HAWAIʻI PACIFIC UNIVERSITY

Hawaiʻi Loa –

Campus for the Future

Phase One Planning Report
2007

HAWAIʻI PACIFIC UNIVERSITY

Hawaiʻi Loa – *Campus for the Future*

Phase One Planning Report Prepared By:
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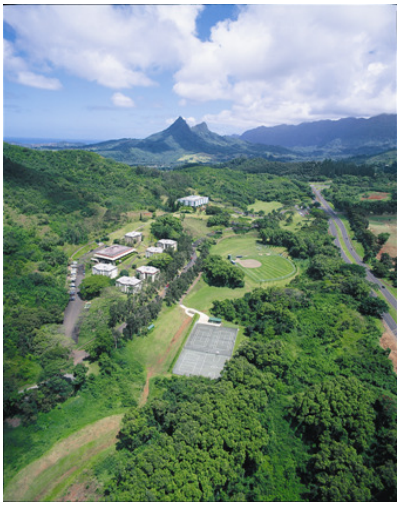
The Hawaiʻi Loa *Campus for the Future…*

will be a memorable and uplifting campus that demonstrates *Hawaiian sense of place* and serves the highest purposes of learning. The campus will reflect the University's spirit of aloha, commitment to global connections, and sense of community within and beyond the borders of the campus. The Hawaiʻi Loa learning campus will protect and enhance the natural environment and resources of the land, air and sea, and will actively contribute to the retention of students who come to study at Hawaiʻi Pacific University.



The Time is Now

This plan is timed to respond to the increasing and widely-publicized desire of parents to have campus housing and an attractive *campus life experience* for freshmen students. Statistics show that freshman retention is highly dependent on offering students an engaging living and learning college experience. To meet this important expectation, the first phase of Hawaiʻi Loa campus development will create facilities *that have the greatest potential to increase student recruitment and retention.* The goal is to enhance the quality of HPU education and scholarship and accommodate current and future facilities needs. Specific planning principles and assumptions about enrollment growth and facilities needs led to this proposal to create five major development components on the Hawaiʻi Loa Campus:

- **A new academic building – classrooms, offices, laboratories**
- **Residence halls – increase capacity by 400**
- **Theater space linked with a multi-use student center**
- **Renovated residence halls, Academic Center, Commons**
- **Link campuses with progressive transportation and information technology systems**

Respecting Hawai‘i History and Culture – A Place for Sustainability

Recommendation: Build LEED-Silver (or higher) buildings; design buildings that use the characteristics of traditional Hawaiian architecture; build an appropriate renewable energy source on the campus using solar or wind power; complete LEED-Silver renovations to existing buildings; create attractive landscape "Sustainability Gathering Places."

Recommendation: Define the "community" we want to sustain at Hawai‘i Loa and design and implement methods and policies to assure that this sense of community is sustained with *aloha*.

The Future Hawai‘i Loa Campus Community

The projected growth of the Hawai‘i Loa Campus is estimated to include an increase in the average daily number of students from 1200 to 1800 students. This projection is based on an anticipated overall increase in enrollment of almost 50% in the Nursing and Natural Sciences programs and a threefold planned expansion of residence halls occupancy to 600 students. The Natural Science programs expect to match the 53% increase that occurred between 2001 and 2006, to increase to 868 undergraduate students and 80 students in the new graduate program. The School of Nursing expects a 23% increase in enrollment to 1900 students. HPU's current enrollment and available residence hall occupancy data indicate that the University could easily fill the approximately 400 additional bed spaces.

Academic Facilities

Recommendation: Build classrooms, laboratories, and spaces for faculty and student teaching-learning needs that will accommodate projected growth in student enrollment in the School of Nursing and the College of Natural Sciences. A complementary recommendation is to renovate the existing Hawai'i Loa academic facilities up to the standard of the new facilities.

The scope of proposed development of classrooms, laboratories, and offices includes: 12 high-technology classrooms; 16 science laboratories (plus a range of additional support service areas); 2 nursing laboratories; 49 offices for faculty, advisors, staff; 4 administrative offices for College of Natural Sciences vice president and assistant/associate deans; 1 academic support center; 3 conference rooms; 10 graduate student suites; 1 testing center; 2 "gathering places" for students (social area + computer stations); and 1 nursing student clinic/nurse practitioner-based clinic; 2 faculty lounge/meeting room areas.

Proposed Expansion of Residence Halls

Recommendation: Increase the number of student bed spaces on the Hawai‘i Loa campus threefold, from 211 spaces to approximately 600 to 650 bed spaces.

Requirements for these facilities include: design residence halls to open into a common courtyard; create attractive single, double, and triple occupancy rooms; consider developing suite-style units for upper division students; include kitchens, vending machines, cable television in common areas; assure quality of environment through dehumidifiers or air conditioning; assure security and safe access across residence halls; include student activity rooms; assure high-technology computer laboratories in each residence hall; create small apartments in each hall for residence hall director.

Proposed Theater and Multi-Use Student Center

Recommendation: Build the Paul and Vi Loo Theatre with 600-800 person capacity. The theatre would also have an administrative office, a box office, a costume closet, and dressing rooms.

Recommendation: Build a Student Center, or University Union, that will serve as an integral part of the institution’s educational environment.

Requirements for the center include: a large multi-purpose gymnasium; a running track (possibly on second floor); a large recreational center, with weights, treadmills, and other exercise equipment; dance/aerobics rooms; retail stores; office spaces; meeting rooms; centralized mailboxes; music practice rooms. music library, rehearsal rooms; high-technology computer room; television area; study areas; student lockers and gathering place for commuter students; a student health center, which could be run cooperatively with the Nursing program; and a bookstore where students can read/browse.

Recommendation: Create a food court-style dining facility, one that is large enough to support 600-650 residents as well as the anticipated larger day-time population.

Existing Hawai‘i Loa Campus Facilities

Recommendation: Complete a comprehensive facilities assessment and fully renovate the Academic Center, Residence Halls, and the Commons to bring these facilities up to the quality and sustainability standards of the new structures.

Recommendations: Achieve campus connectivity by the following: implement a high-visibility electric car/bus transit system to replace the shuttle between Downtown and Hawai‘i Loa campuses; create sufficient parking for campus needs including community events; assure wireless access to internet throughout campus; and create new opportunities to use information technology methodologies for interactions between Downtown and Hawai‘i Loa campuses.

Memorable…

Uplifting…

Hawai‘i Loa – *Campus for the Future*

HAWAIʻI PACIFIC UNIVERSITY

Hawaiʻi Loa Campus Development:
Phase One Planning Report

Report Prepared By:
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Les Correa, Associate Vice President of Academic Affairs and Dean, College of Liberal Arts
Nancy L. Hedlund, Associate Vice President of Planning and Assessment
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EXECUTIVE SUMMARY

The overall goal of this plan is to create a memorable and uplifting Hawaiʻi Loa campus that demonstrates *Hawaiian sense of place* as the framework for serving the highest purposes of learning. The campus will reflect the University's spirit of aloha and commitment to global connections and community within and beyond the borders of the campus setting. The Hawaiʻi Loa learning campus will protect and enhance the natural environment and resources of the land, air and sea, and will actively contribute to the retention of students who come to study at Hawaiʻi Pacific University.

The Committee recommends that the first phase of development at the Hawaiʻi Loa campus be multipurpose in its scope. *The first facilities to be built should be those that have the greatest potential to increase student recruitment and retention.* These developments will enhance the quality of HPU education and scholarship and enable the Hawaiʻi Loa campus to accommodate current and future facilities needs. The plan is based on planning principles and specific assumptions about enrollment growth and associated Hawaiʻi Loa campus facilities needs.

Five major development components are proposed for the Hawaiʻi Loa Campus:

- Develop a new academic building with classrooms, offices, laboratories
- Build residence halls to increase capacity by 400
- Create theater space that links with a multi-use student center
- Renovate residence halls, Academic Center, Commons
- Upgrade transportation and information technology systems to link campuses

The Future Hawai'i Loa Campus Community

The projected growth of the Hawai'i Loa Campus is estimated to include an increase in the average daily number of students from 1200 to 1800 students. This projection is based on a projected overall increase in enrollment of almost 50% in the Nursing and Natural Sciences programs and a threefold planned expansion of residence halls occupancy to 600 students. The Natural Science programs expect to match the 53% increase that occurred between 2001 and 2006, increasing to 868 undergraduate students and 80 students in the new graduate program. The School of Nursing expects a 23% increase in enrollment to 1900 students. HPU's current enrollment and available residence hall occupancy data indicate that the University could easily fill the approximately 400 additional bed spaces.

Academic Facilities

Recommendation: Build classrooms, laboratories, and spaces for faculty and student teaching-learning needs that will accommodate projected growth in student enrollment in the School of Nursing and the College of Natural Sciences. A complementary recommendation is to renovate the existing Hawai'i Loa academic facilities up to the standard of the new facilities.

The scope of proposed development of classrooms, laboratories, and offices includes: 12 high-technology classrooms; 16 science laboratories (plus a range of additional support service areas); 2 nursing laboratories; 49 offices for faculty, advisors, staff; 4 administrative offices for College of Natural Sciences vice president and assistant/associate deans; 1 academic support center; 3 conference rooms; 10 graduate student suites; 1 testing center; 2 "gathering places" for students (social area + computer stations); and 1 nursing student clinic/nurse practitioner- based clinic; 2 faculty lounge/meeting room areas.

Proposed Expansion of Residence Halls

Recommendation: Increase the number of student bed spaces on the Hawai'i Loa campus threefold, from 211 spaces to approximately 600 to 650 bed spaces.

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Recommendation: Build the Paul and Vi Loo Theatre with 600-800 person capacity. The theatre would also have an administrative office, a box office, a costume closet, and dressing rooms.

Recommendation: Build a Student Center, or University Union, that will serve as an integral part of the institution's educational environment.

Requirements for the center include: a large multi-purpose gymnasium; a running track (possibly on second floor); a large recreational center, with weights, treadmills, and other exercise equipment; dance/aerobics rooms; retail stores; office spaces; meeting rooms; centralized mailboxes; music practice rooms. music library, rehearsal rooms; high-technology computer room; television area; study areas; student lockers and gathering place for commuter students; student health center, which could be run cooperatively with the Nursing program; and a bookstore where students can read/browse.

Recommendation: Create a food court-style dining facility, one that is large enough to support 600-650 residents as well as the anticipated larger day-time population.

Existing Hawai'i Loa Campus Facilities

Recommendation: Complete a comprehensive facilities assessment and fully renovate the Academic Center, Residence Halls, and the Commons to bring these facilities up to the quality and sustainability standards of the new structures.

Recommendation: Achieve campus connectivity by implementing a high-visibility electric car/bus transit system to replace shuttle between Downtown and Hawai'i Loa campuses; by creating sufficient parking for campus needs including community events; by assuring wireless access to internet throughout campus; and by creating new opportunities to use IT methodologies for interactions between Downtown and Hawai'i Loa campuses.

Respect for Hawaiian Sense of Place and Sustainability

Recommendation: Build LEED-Silver (or higher) buildings; design buildings that use the characteristics of traditional Hawaiian architecture; build an appropriate renewable energy source on the campus using solar or wind power; complete LEED-Silver renovations to existing buildings; create attractive landscape "Sustainability Gathering Places."

Recommendation: Define the "community" we want to sustain at Hawai'i Loa and design and implement methods and policies to assure that this sense of community is sustained with *aloha*.

HAWAIʻI LOA CAMPUS DEVELOPMENT: PHASE ONE PLAN

The Committee recommends that the first phase of development at the Hawaiʻi Loa campus should provide those facilities that have the greatest potential to increase the University's student recruitment and retention. The overall vision is to create a memorable and uplifting Hawaiʻi Loa campus through development that reflects three core **Planning Principles**:

Principle 1: Enhance the quality of education and scholarship at Hawaiʻi Pacific University

Principle 2: Create a vibrant campus community with residential life that supports excellence in teaching and learning

Principle 3: Establish *Hawaiian Sense of Place* as the basis for sustainable campus development

The proposed development components are:

- Develop a new academic building with classrooms, offices, laboratories
- Build residence halls to increase capacity by 400
- Create theater space that links with a multi-use student center
- Renovate residence halls, Academic Center, Commons
- Upgrade transportation and information technology systems to link campuses

The **planning goals** to enable these developments to fulfill the campus vision are:

1. Increase space for research, teaching and learning, student life, and the arts to accommodate current and future facilities needs.

2. Use architectural and landscape strategies that meet sustainability standards and incorporate design principles with known success in Hawaii, to create a campus that achieves significant: reduction in long-term maintenance, reduced dependence on nonrenewable energy sources, enhanced conservation and protection of natural resources, and respect for and enhancement of the inherent beauty of the campus

3. Create quality systems for interaction between Hawaiʻi Loa and Downtown University campuses with respect to transportation, campus parking, and information technology.

4. Create a strong campus community by assuring high-quality connections between the intellectual, social, and physical components of the University community and with the community beyond the campus. Assure ample opportunities for student engagement and student quality of life.

5. Use spirit of *aloha* to integrate *user-friendly* facilities plans, renovations, and campus connectivity that assure quality of life associated with study, housing, campus life, and transportation between campuses (no "second-class" facilities). Improve existing programs in Residence Life, food service, recreation, Theatre, music; and Athletics.

This planning document describes the anticipated future Hawai'i Loa campus community, proposed facilities plans, recommended standards derived from commitment to creating *Hawaiian sense of place* and sustainable development*,* and significance of the planned development relative to achievement of the University's strategic priorities.

A. The Future Hawai'i Loa Campus Community

The Hawai'i Loa Campus is currently serving an approximate average of 1200 students daily, from Monday through Friday. This is based on current enrollments of 567 science majors, 1550 nursing majors, and 200 students who live in the residence halls. By the Fall term of 2012, we project the campus will be serving approximately 1800 students. This overall increase of almost 50% will come from students enrolled in the science and nursing programs and from the number of individuals living in the residence halls.

Table 1. Projected Increases in Students and Faculty from 2006 to 2012 for School of Nursing and College of Natural Science

	Fall 2006	***Fall 2012***
Nursing majors	1550	1900
Full-time Nursing Faculty	42 (2 short)	55
Science majors	567	948
Full-time Science Faculty	26 (10 short)	44

The number of students in the science programs is expected to increase to 868 undergraduate students and 80 students in the new graduate program. This matches the 53% increase that occurred between 2001 and 2006. The College of Natural Science anticipates that of the 80 students enrolled in the new graduate program, 40 majors will be involved in research with major professors and another 40 graduate students will be involved in more applied certificate programs. About 25% of the graduate students will be at the Oceanic Institute Campus.

The School of Nursing expects the enrollment to increase to 1900 students, which represents a 23% increase by 2012. Although the national nursing shortage is expected to continue for some time, present limitations in community clinical field sites limit the number of nursing students that can be served by the University.

HPU's current enrollment numbers and available occupancy data indicate that the University could easily fill the approximately 400 additional bed spaces. Table 2 (next page) illustrates the number of student who remained on the waiting list to receive a room assignment in the Hawai'i Loa residence halls. Since the Fall 2002 semester, the number of student who request to live at the Hawai'i Loa campus has increased dramatically. Clearly, student demand far exceeds HPU' ability to house students on the Hawai'i Loa campus.

In addition to the 412 students who did not receive housing at Hawai'i Loa , more than 425 HPU students now live in off-campus student housing that is currently operated by Hawaiian Island Student Suites (HISS). HPU students account for roughly 80% of HISS student housing business.

Table 2. Number of Students on Waiting List to Receive a Room Assignment in Hawai'i Loa Residence Halls, 2002-2006

Semester	***# of Students Who applied for Residence Halls***	***# of Bed Spaces Confirmed***	***# of Students Remaining on Waitlist***
Fall 2002	296	211	85
Fall 2003	306	211	95
Fall 2004	363	211	152
Fall 2005	515	211	304
Fall 2006	623	211	412

The increase of 400 students to a total of 600 in the residence hall population is intended to increase student retention by improving the University's capacity to respond to parent-student expectations for student housing. This increase will also mean that more students will be enrolling in General Education courses at Hawaii Loa campus. As such, increased office space has been planned to accommodate Downtown campus faculty who will also be teaching at the Hawaii Loa campus.

B. Proposed Academic Facilities

Recommendation: Build classrooms, laboratories, and spaces for faculty and student teaching-learning needs that will accommodate projected growth in student enrollment in the School of Nursing and the College of Natural Sciences.

Classrooms

12 high technology classrooms (computer console, data projector, internet connection, screen). Classroom size = ≈ 30' x 30' or ≈900 sq.ft.)

Laboratories & Related Areas

1. 2 general purpose science laboratories (24 stations).
   Size = ≈ 32' x 36' or ≈1152 sq.ft.
2. 1 field science laboratory (12 stations).
   Size = ≈ 20' x 25' or ≈500 sq.ft.
3. 1 science preparation room (adjacent to science labs).
   Size = ≈ 20' x 35' or ≈700 sq.ft.
4. 12 research laboratories
   Size = ≈ 20' x 20' or ≈400 sq.ft.
5. 2 internal support preparation rooms (to support graduate research labs).
6. Science storage areas (one internal storage area for equipment and supplies; one external storage area for volatile chemicals and gases.
7. Science research storage/utility area (
   Size = ≈800-1000 sq.ft.
8. 1 nursing simulation lab.
   Size = ≈ 32' x 36' or ≈1152 sq.ft.
9. 1 multi-purpose nursing laboratory
10. Nursing storage space

B. Proposed Academic Facilities - continued

Offices & Administrative Areas

1. 36 faculty offices (26 new science offices and 10 new nursing offices)
2. 3 adjunct office suites (4 desks/suite)
3. Science administrative offices for: (1) 1 Vice-President; (2) 3 assistant/associate science deans; 3 science administrative assistants; 1 science graduate administrator; 1 development officer.
4. Academic support center (duplication, mail-room, etc.).
5. Three adjacent conference rooms with portable walls between rooms.
6. 4 offices for academic advisors (2 science, 2 nursing).
7. 10 science graduate student suites (6 students/suite)
8. 1 science graduate support office (copy station, etc.)
9. Testing center (24 computer stations, proctor space)

Student Areas

1. Gathering place for science students (social area + computer stations).
2. Gathering place for nursing students
3. Student Clinic/NP based clinic
4. Student Nurses Assn Office.

Faculty Areas

1. Science faculty lounge/meeting room.
2. Nursing faculty lounge/meeting room.

C. Proposed Residence Hall Development

Recommendation: Increase the number of student bed spaces on the Hawai'i Loa campus threefold, from 211 spaces to approximately 600 to 650 bed spaces.

1. Design new residence halls to open into a common courtyard or possibly onto a Student Center.
2. Single, double, and triple occupancy rooms with large closets
3. Consider developing suite-style units with individual bathrooms for upper division students
4. Kitchens with microwaves, sinks, and possibly cooking ranges located on each floor
5. Vending machines in each building
6. Cable television in the common area
7. Dehumidifiers or air conditioning
8. Consistent quality in furniture
9. Common key system that would allow students to access each residence hall
10. Student activity rooms
11. High tech computer lab in each hall
12. Small apartment in each hall where a professional residence hall director can reside

D. Proposed Theater Space and Student Center

Theater Space

Recommendation: Build the Paul and Vi Loo Theatre with 600-800 person capacity. The theatre would also have an administrative office, a box office, a costume closet, and dressing rooms.

Student Center

Recommendation: Build a Student Center, or University Union, that will serve as an integral part of the institution's educational environment. [The recommended standard for the physical plant of the Union is that it be proportional in size to campus population, with approximately 10 square feet of gross space for each student enrolled.]

1. A large gymnasium that can be used for a variety of purposes, including convocation; large campus gatherings, and NCAA basketball and volleyball games
2. Running track, possibly built on the second floor, above and around the gymnasium
3. Large recreational center, with weights, treadmills, and other exercise equipment
4. Dance/aerobics rooms
5. Retail store
6. Office spaces for Student Affairs staff: Student Center Director; Counselor; Director, First-Year Programs; student life staff
7. Meeting rooms for student clubs and organizations
8. Centralized mailboxes
9. 5-10 (possibly 10' x 10') music practice rooms
10. Music library (possibly 30' x 30')
11. 1-3 large music rehearsal rooms (possibly 60' x 40' with 25' ceilings)
12. High tech computer room
13. Television area
14. Study group tables
15. Board game and video rentals, possibly beach accessory rentals
16. Student lockers
17. Commuter Student Center
18. Student health center, which could be run cooperative with the Nursing program
19. Bookstore where students can read/browse; this and other small stores that provide services to students would serve as revenue generating auxiliaries for HPU.
20. Equipment storage

Recommendation: Create a food-court-style dining facility, one that is large enough to support 600-650 residents as well as the anticipated larger day-time population.

E. Proposed Renovations to Existing Campus Facilities

Recommendation: Complete a comprehensive facilities assessment and fully renovate the Academic Center, Residence Halls, and the Commons to bring these facilities up to the standards of the new structures.

A broad scope of work is projected in which the standards of safety, sustainability, and technology will be applied. The rationale is the necessity of achieving a high level of quality in the educational and residential life facilities that applies to *all* campus structures and operations. The next section of this document outlines the planning principles associated with assuring a *Hawaiian sense of place,* principles that require sustainable campus buildings and practices in all arenas. The campus renovations must be characterized by consistent quality, beauty, and comfort across all campus areas, in order to fully address the University's strategic enrollment priorities on recruitment and retention. Anything less would create a campus with "second-class" and possibly outdated facilities and services.

F. Hawaiian Sense of Place

Commitment to *Hawaiian sense of place* demonstrates the element of the University's mission statement that respects the "rich cultural context of Hawai'i." The many dimensions of *Hawaiian sense of place* originate in love of the land, the *aina,* and commitment to stewardship of the land. This understanding of land as origin generates the requirements to maintain a proper spiritual *pono* relationship with nature, to live in respect for family and community, and to act with the spirit of *aloha.*

The University's first phase of development of the Hawai'i Loa campus land offers a unique opportunity to demonstrate commitment to the Native Hawaiian values that are central to our Hawai'i cultural context. This land is the foundation for new and renewed structures that carry forward love of learning and respect for community. The plans for this land call for full commitment to *sustainable development* as a demonstration of the intention to be proper stewards of this land.

Sustainable Development

Sustainability is a broad set of principles and practices committed to protection of the world's resources. An early-eighties landmark report defined sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs."[1] Long before the current interest in sustainability in Hawai'i, Native Hawaiians approached life with total commitment to respecting and protecting the land. The land means life, as reflected in the concept of *ahupua'a* which links the mountaintop (land) with the ocean.

[1] Bruntland, G. (ed.), (1987), *Our common future: The World Commission on Environment and Development*, Oxford, Oxford University Press.

Sustainability has become a major focus of community and campus conversations. A recent New York Times/CBS poll showed 2/3 of Americans think global warming is having a serious impact and 3/4 believe immediate steps should be taken right away to counter its effects. [2] Although colleges face mounting costs for energy, maintenance, and development, the notable theme on many campuses is that "sustainability is the right thing to do."

Here in Hawai'i, some schools have already built "green" buildings that meet high sustainability standards. And one major campus is developing a broad scope of formal energy and development policies and advancing this commitment through such recent actions as a leadership energy summit, a campus sustainability week, and commitment to green energy and building policies (LEED-Silver minimum). Figure 1 shows important advantages or strengths that are associated with sustainable development of the Hawai'i Loa campus.

Figure 1. Advantages of Sustainable Development

Tangible Institutional Benefits from Sustainable Development

- Reduce long-term building maintenance costs by allocating a higher proportion of overall building costs to up-front sustainable development supported by donors
- Generate income/savings from production of energy by the campus (solar, wind)
- Create a hedge against volatile fuel prices
- Reduce peak demand charges through off-peak activities
- Establish reliability in case of emergency conditions
- Create positive financing opportunities including donors, multi-source financing, federal programs, and tax incentives

Benefits Associated with Community Reputation

- Enhances the President's reputation for leadership and social responsibility
- Enhances the University's reputation for educational excellence
- Gains support from students, faculty, alumni and community
- Increases opportunities for collaborations and partnerships
- Strengthens community relationships and reputation

Commitment to sustainable development is endorsed as a natural expression of *Hawaiian sense of place.* We recommend broad application of sustainability principles to the University's current and future use of natural resources ranging from land, to materials, to energy, and including our human resources. We specifically recommend the use of architectural and landscape strategies that meet sustainability standards and incorporate design principles with known success in Hawaii, to create a campus that achieves the following:

- Greatest reductions in long-term maintenance,
- Lowest dependence on nonrenewable energy sources
- Greatest conservation and protection of natural resources
- Enhanced opportunities for connection and sense of campus community

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[2] New York Times/CBS News, 10/1/2006 (www.cbsnews.com/htdocs/pdf/poll_1015_warming.pdf).

Recommended Methods of Development

1. Build LEED-Silver (or higher) buildings – The LEED (Leadership in Energy and Environmental Design) Green Building Rating System® is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. To earn certification, a building project must meet prerequisites and performance benchmarks ("credits") within each category. Projects are awarded Certified, Silver, Gold, or Platinum certification depending on the number of credits they achieve. This comprehensive approach is the reason LEED-certified buildings have reduced operating costs, healthier and more productive occupants, and conserve our natural resources.

Based on well-founded scientific standards, LEED emphasizes state of the art strategies for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED recognizes achievements and promotes expertise in green building through a comprehensive system offering project certification, professional accreditation, training and practical resources.

2. Design buildings that use the characteristics of traditional Hawaiian architecture – This approach produces cooler, more naturally ventilated interiors and reduce campus need for air conditioning. Most residences in Hawai'i that are not air-conditioned have these characteristics.

- The Hawaiian hip roof that includes gable vents on roof and creates high ceilings
- Window heights that create desired distribution/quantity of light
- Broad overhangs over lanais for cooler interiors, especially on south side of buildings
- Open lanais, as are found on the Hawaii Loa Academic Center, to improve air circulation around and into building
- Landscape that provides trees and plantings to shade roofs and exterior walls (more effective against heat than internal window coverings or blinds)
- Reduce the impact of the strong tropical sun (particularly during the dry half of the year, April to October) and take advantage of the natural ventilation available from trade winds (available for 3/4 of the year).
- Building placement on the land should locate buildings so as to lower solar radiation on walls and roof and increase wind ventilation. One approach is to minimize the walls and glass areas facing the east and west and provide more shade or covered lanais on the south side. Ventilation is best near crest of hills and worst in enclosed valleys.
- Design of building shapes should maximize building shape to promote cross ventilation and control light going into the interior (which affects interior heat gain and glare). Optimal building shape for Hawaii is a *rectangle which faces north and south.* When windows are on adjacent walls, optimal ventilation occurs when the rectangular building is placed perpendicular (or up to 30 degrees from) to wind direction). When windows are on opposite walls, best ventilation occurs when building is placed 45 degrees from prevailing winds.

3. Build an appropriate renewable energy source on the campus using solar or wind power – The production of renewable energy on the campus would bring important assets to the project long term, including reduction of use of nonrenewable energy sources that are high cost financially and environmentally.

4. Complete LEED-Silver renovations to existing buildings – Complete renovation projects for Academic Center, current residence halls, and Commons, so the campus has no second-class structures

5. Create attractive landscape "Sustainability Gathering Places" – These campus gathering places would provide settings for social contact or quiet work, that demonstrate sustainability principles relating to water, plants, wind. These gathering places should be designed to reflect Hawaiian sense of place with appropriate use of water and plants, such as Native Hawaiian gardens and miniature recycled-water pools or waterfalls. Such landscape art projects could be commissioned through competitions designed to attract local artists and other creative teams.

G. Create Quality Systems for Connectivity between Hawai'i Loa and Downtown Campuses

Recommendations: Achieve campus connectivity through the following:

1. Implement a high-visibility electric car/bus transit system to replace shuttle between Downtown and Hawai'i Loa campuses. Implement a service that fully meets student needs **with *aloha***; faculty/staff needs are also a priority.
2. Create sufficient parking for campus needs including community events
3. Assure wireless access to internet throughout campus
4. Create new opportunities to use information technology methodologies for interactions between Downtown and Hawai'i Loa campuses.

H. Assure High-Quality Interactions within the University Community and With the Community beyond the University

Recommendation: Define the "community" we want to sustain at Hawai'i Loa and design and implement methods and policies to assure that this sense of community is sustained.

For example, student retention is a major goal of this campus development project. As such, the campus community will be characterized by a spirit of *aloha* that demonstrates *caring* and respect for students, faculty and staff. This active expression of the spirit of aloha will create a climate of intentional respect for others, including those interactions in which University rules and regulations are being enforced. Equally important is commitment to methods and policies that assure that communications and connections accomplish the University's mission, operations, and responsibilities with aloha.