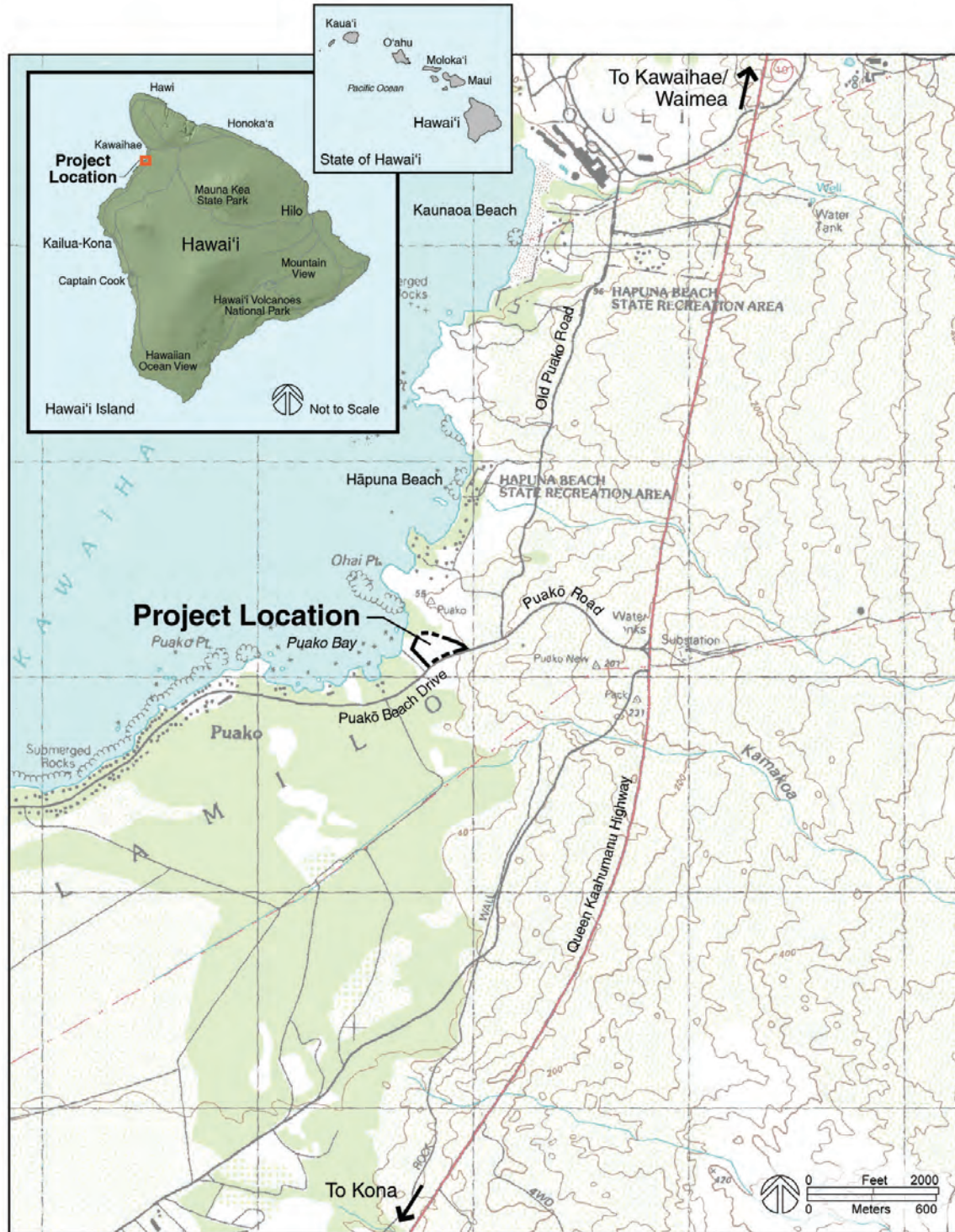


Figure 1-1: Location Map

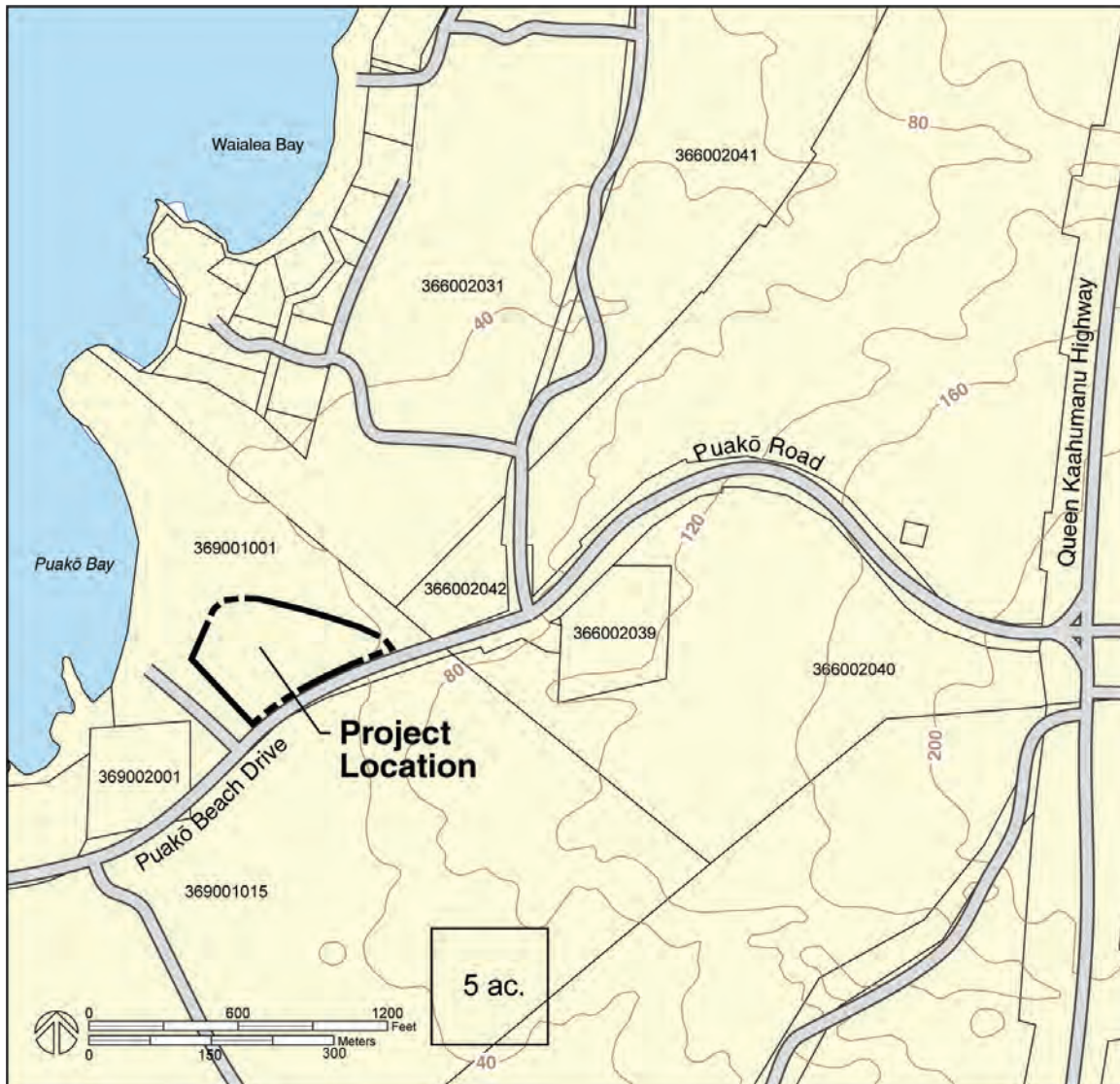


Figure 1-2: Tax Map Key Parcels

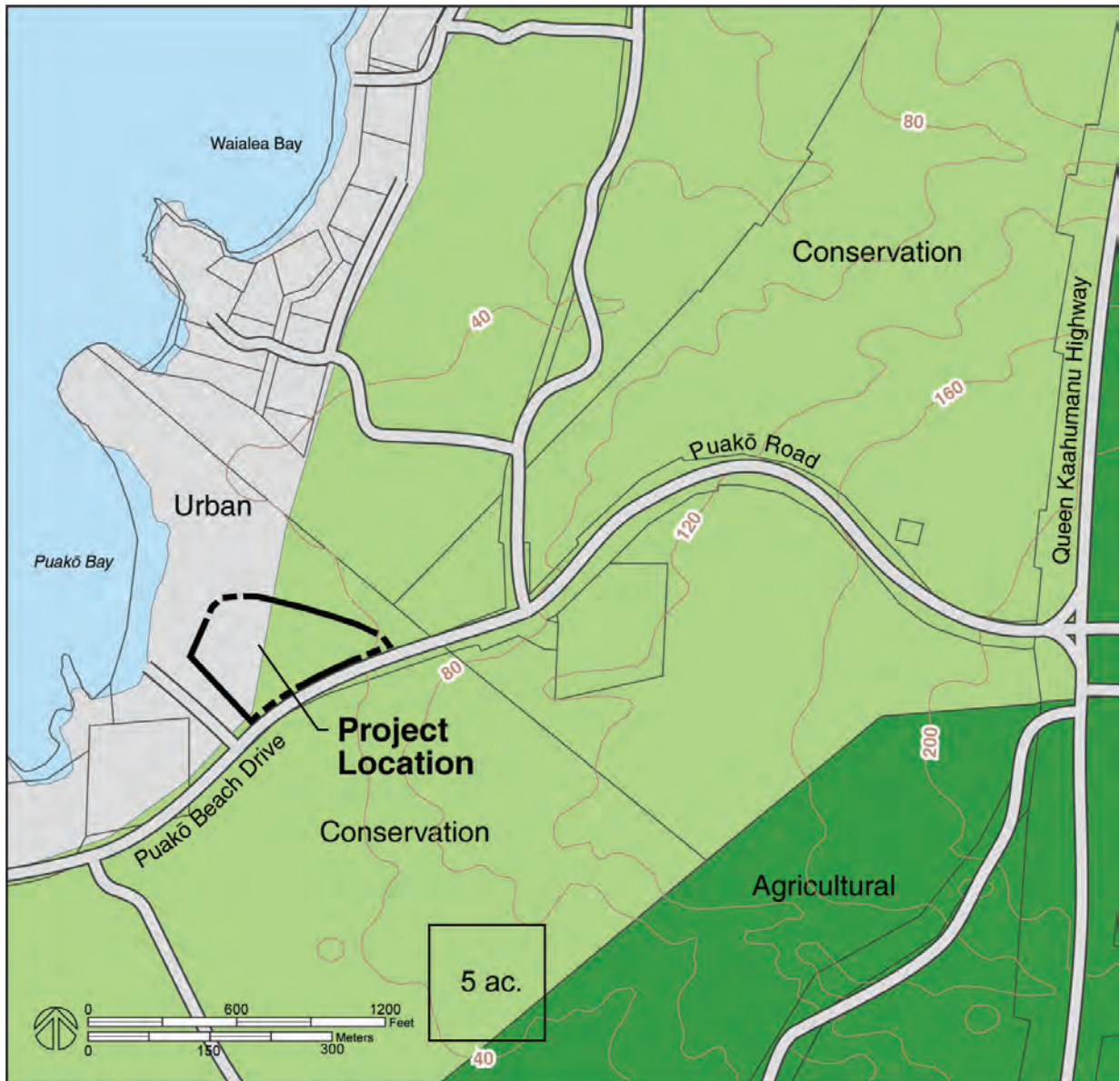


Figure 1-3: State Land Use Districts

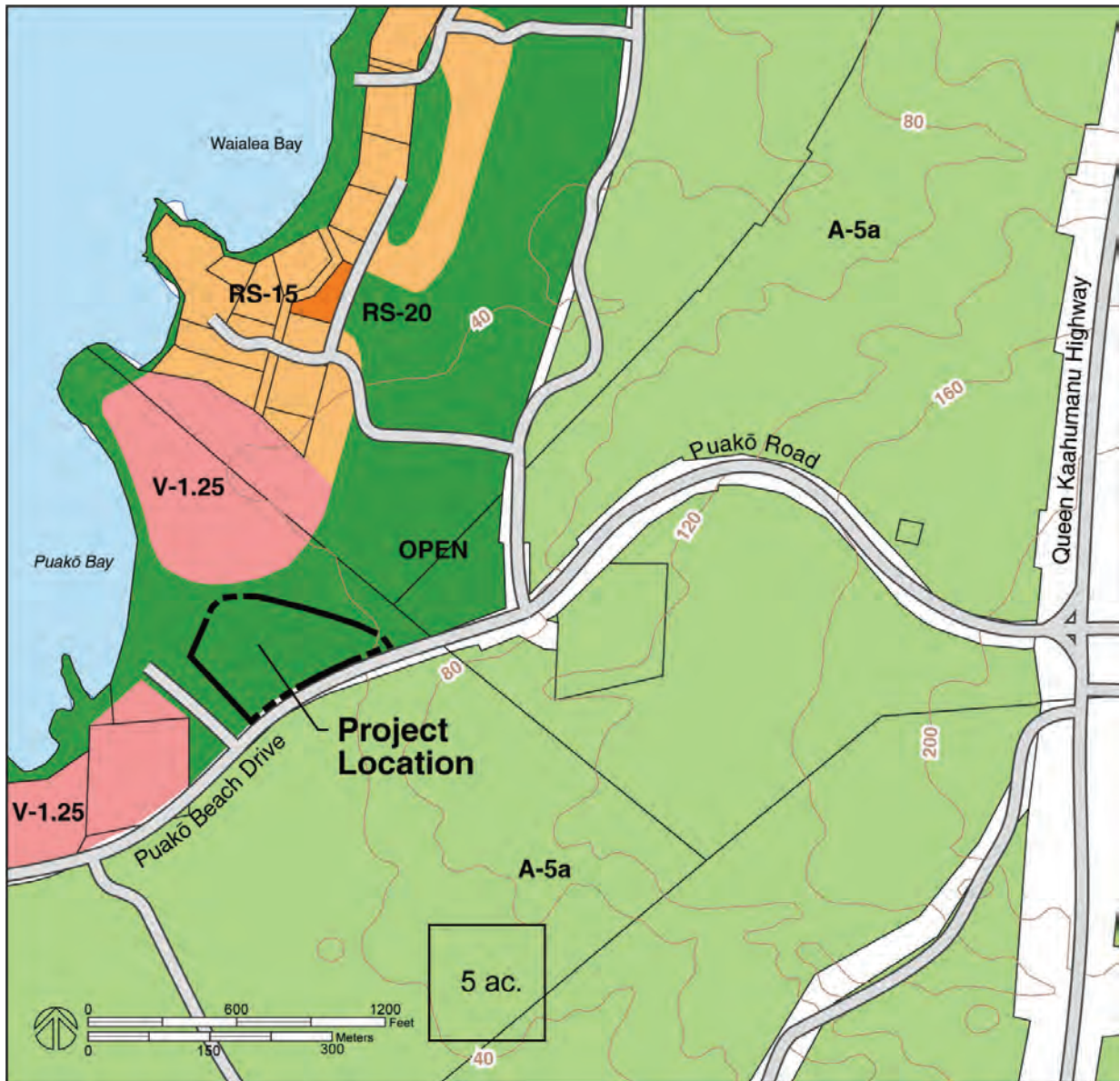


Figure 1-4: County Zoning

1.4 REQUIRED PERMITS AND APPROVALS

Agency	Permit
State of Hawai'i	
Department of Health	National Pollutant Discharge Elimination System (NPDES) permit Air Quality Permit (for emergency generator) Review and approval of wastewater treatment system and disposal
University of Hawai'i at Hilo	Finding of No Significant Impact (FONSI)
Department of Land and Natural Resources	Conservation District Use Permit, Commission on Water Resource Management Well Permit and Pump Installation Permit
County of Hawai'i	
Planning Commission	Special Management Area (SMA) Permits
Planning Department	Final Subdivision Approval, Grubbing and Grading Permit, and Building Permit(s), Water Supply Variance

1.5 DETERMINATION

Based on the information gathered during the preparation of the EA, the direct, indirect, and cumulative effects of the proposed action will not have a significant effect on the environment; therefore, an EIS will not be required and a FONSI will be issued by the approving agency.

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2 PROPOSED ACTION AND ALTERNATIVES

2.1 PROJECT LOCATION

As shown on Figure 2-1, the proposed action would be developed on 5 acres of undeveloped, unimproved land at the intersection of Puakō Beach Drive and Puakō Boat Ramp Access Road, Puakō, Lālāmilo ahupua'a, South Kohala District, island of Hawai'i (hereinafter referred to as the "project site"). The project site is an unsubdivided portion of Tax Map Key (TMK) (3) 6-9-01: 01 (Figure 2-1). The remainder of TMK (3) 6-9-01: 01 is also undeveloped and includes a portion of the Ala Kahakai Shoreline Trail. West of the project site is the SOH-owned Puakō Boat Ramp Access Road with access to Puakō Bay. Puakō Beach Drive is located immediately southeast of the project site with SOH-owned, vacant, undeveloped land beyond the road. To the east of the project site is SOH-owned, vacant, undeveloped land with private single-family residential development beyond that.

2.2 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Because funding for the Center could take place in phases, the alternatives to the proposed action include a Phase 1, a Phase 1A, and a No Action Alternative. Each alternative is described below. A comparison of the environmental impacts of the proposed action and the alternatives carried through the analysis (i.e., Phase 1 Alternative, Phase 1A Alternative, and the No Action Alternative) is presented in Table 2 at the end of this chapter.

2.2.1 Proposed Action

A preliminary space program was developed by KMEC and UHH MSD personnel to identify the variety of spaces and approximate sizing needed to create a world class facility. Precedents considered by the KMEC and MSD staff include marine research stations operated by other U.S. universities including:

- Friday Harbor Research Station in Puget Sound operated by the University of Washington
- The Rutgers University Marine Field Station on the Mullica River-Great Bay estuary, New Jersey
- The Moss Landing Marine Laboratories in Monterey Bay operated by a consortium of California State Universities



Friday Harbor Research Station

The preliminary program identified the need for approximately 40,000 square feet (ft²) of space to support MSD's research and educational objectives (Table 2-1). Basic footprints were developed from the space program and organized in various configurations to explore use relationships and adjacencies, and overall site layouts and to support the impact analysis of this EA (Appendix A). A design exercise following major discretionary entitlements will identify specific building envelopes and site organization. The preferred land use plan is presented as Figure 2-1. It is conceptual and subject to change.

Table 2-1: Summary of Buildings and Spaces Associated with the Proposed Action

Facility	Description
Academic Center – total area of approximately 13,000 ft²	
Marine science laboratories	Two instructional-use laboratories with attached autoclave rooms.
Classrooms	Two 30-student classrooms.
Computer laboratory	Common-use for students, researchers, and faculty
Faculty laboratories	Two faculty-use, marine science laboratories
Faculty offices	Three two-person faculty offices
Student research laboratories	Five student research marine science laboratories
Research library	Common-use research library
Seminar room	Multi-purpose seminar room
Saltwater tanks	Three seawater tanks for marine flora and fauna
Reception area	Reception area for visitors and display area for on-going research and training projects carried out at the Center.
Dining hall/auditorium	Also used for community events on a space available basis
Marine Support – total area of approximately 6,250 ft²	
Dive locker	Storage for 80 scuba tanks, tri-mix, fill whips, compressor room, and small office
Boat storage	Storage for three 22-ft boats and one 40-ft boat
Marine shop	Equipment and boat repair, fabrication, and a small office space
Housing – approximately 21,000 ft²	
Student units	Transient housing units for students (50 beds) (incl restrooms and common area)
Faculty units	Six 2-bed/1-bath live/work units for transient faculty housing
Caretaker's unit	One 2-bed/1-bath caretaker's residence

The topographic survey conducted for the project defined a fairly level but undulating five-acre area adjacent to the Puakō Beach Drive. The makai edge of the site drops off fairly steeply toward the shoreline and the Ala Kahakai Trail, and a diagonal gully defines the north side. The boat ramp side is defined by a shallow gully on the makai side and rocky hillocks on the Puakō Beach Drive side. Approximately 2 acres of land located immediately north of the boat ramp access road has been set aside for proposed expansion of the boat ramp facilities by DLNR. The conceptual land use plan (Figure 2-1) is a generalization of Site Plan Alternative “B” in Appendix A. It centers the planned campus within this naturally defined plain and places the academic center and associated meeting rooms astride the main entrance driveway next to Puakō Beach Drive. This is considered the primary “public realm” of the site. The faculty and student units are placed in an interior location, nearer to the shoreline. “Marine



Figure 2-1: Conceptual Land Use Plan

activities” (e.g., marine shop, dive locker and boat storage) are located on the Boat Ramp side of the property, collocated with the planned caretakers residence for maximum security, and serviced by the second driveway. The Center’s small boats would be stored in this area and trailered next door to the boat ramp via the driveway and Puakō Beach Drive when needed (no direct connections to the ramp are proposed for security reasons). The two driveway connections with Puakō Beach Drive are spaced approximately 240 feet apart (with the western driveway spaced approximately 240 feet east of the existing Boat Ramp intersection). On site parking to accommodate up to 75 vehicles has been accommodated to meet COH off-street parking guidelines (this exceeds the number of stalls likely to be needed by the facility as KMEC and UHH MSD students will be required to bus over to the site from UHH so only faculty and visitors would be accessing the site with privately owned vehicles). A landscaped buffer would be maintained along Puakō Beach Drive and care will be taken in the design of the structures to blend them in with the arid, coastal setting. Topographic conditions provide a natural setback (approximately 110 to 200 feet) along the existing Boat Ramp which could be used to accommodate potential expansion of the ramp. As shown on the site plan, the entire site is set back from the shoreline approximately 200 feet and about 80 feet from the Ala Kahakai Shoreline Trail.

Because of the site’s proximity to the shoreline, students and faculty will easily be able to access shoreline areas in the vicinity of the Center as part satisfying field research objectives of the curriculum.

The proposed construction would take approximately three years to complete after funding is provided. The cost of the design and construction is estimated at \$12,000,000.

The Center would be in fulltime use by KMEC, MSD, other UHH programs, and/or community groups. UHH anticipates that there would be opportunities for the community to utilize meeting rooms during off-peak hours (week days and evenings during the academic year). In addition, UHH hopes to engage the community in general through its programs and presentations. During the academic year (mid August to mid December; mid-January to mid May), peak KMEC and MSD use would be on weekends with other UHH field programs using the facility during the week. The facility would be available for use to the community during the week (through the academic year) including the UHH College of Continuing Education Courses. The facility would be at capacity during the summer supporting KMEC’s marine science summer programs.

The project will follow guidelines established in Chapter 196-9, HRS (Energy efficiency and environmental standards for state facilities). UHH’s intent is to design and construct the Center to meet the Leadership in Energy and Environmental Design (LEED) silver standard. The construction of a “green,” high tech, low-impact, state-of-the-art marine education and research facility is a major component of the vision established by the UHH marine scientists that conceived the project. The Center and the marine science programs that will be run out of it will enhance the understanding of sustainable building technology and at the same time, assist in improving the community’s awareness and understanding of the region’s near shore marine resources. The Center would offer an opportunity to showcase UHH’s diverse efforts at sustainable environmental design. In accordance with LEED principles, solar water heating systems will be incorporated where cost effective. Water and energy efficiency practices will be implemented to reduce waste and increase conservation. Principles of waste minimization and

pollution prevention, such as reducing, reusing, and recycling, will be incorporated as a standard operating practice, including programs for waste management in construction and demolition projects and office paper and packaging recycling programs. Life cycle cost-benefit analysis will be used to purchase energy efficient equipment such as ENERGY STAR products and use utility rebates where available to reduce purchase and installation costs. Environmentally preferable products, including recycled and recycled-content, bio-based, and other resource-efficient products and materials will be procured when feasible.

2.2.2 Phase 1 and Phase 1A Alternatives

The Phase 1 Alternative in its complete form would include only two of the elements of the proposed action: (1) marine support facilities; and (2) temporary student and faculty housing units. This alternative would permit UHH to operate a field station at Puakō consisting of marine support facilities and temporary housing units for students and faculty.

Financial constraints may require that a preliminary stage or phase (Phase 1A) be utilized at the project site before a Phase 1 Alternative or the proposed action could be funded and completed. Phase 1A would consist of a simple, temporary field camp to accommodate up to 50 students, along with faculty and support staff. It would include a temporary equipment/boat storage shed, temporary covered camping platform, a potable water tank, solar-heated, low pressure shower/bathing facilities, and portable toilets or self-contained, composting toilets. The Phase 1A Alternative would allow KMEC students and faculty to make use of the project site during and until funding is available for the completion of the proposed action or complete Phase 1 Alternative.

Neither Phase 1 or Phase 1A Alternatives would include the academic center, separate faculty units, caretaker's residence, or conference/auditorium facility. They would not allow KMEC to provide integrated field, laboratory and educational activities or provide opportunities for academic and community meetings or conferences. The Phase 1 or Phase 1A Alternatives would not include the academic center and meeting rooms and, therefore, these alternatives would not provide space for community activities.

Similar to the proposed action, the Phase 1 and Phase 1A Alternatives would be located at the project site and the design and construction funds would be provided from UHH. The Phase 1 Alternative would include site clearing and grading similar to the proposed action but at a smaller scale. The Phase 1A Alternative would consist of very small scale site clearing and grading. For both Phase 1 and Phase 1A Alternatives, all laboratory research and the majority of the academic support would be conducted at the main UHH campus in Hilo. The Phase 1 and Phase 1A Alternatives would take less time and money to construct than the proposed action because of reduced scope.

Phase 1 and Phase 1A alternatives are referred to as the “action alternatives”, distinguished from the “No Action Alternative” discussed below.

2.2.3 No Action Alternative

Under the No Action Alternative, no development would occur at the project site. UHH would continue to operate the KMEC ocean/in-water field method instruction from leased warehouse and wharf space at Hilo Harbor, supplemented by occasional overnight trips to Puakō for

scientific scuba diving instruction. Overnight accommodations would likely consist of informal beach park camping. All laboratory work and academic support would continue to be conducted at the main UHH campus in Hilo

2.2.4 Alternatives Considered But Eliminated From Further Evaluation

Increase Leased Space at DOT-H Hilo Harbor. Under this alternative, the existing, leased space at Hilo Harbor would be expanded and updated to provide marine support facilities. This alternative does not fully integrate in-water activities with academic support and research and is located a long distance from optimal coral reef study areas in West Hawai'i. Under this alternative, faculty and students would still require passes to access the area and in-water scientific diving would still occur in West Hawai'i (via car trip). As a result, this alternative does not significantly enhance KMEC or the UHH undergraduate MSD program and would not provide outreach to the community. Because this alternative did not meet the project objectives, it was not considered feasible and was eliminated from further consideration.

Another Location in West Hawai'i. This alternative involves leasing or purchasing land to build a marine education and research center at another location in West Hawai'i. Costs for developable, shoreline parcels in West Hawai'i, if available, are some of the highest in the world and would be prohibitively expensive. Even if an affordable site were found, it would not likely be in a coastal setting or proximate to Puakō Bay, the environment that UHH MSD feels it can be most effective in studying. An offsite location would require additional transportation costs and would not permit easy student and faculty access to shoreline areas. Therefore, this alternative is not considered feasible and was eliminated from further consideration.

2.3 ENVIRONMENTAL EFFECTS OF THE PROPOSED ACTION AND ALTERNATIVES

Table 2 summarizes the environmental effects of the proposed action and the reasonable alternatives. The information in the table is summarized from Chapter 4, Environmental Consequences.