

UNIVERSITY OF CALIFORNIA, SANTA BARBARA

DRAFT

CAMPUS SUSTAINABILITY PLAN

DECEMBER 2006

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EXECUTIVE SUMMARY

Sustainability

“Meeting the needs of the present generation, without compromising the ability of future generations to meet their own needs.”

~United Nations Brundtland Report, 1987

Background

In 2005, Chancellor Henry Yang asked the Campus Planning Committee (CPC) to create a comprehensive sustainability outline for the campus. A group of approximately 75 individual “change agents” comprising of students, staff, and faculty were trained in the sustainability framework known as The Natural Step in fall 2005. These individuals collaborated with campus sustainability staff to produce the Campus Sustainability Plan (<http://sustainability.ucsb.edu/plan/>) and the following mission statement.

UCSB Sustainability Mission Statement

The University of California, Santa Barbara is committed to global leadership for sustainability through education, research, and action.

The process has brought together students, staff, faculty, and community members; it has generated a great deal of energy and momentum, and has fundamentally increased awareness of UCSB’s sustainability potential and the steps necessary to achieve this goal.

The Challenges Ahead

In the last 20 years, the human race has begun to realize the finite nature of the resources upon which it depends. Paramount is the realization that human-induced rises in atmospheric CO₂ have led to global warming, with attendant changes in the energy of weather systems and the distribution of atmospheric moisture. Indeed, one of the most urgent concerns is that of changing distributions of potable water on the planet’s surface, affecting both direct consumption and food production. These and other factors involved in human resource use create pollution, degradation, and social inequities that may ultimately destabilize our economic, societal and natural foundations: known as the “triple bottom line”.

These consumption patterns must change and this effort will require unprecedented collaboration and commitment of campuses, governments, businesses, non-profits, and individuals. Productivity must increase based on the utilization of sustainable sources of energy along with the creation and implementation of new technologies to greatly reduce patterns of consumption while increasing those of reuse. In the final analysis, our standards and behavior must be altered to reflect humanity’s dependency on Earth, rather than mastery over it. We must address these environmental challenges not as isolated concerns, but as intersections in a large web of economic, societal, and natural domains. This plan moves the UCSB community in that direction.

The Campus Moving Forward

The University of California, Santa Barbara has a long record of intellectual and research leadership in sustainable activities. For example, the campus was one of the first in the nation to establish an Environmental Studies major. In 1995 the Donald Bren School of Environmental Science & Management began offering both a masters and a PhD in environmental science and management. The Geography Department's Climate Hazard Research Group, in association with the US Agency for International Development, has been helping develop the Famine Early Warning System (FEWS), predicting environmental problems that lead to famine. Professor Shuji Nakamura was awarded the second Finland's Millennium Technology Prize for his continuing efforts to make cheaper and more efficient light sources. Nakamura and his colleague Professor Steven DenBaars co-direct the prestigious Solid State Lighting and Display Center and are working on a new project with UNICEF called "Light up the World", which will provide energy efficient lighting to communities which cannot afford any non-natural light source. Professor Kum-Kum Bhavnani recently wrote and directed the film "The Shape of Water", a close look at the far reaching and vibrant alternatives crafted by women in response to environmental degradation, archaic traditions, war, and lack of economic independence.

At an administrative and operational level, proactive steps have been taken toward developing programs and policies to account for social and environmental resource impacts at a campus- and system-wide level. Previous actions have shown that environmental and financial goals are not mutually exclusive (Table 1). By serving as an example of operational and educational sustainability, the campus will generate real savings and enhance the image of UCSB locally, nationally, and globally.

Table 1: Cost/Benefit Analysis

Project Description	Total cost	Total rebates and grants	Utility savings per year	Financial savings per year	Payback in years	Total CO2 savings per year
Upgrade lighting at 50+ buildings to T8 bulbs, other lighting upgrades (2001-2003)	\$922,000	\$345,616	3,436,300 kWh	\$377,993	1.5	2,749,040 lbs.
Install 12 waterless urinals in Girvetz Hall (12/2004)	\$12,096 (inclusive of labor)	\$1800	776,880 gal. potable water	\$4,112	2.94	N/A
Solar hot water systems (residence halls & apartments) (installed 1984, ongoing savings)	\$1.5 million	\$400,000 So. Cal Gas \$1.1 million Micro-Utility	65,000 therms (average)	> \$60,000	Immediate	698,400 lbs.

Taking Action

The Campus Sustainability Plan is a dynamic document intended to provide a roadmap for major steps toward sustainability over the next 20 years. Nine functional groups (Academics and Research, Built Environment, Energy, Food, Landscape/Biotic Environment, Procurement, Transportation, Waste, and Water) have established a series of recommendations, goals, objectives and benchmarks over a one, five, and twenty year timeframe. The goals of each functional group are consistent with the University of California Office of the President (UCOP) sustainability goals that were recently placed in the revised UCOP Green Building and Clean Energy Policy. The goals and objectives of all nine groups are interconnected. A summary of each functional group’s long-term vision follows; more detailed descriptions are provided in the body of the Campus Sustainability Plan. UCSB’s objectives for each vision will include the development and utilization of emerging technologies while balancing economics with social and environmental impacts. Over the next 20 years the campus plans to achieve the following:

Academics and Research- Promote education and research on social, economic, and environmental sustainability by building community, student, faculty, and staff awareness.

Built Environment- Create superior places to study, work and live that enhance the health and performance of building occupants through sustainable planning, design, construction, operations, retrofits and biomimicry.

Energy- Create a net zero Green House Gas emissions (GHG) campus through energy efficiency, conservation, on-site generation and strategic procurement of clean and renewable energy.

Food- Create a local and organic closed loop food system by observing sustainability criteria for all food purchasing, preparation and service, cleaning, waste disposal, and purchase of equipment and supplies.

Landscape/Biotic Environment- Protect and maintain the natural campus environment through restoration, preservation, and education while enhancing the campus as a classroom. This includes recreational areas, building landscapes and native habitat.

Procurement- Through efficient procurement strategies, processes, and systems, the acquisition and responsible use of resources in a manner that supports a “triple bottom line” of economy, society, and environment are enabled.

Transportation- Achieve a net zero emission status for the campus by providing housing proximity opportunities for many faculty, students, and staff; increasing trip reduction strategies; transitioning to non-petroleum based transportation; developing telecommuting and teleconferencing, and integrating emerging technologies.

Waste- Reduce and ultimately eliminate waste streams on campus with the ultimate goal of a net zero waste campus through implementation of “cradle to cradle” processes and practices.

Water- Reduce potable water use while protecting and conserving all water resources within the campus watershed through implementation of efficiency measures, collection technologies, re-processing and re-use.

Recommendations for Implementation

This plan recommends the formation of the following three entities to assure that campus sustainability initiatives have the resources, leadership, and support necessary to succeed.

1. Office of Sustainability

- Responsible for coordination and effective communication between each committee, department or division involved in campus sustainability efforts via divisional coordinators, the Campus Sustainability Committee, and the Change Agents Group.
- Publicizes campus accomplishments and inspires others to be involved in sustainability through events and outreach.
- Collects and manages data vital to the continual implementation of the Campus Sustainability Plan.
- Facilitates collaboration with other Universities, both within the UC system and externally.
- Manages Campus sustainability website and links to other related sites.
- Office to be staffed consists of 1.0 FTE Director, 1.0 FTE Analyst, and 0.5-1.0 FTE web programmer/support, and 1.0 FTE Administrative Assistant for clerical support.
- FISCAL IMPACT- \$351,342, this includes salary for 3.5 FTE, benefits, supplies/other, equipment and furnishings for one year. The total also assumes the office would be housed on campus, provide furniture, and access to a copier. Please note the above cost does not include a budget for implementation of projects related to sustainability plan or other projects related to sustainability.

2. Campus Committee for Sustainability

- Committee is advisory to the Chancellor.
- The charge of the committee is to advise and make recommendations to the CPC on sustainability initiatives and to help prioritize and monitor the campus sustainability plan goals.
- Suggested membership: Vice Chancellors, Executive Vice Chancellor, Assistant Chancellor, Intercollegiate Athletics, Academic Senate, Chancellor Staff Advisory Committee (CSAC), staff representatives, Associate Students (AS), Graduate Students Association (GSA), and Residential and Housing Association (RHA), and a community member, or their respective appointees.
- Allocates available funding resources.
- Advises the Chancellor and Vice-Chancellors on matters of campus sustainability via the CPC.
- Provides guidance in the creation and fostering of alliances.
- Co-chaired by a representative from the Academic Senate and the Director for the Office of Sustainability.
- A proposed \$250,000 program budget for implementing the Campus Sustainability Plan. Priorities for this funding will be set by the Campus Committee for Sustainability.

3. Divisional Sustainability Coordinators

- Composed of local staff or faculty in functional campus units (Departments, units, programs, etc.)
- Coordinators are trained to incorporate sustainability into their current job function.
- The majority of the coordinators will be represented by existing employees who may require either realignment of job descriptions to reflect existing work, or generation of new assignments as appropriate.
- The Human Resources Department proposes that job descriptions are modified when positions are openly recruited or reclassified to incorporate sustainability job functions.
- Fiscal impact depends upon the department/division and how much time they choose to dedicate towards sustainability initiatives.

INTRODUCTION

The Campus Sustainability Plan (Sustainability Plan) was created by a collaboration of the faculty, students, and staff at the University of California, Santa Barbara (UC Santa Barbara) as part of a dynamic process designed to implement sustainable environmental practices at the Campus and confirm UC Santa Barbara's leading role at the forefront of the sustainability movement.

MISSION

The concept of “sustainability” can be used in many ways, but in this Plan it is defined as: “Meeting the needs of the present generation, without compromising the ability of future generations to meet their own needs.”¹

The Campus mission statement for sustainability is “The University of California, Santa Barbara is committed to global leadership for sustainability through education, research, and action.”

PURPOSE AND GOALS

The Sustainability Plan addresses short and long-range objectives that incorporate environmental, societal, and economic responsibility. It establishes sustainable principles and practices to enhance the positive transformation of the campus community through the following actions:

- **Academics and Research-** Promote education and research on social, economic, and environmental sustainability by building community, student, faculty, and staff awareness.
- **Built Environment-** Create superior places to study, work and live that enhance the health and performance of building occupants through sustainable planning, design, construction, operations, retrofits and biomimicry.
- **Energy-** Create a net zero Green House Gas emissions (GHG) campus through energy efficiency, conservation, on-site generation and strategic procurement of clean and renewable energy.
- **Food-** Create a local and organic closed loop food system by observing sustainability criteria for all food purchasing, preparation and service, cleaning, waste disposal, and purchase of equipment and supplies.
- **Landscape/Biotic Environment-** Protect and maintain the natural campus environment through restoration, preservation, and education while enhancing the campus as a classroom. This includes recreational areas, building landscapes and native habitat.
- **Procurement-** Through efficient procurement strategies, processes, and systems, the acquisition and responsible use of resources in a manner that supports a “triple bottom line” of economy, society, and environment are enabled.
- **Transportation-** Achieve a net zero emission status for the campus by providing housing proximity opportunities for many faculty, students, and staff; increasing trip reduction strategies; transitioning

to non-petroleum based transportation; developing telecommuting and teleconferencing, and integrating emerging technologies.

- **Waste-** Reduce and ultimately eliminate waste streams on campus with the ultimate goal of a net zero waste campus through implementation of “cradle to cradle” processes and practices.
- **Water-** Reduce potable water use while protecting and conserving all water resources within the campus watershed through implementation of efficiency measures, collection technologies, re-processing and re-use.

HISTORY

UC Santa Barbara has been a center for environmental movements since the 1969 oil spill² in the Santa Barbara Channel. In 1970, a group of faculty calling themselves “The Friends of the Human Habitat” started to develop an environmental education curriculum which in 1971 became the genesis for the Environmental Studies Program at UC Santa Barbara. The Program was one of the first undergraduate environmental studies programs in the U.S. featuring a multidisciplinary approach to understanding environmental issues. Today, UC Santa Barbara’s Environmental Studies Program is the largest program of its type in the country with over 300 undergraduates, more than 20 faculty and lecturers, and over 4,000 alumni.

In the late 1970s, Housing and Residential Services and Facilities Management began to assess the environmental impacts of their organizations. Both departments hired energy specialists to monitor energy use and reduce resource consumption by implementing capital projects and educating staff. Audits examined all aspects of resource reduction, including water, energy, and waste. The data were used to obtain grants to fund various resource reduction projects. The return on investment for these projects became quite significant, ranging from \$100,000 to \$200,000.

UC Santa Barbara also signed the Talloires Declaration to make a public commitment to promote sustainability. The Declaration is a ten-point action plan for incorporating sustainability and environmental literacy in teaching, research, operations, and outreach at colleges and universities. Drafted in 1990 at an international conference in Talloires, France, the Talloires Declaration has been signed by more than 300 university presidents and chancellors in over 40 countries.

In 1996 the Donald Bren School of Environmental Science & Management began a new interdisciplinary graduate program and professional school offering both a Masters and a PhD in environmental science and management. In 2002 the Bren School completed its 85,000 gsf building, the first laboratory building in the U.S. to receive the Leadership in Environment and Energy Design (LEED) for new construction (NC) Platinum rating from the United States Green Building Council (USGBC).

In the fall of 2002, the UC Office of the President issued a “green building” policy³ stating that the UC will design and building all new buildings except for laboratories and acute care facilities, to a minimum standard of a LEED certified equivalent. UC Santa Barbara also adopted a green building policy⁴ of its own requiring that Campus buildings programmed after July 1, 2004 are to undergo external certification by the USGBC and achieve a minimum of a LEED Silver rating.

Soon after Bren Hall received a LEED-NC certification the Central Campus Sustainability Committee (CCSC) was formed along with the Sustainability Working Team (SWT). These groups incorporated Senior Administrators, faculty, staff, and students from across the campus and researched and implemented practices such as in-house LEED certification, in-house commissioning, developed indicators for the

campus, and negotiated with the USGBC for a campus wide approach to LEED certification. In 2002-2003 Facilities Management was able to create an FTE Campus Sustainability Coordinator position to green the campus' building portfolio and to develop and implement sustainable building operations. In spring 2005 a new position was formed that focused on sustainable procurement and housed in Business Services. The position was staffed in the fall of 2005 as a Sustainable Purchasing Coordinator to develop green purchasing criteria for the UC system. A third position was also created for a sustainability academic education and outreach coordinator.

BACKGROUND

In the summer of 2004, the Associated Students Environmental Affairs Board, aided by UCSB staff, recommended the Chancellor develop a Sustainability Plan as part of the effort to update the Long Range Development Plan (LRDP). During the following year, a Sustainability Working Group was formed and students and staff worked to develop a list of indicators of what they regarded as characteristics of a sustainable campus. Building on the initial efforts of the Working Group the Chancellor asked the Campus Planning Committee (CPC) in 2005 to appoint a Sub-Committee on Sustainability with a charge to develop the first Sustainability Plan for UC Santa Barbara. During the spring of 2005 the CPC Subcommittee selected the consulting firm of Brightworks Northwest to help prepare the Plan and lead a series of four full-day workshops on the principles of the Natural Step.

NATURAL STEP

The Natural Step framework was developed in Sweden by oncologist Dr. Karl-Henrik Robèrt⁵ in 1989 to address environmental problems and develop a consensus on requirements for a sustainable society. His findings, based on systems reflected in natural cycles, become the framework that helps guide UC Santa Barbara toward sustainable development. The Natural Step framework encouraged dialogue, consensus building, and systems-thinking (key processes of organizational learning) to create the conditions for organizational change. The Natural Step's definition of sustainability includes four scientific principles that lead to a sustainable society. These principles, also known as "conditions" that must be met in order to have a sustainable society, are as follows:

In a sustainable society, nature is not subject to systematically increasing

1. Concentrations of substances extracted from Earth's Crust.
2. Concentrations of substances produced by society.
3. Degradation by physical means.
4. In addition, people are not subject to conditions that systematically undermine their capacity to meet their needs.

In fall 2005, Brightworks conducted a series of four workshops to teach the principles of the Natural Step to the campus as well as interested community members of Santa Barbara and Goleta.

At the workshops, participants were separated into nine functional groups. This grouping was somewhat arbitrary, as each group overlaps significantly, but allowed participants to make goals in their own area of expertise:

1. Academics and research
2. Built environment
3. Energy

4. Food
5. Landscape/Biotic Environment
6. Procurement
7. Transportation
8. Waste
9. Water

WORKSHOPS

The functional groups were made up of individuals from all parts of the campus. Following the workshops they formed a core group within the Campus with a solid understanding of the A-B-C-D principles of the Natural Step (below) and how to implement those principles.

Awareness: The workshop on sustainability awareness included the history and science of the Natural Step sustainability framework, its application in organizations, and case studies of its application. Additional information was presented on other sustainability tools and frameworks including ISO 14001⁶ and McDonough and Braunaugh's "Cradle to Cradle"⁷ protocol.

Baseline: A baseline understanding of UC Santa Barbara's organizational processes and resource flows was covered in the second workshop. Exercises included a detailed flowchart of UC Santa Barbara's activities and identification of inconsistencies with Natural Step principles and a method for rating the severity of the inconsistencies.

Clear and compelling vision: The Brightworks staff facilitated a brainstorming session to create a clear and compelling vision of what it means to have a "fully sustainable UC Santa Barbara". This workshop included a back-casting exercise in which a fully sustainable UC Santa Barbara is envisioned and participants then work backward through time to identify the steps, obstacles, and opportunities to move UC Santa Barbara from where it is today to the envisioned sustainable campus.

Direct Action: The actual implementation strategy of the plan was devised in this workshop. The Sustainability Plan is created in a large part from the discoveries of the workshop process.

After the workshops, the seventy-five campus representatives became "change agents" charged with developing sustainability goals and crafting an outline for the Sustainability Plan.

PLAN STRUCTURE

The main elements of the Sustainability Plan are the goals and actions created by each of the groups referred to as "Change Agents." As each goal is achieved it is documented, posted on the web, and either a new goal is formed or an intermediate goal is pursued.⁸ This Plan emphasizes short-term goals that can achieve positive change within a year. These short-term goals are fully developed with actions, prediction of potential barriers, and forecasted time-frames, cost estimates are provided where the information is available. Some of the short-term goals are initial steps or measures that will allow transition into more intermediate or longer-term goals. As progress is made, intermediate and long-term goals will be further developed and comprehensively implemented. Each of the goals is structured to be easily integrated into the general operations of the campus. Some of the goals have additional background information or data which can be found in the Appendix. As changes are implemented, new information will become avail-

able and additional items will be identified to form new goals and objectives. The process is iterative and will progress over time to transform the campus and advance us closer to achieving a sustainable setting.

The amalgamation of each group's ideas and proposals are detailed in the following sections. The sections include a discussion of current sustainable practices, goals, action items, and barriers in achieving goals for the Academics and Research, Built Environment, Energy, Food, Landscape/Biotic Environment, Procurement, Transportation, Waste, and Water groups.

1.1 ACADEMICS AND RESEARCH

1.1.1 Current Practices

In the summer of 2004 an Environmental Issues Task Force was created by the Executive Vice Chancellor to:

- Catalog what UC Santa Barbara has and is already doing in the field of environmental study, including existing interest in campus and interdivisional/unit/personal collaboration
- Identify environmental interest themes that cross campus borders and might be of assistance in identifying future cluster hires
- Make recommendations to the Executive Vice Chancellor on ways that the campus can support and improve UC Santa Barbara's educational endeavors in the area of environmental studies/issues
- Identify the impediments to broader interdisciplinary work, be they structural, administrative, and/or individual

The Environmental Issues Task Force created a strong foundation for assessing the broad definition of environmental study at UC Santa Barbara. This taskforce focused on how departments related to environmental issues are linked to one another and called for an assessment of which courses cover various environmental issues.

The Campus' greatest strengths in terms of sustainability in academics and research are in its departments and the leadership of individual faculty. As one of the first universities in the United States to create an environmental studies program, UC Santa Barbara has a wide diversity of departments that deal with environmental and social and economic sustainability. The Campus also has exemplary faculty who have taken personal interest in integrating the concept of sustainability into their course work.

1.1.2 Mission

The mission of the Academics and Research Functional Group (henceforth referred to as the "Group") is to educate and facilitate interaction between faculty, staff, students and the community on issues of sustainability. We intend to create, disseminate, and assess knowledge using sustainable practices through classroom instruction, research, service learning, and visual and performing arts.

1.1.3 Long-Term Vision

The Academics and Research Functional Group strives to build public awareness about sustainability research on campus and how UC Santa Barbara is implementing its sustainable practices. This group is developing strategies and materials to modify curriculum focusing on adjustments rather than major changes and promote programmatic or institutional change. The Academics and Research Group works with academic departments to develop flexible course modules and with Instructional Development to provide resources and grants to faculty who wish to pursue sustainability in the classroom. Through the imple-

mentation of its sustainability goals, the Group encourages new employees to develop experience in the area of sustainability, brings attention to core resource issues, and ensures facilities are available for this work. By evaluating laboratory practices and implementing conservation, the research community will practice what it teaches. The laboratory is the perfect nexus of education, research and action described in the campus mission statement. Training and communication about management techniques, equipment sharing and technical expertise will enhance efficiency. This will raise research quality by providing services currently not available to faculty and untrained *de facto* laboratory managers. The commitment to conservation could draw the research community together for many collaborative purposes.

1.1.4 Short-Term Goals (0-1 years)

Goal 1: Complete a full sustainability assessment of UC Santa Barbara's academics and research program (summer 2006 - Summer 2007).

The Academics and Research Functional Group examined a number of different aspects of this goal, including courses related to sustainability and the relationship of the courses to the general education requirements. The Group was also interested in how many students attended classes on sustainability, as well as the number of faculty who were teaching related courses or conducting relevant research. The Group concluded that little could be done to increase sustainability in academic and research programs without first assessing the current situation.

Actions

1: Identify indicators to assess academic and research programs related to sustainability.

The Group developed the following fourteen indicators to facilitate preparation of the sustainability assessment:

- Number of courses related to sustainability
- Number of courses related to sustainability which fulfill a general education requirement
- Number of students in courses related to sustainability
- Number of research groups working on issues of sustainability
- Number of faculty researching a topic related to sustainability
- Number of students researching a topic related to sustainability
- Amount of funding for research on sustainability
- Number of alumni in professions related to sustainability
- Number of undergraduate students who have taken a course related to sustainability
- Number of graduate students who have taken a course related to sustainability
- Number of courses with applied or service learning
- Number of students collaborating with non-profits
- Number of students collaborating with businesses in sustainability
- Natural sites used for teaching: Natural Reserves, teaching plots of landscaping on campus, Natural Restored Areas, demonstration projects (bioswales, etc.)

The Academics and Research Group will evaluate each of these indicators within one year (summer 2006 to summer 2007).

Preliminary calculations of the number of courses related to sustainability suggest that there are about 389 courses directly related to sustainability and 284 courses secondarily related to sustainability across both undergraduate and graduate curriculums. This data was collected through a keyword query of the Academic Senate database of courses offered on the campus. The Group is refining its methods for querying the data since sustainability is such a holistic concept that defining sustainable curriculum and research is difficult.

Barriers

Most of the above indicators can be assessed within a year but there are a number of challenges:

- It is not easy to determine the number of alumni in professions related to sustainability because departments can be protective about alumni lists.
- Identifying the number of courses with applied or service learning components is complicated by decentralized data sources and requires interviews with many departments and professors.
- A number of issues revolve around a clear definition of what constitutes sustainability and how to standardize the concept when collecting data from various sources.

Goal 2: Have at least 20% of the faculty know where to find resources on bringing sustainability into their curriculum.

The Environmental Issues Task Force completed a report on ways to connect departments and faculty working on environmental education and how to publicize sustainability-related courses and research. Many of their recommendations are parallel to the work of the Academic and Research Group. The Group would also like to build these recommendations into five major sub-sections of courses related to sustainability: foundational, issues and problems, direct tools, solutions and synthesis. Courses in the “synthesis” category should address at least two of the environmental, social, or economic issues and solutions. It is also important to note that the scope envisioned by the Group is broader than the scope of the Environmental Issues Task Force because it includes social and economic issues and solutions as well as environmental issues.

Actions

- 1: Develop a regularly maintained sustainability website with instructional resources for faculty that is linked to an appropriate section of the university website.
- 2: Create and highlight flexible course modules relevant to sustainability on the website.
- 3: Have a sustainable website operational within a year (summer 2006 - Summer 2007) and within two years have a long-term commitment to properly maintain the website.
- 4: Collaborate with the Environmental Issues Task Force.

Goal 3: Have at least 30% of students know where to find a course on sustainability.

A survey of undergraduate students in fall 2003 by Associated Students found that less than 20% of undergraduates (3,188 respondents) reported that the issue of sustainability had been addressed in at least one of their classes at UC Santa Barbara. One of the first and simplest steps to increasing this percentage is increasing the awareness and marketing of courses related to sustainability.

Actions

- 1: Create a fully operational website that highlights sustainability-related courses within one year (summer 2006 - Summer 2007).
- 2: Update the website every week, so that it is regularly maintained and outreach keeps up with high student turnover.

Barriers

In the long-term, the most significant barrier to achieving this goal is consistent funding for the website.

Goal 4: Have at least 20% of the students know where to find an internship and/or job related to sustainability.

Counseling and Career Services provides a centralized location for internship matching efforts; however, there is no effort to track which internships relate to sustainability, and no specific encouragement of students to pursue internships with sustainable companies unless requested by the student. There are also internships available through departmental programs not directly related to Counseling and Career Services.

For example, the Environmental Studies Program has one of the strongest departmental internship programs on campus. Since 1973 more than 2,600 students have earned academic credit for completed internships through the Environmental Studies Internship Program. The Cheadle Center for Biodiversity and Ecological Restoration works with over 50 student interns each year and many more volunteers.

Actions

1: Collaborate with Counseling and Career Services to emphasize “green business” internships and job opportunities at the fall 2006 Career Fair and the Science, Technology, Business and Beyond Fair.

2: Offer workshops on how to pursue careers in sustainability.

Goal 5: Encourage the Academic Senate to create a working group to address sustainability within academics and research.

It is essential to engage faculty in issues of sustainability, both in terms of their leadership in academics and research and in terms of their role in campus governance and management. The Academics and Research Group will collaborate with the Academic Senate and other key academic committees and representative bodies on campus to develop sustainability initiatives.

Action

Present at an Academic Senate meeting on the Campus Sustainability Plan and solicit feedback for the next steps in building a collaborative relationship with the Academic Senate in fall 2006.

Barriers

The Academic Senate has been working to eliminate unneeded committees and may not be open to creating a new committee.

Goal 6: Create a publication of the current sustainable practices at UC Santa Barbara related to academics and research and use this publication to highlight interesting courses and research.

There are currently many courses and research projects related to sustainability at UC Santa Barbara, but there is very little recognition of their existence or successes.

Action

Host a one-day symposium highlighting sustainability efforts in academics and research in spring or summer 2007. Publish the findings and proceedings of the symposium.

Two versions of the publication will be designed and distributed. The first version will be for faculty in other disciplines at UC Santa Barbara and other schools. The second publication will be to publicize sustainability efforts to off-campus communities.

Barriers

The greatest challenges will be providing incentives to contributors to submit interesting work to the publication and publishing the proceedings.

Goal 7: Develop funding to achieve the goals of the Group.

The Group understands existing funds are limited and wants to identify diverse potential funding sources such as grants and donors.

Actions

1: Determine the cost of the goals and actions and identify possible funding sources for the first 5 years. This should be completed by winter 2007.

2: By the end of fiscal year 2006-2007, secure adequate funding to complete the Group goals.

Barriers

At UC Santa Barbara, there is no access to a development officer for this work and there are many competing initiatives even within the field of sustainability. The Group hopes to overcome some of the competition for funds and pool its skills to create collaborative funding strategies with other entities.

Goal 8: Set mid term and long term goals.

Due to insufficient assessment data measurable goals are only set through 2006-2007. The Group has yet to engage key faculty committees which will be essential to the development of further proposals.

Action

Set mid term and long term goals by summer 2007.

1.2 BUILT ENVIRONMENT**1.2.1 Current Sustainable Practices**

Green building, also known as high-performance building, started long before the development of the U.S. Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) rating system. Upgrading mechanical and lighting systems to promote energy efficiency, water efficiency retrofits, and designing for low environmental impact has its roots at UCSB in the early 1990s.

In the spring of 2002, UC Santa Barbara became the first higher education institute to construct a LEED for New Construction (LEED-NC) Platinum building: Donald Bren Hall. Completing this project within the University's budget was a significant accomplishment, given that Bren Hall includes laboratories with strict ventilation requirements and distinctive health and safety concerns.

In the summer of 2004, UC Regents approved a Green Building Clean Energy policy stating that all UC campuses have to meet the LEED certified equivalent for all new construction programmed after July 1, 2004. UC Santa Barbara adopted a more stringent policy stating that all new campus construction projects programmed after July 1, 2004 strive to meet at least a LEED-NC Silver certification.

In addition to UC Santa Barbara's green building policy for new construction, Physical Facilities has endorsed the certification of all existing buildings under the LEED for Existing Building (LEED-EB) program. In the fall of 2005, Girvetz Hall received a LEED-EB Silver certification and became the first LEED-EB rated building in the UC system. With the LEED rating system gaining popularity, UC Santa Barbara is steadily transforming the campus building stock into LEED rated buildings using the expertise of five LEED professionally accredited employees. In fall 2006, UCSB Physical Facilities entered an agreement with the US Green Building Council to pilot their "Portfolio Program" which will result in LEED certification of 25 existing building in 5 years, at a significantly reduced cost.

For more information on the LEED program, please visit: www.usgbc.org.

1.2.2 Mission statement

To provide education and seek resources to transform the UC Santa Barbara campus design, development, construction, renovation and operation process to ensure an energy-efficient and environmentally responsible built environment.

1.2.3 Long Term Vision

Sustainability in building design, construction and operation is fundamental to and inseparable from the campus mission to provide a world-class environment for university work and a higher value for California taxpayers. The vision of the Built Environment group is for UC Santa Barbara to lead the UC system, other universities, and the private sector by taking a significant role in transforming society's understanding of sustainability. We are committed to leading by example as we create superior places to work, study and live that enhance the health of building occupants and are environmentally responsible. The long term vision of this group calls for:

- A robust energy profile concentrated on renewable energy generated on site and non-depletable sources of energy
- Use of recycled-content, sustainability harvested, or reused materials that are nontoxic
- Use of materials that are biodegradable or recyclable
- Embracing principles of closed-loop design
- Providing a safe and healthy work environment for workers constructing new facilities and individuals occupying new spaces
- Strive for zero waste and zero pollution
- Strive for zero net habitat impact

1.2.4 Short Term Goals (0-1 years)

Goal 1: Have a qualified sustainability representative serve on each campus committee that participates in building design and construction. This includes the Design Review Committee (DRC) and Departmental buildings committees.

Action Items

Action 1: Meet with chairs of the DRC and campus building committees to see how the CPC-Sub Committee on Sustainability-Built Environment group obtains a "sustainability seat" on each of the committees. This position will provide education on the principles and goals of sustainable design, as well as communicate the design goals of Facilities Management (FM). The position will help incorporate sustainable design at the early stages of new projects to lower costs and encourage active sustainable design dialogue.

A key DRC position would be an off-campus sustainability champion who would be charged with challenging design teams on their sustainable design features before the project proceeds to the CPC.

Barriers

A barrier to this goal is that the campus currently has a limited number of people who are qualified for this position. Qualification for this position includes, but is not limited to: Possessing LEED accreditation and/or having a working knowledge of sustainable design accompanied with an understanding of campus operations and LEED guidelines.

Timeline: Start October 2006 and complete by June 2007.

Goal 2: Develop a UC Santa Barbara Green Checklist based on UC Santa Barbara design guidelines. Require design teams to complete the checklist and provide a detailed explanation of how the project will achieve the criteria.

Action Items

Action 1: The Built Environment group will work with Physical Facilities (PF) and Design and Construction Services (DCS) to develop UC Santa Barbara Green Design Guidelines. These guidelines will provide all FM project managers with a common understanding of what sustainable design entails, and will assist in constructing better buildings in accordance with time and cost constraints. This checklist will also establish campus sustainability standards for new and existing building construction. These standards will be posted and easily accessible on the Sustainability and Facilities Management websites.

Barriers

One barrier to the checklist is ensuring that project managers enforce the checklist criteria. The Built Environment Committee will need to get approval of the checklist from upper management and receive buy-in from the campus building committees to ensure the checklist does not become bureaucratic dead-weight. In addition, the committee members will need to find time in their schedules to develop the guidelines and resources for the checklist.

To avoid placing unnecessary pressure on individuals with demanding schedules and to efficiently complete this goal, the Built Environment Committee recommends hiring an outside consultant to assist the Built Environment group in the development of Sustainable Campus Design Guidelines. The cost for this consulting fee is currently estimated at \$4,000. The Built Environment will also need to work with upper management of Budget and Planning, Design and Construction and Physical Facilities to gain support and approval of this checklist.

There will also need to be a firm commitment to the website postings.

Timeline: Start October 2006 and complete by September 2007.

Goal 3: Develop sustainable design language for Consultant Proposal Requests and University contracts.

Action Items

Action 1: UC Santa Barbara building contracts (i.e. RFQ, RFP, EDPA) must maintain a consistent language of sustainability. Explicit text explaining the campus' expectations on sustainable design is necessary to facilitate effective dialogue and generate consistent documents. Consultants should be expected to explain their working knowledge of sustainable design, their background and overall understanding of sustainable design, as well as list all sustainable projects they have delivered in a language that is codified by the campus.

Fortunately, substantial work has already been done to create a common language base regarding sustainable design. UC Santa Barbara can use new sustainable language developed by UCOP in January 2006. Please see the attached UCOP Executive Design Professional Agreement (EDPA) in Appendix A. The Built Environment Committee recommends incorporating this language into all design professional contracts.

Barriers

Cost: Staff wages constitute the bulk of this goal's cost.

Timeline: Start October 2006 and complete by September 2007.

Goal 4: Design buildings in a sustainable manner as described in “Whole Building Design Guideline”, developed by the Federal Government; and LEED, developed by the USGBC.

Action Items

Action 1: Add a reference on our sustainable design exhibit to the Federal Government’s “Whole Building Design Guideline” publication:

www.eere.energy.gov/buildings/highperformance/

Additionally, include these useful links on green building:

www.usgbc.org

www.ciwmb.ca.gov/GreenBuilding/Design/Guidelines.htm

Cost: \$0

Timeline: Start October 2006 and complete by February 2007.

1.2.5 Intermediate Goals (1-5 years)

Goal 1: Newly constructed buildings at UC Santa Barbara should showcase sustainable design techniques using a “Building that Teaches” approach.

Action Items

Action 1: The campus has a green building policy in place and many campus buildings are highly energy and water efficient, with superior indoor air quality; yet no one would know based on appearance. Currently, a significant amount of sustainability at UC Santa Barbara is hidden inside its buildings and unknown to the broader community. The Built Environment Group would like to integrate design and products into buildings in a manner that showcases the campus’ efforts. If UC Santa Barbara took measures to expose parts of buildings that are performing in a unique manner, or set up interactive kiosks explaining energy savings, water savings, or innovative materials, our buildings could serve as effective tools for educating the campus population on sustainable design. Employing “buildings that teach” can informally educate building users and campus representatives about the benefits of sustainable design and the actual performance of individual buildings.

Barriers

Some potential barriers are designers’ limitations in designing innovative systems that not only work for the functioning of the building, but also effectively educate. Impacted budgets and funding constraints pose additional potential barriers.

Cost: Depending upon the project, interactive kiosks are estimated at \$100,000.00.

Timeline: Start October 2006 and complete by September 2007.

Goal 2: Require a mandatory eco-charette for all new construction and major renovation projects in the pre-programming phase.

An eco-charette is a strategic brainstorming session involving the design team and the building owner. This session promotes constructive dialogue as a means for producing tenable integrated design solutions to various design issues. Rather than the architect turning over the floor plan to the consultants and asking them to “make it work,” an eco-charette gives the design team an opportunity to meet with the owner, engineers, lighting, and utility consultants and look for architectural solutions to mechanical/electrical issues and vice versa. The eco-charette allows design team and building owner to work together on developing a sustainable building while incorporating all the building’s programmatic needs.

Action Items

Action 1: Place eco-charette language in the EDPA. The language would explain the eco-charette process, which members of the design team need to participate, and in what stage of the project the eco-charette would take place. If this process were embedded in the EDPA, costs would be relatively low, consisting of reimbursable such as travel expenses and a fee for an eco-charette facilitator.

Barriers

Barriers for this process include budget constraints and apathy. Ideally, the eco-charette would be addressed in the EDPA, similar to how Value Engineering (VE) sessions are addressed. Designers are required to attend the VE sessions, and would also be required to attend an eco-charette. The EDPA would have an exhibit for the eco-charette and UC Santa Barbara would hire a facilitator. For an example of an eco-charette report, please see Appendix B.

Cost: Varies from project to project. The cost of the facilitator varies from consultant to consultant. The estimated range is approximately \$2500-10,000. As more people become familiar with this process the cheaper the overall cost will become. Eventually, UC Santa Barbara staff could act as the facilitators for this process.

Timeline: Start January 2008 and develop eco-charette protocol by February 2009.

Goal 2: Select consultants based on proven experience in designing buildings that reflect UC Santa Barbara standards.

Action Items

Action 1: Design teams should have to pre-qualify based on knowledge of and experience with sustainable design. When reviewing the RFQs, the teams that make the final round should be required to have sustainable design experience. To ensure firms meet the sustainability design criteria, only RFQ submittals that meet the sustainability pre-qualifications could be passed on for final selection by the building committee.

Barriers

A potential barrier to achieving this goal is ensuring that a thorough background check is performed for each firm. Additionally, review teams must have a working knowledge of what to look for in the submittal to accurately assess a firm's experience in sustainable design.

Timeline: Start in winter 2008 end TBD.

Goal 3: Encourage flexible building design to accommodate future sustainable features.

Action Items

Action 1: UC Santa Barbara should strive to design and construct buildings that incorporate flexibility as a high-priority goal. In a university environment, departments with diverse program requirements are known to move from building to building. If the campus produced buildings that possess enough flexibility to transform from a wet laboratory to an administrative space to a student study area with minimal resource input, the structures could be considered highly sustainable.

Barriers

Lack of sustainable design knowledge or experience within the design teams will determine the extent to which this goal can be achieved. However, accomplishing intermediate Goal 2 which calls for creating a process by which firms with substantial sustainable design knowledge are the primary firms considered for final selection should help significantly in achieving this goal. As this is an intermediate goal, the committee feels that it will ultimately be feasible.

1.2.6 Long Term Goals (5-10 and 10-20+ years)

Goal 1: Continue to educate the campus on the impacts of new construction as well as the successes of UC Santa Barbara's sustainability efforts.

Action Items

Action 1: Continue education and outreach to the campus and the community at large. Develop programs that teach the campus as well as other outside organizations about sustainable design and sustainable practices.

Goal 2: Design, construct, and operate buildings using a closed-loop process.

Action Items

Action 1: This goal calls for no waste in the construction process and building operation. This is a very long-term goal. Barriers at this point are knowledge, such as life-cycle data, and technology. Biomimicry is the impetus for this goal.

1.3 ENERGY

1.3.1 Current Sustainable Practices

The Campus Energy Team has been implementing energy-efficiency projects such as upgrading lighting systems, retrofitting HVAC systems, and improving laboratory ventilation. These projects have netted incredible energy and cost savings for the university. The changes implemented by the team have relieved the campus of \$1.4 million in annual energy costs, equating to 12 million kWh, or 16 million pounds of CO₂¹. Grants and rebates covered nearly half of the total cost of these energy conservation measures, and many individual projects were completely funded by public utilities, namely Southern California Edison and the Southern California Gas Company.

In addition to retrofitting projects, UC Santa Barbara's Facilities Management (FM) department joined the California Climate Action Registry (The Registry) in 2006. The Registry is a non-profit, voluntary registry for greenhouse gas (GHG) emissions. The purpose of the Registry is to help companies and organizations with operations in California establish GHG emissions baselines against which any future GHG emission reduction requirements may be applied. FM will continue to register the campus' GHG emissions with CCAR for the years to come, and use the valuable data collected in the process to implement effective energy-saving and emission-reducing measures.

1.3.2 Mission Statement

In order to realize our vision, the Energy Team will provide leadership for our campus by:

- Planning energy conservation measures
- Reviewing plans for new construction to ensure energy-efficiency forecasts meet campus and State standards
- Investigating and employing new renewable or energy-efficient technologies
- Providing information about our energy use and its global environmental impact to campus constituents

¹ Metrics based off of energy conservation projects (not including ECONII) implemented on campus from 2002-2006.

- Recommending the purchase of renewable energy sources where these resources prove cost-effective

1.3.3 Long Term Vision

We will work to reduce non-renewable energy consumption on campus, through energy conservation and strategic procurement of energy resources, until our campus can accomplish its mission independent of non-renewable energy sources.

Goal 1: By 2010, reduce greenhouse gas emissions to 2000 levels*

Action Items

Action 1: The campus Energy Manager projects that implementation of energy conservation measures currently proposed by Facilities Management will achieve this goal by the target date. A project list is included in Appendix C. These projects will cost a total of \$3.6 million, with \$1.5 million covered by grants. The university will need to invest \$2.1 million to receive a 31% return on investment. These energy conservation projects will decrease greenhouse gas emissions by a total of 4000 metric tons per year.

Timeline: Implementation of some of the energy-efficiency projects has begun. The proposed energy conservation projects start in 2006 and end in 2008.

Goal 2: By 2020, reduce greenhouse gas emissions to 1990 levels*

Action Items

Action 1: Continue to implement the energy-efficiency projects stated in Goal 1 and pursue renewable energy sources to further reduce GHG emissions. This may include pilot projects of energy technologies that are new to UC Santa Barbara, such as cogeneration, on site renewable generation, and increasing renewable sources of energy in the power content labels. With an assumed increase in renewable energy from the grid, reduction of emissions to 1990 levels will result in a projected 6000 metric ton decrease in GHG emissions from our current emissions level².

Barriers

Potential barriers include lack of funding, growth of the campus building stock, an increase in energy-intensive research activity, and growth of the student population by a projected 5,000 students. Additionally, in many instances renewable energy technology is currently cost prohibitive.

*California Governor's goals for greenhouse gas emission reduction: <http://www.climatechange.ca.gov/>.

1.3.4 Intermediate and Long Term Goals (5-10 and 10-20+ years)

- 1) Use 33% less electricity than our 2010 baseline by 2050
- 2) Reduce fossil fuel usage to 20% of total consumption (used in natural gas fired cogeneration)
- 3) Increase photovoltaic production to 7% of total consumption – about 4.2 million kWh per year
- 4) Increase wind energy production to 20% of total consumption – about 12 million kWh per year
- 5) Increase new green technology to 6% of total consumption – 3.6 million kWh per year

² Based on conversations with Southern California Edison and predicted trends in the industry, UC Santa Barbara Energy Team predicts the increase of renewables in the Power Content Label.

1.4 FOOD

The functional area for food is divided into two groups, one for University Center (UCen), the other for Housing. These two areas cover food production on the entire campus.

1.4.1 FOOD- UNIVERSITY CENTER

1.4.2 Current Sustainable Practices

The UCen currently offers organic options at Paterno's, an Italian food service, and at Romaine's, a salad bar. The campus snack shop, The Arbor, also offers a variety of organic frozen foods and snacks.

1.4.3 Mission Statement

Provide a variety of healthy and sustainably-grown food options for students, staff, faculty, and guests of the university.

1.4.4 Long Term Vision

To provide a sustainable food service by adhering to the four system conditions:

1. Reduce dependence on substances taken from the earth: UCen Dining will look to the campus to find ways to reduce usage of the campus' natural resources.
2. Decrease use of toxic or non-biodegradable substances produced by society: UCen Dining will continue to seek alternative "green" products for ware-washing and degreasing, and find alternative products to reduce polystyrene packaging.
3. Decrease activities that extract resources faster than nature can regenerate: UCen Dining will reduce the amount of office pack paper by purchasing recycled-content office pack, and look to other food service packaging products that either compost or are not produced with virgin paper. UCen Dining will reduce the waste stream and use less packaging for food services and encourage vendors to do the same.
4. Decrease consumption of resources to the level that satisfies basic human needs: UCen Dining will continue to reduce waste through cooking/preparing food to order and by modifying daily production in all units with the goal of reducing waste.

1.4.5 Short Term Goals (0-1 years)

Goal 1: Compost green waste and coffee grounds

Ninety percent of green waste and coffee grounds produced by the UCen units will be composted.

Action Items

Action 1: The UCen began composting green waste and coffee grounds in conjunction with Marborg, the local waste company, in May 2006. The UCen food units participating in this effort include: Nicoletti's, Panda Express, the Central Kitchen, Catering, Romaine's, Paterno's, Wendy's, Chilitos, Gaucho Deli, Jamba Juice, and Courtyard Cafe. The UCen expects to compost a minimum of 150 pounds per week, and the program has the capacity to compost up to 300 pounds per week.

Timeline: Implementation of this project is a continual process.

Goal 2: Conduct tests of biodegradable flatware and disposables

The UCen will beta test biodegradable flatware and disposables for composting at the Housing & Residential Services' compost pile. Depending upon the success of the testing, compostable products may or may not replace non-biodegradable products.

Action Items

Action 1: Biodegradable items currently being tested are plates, bowls, trash bags, forks, knives, spoons, clear salad and sandwich containers, coffee cups, lids, and drinking cups.

Barriers

These products are extremely expensive (50% cost increase over regular plastic), and if the compost test is successful, UCen will have to gradually add the products to the food units *to the extent the market will bear the additional cost*. There is concern that the market will not bear the increase.

Goal 3: Use green cleaning chemicals

Currently, eighty percent of cleaning chemicals used at the UCen will be Green Seal certified (www.greenseal.org).

Action Items

Action 1: Continue to purchase Green Seal certified products. The remaining 20% of the cleaning chemicals the UCen uses that do not have a green seal alternative are: Quat sanitizer, hand soap, dish soap, and cleanser. If these products are released with a green seal alternative, the UCen will test them and consider replacing the products currently in use.

Barriers

Currently, there are no green seal options available for the remaining 20% of the cleaning chemicals required by the UCen.

Goal 4: Add sustainability information to Purchase Orders

The UCen will include information about its sustainability mission in all Purchase Orders (PO) for the 2006/2007 year. The information will encourage vendors to participate in the university's mission by providing more sustainable products and by practicing sustainability within their company. The UCen will require vendors to provide a description of their current sustainable practices and will ask for updates each year thereafter.

Action Items

Action 1: Draft a letter to include in all UCen POs that explains the campus sustainability program and the UCen's green goals for the coming years. The letter should request vendors and companies to report back to the UCen with their current sustainable practices and sustainable products and services offered. The UCen will then use this information to strategically partner with vendors who practice corporate sustainability and who will provide sustainable goods and services. This information will be shared with all of the UCen leased tenants.

Goal 5: Recycle used cooking oil.

Ninety-five percent of the used cooking oil produced by UCen Dining will be recycled by Bio Diesel Industries, effective mid-May 2006.

Action Items:

By mid-May 2006, the UCen will be selling 95% of its used cooking oil to a local company in Oxnard called Bio Diesel Industries, and will increase this to 100% by 2007.

1.4.6 Intermediate Goals (1-5 years)

Goal 1: Add organic dairy products.

Add organic milk in retail and bulk packaging to all units by 2007/2008.

Goal 2: Expand organic produce.

Increase organic produce to 25% of total.

Goal 3: Expand local produce.

Increase local produce to 25%. Local produce is defined as anything grown within Santa Barbara County.

Goal 4: Increase use of compostable disposable products.

Increase purchasing of compostable disposable products to 25%.

Goal 5: Reduce paper waste at Subway.

Work with Subway's corporate office to reduce the amount of packaging waste in retail sales by 50%

Goal 6: Add organic meat, fish, and poultry.

Purchase at least 10% of meat, fish, and poultry from sustainable sources.

Goal 7: Add Sustainability language to all new tenant contracts.

All new and renewal tenant contracts will have language encouraging sustainable practices.

1.4.7 Long Term Goals (5-10 and 10-20+ years)

Goal 1: Replace aging equipment as needed with energy-efficient Energy Star models.

1.4.8 FOOD-HOUSING AND RESIDENTIAL

1.4.9 Current Sustainable Practices

- Pilot program featuring locally grown and fresh, organic produce at the Francisco Torres Dining Commons
- Composting of pre-consumer waste at all dining commons
- Recycling paper, cardboard, tin, glass, plastic, cooking oil
- Educating students through Waste Awareness week and Nutrition Week
- Bulk purchasing where possible
- Meals cooked from scratch with fresh ingredients and using 'just in time', 'made-to-order' cooking methods to reduce waste
- Leftover food products donated to local food banks during shutdowns

1.4.10 Mission Statement

Campus: To provide a variety of food services for the campus community including students, staff, faculty and guests.

Housing and Residential Services: To promote the academic mission of UC Santa Barbara and create a sense of community among students, faculty and staff through support services and developmental pro-

grams. We base our mission on the premise that proper nourishment is a critical component in each student's intellectual development.

Residential Dining Services:

- To protect, preserve and regenerate our environmental resources for the future
- To provide high-quality, healthful and nutritious foods without additives, pesticides or preservatives
- To reduce food and waste generation
- To use waste products to generate other sources of energy
- To reduce the depletion of energy sources including gas and electricity
- To use water judiciously
- To educate staff and customers on the importance of this program to encourage everyone to play a role in aiding our mission
- To reduce the transportation distance of goods from their source to our campus, thus reducing energy consumption and pollution

1.4.11 Long Term Vision

To create a regional closed-loop food system by observing sustainability criteria for all purchasing, food preparation and service, presentation, cleaning and waste disposal, equipment and supplies, facility design and renovation, and utilities

This will include evaluating and improving:

- the ways in which energy is used and the types of energy used
- how waste is managed by promoting recycling and composting
- what type of food is purchased by emphasizing organic and local
- how food is delivered, received, and stored by reducing packaging and transportation distances
- how food is prepared, cooked and served
- how dishware and facilities are cleaned by purchasing environmentally responsible equipment and chemicals
- how facilities are designed and operated

1.4.12 Short Term Goals (0-1 years)

Goal 1: Increase use of green cleaning chemicals.

Replace 80% of the cleaning chemicals currently used in all dining commons with green chemicals.

Action Items

Action 1: Meet with Housing Operations staff, dining managers, purchasing buyer, and the current and new supplier to adjust custodial cleaning specifications and establish new agreements.

Timeline: June 2006- June 2007

Goal 2: Increase selection of organic and locally grown foods.

Increase the organic and locally grown produce in the salad bar of one dining commons by 50%. Increase certified organic fresh raw produce in all four dining units by 5-10%.

Action Items

Action 1: Conduct product and price evaluation by hosting a meeting between suppliers, purchasing buyer and dining managers. Create a new contract and begin purchasing additional certified organics by fall

2006. Continue to meet with Community Alliance with Family Farmers (CAFF) representatives to increase procurement from local farmers where feasible.

Timeline: June 2006- June 2007

Goal 3: Expand composting efforts.

Action Items

Action 1: Host a meeting with Marborg and the Energy Manager of Housing to determine the best way to establish processes for increasing collection of items for composting.

Timeline: June 2006- June 2007

Goal 4: Replace all disposable flatware with biodegradable products in the dining commons' take-out program and Special Events catering and Concessions.

Action Items

Action 1: Establish an agreement for purchasing biodegradable products to phase out current plastic-ware.

Timeline: June 2006- June 2007

Goal 5: Upgrade equipment with energy-efficient Energy Star models.

Action Items

Action 1: Assign staff to survey equipment energy usage in one dining unit over the summer 2006. Evaluate the cost of maintaining the equipment by using Energy Star lifecycle calculators. Specify Energy Star models on new equipment orders for hot cabinets, fryers, ice machines, steamers and refrigerators.

Timeline: June 2006- June 2007

Goal 6: Recycle discarded cooking oils to produce biodiesel.

Biodiesel will be returned to UC Santa Barbara Transportation Services for use in biodiesel vehicles.

Action Items

Action 1: Establish an agreement with a local vendor to pick up oil for biodiesel.

Timeline: June 2006- June 2007

Goal 7: Educate dining staff, customers and students on the sustainable programs, food quality and conservation methods at Housing through workshops, displays, meetings and the H&RS website.

Action Items

Action 1: Meet with the dining Director and an artist to develop a logo and a marketing plan. Provide training and materials on Housing and Residential Service's sustainability programs and goals, including displays and table tents at the dining commons.

Timeline: June 2006- June 2007

Goal 8: Establish a Food Working Group.

Establish a food group consisting of the H&RS Dining Production Team, UCen Dining team and advisory members for continued work on sustainable issues and goals. Advisory members should include Dining General Managers, campus staff, community members, student groups and faculty.

- *Student Involvement* – develop a framework to sustain student involvement in the Food Working Group (through AS, RHA, EAB, ESLP etc)
- *Dining Manager Group* – establish a ‘Leadership Group’ to develop and implement goals

Action Items

Action 1: Meet with dining staff to discuss the creation of an ongoing Food Working Group designed to address issues of sustainability. Meet with leaders of student groups to establish an ongoing framework and a liaison between students and staff. Establish a quarterly meeting schedule and invite community members, farmers, dining and campus staff, and faculty to attend.

Timeline: June 2006- June 2007

1.4.13 Intermediate Goals (1-5 years)

Goal 1: All purchase orders to vendors will contain language regarding sustainability and sustainable criteria as part of a “basis for award” for all RFP’s.

Goal 2: Increase certified sustainable meat, poultry, fish and dairy by 10%. Increase certified organic produce by 25%.

Goal 3: Work with campus planners and Marborg waste disposal company to site a vessel for composting all disposable products, pulp, and post-consumer waste.

Goal 4: Purchase Energy Star dish machines and other equipment meeting Energy Star criteria.

Goal 5: Continue education and outreach commitment to reach students, staff, faculty, and the surrounding community.

Goal 6: Network with other schools, universities, and communities to increase communication and sharing of our framework for creating a sustainable food system.

Goal 7: Partner with other departments and Sustainability Plan groups to determine ways to reach common goals in a collaborative way.

Goal 8: Use our purchasing power to influence manufacturers and distributors of natural and organic food products to use bulk recyclable packaging materials to reduce waste.

1.4.14 Long Term Goal (5-10 and 10-20+ years)

Goal 1: Expand organic and locally grown produce purchases to 25 to 50% in all units.

Goal 2: Expand organic and sustainably produced dairy, poultry, meat and fish purchases to 15% to 25% of total purchases.

Goal 3: Purchase socially responsible food items that are worker supportive, living wage, and fair trade.

Goal 4: Certify one campus dining facility as a green facility.

Barriers to the aforementioned goals:

High costs; staff time; availability and distribution of desirable products; education throughout the food system; customer resistance; too few metrics; established contracts, policies and regulations.

1.5 LANDSCAPE/BIOTIC ENVIRONMENT

1.5.1 Current Sustainable Practices

The Cheadle Center for Biological and Ecological Restoration (CCBER) management includes sustainable practices including using native plants, employing minimal power in tools used, and handling storm water runoff through bioswales, CCBER supports ecological integrity and invasive non-natives are controlled. Seedlings are grown organically at their nursery resulting in toxin reduction.

Very minimal power tool usage e.g., once a year a weed wacker would be used to remove biomass in the bioswales resulting in energy conservation. Storm water is handled with bioswales such as at Manzanita Village. No watering done except for at establishment phase for the seedlings resulting in water conservation. No herbicide used except to control poison oak and Bermuda grass at very small sites resulting in toxin reduction.

Housing and Facilities have greatly reduced their herbicide use and limited it to Round-up Pro resulting in a reduction of in toxin use. Both Housing and Facilities uses electric vehicles, but both organizations use power mowers, blowers, clippers and weed wackers. Both Housing and Facilities use a very high percentage of reclaimed water for their lawns and both have systems which are designed to water to capacity and not to exceed. All organizations work with the Integrated Pest Management group to manage vertebrate and invertebrate pests.

1.5.2 Mission Statement

The mission of the Landscape/Biotic Environment Committee is to make sustainability one of the key decision-making components for landscape design and management. Sustainability includes considering all inputs into the campus grounds relative to their costs and benefits to the Earth and the local ecosystem. Our directive is to increase biodiversity and self-sustaining systems while reducing dependence on fossil fuels and other extracted minerals. We propose to have zero pollution from toxins and non-recyclable materials and increased community education about the importance of living sustainably. We endorse the use of locally available water resources and managing this resource so that it leaves the campus as pure as it entered. Socially, the grounds should facilitate student education, work, and play while supporting the staff through living wages and local business opportunities. Communication within the management team should be positive and supportive.

1.5.3 Long Term Vision

Water

- Ninety-eight percent of the campus would be irrigated with non-potable water.
- Water for grounds will be locally derived through rainfall to the largest degree possible and only then supplemented by reclaimed water.
- Stormwater will be managed through wetlands, biofiltration using native plant species, and storage and reuse where applicable at the University.

Plant Materials

- Research methods to reduce unnecessary turf and replace it with low-maintenance, low-water use ground cover.
- Those taxa desired for teaching purposes that have high water-requirements will be clumped in limited area.
- Exotic taxa will be clumped towards the center of campus in the “developed zones”, while native taxa will be placed at the periphery, forming a broad buffer between exotic taxa and the larger natural setting of the campus (as per original landscape plan).
- Invasive exotics (desired for teaching) will be planted sparingly in the campus core, and then within contained spaces such as courtyards to ensure acceptable control of these plant species.
- Sustainability will be of primary consideration in the selection of all vegetation incorporated into grounds projects.

Staffing/Maintenance

- Grounds will seek to reduce mechanized maintenance procedures, and base those necessary upon renewable energy sources.
- In developing low-maintenance landscape, Grounds will seek to create a smaller, but higher paid work force.
- The Campus will use a portion of its lands as a garden to provide produce for UCen and/or Housing food services.

Education

- Appropriately placed signage describing sustainable practices will be posted to inform the campus community and the public of sustainable landscaping operations.
- Grounds will participate in and encourage public education through outreach programs and by making its resources available to campus courses.
- Grounds will have a staff person assigned to promote sustainable practices by participating in decision-making policies within the University and through public education and outreach.

1.5.4 Short Term Goals (0-1 years)

Goal 1: Collect data to determine baseline measurements for the following categories:

- a. Irrigation water type (reclaimed vs. potable) and use (quantity) by area type (lawn, landscaped areas, native or natural areas)
- b. Energy usage (gasoline and other fuels) by Housing, FM, and the Cheadle Center for Biodiversity and Ecological Restoration (CCBER) by area (lawn, landscaped areas, native or natural areas)
- c. Records of chemical use (herbicide, pesticide, cleaning)

Timeline: Baseline figures will be made available by fall 2007.

Action Items

Action 1: Coordinate with FM to collect data while doing routine maintenance activities.

Action 2: Coordinate with the Bren School and the Environmental Science Department to solicit interns and/or students collect data.

Action 3: Analyze data and generate goals based on data results.

Barriers

Coordinating data collection and analyzing the data will require staff resources.

Goal 2: Support student and intern projects to evaluate sustainability of landscape practices such as turf versus artificial turf, reclaimed water benefits and impacts, total landscaping water use assessment and rainfall storage options.

Timeline: Recruitment of students and interns will begin in fall 06, and at least one student project per quarter will be completed.

Action Items

Action 1: Present to the Bren School and the ES department on goals and data collection needs.

Action 2: Collaborate with students to define scope of work for each project.

Barriers

With busy student schedules it may be hard to recruit individuals with the level of commitment and availability necessary to bring a project to completion. The scope and goals of each project must be explicit and take the individual student's availability into consideration. Group projects should be encouraged where appropriate to help divide the workload and ensure the accuracy of data. There is also the question of finding funding for internships.

Goal 3: Identify opportunities to inform the campus community about current sustainable practices in landscaping.

Action Items

Action 1: Install signs in CCBER areas to help people recognize native, sustainable plant communities and habitats and to explain their importance.

Action 2: Install signs about reclaimed water use indicating the value of resource conservation in terms of water, fuel, and sustainable ecological systems.

Action 3: Survey people to see how open spaces on campus are valued – e.g. lawns, native plantings, decorative plantings– and publish these findings.

Barriers

It will be necessary to find a balance between the need for educational signs and the guidelines of the campus Design Review Committee to achieve this goal.

Goal 4: Initiate a project assessment of the relative sustainability of native-dominated landscaping opportunities (e.g. Manzanita Village) versus traditional landscaping (e.g. Anacapa, FT or other dormitories on campus), measured in terms of water requirements.

Action 1: Data will be collected for water, fuel, herbicide, pesticide and fertilizer use as well as manpower in the field for landscapes managed by facilities, HRS and CCBER.

Timeline: Data collection began in summer 2006. A summary of findings will be presented in fall 2006.

1.5.5 Intermediate Goals (1-5 years)

Goal 1: Implement baseline monitoring of factors defined in first year.

Goal 2: GIS campus landscaping by category so that planning can be more easily managed.

Coordinate with planning department's GIS program to support educational missions and outreach.

Goal 3: Work with Facilities Management on the best option for stormwater treatment so that it is managed sustainably as new buildings are constructed.

Stormwater management options include biofiltration, wetlands, permeable pavement, temporary storage and other non-pipe options, all of which can bring life to campus while reducing run-off, erosion and pollution to adjacent wetlands (lagoon, slough and ocean).

Goal 4: All options for replacement of turf with low water-consuming plants or materials will be considered prior to installation.

High-visibility areas where turf is used for 'curb appeal' must submit compelling reasons for installation and receive approval prior to installation.

Goal 5: Initiate an assessment of the status of Goal 2 in the Short Term goals.

1.5.6 Long Term Goals (5-10 and 10-20+ years)

Goal 1: Use surveys to measure behavioral changes and shifts in attitudes towards water use in the campus community.

Determine if campus outreach efforts such as educational signage have had the intended impact.

Goal 2: The University will implement policies to support sustainable grounds choices for water use and distribution; retrofitting of storm drain systems; vegetation selection and maintenance; landscape design plans; and incorporation of natural features into the campus landscape.

Goal 3: The majority of the campus fleet and the equipment used by grounds personnel (H&RS, FM, CCBER) will be fueled sustainably with naturally-generated fuels*.

*Please note that certain vehicles need to be maintained with petroleum-based fuels to provide varied options during emergency situations.

Goal 4: Water intensive plantings on campus will be reduced by 20% by the year 2015.

Barriers

- Cost of converting the campus fleet to electric vehicles, which includes constructing solar panels, bio-fueling stations, and disposing of the campus' current vehicles.
- Addressing attitudes regarding synthetic grass versus natural grass.
- Addressing multiple uses of campus lawn areas and deciding how to fulfill these different uses in a sustainable manner.
- Addressing traditional attitudes towards bioswales and other sustainable, progressive methods of water management.
- Cost of installing rainwater storage facilities and the ongoing maintenance expenses.

Action Items

Action 1: Use information from earlier goals and obtain relative landscape sustainability and water use.

Action 2: Evaluate pros and cons of rainwater storage versus the use of reclaimed water.

Action 3: Evaluate potential long term impacts of reclaimed water use on soil quality and toxicity as well as Nitrogen-richness. Evaluate potential problems with boron, sodium, and increased Nitrogen levels, and research the potential for increased weed growth and the associated environmental costs to control them.

Action 4: Investigate which plant species can survive solely on rainfall that occurs on site, recognizing the microclimate and shade issues.

Action 5: Quantify vehicle use, fuel use by H&RS, FM and CCBER.

Action 6: Quantify the use of toxic substances including pesticides, herbicides, cleaning reagents, disposed batteries, etc.

1.6 PROCUREMENT

1.6.1 Current Sustainable Practices

The following is a list of current practices in sustainable procurement at UC Santa Barbara. These points provide opportunities for a more sustainable design, and are intended to establish a beginning framework for our efforts to reach full sustainability.

Electronic Processing

UC Santa Barbara currently uses several electronic systems to administer campus business processes. Beyond high value buying (\$50K and above), campus procurement is largely decentralized and the departments administer all low-value buying (\$2.5K and below). Although UC Santa Barbara does not have an integrated e-commerce system in place, it operates with a patchwork of various systems that have come online in recent years.

Programs impacting procurement currently include:

- **FlexCard:** campus Visa card for low value buying
- **Rex:** Requisition Express—Online requisition submittal
- **POTs:** Purchase Order Tracking system
- **PORs:** Purchase Order Repository system
- **CATS:** Capital Assets Tracking System (Equipment Management)
- **WebTV:** electronic travel voucher system
- **Direct deposit:** reimbursements, payroll, travel
- **Online General Ledger:** invoice links
- **Data Warehouse:** campus financials and historical data
- **Grand Unified System (GUS):** departmental administrative/financial shadow system
- Web-based EZ-Access facility

Commodities

Environmentally preferable products are being purchased in increasingly large quantities on campus. Considerations for sustainable purchasing include: incorporating standards for greater energy-efficiency, green chemicals, recycled content by percentage, low-VOC content, low mercury/cadmium/lead content, and responsible end of life management programs that include recycling, reuse, and refurbishment.

The following is a list of environmentally pertinent data that is currently available on sustainable commodities:

- FM, H&RS custodial staff use Green Seal certified chemicals, and 100% recycled content paper in all restrooms and kitchen areas.
- FM is phasing-in energy-efficient lighting across campus in lighting retrofit projects.
- Departments are requesting and purchasing LEED compliant products.
- Office supplies contract is offering products with recycled content.

- Campus purchasing of recycled content paper.
- Campus is making Energy Star features mandatory with all new contracts for appliances, printers, copiers, fax machines, and personal computers.
- Campus is using environmentally preferable carpet tiles that meet CRI Green Label Plus.
- Vendors are increasing availability of environmentally preferable products that assist with LEED certification.

Policy

BUS-43 is the UC system-wide policy for materials management. Currently, BUS-43 does not include references to sustainability or environmentally responsible purchasing. UC Santa Barbara has been incorporating principles of sustainable design into the procurement process and is looking to expand the scope of this effort. As the UC system collectively moves toward more strategically sourced and managed contracts, UC Santa Barbara is working to ensure sustainability is a principle business strategy throughout the UC system.

A current snapshot of UC Santa Barbara's policy includes:

- Incorporating sustainability principles in system-wide Strategic Sourcing RFPs & contracts as of fiscal year 2005-06.
- Shifting UC cultural and business climate toward greener products, and more sustainable processes and programs.
- Developing a Pilot Education and Training Outreach program for sustainable procurement that is nearly ready for UC Santa Barbara and system-wide implementation.
- A Sustainable Procurement working group is incorporating language covering sustainable purchasing practices into the "Green Building and Clean Energy Policy," and is developing strategies for purchasing products compatible with LEED certification.
- Obtaining soft funding for a full-time Sustainability Coordinator position in UC Santa Barbara's Purchasing Department through July 2007.

1.6.2 Mission Statement

To facilitate the acquisition of resources in a manner that supports the UC education, research, and public service mission while supporting innovation and invention capable of transitioning society towards environmentally preferable processes and social responsibility. Our goals are intended to stimulate the creation and widespread distribution of green technologies and promote positive market transformation towards full sustainability.

1.6.3 Long Term Vision

The following categories briefly encapsulate our vision for a sustainable procurement operation at UC Santa Barbara, and how those processes will relate to a broader global community.

Cohesive and Integrated Electronic Procurement System

In order to reach our goals, UC Santa Barbara will require an e-commerce system that integrates campus procurement and accounting processes while offering efficient controls. E-commerce expedites the procurement process and increases administrative capacity to capture data, monitor purchasing behavior, analyze business flows, and direct customers toward designated suppliers. Campuses are at various transitional stages system-wide toward e-procurement systems, thus providing opportunities to streamline and standardize processes.

Opportunities for integrating an electronic procurement system include:

- Online vendor catalogs and web portals.
- Standardized commodity coding across campus and UC system.
- UC sharing processes (e-bay concept) that maximizes use and reuse of supplies and equipment.
- Fully integrated online systems: Campuses, UCOP, vendors, etc.

Environmentally Preferable and Socially Responsible Processes

UC Santa Barbara envisions the standardization of campus operations that utilize machines and systems powered by clean and renewable energy and that are comprised of materials manufactured using only sustainable resources. The University will strive to ensure that people (and all life for that matter) impacted by our business processes and operations are able to equitably meet their needs by observing reputable standards, policy, and socially responsible practices. UC Santa Barbara's new design toward Sustainable Economy will encompass:

- Sustainable Energy: clean, renewable, generated locally or on-site.
- A "Triple Bottom Line" consisting of the *Environment*, the *Economy*, and *Society*.
- Environmentally Preferable products and services.
- Bio-based and non-toxic material and service flows that are reusable, compostable, continually re-manufactured, and reprocessed responsibly.
- Cradle to cradle relationships: accountable, responsible, and environmentally preferable supply chain management from material extraction, production, marketing, sale, use, disposal, collection, reuse, and so forth continually as a web of closed loop cycles and processes.
- Exponential increase in resource productivity: efficiency levels.
- "Biomimicry" as described by Janine Benyus:
 - Nature as a model
 - Nature as a measure
 - Nature as a mentor
- Zero emissions generated through travel/transport/distribution of goods.
- Zero-waste, closed loop systems where all inputs are either recycled, composted, or re-used/reprocessed/remanufactured locally.
- A Commodity matrix that clearly assesses the impact of products/services on environment, human health, and social conditions with a clear commitment to purchase within set goals.

Purchasing Supports UC Research, Innovation, and Invention of Environmentally Preferable Systems and Processes that Transition Society Towards Sustainability

As a research and educational institution committed to higher learning and public service, the University of California is in a unique position to set an example and lead others toward a more sustainable future. The University wields a purchasing power that exceeds that of entire nations on the planet—a position that demands a high level of responsibility and stewardship. In contributing to a sustainable future, UC Santa Barbara envisions:

- System-wide engagement toward sustainable practices through policy, analysis, implementation, and action.
- Investment strategies that incorporate principles of sustainability.
- Incentives for programs that meet or exceed goals established for environmentally preferable processes and sustainable design.
- University enabled market shifts toward greater energy-efficiency and conservation, environmentally preferable products and services, and socially responsible business practices.
- Standardized criteria for sustainable commodities/services across a range of industries and markets.

UC Santa Barbara has developed a series of goals, and action items to reach those goals, that will bring us closer to our vision of full campus sustainability. The following goals are divided into three categories,

Electronic Commerce and processes, Environmentally Preferable Commodity Options, and Sustainability Policy/Education and Outreach. Within each category there are a series of smaller goals with individual action items that can provide us with tangible steps forward from the short to long-term.

1.6.4 Short Term Goals (0-1 years)

Goal 1: Electronic commerce and processes.

To achieve more sustainable practice in our business operations, we will encourage and expedite campus-wide transition toward integrated electronic processing for procurement, accounting, business services, as well as departmental and campus administrative services. In so doing, we must first establish baseline(s) of current capacity, projected growth, economic impacts and returns, environmental benefit(s) and resource capacity/feasibility. This effort must be continuous, and clearly establish a goal of 100% electronic and paperless systems for all procurement and accounting operations.

Sub-Goal 1: Phase out hard copy vendor catalogs.

This short to long-term goal calls for a campus-wide transition to an electronic catalog system.

Action Items

Action 1: Purchase new electronic catalog system, initiate pilot program, and roll out new system to campus. Reduce hard copy flow of unnecessary catalogs onto campus.

- Route 50% of campus buying through the new electronic catalog system within its first year of utilization.
- Take inventory of hard copy catalogs (Mail Services).
- Conduct process mapping for catalog utilization on campus.
- Create vendor website for catalog posting.
- Communicate with campus vendors and campus community of intent to solely utilize electronic catalogs.
- Set transition date for Campus to reduce hard copy flow.

Timeline: This project is currently underway. Selection of a strategic source vendor shopping mall is slotted for fall 2006.

Sub-Goal 2: Expand FlexCard purchasing.

Expand the utilization of the FlexCard (US Bank Purchasing Card) to 75% of campus departments by June 2007. Integrate FlexCard spend reports and controls into sustainability indicators for Procurement.

Action Items

Action 1: Utilize spend reports to expand database of campus purchasing trends and to more accurately capture spend volume and behavior.

Action 2: Cross-reference and compile spend reports of FlexCard data against Purchase Order transactions to monitor transition.

Action 3: Create program outline with FlexCard administrators.

Action 4: Incorporate Sustainability component into FlexCard training.

Timeline: The project scope has been established and delivery of data tracking system is slotted for fall 2006.

Sub-Goal 3: Integrate priority purchasing and GUS, the Grand Unified System.

Integrate strategic sourcing/green vendors as priority purchasing within the GUS system. Create spend tracking system with commodity and/or vendor coding; work with the GUS coding team to have this integrated into their program.

Action Items

Action 1: Identify GUS Working Group.

Action 2: Track Low Value buying on quarterly basis.

Action 3: Begin tracking low value buying in pilot department(s) by fall 2006.

Timeline: The GUS Working Group has been identified in the summer 2006.

Sub-Goal 4: Electronic process payments.

Move to Electronic Data Interface (EDI) with vendors (UC Santa Barbara/IS&C—vendor relationship).

Action Items

Locate & allocate programmer to implement EDI. Create a baseline and begin to track implementation and utilization. Work with Accounting in its efforts toward paperless processes, such as discontinuing the printing of the campus general ledger.

Action 1: Work with IS&C to modify accounts payable system.

Action 2: Meet with other UC campuses with active EDI programs.

Action 3: Pilot a program with large volume vendor(s).

Timeline: Conduct feasibility study in the fall 2006.

Sub-Goal 5: Website enhancement and expansion

Strengthen web capacity and increase utilization of website(s) as a strategic resource and tool.

Action Items

Action 1: Improve sustainability portals for Business Services and UCOP Strategic Sourcing website.

Action 2: Increase availability of data and resources, and expand interface between other strategic link-ages.

Action 3: Ensure ease of use, utilize web as a marketing tool, and provide GOOGLE-like search engines.

Action 4: Provide access to EPP commodity matrix, training and workshop materials, and links to other programs.

Timeline: Project currently in progress as of summer 2006.

Sub-Goal 6: Web-based equipment sharing

Formalize LabRATS—Laboratory research and technical staff (currently a list-serve for laboratory staff managed through Yahoo groups) working toward more sustainable lab practices (This goal is also included in the Waste functional area group).

Action Items

Action 1: Establish project scope and participants.

Action 2: Create “Craigslist/eBay” type program for equipment and supplies sharing on campus.

Action 3: Monitor items and track utilization.

Timeline: Project launched in June 2006.

Goal 2: Environmentally preferable commodity options

It is our goal and effort to expand environmentally preferable purchasing across the spectrum of commodity buying at UC Santa Barbara and system-wide. In so doing, we will work strategically with campus end-users, other UC campuses, our communities, and our vendors to incorporate appropriate environmental and sustainability commodity criteria into all RFPs and contracts. As we go, we pledge to enhance relative data collection and analysis of environmental and economic impacts in all commodity categories. UC Santa Barbara looks to create incentives for “buying green,” and then subsequently market those more sustainable options to the campus community.

Sub-Goal 1: Office supplies

Establish a clear goal of immediate UC-wide phase-in of minimum 30% post consumer waste recycled content paper, and a complete phase-out of virgin paper products for all office supplies. Increase availability and purchasing of environmentally preferable products. Measure and capture spend data for the purchase of said products, broken down by category and to the line item where feasible, and set target benchmarks.

Action Items

Action 1: Negotiate with suppliers to obtain competitive pricing for designated products.

Action 2: Market recycled content and environmentally preferable products through vendor catalogs and administrative communication.

Action 3: Capture current and historical spends from Office Max & Central Stores.

Action 4: Reduce list price of recycled content paper to be equal or lower than virgin paper.

Action 5: “Green tag” all items with recycled content, energy star, “certified” green, or assist with LEED credits through Office Max and Central Stores:

- Compile inventory of environmentally preferable products
- Create distinct commodity tree coding to flag items
- Compile and analyze quarterly spend reports
- Enhance marketing of environmentally preferable option
- Create baseline per capita to reduce usage of paper products by 25% system-wide through conservation practices including duplex printing, web-based posting, and reuse

Timeline: Project in progress; system-wide strategic contract in place with Office Max, paper pricing being negotiated as of summer 2006.

Sub-Goal 2: Janitorial Supplies

Expand the use of green cleaning products and techniques throughout campus and UC community.

Action Items

Action 1: Create baseline inventory of UC Santa Barbara Green Cleaning utilization and current recycling practices.

Action 2: Categorize use by department; capture spend volume, cost, product options, worker's compensation, training provided, and product testing.

Action 3: Work with designated Strategic Sourcing supplier to ensure program for capturing data and/or regular reports are made available beginning fall 2006.

Action 4: Compile current FM, H&RS, and Central Stores utilization data.

Action 5: Identify applications where use is absent.

Action 6: Identify new end-users (food services, departments).
Compile UC Santa Barbara Green Cleaning Best Practices manual.

Timeline: Project is currently underway, new system-wide contract will provide all campuses with the opportunity to transition to Green Cleaning (summer 2005-present).

Sub-Goal 3: Appliances, PCs, Copiers, Faxes, Printers, Cell Phones, Misc. Electronics:

Establish clear E-waste standards for UC Santa Barbara and system-wide application across entire spectrum of contracts for electronic commodities (see also Energy Star Products below).

Action Items

Action 1: Inventory availability of E-waste receptacles on campus and monitor use.

Action 2: Improve and increase availability of receptacles, and outreach to the campus community regarding the need to recycle electronic products.

Action 3: Develop an administrative program to monitor end of life management for electronic machines on campus with strategic stakeholders.

Action 4: Capture volume of machines being recycled on campus, set as a benchmark

Action 5: Develop specifications for a manufacturing take-back program for RFPs/contracts with all new electronic purchases

Action 6: Require vendors/recyclers to report on volume of machines being recycled, destination, and responsible certification

Action 7: Develop outreach campaign to market new program

Timeline: Project began in June 2006, and will extend into an intermediate and long-term goal.

Sub-Goal 4: Energy Star products

Require and purchase Energy Star registered commodities for all products available through Strategic Sourcing agreements as applicable.

Action Items

Action 1: Require features to come enabled/defaulted.

Action 2: Establish Sustainability-IT working group to assist with electronics end of life programs and energy conservation efforts.

Action 3: Establish Energy Star partnership for UC.

Action 4: Launch Energy Star conservation pilot program.

Action 5: Target high-energy use buildings/departments.

Action 6: Monitor and meter energy usage.

Action 7: Enable all energy saving features on all machines.

Action 8: Track results, repeat campus wide

Timeline: All system-wide Strategic Sourcing RFPs and Contracts now require Energy Star availability as of 2006.

Sub-Goal 5: Carpet

Require availability of environmentally preferable modular carpet tiles and transition campus towards more sustainable flooring options.

Action Items

Action 1: Require recycling program for the disposal of used carpet.

Action 2: Work with vendors to track utilization, volume of carpet being recycled and diverted from the landfill.

Action 3: Compile life cycle analysis for products and market more sustainable items to campus.

Action 4: Clearly distinguish and encourage purchasing of product lines that enable LEED points.

Timeline: System-wide RFP currently in progress with Sustainability specifications incorporated (winter 2005-present)

Sub-Goal 6: Furniture

Transition the UC toward the purchase, reuse, and recycling of sustainable furniture options, by reducing materials and adding simplicity and durability.

Action Items

Action 1: Expand recycling/reuse program for old furniture.

Action 2: Communicate needs and goals to vendors and work to expand availability of products that assist with LEED credits.

Action 3: Develop specification for products to be easily disassembled and refurbished, with 100% recyclable components.

Action 4: Locate/develop LEED purchasing matrix for online vendor catalogs to include furniture items that meet LEED requirements, create point's opportunities.

Timeline: Furniture Initiative is currently in progress with sustainability components being addressed, as of spring 2006.

Sub-Goal 6: Operations and maintenance

Expand availability and awareness of environmentally preferable product options for Operations and maintenance supplies.

Action Items

Action 1: Require strategic vendors to highlight product options that are third party certified as environmentally preferable, assist with LEED points, and drive greater resource efficiency on campus.

Action 2: Work with end users in FM and H&RS for implementation and product testing.

Timeline: System-wide initiative evaluating Operations and maintenance began in fall 2005 and is currently in progress.

Sub-Goal 7: Electronic travel

Expand the utilization of video conferencing and other electronic alternatives to travel.

Action Items

Action 1: Establish program scope, cost, and timeline for implementation.

Action 2: Identify system-wide group for pilot program.

Action 3: Work with Kerr Hall to increase video conferencing in order to decrease actual travel.

Action 4: Create business/feasibility case and demonstrate findings with special consideration toward cost savings.

Action 5: Establish pilot program for intersystem group(s). Increase campus video conferencing access by 15%.

Action 6: Begin implementation of e-signatures campus-wide.

Timeline: UC-wide Travel Management Council established.

Sub-Goal 8: Food Services

Expand organic and locally produced food options for all campus food services. Begin transition toward more environmentally preferable food operations.

Action Items

Action 1: Work with the food group to ensure appropriate specifications are included in all RFPs and contracts.

Action 2: Conduct feasibility study for expanded recycling and composting efforts.

Timeline: System-wide initiative currently in progress as of spring 2006.

Goal 3: Sustainability policy, education & outreach

Develop clear guidelines for environmentally preferable procurement across a broad range of commodities and outreach sustainability practices to campus. Establish sustainable procurement policy for system-wide application and interface with BUS-43, other UC policies. Launch program with web based resources and training.

Sub-Goal 1: Energy Efficiency

Implement energy conservation and efficiency programs for UC Santa Barbara and system-wide implementation with particular attention given to behavioral changes.

Action Items

Action 1: Departmental-building metering and Energy Star program (see Energy Star Products Sub-Goal above).

Action 2: Work with campus Energy Manager, Green Campus program to develop project scope, necessary funding.

Action 3: Establish goal of 75% campus wide enablement of energy star features by end of fiscal year 2006-07.

Action 4: Measure immediate and cumulative energy savings.

Action 5: Capture metering data (before and after energy star enablement/retrofits).

Action 6: Analyze, report cost savings and CO₂ emissions.

Timeline: As of summer 2006, the project scope is under development and participants are being sought.

Sub-Goal 2: Manufacturing take-back and recycling programs:

Begin design and development of a standardized recycling take-back program for old equipment.

Action Items

Action 1: Locate and/or develop administrative program to implement program.

Action 2: Require service from vendors at no additional cost to UC where feasible.

Action 3: Ensure that the program incorporates existing equipment.

Action 4: Require vendor reports for all reclaimed equipment on a quarterly basis.

Action 5: Work with new and existing vendors to initiate pilot recycle programs in the following strategic categories:

- Copiers
- Carpet
- Personal computers

- Furniture

Timeline: Program development is underway as of winter 2006 and will extend into an intermediate and long-term goal.

Sub-Goal 3: Environmentally preferable packaging specifications

Develop specifications for packaging to eliminate waste streams onto campus and expand recycling and closed loop design efforts.

Action Items

Action 1: Incorporate specifications into campus/system-wide RFPs and contracts.

Action 2: Develop business plan with careful analysis of cost implications and feasibility, engage Strategic

Action 3: Sourcing vendors to collaborate on program implementation.

Action 4: Incorporate the following components:

- Recyclable
- Rapidly renewable
- Bio-based
- Practical and effective

Timeline: Specifications have been benchmarked as of fall 2005 and will continually be enhanced.

Sub-Goal 4: Product content standards and criteria

Action Items

Action 1: Continually develop and incorporate (and develop) language for Environmentally Preferable product standards in all Campus and system-wide RFPs and contracts.

Action 2: Develop commodity EPP matrix, create specifications for commodities where needed and compile resource base for future use and external reference (see above Website Enhancement and Expansion Action Item).

Action 3: Continually work with State of California DGS/CIWMB EPP task force to integrate specifications and standards into UC RFPs and contracts.

Action 4: Designate UC representative to taskforce.

Action 5: Collaborate on joint EPP standards for state of California.

Action 6: Work with municipalities active in EPP.

Action 7: Establish web links and interface between various efforts.

Action 8: Continually monitor and enhance commodity matrix with specifications for more sustainable procurement (emphasis on vendor selection and qualification, LEED certification).

Action 9: Compile data into working spreadsheet, and create criteria archive to be posted to a website.

Timeline: Initiated in fall 2005 and will extend into an intermediate and long-term goal.

Sub-Goal 5: Alignment of principles and goals for strategic initiatives

Create standardized sustainability language for use system-wide and work toward establishing presidential policy for EPP.

Action Items

Action 1: Work with UCOP Strategic Sourcing Office to interface sustainability into administrative structures and planning.

Action 2: Establish system-wide sustainable procurement working group to project out implementation of purchasing policy around sustainability.

Action 3: Enhance clarity of requirements and processes.

Action 4: Streamline EPP efforts at UC Santa Barbara and system-wide utilizing Strategic Sourcing as a vehicle.

Outreach to:

- System-wide Vice President of Financial Management
- Campus Material Managers
- Campus Departments

Timeline: System-wide Sustainable Procurement Group established as of summer 2006, and language is continually being developed.

Sub-Goal 6: Green marketing

Create visual schematics to designate products and practices as more sustainable options with campus and system-wide sustainability initiatives.

Action Items

Action 1: Develop signage and logos to convey environmentally preferable product options with vendors for online catalogs.

Action 2: Cross-reference implementation date against spend reports for possible correlation in terms of buying behavior.

Action 3: Design logo for use on campus.

Action 4: Integrate sustainability efforts across campus with logo.

Action 5: Create quarterly/monthly press release and/or outreach event(s) on campus sustainability efforts.

Action 6: Broadly publicize to:

- Santa Barbara and tri-counties
- UC system
- State of California

Timeline: Project is in progress, and will extend into an intermediate and long-term goal.

1.6.5 Intermediate Goals (1-5 years)

These goals are in addition to all the above short-term goals that will in many instances be continuous efforts. As time progresses, intermediate to long-term goals will be re-evaluated and edited to ensure fluidity of process.

Goal 1: Electronic Commerce

Sub-Goal 1: Catalogs (full elimination of decentralized hard copies).

Action Items

Action 1: Expand catalog base to cover 100% of Strategic Sourcing vendors.

Action 2: Improve vendor website for non-strategic sourcing vendors and increase utilization.

Action 3: 100% phase out of hard copy catalogs where feasible.

Sub-Goal 2: Pilot e-commerce system(s) for campus.

Action Items

Action 1: Integrate existing processes into new system.

Action 2: Roll out training and new system to campus.

Sub-Goal 3: FlexCard.

Action Items

Action 1: 100% of departments will utilize FlexCard.

Action 2: 75% of Low value purchasing will be done using FlexCard.

Action 3: 100% of strategically sourced commodities will be purchased using FlexCard.

Sub-Goal 4: E-signatures.

Action Items

Action 1: E-signatures will be feasible for 100% of campus forms.

Sub-Goal 5: Campus-specific e-bay/reuse of surplus (sharing system).

Action Items

Action 1: Develop web option for campus sharing (excess equipment, unused supplies)

Sub-Goal 6: Website.

Action Items

Action 1: Continually review and increase the integration of websites between campus, Business Services.

Action 2: Purchasing, Sustainability, UCOP and vendors.

Sub-Goal 7: Staffing and resources

Action Items

Action 1: Add a 1.0 FTE Strategic Sourcing Manager position to the Business Services/Purchasing staff.

Action 2: Add additional support staff as needed for web programming.

Sub-Goal 8: Commodities.

Action Items

Action 1: Benchmark and expand upon short-term objectives.

Action 2: Continually develop and utilize sustainability criteria for all commodity categories:

- Work within Strategic Sourcing Master Plan to identify priority commodity categories.
- Identify strategic categories based upon ecological, social, and economic impacts.
- Create working database of Sustainability criteria for web posting for RFP, contractual utilization.
- UC system-wide working committee to ensure implementation of Sustainability goals for business processes.

Action 3: Reporting and benchmarking:

- For new and existing agreements, collect spend data quarterly for EP commodities.
- Measure spend volume vs. energy usage, waste disposal, etc. to gauge campus operational savings.
- Create energy usage vs. space utilization matrix.
- Increase utilization of EP options.

Sub-Goal 9: Policy/education and outreach.

Action Items

Action Item 1: Continuous improvement and utilization of matrix, criteria, and guidelines for more sustainable procurement.

- Emphasis on vendor selection/qualification.
- Increase quality points weighting for sustainability by a minimum of 15%.

Action Item 2: Firm alignment of goals for strategic initiatives and engagement of Sustainability goals at all levels in firmly established UC policy.

- System-wide Vice President of Financial Management.
- Campus Material Managers.
- Strengthen Departmental understanding of sustainability goals.
- Clarity and standardization of requirements and processes.

Action Item 3: Green marketing

- Signage and visual schematics (sustainability logo).

Action Item 4: 100% interface of logo with sustainability projects

- Integrate Environmentally Preferable purchasing programs with logo across UC system.
- Monthly press release/outreach event on campus sustainability efforts.

Action Item 5: Manufacturing take-back and recycling programs

- Implement “universal” take-back program.

Action 6: Ease of use and at no additional cost to UC

Action 7: Program to include existing equipment.

Action 8: Vendor reporting for all reclaimed equipment.

Action 9: Travel

- Increase video conferencing by 75%
- Increase ride-sharing and vanpooling for intercampus travel

1.6.6 Long Term Goals (5-10 and 10-20+ years)

Long-term goals are still in development and will largely be shaped by the outcomes of our short to intermediate goals, as well our vision for full campus sustainability. At this time, we have a small set of long-term goals for campus procurement operations.

Goal 1: Electronic commerce

Fully integrated and implemented electronic commerce system between departments, campus, UC system-wide, and vendors.

Goal 2: Commodities

Sub-Goal 1: International standards for Environmentally Preferable purchasing

Action Items

Action Item 1: Tier rating system, perhaps based off of the U.S. Green Building Council’s LEED model

Action Item 2: Scientifically based, neutral oversight of standards development

Action Item 3: Effective controls for validity of environmental criteria

Action Item 4: Internationally recognized logo

Sub-Goal 2: All product inputs into the University of California are compliant with EP standards:

- Recyclable
- Reusable
- Biodegradable
- Capable of being refurbished
- Effective end of life programs

Sub-Goal 3: Zero waste output from University locations

Sub-Goal 4: UC wide reuse of surplus sharing process, perhaps modeled after eBay

Goal 3: Policy/education and outreach

100% UC wide implementation of sustainability practices in UC business and investment strategies

Barriers

The following are a list of possible barriers to implementation. These items can be viewed not as road-blocks, but as detours on the path to a final destination:

- Funding
- Buy-in across a decentralized campus and UC system
- Duplication of efforts: reinventing the wheel
- Communication
- Time
- Apathy/ inadequate education/awareness
- Lack of incentives
- Risk-adverse environment
- New learned behavioral changes: resistance to change
- Conflicting messages: inconsistency of understanding surrounding sustainability

1.7 TRANSPORTATION

1.7.1 Current Sustainable practices

The UC Santa Barbara campus has a Transportation Alternatives Program (TAP) that was developed to provide alternative commuting options for UC Santa Barbara faculty, staff, and students. TAP strives to conserve energy, reduce campus parking demand, ease traffic congestion, reduce air pollution, and reduce the campus community's contributions to global warming. There are several reasons to join TAP:

Staff and Faculty Benefits:

- Pre-tax payroll deduction for vanpool subscriptions and carpool permits
- Access to the Carpool Match Service twenty-four hours per day
- Half price MTD bus passes
- Access to In-Vehicle Parking Meter Technology tailored to allow the use and accumulation of 57 courtesy hours of parking per quarter
- Automatic enrollment in the "Emergency Ride Home Program"
- Chance to win a \$50 gift certificate for the UC Santa Barbara Bookstore

Student Benefits:

- Students living farther than two miles away from campus that commute to campus by bike, bus, vanpool or carpool are entitled to six courtesy days of parking per quarter.

For more information please visit: http://www.tps.UCSB.edu/TPS_services.htm.

Current Mode Split: According to the 2006 campus survey of UC Santa Barbara's mode split, staff and faculty commute to campus in this manner: 64% drive alone to work; 14% carpool, 9% bicycle; 7% take

public transit; 3% vanpool; 1% walk; and 1% use a motorcycle. This is below the California average of 72.4% who commute in single occupancy vehicles (2000 Census).

Responsible Repair and Maintenance: In 2003 UC Santa Barbara's Transportation Fleet Services division became recognized as a Model Pollution Prevention Vehicle Service and Repair (VSR) Facility by the California EPA Pollution Prevention Program.

For more information: http://www.dtsc.ca.gov/PollutionPrevention/VSR/VSR_P2Model.cfm.

Tire Retread Program: UC Santa Barbara Transportation utilizes a tire recap process whenever possible to reduce waste. This is a program that takes our heavy duty used tires and retreads them to be reused in our fleet.

Emissions Tracking: UC Santa Barbara Transportation Services collects emission data and certifies their CO2 emission with the California Climate Action Registry. For more information on the California Climate Registry please see: www.climateregistry.org.

Alternative Fuel: UC Santa Barbara Transportation Department is responsible for maintaining the entire campus fleet. The campus owns 386 vehicles and out of those, 19.25% are alternatively fueled. By purchasing alternative fuel vehicles, UC Santa Barbara can significantly reduce the emissions produced in vehicular travel. Transportation Services operates:

- 18 CNG vehicles which lower our dependency on foreign oil and produce very little air pollution
- 50 low-speed electric vehicles; many of which took the place of full function gas vehicles.
- One full function electric car that has solar panels to help charge the batteries.
- Five Hybrids vehicles: four Toyota Priuses and one Ford Escape.

Transportation Services assisted in bringing together Biodiesel Industries and the Dining Commons, UCen, and Faculty Club to create a program where all the used cooking oil is converted into biodiesel. Biodiesel Industries picks up the oil from campus in a truck that runs on B100 fuel.

1.7.2 Mission Statement

Transportation at UC Santa Barbara shall evolve to meet the needs of the campus culture and actively address environmental issues relevant to transportation to ensure the quality and long-term survival of all life on Earth.

1.7.3 Short Term Goals (0-1 years)

Goal 1: Facilitate voluntary Greenhouse Gas Offsets purchases from Driving Green (www.drivinggreen.com) for parking permits ordered on-line through UC Santa Barbara's Transportation and Parking Services.

Action Items

Action 1: Get buy-in from UC Santa Barbara's TPS to agree to place a link on their website.

Action 2: Convince the administration that these offsets are valid and transparent.

Action 3: When the current permit vendor contract with I-Parq expires, incorporate emission-offset language into the next RFQ.

Barriers

There is a lack of community and campus knowledge of climate change and mitigation/ reduction efforts. The Sustainable Transportation Group plans to network with other change agent groups to develop an educational piece for climate change and emissions. The Group will also work with TAP to get climate change as an agenda item for future meetings.

Another barrier is I-Parq's unwillingness to sponsor a third party business on their website.

Cost: Staff time to put link onto TPS website.

Timeline: Begin October 2006 and complete by February 2007.

Goal 2: Include minimum mandatory bicycle parking access in all Capital improvement projects to improve bike network and encourage added bike riders.

Action Items

Action 1: Write up draft policy

Action 2: Submit policy for review and recommendations to Campus Planning & Design and Design and Construction Services.

Action 3: If policy passes, integrate the policy into all building plans and find out what proper documentation and information is needed for the Campus Planning & Design and Design and Construction Services.

Action 4: Work with TAP and AS Bikes to collaborate on bicycle/commuting/parking/etc. and develop a wider distribution of bike and transit maps across campus

Barriers

Barriers to this goal include a cost increase to projects by including bike parking; limits to available square footage for bicycle parking due to space allotments for other infrastructure; and adequately convincing the Campus Planning Committee to accept the idea and make a policy.

Timeline: Begin in October 2006 and complete by June 2007.

1.7.4 Intermediate Goals (1-5 years)

Goal 1: By 2011, 75 percent of campus fleet purchases will be fueled with alternative fuels³ or ultra efficient vehicles⁴.

In 2005, the fleet produced 1,174 metric tons of CO₂ which represents 2% of the campus total. In addition, the fleet produced significant quantities of other greenhouse gases and pollutants. Implementing this fleet purchasing goal over the next five years will significantly reduce the CO₂ and other greenhouse gas emissions produced by the campus fleet, as well as contribute to a healthy local air quality. This goal will

³Alternative fuel vehicles are defined as: hybrid, CNG, Ethanol 85, hydrogen, electric, or Bio-diesel (minimum of B20) vehicles.

⁴ Ultra efficient vehicles are defined as achieving 30 MPG or greater and satisfying the Super Ultra Low Emission Vehicle (SULEV) standard.

also support the alternative fuel vehicle market and reduce the campus' dependence on fossil fuels.

The goal target of 75% was established to coincide with the Department of Energy's Energy Policy Act fleet goals. These state that as of 2001, 75% of all State fleet purchases of light-duty vehicles shall be alternatively fueled. (www.eere.energy.gov/vehiclesandfuels/epact/about/epact_fuels.html).

Action Items

Action 1: Ethanol: UC Santa Barbara purchases 10 to 20 new vehicles each year. With the option of new Flex Fuel (FF) technology, the campus can purchase FF vehicles and continue to use regular gasoline in those vehicles until an E85 fueling station can be installed. The same holds true for vehicles with diesel engines since these vehicles are also capable of supporting FF technology, which will similarly enable them to be run on biodiesel when a station is installed. The first Action Item is to develop a fleet purchasing policy and obtain approval from Transportation Directors and Associate Vice Chancellor of Facilities Management. A draft fleet purchasing policy is included as Appendix D. The Transportation Department will continue to execute research and testing of new technologies and will educate campus departments on the "green" options available for new vehicle purchases.

Action 2: Existing and other alternative fuel:

- Collect and maintain better data on our Alternative Fueled fleet.
- Educate and promote alternative fuel on campus by: distributing newsletters to departments that own vehicles, working to keep the perception of alternative fuel positive, and encouraging departments to purchase alternative fuel vehicles.
- Chart course for a clear alternative fuel plan. This will allow for grant opportunities to support plan.
- Capitalize on the experience we have gained from managing our current CNG fleet. Honda Motor Co. and others think that CNG is the bridge to a hydrogen economy, since "hythane" (80% CNG and 20% H₂) vehicles show promise. Look into the possibility of a CNG H₂ blending station.

Barriers

Currently, the most significant barrier is market development. While there is no additional cost associated with purchasing FF vehicles, not all vehicle models are available with this option. The Transportation Department predicts that more vehicle models will come out with FF and FF hybrid options in the next few years. A second barrier is the present lack of a certified fuel dispensing system for E85. However, the California Air Resources Board has tested various systems and is in its final evaluation phase.

Cost: There is no additional cost associated with purchasing FF vehicles. In three years, when the fleet has a significant number of FF vehicles, the Transportation group will examine the feasibility of installing an E85 fueling station.

Funding for additional infrastructure poses a potential barrier. As new vehicle technologies arise, a new fueling station and added infrastructure will be necessary. The Sustainability Transportation Group has some ideas for potential funding strategies:

- Apply for grant funding
- Agree on a compromise where identified campus departments fund 50% and Transportation Services funds 50% of the cost for new infrastructure.
- Campus donations, from alumni and other constituents
- Funding from the Campus Sustainability Plan
- The Green Initiative Fund (TGIF)

Timeline: Begin October 2006, conduct a progress check in October 2007, and fully achieve this goal in 2011.

Goal 2: The Campus will work towards no net growth in campus parking spaces beyond 2006 levels.

Action Item

Action 1: Determine 2006 parking levels

Action 2: Measure proposed campus growth (5,000 new students over the next 15 years plus additional staff and faculty to accommodate this growth)

Action 3: Determine the parking need for this growth at current mode split

Action 4: Determine parking surplus for 2006

Action 5: Determine and quantify how TAP will accommodate the projected campus growth to assist in the reduction of campus parking space needs

Action 6: Work with LRDP Committee to insert this goal into the LRDP

Action 7: Work with LRDP Committee to increase affordable housing close to campus.

Barriers

Approximately 65% of the campus FTE's drive alone to work. More TAP programs and alternatives to driving a car will need to be developed in order to make this goal feasible.

Cost: Significant data collection will be necessary in order to determine a cost for this goal, including additional costs for TAP and revenue lost by not installing new parking. Because of the huge parking subsidy from the university, we expect a net negative cost in the long-term.

1.8 WASTE

1.8.1 Current Sustainable Practices

Recycling Programs Main Campus- The practice of reducing, reusing and recycling has been in effect at UC Santa Barbara for over two decades. Many of the campus' recycling efforts have been in place long before the passage of the State Legislature bill AB75, which required every large State agency to reduce landfill contribution by 25% by the year 2002 and by 50% by 2004. Both goals of these goals have been achieved.

The Main campus recycling program consists of partnerships between building occupants, Facilities Management, and the Associate Students Recycling program. These efforts combine to provide a large component of the recycling for the campus. All offices on campus have trash and office pack recycling. There are 73 recycling clusters strategically located across campus that act as convenient repositories where many types of materials can be recycled in the same place. The recycling clusters accept glass, newspaper, aluminum, and plastic. The clusters are maintained by AS Recycling, which is responsible for taking the recycled items by bicycle to the main recycling dumpster for Marborg (local trash provider) to pick up. In addition to these clusters, thirty-eight large cardboard recycling dumpsters, one super pack dumpster for recycling books and magazines, one 40-yard metal recycling roll-off, and a collection site

for shipping pallet drop-off, pick-up, and reuse serve the campus community. Please see Appendix E for a map showing the locations of all recycling bins on campus.

Other waste, such as green waste, is turned into mulch off-site and returned to the campus grounds in landscaping. For detailed information about recycling and waste management on campus please see the following websites:

<http://facilities.UC Santa Barbara.edu/projects/recycling/>

<http://www.as.UC Santa Barbara.edu/recycling/>

Current successful practices in this area include:

1. Campus-wide waste audits and on-going measurement and verification
2. Campus Green Awards to recognize departments with exemplary recycling programs
3. Outreach to local grade schools and colleges
4. E-waste collection bins that are moved in cycles to acquire small e-waste from building

Housing Recycling Program & Food Waste Reduction Program- Housing & Residential Services recycles all dormitory and office solid waste as co-mingled materials (plastic, glass, aluminum, office pack), and also recycles electronics, used clothing, batteries, scrap metal, large appliances (refrigerators, stoves/ovens), and motor oil. The dining commons recycles used cooking oil which is converted to bio-diesel, and composts up to 90% of the vegetable waste and coffee grounds on-site. In some years over 100,000 pounds of kitchen waste have been diverted from landfills. At the end of the academic year and during renovations, furniture, mattresses, construction and demolition material, asphalt, concrete, packaging material, fluorescent light bulbs, ballasts, and all hazardous waste are sorted and recycled appropriately.

The success of the recycling programs at Housing is partially due to effective educational outreach. For the past ten years, H&RS has conducted a “Waste Awareness Week” campaign in the halls and dining commons during student move-in week. The program educates students about the goals and practices of the H&RS recycling program and addresses questions regarding what items can be recycled in the halls and how to reduce food waste in the dining commons.

Current successful practices in this area include:

1. Extensive recycling program (that links back to the AS/FM program)
2. Education and outreach programs for “move-in” and “move-out”
3. Recycling contests between residence halls which use friendly competition to encourage positive awareness of recycling habits and waste prevention methods

Hazardous Materials Program- Environmental Health & Safety's Hazardous Materials Program assures compliance with all Federal, State, and local hazardous waste regulations through education, campus cooperation and implementation of practical and efficient policies while providing a cost-effective hazardous waste management program that protects the environment. Materials managed by EH&S includes chemicals, biohazards, radioactive materials and electronic waste such as batteries and lamps.

Current successful practices in this area include:

1. Free pick-up and transportation of waste materials from research laboratories to EH&S facilities
2. Specialized facility designed for proper handling and sorting of hazardous materials
3. On-going measurement and verification
4. Campus training and education
5. Adopt-a-Chemical Program

Construction Waste Management Program- Construction waste management on all new construction and major renovation projects must abide by the Division 1 Construction Waste Management Plan. The success of this plan is considerable, with a 90-98% diversion rate maintained over the past four years.

1.8.2 Mission Statement

Reduce and ultimately eliminate waste streams on the campus with the ultimate goal of a net zero waste campus through implementing “cradle to cradle” processes and practices.

To reduce the waste generated on campus every year by encouraging more sustainable purchasing, greater recycling, and decreased output of waste heat and greenhouse gases according to the dictates of Natural Step system.

1.8.3 Long Term Vision

The vision of this group is to create a net zero waste campus and to generate enough money from the Campus’ waste to fund waste recovery and reuse project costs and research that will aid in further gains. **Zero Waste** expresses the need for a closed-loop industrial/societal system - waste is a sign of inefficiency. The use of the term Zero Waste includes "Zero Solid Waste", "Zero Hazardous Waste", "Zero Toxics" and "Zero Emissions". Zero Waste promotes not only reuse and recycling, but also, and more importantly, promotes prevention of waste generation - designs that consider the entire product life cycle. These new designs will strive for reduced materials use, use of recycled materials, the use of more benign (less toxic) materials, longer product lives, repairability, and ease of disassembly at end of life.

The term “**net zero waste**,” (what remains after all deductions have been made) implies that there will still be some quantity of waste we still need to address in 25 years. We expect that there will be some mitigation measures that will have to be taken to off set the differential.

1.8.4 Short Term Goals (0-1 years)

Goal 1. Characterize waste on campus.

Action Items

Action 1: Characterize and analyze existing campus data from the following points:

- a. Associated Students/Physical Facilities (AS/PF)
- b. Grounds
- c. Housing & Residential Services (H&RS) (Dining & Food services included in this)
- d. Design & Constructions Services Construction Waste (DCS)
- e. University Center (UCen)
- f. Water Management Team
- g. Environmental Health & Safety (EH&S)
- h. Central Stores/Business Services
- i. Physical Facilities/Campus Climate Neutral 2 Group Project
- j. Transportation
- k. Student Health

Action 2:

- l. Study/analyze the next step in the chain –where our recycling goes
- m. As part of plan, identify reduction targets of 5-10% in waste (taking campus growth into account)
- n. Target other “simple” improvements that can be made based on #5 above

- o. Craft short- and long-term plan along with cost-benefit analysis for implementation. Present plan to CPC subcommittee on sustainability for implementation

Barriers

Data collection

Disparate reporting practices

Costs: Staff Time (best guess 40 hrs)

Start: Summer 2006

Finish: Winter 2006 / 2007

Gaps in data collection systems will be assessed and tracking systems will be modified to accurately account for these items and to consolidate data and characterize it to see where the biggest impact in reductions can be made in the first year. Part of this process will be to evaluate the waste stream with regard to the parameters of the Natural Step system.

Goal 2: Determine applicable regulatory framework.

Action Items

Action 1: Find and meet with experts in each area:

- a AB75
- b California Integrated Waste Management Board
- c Air Pollution Control District (South Coast SB)
- d EPA
- e UCOP
- f UCSB via USGBC (LEED system adopted by Chancellor)

Barriers

Regulatory Complexity (This is a barrier because each group or law may have multiple / conflicting goals and jurisdictions).

Costs: Staff Time (best guess 80 hrs)

Start: Summer 2006

Finish: Summer 2007

Barriers

Regulatory complexity may pose a barrier if some frameworks have conflicting goals and jurisdictions.

Goal 3: Set Waste Goals based on available data and regulatory requirements using the parameters of the Natural Step.

Action Items

Action 1: Set targets for percent reductions with constituents.

Barriers:

Data Formatting (This is a barrier because each campus unit may be reporting different types of things, and it will be important to bring the data into some form that is consistent and readable.)

Staff Availability

Costs: Staff Time

Start: Winter 2006 / 2007

Finish: Summer 2007

Goal 4: Perform year-end evaluation.

Action Items

Action 1: Submit an annual year-end evaluation report of campus waste programs that uses the most recently collected data to re-examine and update goals, action items, barriers, and costs.

Barriers

Staff time and easy access to data

Costs: Staff time, approximately 20 hours

Timeline: Begin October 2007 and complete by November 2007.

1.8.5 Intermediate Goals (1-5 years)

Goal 1: Create the UC Santa Barbara Waste Management Plan.

- a. Work with Grounds Team and CCBER staff to assist them with improving practices on green waste to assess current practices and brainstorm ideas for improvements
- b. Work with Procurement team on printed material (catalogs received) reduction of 50%

Goal 2: Hire a consultant to study waste heat recovery and offer recommendations.

Goal 3: Create Laboratory Waste Protocols by working with EH&S and LABRATS (Lab Research and Technical Staff).

Goal 4: Water/Waste Water:

- a. Work with Physical Facilities, H&RS, EH&S and Water Team to craft short- and long-term plan for improving the quality of storm water/waste water/sea water systems

Goal 5: GHG:

- a. Study and implement campus emissions and craft short- and long-term plan for implementing reductions air pollution (set target reductions)

Goal 6: Working with the Procurement Team implement changes in systemwide agreements:

- c. Craft plan and strategy to implement packing reductions and equipment/furniture/ and chemical take backs programs
- d. Craft plan to increasing post-consumer product offerings

Goal 7: Complete a “close the loop-study”

- a. assess ways to partner with individuals, companies, NGO’s to create next step in the process for re-use of our waste – create incentives for research in this area

1.8.6 Long Term Goals (5-10 and 10-20+ years)

Goal 1: Extend chilled water loops to all campus buildings to decrease the quantity of wastewater generated when cooling buildings.

Goal 2: Continue to work on emissions reductions.

- b. Implement clean fuel strategies for generators
- c. Work with Transportation Services for clean/alt fuel fleet implementation
- d. Waste heat recovery implementation

Goal 3: Implement findings from Intermediate Goal # 2 in new construction protocols.

Goal 4: Continue to implement microchemistry, a process whereby a lesser amount of fluid or chemical is used to conduct tests.

Goal 5: Continue to work on Stormwater Quality Plan, which outlines measures to ensure all water leaving campus site is be pollutant-free.

Goal 6: Continue work with Food group to fully implement food waste reduction program which stipulates a 50% reduction in food waste in 5 to 10 years, an 80% reduction in 10 to 20 years, and a 100% reduction in 20 to 25 years.

Goal 7: Implement findings from #1 above and create profitable way of dealing with our waste

Goal 8: (5-10 yrs) 50% reduction in total weight (per capita) of campus waste

Goal 9: (5-10 yrs) Identify and remove or replace the most environmentally problematic waste leaving campus

Goal 10: Study ways to eliminate balance of waste from the campus – create implementation plan

Goal 11: (10-15 yrs) 80% reduction in total weight (per capita) of campus waste

Goal 12: (20-25 yrs) 95% reduction of total weight of campus waste

Goal 13:(25-30 years) 100% reduction of total weight of campus waste

1.9 WATER

1.9.1 Current Sustainable Practices

Water Efficiency

UC Santa Barbara began implementing water conservation strategies in response to droughts in the early 1980's. Since that time, water efficiency has been factored into project planning at the earliest stages. Customary water saving strategies in campus buildings includes incorporating low-flow faucets, flush valves, and showerheads that significantly reduce water usage. In 2001 the campus began installing waterless urinals and dual flush toilets to reduce water use even further. The campus also has ongoing measurement and verification of campus water use. Please see indicator spreadsheet for metrics.

With the Clean Energy and Green Building Policy in place, all new construction at UC Santa Barbara strives to achieve LEED Silver, which has five possible points in the Water Efficiency category. In 2003, the Sustainability Working Team completed an assessment of LEED-NC and recommended that all five points in the water category should be pursued as campus standard. This would diverge from the LEED process in that typical LEED registered projects are not required to receive all five water points, and are instead allowed to choose any level of water efficiency.

The LEED-NC Water Efficiency points are:

- Water Efficient Landscaping – reduce by 50%
- Water Efficient Landscaping – No potable water use or no irrigation
- Innovative Wastewater Technologies

- Water Use Reduction - 20% Reduction
- Water Use Reduction - 30% Reduction
- Water Use Reduction - 40% Reduction

Landscaping and Irrigation

UC Santa Barbara has been using reclaimed water to irrigate the campus grounds since 1994. Currently, reclaimed water for irrigation reaches approximately 93% of campus. The campus has also invested in an automated irrigation system that is controlled by a weather station located on campus. The controls automatically notify the weather station on the status of evapotranspiration levels at various locations on campus. The landscaping is only irrigated when these levels are low to avoid over-watering plants when it is unnecessary. Plans include capturing the balance of the campus irrigation system with reclaimed water within the next 2 fiscal years. In addition, UC Santa Barbara grounds department uses drought tolerant native/adaptive plants and trees, such as ceanothis, lantana, and tipuana, which use little water and require minimal maintenance to reduce the campus' water requirements from the outset.

In addition, Housing has an existing water conservation plan which outlines several ways to reduce water use, including reduction in turf, incorporation of recycled water, and advanced central irrigation programs.

Water Quality

The campus has a general stormwater control plan. For the past seven years, the campus has maintained fossil filters in most construction projects. With the practice of achieving LEED Silver on all new construction projects, there is a requirement for site protection that requires all projects to use filters, hay bails, and tarp materials to keep particulates from exiting the site. There are approximately 50 or 60 fossil filters currently in place. Stormwater planning is approached in two ways. On a small scale, each construction project is required to plan and implement a stormwater system that feeds into the larger campus system. The second level is planned on a campus-wide scale. The main campus has been divided into four zones to address end of source treatment. The areas identified for this process are the slough on the north side, the lagoon on the south side, wetland and bioswale on the west side, and the ocean bluffs on the east and west sides. The end of source treatment will remove solids and debris. Physical Facilities also cleans all road and parking lot surfaces on a weekly basis to improve the water quality exiting the campus.

1.9.2 Mission Statement

The Water group will provide the campus with leadership and guidance for sustainable water use by:

- Working closely with PF/CCBER/H&RS on planning and implementing water conservation measures and a water management plan.
- Updating standard campus procedure to include achieving all LEED-NC and LEED- EB points under the Water Efficiency category.
- Providing information about water use and its global environmental impact to campus constituents.
- Revisiting campus water contracts to see where improvements can be made in the short- and long-term.
- Assisting with water related policy creation and implementation.
- Coordinating with Landscape group to ensure plants used on campus have minimal water needs.
- Coordinating with the Academics and Research group to see where water issues can be integrated in the curriculum. Propose “plants as a learning lab” approach to using campus landscaping and grounds as a teaching tool.
- Coordinating with the Procurement group to see where we can improve purchasing practices regarding water efficient supplies and equipment.

- Coordinating with the Waste group to address “best lab practices for microchemistry” to reduce water use.

1.9.3 Long Term Vision

All potable water will be garnered from within the campus footprint for first use, re-processing, and re-use. All stormwater will be treated onsite to ensure it exits the site in an unpolluted state. All seawater used on campus will re-enter the marine environment in a non-invasive state to negate the impact on local marine life. This will require that the water is unpolluted and at an appropriate temperature.

1.9.4 Short Term Goals (0-1 years)

Goal 1: Gather and assess missing data for three water types: potable, reclaimed, and stormwater.

Action Items

Action 1: Complete gap analysis by reviewing water metering data and water indicators to determine where information is lacking (i.e. west camps, apartments, FT, reserves, stormwater).

Barriers

Barriers include disparate sources of data collection, and the possibility that points data isn't currently metered.

Cost: Staff time

Timeline: Begin fall 2006 and complete by the end of winter 2007.

Goal 2: Make recommendations for information tracking systems and assess additional metering needs for monitoring water use of all types

Action Items

Action 1: Create a list of metering systems that must be installed to accurately collect water data.

Action 2: Identify software required to improve data collection.

Barriers

Barriers include staff time and lack of information.

Cost: Staff time; Funding for additional sub-metering may be required and there will be expenses associated with their purchase and installation. A rough estimate of \$1000 per meter is reasonable, however the quantity of meters that will be required is unknown at this time. Additionally, additional software may be required to assist in the collection and retention of data which will add further costs.

Timeline: Begin March 2007 and complete by June 2007.

Goal 3: Work with the Campus Sustainability Manager to implement campus standard for LEED-NC and LEED-EB to achieve all available points in the water category.

Action Items

Action 1: Meet with the Sustainability Manager to review LEED-NC and LEED-EB Water Efficiency category and begin assessing the challenges to making the implementation of these points a standard.

Timeline: Begin fall 2006 and complete by spring 2007, with a list of recommendations ready to present to the CPC by January 2007.

Action 2: Present information and recommendations to the CPC.

Timeline: Present to the CPC in January and respond to any questions or concerns by March 2007.

Action 3: Create a document of CPC recommendations and submit to the Chancellor for implementation.

Timeline: Present the recommendations to the Chancellor by the end of spring 2007.

Barriers

Unknown until discussions begin.

Cost: Staff time

Goal 4: Provide water consumption data from campus metering to the public via the Sustainability website located at www.sustainability.ucsb.edu.

Action Items

Action 1: Set up beta site for water information on the web.

Barriers

One barrier is possible time constraints on the part of Computer Network Technologists.

Cost: Staff time

Timeline: Begin in fall 2006 and complete by January 2007.

Goal 5: After data is collected and assessed, update the reduction targets, budget for achieving these goals, and goals for reclaimed water use. Reduction targets for potable water are listed below.

Action Items: Work with constituency groups to review data we are able to collect and set targets for reductions.

Barriers

Barriers include availability of constituency group members.

Cost: Staff time

Timeline: Begin March 2007 and complete by June 2007.

1.9.5 Intermediate Goals (1-5 years)

Goal 1: Create a water management plan.

Action Items

Action 1: Use the information collected in year one and work with constituency groups to craft a 1-5 year water management plan for the campus. Revision of this plan will become an Intermediate goal.

Barriers

Availability of constituency group members and the possibility of divergent interests are potential barriers.

Cost: Staff time

Timeline: Begin in March 2007 and complete by September 2007.

Goal 2: On an annual basis, conduct a reassessment of goals based on the findings of studies completed the prior year. This would include reporting on interconnected goals with the Landscape team, the Academics & Research team, and the Waste team.

Action Items

Action 1: Complete an annual report by the end of August each fiscal year. Review data to see where we can make the most cost-effective improvements. On an annual basis, make recommendations to the appropriate committee in fall quarter.

Barriers

Staff turnover and organizational structure are potential barriers.

Cost: Staff time

Goal 3: Hire a consultant to perform a hydrologic feasibility study of the campus.

Action Items

Action 1: Hire a consultant to perform a study of the campus, including these critical issue areas:

- Determine if it is feasible to collect enough water within our 1,000 square acres to supply the campus with adequate water for its operational needs.
- Assess feasibility for water collection system and identify best locations.
- Identify best locations (most efficient space use) for bioswales.
- Assess feasibility of capturing ground water (the water moving laterally across the campus) for use (and that our collection of this water will not negatively impact the ecosystem).
- Conduct feasibility study of capturing ground water currently being pumped off site from under Bren Hall and the Psychology Addition. Assess the condition of this water and our ability to cost-effectively re-use it on site.
- Assess collection of end of point bioswale water for re-use on campus.

Barriers

Potential barriers include: water quality issues; existing conditions underground (old tanks etc); lack of funding for the study; and unknown legality issues in various proposed projects.

Cost: A rough cost estimate for this goal is \$150,000.

Timeline: Begin in winter 2008 and complete by fall 2008.

Goal 3: Reduce potable water use from off campus by 15% (1-3 yrs) and 25% (3-5 yrs). Increase reclaimed water use by 15% (1-3 yrs) and 25% (3-5 yrs). Work with PF/UCen/H&RS/CCBER on implementing water efficiency strategies for the campus based on the new water management plan.

Action Items

Action 1: Set work with constituency groups for the year along with cost estimates. Meet with appropriate Senior Management personnel to gain their approval of proposed budgets for implementation of upgrades and modifications.

Barriers

Funding may be an obstacle to achieving this goal. Political structure and boundaries may also pose barriers.

Cost: Actual cost will vary by fiscal year as list is identified

Timeline: Each year will begin July 1 and conclude December 31; the assigned reduction in potable water use will occur within this time frame on a yearly basis.

1.9.6 Long Term Goals (5-10 and 10-20+)

Goal 1: Reduce potable water from off campus use by 50% (10-15 yrs) – provide 50% of our potable water from on-site generation (10-15 yrs)

Goal 2: Reduce potable water from off campus use by 75% (15-20 yrs) – provide 75% of our potable water from on-site generation (15-20 yrs)

Goal 3: Reduce potable water from off campus use by 90% (20-25 yrs) – provide 90% of our potable water from on-site generation (20-25 yrs)

Goal 4: Reduce potable water from off campus use by 100% (25-30 yrs) – provide 100% of our potable water from on-site generation (25-30 yrs)

2.0 SUSTAINABILITY PLAN METRICS

In conjunction with the preceding goals, the Change Agents have developed indicators to track their progress. A good indicator is one that is up-to-date, accurate, easy-to-understand, quantifiable and relevant to the teams' goals. Without indicators, campus constituents would have inaccurate and incomplete understanding of the degree to which the plan's sustainability goals are achieved. Each Change Agent group has developed several indicators that will accurately reflect the progress of their goals and showcase their achievements. Since the Campus Sustainability Plan is a living document, the progress in these indicators and development of new ones will help guide the evolution of Change Agent group goals. A spreadsheet of additional metrics will also be used to guide the implementation of future sustainability goals. See appendix F for the spreadsheet.

The plan strives to provide the most accurate and up-to-date information for these indicators. All updates will be performed annually where possible or as regularly as the nature of the data collection allows. Some of the indicators currently have incomplete data for several reasons. Some data is difficult to collect and Change Agent groups are attempting to "catch up"; other data has not been captured in the past, the collection must begin now. Some data falls into both of those categories. For instance the Academics and Research group has made data collection a goal in itself because data does not currently exist and will require considerable time and effort to gather.

A group of graduate students at the Bren School of Environmental Science & Management is working with the Sustainability Program at UC Santa Barbara to create a prototype of a Geographical Information System (GIS)-based environmental monitoring system that will track indicators at designated temporal and spatial scales. This is unique in that most campuses track indicators by time, lumping numbers into a value for the entire campus. By utilizing a GIS, indicator data will be disaggregated to show both spatial and temporal patterns of resource use. This will then allow UC Santa Barbara staff to better monitor and

report campus sustainability performance, as well as make more informed decisions linked to specific sustainability goals.

You may notice some similar and identical indicators among the groups. This does not reflect redundancy but instead shows synergy among different Change Agent groups. The development of these goals and indicators showed many of the groups how their particular specialties work together and how they will depend upon one another to reach their goals.

Academics and Research

- 1. Percentage of faculty population capable of finding resources on bringing sustainability into curriculum⁴.** The Change Agents continue to develop ways to help faculty integrate sustainability into their curriculum. These efforts would amount to nothing unless faculty can find and utilize that information.

	2004-2005	2005-2006	2006-2007	2007-2008
Percent of faculty who can find sustainability resources	Unknown	Unknown		

- 2. Percentage of students capable of finding courses on sustainability.** UC Santa Barbara offers an increasing array of courses related to sustainability. Their popularity and enrollment depends largely on awareness of the student body.

	2003-2004	2004-2005	2005-2006	2006-2007
Percent of students who can find sustainable classes	19.86%			

- 3. Number of Research Laboratories which have voluntarily enrolled in the Laboratory Assessments for Research Sustainability (LARS) program.** Begun in spring 2006 in conjunction with the Geography Department and Campus Climate Neutral campaign, this program evaluates conservation practices and opportunities in laboratory operations.

	2005-2006	2006-2007	2007-2008	2008-2009
Number of labs in LARS program	6			

- 4. Number of faculty and researchers who are members of the Laboratory Research and Technical Staff (LabRATS) program,** which promotes sharing best practices around sustainability and lab management.

⁴ Gathering information for Academics and Research indicators is a goal of the group to be completed by summer 2007

	2005-2006	2006-2007	2007-2008	2008-2009
Faculty and re-searchers in LabRATS	8			

Built Environment

- 1. Square footage of LEED certified buildings; percentage of area of campus buildings that are LEED certified⁵.** UC Santa Barbara has a green building policy that mandates LEED for new construction and is currently pursuing certification on several existing buildings. This indicator should show marked progress to sustainable construction and operations of all campus buildings. We chose the LEED standard because it is a well-known, effective national standard for green building.

	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007
Square footage of LEED buildings	85,000	85,000	191,726	191,726	
Sq ft of LEED buildings as % of sq ft campus buildings total	2.58%	2.53%	5.58%	5.63%	

Energy

- 1. Total electricity use; electricity use per square foot⁶.** Although we do not see any of the pollution it creates, electricity use generates significant amounts of greenhouse gases and costs the university millions of dollars a year. Tracking electricity and natural gas use helps us track costs and environmental impact. Comparing this data against the campus' total building square footage indicates the efficiency of our buildings and the effectiveness of conservation efforts. Tracking these numbers is also necessary for tracking CO₂ emissions (see below).

	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
Total electricity use in kWh	72,355,752	62,879,121	61,482,028	61,078,289	63,729,176	65,328,854
kWh/sq ft building space	22.81	19.35	18.64	18.18	18.56	19.17

- 2. Total natural gas use; gas use per square foot.**

⁵ Includes LEED-EB and LEED-NC. Data courtesy of Perrin Pellegrin

⁶ Data for electricity and natural gas refers to State-funded buildings only and excludes housing and student- and Garamendi-funded buildings. Data courtesy of Jim Dewey and Ryan Schauland

	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
Total gas use in therms	2,538,643	2,385,464	1,942,212	1,882,154	2,146,836	2,251,948
kWh/sq ft building space	0.80	0.73	0.59	0.56	0.63	0.66

3. Total campus CO₂ emissions⁷. Energy use accounts for the overwhelming majority of campus greenhouse gas emissions. UC Santa Barbara joined the California Climate Action Registry in 2005 to document and certify its emissions. Data below is third-party certified and public record.

	2004	2005	2006	2007
Total campus CO₂ emissions by calendar year in metric tons	48,213	50,596		

Food-University Center

1. Pounds of waste composted; percentage of waste composted. Composting is a simple way to turn our waste into food for another system. In a time frame measured in just days and weeks, waste can be turned into healthy soil. The alternative route for green waste is disposal in a landfill where decomposition takes years and formerly clean organic matter is contaminated by other trash.

	2004-2005	2005-2006	2006-2007	2007-2008
Total weight of composted material in pounds	0	2400 (April 2006-August 2006)		
% of total waste	0	Unknown		

2. Percentage of biodegradable plastic vs standard plastic. Standard plastic is made directly from petroleum, often cannot be recycled, and almost never biodegrades. New, bio-based plastics are entering the market that can be composted, biodegrade quickly, and are manufactured from renewable sources.

	2004-2005	2005-2006	2006-2007	2007-2008
Total weight of bio-based plasticware	0	0		
% of total plasticware by weight	0	0		

⁷ Data by calendar year. Data includes emissions from electricity, natural gas, and all campus-owned transportation including marine vessels. Certified by RMAQ, recorded by California Climate Action Registry

- 3. Percentage of organic/local products.** Food systems use an incredible amount of resources. Local products require less shipping while organics are produced using fewer toxic and environmentally damaging inputs

	2004-2005	2005-2006	2006-2007	2007-2008
% of organic produce	0	5%		
% of organic dairy products	0	0		
% of organic meat, fish, and poultry	0	0		

Food-Housing and Residential Services

- 1. Pounds of waste composted; percentage of waste composted.**

	2004-2005	2005-2006	2006-2007	2007-2008
Total weight of composted material in pounds	400 lbs/day	1000 lbs/day		
% of total waste	~5%	~12%		

- 2. Percentage of biodegradable plastic vs. standard plastic.**

	2004-2005	2005-2006	2006-2007	2007-2008
Total value of bio-based plasticware	\$0	\$1386		
% of total plasticware by value	0	unknown		

- 3. Percentage of organic and “sustainable” products.** Sustainable products are those grown in Santa Barbara County and are “pesticide-free”. This is a very useful designation because many small growers lack the time and money to pursue organic certification.

	2004-2005	2005-2006	2006-2007	2007-2008
% of organic/sustainable produce	0	\$8,992 1%		
% of organic dairy products	0	0		

% of organic meat, fish, and poultry	0	0		
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Landscape

- 1. Percent landscape irrigated with reclaimed water.** UC Santa Barbara uses reclaimed water to irrigate the majority of campus. Reclaimed water costs the university just one-fifth as much as potable water, reduces pressure on fresh water resources, and requires less energy to pump and purify.

	2002-2003	2003-2004	2004-2005	2005-2006
% landscape irrigated with reclaimed water	80%	80%	92%	92%

- 2. Toxic pesticide use; percent of pesticide used that is non-toxic.** Through the use of integrated pest management and new, non-toxic pesticides, UC Santa Barbara has dramatically decreased the amount of toxic pesticide use. This indicator will track continued progress towards an organic campus.

	2002-2003	2003-2004	2004-2005	2005-2006
Gallons of pesticide	39	3	22	
% of pesticide used that is non-toxic	0%	0%	100%	

- 3. Percent of campus landscape planted with native or xeriphytic species.** Native plants are adapted to the local climate in Santa Barbara, making them appropriate vegetation for several reasons. Planting natives minimizes water use while mitigating habitat loss from development. They tend to be more resistant to disease, and require less maintenance. Where native plants are infeasible, xeriphytic (drought tolerant) plants can be used. While UC Santa Barbara will always maintain lawns for a variety of purposes, other areas can be dominated by drought-tolerant, native species.

	2004-2005	2005-2006	2006-2007	207-2008
% of campus landscape with native or xeriphytic planting	Unknown	Unknown		

Procurement

1. Percent of recycled paper products used. Recycling is a good practice, but buying recycled content is necessary to “close the loop”⁸.

	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
% of recycled paper products used	33.05%	38.6%	40.25%	40.84%	47.6%	50.6%

2. Percent of Energy Star appliances purchased. Buying high-efficiency appliances is one of the easiest and most cost-effective ways to save energy.

	2004-2005	2005-2006	2006-2007	2007-2008
% Energy Star appliances purchased	Unknown	Unknown		

Transportation

1. Total alternative fuel cars, percent of alternative fuel cars⁹. Alternative fuels decrease pollution and lower our dependence of foreign oil. UC Santa Barbara is phasing out many of its gasoline powered cars and trucks in favor of cleaner, safer options.

	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
Total alt fuel cars	22	22	40	60	63	67
% of alt fuel cars	8.70%	8.03%	13.94%	18.18%	17.85%	19.88%

2. Percent of faculty/staff who get to campus by alternative transportation¹⁰. Commuting is one of the biggest uses of fuel in the country. UC Santa Barbara takes a proactive approach to encouraging commuting by alternative transportation by offering incentives like free bus passes and emergency rides home. Note: these numbers are derived from large-scale surveys completed every several years rather than on an annual basis.

	1986-87	1991-92	Fall 2002	2006
% of faculty/staff commuting by alt trans	17.2%	16.8%	27%	34%

3. Percent students who get to campus by alternative transportation

	1969-70	1974-75	1991-92	Fall 2002
% of students commuting by alt trans	76.0%	80.3%	75.7%	79.0%

⁸ Data on procurement courtesy of Steve Howson

⁹ Alternative fuel is defined as electric, natural gas, hydrogen, hybrid, bio-fuel

¹⁰ Alternative transportation includes carpools, vanpools, train, bike, and pedestrian transportation

Waste

1. **Waste production, waste recycled, % of material recycled¹¹.** These are batched as one indicator to show how they are interrelated. The data shows that goals should focus not simply on increasing the percentage of materials recycled but also seek to reduce the total amount of waste produced.

	1998	1999	2000	2001	2002	2003	2004	2005
Total waste production (tons)	5657.59	5536.19	6956.32	5587.95	5430.32	4468.23	4633.5	5849.5
Recycled Solid Waste	2326.55	2236.84	3594.96	2433.43	2550.01	1973.10	2012.2	3201.5
Total % of recycled material	41.12	40.40	51.68	43.55	46.96	44	43.7	54.3

Water

1. **Total potable water use¹².**

	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
Total water use in hundreds of cubic feet	304,911.59	313,534.59	268,272.60	298,114.00	333,761.00	327,643.00

2. **Total reclaimed water use, reclaimed as percentage of total water use. See landscape indicator 1 for more information on water.**

	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
Total reclaimed water use in HCF	106,050.36	130,736.28	125,461.56	134,464	121,735	118,535
Percentage of total water use	25.81%	29.43%	31.86%	31.08%	26.73%	26.57%

3. **Total non-permeable surface area.** Non-permeable surfaces direct runoff into storm drains, a process by which water often collects tars, lubricants, fertilizers and other materials before it is deposited without filtration into the ocean. Installing permeable surfaces supplies runoff to plantings and can provide direct infiltration to the ground, resulting in free irrigation, water filtering for increased water quality in surface water run-off.

	2004-2005	2005-2006	2006-2007	2007-2008

¹¹ Data by calendar year. Courtesy of Mary Ann Hopkins.

¹² Water use for all main campus including on-campus housing, but excludes off-campus housing and auxiliaries. Courtesy of Jim Dewey.

Area of non-permeable surfaces in square feet	Unknown	Unknown		
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3.0 MONITORING AND REPORTING

3.1 MONITORING

A Microsoft Access database was created to efficiently track the progress of sustainability projects and goals on campus. This database will use a structure which links detailed tables of projects, goals, and indicators for ease of reporting and tracking. If necessary, the tables can be modified to include more or less information as needed. To make the database more user-friendly, forms will be used to edit and add new data to each table. General reports will enable information in the database to be viewed quickly and exported as needed.

3.2 REPORTING

Each functional area group will meet together as necessary to work on goals and to create a quarterly progress report. Group Chairs will provide the progress reports to the Campus Sustainability Manager at the end of each quarter. Quarterly progress reports will be integrated into the Sustainability Plan and be posted on the Campus Sustainability Website.

Each year an Annual Progress Report will be prepared based on the years accomplishments and will be submitted to the Chancellor and the CPC Subcommittee on Sustainability. The annual report will also be posted on the website.

¹ UN World Commission on Environment and Development Report 1987 (aka, the Brundtland Commission)

² See for example: A. E. Keir Nash et al., *Oil Pollution and the Public Interest: A Study of the Santa Barbara Oil Spill* 1-3 (1972); Keith C. Clark and Jeffrey J. Hemphill, *The Santa Barbara Oil Spill: A Retrospective* (paper given at the Association of Pacific Coast Geographers 64th Annual Meeting, Sept. 14, 2001) at http://www.geog.ucsb.edu/~jeff/sb_69oilspill; *Battle Off Coast Slick Is Spreading—Planes Called In*, S.F. Chron., Feb 1, 1969 at 1; *Oil Leak Presents Particularly Sticky Problem*, S.F. Chron., Feb 2, 1969 at 5. *Futile Fight Against The Oil Slick*, S.F. Chron., Feb. 7, 1969 at 1; Nick Welsh, *The Big Spill*, The Santa Barbara Independent, Jan. 26, 1989.

³ <http://www.ucop.edu/facil/sustain/documents/ucregentgreenbldg.pdf>

⁴ http://sustainability.ucsb.edu/_client/pdf/Yang_LEED_Silver.pdf.

⁵ Robert, Karl-Henrik. (2002). *The Natural Step Story: Seeding a Quiet Revolution*. Gabriola Island, BC: New Society Publishers.

⁶ <http://www.iso.org/iso/en/prods-services/otherpubs/iso14000/index.html>

⁷ McDonough, William, and Michael Braungart. *Cradle to Cradle: Remaking the Way We Make Things*. North Point Press, 2002.

⁸ www.sustainability.ucsb.edu/plan