Sustainability and the Campus Long Range Master Plan

Hawai‘i Sustainability in Higher Education Summit

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Overview

• What is a Campus Long-Range Master Plan (LRMP)?

• Linkage Between an LRMP and Campus Sustainability Plan-The Important Link

• Sustainability Components of a LRMP
  – Cultural elements
  – LEED concepts
  – Design guidelines

• Implementation Challenges
What is a Campus Long Range Master Plan (LRMP)

- Directs the long-term (10 years plus) development of a campus.
- Links the physical planning with programmatic and institutional goals.
- A vision for the physical character of the campus-future growth, form, and density.
- Identifies locations for future growth and improvements.
- Addresses infrastructure needs, phasing and costs (Capital Improvement Project budgeting).
- Helps in the entitlement process.

Campuses across the United States have used LRMP’s as a tool for the planning and development of their physical facilities.
LRMP Assures

• Consistency in decision making and predictability consistent with the University’s goals;
• An ability to make informed decisions and appropriately plan for future facilities;
• Judicious use of resources;
• Preserves or conveys campus character and image;
• Promotes sustainability.
The Components of a LRMP

- A Vision Statement linked to the Strategic Plan
- Growth Projections and Program/Space Requirements
- Campus Site Information and Building Information (Opportunities and Constraints)
- Campus Master Plan
- Infrastructure Plans
- Transportation and Access Plans/Landscape Plan/Design Guidelines/Sustainability Guidelines
- Implementation/Phasing Plans and Cost Estimates
- Master Plan Report
A Process as Well as Product

In developing a LRMP, the process is as important as the product.

• Establish a vision for the project that guides the development of the plan.

• Incorporate appropriate input from the various players within the University community, government and general public at appropriate times.

• Utilize a variety of community participation methods—brainstorming, questionnaires, charrettes (intensive design workshops), small and large group meetings and presentations.

• Make it a fun process!
Campus Sustainability Initiatives

Trends

- Rise in overall awareness and appreciation for Sustainability
- Rise in campuses with a Sustainability Officer or Department
- Rise in Sustainability Courses and Departments
- Rise in Student Engagement and Participation in Campus Sustainability Initiatives
- Rise in Campuses with Sustainability Plans

What is a Green Campus?

A green campus is a higher education community that is improving energy efficiency, conserving resources and enhancing environmental quality by educating for sustainability and creating healthy living and learning environments.
Campus Sustainability Initiatives

Princeton Review’s Guide to 322 Green Colleges

322 campuses that were identified as being the most eco-friendly campuses

• Most have a Sustainability Officer and/or a Formal Committee with Participation from Students that is Devoted to Sustainability on Campus

• Only about 8% did not have a Sustainability Officer

• Less than 1% did not have a formal committee devoted to advancing sustainability on campus
Resources for a Creating a Campus Sustainability Plan or Policies

- US Green Building Council (USGBC) Center for Green Schools
  - Roadmap to a Green Campus
  - Leadership in Energy and Environmental Design (LEED) Rating Systems
- Association for the Advancement of Sustainability in Higher Education (AASHE)
  - Sustainability Tracking Assessment and Rating System (STARS)
- Society for College and University Planners (SCUP)
- National Association of College and University Business Officers (NACUBO)
- Association of Higher Education Facilities Officers (APPA)
- American College and University Presidents’ Climate Commitment
- Princeton Review
  - Guide to 322 Green Colleges
Thoughts on a Campus Sustainability Plan

• AASHE’s STARS framework
  – Measurable with Benchmarks
  – Able to compare and learn from other participating campuses

• Distinguish facilities (capital improvements) from operations

• Define role of Office of Sustainability
How Does a Campus Sustainability Plan Relate to an LRMP

The following is based on the STARS framework:

- **Campus Sustainability Plan**
  - Education & Research
  - Operations
  - Planning, Admin & Engagement
  - Culture, Campus, Community

- **LRMP**
  - Not applicable (academic and research programming)
  - Buildings, Energy, Grounds, Transportation, Waste, Water
  - LRMP Process, Implementation
  - Sense of place, gathering spaces, culture & art appreciation
### STARS Checklist and Other Considerations

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<th>STARS Category 1: Education and Research</th>
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<td>Public Engagement</td>
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#### Other Considerations

| Culture, Campus and Community                           | Yes                 | Yes  |
| Easy to Update- Trends                                   | Yes                 | No    |
| Buy-in and Enforcement                                   | Yes                 | Limited |
A Few Campuses with Sustainability Plans with Links to their LRMP’s

- University of California (UC) Berkeley
- UC Santa Cruz
- UC Davis
- UC Santa Barbara
- University of Kansas
- Arizona State University
- Cornell University
- Lehigh University
- Middlebury College
- University of Missouri
- Princeton University
- Virginia Tech University
- Indiana University
- Yale University
Sustainability Plan and LRMP
Options to Consider

• Sustainability Plan or Office of Sustainability and LRMP

• Going it Alone-LRMP Only
Sustainability Plan and LRMP

• **Sustainability Plan or Policy** sets forth in writing a framework for the LRMP

• A “direction” and vision for Sustainability

• Local or culturally appropriate elements to incorporate

• Linkages to other plans, such as a Strategic Plan

• Greater buy-in and institutionalization
Going it Alone, An LRMP without a Sustainability Plan

- Work with campus at incorporating Sustainability Guidelines that are achievable for the campus
- Identify and incorporate local or culturally appropriate elements
- Identify linkages to other campus planning efforts
- Work to develop buy-in and institutionalize sustainability
Incorporating Sustainability in a LRMP

- Site Planning and Land Use - Climate, Culture and Site Context and Building Design
- Landscaping
- Transportation and Circulation
- Water and Wastewater Management and Efficiency
- Energy Efficiency, Renewable Energy and Green Technology
- Waste Management and Recycling
- Materials and Resource
- Operations
- Social Programs and Benefits
Incorporating Sustainability in a LRMP-LEED Considerations

SELECT THE APPLICABLE LEED RATING SYSTEM

- LEED New Construction (NC)
- LEED Existing Buildings Operations and Maintenance (O+M)
- LEED Neighborhood Development (ND)
Incorporating Sustainability in a LRMP-LEED Master Site

• LEED Master Site (Multiple Buildings and On-Campus Building Projects)

• LEED 2009 updates the multiple building certification program to more efficiently certify multiple projects located on one site under the control of a single entity

• Addresses unique opportunities inherent in campus projects

• Can document once for shared credits

• Role of the LRMP
  – LRMP as the basis for documentation?
  – Shared campus-wide project examples: transit integration, bicycle improvements, streetscape walkability improvements, native plant landscaping, riparian buffer/trail system, renewable energy-composting (anaerobic digestion)
Campus Elements “Building Blocks”

1. Open Space
2. Buildings and Monuments
3. Landscaping
4. Edges
5. Entries and Gateways
6. Circulation
7. Signage and Street Furniture
Open Space

- Provides places for gathering and social interaction as well as serves an aesthetic function
- A hierarchy of space is critical
- Types of Open Space include:
  - Plazas
  - Courtyards
  - Lawn and Open Spaces
  - Passive and Active Green Areas
Building and Monuments

- Set the tone and character of a place
- Serve as points of reference and landmarks for a campus
- Can be defined as landmark buildings or background buildings
Landscaping

- Enhances and/or defines space; reinforces visual pattern and movement (Outdoor Rooms)
- Reinforces the tone and character of a campus
Edges

• Define the transition between a campus and surrounding uses.

• Can be the first impression of a campus

• Types of edges include:
  – Walls
  – Landscaping
  – Buildings
Entries and Gateways

- Are first impressions of a campus
- Mark and highlight main and secondary points of access for both pedestrian and vehicular circulation
Circulation

• Relationship and connection to buildings, open space, and various circulation types

• Circulation networks include:
  – Pedestrian paths
  – Vehicular roadways
  – Bike Paths
Signage and Street Furniture

- Campus Signage
- Street Furniture:
  - Lighting
  - Seating
  - Trash Receptacles
  - Drinking Fountains
  - Kiosks
  - Flag Poles/Banners
Relating to Place
Culture and Site Context

ONE OF THE KEY ELEMENTS TO CREATING A CAMPUS WITH A UNIQUE SENSE OF PLACE

“Our goals support imparting a Hawaiian Sense of Place on campus through landscaping, architectural design, signage and the creation of gathering spaces to enable social and cultural sustainability of campus communities.”

-UH Draft Sustainability Policy
Relating to Place
Cultural Context and Setting

• Research on the ahupuaʻa and historic characteristics of the property

• Moʻolelo of the place-Historic characteristics identified in the stories, histories and traditions

Obtained through interviews with cultural experts from the campus or who live in the area
Relating to Place
Cultural Context and Setting

• Current use of the property-special places on campus, gathering areas, courtyards, major open spaces, gardens, etc.

• Most cherished places on a campus

Obtained through input from the campus community
Relating to Place
Climate Zones

- Climate and micro-climate characteristics— influences site planning, architecture, landscape architecture and plant material

Wao kanaka (upland forest)

Kula kai and Kula uka (Coastal Plain and Upland Plain)

Kula kai (Coastal)

Source: Smart Code V9.2
Relating to Place

Transect Zones

- **Site Characteristics** (Transect zones)-appropriate development by density, scale and character influences architecture and built form

Source: Smart Code V9.2
Relating to Place

Landscaping and Architecture

**Landscaping**

- Plant and other material appropriate to the climatic zone of the area.
- As an educational tool and resource.

**Architectural Styles and Characteristics**

- Architectural style appropriate for the climate and compatible with the scale and context of the existing campus buildings and surrounding community.
- Allow for incorporation of sustainable design elements for renewable energy generation, to reduce the heat island effect for energy efficiency.
Putting it All Together

Infuse the Building Blocks with Place Based Sustainability

Results in a campus with a unique sense of place and captures the spirit of place
Implementation Challenges

• Front-ending life cycle costs
• Accountability
• Continual planning and updating process
• Costs of LEED certification; developing an alternative certification more tailored to campuses
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A Process as Well as Product

Visioning and Scoping Workshop
- Site Assessment of Properties
  - Review Existing Studies
  - Conduct Surveys
  - Evaluate Feasibility
  - Conduct Site Conditions
- Visioning and Scoping
  - Identify Goals and Objectives
  - Stakeholder Engagement

Steering Committee (SC) Review/Input
- SC Review/Input
  - Evaluate Alternatives
  - Preferred Master Plan

Preferred Master Plan
- Engineering Considerations
- Phasing Plan and Cost Estimates
- Draft Campus Master Plan Report
- Final Campus Master Plan Report

Leadership or Large Community Presentation
- Final Campus Master Plan Report

Engineering Considerations, Phasing Plan and Cost Estimates
- Final Campus Master Plan Report

Visioning and Scoping
- Site Assessment/Program Programming
- Master Plan Development

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