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# CSUN Sustainability Plan, 2013-2023

May 24, 2013

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## Executive Summary

California State University, Northridge was an early pioneer in alternative energy technology and innovation, inspired by dedicated leadership in Facilities Planning and Physical Plant Management and a strong partnership with faculty in the College of Engineering and Computer Science. This partnership led to the installation of solar panels, a fuel cell plant and a rainforest in the 2000s, much of which included cutting-edge technology at the time. Joint ventures between these departments have continued since then and inspired development of new partnerships between the operational and academic units on campus. In 2008, initiated by a faculty-driven effort, the Provost and the deans of the colleges formed a new multi-college Institute for Sustainability at CSUN whose mission is to “promote, facilitate, and develop educational, research, and university and community programs related to sustainability.” Interest in sustainability has rapidly permeated the campus since that time--a Core Green Team of over two dozen active members inspire, lead, and collaborate on projects to green the CSUN campus; newly--developed curriculum in sustainability attracts increasing numbers of students; and new sustainability initiatives emerge at an overwhelming rate.

In 2012, Dianne Harrison was appointed as the University’s fifth president. Soon after her arrival at CSUN, President Harrison, an early signatory of the American College and University Presidents’ Climate Commitment (ACUPCC) in her tenure at CSUMB, established sustainability as a priority for this campus. In her first semester she requested the Institute for Sustainability and its affiliates draft a sustainability plan for the University. This plan is a response to that request.

It comes at a fitting time. In addition to new campus leadership, the CSU system welcomes a new leader in Chancellor Timothy White, CSUN’s Institute for Sustainability enters its re-chartering fifth year of operations, and a new director of PPM, with a strong record in sustainable facility development and operations is appointed to the campus. CSUN should seize this opportunity to establish itself as a leader in sustainability within and beyond the CSU system. Within the campus itself, as sustainability ideas and initiatives proliferate, they require coordination across multiple operational and academic units and place competing demands on campus resources. This plan will provide a vehicle for the campus to evaluate and prioritize objectives, to coordinate efforts across the campus, and to establish a vision and direction for sustainability at CSUN.

This document is organized into ten topic-specific sections – Administration, Dining Services, Education, Energy and Buildings, Environmental Quality, Organics, Purchasing and Consumption, Transport, Waste and Materials Management, and Water. In each section, the main issues are outlined and an analysis of CSUN’s current status is presented. There then follows a set of three to ten objectives for each topic, which represent targets to be achieved within the next ten years, and an extensive list of recommended strategies or action items for achieving these. These strategies are summarized in tables in which they are aligned with the Sustainability Tracking, Assessment & Rating System (STARS) criteria, a national rating system used to assess campus sustainability performance.



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Key objectives include the establishment of a culture of sustainability evident in policy and practice across the institution; the coordination of sustainability efforts across campus to reduce resource use, including unification of data and data management; an expansion of formal and informal education for students and the broader campus community in issues related to sustainability; an expansion of data collection and record-keeping in energy and water consumption, waste generation and recycling; retro-commissioning of campus buildings to improve environmental quality and efficiencies; replacement of harmful chemicals by natural products for campus maintenance operations where feasible; a reduction in the amount of food waste, green waste and other waste generated; an expansion in the provision of sustainable and healthy foods; implementation of a campus-wide environmentally-preferred purchasing policy; a reduction in the volume of disposables purchased and consumed; a reduction in the use of single-occupancy vehicles for commuting; a reduction of vehicle use in the campus core; and an expansion in recycling capability to a wider range of plastics and other materials.

This plan has been drafted by the Institute for Sustainability and members of its Core Green Team. Information has been collected from reports, data records, online sources, and interviews. Whilst every effort has been made to contact individuals in gathering data and information for this plan, it is recognized that further consultation and review is essential to the plan's acceptance and adoption. This draft is intended to represent a starting point for that process.



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## Key Objectives for 2023

The key objectives from each of the topic areas contained in this report are listed below. Further details are available in the subsequent sections of this document.

### Administration

- Establish a culture of sustainability that is evident in policy and practice across the institution
- Allocate sufficient resources to support sustainability programs
- Coordinate sustainability efforts across campus to reduce resource use, including unification of data and data management
- Establish and promote CSUN as a destination campus for students interested in sustainability

### Dining Services

- Expand sourcing of sustainable foods
- Expand the selection of healthy foods
- Provide nutrition and sustainability information for foods from campus food services.

### Education

- Participation in a sustainability office program by all campus offices/units by 2015
- Implement university-wide sustainability education for all students by 2018
- Offer Graduate Certificate in Sustainability by 2015
- Offer M.A. Degree in Sustainability Practices by 2018
- Expand service learning and internship opportunities in sustainability
- Expand network of faculty engaging in sustainability-related research

### Energy and Buildings

- All buildings to be individually metered for gas, (water) and electricity
- Retro-commissioning to be completed on all buildings by 2023
- Real-time and historical energy use available online to all campus community by 2018
- Reduction in energy intensity (energy/sq ft) of 15% by 2018 and 25% by 2023 over 2012
- Generate 20% on-site by 2018, with 25% on-site generation by 2023
- Increase investment in renewable energy: 10% from renewables by 2023
- All new buildings to meet LEED Gold or higher standard effective 2013

### Environmental Quality

- Study effectiveness of organic fertilizers and reducing the use of synthetic fertilizers
- Phase in more Green Seal-certified cleaning products and adopt green cleaning procedures.
- Develop a set of sustainable operations and maintenance standards
- Complete the campus inventory of chemicals and hazardous materials



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## **Organics**

- Reduce quantity of food waste by 15% by 2015 and by 50% by 2023
- Reduce quantity of other green waste by 50% by 2018 and 80% by 2023
- Conduct on-site composting to generate organic fertilizer for use on campus grounds
- Gain recognition as a Tree Campus USA
- Re-use waste vegetable oil
- Fully develop Organic Food Garden that provides educational and research opportunities for students, faculty, staff and the surrounding community.

## **Purchasing and Consumption**

- Implement campus-wide environmentally-preferred purchasing policy
- Create campus purchasing reduction goal for various product categories based on baseline data to be collected
- Reduce campus copy paper use by an amount to be determined upon consultation with appropriate entities. Proposed reduction goal of 20% by 2015, of 40% by 2020, and of 50% by 2023.

## **Transportation**

- Reduce vehicle miles traveled by faculty, staff, and students by 10%
- Increase share of alternatives to single-occupancy vehicles for commuting from 26% to 40%
- Gain recognition as a Bicycle-friendly University
- Reduce, with a goal of eventual elimination, vehicle use in the campus core
- Reduce average emissions associated with university fleet operations (non-construction/maintenance vehicles) by 50%
- Systematize transport data collection

## **Waste and Materials Management**

- Reduction of total waste per capita by 20% over current values
- Diversion of 75% of waste from landfills by 2023
- Expand recycling capability to a wider range of plastics and other materials

## **Water**

- 15% reduction in water consumption
- Measure, record, and analyze water consumption on a facility level
- Increase awareness of water-related issues by students, faculty, and staff



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## Background and History of Sustainability at CSUN

Sustainability at CSUN has evolved in three phases, taking place over more than three decades. The first phase occurred from the 1980s to 2008 and efforts were dominated by Physical Plant Management (PPM), Facilities Planning, Design, and Construction (FPDC), and the College of Engineering and Computer Science (CECS), and included Associated Students (AS) Recycling. The second phase occurred in 2008, within Academic Affairs, with the creation of the Core Green Team and the Institute for Sustainability. The third and current phase is that in which the Institute for Sustainability has coordinated activities within many different operational units and colleges to generate broad-based support for sustainability.<sup>1</sup>

### **1980s – 2008, Phase I: Engineering partnerships and Recycling**

Most of the early initiatives in sustainability at CSUN were the result of dedicated leadership in FPDC and PPM and a strong partnership with faculty and students in CECS. Many of PPM's projects naturally involve engineering design and skills; the former Executive Director of PPM was an alumnus of CECS, which also helped to establish the collaborative relationship. The campus appointed its first Energy Manager in 1982, who later as PPM Director, had the opportunity to rebuild the campus with a focus toward energy efficiency following the devastation caused by the January 17, 1994, Northridge earthquake. The earthquake, in which the campus sustained more than \$400M in damage, was a catalyst for new construction and the re-construction of more energy-efficient structures. With fortuitous timing, PPM had already scheduled the replacement of the campus's old steam boiler plant with a new energy-efficient hot water plant --the first of many energy-saving initiatives to take place on the campus in the subsequent decade.

CSUN's first on-site energy generation project was the installation of six natural gas-fired micro-turbines in 2001 in a joint initiative with the South Coast Air Quality Management District. In 2003, the University installed its first set of solar panels with a capacity of 225 kW, then the largest array of any public university in California. This was followed by a second installation of panels having a 467 kW capacity in 2005. In 2007, the University installed a one megawatt fuel cell at its old steam boiler plant--the largest on any academic campus in the world at that time. The fuel cell plant was self-installed using PPM personnel, and included a unique barometric trap, designed and constructed by faculty and students from CECS to allow heat recovery from the four separate cells. An adjacent rainforest was designed and built in a collaborative effort between PPM, CECS and other Colleges to sequester the waste gases from the fuel cell plant.

A second component of this early sustainability work was the development of the campus recycling program. Recycling began as a student initiative in the 1970s with the designation of a drop-off center for recyclables. After a brief closure during the 1980s, its operations expanded throughout the 1990s and 2000s to include an increasing number of different recyclable materials. The Recycling facility and operations are funded and operated by Associated Students.



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## **2008 – 2009, Phase II: Formation of the Institute for Sustainability**

During 2007 and 2008, CSUN faculty started to drive new campus sustainability initiatives including campus participation in a national Climate Change Teach-In sponsored by Focus the Nation, and in a national “Chill Out” event sponsored by the National Wildlife Federation. Following these events, a faculty member in Urban Studies and Planning approached the Provost with a manifesto which included three proposals: (1) to initiate a “state-of-the-campus” ecological impact report that measured the campus’s footprints in terms of carbon emissions due to factors such as energy, material consumption, food, water, and waste; (2) to reorganize the curriculum in a way that made the subject of sustainability integral to the University’s business of education; and (3) to initiate a stakeholder group comprising of students, staff, and faculty that would be tasked with the job of making the campus a greener place, broadly defined.<sup>2</sup> In Summer 2008, with direction from the Provost and the Dean of the College of Business and Economics, the deans met to negotiate and develop a charter for a new multi-college institute – the Institute for Sustainability, whose purpose it would be to take the lead on sustainability programs for the campus.

The Institute for Sustainability (IS) was approved by the Provost’s Council on October 27, 2008, marking a new commitment by the campus to address issues of sustainability beyond the traditional scope of energy and waste, and to include education, research, and other programs serving the broader campus community.

*“The mission of the Institute is to promote, facilitate, and develop educational, research, and university and community programs related to sustainability. The Institute serves as an umbrella organization across all the colleges of the university on issues related to sustainability and is committed to serving our campus community, including especially our students and faculty, as well as the broader community served by the university. With respect to sustainability, the Institute is committed to increasing interdisciplinary and cross-functional communication, education, and research among the colleges.”*

The Institute staff includes a faculty director and part-time staff positions. Its activities are overseen by an Advisory Board, which meets once each semester. In addition to its permanent staff, the Institute supports a number of faculty associates and student interns who help to carry out its work. The faculty associates are part of a larger group of faculty, administrators, staff and students who form a cross-divisional working group, the Core Green Team, which meets monthly and participates in the operations of the Institute.

CSUN joined the Association for the Advancement of Sustainability in Higher Education (AASHE) in 2008.

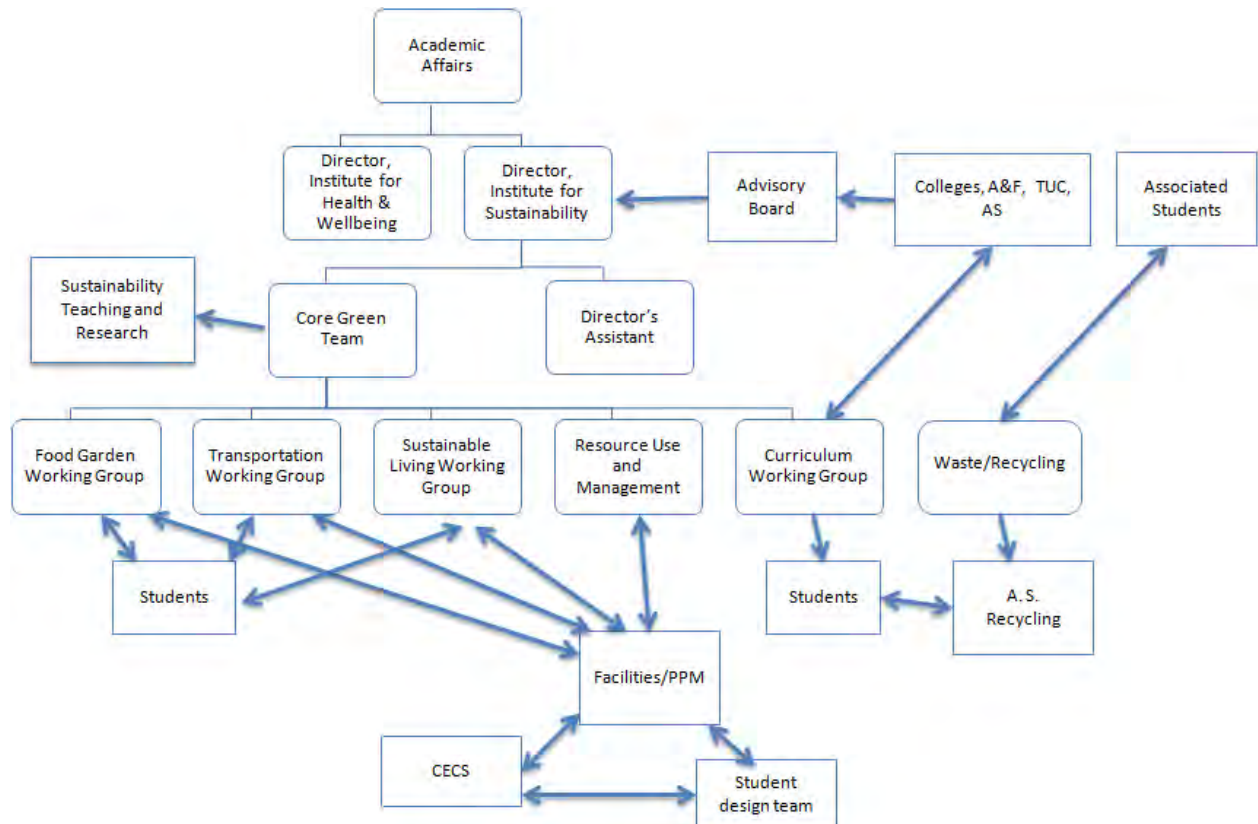
## **2009 – Present, Phase III: The campus sustainability network**

Interest in sustainability at CSUN has grown rapidly since the formation of IS. Green Core membership has increased from six people in mid-2008, to twelve by the start of 2009, to two dozen



by the end of 2012. The Institute gained physical office space in 2009 which now houses the Director, two staff, and four to eight student interns who carry out projects under faculty supervision.

The Institute currently heads up five Working Groups (WG) – Curriculum, Transportation, Resource Use and Management, Food Garden/ Organics, and Sustainable Living, each of which is chaired by one of the faculty associates, and which meet monthly to coordinate activities and conduct research.



**Organizational Chart for the Institute for Sustainability<sup>3</sup>**

In mid-2009, the Provost established a university sustainability curriculum committee to focus on infusing sustainability concepts into the university curriculum with members appointed by the deans from the colleges. A new Minor in Sustainability was developed in 2009/10 and first offered in Fall 2011. Additional curriculum offerings in sustainability have been developed since then including a track within the Liberal Studies degree, and a path within General Education. A graduate program is in the approval process. A new Climate Science Program, funded by NASA, has been created in the Math Department in a partnership between the Math, Physics, and Geography Departments.

The Transportation WG has led the way in research on commuting and bicycling at CSUN. A report was published in 2010 on the University's commuting footprint<sup>4</sup>, and one in 2012 on bicycling<sup>5</sup> which provides recommendations for improvements in infrastructure and circulation on campus.



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This group works closely with FPDC in making improvements, such as the addition of the new bicycle path on Jacaranda Walk. Other initiatives include proposals for a student-led bike co-op and bicycle rental program.

Resource Use and Management efforts include the compilation and analysis of campus energy data for the past 20 years<sup>6</sup>, the computation of the campus's carbon footprint, and the development of a Geographic Information System (GIS) database of campus trees, building floor plans, and HVAC (Heating, Ventilation, Air Conditioning) zones. This database, developed in a partnership between FPDC and IS will be used for planning purposes, and resource allocation and scheduling, with a goal towards using resources more efficiently.

The Food Garden WG has directed the development and activities of the campus food garden, whose function is to expand opportunities to educate students about sustainable food gardening techniques and healthy food choices, and to promote direct community involvement and service-learning opportunities for students.

The Sustainable Living WG develops initiatives to improve sustainability in campus offices and housing through a program of education, training, and student-conducted audits. A Sustainable Office Program was created and piloted in 2012, and will be used to direct future training and assessment of sustainable behavior within campus offices. Ongoing research will recommend strategies to improve sustainability practices in student housing.

CSUN continues to be a member of AASHE and in Fall 2012 signed up as a host institution for the AASHE annual conference. A group of conference attendees visited CSUN for a sustainability tour of the campus.

AS Recycling has continued to expand its operations over the past few years but is limited by its physical facilities. In 2010, AS commissioned a feasibility study for a new recycling center, and has deposited funds in excess of \$100,000 annually toward the construction of a new facility.

In addition to its support of campus recycling efforts, AS has recently invested more heavily in student-led sustainability initiatives. In Fall 2009, AS created a new Director of Environmental Affairs position within its organization. The Director oversees a committee of dedicated environmentally-aware students who have taken an interest in initiatives such as a plastic bag ban, an online site for students to dispose of unwanted items, car-sharing, ride-sharing, a Smart Parking app (application) for use on smart phones, and filling stations for multiple-use water bottles.

As the campus continues its growth, new buildings are constructed with sustainability in mind. The two newest buildings on the CSUN campus were built to the highest standards of efficiency and environmental quality. The Valley Performing Arts Center, which opened its doors in January 2011,



and the USU's Student Recreation Center, which opened in January 2012, both earned LEED® Gold certification.

### **Campus Sustainability Plan**

In March 2012, Dianne Harrison was appointed as the fifth president of CSU Northridge. President Harrison began her appointment on June 11 and at her first convocation on August 23, announced that one of her priorities for the campus would be sustainability. Her welcome letter to AASHE conference attendees was published as part of the campus's sponsorship of the AASHE conference in October 2012<sup>7</sup>.

Following discussions with the Provost, the VP for Administration and Finance, and the Institute for Sustainability Director, the President requested that IS and its affiliates draft a sustainability plan for the campus that includes consideration of the Sustainability Tracking, Assessment & Rating System (STARS)<sup>8</sup> criteria. This plan has been written and prepared by the Institute for Sustainability and its Core Green Team affiliates in response to that request. Contributing authors and parties consulted in the preparation of this plan are listed in Appendix A.

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<sup>1</sup> Nancy B. Kurland, (2011) "Evolution of a campus sustainability network: a case study in organizational change", International Journal of Sustainability in Higher Education, Vol. 12 Iss: 4, pp.395 - 429

<sup>2</sup> Nancy B. Kurland, Kristy E. H. Michaud, Mechelle Best, Erica Wohldmann, Helen Cox, Kyriakos Pontikis, and Ashwani Vasishth; "Overcoming Silos: The Role of an Interdisciplinary Course in Shaping a Sustainability Network",

Acad. Mngt. Learn. Edu., September 2010 9:3 457-476.

<sup>3</sup> modified from <sup>1</sup>

<sup>4</sup> [http://csunsustainability.org/wp-content/uploads/2012/09/CommutingReport\\_JPGS\\_2010\\_finalReduced.pdf](http://csunsustainability.org/wp-content/uploads/2012/09/CommutingReport_JPGS_2010_finalReduced.pdf)

<sup>5</sup> [http://csunsustainability.org/wp-content/uploads/2012/09/bike\\_report\\_final.pdf](http://csunsustainability.org/wp-content/uploads/2012/09/bike_report_final.pdf)

<sup>6</sup> [http://csunsustainability.org/wp-content/uploads/2012/11/Energy\\_Report\\_final.pdf](http://csunsustainability.org/wp-content/uploads/2012/11/Energy_Report_final.pdf)

<sup>7</sup> <http://conf2012.aashe.org/sponsors/host-institutions/csun>

<sup>8</sup> <https://stars.aashe.org/>



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## Key to Acronyms and Abbreviations

AM = Asset Management  
ARP = Academic Resources and Planning  
AS = Associated Students  
CIELO = Center for Innovative and Engaged Learning Opportunities  
EH&S = Environmental Health and Safety  
EPA = Environmental Protection Agency  
FA = Faculty Affairs  
FIN = Financial Services  
FPDC = Facilities Planning, Design and Construction  
HR = Human Resources  
IS = Institute for Sustainability  
IT = Information Technology  
LSP = Liberal Studies Program  
MMC = Marilyn Magaram Center for Food, Nutrition, and Dietetics  
PS = Police Services  
PCA = Purchasing and Contract Administration  
PPM = Physical Plant Management  
PTG = Pioneering Technology Group  
RGS = Research and Graduate Studies  
SA = Student Affairs  
SLO = Student Learning Outcomes  
SCC = Sustainability Curriculum Committee  
SOP = Sustainable Office Program  
Tseng = Tseng College  
TUC = The University Corporation  
USU = University Student Union

### Status Key:

**On-going** = Item has no end date

**In-progress** = Item will be complete at some point in time

### Priority Key:

**Phase 1** = Top priority. Lowest cost for highest benefit

**Phase 2** = Second priority. To be implemented, but will take more time and/or effort

**Phase 3** = Lower payoff for implementation and may take substantial time and/or effort



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## Action Plan — Administration

In order to meet the ambitious objectives set forth in this document, CSUN will need to create and maintain a culture of sustainable thinking on the campus and invest in a sustainability infrastructure.

### Main Issues

1. Incorporate the objectives defined for sustainability into established campus, division, and program planning processes.
2. Improve coordination, infrastructure, data collection and record keeping in support of sustainability efforts.
3. Utilize sustainability as a branding opportunity, particularly for recruitment.

### How We're Doing

#### Coordination and Planning

A culture of sustainability, much like the “culture of evidence” the university has so ably fostered over recent years, may emerge as sometimes disparate activities coalesce around sustainability actions. Campus planning efforts over the last several years have begun to include sustainability as a theme. This is exemplified by the following:

- IT Vision@2015<sup>9</sup> includes several initiatives that will support campus sustainability goals, while reducing student costs. These include the creation and support of virtual learning tools and environments, online and hybrid instruction, and electronic portfolios for students.
- Under ITVision@2015, other initiatives will aid in streamlining data management and help to increase efficiency and reduce paper usage. These include the implementation of electronic document storage and retrieval systems, and the development of electronic forms and workflow.
- The Academic Affairs annual planning process includes a category labeled “Sustainably Utilizing Facilities to Support Mission” within which colleges describe actions such as increased online and hybrid instruction, adoption of electronic media for instruction, and adaptive reuse of facilities in lieu of new construction.

Envision 2035, the Campus 2005 Master Plan Update<sup>10</sup> written in 2005 includes a small section on sustainability that focuses primarily on paving and landscape selection. Sustainable practices could be more fully described when the campus updates the master plan in the future.

Campus energy-saving projects led by Facilities Planning, Design, and Construction (FPDC) and Physical Plant Management (PPM) have helped to reduce the campus carbon footprint, provide faculty and student research opportunities, and serve as a model upon which to build for the future. Recent facilities projects (e.g., Valley Performing Arts Center, Student Recreation Center) have achieved LEED Gold certification and it is anticipated that future buildings will also seek certification. A new transportation center provides a direct link from mass transportation in the region to the



campus. Sustainable landscape features are in place in many areas and a demonstration Eco-region Garden is currently under construction. The mission of FPDC states:

*We are committed to excellence in the design, construction and maintenance of sustainable campus facilities, within stringent budget requirements.*

Significantly, PPM has incorporated energy efficiency and sustainability in all of its Facilities Development and Operational Priorities<sup>11</sup>. Additionally, PPM recently published Ten Energy Saving Ideas for the campus community<sup>12</sup>. PPM also employs a full-time Energy Manager for the campus. Additionally, newly purchased room reservation software will provide the opportunity to cluster scheduling of classes during off-peak hours in order to utilize HVAC efficiencies.

The Institute for Sustainability was chartered in 2008 by the Provost's Council and was created with a mission to:

*Promote, facilitate, and develop educational, research, and University and community programs related to sustainability. The Institute serves as an umbrella organization across all the colleges of the University on issues related to sustainability and is committed to serving our campus community, including especially our students and faculty, as well as the broader community served by the University. With respect to sustainability, the Institute is committed to increasing interdisciplinary and cross-functional communication, education, and research among the faculty of the colleges.*

The Institute has been instrumental in engaging faculty, staff, and students in meaningful dialogue about campus operations, curriculum, and world-wide sustainability concerns through the activities of its Core Greening Team, Advisory Board, faculty affiliates, and strong relationships with PPM and FPDC. Curriculum efforts have resulted in the creation of a Minor in Sustainability offered through the Liberal Studies Program and a Sustainability Track within the Liberal Studies B.A. degree.

One of the early projects of the Institute was the creation of a GIS (Geographic Information System) mapping of the campus trees, generating not only a useful map of tree species and locations, but of carbon sequestration based on tree species and size. This GIS provides a database that can be used together with energy consumption and transport data to determine the campus carbon footprint. It has also been expanded to include mapping of all academic facilities on campus, providing the opportunity for linkage with classroom technologies, HVAC zones, and more. Measures such as these will provide useful information as the campus moves toward a climate action plan. The database provides a possible connection point for the unification of data storage and management, through links to existing document storage and retrieval systems already in place in Admissions and Records, Academic Affairs Administration, Human Resources, Accounts Payable and Information Technology, and can be expanded to include other data related to campus infrastructure and operations.





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### Diversity and Affordability

CSUN's diversity is evident in its Fall 2012 student data, *CSUN by the Numbers*<sup>13</sup>. Over 60% of students identify themselves as non-white, 29% as Latino/a, and 42% fall in the traditionally-underserved category. The following academic programs further demonstrate the institutional commitment to diversity: Deaf Studies, Queer Studies, Jewish Studies, Pan-African Studies, Asian-American Studies, American Indian Studies, Central American Studies, Gender & Women's Studies, Chicana & Chicano Studies. Additionally, the campus has the following:

- Educational Opportunity Program (EOP)
- Disability Resources and Educational Services Department
- Office of Equity and Diversity
- Educational Equity Committee of the Faculty Senate
- One of the -largest deaf and hard-of-hearing student population in the country (and houses the National Center on Deafness)

The Educational Opportunity Program (EOP) was established at CSUN over 40 years ago and is designed to *improve access and retention of historically low-income and educationally disadvantaged students*. The University Profile for Fall 2011 shows that 32% of the full-time faculty of the campus identified themselves as African American, Asian American, American Indian, or Latino/a.

As a public institution in the State of California, CSUN has long had a very low cost of enrollment<sup>14</sup> in comparison with comparable institutions. The Board of Trustees of the California State University sets tuition fees for the 23-campus system. Local fees are also reasonable and are set by the Student Fee Advisory Committee, with a majority of students in its membership. Most students at CSUN qualify for and take advantage of some form of student aid.

### Human Resources

Human Resources has been a good partner on environmental sustainability issues. Handling a high number of transactions, they actively seek alternative processing methods to increase efficiencies and reduce paper usage. For example, absence reporting and time entry processes have been automated across most of the campus eliminating hundreds of paper timesheets monthly. They further assist in the communication of sustainable practices. For instance, Human Resources distributes an Institute of Sustainability flyer at New Employee Welcome Orientation which provides links to CSUN related sustainability resources on the Web, sustainability-related events on campus, and provides information on areas for engagement. Although unable to mandate direct deposit as a state entity, Human Resources regularly reminds campus employees of the environmental benefits of direct deposit in lieu of a paper warrant.

Employee services include mental, emotional, physical and financial support. Expansion is planned to include a volunteer program focusing on the community benefits and general sense of engagement and wellbeing recognized through these contributions. Human Resources provides a



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vehicle for education through employee communications and professional development. Faculty and staff can be further educated through these venues about current initiatives and engaged for future collaborations. Training for campus administrators can focus on the importance of their role in communicating campus values related to sustainability and the daily impacts of their employees' work on our sustainable practices and initiatives.

### Investment

Retirement plans offer a full range of investment options which are both legislated and bargained. Employees investing in TIAA-CREF can choose a socially responsible mutual fund option.

The CSU system exercises control over all investments through the System Wide Investment Fund Trust (SWIFT) and there is no investment holding specific to sustainability.

CSUN Foundation has an investment committee that oversees its investments and there is no specific mandate to invest in “socially responsible” companies nor is there any restriction against investing in certain types of industries. The Foundation Board studied this in the past and concluded that such restrictions may not be meaningful in this era of global investments and may be difficult to monitor. The Foundation is transparent in its practices and has audited its investments for particular queries in the past. For example, our students requested information on the extent of tobacco-related investments in the Foundation and found it made up less than 0.1% of the total portfolio.

### **Objectives for 2023**

- Establish a culture of sustainability that is evident in policy and practice across the institution
- Allocate sufficient resources to support sustainability programs
- Coordinate sustainability efforts across campus to reduce resource use, including unification of data and data management
- Establish and promote CSUN as a destination campus for students interested in sustainability

### **Related Policies**

The CSU has a system-wide commitment to sustainability<sup>15</sup> and has adopted specific policies with respect to buildings and energy efficiency. The CSU has not currently adopted a Climate Policy, although a draft was created in 2010 in discussions between the campus sustainability representatives. The CSU Academic Senate has also proposed a policy which commits to strict building and energy standards.

Consultation through appropriate administrative units and governance structures is needed to approve the CSUN Sustainability Plan and Climate Action Plan.



### **Comparable Goals**

Nine of the CSU campuses are members of AASHE, five have signed the American College and University Presidents' Climate Commitment (ACUPCC), and six have completed or are participating in the AASHE STARS program.

### **Recommended Potential Strategies**

Issue 1: Incorporate the objectives defined for sustainability into established campus, division, and program planning processes.

- AD1.1 Sign the ACUPCC (American College and University Presidents' Climate Commitment) and develop a Climate Action Plan (CAP) for the university
- AD1.2 Campus integrated planning, including strategic planning, annual planning, and published priorities of units on the campus, should include statements related to sustainability.
- AD1.3 Create Campus Sustainability Coordinator position with dual reporting through Administration and Finance and the Institute for Sustainability
- AD1.4 Implement Sustainable Office Program (SOP) throughout all campus offices/units
- AD1.5 Initiate a "CSUN Shine" sustainability campaign across campus to highlight sustainability initiatives and encourage campus-wide participation in sustainability efforts

Issue 2: Improve coordination, infrastructure, data collection, and record keeping in support of sustainability efforts.

- AD2.1 Expand processes carried out electronically through implementation of electronic signatures, digital signatures, and electronic forms for all campus processes
- AD2.2 Implement electronic document storage and retrieval for record-keeping throughout campus
- AD2.3 Continue to develop a standardized web interface for the campus
- AD2.4 Develop and utilize electronic forms for internal procedures wherever possible
- AD2.5 Continue development of geographic information system to store and maintain campus facility and infrastructure data with cross-linking capability to class scheduling software
- AD2.6 Utilize and maintain data in GIS including tree inventory, space management and CAD plans
- AD2.7 Develop and maintain data management system for sustainability-related campus data including energy and other resource use
- AD2.8 Utilize SOLAR portal for aiding in sustainability efforts, (e.g., collecting commuting data, implementing rideshare and connecting to other sustainability initiatives)

Issue 3: Utilize sustainability as a branding opportunity, particularly for recruitment

- AD3.1 Provide easy access to sustainability-related material from all campus web sites
- AD3.2 "Tell our story" of sustainability efforts in a cohesive and consistent way



Issue	Strategy	Party Responsible	STARS Credit	Status	Priority
AD1.1	Sign the ACUPCC	President, IS	OP 4, PAE 5	In progress	Phase 1
AD1.2	Integrated planning	VPs	PAE 2, PAE 3, PAE 4		Phase 1
AD1.3	Sust coordinator	<b>FPDC, IS</b>	PAE 1		Phase 1
AD1.4	SOP	<b>IS, AS, HR</b>	PAE 15, OP T2-39	Pilot conducted	Phase 1
AD1.5	CSUN Shine	<b>Advancement</b>	ER 4		Phase 2
AD2.1	Electronic processes	<b>FIN, IT, IS, HR, RGS</b>	OP T2-40	Ongoing	Phase 1
AD2.2	Electronic storage	IT		Ongoing	Phase 1
AD2.3	Web interface	<b>IT, Advancement, ARP</b>		In progress	Phase 1
AD2.4	Electronic forms (see AD2.1)				
AD2.5	GIS facility database	FPDC, ARP, <b>IS</b>		In progress	Phase 1
AD2.6	Maintain GIS data	<b>FPDC, ARP, IS</b>			Phase 1
AD2.7	Data management	<b>FPDC, IS</b> IT- Ice IR- Huber			Phase 3
AD2.8	Use of SOLAR	IT			Phase 2
AD3.1	Sust material online	IT, <b>IS, Advancement</b>	ER 4	Ongoing	Phase 3
AD3.2	Cohesive story	<b>Advancement, IS</b>		Ongoing	Phase 2

<sup>9</sup> [www.csun.edu/it/vision2015](http://www.csun.edu/it/vision2015)

<sup>10</sup> [www-admn.csun.edu/facplan/docs/finalmasterplan.pdf](http://www-admn.csun.edu/facplan/docs/finalmasterplan.pdf)

<sup>11</sup> <http://www-admn.csun.edu/ppm/fdo-priorities.pdf>

<sup>12</sup> <http://www-admn.csun.edu/ppm/10-energy-saving.pdf>

<sup>13</sup> <http://www.csun.edu/~instrsch/>

<sup>14</sup> [http://www.collegeportraits.org/CA/CSUN/content\\_page](http://www.collegeportraits.org/CA/CSUN/content_page)

<sup>15</sup> <http://www.calstate.edu/cpdc/sustainability/>



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## Action Plan — Dining Services

CSUN's goal is to provide sustainable food choices that are healthy and delicious in its on campus food service locations. There are six University Corporation (TUC)-run food service locations (The Marketplace, The Arbor Grill, Geronimo's, The Orange Grove, The Pub, and the Campus to Go delivery service), five convenience stores (The Edge, The Arbor Grill Convenience Store, West Side Store, La Tienda, and Mercantile Exchange), five Freudian Sip coffee shop locations, and three franchised food service outlets (Burger King, Juice it Up, and Subway). In addition, two food outlets, Panda Express and El Pollo Loco, are tenants on the campus. The food service outlets offer a wide variety of food that are delivered in many forms and offer a wide range of possibilities to pursue more sustainable food choices.

### Main Issues

1. Increase campus food sources that are sustainable
2. Increase the availability of fresh, healthy vegetarian/vegan options on campus
3. Provide nutrition and sustainability information for foods from campus food services.

### How We're Doing

Over the last seven to eight years, the leadership in dining services has made many positive changes in improving sustainability. Geronimo's uses china and metal flatware rather than disposable plates and utensils in the dining room. The facility is also trayless to encourage students to take less food and to reduce resource use in washing up. Refillable condiment containers are also utilized rather than disposable, single use packages. In Fall 2012, a program was started in which kitchen plant food waste is collected from Geronimo's and sent to the Organic Food Garden for composting. For the past six years, used vegetable oil in all cooking facilities has been collected and picked up by a recycling company for conversion into biodiesel fuel. The use of Styrofoam food containers was discontinued by all campus food locations in 2009. All to-go containers are now paper-based products. The main supplier of produce, "Nature's Produce", strives to source foods locally, and provides some organic produce. The seafood used on campus is locally supplied through Santa Monica Seafood Company; only preferred seafood from the "Seafood Watch" list is purchased. All eggs used on campus come from cage-free sources. All brewed coffee comes from organic coffee beans, certified fair trade sources are available, and brewed teas are purchased from Numi and are all organic. One main area that remains to be resolved is the purchasing of humanely-sourced animal products. Purchasing organic meats has been explored but such sources cost 300% more than current sources. Alternatives are being explored at this time.

Over the last several years, many healthy, vegetarian/vegan foods have been added to the menus in many of the dining facilities. The recent installation of a salad bar in the Sierra Center has been a huge success and this option would ideally be added to other campus food service areas. The addition of even more vegetarian/vegan options on campus is recommended.



The nutritional value of all meals is available online, and some nutritional information is available where there are electronic display boards in the dining halls. Some of the franchised food service outlets on campus list calorie counts. The TUC has also published a list of healthy food choices from both in house and franchised food outlets. Expanding and standardizing nutritional information is recommended.

### **Objectives for 2023**

- Expand sourcing of sustainable foods
  - 30% of total food purchases qualify as sustainable
  - 50% of produce purchased from local sources
  - 100% of seafood purchases Marine Stewardship Council certified, Aquaculture Certification Council certified, and/or Seafood Watch Guide “Best Choices” or “Good Alternatives”
- Expand the selection of healthy foods
- Provide information in all TUC-operated dining services to inform and educate the CSUN community about healthy and sustainable food choices

### **Related Policies**

The following definition is used for Sustainable Foods by Pomona College<sup>16</sup> and is recommended for use by CSUN: “Food items that meet one or more of the following characteristics:

- Local (Defined as within 200 miles of campus)
- Produce: grown locally, ideally from an independently-owned small (The Small Business Administration provides revenue- and employee-based size regulations for businesses considered “small”) family farm.
  - All other foods: processed/prepared locally AND (a) processed/prepared by a small, locally-owned company AND/OR (b) contains only locally-grown/produced ingredients
- Fair
  - Fair Trade Certified
  - Domestic Fair Trade Certified
  - Rainforest Alliance Certified
- Humane
  - AGA grass-fed
  - Pasture-raised
  - 100% grass-fed
  - Certified Humane Raised and Handled
  - Cage-free
- Sustainable Seafood
  - Marine Stewardship Council Certified
  - Aquaculture Certification Council Certified
  - Seafood Watch Guide “Best Choices” or “Good Alternatives”
- Protected Harvest Certified



- Food Alliance Certified
- USDA Certified Organic

Additionally, food items will not be considered sustainable if:

- Information is available that indicates that confinement/battery cages, child labor, slave labor, or indentured servitude are used in the production/processing of the items.”

### **Comparable Goals**

The following are similar goals adopted by other institutions or relevant groups:

#### **Pomona College<sup>16</sup>**

Dining Services objectives for 2020:- 15% of total food purchases qualify as sustainable by 2015

- 30% of total food purchases qualify as sustainable by 2020
- 10% of total food purchases qualify as sustainable in more than one category by 2020
- 50% of produce purchases local by 2020
- 100% seafood purchases are Marine Stewardship Council certified, Aquaculture Certification

Council certified, and/or Seafood Watch Guide “Best Choices” or “Good Alternatives” by 2015

Other dining establishments:

- Programs are in place to encourage the use of food items that qualify as sustainable

#### **University of California at Santa Barbara Food Service Goals<sup>17</sup>**

- Add sustainability information to purchase orders
- Add organic milk in retail and bulk packaging
- Expand organic produce purchases to 25%
- Expand local produce purchases to 25%
- Increase use of compostable disposable products to 25%
- Reduce paper waste at Subway by 50%
- Purchase at least 10% of meat, fish and poultry from sustainable sources
- Add sustainability language to all new tenant contracts
- Replace aging equipment with energy efficient Energy Star models as needed

#### **University of California Santa Cruz Food Service Goals for 2020<sup>18</sup>**

- 75% of goods and products meet UCOP sustainable food services procurement guidelines
- All contracted and self-operated food service facilities are certified green
- Students, staff, and faculty collaborate through courses, workshops, and a new undergraduate major to foster critical pedagogy and understanding of our agri-food system.
- Reduce purchases of meat in UC Santa Cruz Dining operations by 10% from 2008 levels to 19% of total food purchases, and evaluate the mitigation impacts of UCSC’s carbon footprint



## Recommended Potential Strategies

Issue 1: Increase campus food sources that are sustainable

- DS1.1 Research vendors that can provide sustainably sourced supplies
- DS1.2 Research the sourcing of on campus food franchises
- DS1.3 Formulate recommendations for consideration by purchasing and contracting personnel
- DS1.4 Increase the percentage of sustainably sourced foods offered by CSUN dining services
- DS1.5 Increase the presence of the CSA program on campus
- DS1.6 Increase amount of fresh produce sold for students living on-campus

Issue 2: Increase the availability of fresh, healthy vegetarian/vegan dining options on campus

- DS2.1 Expand salad bars to more campus dining facilities
- DS2.2 Develop and introduce more healthy, vegan/vegetarian option in campus dining facilities
- DS2.3 Investigate options for a collaborative program between the Magaram Center and TUC chefs

Issue 3: Provide nutrition and sustainability information for foods from campus food services.

- DS3.1 Design a labeling standard for food offerings to be used throughout campus dining. This could be done through a cooperative effort between the TUC and the Magaram Center. This may require the expansion of the digital menu boards being utilized in some dining facilities.

Issue	Strategy	Party Responsible	STARS Credit	Status	Priority
DS1.1	Sustainable vendors	<b>TUC, IS, MMC</b>	OP 6	Ongoing	Phase 1
DS1.2	Franchise food sources		OP 6	No action warranted	
DS1.3	Purchase recommendations (see DS1.1)		OP 6, OP T2-6		
DS1.4	Use sustainable vendors (see DS1.1 and DS1.3)		OP 6		
DS1.5	CSA program	<b>IS, MMC</b>	OP 6		Phase 1
DS1.6	Fresh produce	<b>TUC</b>	OP 6		Phase 3
DS2.1	Salad bars	<b>TUC</b>			Phase 2
DS2.2	Healthy, vegetarian options	<b>TUC</b>	OP T2-4, OP T-2-5	Ongoing	Phase 1
DS2.3	Collaborative program	<b>TUC, MMC, IS</b>		Ongoing	Phase 1
DS3.1	Food labeling	<b>TUC, IS, MMC</b>	ER 4		Phase 2

<sup>16</sup> <http://www.pomona.edu/administration/sustainability/resources/publications/SAP.pdf>

<sup>17</sup> [http://sustainability.ucsb.edu/plan/docs/sustainability\\_plan\\_workingdoc4.08.pdf](http://sustainability.ucsb.edu/plan/docs/sustainability_plan_workingdoc4.08.pdf)





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## Action Plan — Education

CSUN strives to reduce its own footprint on the environment and to educate its students and the broader campus population on sustainable practices. The campus therefore acts as a living-learning community where students can gain knowledge in sustainability and put that knowledge into practice. Our education plan in sustainability incorporates both informal education, which includes events, signage and employee training, and formal education, which includes an expansion of sustainability offerings in the curriculum. CSUN has a strong record of research and development partnerships between its academic colleges and physical plant management, which include the design and installation of its sustainable energy facilities. The university plans to expand partnerships to provide additional opportunities for students to actively participate in sustainability practices whilst helping the campus achieve its own sustainability goals.

### Main Issues

1. Expand education on sustainability principles and practices to entire campus population
2. Increase formal educational offerings in sustainability
3. Increase opportunities for hands-on student learning in sustainability
4. Increase research opportunities in sustainability

### How We're Doing

In June 2009, the Provost established a university Sustainability Curriculum Committee tasked with infusing sustainability concepts into the university curriculum. Members were appointed by the college deans. The committee developed three student learning outcomes (SLOs) for sustainability and through surveys to faculty, the committee worked to identify existing courses which met these outcomes. A minor in sustainability, comprising three core courses and three electives to be chosen from a list of existing courses that met two or more SLOs, was developed and the decision was made to house it in the College of Humanities under the interdisciplinary Liberal Studies program. The minor and three core courses with the "SUST" designation were approved by the EPC for implementation in Fall 2011. One section of each of the core courses is currently offered each semester.

During 2010-12, the committee developed a proposal for five core courses to comprise a graduate certificate in Sustainability Practices and form the core of a Master's degree. The courses and certificate program will be housed in Liberal Studies and are awaiting review by the Graduate Studies committee (2012-13). An effort is underway to identify discipline-specific tracks related to sustainability, which could be paired with this core to create a Master's degree in Sustainability Practices.

The Institute for Sustainability supports informal education related to sustainability by hosting campus-wide educational events during the year, supporting student interns and leading projects. Regular events include Campus Sustainability Day every fall, Water Day each spring, and the Valley



Green Building and Education Conference each summer. The Institute also participates in many other sustainability-related events each year including Earth Day and America Recycles Day. Students take part in active-learning through the Institute including development of the campus food garden, composting research, energy, water and carbon footprinting, GIS, resource use analysis, and other faculty associate-led projects.

In 2011-12 a Sustainable Office Program (SOP) was developed to educate campus employees about sustainable practices in the workplace and to assess offices. Students from one of the minor core courses are trained as educators and assessors. A pilot program began in Fall 2012.

### **Objectives for 2023**

- Participation in sustainability office program by all campus offices/units by 2015
- Implement university-wide sustainability education for all students by 2018
- Offer graduate certificate in Sustainability by 2015
- Offer M.A. degree in sustainability practices by 2018
- Expand service learning and internship opportunities in Sustainability
- Expand network of faculty engaging in sustainability-related research

### **Related Policies**

Student learning outcomes for the undergraduate program in sustainability adopted by the sustainability curriculum committee are listed here. These must be met by all SUST-designated courses; sustainability-related courses (minor electives) must meet two of these.

1. Students will be able to define sustainability and understand how concepts of sustainability are connected to issues of social justice, the environment, and the economy at local, regional, and global levels.
2. Students will demonstrate knowledge of key concepts related to the study of sustainability, including planetary carrying capacity, climate change, and ecological footprint.
3. Students will be able to explain how sustainability relates to their lives and their values, and how their actions impact issues of sustainability at the individual, and at local, regional, and global levels.

Student learning outcomes for the graduate program in sustainability practices have been developed by the committee and are shown below:

1. Systems Level Orientation
  - 1.1 Students will understand the interdisciplinary nature of sustainability and be able to evaluate the environmental, economic, and social justice aspects of policies and practices.
  - 1.2 Students will comprehend the life cycle of products and apply this knowledge in evaluating and making decisions in a sustainable manner.
  - 1.3 Students will understand the impact of practices and policies related to food supply, transportation, energy, waste management, air and water on diverse populations.



2. Environmental Literacy
  - 2.1 Students will understand and evaluate the impacts of human practices on the natural environment.
  - 2.2 Students will understand the relationships between food supply, transportation, energy, waste management, air and water resources, and the diverse cultural, political, economic and physical landscapes in which they occur.
3. Practitioner Skills
  - 3.1 Students will formulate solutions to business, organizational and community problems by incorporating environmental, technical, regulatory, social and economic considerations.
  - 3.2 Students will demonstrate appropriate research methodologies to compare and critique the sustainability of different practices.

### **Comparable Goals**

Within the CSU, San Diego, San Francisco and San Luis Obispo have undergraduate degree programs in sustainability. CSU Stanislaus has a master's degree in ecology and sustainability. Twelve of the CSU campuses have degree programs in environmental studies.

Cal Poly Pomona, CSU Chico, UCLA, UCSB, and Stanford University have sustainability themed residence halls where students interested in sustainability live and work on sustainability related projects with other students. Students do not necessarily take courses with each other at all of these institutions.

### **Recommended Potential Strategies**

Issue 1: Expand education on sustainability principles and practices to entire campus population

- ED1.1 Develop sustainability office program (SOP) training materials for student trainees and office staff
- ED1.2 Establish schedule of training workshops for office staff and execute audits
- ED1.3 Establish and maintain tracking system for SOP
- ED1.4 Continue to host annual sustainability day and water day events, and participate in America Recycles Day and Earth Day
- ED1.5 Establish sustainability-related film series
- ED1.6 Design and post educational signage at sustainability sites on campus
- ED1.7 Increase informational signage for waste, food, water and energy use
- ED1.8 Coordinate with film and journalism departments to encourage student films, documentaries, public announcements and articles related to sustainability. These can be screened before events, on MIND screens, and linked to webpages.
- ED1.9 Coordinate with the University Ambassadors and Student Development Office to include sustainability education and features in campus tour and new student orientation
- ED1.10 Provide informal sustainability education to students in campus housing and develop a plan for improving related practices



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ED1.11 Establish living-learning community in campus housing and train students as peer-to-peer educators in sustainability

ED1.12 Assess sustainability literacy within student population

Issue 2: Increase formal educational offerings in sustainability

ED2.1 Identify and flag sustainability-related courses. Maintain list of such courses.

ED2.2 Provide faculty development on sustainability SLOs and on how to incorporate sustainability content into courses

ED2.3 Encourage inclusion of sustainability-related SLOs and/or SUST core courses in programs through faculty and Department Chairs

ED2.4 Work with Department Chairs to develop discipline-specific tracks for Master's program in Sustainability Practices

ED2.5 Develop and provide sustainability literacy education to all students

ED2.6 Identify faculty willing and able to teach sustainability

ED2.7 Develop on-line or hybrid version of SUST 300 and 310 core courses to more easily facilitate multiple concurrent offerings

ED2.8 Implement and offer Sustainability Practices graduate certificate through Tseng College

Issue 3: Increase opportunities for hands-on student learning in sustainability

ED3.1 Establish list of service learning and internship opportunities on campus related to sustainability

ED3.2 Collaborate with local agencies and non-profits to establish a list of service learning and internship opportunities in the community related to sustainability

ED3.3 Establish procedures for accepting, allocating, and supervising students in active learning opportunities in sustainability

ED3.4 Engage in outreach to bring in students from a variety of departments into active learning opportunities in sustainability

ED3.5 Create internship course in sustainability, SUST 494

Issue 4: Increase research opportunities in sustainability

ED4.1 Identify and maintain a list of faculty conducting sustainability-related research

ED4.2 Establish online directory to connect faculty engaging in sustainability-related research

ED4.3 Increase faculty participation in green core team, and expand size and number of working groups



Issue	Strategy	Party Responsible	STARS Credit	Status	Priority
ED1.1	SOP materials	IS, AS	ER 4	In progress	Phase 1
ED1.2	Training workshops/audits	IS, AS, HR	PAE 13, PAE 15		Phase 1
ED1.3	SOP tracking	IS, AS			Phase 1
ED1.4	Host events	IS, AS	ER T2-6	Ongoing	Phase 1
ED1.5	Film series	IS, AS, SA, Housing	ER T2-6		Phase 2
ED1.6	Site signage	IS, FPDC, PPM	ER 4	Ongoing	Phase 1
ED1.7	Informational signage	IS, AS, TUC, PPM, SA sust. comm.	ER 4	Ongoing	Phase 2
ED1.8	Student media pieces	IS, faculty, AS	ER 4		Phase 2
ED1.9	Campus tour and orientation	SA, AS	ER 3		Phase 1
ED1.10	Informal education in housing	IS, Housing			Phase 2
ED1.11	Living-learning community	Housing	ER 1, ER T2-4	Summer 2014	Phase 2
ED1.12	Assess sust. literacy	IS, Faculty, AS	ER 13		Phase 1
ED2.1	Identify courses	SCC, IS, LSP	ER 5	Ongoing	Phase 2
ED2.2	Faculty development	SCC, LSP	ER 18		Phase 3
ED2.3	SLOs and SUST courses	SCC, LSP	ER 6-8		Phase 2
ED2.4	Master's program tracks	SCC	ER 11	In progress	Phase 1
ED2.5	Sustainability literacy	SCC, LSP, IS, AS	ER 9		Phase 1
ED2.6	Identify faculty	SCC, LSP, IS	ER 5	Ongoing	Phase 1
ED2.7	Online/hybrid SUST 300	faculty		In progress	Phase 2
ED2.8	Offer graduate certificate	SCC, IS, Tseng	ER 11, PAE 21	On hold	Phase 2
ED3.1	On-campus SL & internships	IS, CIELO		In progress	Phase 1
ED3.2	Community SL & internships	IS, CIELO	PAE 19		Phase 3
ED3.3	Active learning procedures	IS, CIELO		In progress	Phase 1
ED3.4	Active learning outreach	IS, CIELO		Ongoing	Phase 2
ED3.5	Internship course	SCC, Faculty			Phase 2
ED4.1	Faculty research	IS, RGS	ER 15, ER 16		Phase 3
ED4.2	Online directory	IS, RGS	ER 15		Phase 3
ED4.3	Faculty participation	IS	ER 16, ER 17	Ongoing	Phase 1



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## Action Plan — Energy and Buildings

Energy use is the single largest contributor to greenhouse gas emissions from the United States, accounting for some 80% of total emissions. Only 10% of electricity generation in the U.S. is from renewable sources, and only 7% of total energy used comes from renewables. Electricity distributed by Los Angeles Department of Water and Power to the campus is generated primarily from coal (39%) and natural gas (24%). Extraction of these natural resources has significant environmental impacts, and the combustion of them causes pollution. Reduction in the use of fossil fuels is a core component of CSUN's commitment to sustainability. This reduction can be achieved in three ways – by conservation, efficiencies, and use of renewables. The first two of these result in cost savings to the campus, and the third can also pay off economically over the long term. The proposed plan puts a priority on those actions that will lead to conservation and efficiency savings.

### Main Issues

1. Improve means to measure, report and communicate energy consumption at a building/unit level
2. Improve physical infrastructure to save energy through efficiency and conservation measures
3. Increase energy-related education and outreach to students, faculty and staff, and implement program to change behavior
4. Increase energy supplied from renewable and clean sources
5. Establish and implement strict building standards for new construction

### How We're Doing

Since the devastating earthquake in January 1994, CSUN has undergone major infrastructure re-building and improvement. In 1998, in an effort to improve energy efficiency, a new Central Plant was constructed to provide heat to the campus via hot water boilers, replacing the old steam ones. Between 2003 and 2005 CSUN made its first investment in renewable energy with the installation of solar panels over two campus parking lots with a combined capacity of 692 kW. These together supply about 2% of current campus electricity use. In 2007 the campus installed a new satellite chiller plant, which added 50% to the campus's cooling capacity, and installed a 1 MW fuel cell plant at the same site. The fuel cell generates up to 15% of the total campus electricity demand. A unique feature of this plant is the capture of waste gases (carbon dioxide and water) which are sequestered by an adjacent rainforest, built specifically for this purpose. Additionally, waste heat created as a byproduct of the fuel cell is used to warm the adjacent USU swimming pool and domestic hot water for the Pub Sports Grill and locker room showers via heat exchangers on a circuit loop. This reduces energy costs and increases fuel cell efficiency. In 2012, another major energy retrofit effort was underway with the installation of new high efficiency boilers to replace the existing ones. The new boilers have low NO<sub>x</sub> and CO emissions in compliance with new, more stringent AQMD requirements. Six new smaller boilers have been added to give additional capacity and more flexibility and control as they can be used to support smaller loads without the necessity



to run the large boilers. This added control will save on gas consumption and associated cost in the future.

Between 1990 and 2010 electricity consumption (including self-generation) on campus increased a total of 66.8% while FTES grew by 30.9% and building space expanded by 74.5%. Energy (electricity) intensity (kWh/sqft), a measure of building efficiency (air conditioning and lighting) and user consumption (plug-in load), went from 1.163 kWh/sqft per month in 1990 to 1.216 kWh/sqft per month in 2000, and down to 1.076 kWh/sqft per month in 2010, an improvement of 7.5%.

During the same period, natural gas consumption (for space heating, hot water, and cooking) fell by 61.3% primarily as a result of the campus heating system and building improvements. Energy (gas) intensity (therms/sqft), a measure of the building efficiency (heating) went from 0.085 therm/sqft per month in 1990 (to 0.022 therm/sqft per month in 2000) and to 0.019 therm/sqft per month in 2010, an improvement of 77.6%.

Because a substantial fraction of the campus's electricity is now generated on-site from solar power and the fuel cell (which uses natural gas), electricity purchases are only about 82% of total consumption, but gas purchases for the fuel cell amount to an additional 75% over direct use. A report detailing the campus's energy use over the past twenty years (1990-2011) is available online<sup>19</sup>. In addition, a preliminary assessment of CSUN's outdoor lighting has been conducted<sup>20</sup>.

The energy intensity (consumption per sq ft) of our buildings for electricity is favorable compared to commercial buildings in a similar climate zone but falls behind that of other educational institutions. For gas, our energy intensity is favorable compared to other educational institutions in similar climate zones. Many buildings at CSUN are older and in need of retro-commissioning to analyze and improve their energy performance. Improving the energy efficiency of buildings ranks amongst the lowest cost abatement strategies that exist for reducing greenhouse gas emissions. Potential savings include lighting conservation and efficiency, and HVAC and building shell improvements. In addition, appliances and electronic equipment offer significant potential for energy savings – an area currently being addressed in part with initiatives such as centralized printing and thin clients.

### **Objectives for 2023**

- All buildings to be individually metered for gas, (water) and electricity
- Retro-commissioning to be completed on all buildings by 2023
- Real-time and historical energy use available online to all campus community by 2018
- Reduction in energy intensity (energy/sq ft) of 15% by 2018 and 25% by 2023 over 2012
- Generate 20% on-site by 2018, with 25% on-site generation by 2023
- Increase investment in renewable energy: 10% from renewables by 2023
- All new buildings to meet LEED Gold or higher standard effective 2013



## Related Policies

CSU design standards “require all new construction and major renovation projects to exceed the 2008 California Energy Code (Title 24) by at least 15 percent and 7.5 percent respectively”. The CSU Chancellor’s Executive Order No. 987 (Policy Statement on Energy Conservation, Sustainable Building Practices, and Physical Plant Management for the California State University) “delegates to each president, or his/her designee, the implementation of the California State University Board of Trustees' energy conservation, sustainable building practices, and physical plant management policy. This executive order reaffirms the need to conserve energy in order to achieve the goal originally set in 2001 and reevaluated in 2005. Our new goal is to reduce consumption by 15% by the end of FY 2009/10, as compared to 2003/04. The trustee policy is consistent with Governor Arnold Schwarzenegger's Executive Order S-12-04, which requests the CSU's active participation in statewide energy conservation and reduced electrical demand.”

The CSU is committed to developing reliable distributed generation that increases efficiency and reduces its carbon footprint. The CSU Board of Trustees set a goal of 10 megawatts (MW) of solar power generation by 2014, which has been exceeded by the end of 2012 with 14 MW of solar.

The CSU set a trustee goal of 50 MW of onsite generation by 2014 and is on target to reach this with its solar installations, cogeneration of 30.2 MW of energy and heat, 1.2 MW of electricity from CSUN’s fuel cell plant and 10 kW of wind power at CSU San Bernardino.

CSU-wide policies and reports are available through the Chancellor’s Office website<sup>21</sup>.

## Comparable Goals

The University of California system has committed to reduce its growth-adjusted energy consumption by 10% or more by 2014 from the year 2000 base consumption level, has committed to buying 20% of its grid-purchased electricity from renewable sources by 2010 and to generating 10 MW of onsite renewable electricity by 2014. The UC system has also made a commitment that all newly constructed buildings will achieve a LEED-Silver Certification level and outperform California's Title 24 energy code by at least 20 percent<sup>22</sup>. UC Santa Barbara has committed to use 33% less electricity than their 2010 baseline by 2050, and to reduce fossil fuel usage to 20% of total consumption<sup>23</sup>.

## Recommended Potential Strategies

Issue 1: Improve means to measure, report and communicate energy consumption at building/unit level

- EN1.1 Install flow meters and temperature sensors throughout campus to monitor heat and A.C. energy consumption for individual buildings/units
- EN1.2 Install electric meters for individual buildings/units to monitor electricity consumption





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EN1.3 Install real-time monitoring of energy consumption via Siemens building automation energy management system

Issue 2: Improve physical infrastructure to save energy through efficiency and conservation measures

EN2.1 Utilize energy consumption data to identify buildings/units with above average energy consumption. Prioritize retro-commissioning on existing buildings based on these data

EN2.2 Conduct energy audits on all buildings

EN2.3 Prioritize energy efficiency improvements (insulation, double-paned windows, window shading, thermostat locations etc.) and begin improvement projects

EN2.4 Evaluate existing research and recommendations on outside lighting and begin upgrades<sup>20</sup>

EN2.5 Conduct assessment of indoor lighting

EN2.6 Conduct assessment of power consumption from plug-in loads including IT and lab equipment

EN2.7 Reduce power consumption from office and lab computers

EN2.8 Install motion-detection light switches in classrooms to turn off lights when not in use

Issue 3: Increase energy-related education and outreach to students, faculty and staff, and implement program to change behavior

EN3.1 Implement Sustainable Office Program (SOP) throughout campus offices, including educational workshops for office staff on sustainability measures that can be taken

EN3.2 Implement real-time and historical energy use reporting via web page

EN3.3 Assess strategies for reducing energy consumption through education including the installation of dashboard monitors displaying energy use data in real-time in prominent locations on campus and in student housing

EN3.4 Promote more sustainable user behavior within the campus through energy conservation incentives, competitions, and other initiatives

EN3.5 Participate in national energy conservation initiatives and competitions

EN3.6 Post energy-consumption related information at visible locations around campus

Issue 4: Increase energy supplied from renewable and clean sources

EN4.1 Conduct analysis of potential for solar thermal hot water heating

EN4.2 Increase investment in renewable energy technologies that can be integrated into academic and research programs

EN4.3 Increase solar PV capacity

Issue 5: Implement building standards for new construction

EN5.1 Require all new construction to meet LEED Gold or higher standard



Issue	Strategy	Party Responsible	STARS Credit	Status	Priority
EN1.1	Flow meters & temp sensors	FPDC, PPM	OP 1&2, OP 5, OP 7	In progress	Phase 1
EN1.2	Electric meters	FPDC, PPM	OP 1&2, OP 5, OP T2-18, OP 7		Phase 1
EN1.3	Real-time energy monitoring	FPDC, PPM, IS, PTG	OP 1&2, OP 5, OP 7		Phase 2
EN2.1	Prioritize retro-commissioning	FPDC, PPM, IS	OP 1&2, OP 5, OP 7	In progress	Phase 2
EN2.2	Energy audits	PPM	OP 1&2, OP 5, OP 7		Phase 2
EN2.3	Prioritize improvements	FPDC, PPM	OP 1&2, OP 5, OP 7	In progress	Phase 1
EN2.4	Lighting upgrades	FPDC, PPM	OP1&2, OP 5, OP 7, OP T2-15	In progress	Phase 1
EN2.5	Indoor lighting assessment	FPDC, PPM, IS	OP 1&2, OP 5, OP 7		Phase 2
EN2.6	Power consumption assessment	PPM, IS, academic departments	OP 5, OP1&2, OP 7	Ongoing	Phase 2
EN2.7	Reduce office and lab computer power consumption	IT, IS, PTG, college techs, USU IT	OP 5, OP1&2, OP 7	In progress	Phase 1
EN2.8	Motion-detection switches	FPDC, PPM	OP 1&2, OP 5, OP 7, OP T2-14		Phase 3
EN3.1	Implement SOP (see AD1.4, ED1.1, ED1.2, ED1.3)		PAE 15, OP T2-39		
EN3.2	Energy use web page (see AD2.7)		ER 4		
EN3.3	Dashboard monitors	Housing	ER 4		Phase 2
EN3.4	User behavior	PPM, IS, Housing, AS		Ongoing	Phase 1
EN3.5	Initiatives and competitions (see EN3.4)		ER 2		
EN3.6	Consumption data visible	IS, AS	ER 4		Phase 1
EN4.1	Solar thermal analysis	FPDC, PPM, IS	OP 5, OP 8		Phase 3
EN4.2	Invest in renewable energy	Faculty, FPDC	OP 5, OP 8		Phase 3
EN4.3	Solar PV capacity	FPDC, PPM	OP 5, OP 8		Phase 2
EN5.1	New construction	FPDC	OP 1&2	Ongoing	Phase 1

<sup>19</sup> [http://csunsustainability.org/wp-content/uploads/2012/11/Energy\\_Report\\_final.pdf](http://csunsustainability.org/wp-content/uploads/2012/11/Energy_Report_final.pdf)

<sup>20</sup> [http://csunsustainability.org/wp-content/uploads/2012/09/poster\\_rev.pdf](http://csunsustainability.org/wp-content/uploads/2012/09/poster_rev.pdf)

<sup>21</sup> <http://www.calstate.edu/cpdc/sustainability/policies-reports/>

<sup>22</sup> [http://sustainability.universityofcalifornia.edu/documents/ucsep\\_sw.pdf](http://sustainability.universityofcalifornia.edu/documents/ucsep_sw.pdf)

<sup>23</sup> [http://www.sustainability.ucsb.edu/wp-content/uploads/sustainability\\_plan\\_workingdoc4.08.pdf](http://www.sustainability.ucsb.edu/wp-content/uploads/sustainability_plan_workingdoc4.08.pdf)



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## Action Plan — Environmental Quality

On any campus, energy uses related to transportation (to-and-from as well as within campus) and space conditioning of buildings (cooling, heating and ventilation) have some of the most significant impact on the local and global environments. Other factors that contribute to environmental quality, albeit to a lesser extent, are related to the use of chemicals and hazardous materials such as refrigerants, synthetic fertilizers, cleaning products, paints, and chemicals used in science and engineering laboratories and art studios. In addition, in a world of rapid technological advancement electronic waste (e-waste) is becoming an important management issue. It is important that the University works toward reducing the use of these products and continues to ensure their proper disposal.

### Main Issues

1. Reduce use of hazardous materials and ensure proper disposal
2. Increase awareness of issues related to hazardous materials

### How We're Doing

The University disposes of all hazardous waste according to federal, state, and local environmental and safety standards. The disposal of hazardous waste is managed by the Environmental Health and Safety (EH&S) office and is currently performed by PSC Environmental Services. The EH&S office has conducted an extensive but partial (ca. 80 %) inventory of hazardous materials on campus. This inventory has improved the efficiency and effectiveness of hazardous materials and waste management. The EH&S office also collects data on refrigerant usage from different campus entities (e.g., PPM, USU) on a semiannual basis and reports the data to the Air Quality Management District. The University is currently phasing out obsolete refrigerants (e.g., HCFC R-22) in accordance with the EPA's HCFC phase-out schedule. Electronics disposal is carried out by Asset Management. Unwanted used electronic equipment is auctioned via a public surplus web site or donated to non-profits or schools. Equipment which cannot be disposed of in this manner is collected and recycled into component parts by an e-waste collector or processor, which are conditions of California law. A.S. Recycling Services hosts regular e-waste collection events on campus to assist the community in proper disposal of personal e-waste. The University uses almost exclusively synthetic fertilizers for the maintenance of its grounds and almost exclusively conventional cleaning products. For example, facility services of PPM uses only one Green Seal-certified product for its housekeeping operations.

### Objectives for 2023

- Study effectiveness of organic fertilizers and related operational issues and apply results to reducing the use of synthetic fertilizers and progressively replacing them with organic fertilizers. Quantitative goals (% reduction) for 2023 to be set upon further consultation with the appropriate campus entities and following study.



- Phase in more Green Seal-certified cleaning products and adopt green cleaning procedures. Objectives for 2023 to be set upon further consultation with the appropriate entities.
- Develop a set of sustainable operations and maintenance standards in coordination with the appropriate entities.
- Complete the campus inventory of chemicals and hazardous materials and make it available to University faculty and staff.

### **Related Policies**

The management of hazardous waste is regulated by Federal and State codes (Code of Federal Regulations, Title 40 Protection of the Environment: Part 262, Standards Applicable to Generators of Hazardous Waste and Part 273, Standards for Universal Waste Management; California Code of Regulations, Title 22 Social Security: Division 4.5, Environmental Health Standards for the Management Of Hazardous Waste).

Air emissions regulations have been delegated to State and local agencies. Mobile sources of air emissions are regulated by the California Environmental Protection Agency's Air Resources Control Board, while stationary sources of air emissions are regulated by the South Coast Air Quality Management District.

Water pollution regulations have been delegated to State and local agencies. Water discharge to land or water bodies (e.g., storm water, irrigation) is regulated by the State Water Resources Control Board, while sanitary sewers and industrial waste water are regulated by the City of Los Angeles.

### **Comparable Goals**

Pomona College was an early adopter of a variety of Green Seal-certified cleaning products and is pursuing Green Seal certification for its housekeeping operations. The grounds services at Pomona College are phasing out synthetic fertilizers and replacing them with organic fertilizers as quickly as possible, although they are finding it challenging due to reduced effectiveness and higher cost<sup>24</sup>. UC has indicated phasing in Green Seal certified products as one of their guidelines for sustainable practices<sup>25</sup>.

### **Recommended Potential Strategies**

Issue 1: Reduce use of hazardous materials and ensure proper disposal

- EQ1.1 Identify and implement alternatives to synthetic fertilizers
- EQ1.2 Phase in more Green Seal-certified cleaning products and adopt green cleaning procedures
- EQ1.3 Develop a set of sustainable operations and maintenance standards
- EQ1.4 Complete the campus inventory of hazardous materials/chemicals and make it available to University faculty and staff
- EQ1.5 Determine volume of electronic equipment (e-waste) generated by campus, to use as a benchmark, with a goal of future reduction

Issue 2: Increase awareness of issues related to hazardous materials

- EQ2.1 Conduct an educational campaign on hazardous wastes and their proper disposal.



Information campaign aimed at students, faculty and staff would help improve knowledge regarding hazardous waste and their proper disposal.

EQ2.2 Collect more information on current practices and successes in reducing the use of hazardous materials and wastes from other institutions

EQ2.3 Communicate environmental quality information to the campus community and public

Issue	Strategy	Party Responsible	STARS Credit	Status	Priority
EQ1.1	Organic fertilizers	PPM, USU, IS, Housing			Phase 1
EQ1.2	Cleaning products	IS, PPM, USU, Housing	OP 11	In progress	Phase 1
EQ1.3	Operation standards		OP 21	Develop as needed	No further action
EQ1.4	Materials inventory	EH&S	OP T2-41		Phase 3
EQ1.5	Determine e-waste	AM, IS, IT, USU			Phase 2
EQ2.1	Educational campaign		ER 2, OP 20	Ongoing	No further action
EQ2.2	Data collection	EH&S		Ongoing	No further action
EQ2.3	Communication	PPM, EH&S	ER 4	Ongoing	No further action

<sup>24</sup> <http://www.pomona.edu/administration/sustainability/resources/publications/SAP.pdf>

<sup>25</sup> <http://uccsuioeee.org/UCPolicyonSustainablePractices3-07.pdf>, pg 13.



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## Action Plan — Organics

On average, Americans recycled and composted 1.51 pounds of individual waste generation of 4.43 pounds per person per day in 2010. Organic materials are the largest component of municipal solid waste accounting for 30% of the total. Food waste (21%) is the single largest material in the solid waste stream. Reducing the amount of food waste has significant economic, social and environmental benefits including reducing disposal costs, improving the lives of the needy by donating food, reducing the resources and costs in the production of wasted food (including water, fertilizers, pesticides, and energy), reducing greenhouse gas emissions (methane) from landfills and creating compost, a valuable soil amendment. Many landfills in the Los Angeles area are reaching capacity and their undesirability causes significant difficulty in locating new ones. Thus waste is increasingly being transported out of the region to processing facilities further afield where population density is lower, leading to high economic and environmental transport costs. CSUN has an important role to play as an educator and socially responsible party in the efforts to reduce the quantity of food waste produced, and to reduce the shipment of organic waste off campus. In addition CSUN can reap several benefits from reducing food waste including saving costs associated with removal of waste and the generation of compost for use in campus landscaping.

Through projects at the CSUN Organic Food Garden, the university strives to educate its community about how to grow, harvest and prepare fresh sustainable foods to promote the growing and harvesting of foods within the community. It also recognizes the importance of creating a culture of awareness about food amongst the campus population. This awareness includes attention to where food comes from and the ability to make healthful food choices.

The CSUN campus includes approximately 94 acres of irrigated space which includes sports fields, lawns, the orange grove, botanic garden and landscaped areas. More than 3,800 trees decorate the landscape; these and the grounds are managed and maintained by PPM. The staff employ sustainable practices in utilizing grasscycling, collecting green waste for mulching, and limiting irrigation demand through use of a weather-based irrigation system. Ongoing efforts include establishment of an ecoregion garden hosting native (drought-tolerant) plants, research in the most-effective method of composting and use of organic fertilizers. Expansion of these initiatives to further reduce water and other resource use is desirable.

### Main Issues

1. Reduce quantity of organic waste
2. Educate students and the campus community about food waste
3. Continue to develop the CSUN Organic Food Garden as an educational resource
4. Develop and manage campus grounds using sustainability practices



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## How We're Doing

### Organic Waste

Currently CSUN and TUC contract with Consolidated Disposal Service for removal of green waste (landscape trimmings). Grasscycling, wherein grass clippings are left on the lawns when mowing, is practiced by PPM and helps to reduce the quantity of green waste whilst enriching the soil. Of the campus's 352 acres, approximately 94 acres are landscaped, and produce roughly 110 tons (approx. 870 cubic yards) of green waste per year at an annual cost of \$6,090 for hauling. Other collected clippings and trimmings are currently amassed in an area next to the weather station between the baseball fields and Northridge Academy High School. The TUC operates dining facilities on campus at Geronimo's, the Orange Grove Bistro, the Marketplace/Sierra Center Complex, the Pub and the Arbor Grill. Pre- and post- consumer food and other waste are collected in 3-yd bins located adjacent to these facilities.

Waste audits conducted by faculty and students in the Sustainability minor in 2009 – 12 first alerted the campus to the quantity of food waste on campus thrown in the trash and headed for the landfill. To understand the handling of green and food waste on campus, IS commissioned an MBA study on kitchen and green waste in 2011, from which many of these data are gathered. The report recommended several strategies to address organic waste including the processing of waste vegetable oil into fuel, and a variety of options for the composting of food and green waste. In 2012 the campus food and education garden run by IS began small-scale composting with green waste and some food waste, and in 2011-12 a faculty associate with IS began work with several engineering students on the design of an in-vessel composter for post-consumer waste. Currently, the composting program in the campus garden has been expanded in partnership with the TUC and the aid of IS student interns. Two student assistants are continuing to work on testing in-vessel composters with kitchen waste. The dining services manager at TUC signed the campus up for EPA's 2012-13 Food Recovery Challenge and a program has begun (Fall 2012) to transport daily and compost pre-consumer (kitchen) organic waste at the Food Garden site.

Dining services have made significant efforts to reduce food waste and improve sustainability practices over recent years with several policies. These include the introduction of corn-based flatware (later abandoned due to its inability to handle the temperature of hot food), the elimination of polystyrene from all dining facilities, the use of compostable containers for food-to-go, the elimination of trays from all-you-can-eat dining facilities (Geronimo's), the introduction of smaller plates at Geronimo's, the collection of waste vegetable oil for re-use as a fuel. Dining Services is also planning a renovation of the Geronimo's kitchen to accommodate the additional students who will live in the new student housing buildings, set to be completed by Fall 2015. This renovation should include a food pulper in the kitchen to process post-consumer food waste to be used for compost in the CSUN organic food garden.

The campus generates approx. 2500 gallons of waste vegetable oil annually which is currently donated to a third party who collects it weekly, transports it to a processing facility and uses it to



generate biodiesel fuel. A complete cost-benefit analysis for purchasing a biodiesel converter has been carried out by IS and a converter would pay for itself in fuel cost savings within two years if there was sufficient demand for the diesel fuel by campus vehicles.

### Organic Food Garden

The purpose of the garden is to educate students and the community about sustainable food gardening techniques and healthy food choices, and to promote direct community involvement and service-learning opportunities to students. The garden was established in 2009 with monies from private donations and the Provost's Office, which continue to support its development. Its activities are coordinated by a working group, which includes representation from campus staff and administrators, faculty, students and community members. A student assistant from IS helps maintain the garden, promote garden events, coordinate student volunteers and secure donations.

The land provided for the Organic Food Garden comprises 13,132 square feet, and since its founding more than 350 square feet of raised planting beds have been built and utilized over six growing seasons. Several raised beds and an irrigation system were built during garden workdays by student, staff, and faculty volunteers. Mulch has been spread through the garden area to prevent weeds. Three 2x8 foot beds were constructed along the edge of the garden and a dozen fruit shrubs were planted in Fall 2012. In addition an herbal spiral has been built and a garden fence border project is in progress. The garden is continuing to expand with the addition of new beds, which will provide more flexibility in plantings. There are plans to install a wide variety of fruit trees in the Spring 2013 planting season, which will serve as examples of trees that will do well in the local climate and function as a diverse small-scale fruit orchard.

Garden workdays are held several times a semester where students and volunteers work on garden related projects and help maintain the garden. Master Gardeners regularly present workshops at these events, and several other workshops are also offered throughout the semester to educate students on sustainable gardening methods. Class tours are held to integrate classroom learning with hands-on work, sustainable gardening techniques and an understanding of the food system. A website to feature garden updates, a calendar, forum, media and resource pages has also been developed. Through class partnerships service learning opportunities have been made available for students to participate in garden activities. This has helped to expand the garden and increase funding opportunities for the garden through student initiatives.

Composting is conducted in the garden using pre-consumer food waste from the Sequoia Hall food science labs, Juice it Up!, Geronimo's and volunteers' personal food waste. Plans are for this compost to be used in the garden and other areas of campus.

### **Objectives for 2023**

- Reduce quantity of food waste by 15% by 2018 and by 50% by 2023
- Reduce quantity of other green waste by 50% by 2015 and 80% by 2023





- Conduct on-site composting to generate organic fertilizer for use on campus grounds
- Gain recognition as a Tree Campus USA<sup>26</sup>
- Re-use waste vegetable oil
- A fully-developed Organic Food Garden that provides educational and research opportunities for students, faculty, staff and the surrounding community.

### **Related Policies**

Under California law, the Integrated Waste Management Act directs every jurisdiction to divert 50% of its waste stream starting in year 2000. There are no specific regulations mandating diversion of green waste. Neither CSU Chancellor's Office nor CSUN have specific policies regarding green waste diversion.

Handling of compostable materials in California is regulated under Title 14, Chapter 3.1 "Compostable Materials Handling Operations and Facilities Regulatory Requirements"<sup>27</sup>, which requires that all compostable materials handling activities shall obtain a Compostable Materials Handling Facility Permit with the exception of excluded activities under Section 17855. These include:

(2) Vermicomposting, and (4) Handling of green material, feedstock, additives, amendments, compost, or chipped and ground material is an excluded activity if 500 cubic yards or less is on-site at any one time, the compostable materials are generated on-site and if no more than 1,000 cubic yards of materials are either sold or given away annually. The compostable material may also include up to 10% food material by volume. (6) Non-commercial composting with less than one cubic yard of food material is excluded provided that all compostable material is generated and used on-site. (7) Storage of bagged products from compostable material is an excluded activity provided that such bags are no greater than 5 cubic yards. (8) Within-vessel composting process activities with less than 50 cubic yard capacity are excluded.

### **Comparable Goals**

UCSB: 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<sup>28</sup>.

UC System: 50% diversion from landfill by 2008, 75% diversion by 2012, zero waste by 2020

UCSC 2020 Goals:<sup>29</sup> Each college provides a hands-on learning garden site; students, staff, and faculty collaborate through courses, workshops, and a new undergraduate major to foster critical pedagogy and understanding of the agri-food system.

University of Southern California Urban Garden<sup>30</sup>

- A partnership between the USC Office of Sustainability and the non-profit organization, Urban Farming. Supplies are provided by Urban Farming
- Volunteers maintain and harvest vegetables and fruits as a learning opportunity.
- Numerous learning and working sessions are offered.
- No pesticides or chemical fertilizers are used to maintain the garden.

CSU Chico Gateway Garden<sup>31</sup>



- Volunteer opportunities in planting and maintaining raised bed gardens
- Educational programs in gardening, food preparation, nutrition, and eco-landscaping.
- Community garden events

### **Recommended Potential Strategies**

#### Issue 1: Reduce quantity of organic waste

- OG1.1 Collect and record all current waste from campus dining facilities for baseline data, set targets, and measure progress
- OG1.2 Provide compost receptacles in residence halls and campus eating locations (USU and Bookstore complexes, Sierra Center, Arbor Grill, Geronimo's, Orange Grove Bistro) and collect post-consumer food waste daily
- OG1.3 Use compostable or reusable food containers and utensils at all campus dining facilities wherever feasible
- OG1.4 Provide pre-consumer food waste receptacles inside all campus food preparation kitchens and collect daily
- OG1.5 Collect coffee grounds from all campus coffee shops and compost at campus garden
- OG1.6 Expand composting operation at campus garden to incorporate pre-consumer waste from all campus kitchens
- OG1.7 Conduct pilot study to assess feasibility of composting waste paper from campus bathrooms
- OG1.8 Develop (or purchase) in-vessel composter to compost post-consumer waste from throughout campus
- OG1.9 Research possible uses of biodiesel fuel on campus and if viable, purchase and install a biodiesel converter
- OG1.10 Collect and process waste vegetable oil from campus kitchens into biodiesel

#### Issue 2: Educate students and the campus community about food waste

- OG2.1 Provide signage at all eating establishments regarding wasting food
- OG2.2 Provide signage for all compost receptacles clearly indicating allowed substances
- OG2.3 Expand student internship program in campus garden
- OG2.4 Provide additional research opportunities for students to study composting

#### Issue 3: Continue to develop the CSUN Organic Food Garden as an educational resource

- OG3.1 Install a greenhouse/storage area for research and projects
- OG3.2 Install seating for an outdoor classroom.
- OG3.3 Install seating for a work area for planting, washing and harvesting produce
- OG3.4 Establish an annual maintenance budget for the organic food garden
- OG3.5 Establish sufficient space for the compost area.
- OG3.6 Assess interest in and feasibility of offering a sustainable horticulture or other gardening class.

#### Issue 4: Develop and manage campus grounds using sustainability practices



- OG4.1 Conduct research to generate liquid fertilizer/compost tea from organic waste
- OG4.2 Establish program to use compost on campus grounds and distribute/sell excess compost
- OG4.3 Maintain and utilize campus tree inventory (GIS) for managing tree maintenance
- OG4.4 Investigate options for reducing areas of irrigated landscape and introducing native plants

Issue	Strategy	Party Responsible	STARS Credit	Status	Priority
OG1.1	Collect and record waste data	TUC, IS		In progress	Phase 1
OG1.2	Compost receptacles	AS, PPM, TUC, USU, Housing	OP T2-8		Phase 3
OG1.3	Compostable/reusable containers	TUC, AS	OP T2-12		Phase 3
OG1.4	Receptacles in kitchens	TUC, IS, AS	OP T2-7, 2-8	In progress	Phase 1
OG1.5	Coffee grounds	TUC, IS, AS		In progress	Phase 1
OG1.6	Expand compost operations		OP T2-23	In progress	Phase 1
OG1.7	Compost waste paper				No further action
OG1.8	In-vessel composter	PPM, AS, IS, TUC	OP T2-23		Phase 3
OG1.9	Biodiesel converter	PPM, IS EH&S		In progress	Phase 2
OG1.10	Waste vegetable oil	PPM, IS, TUC		Ongoing	Phase 1
OG2.1	Food waste signage	PPM, AS, IS, TUC	ER 4, ER T2-2		No further action
OG2.2	Compost receptacle signage	PPM, AS, IS, TUC	ER 4, ER T2-2		Phase 3
OG2.3	Garden internships	IS	ER T2-2	Ongoing	Phase 1
OG2.4	Student compost research	IS		Ongoing	Phase 1
OG3.1	Greenhouse storage area	PPM, IS	ER T2-2		Phase 3
OG3.2	Outdoor classroom	PPM, IS	ER T2-2	In progress	Phase 2
OG3.3	Work area	PPM, IS	ER T2-2		Phase 2
OG3.4	Garden budget	IS	ER T2-2		Phase 2
OG3.5	Expand compost area	PPM, IS	ER T2-2	In progress	Phase 1
OG3.6	Horticulture class	IS, LSP, Tseng		In progress	Phase 3
OG4.1	Liquid fertilizer	PPM, IS			Phase 2
OG4.2	Use/sell compost	PPM, IS	ER T2-5		Phase 3
OG4.3	Tree inventory	FPDC, PPM, IS		In progress	Phase 1
OG4.4	Landscape and native plants	FPDC, PPM	OPT2-19, 2-20, OPT2-47	In progress	Phase 1

<sup>26</sup> <http://www.arborday.org/programs/treeCampusUSA/index.cfm>

<sup>27</sup> [http://www.calrecycle.ca.gov/Laws/Regulations/Title14/default.htm#Chapter3\\_1](http://www.calrecycle.ca.gov/Laws/Regulations/Title14/default.htm#Chapter3_1)

<sup>28</sup> [http://www.sustainability.ucsb.edu/wp-content/uploads/sustainability\\_plan\\_workingdoc4.08.pdf](http://www.sustainability.ucsb.edu/wp-content/uploads/sustainability_plan_workingdoc4.08.pdf)

<sup>29</sup> [http://sustainability.ucsc.edu/sites/sustainability.ucsc.edu/files/UCSC\\_Sust\\_Plan\\_4.23.10.pdf](http://sustainability.ucsc.edu/sites/sustainability.ucsc.edu/files/UCSC_Sust_Plan_4.23.10.pdf)

<sup>30</sup> <http://green.usc.edu/node/5073>

<sup>31</sup> <http://www.csuchico.edu/gateway/learn/sustainability%20garden.shtml>



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## Action Plan — Purchasing and Consumption

CSU Northridge spends a substantial amount of money on goods each year as part of its everyday operations including almost \$1 million a year in office supplies alone<sup>32</sup>. This purchasing power can be utilized to help build a sustainable economy when the triple bottom line is considered with each purchase made. CSUN seeks to reduce the significant impacts of its consumption by reducing the amount of total products purchased and increasing sustainable products purchased.

### Main Issues

1. Reduce overall product consumption
2. Increase the use of sustainable products
3. Increased awareness regarding sustainable purchasing and consumption

*Note: Construction, chemical, and food purchases are covered in separate sections.*

### How We're Doing

#### General Campus Purchasing

In 2010-11, 95% of CSU Northridge's funds spent on reportable purchases for the State Agency Buy-Recycled Campaign (SABRC) policy<sup>33</sup> contained recycled materials<sup>34</sup>. However, this number dropped to 65% in the 2011-12 fiscal year<sup>35</sup>.

In May 2012, CSUN initiated a program to purchase IT hardware in bulk to receive discounted pricing. These purchases are coordinated by Purchasing and Contract Administration (PCA) and are made every three months. In the first cycle, the university saw almost 19% in cost savings.

#### OfficeMax

Office Max (OM) is the CSU-wide contracted vendor for office supplies and currently makes deliveries to CSUN five days a week. OM currently offers and labels hundreds of recycled and recyclable items as well as items manufactured by small businesses, minority and women owned businesses, and non-profit organizations providing employment and training for persons with physical and developmental challenges or other severe disabilities. In addition to the product catalog, OM is working on various sustainability-related programs on campus.

PCA is currently working with OM to create lists for users that will substitute standard items with preferred green products. This is in conjunction with the initiative to substitute brand name items with generic products to reduce the university's spending on office supplies.

The Tote Program provides reusable bins for delivery of office supplies to campus departments. These bins are left in designated areas for pick-up by the OM driver and are used to return empty



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boxes back to OM. This program will divert an estimated 4100 pounds of cardboard from the landfill each year<sup>36</sup>.

The Small Order Program requests users to not place their order until it reaches \$75 in value. It is estimated that this program will reduce corrugated boxes by 735 pounds and save \$113,040 in fuel and administrative costs over a three year period. These programs will be effective starting January 7, 2013<sup>6</sup>.

OfficeMax is working with A.S. Campus Recycling Services to collect disposable pens through a program with TerraCycle and Newell Rubbermaid. Bins will be placed throughout campus and sent to TerraCycle where they will be upcycled into new products<sup>37</sup> and Associated Students will receive \$.02 per eligible item submitted. The program will be launching in Spring 2013.

### **Furniture and Equipment**

Asset Management collects unwanted furniture, fixtures and equipment from campus departments for surveying. The surveyed items are available for reuse by campus departments via the asset management website. Items can also be purchased by the public via auction on a Public Surplus website. Items that are not purchased are donated to non-profit organizations for reuse. This program should be advertised more heavily to inform departments of the ability to furnish offices at no cost and mitigate new purchases from being made, thus reducing campus costs and acquisition of new products.

### **Physical Plant Management**

All campus toilet tissue, single and multi-fold towels, and toilet seat covers are made of 100% recycled content and roll hand towels are 70% recycled content. All plastics such as plastic liners, irrigation pipe, sprinkler parts, conduit and fittings are manufactured from recycled materials. Green cleaning products are used when appropriate and a reusable wet mop and dust mop program is in place.

### **Paper Use**

CSUN has been moving towards a paperless environment as an increasing amount of work is being carried out online and as more resources are available electronically. Some examples include:

- The University Catalog is completely online and there will no longer be a hard copy edition.
- CSUN has used *Hershey Singularity* for archiving student records electronically in Admissions and Records for over fifteen years. This service is expanding to other areas on campus.
- The University is encouraging the use of Moodle, an online learning management system, by faculty for distribution of course materials including syllabi.
- CSUN is now offering many courses online, reducing the use of paper. CSUN has implemented a new electronic thesis and dissertation system whereby the thesis approval



and submission process occurs entirely online. These are now stored in an online electronic archive and do not require printing.

- The Library offers a wide range of electronic resources and services including most journals online, a growing collection of e-books, electronic reserves for 24 hour access, text-a-librarian and digital archives<sup>38</sup>.

Copy paper is purchased through OM and Xerox. As mandated by the CSU, at least 50% of paper and paper product purchases are to contain 30% post-consumer waste (PCW) recycled content<sup>3</sup>.

However, only 44% of CSUN's 2011-12 printing and writing paper purchases were made of recycled materials.

Some campus departments have printers and copiers set to print documents double-sided and in black and white, but this is not mandated campus-wide.

### **Sustainable Office Program**

The CSUN Sustainable Office Program was designed in spring 2012 in response to a recommendation by Provost Hellenbrand as a means to educate, evaluate, reward, and improve sustainable behavior in offices on campus. Students enrolled in an environmental policy class researched programs at other universities and created an office checklist<sup>39</sup> based on their research. The checklist asks questions pertaining to sustainability efforts in five areas of focus: waste, carbon footprint, water, toxic reduction, and culture shift. A pilot program was conducted in Fall 2012 in six campus departments by students enrolled in the Best Practices in Sustainability course. Students conducted a preliminary evaluation based on current practices taking place in the office and provided reports with recommendations. Based on the findings from this pilot, revisions to the program will be made and a plan developed to extend the program.

### **Technology**

The CSU system has negotiated contracts with Dell, Hewlett-Packard, Ricoh, Canon, Xerox, and a variety of other technology companies. Some of the equipment purchased is EnergyStar rated, but this is not currently a required policy across campus. The default setting for most Dell computers is to enter sleep mode after 30 minutes of inactivity. These settings can be changed by the user. Old and outdated technology equipment is sent to the Asset Management department to be surveyed.

### **Matador Bookstore**

The bookstore carries a selection of eco-friendly products including school supplies made from recycled content as well as water bottles and travel mugs. A textbook rental program was started in Fall 2008, and saves students money by allowing students to rent books for 50% off the list price.

### **Objectives for 2023**

- Implement campus-wide environmentally-preferred purchasing policy



- Create campus purchasing reduction goal for various product categories based on baseline data to be collected
- Reduce campus copy paper use by an amount to be determined upon consultation with appropriate entities. Proposed reduction goal of 20% by 2015, of 40% by 2020, and of 50% by 2023.

## **Related Policies**

### Current Policies

According to the CSU Electronic Signature Policy<sup>40</sup>, signatures submitted electronically are acceptable for official campus documents as long as certain security requirements are met. Implementing a system that accepts electronic signatures will allow campus documents to be submitted electronically thereby reducing or eliminating printed documents. This could apply to Purchasing and Contract Administration, Human Resources, Accounts Payable, Admissions and Records, and other campus units.

The CSU Policy Manual for Contracting and Procurement<sup>41</sup> includes a policy regarding the purchase of products containing recycled materials. The State Agency Buy-Recycled Campaign (SABRC) policy states that 50% of reportable purchases including glass, metal, plastic, tires, paint, paper, and various other materials must be made of recycled content. The campaign states that, “campuses shall establish purchasing practices that assure, to the maximum extent economically feasible, the purchase of materials, goods, and supplies that are recycled or have recycled material within their content. Fitness and quality being equal, purchase preference shall be given to recycled products whenever such products are available and the cost of such products is no greater than that of their non-recycled counterparts.”

### Possible Policies for Adoption

Environmentally-preferred purchasing policies consider alternative practices, items, and services that include take account of social, economic, and environmental factors. All consumable products, furniture, fixtures, and equipment are covered, including but not limited to: office supplies, printing products, computing equipment, cleaning products, appliances, and lighting. These guidelines have been adopted by private business, the University of California system, US EPA, the state of California, and the entire Federal government via Executive Order 12873 (1993) and Executive Order 13514 (2009). The EPA provides guidelines on buying materials through a Comprehensive Procurement Guideline (CPG) program, and has a life cycle calculator to compare products within specific purchasing categories.<sup>42</sup> The state of California Department of General Services also has an environmentally preferred purchasing guide that includes state regulations<sup>43</sup>.

The CSU Buy-Recycled Campaign is weak in that social and environmental costs are not factored into cost and the policy only applies when recycled products are priced the same or below non-recycled products.



## Comparable Goals

The following are goals adopted by other institutions or relevant groups:

- The University of California system has implemented a sustainable practices policy that applies to all areas of sustainability, including environmentally preferred purchasing<sup>44</sup>. A large number of universities nationally have also adopted some form of Environmental Purchasing Policy.
- Cal Poly San Luis Obispo integrated an EPP catalog into their OM portal.

## Recommended Potential Strategies

### Issue 1: Reduce product consumption

- PU1.1 Determine baseline paper usage to determine appropriate reduction goal
- PU1.2 Evaluate implementation of electronic signatures on all campus documents
- PU1.3 Move from 30% PCW recycled paper to 50% and 100% PCW recycled paper
- PU1.4 Assess campus spending on goods and assess additional ways to reduce purchasing
- PU1.5 Provide incentives for departments to reduce spending on office equipment and supplies. This can be offered in conjunction with the Sustainable Office Program.
- PU1.6 Review current energy management standards on electronic equipment with IT and implement energy saving features if needed. Require energy-saving features to be enabled on all devices in use.
- PU1.7 Implement print management strategies to reduce paper consumption including mandated double-sided and black and white printing for all draft materials, elimination of individual printers, and reusing single-sided printed paper.
- PU1.8 Create campus purchasing consumption reduction goal for various product categories
- PU1.9 Research implementation of central rental/shared resource facility to reduce duplication of purchases by campus units. Assess option of stocking reusable tableware in meeting rooms.
- PU1.10 Implement campus-wide environmentally preferred purchasing policy

### Issue 2: Increase the use of sustainable products

- PU2.1 Compile inventory of environmentally preferable products offered through contracted vendors and distribute to campus purchasers
- PU2.2 Evaluate campus purchases and use results to make recommendations to the campus for increased environmentally preferred products and decreased consumption
- PU2.3 Incorporate appropriate environmentally preferred commodity criteria into all RFPs and contracts. Include specifications for a manufacturing take-back program for RFPs/contracts with electronic purchases.
- PU2.4 Meet or exceed and document full compliance with state recycled products campaign policy. Identify shortfalls and options for closing them, and improve percentage of recycled purchases reported in State Agency Buy Recycled Campaign annual report.
- PU2.5 Assess purchases of computers and laptops to determine baseline compliance of machines with Electronic Product Environmental Assessment Tool (EPEAT) tool. Set benchmarks for reaching Bronze, Silver, and Gold registration under EPEAT.





**Issue 3: Increase awareness regarding sustainable purchasing and consumption**

**PU3.1** Promote office related programs including requirement to purchase a minimum 30% PCW paper, office surplus, pen recycling through TerraCycle, toner cartridge and ink-jet recycling, e-waste procedures, and battery collection.

Issue	Strategy	Party Responsible	STARS Credit	Status	Priority
PU1.1	Baseline paper usage	<b>OM</b>		In progress	Phase 1
PU1.2	Electronic signatures (see AD2.1)				
PU1.3	Increase to 50% PCW paper	<b>OM, IS, PCA</b>		In progress	Phase 1
PU1.4	Assess spending	<b>PCA, OM, IS</b>			Phase 3
PU1.5	Spending incentives	<b>IS</b>			Phase 2
PU1.6	Energy management (see EN2.7)				
PU1.7	Print management (see WR1.3)		OP T2-39		
PU1.8	Consumption reduction goal	<b>PCA, OM, IS</b>			Phase 3
PU1.9	Central resources	<b>PCA, IS, ARP</b>			Phase 3
PU1.10	EPP policy	<b>PCA</b>	OP 13		Phase 2
PU2.1	Product inventory	<b>PCA, OM</b>		In progress	Phase 2
PU2.2	Evaluate spending (see PU1.4 and PU2.1)				
PU2.3	Purchase contracts	<b>PCA</b>	OP 13		Phase 3
PU2.4	State recycle policy	<b>PCA, PPM</b>		In progress	Phase 1
PU2.5	EPEAT baseline	<b>PCA, IT</b>	OP 10		Phase 3
PU3.1	Promote office programs	<b>PCA, OM, IS, ASR</b>	ER 4	In progress	Phase 1

<sup>32</sup> OfficeMax spend report – CSU Northridge \$287,793.63 July 1-Oct 30, 2012

<sup>33</sup> [www.calstate.edu/icsuam/sections/5000/5235-0.shtml](http://www.calstate.edu/icsuam/sections/5000/5235-0.shtml)

<sup>34</sup> [www.calstate.edu/Csp/recycle/10-11/Recycle\\_Report\\_Worksheet.pdf](http://www.calstate.edu/Csp/recycle/10-11/Recycle_Report_Worksheet.pdf)

<sup>35</sup> Data provided by the CSUN Purchasing and Contract Administration

<sup>36</sup> Data provided by OfficeMax

<sup>37</sup> [www.terracycle.com/en-US/brigades/wi.html](http://www.terracycle.com/en-US/brigades/wi.html)

<sup>38</sup> Text from “Some Thoughts on Paperlessness” document prepared for Provost Harry Hellenbrand by Susan Curzon, Jeff Wiegley, and Diane Stephens in October 2010.

<sup>39</sup> Sustainable Office Program checklist available from Institute for Sustainability

<sup>40</sup> [www.calstate.edu/icsuam/sections/3000/3701.01.shtml](http://www.calstate.edu/icsuam/sections/3000/3701.01.shtml)

<sup>41</sup> [www.calstate.edu/icsuam/sections/5000/5235-0.shtml](http://www.calstate.edu/icsuam/sections/5000/5235-0.shtml)

<sup>42</sup> <http://www.epa.gov/oppt/epp/>

<sup>43</sup> [www.dgs.ca.gov/buyinggreen/Home/BuyersMain.aspx](http://www.dgs.ca.gov/buyinggreen/Home/BuyersMain.aspx)

<sup>44</sup> [www.ucop.edu/ucophome/coordrev/policy/sustainable-practices-policy.pdf](http://www.ucop.edu/ucophome/coordrev/policy/sustainable-practices-policy.pdf)



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## Action Plan — Transportation

Transportation accounts for 41% of California’s greenhouse gas emissions and 96% of transportation fuels are petroleum based. There are serious environmental and health effects associated with the extraction and combustion of transport fuels including air pollution, which is exacerbated by the local topology and meteorological conditions; climate change, primarily as a result of carbon dioxide emissions; and environmental damage caused by oil extraction and refining. California State University, Northridge strives to be a good neighbor and a leader in the adoption of sustainability policies and education. To this end the university is evaluating and addressing its impact on the environment from commuting and other transportation use. The lack of a good public transport system in the Los Angeles region and the predominance of motor vehicles as the primary means of commuting contribute greatly to carbon dioxide emissions and air pollution in this region. CSUN employs more than 3,500 faculty and staff and has a student enrollment of over 35,000, almost 95% of whom commute to campus, 74% by single occupancy vehicle. The University is addressing the adverse consequences of being primarily a commuter campus by investing in policies to reduce commuting, by increasing use of alternative modes of transportation, and by use of alternative fuel and power technology. In the next ten years, these strategies should be supplemented and further expanded for a more sustainable campus.

### Main Issues

1. Reduce total number of commuting miles
2. Reduce use of single occupancy vehicles for commuting
3. Reduce emissions associated with vehicle use on campus

### How We’re Doing

#### Student, Faculty and Staff Commute Modal Split

In 2010 IS carried out a commuting survey which showed that 74% of the faculty, staff, and students who commute to campus travel via single occupancy vehicle—a car, van, or truck<sup>45</sup>. The rate is higher among faculty and staff (85%) compared to students (72%). Only 8% commute via public transport (3% train, 5% bus) and 7% carpool. Most of the remaining 11% walk, skate, or bicycle to campus. Commuters travel an average of 14.5 miles to campus from all parts of Los Angeles and Ventura Counties, but the majority commute from the San Fernando Valley.

The annual total energy expended in commuting to campus is approximately 175 GWh, equivalent to 12.3 kWh/person/day (365 days per year). The annual carbon dioxide emissions resulting from campus commuting total over 40,000 tonnes<sup>46</sup>, equivalent to an average of approx. one tonne/person/year. This is greater than the 34,000 tonnes of CO<sub>2</sub> emissions from all other campus energy use<sup>47</sup>. The University carries out an annual survey of commuting behavior for faculty and staff as required by the AQMD. However, there is no systematic data collection on student commuting behavior.



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### Facilities for Bicyclists

The CSUN campus has made adjustments to its infrastructure to accommodate bicycling as a commute option with the opening of four Matador Bicycle Compounds that offer protected locations to park bicycles and the offering of "Rainy Day" parking permits to faculty and staff who bicycle to campus and meet the criteria. The Bicycle Registration Program and Matador Bicycle Compound are free services available to all CSUN students, faculty and staff.

There are currently 151 bicycle rack locations containing 8 different types of rack with an estimated total capacity of 1474 bicycles. Of these 132 racks are located in the main (southern) part of the campus with an overall capacity of 1098 bikes. With the exception of a few poorly located racks, most of these racks are highly occupied. There are many older-style racks in which only a bicycle wheel will fit. These types of rack provide poor protection against theft as many bikes have quick-release wheels allowing a thief to easily release a single wheel and remove the rest of the bike. "Wave" and "U" shaped racks are much more secure and permit the bicycle user to use a U-lock or cable to secure the bike frame itself to the rack, but are difficult to use because the bike is not held upright and easily falls over while the user is struggling to attach a lock. Only 561 of the 1474 bicycle rack parking slots on campus are located on these more secure wave racks; the remaining 913 are on single wheel racks – many of which are not bolted or cemented to the ground. This might be the underlying reason for rapidly increasing bicycle theft problem on campus. The installation of newer, theft-resistant racks would help to alleviate this and benefit all cyclists on campus. Also installation of bike lockers might be useful in this effort.

The University does not have a bike shop, a bike rental program or a bike share program.

The 2010 CSUN Commuting Report shows that two out of five of CSUN commuters would consider bicycling if conditions were right. Therefore, the Institute for Sustainability prepared a bicycle plan for CSUN campus, which is not part of the master plan. The bicycle plan was prepared with student participation and in collaboration with Facilities Planning Department<sup>48</sup>.

One bike path on Jacaranda Walk connecting the Transit Station and the USU is completed. Another bike path connecting the south campus and student housing on Lindley is at the planning stage. The bicycle plan articulates the location and type of further needed bicycle circulation infrastructure.

### Pedestrian circulation infrastructure

The bicycle plan does address pedestrian safety. However, a comprehensive pedestrian circulation plan is needed to improve safety for pedestrians and cyclists.

### Public Transit

The campus is served by the AVTA Express bus, the Metro bus, and the Metrolink train system. Faculty and staff can take the bus, rail, or train to campus and receive a discount of 60% off the cost



of their transit pass or multi-use tickets. However, the total monthly discount is not to exceed \$100 per month per employee. Employees are limited to a single, discounted purchase transaction per monthly selling period.<sup>49</sup>

The A. S. Ticket Office provides a Student Transit Subsidy to the students of CSUN to encourage more environmentally friendly commuting alternatives. This \$20 monthly transit subsidy is available to students who purchase a monthly transit pass.

There is a free shuttle between the CSUN campus and the Northridge Metrolink station. The shuttle drops students off on campus in the morning at the CSUN transit station and picks them up from the same location or from the USU in the afternoon to return to the Metrolink Station. This shuttle service is for Metrolink trains arriving at the Northridge Station in the morning between 7:07 am and 8:54 am. To return to the Northridge Metrolink Station by shuttle, there is a schedule that is based on the two afternoon pick-up locations between 2:30 pm and 5:05pm. The number of students coming from the Northridge Metrolink station later in the morning suggests that the shuttle times need to be expanded.

CSUN's Transit Station, which opened in 2012, has provided a central point on campus for connections to public transit.

#### Condensed Work Week

CSUN faculty and staff can lower the number of days spent commuting to the campus each week or every other week by adjusting their schedule to a 4/40 or 9/80 workweek schedule. They must obtain prior approval from their department before starting a compressed workweek schedule.

#### Telecommuting

CSUN faculty and staff can work from home one or more days per week. Prior approval from their department/office is needed before starting a telecommute option.

#### Carpool Matching

Vanpooling is available for CSUN faculty and staff who meet the starting locations and work hours of an existing CSUN vanpool; or who meet the criteria for starting a new vanpool group. There is a registration process. Vanpool program participants pay a monthly cost to participate. The cost ranges from \$78 to \$92 per month and is affected by whether or not a person is a vanpool passenger or a driver who meets the minimum monthly driving requirement.

The Guaranteed Emergency Ride program is a basic necessity for vanpool participants. If on a workday, a registered employee who used an alternative commute mode (i.e., vanpool or public transit) to get to work that day has an off-campus emergency and needs to leave campus, or there is



an on-campus emergency that requires the employee to stay late, the program provides a free, one-way ride that can be used to help the employee get back to his/her starting point (or home).

Carpooling is a commuting alternative for which there are currently no incentives, but employees may participate on a voluntary basis thus helping to reduce pollution, alleviate traffic congestion and increase environmental stewardship. There are a limited number of parking spaces in faculty lots that are designated as "Rideshare/Carpool" parking spaces.

The University does not have a carpool program for students. However, the 2010 CSUN Commuting Report shows that of the three alternatives provided—carpooling, public transit, and bicycling—carpooling enjoys the widest support across the campus community, with more than two thirds of CSUN commuters who are not currently carpooling expressing willingness to use this mode. Carpooling is particularly appealing to students, with an impressive 80% stating a willingness to use this commute mode under the right conditions. When it comes to the factors that might encourage carpooling among students, the ability to find other commuters who have similar schedules and who commute from their area, a discounted parking permit for carpoolers, and a guaranteed ride home in an emergency top the list. A.S. Environmental Affairs Committee has expressed interest in ride sharing and car sharing programs for students.

#### Local Housing

Although the University does not have incentives or programs to encourage employees to live close to campus or students to live close to or on campus, there are a significant number of faculty, staff and students living within a five mile radius. A total of 10,690 students (31%) and 1,198 faculty and staff (44%) reside within 5 miles of campus.<sup>50</sup>

Student housing facilities on campus have a 3,100 bed capacity. These facilities accommodate 28% of new freshmen and 9% of all undergraduates. Phase 2 of the University Park Housing project, which will be completed in 2015, will add 396 beds in a semi-suite housing model for freshman students. There is a free housing shuttle bus that runs between the south campus and student housing on weekdays.

#### Electric Vehicle Charging Stations and Campus Fleet

There are currently eight electric vehicle charging stations on campus, with two installations in each of the following locations: B4 Visitor Lot, G3 Surface Lot, G7 Surface Lot, and G9 Parking Structure. There is currently no cost to charge an electric vehicle on the CSUN campus. While the vehicle is using the space, it MUST be charging. Once the vehicle completes charging, it must be relocated to another space. Vehicles must display a valid CSUN Parking Permit while using the station.

There are a total of 226 vehicles in the campus fleet, of which 57% are electric and 6% are fueled with compressed natural gas.



## Objectives for 2023

- Reduce commuting population from 95% to 85%
- Reduce vehicle miles traveled by faculty, staff and students by 10%
- Reduce commuting trips to campus by 10%
- Increase share of alternatives to single-occupancy vehicles for commuting from 26% to 40%
- Gain recognition as a Bicycle-friendly University<sup>51</sup>
- Reduce, with a goal of eventual elimination, vehicle use in the campus core
- Reduce average emissions associated with university fleet operations (non-construction/maintenance vehicles) by 50%
- Systematize transport data collection

## Related Policies

Ensure compliance with State anti-idling laws<sup>52</sup>.

## Comparable Goals

- Reduce vehicle miles traveled by faculty and staff by 10% (Cal Poly Pomona)<sup>53</sup>
- 40% of campus population uses alternatives to single-occupancy vehicles to commute on a daily basis. (Cal Poly Pomona)<sup>53</sup>
- Reduce commuting population to 73% from 88% for the students (Cal Poly Pomona)<sup>53</sup>
- Reduce commuting trips to campus by 30%. (Cal Poly Pomona)<sup>53</sup>
- Reduce the number of necessary trips to campus - by building or refurbishing sufficient housing on both the Main and East Campus for 60% of students and 65% of faculty/staff (CSU Monterey Bay)<sup>54</sup>
- Develop a university parking policy aimed at reducing single occupancy car trips to campus and intra-campus (CSU Monterey Bay)<sup>54</sup>
- Facilitate alternative “modes-to-work” for both external and internal campus trips (CSU Monterey Bay)<sup>54</sup>
- Reduce faculty, staff and student single occupancy vehicle commute to 36% from 57% (CSU Chico)<sup>55</sup>
- Target zero emissions associated with university fleet operations (Cal Poly Pomona)<sup>53</sup>
- Manage the university fleet for sustainability (CSU Monterey Bay)<sup>54</sup>
- Systematize transport data collection and accounting (CSU Monterey Bay)<sup>54</sup>

## Recommended Potential Strategies

Issue 1: Reduced total number of commuting miles

TR1.1 Increase opportunities to live on campus for students following Campus Master Plan

TR1.2 Increase opportunities to live close to campus for faculty and staff following Campus Master Plan



- TR1.3 Offer incentives or programs to encourage employees to live close to campus and to reduce weekly commuting miles
- TR1.4 Continue using alternative instruction technologies, such as online and hybrid courses, to offer the potential to reduce total number of weekly commutes by students

Issue 2: Reduce use of single occupancy vehicles for commuting

- TR2.1 Expand funding structure to support alternative modes of transportation
- TR2.2 Expand the hours of shuttle service to Northridge Metrolink station
- TR2.3 Implement ride sharing programs for students
- TR2.4 Implement a car-sharing program
- TR2.5 Develop preferential parking for carpools, van pools, motorcycles and high-efficiency vehicles
- TR2.6 Study feasibility of tiered parking fees based on vehicle type and proximity to campus core
- TR2.7 Continue and expand financial incentives for using alternative means of transportation
- TR2.8 Create campus pedestrian and bicycle master plan to improve pedestrian safety and infrastructure for bicycle circulation. Plan should include bike lanes, bike paths and sharrows.<sup>56,57</sup>
- TR2.9 Improve infrastructure for bicycle parking by increasing the overall capacity, by replacing most of the existing bike racks with safer types<sup>56,58</sup>
- TR2.10 Establish a bike shop and a bike rental program<sup>56,59</sup>
- TR2.11 Establish an education program to provide information on availability, safety, and rules of operation on all available modes of transportation on campus
- TR2.12 Coordinate efforts on campus with government agencies to support alternative transportation modes, such as improving and expanding bus lines and improving sidewalks around the campus
- TR2.13 Improve pedestrian circulation and safety by extending sidewalks and utilizing traffic slowing strategies on crosswalks<sup>56,60</sup>
- TR2.14 Study feasibility of permitting purchase of transit passes and vanpool passes under pre-tax Commute Choice benefits

Issue 3: Reduce emissions associated with vehicle use on campus

- TR3.1 Install more electric vehicle chargers including solar-powered chargers
- TR3.2 Construct additional transportation information center(s) and/or kiosks
- TR3.3 Discourage traffic through the campus. Phase-in elimination of vehicular traffic from Lindley Avenue, Plummer Street and Etiwanda Avenue and strive for a car-free campus
- TR3.4 Implement pilot programs for alternative transportation days
- TR3.5 Implement more pedestrian-only and bike-only zones
- TR3.6 Restrict lower-cost parking permit for students in housing to park in housing area only
- TR3.7 Promote use of lower cost lots on the campus periphery
- TR3.8 Explore an option to incentivize a no-car-policy for freshmen living on campus



- TR3.9 Facilitate car-sharing amongst student population
- TR3.10 Develop and encourage use of “smart parking” software
- TR3.11 Seek alternatives that work toward a zero emission fleet
- TR3.12 Avoid motorized vehicle use where possible
- TR3.13 Purchase electric, hybrid, or non-motorized vehicles where feasible, otherwise choose smaller gasoline-powered vehicles
- TR3.14 Continue to regularly maintain vehicles in top condition
- TR3.15 Conduct bi-annual surveys for students travel behavior
- TR3.16 Establish designated delivery/pick-up days for OfficeMax, FedEx, UPS, and other campus vendors to reduce fuel costs and CO<sub>2</sub> emissions

Issue	Strategy	Party Responsible	STARS Credit	Status	Priority
TR1.1	Student opps to live on-campus	FPDC, Housing	OP 15	Ongoing	Phase 1
TR1.2	Staff opps to live locally	FPDC, TUC	OP 16	Ongoing	Phase 3
TR1.3	Live local and reduce commuting	FA, HR, PS	OP T2-35, OP 16		Phase 3
TR1.4	Alternative instruction	Faculty, IS	OP 15	Ongoing	Phase 2
TR2.1	Alt transport funding	FPDC, AS, PS	OP 15		Phase 2
TR2.2	Expand shuttle hours	AS, PS	OP 15, OP 16		Phase 2
TR2.3	Ride sharing programs	SA, AS, PS	OP T2-32, OP 15	In progress	Phase 1
TR2.4	Car-sharing program	AS	OP T2-37, OP 15		Phase 2
TR2.5	Preferential parking	SA, AS, PS	OP 15, OP 16		Phase 3
TR2.6	Tiered parking fees	PS			Phase 3
TR2.7	Alt transport incentives (see TR2.1)		OP T2-29, OP 15, OP 16		
TR2.8	Bike circulation infrastructure	FPDC	OP 15, OP 16	In progress	Phase 1
TR2.9	Bike parking infrastructure	Facilities	OP T2-27, OP 15		Phase 1
TR2.10	Bike shop; bike rental program	AS	OP T2-26, OP 15	In progress	Phase 1
TR2.11	Education program	FPDC, IS, PS, AS	ER 2, OP 15		Phase 1
TR2.12	Coordination with agencies	IS	OP 15, OP 16	Ongoing	Phase 1
TR2.13	Pedestrian infrastructure	FPDC		Ongoing	Phase 3
TR2.14	Pre-tax transit passes	HR, PS	OP 16, OP T2-33		Phase 3
TR3.1	EV charging stations	CECS faculty, FPDC, PS		In progress	Phase 3
TR3.2	Info centers	FPDC	ER 4		Phase 3





Issue	Strategy	Party Responsible	STARS Credit	Status	Priority
TR3.3	Discourage campus traffic	FPDC		Ongoing	Phase 3
TR3.4	Alternative transportation days	FPDC, PS	OP 15, OP 16		Phase 3
TR3.5	Pedestrian and bike only zones	FPDC			Phase 3
TR3.6	Lower cost housing permit	Housing, PS	OP 15		Phase 2
TR3.7	Parking on periphery	PS			Phase 2
TR3.8	No-car policy in housing	FPDC, PS, Housing	OP 15		Phase 2
TR3.9	Car sharing (see TR2.4)		OP T2-37, OP 15		
TR3.10	Smart parking	IS, SA, AS, PS	ER T2-5	In progress	Phase 1
TR3.11	Zero emission fleet	PPM, PS	OP 14	Ongoing	Phase 1
TR3.12	Avoid motorized vehicle use	FPDC, PPM, PS		Ongoing	Phase 1
TR3.13	Purchase alternative vehicles (see TR3.11)				
TR3.14	Maintain vehicles	PPM		Ongoing	Phase 1
TR3.15	Travel behavior surveys (see also TR1.4)	IS			Phase 2
TR3.16	Reduced deliveries	PCA		In progress	Phase 1

<sup>45</sup> [http://csunsustainability.org/wp-content/uploads/2012/09/CommuntingReport\\_JPGS\\_2010\\_finalReduced.pdf](http://csunsustainability.org/wp-content/uploads/2012/09/CommuntingReport_JPGS_2010_finalReduced.pdf)

<sup>46</sup> A tonne is a metric ton, or 1000 kg

<sup>47</sup> IS Report on CSUN Greenhouse Gas Emissions (in preparation)

<sup>48</sup> [http://csunsustainability.org/wp-content/uploads/2012/09/bike\\_report\\_final.pdf](http://csunsustainability.org/wp-content/uploads/2012/09/bike_report_final.pdf)

<sup>49</sup> <http://www-admn.csun.edu/parking/transport/transport2.htm#public>

<sup>50</sup> Office of Institutional Research, CSUN

<sup>51</sup> A Bicycle-friendly University designation from the League of American Bicyclists can be achieved through the bicycle-related strategies listed in this section. The requirements for the program can be found at:

<http://www.bikeleague.org/programs/bicyclefriendlyamerica/universityscorecard/>

<sup>52</sup> <http://www.epa.gov/region8/air/rmcdc/pdf/CompilationofStateIdlingRegulations.pdf>

<sup>53</sup> [http://rs.acupcc.org/site\\_media/uploads/cap/172-cap.pdf](http://rs.acupcc.org/site_media/uploads/cap/172-cap.pdf)

<sup>54</sup> [sustainability.csumb.edu/sites/default/files/129/attachments/files/csumb\\_climate\\_action\\_plan\\_draft\\_part\\_1.pdf](http://sustainability.csumb.edu/sites/default/files/129/attachments/files/csumb_climate_action_plan_draft_part_1.pdf) and [sustainability.csumb.edu/sites/default/files/129/attachments/files/csumb\\_climate\\_action\\_plan\\_draft\\_part\\_2.pdf](http://sustainability.csumb.edu/sites/default/files/129/attachments/files/csumb_climate_action_plan_draft_part_2.pdf)

<sup>55</sup> [http://rs.acupcc.org/site\\_media/uploads/cap/22-cap\\_3.pdf](http://rs.acupcc.org/site_media/uploads/cap/22-cap_3.pdf)

<sup>56</sup> See bike plan. [http://csunsustainability.org/wp-content/uploads/2012/09/bike\\_report\\_final.pdf](http://csunsustainability.org/wp-content/uploads/2012/09/bike_report_final.pdf)

<sup>57</sup> The volume of bicycle circulation is the highest on Lindley Avenue, especially north of the USU. Installing bike lanes and/or bike sharrows on Lindley Avenue, both northbound and southbound, would alleviate this tension.

The intersection of Plummer Street and Lindley Avenue is especially problematic due to the high volume of cyclists traveling between the south campus and student housing. A roundabout for that intersection might be a solution.

The pedestrian path connecting Plummer Street between Lindley Avenue and Zelzah Street is another high volume bicycle route. Given that Plummer Street is one of the streets in the City of Los Angeles Bike Plan with



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a bike lane, the campus would benefit from installing not only a bike lane on Plummer Street (extending the existing bike lane on Plummer close to Reseda) but also a bike path on Plummer Street between Lindley Avenue and Zelzah Street.

A bike lane and/or bike sharrow for both northbound and southbound of Etiwanda Avenue will complete the circulation around the campus for cyclists. Another high volume bicycle circulation was observed on the street extension of Jacaranda Walk (east of Lindley Avenue). The bike path on Jacaranda Walk would be extended towards the SRC with a bike lane installed on that street.

<sup>58</sup> Peak racks are similar to standard low profile rack, but they are designed to allow front-end or rear-end parking. Each parking slot has a designated arm that extends towards the bicycle frame to allow the cyclist to lock the frame and wheel of the bicycle. The rack also has slots for one of the bicycle wheels to keep the bicycle upright while locking. These slots stagger each other, preventing any handlebar conflict that may occur. Peak racks are available as single or double sided depending on whether the rack is against or away from a wall. These racks are fastened to the concrete by tamper resistant bolts.

<sup>59</sup> The bike rental program includes the following components: (1) New bikes to rent, (2) supplies and equipment for the maintenance and repair of bikes, (3) abandoned bikes recovered and repaired for rent, (4) a bike shop at the USU complex to accommodate the bike rental program, (5) a bike technician and two student assistants to run the bike rental program. This affordable bike rental program will not only allow students to rent bikes for a semester by paying a fraction of the cost of a new bike, but also will provide a number of services to the campus community, including bicycle maintenance at a low cost and bicycle safety and maintenance education. In addition to accommodating the bike rental program, the bike shop will provide a venue for workshops, information, and tutorials on bicycle safety including mechanical safety, knowledge of the law, and proper road etiquette. The bike shop will also provide bike maintenance services at an affordable rate. The bike shop will also provide a location where the bike technician and two student assistants will repair the abandoned bikes on campus once a year in the summer to be rented the following semester. The permanent staff (bike technician) will be at the bike shop five days a week, eight hours a day, providing maintenance services at a reasonable rate in addition to running the bike rental program. The new bikes will be purchased and rented at an affordable rate. The abandoned bikes will be restored over the summer and will be rented at lower fee. Over the summer of 2011 and 2012 CSUN student bicycle organization members restored abandoned bikes donated by CSUN Student Housing Division.

<sup>60</sup> The sidewalks should be installed where there are none (e.g. on Darby Avenue north of Prairie Street). Four intersections are especially problematic due to high volume of use: Vincennes and Etiwanda, Prairie and Etiwanda, Jacaranda Walk and Lindley, Matador Walk and Lindley. Measures, such as embedded warning lights in the pavement of the street or highly visible art work on the pavement of the street should be implemented in order to improve the safety.

The high volume of pedestrians and cyclists on Matador Walk (south of the Oviatt Library), and the pedestrian path on the west side of the Oviatt Library makes this area problematic. One solution for this problem is to implement dismount zones close to the west and east ends of the Matador Walk and around Arbor Grill so that when entering the crowded core area, cyclists dismount their bikes. The dismount zones would work well if there is another bike path (similar to Jacaranda Walk) on Sierra Walk, which would attract some of the cyclists from Matador Walk.

The pathway connecting Lindley Avenue between Plummer Street and Halsted Street should have a bike path to accommodate high volumes of cyclists and pedestrians. Traffic slowing strategies should be utilized on campus.



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## Action Plan — Waste and Materials Management

In 2010, Americans generated about 250 million tons of trash and recycled and composted over 85 million tons, equivalent to a 34.1% recycling rate. On average, Americans recycled and composted only 1.51 pounds of their individual waste generation of 4.43 pounds per person per day<sup>61</sup>. Reduction of waste is important for many environmental, social and economic reasons. Waste pollutes soil, water, the atmosphere and the ocean. When runoff leaches into soil it carries contaminants with it which can be incorporated in crops and groundwater. Landfills are also the largest source of man-made methane emissions in California, and as such are significant sources of greenhouse gases as well as other pollutants. Waste can wind up in the ocean, carried by storm-water drains or wind. Plastics are a particularly insidious form of waste in the ocean as they degrade by the action of wind, water and sunlight to produce pellets which become trapped by ocean currents and wreak irreparable harm on the sea-life which ingest them. Social justice issues surround the disposal of waste from the determination of landfill locations to the export of electronic and hazardous waste for disassembly by the desperately poor in developing nations.

In 2011 CSUN generated 1,430 tons of waste which was hauled away and transported to Sunshine Canyon Landfill in the Los Angeles basin at a cost of \$193,926. Currently CSUN is home to 36,164 students and over 4,000 faculty and staff, so campus waste generation amounts to approx. 70 pounds per person annually. Reduction of CSUN's waste is necessary to conserve valuable natural resources, reduce environmental pollution and reduce negative social impacts. As landfills fill up it is imperative that CSUN implement strategies to significantly reduce the volume of its waste. Reductions will ultimately result in a positive economic gain for the campus once procedures are in place.

### Main Issues

1. Reduction of total waste generated by the campus (including landfill, recycling, and other disposal methods)
2. Increase diversion of wastes from landfills
3. Increased awareness of waste, recycling and related issues
4. Improve collection and access of waste related data and information

### How We're Doing

Campus waste collection is carried out through contract with Consolidated Disposal Service. Two separate contracts have been issued, one for the main campus and one for student housing. These contracts do not cover the University Student Union, the Satellite Student Union, the Bookstore complex, the Sierra Center, the Exchange or the University Club, but the USU and TUC piggyback on to the existing university contract in order to benefit from the same negotiated cost structure. Because separate invoicing occurs for each of these entities, and because A.S. Recycling and Asset



Management are also partially responsible for materials management, a coordinated effort is needed in order to assess and manage CSUN's waste.

Prior to 2008, coordination was facilitated through regular meetings between representatives of the responsible entities (PPM, AS, Housing, TUC, USU), which was required for the computation of diversion rates (% of waste diverted from the landfill through recycling and other means). The State mandated a diversion rate of 50% for local jurisdictions (which included the campus). Beginning in 2008, the State revised its waste reporting requirement, replacing the diversion rate target with per capita disposal target rates (lbs/person/day) for employees (2.6 lbs/person/day) and students (0.3 lbs/person/day). These calculations are based on total campus waste divided by total employee number and total student headcount. Since the reporting requirement changed there has not been a coordinated effort across campus to share waste and recycling data.

Waste collection is conducted via 3-yd, 6-yd, 10-yd and 40-yd bins at several locations across campus including the PPM yard, TUC and USU facilities, and campus housing. Most mixed waste is collected in 3-yd or 6-yd bins with 10-yd bins used for construction and demolition, and a 40-yd bin used for green waste. There is a fixed bin lift charge per bin, but the primary cost is based on weight through a dumping fee based on tonnage. Tonnage data is provided by the hauler based on data obtained from truck scales, and is provided on invoices submitted to the various campus entities. There is currently no mechanism in place to access monthly or annual weight data broken down by campus entity, though CSUN's annual reported data from the year 2000 through 2011 is accessible through the CalRecycle website<sup>62</sup>. Based on these data, the total waste tonnage has fallen by 49% over the past ten years from 2804 tons in 2001 to 1430 tons in 2011. On a per capita basis waste collected has fallen by a similar percentage. Current (2011) indexed rates are 1.87 pounds/employee per day and 0.21 pounds/student per day.

Currently A.S. funds the campus recycling program and provides daily recycling collection services to over 200 locations on campus. Locations include student housing, food service locations and campus buildings, with a primary focus on servicing exterior containers. Recyclables are taken to the A.S. recycling facility, where they are sorted and sold to local vendors. The program includes mixed paper, bottles/cans (aluminum, glass, and #1 and #2 plastic), cardboard, pallets, cell phones, and laser, toner, and ink jet cartridges. A.S. Recycling also coordinates with PPM on an extensive paper recycling program which operates throughout all campus departments, labs and faculty offices. Paper is collected from central building stations and deposited into external, locked, three yard bins throughout campus. In addition A.S. Recycling services approximately 45 internal office locations for the collection of bottles and cans on both a weekly schedule and will-call basis. In 2011 the campus recycled approximately 163 tons of mixed paper and cardboard, 6 tons of glass, 6 tons of plastics, and 1 ton of cans in addition to over 2000 printer ink cartridges. Funds received from the sale of recyclables go back into the A.S. Recycling program to help offset costs of operating its campus services. This amounts to approximately \$20,000 per year, to which A.S. appropriates roughly



\$205,000 per year to run the recycling program. The campus also saves monies from the reduction in trash hauling costs. In addition A.S. deposits \$110,000 per year into a fund for the construction of a new Recycling Center.

PPM is responsible for the recycling and reuse of furniture, fixtures and equipment on campus through Asset Management. Unwanted and discarded items are auctioned via a public surplus web site or donated to non-profits or schools. Items deemed to be beyond their useful life are assessed for recycling. Metal parts are recycled as scrap metal; and all electronic waste is recycled with an e-waste vendor. Only non-recyclable parts and materials are sent to the waste stream.

A.S. has approved a plastic bag ban on campus to begin in Spring 2013 and is seeking to reduce the use of plastic water bottles by retrofitting drinking fountains with filtered water and bottle-filling spigots in the future. While Associated Students has a well-established recycling program, more awareness is necessary to reduce the overall waste from the campus and increase the volume of recycling. Sustainability awareness is increasing amongst the campus population but much more needs to be done, and CSUN should shift from a “good” to an “urgent” activity plan for campus waste.

### **Objectives for 2023**

- Reduction of total waste per capita by 20% over current values
- Diversion of 75% of waste from landfills by 2023
- Expand recycling capability to a wider range of plastics and other materials

### **Related Policies**

State Administrative Manual 8600: Property Accounting<sup>63</sup> governs the acquisition, maintenance, control, and disposition of State property.

Under California law, the Integrated Waste Management Act (AB 939) passed in 1989, sets up a mandate for local jurisdictions to meet solid waste diversion goals of 25 percent by 1995 and 50 percent by 2000.<sup>64</sup>

A new bill, AB341 sets overall Statewide goals for a waste diversion rate of 75%<sup>65</sup>. This is still in discussion to define how will be accomplished.

The California Beverage Container Recycling and Litter Reduction Act places a fee (the California Redemption Value (CRV), of 5 cents on beverage containers less than 24 ounces, and 10 cents for containers 24 ounces or larger to incentivize recycling.<sup>66</sup>

Buy Recycled – SABRC (State Agency Buy Recycled Campaign) instituted in 1998/99 in which CSUN participated in for many years and may still do so—through Purchasing Office.

### **Comparable Goals**

- Become zero waste campus (over 90% diversion of waste from landfills and incinerators) (CSU Bakersfield)<sup>67</sup>



- Divert at least 25 percent of its solid waste from landfills or transformation facilities by January 1, 2002, and 50 percent by January 1, 2004 (CSU Chico).<sup>68</sup>
- Employee and student per capita disposal target: 0.6lbs (CSU Chico)<sup>69</sup>
- Increasing the number of outdoor recycling dumpsters (contents sorted and recycled at a rate of 90%) (CSU Fresno)<sup>70</sup>
- Continued utilization of Materials Recovery Facility as a means of diverting waste otherwise directed to landfills (CSU Fullerton)<sup>71</sup>
- Consistently maintained diversion rates of 70% since 2004 surpassing AB75 mandates of 50% diversion (CSU Long Beach)<sup>72</sup>
- 75% diversion rate for 2011 (CSU Long Beach)<sup>72</sup>
- increase in recycling between 2005/2006 and 2010/2011 from 794 tons to 1,246 tons, or almost 60% (CSU Monterey Bay)<sup>73</sup>
- reduction in tons of waste generated between 2005/2006 and 2010/2011 of 807 tons, or 32% (CSU Monterey Bay)<sup>73</sup>
- completely eliminate the amount of waste sent to the landfill (Cal Poly Pomona)<sup>74</sup>
- 50% waste reduction and recycling program (Cal Poly Pomona)<sup>74</sup>

### **Recommended Potential Strategies**

Issue 1: Reduction of total waste generated by the campus (including landfill, recycling, and other disposal methods)

- WR1.1 Conduct a comprehensive assessment of waste management and resource recovery by all entities on campus to ensure that these are being managed in the most efficient manner and that functions are not duplicated. Streamline operations to maximize efficiencies.
- WR1.2 Carry out cost-benefit analysis for replacing paper towels in restrooms with electric blow dryers, and replace where viable
- WR1.3 Reduce printing of documents and implement two-sided printing wherever possible.
- WR1.4 Establish an office surplus reuse or donation program for office supplies that includes tracking
- WR1.5 Reduce use of all disposable dinnerware, plates, utensils and cups on campus

Issue 2: Increase diversion of waste from landfills

- WR2.1 Construct a new recycling facility to provide expanded recycling ability both in terms of quantity and type of materials
- WR2.2 Expand recycling program to all buildings.
- WR2.3 Add recycling bins to the lobby of The Valley Performing Arts Center
- WR2.4 Expand recycling and resource recovery to Residence Halls and provide recycling containers to all rooms or corridors in Student Housing
- WR2.5 Purchase a vertical baler to yield bales of cardboard, solid mixed paper and PET.
- WR2.6 Investigate a market for recycled plastics #3-#7, and expand program accordingly
- WR2.7 Establish a space for storing students' discarded items when students vacate housing.



Issue 3: Increased awareness of waste, recycling and related issues

- WR3.1 Create a detailed website showing what items can be recycled and where to take them
- WR3.2 Increase signage for all bins (plastic, cans, paper, compost, landfill signs)
- WR3.3 Increase signage in high waste generating locations (dining services, restrooms, computer labs, etc.)
- WR3.4 Create an education program for the Housing Resident Assistants and a mandatory orientation for housing students on waste and recycling
- WR3.5 Create an “In-residence sustainability coordinator” position in Housing who is also a member of the Green Core Committee
- WR3.6 Expand education on sustainability practices related to waste through speakers, special events, classes, signage, videos, and field trips to landfills

Issue 4: Improve collection and access of waste related data and information

- WR4.1 Conduct comprehensive assessment of historical waste and recycling data. Report data
- WR4.2 Coordinate waste data collection, reporting and management across campus. Make waste and recycle data accessible and publicly available
- WR4.3 Conduct regular waste audits (food, trash, recycling, etc.)
- WR4.4 Continuously assess campus waste streams
- WR4.5 Conduct research on the amount and quality of student, faculty and staff awareness of waste management on campus

Issue	Strategy	Party Responsible	STARS Credit	Status	Priority
WR1.1	Comprehensive assessment	PPM (Johnson, Logsdon), Asset Mgt (Thomas), Housing (Watson or Reeves), TUC (Killops), USU (Ross, Raab); AS Recycling (Signett); IS; PCA	OP 17		Phase 1
WR1.2	Paper towels v. blow dryers	PPM	OP 17	In progress	Phase 1
WR1.3	Electronic processes	IT, college IT reps., library	OP 17, OP T2-40		Phase 1
WR1.4	Office surplus program	AS, IS AM	OP 17, OP T2-38		Phase 1
WR1.5	Disposable dinnerware	TUC	OP 17, OP T2-12		Phase 3
WR2.1	Recycling Center	AS, FPDC	OP 18	In progress	Phase 2
WR2.2	Expand recycling program	AS, PPM	OP 18	Pilot	Phase 2



Issue	Strategy	Party Responsible	STARS Credit	Status	Priority
WR2.3	Bins in VPAC lobby	AS, TUC, VPAC, PPM	OP 18		Phase 1
WR2.4	Recycling in student housing	AS, Housing	OP 18		Phase 2
WR2.5	Vertical baler	AS	OP 18		Phase 2
WR2.6	Recycle #3-7 plastics	AS	OP 18		Phase 2
WR2.7	Item reuse in housing	Housing, AS, PPM	OP 18, OP T2-42, 2-43		Phase 2
WR3.1	Website of recycled items	AS, IS	ER 4		Phase 1
WR3.2	Signage for all bins	AS, PPM, TUC, Housing, USU	ER 4	Ongoing	Phase 2
WR3.3	Signage in high waste locations	AS, PPM, TUC, Housing, USU	ER 4		Phase 2
WR3.4	Housing education program	Housing, AS	ER 1		Phase 2
WR3.5	Housing coordinator	Housing			Phase 2
WR3.6	Sustainability education (see Education section)	AS, IS	ER 4, ER T2-6	In progress	Phase 1
WR4.1	Historical data assessment	PPM, IS, AS, USU, Housing, TUC			Phase 1
WR4.2	Data collection and accessibility	PPM, IS, AS, USU, Housing, TUC			Phase 2
WR4.3	Waste audits	PPM, AS, Housing, TUC, USU, IS			Phase 3
WR4.4	Assess waste streams (part of WR1.1)				
WR4.5	Waste management research (see Education section)				

<sup>61</sup> [http://www.epa.gov/epawaste/nonhaz/municipal/pubs/msw\\_2010\\_rev\\_factsheet.pdf](http://www.epa.gov/epawaste/nonhaz/municipal/pubs/msw_2010_rev_factsheet.pdf)

<sup>62</sup> <http://www.calrecycle.ca.gov/StateAgency/Reporting/Detail.aspx?AgencyID=212>

<sup>63</sup> <http://sam.dgs.ca.gov/TOC/8600/8600.aspx>

<sup>64</sup> <http://www.calrecycle.ca.gov/Archive/21stCentury/Events/FutureMar99/issues1.htm>

<sup>65</sup> <http://www.calrecycle.ca.gov/75percent/>

<sup>66</sup> [http://www.cawrecycles.org/issues/current\\_legislation/ab3056\\_06](http://www.cawrecycles.org/issues/current_legislation/ab3056_06)

<sup>67</sup> [http://www.csub.edu/strategicplan/documents/work\\_plan/Goal\\_5\\_Work\\_Plan.pdf](http://www.csub.edu/strategicplan/documents/work_plan/Goal_5_Work_Plan.pdf) and

<http://zwia.org/standards/zw-definition/>

<sup>68</sup> <http://www.csuchico.edu/prs/EMs/2000/00-065.shtml>

<sup>69</sup> <http://www.csuchico.edu/vpbf/assets/3188%20Sustainability%20Report-lowres.pdf>

<sup>70</sup> <http://www.fresnostate.edu/adminserv/ehsrms/sustainability/wastered/>

<sup>71</sup> <http://pp.fullerton.edu/Information/Recycle/2008%20WasteManagementReport.pdf>

<sup>72</sup> <http://daf.csulb.edu/offices/ppfm/facilitiesmanagement/sustainability/sustainability.html>

<sup>73</sup> [http://sustainability.csumb.edu/sites/default/files/129/attachments/files/csumb\\_climate\\_action\\_plan\\_draft\\_part\\_2.pdf](http://sustainability.csumb.edu/sites/default/files/129/attachments/files/csumb_climate_action_plan_draft_part_2.pdf)

<sup>74</sup> <http://www.csupomona.edu/~sustainability/waste.shtml>





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## Action Plan — Water

CSUN is located in a region that is characterized by an insufficient supply of local water to serve its population. This problem was noted in the 1920s when the Metropolitan Water District of Southern California was established and will be increasingly evident as more and more demands are placed on water resources. The problem of inadequate local supply has been addressed by accessing water from the northern parts of the State and the Colorado River, but it appears inevitable that these sources will cease to be as effective in future in light of continued population growth and the effects of global warming.

Though comparatively the price of water is not as high as that of energy, water is a scarce and vital resource. The price of water is expected to increase in the next decade and beyond as larger populations increase the demand for this resource. Additionally, extracting, transporting and heating water require large amounts of energy, so being water wise also reduces our consumption of energy. CSUN's commitment is to be a good steward of water resources, and to conserve wherever we can.

### Main Issues

1. Improve conservation practices and reduce water consumption
2. Improve data collection, management and analysis
3. Increase awareness of water as a valuable resource and educate on water conservation principles

### How We're Doing

Water consumption on campus has declined significantly during the 20-year period between 1990 and 2010, decreasing from 254 million gallons in 1990 to 240 million gallons in 2000 and 202 million gallons in 2010, an overall decrease of 20% over the twenty year period. Total water consumption was at its lowest at 161 million gallons in 1994 following the Northridge earthquake. On a per capita basis, water indices during the same period were 8,290 gallons/student in 1990, 8,447 gallons/student in 2000 and 5,465 gallons/student in 2010. The most recent data indicate that in 2012 consumption was 5,789 gallons/student. On an FTES basis, consumption has fallen from 11,031 gallons/FTES in 1990 to 7,352 gallons/FTES in 2010. It fell to its lowest value of 6,925 gallons/FTES in 2011. The twenty year period between 1990 and 2010 marks a reduction in water consumption on a per FTES indexed basis of 33%. As the campus has grown in enrollment it has also grown physically, with building area increasing from 2,421,334 sq. ft. in 1990 to 5,669,045 sq. ft. in 2010; resulting in a change in the indexed water consumption based on building area from 105 gallons/sq.ft. in 1990 to 48 gallons/sq.ft. in 2010.



The activities primarily responsible for water consumption on the campus are irrigation, bathroom use, cooking and cleaning in campus dining services, domestic use in student housing, evaporation from swimming pools, and any leaks existing in the campus water circulation and distribution pipes.

Reductions in water consumption have occurred because attention has been paid to conservation. For example, research on a computerized weather-based irrigation control system began in 2006 which led to the system being installed at the start of 2009. Waterless urinals have been installed in the high-traffic bathrooms across campus, accounting for about 70% of all urinals; most of the refitting occurring in December 2009. Additionally new buildings constructed in the last five years have been built to LEED Silver or Gold standard, with robust pursuit of water points including water efficient/drought tolerant landscaping and water use reduction.

Despite the improvements in water management and the subsequent decrease in water use, there is still room for improvement and greater water savings. For example, the chilled water system is monitored for leaks, but there is no systematic leak detection done within the majority of the water network. Thus leaks are only found when water surfaces. Also, only auxiliaries that PPM invoices separately for their water use (e.g. TUC, A.S., USU) are sub-metered; other than these few buildings it is impossible to easily determine and therefore manage the water consumption for individual campus buildings or for irrigation. It is also worthwhile to note that conservation of potable water will result in less waste water and associated costs.

As has been noted elsewhere, sustainability is not yet part of CSUN's institutional culture. This is also evident with regards to water conservation.

### **Objectives for 2023**

- 15% reduction in water consumption
- Measure, record and analyze water consumption on a facility level
- Increase awareness of water-related issues by students, faculty and staff

### **Related Policies**

Since Los Angeles is dependent on imported water, both the city and county have made significant efforts to encourage residents to conserve. Los Angeles city has adopted a number of ordinances (examples listed below) to guide conservation.

- City of Los Angeles Water Conservation Ordinance<sup>75</sup>
- City of Los Angeles Emergency Water Conservation Plan<sup>76</sup>
- High Efficiency Plumbing Fixture Ordinance<sup>77</sup>

The city has also created a range of incentive programs to support its conservation efforts. These include:

- LADWP/MWD Commercial Water Conservation Rebate Program<sup>78</sup>
- California Friendly® Landscape Incentive Program<sup>79</sup>



Increased use of recycled water has been targeted as one of the main ways of reducing Los Angeles' dependence on imported water. To this end, LADWP and the Department of Public Works' Bureau of Sanitation have created a Recycled Water Master Planning Document to manage the use of recycled water through 2035<sup>80</sup>.

### Comparable Goals

- **University of California San Diego<sup>81</sup> – enrl. approx. 30,000**
  - Reduce overall water usage by 4% per year while increasing usage of reclaimed water, if possible
  - Sub-meter 100% of buildings for water usage
  - Sub-meter 100% of water used for landscaping
- **University of California Santa Barbara<sup>82</sup> – enrl. approx. 22,000**
  - Create a water management plan
  - Reduce potable water use from off campus by 15% (1-3 yrs) and 25% (3-5 yrs)
  - 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)
  - Increase reclaimed water use by 15% (1-3 yrs) and 25% (3-5 yrs)
- **University of California Santa Cruz<sup>83</sup> – enrl. approx. 17,900**
  - Research, identify and apply new technologies and improvements that reduce campus water consumption and/or increase efficiency
  - Maintain the campus potable water demand at levels equivalent to or lower than 206 million gallons per year
  - Implement effective educational campaigns to effect behavioral change and reduce water consumption
- **Pomona College<sup>84</sup> – enrl. approx. 1,560**
  - 5% annual reduction in 3-year average water use, adjusted for cooling degree days
  - Use of reclaimed/gray water
  - No net increase in impermeable surfaces (except where runoff is channeled into natural treatment infrastructure)
  - Increased use of sustainable storm water management techniques
  - Complete metering of major buildings for water use within 2 years
  - Complete metering of all buildings for water use within 5 years

### Recommended Potential Strategies

Issue 1: Improve conservation practices and reduce water consumption

WA1.1 Review urinals and use low-flow or waterless as appropriate.

WA1.2 Retrofit plumbing fixtures across campus as needed, prioritizing high consumption areas like commercial kitchens and toilets.

WA1.3 Minimize water consumption during construction projects.

WA1.4 Implement routine leak detection and repair program.

WA1.5 Reduce amount of irrigated landscaping.



- WA1.6 Use more drought tolerant plant species in landscaping.
- WA1.7 Assess use of reclaimed water for irrigation when permitted by Los Angeles County/LADWP
- WA1.8 Examine other opportunities for water reuse including capture of condensate from campus HVAC system

Issue 2: Improve data collection, management and analysis

- WA2.1 Compile and report historical water use data
- WA2.2 Conduct periodic water audit at least once every 5 years.
- WA2.3 Sub-meter campus buildings prioritizing higher occupancy/use buildings.
- WA2.4 Sub-meter irrigation zones.

Issue 3: Increase awareness of water as a valuable resource and educate on water conservation principles

- WA3.1 Include information on water consumption and conservation in new student orientation
- WA3.2 Include information on water consumption and conservation in sustainability campaign in student housing.
- WA3.3 Include information on water consumption and conservation in staff/faculty orientations.
- WA3.4 Increase messaging about water conservation.
- WA3.5 Increase student involvement in World Water Day event

Issue	Strategy	Party Responsible	STARS Credit <sup>85</sup>	Status	Priority
WA1.1	Waterless and low-flow urinals	PPM	OP 22, OP T2-44	In progress	Phase 1
WA1.2	Retrofit plumbing fixtures	PPM, Housing	OP 22	In progress	Phase 1
WA1.3	Construction projects		OP 22		No further action
WA1.4	Leak detection and repairs	<b>PPM</b> , Housing, USU	OP 22		Phase 3
WA1.5	Reduce landscaped areas	FPDC	OP 22	In progress	Phase 1
WA1.6	Drought tolerant plants (see WA1.5)		OP 22, OP T2-19, OP T2-47		
WA1.7	Reclaimed water and runoff	<b>FPDC</b> , PPM, Housing, USU	OP 22, OP T2-46		Phase 3
WA1.8	Water reuse opportunities	<b>FPDC</b> , PPM, Housing, USU	OP 22		Phase 3
WA2.1	Historical water use data (see WA2.3 and WA2.4)	IS, <b>PPM</b> , Housing, USU			Phase 2
WA2.2	Periodic water audits (see WA2.1)				



Issue	Strategy	Party Responsible	STARS Credit <sup>85</sup>	Status	Priority
WA2.3	Sub-meter campus buildings	PPM, Housing, USU	OP T2-45		Phase 3
WA2.4	Sub-meter irrigation zones	PPM, Housing, USU			Phase 3
WA3.1	New student orientation (See Education)		ER 3		
WA3.2	Information in housing (see Education)		ER 2, ER 4		
WA3.3	New employee orientation (see Education)		PAE 14		
WA3.4	Increased water signage (see Education)		ER 4		
WA3.5	Students at Water Day (see Education)		ER T2-6		

<sup>75</sup> <http://www.ladwpneighborhoodnews.com/external/content/document/1643/874195/1/Water%20Conservation%20Fact%20Sheet.pdf>

<sup>76</sup> [www.centralbasin.org/brochures/ordinance\\_City-of-Los-Angeles-Water-Conservation-Ordinance-July-2009.pdf](http://www.centralbasin.org/brochures/ordinance_City-of-Los-Angeles-Water-Conservation-Ordinance-July-2009.pdf)

<sup>77</sup> [http://ladbs.org/LADBSWeb/LADBS\\_Forms/Publications/LAGreenBuildingCodeOrdinance.pdf](http://ladbs.org/LADBSWeb/LADBS_Forms/Publications/LAGreenBuildingCodeOrdinance.pdf)

<sup>78</sup> [https://www.ladwp.com/ladwp/faces/wcnav\\_externalId/c-sm-watr-conser?\\_afdc.ctrl-state=z2vrm7tiz\\_4&\\_afdcLoop=221643589727000&\\_afdcWindowMode=0&\\_afdcWindowId=null#%40%3F\\_afdcWindowId%3Dnull%26\\_afdcLoop%3D221643589727000%26\\_afdcWindowMode%3D0%26\\_afdc.ctrl-state%3Dqa1ncolto\\_17](https://www.ladwp.com/ladwp/faces/wcnav_externalId/c-sm-watr-conser?_afdc.ctrl-state=z2vrm7tiz_4&_afdcLoop=221643589727000&_afdcWindowMode=0&_afdcWindowId=null#%40%3F_afdcWindowId%3Dnull%26_afdcLoop%3D221643589727000%26_afdcWindowMode%3D0%26_afdc.ctrl-state%3Dqa1ncolto_17)

<sup>79</sup> [https://www.ladwp.com/ladwp/faces/wcnav\\_externalId/a-w-Indscap?\\_afdcLoop=221686011596000#%40%3F\\_afdcLoop%3D221686011596000%26\\_afdc.ctrl-state%3Dqa1ncolto\\_69](https://www.ladwp.com/ladwp/faces/wcnav_externalId/a-w-Indscap?_afdcLoop=221686011596000#%40%3F_afdcLoop%3D221686011596000%26_afdc.ctrl-state%3Dqa1ncolto_69)

<sup>80</sup> [http://www.lacitysan.org/irp/documents/Recycled\\_Water\\_Master\\_Plan-Identification\\_of\\_Potential\\_Recycled\\_Water\\_Use.pdf](http://www.lacitysan.org/irp/documents/Recycled_Water_Master_Plan-Identification_of_Potential_Recycled_Water_Use.pdf)

<sup>81</sup> [http://sustainability.ucsd.edu/files/UCSD\\_Climate\\_Action\\_Plan\\_12-08.pdf](http://sustainability.ucsd.edu/files/UCSD_Climate_Action_Plan_12-08.pdf)

<sup>82</sup> [http://sustainability.ucsb.edu/plan/docs/sustainability\\_plan\\_workingdoc4.08.pdf](http://sustainability.ucsb.edu/plan/docs/sustainability_plan_workingdoc4.08.pdf)

<sup>83</sup> [http://sustainability.ucsc.edu/sites/sustainability.ucsc.edu/files/UCSC\\_Sust\\_Plan\\_4.23.10.pdf](http://sustainability.ucsc.edu/sites/sustainability.ucsc.edu/files/UCSC_Sust_Plan_4.23.10.pdf)

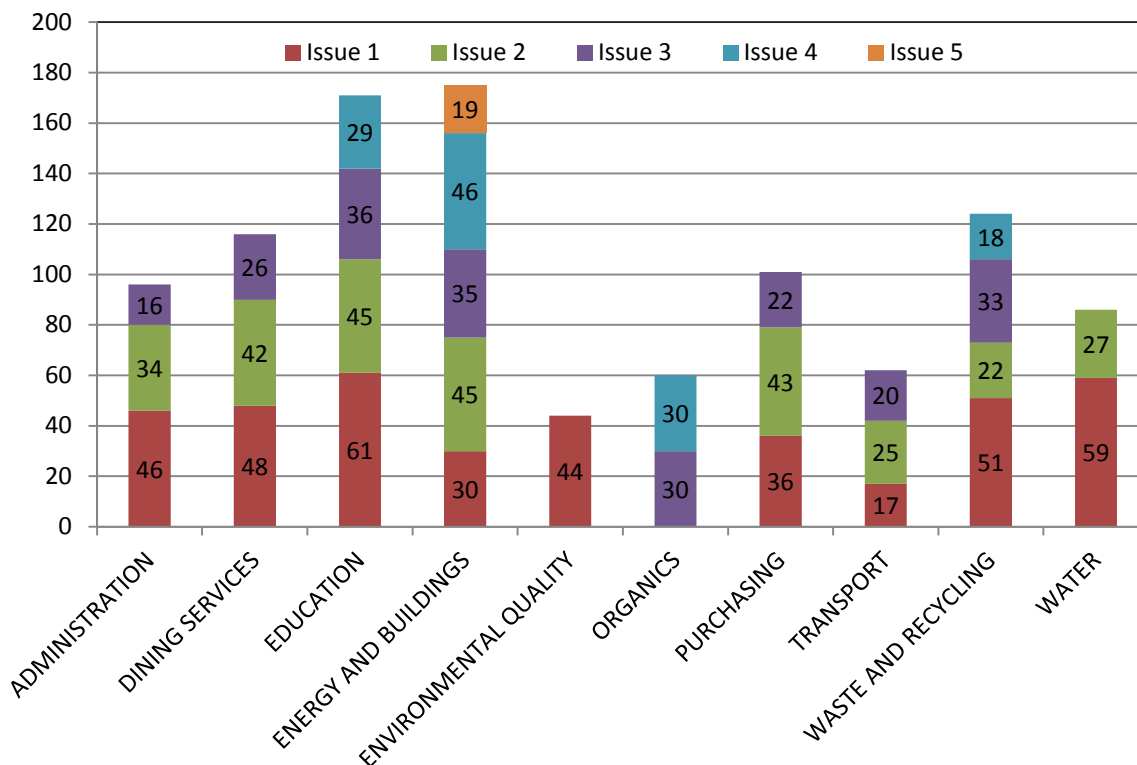
<sup>84</sup> <http://www.pomona.edu/administration/sustainability/resources/publications/SAP.pdf>

<sup>85</sup> STARS credit OP 22 is regarding campus water consumption. Campuses can earn up to 7 points by achieving at least a 30% reduction in total water consumption per weighted campus user compared to a 2005 baseline. CSUN's current estimated score is 4.4. All strategies above indirectly apply to this credit.



## Implementation Plan

A draft version of this plan was submitted to President Harrison on January 11, 2013. During spring semester 2013 this draft was presented to the Core Green Team, the University Budget and Planning Group, the Campus Environmental Planning Board, the Educational Resources Committee of the Faculty Senate, the Provost's Council and the full Faculty Senate. These groups, in addition to the Senate of the Associated Students and students in two sustainability classes, were asked to prioritize the thirty issues to be addressed in the ten topic areas. Responses to those surveys are shown in the chart below where the 'Issue #' refers to the "Main Issues" under each section and the numbers shown inside each bar are the survey counts in which this item was rated as one of the ten most important.



The chart shows that 'Education' and 'Energy and Buildings' are ranked as the two most important areas to be addressed. The STARS rating system also ranks these as the highest priority areas with a total of 107 points allocated to 'Education' and 41 to 'Energy and Buildings'. As a university it is fitting that education should be of the highest priority. Aging infrastructure dictates that energy and buildings must also be high priority areas.

The second phase of plan item prioritization was a set of focus group meetings in which each of the ten plan areas was discussed separately by personnel directly involved in operations in that area and



by other interested parties. These focus group meetings took place in April, 2013 and included representation from the campus auxiliaries (TUC, USU, Housing and AS) as well as general fund operations. Each focus group discussed the section’s strategies, status, feasibility and responsible parties and estimated associated costs for each action item. Priorities were established, and in some cases changes were made to the items or a decision was made that no further action was warranted at this time. Detailed notes were recorded and disseminated to all attendees. These notes have been made available for future reference as a separate appendix to this plan. Based upon these meetings, action items in each area were prioritized as Phase 1, Phase 2 and Phase 3, with Phase 1 being the highest priority and expected to be completed in 1 – 3 years, budget permitting. Phase 2 projects are targeted for 3 – 5 years and should follow completion of Phase 1, with Phase 3 following completion of these. Priorities should be re-assessed annually.

The following tables place the strategies from the previous sections into these priority groupings.

**PHASE 1 (1-3 years)**

<b>Issue</b>	<b>Strategy</b>	<b>Party Responsible</b>	<b>Status</b>	<b>Cost</b>
AD1.1	Sign the ACUPCC	President, IS	In progress	Personnel: \$35,000 in faculty RT and GA support
AD1.2	Integrated planning	VPs		No direct costs
AD1.3	Sust coordinator	<b>FPDC</b> , IS		Personnel: \$90,000 - \$120,000 (incl. benefits) + office space.
AD1.4	SOP	<b>IS</b> , AS, HR	Pilot conducted	Personnel: \$15,000 in FRT (develop materials, edit reports), \$20,000 FRT (marketing campaign), \$8,000 (student workers – AS will fund), \$5,000 (materials)
AD2.1	Electronic processes	<b>FIN</b> , IT, IS, <b>HR</b> , RGS	Ongoing	Personnel: \$75,000 in student programming costs or \$250,000 in outside consulting costs
AD2.2	Electronic storage	IT	Ongoing	Personnel. No additional costs.
AD2.3	Web interface	<b>IT</b> , Advancement, ARP	In progress	Personnel. Budgeted through WebOne.
AD2.5	GIS facility database	FPDC, ARP, <b>IS</b>	In progress	Personnel: \$25,000 development costs covered by FPDC.
AD2.6	Maintain GIS data	<b>FPDC</b> , ARP, IS		Covered by FPDC/PPM
DS1.1	Sustainable vendors	<b>TUC</b> , IS, MMC	Ongoing	Student project to be carried out by MMC/ dept. of FCS working with TUC. No costs.
DS1.5	CSA program	IS, <b>MMC</b>		MMC student project.
DS2.2	Healthy, vegetarian	<b>TUC</b>	Ongoing	No additional costs.



Issue	Strategy	Party Responsible	Status	Cost
	options			
DS2.3	Collaborative program	TUC, MMC, IS	Ongoing	No additional costs.
ED1.1	SOP materials	IS, AS	In progress	Faculty stipend/RT for summer, 2013 + acad. year (\$10,000) + printing/design training materials (\$5,000)
ED1.2	Training workshops/audits	IS, AS, HR		RT/stipend for faculty to run training workshops for employees (\$5,000)
ED1.3	SOP tracking	IS, AS		Faculty RT to develop database and award system (\$5,000)
ED1.4	Host events	IS, AS	Ongoing	Personnel (incl. in IS budget)
ED1.6	Site signage	IS, FPDC, PPM	Ongoing	No additional signs at this time
ED1.9	Campus tour and orientation	SA, AS		Personnel (costs to be absorbed by SA)
ED1.12	Assess sust. literacy	IS, Faculty, AS		Faculty RT/stipend for assessment study (\$5,000)
ED2.4	Master's program tracks	SCC	In progress	No additional cost
ED2.5	Sustainability literacy	SCC, LSP, IS, AS		Faculty RT/stipend to research, develop, test, disseminate and score assessment tool (\$10,000)
ED2.6	Identify faculty	SCC, LSP, IS	Ongoing	No additional cost
ED3.1	On-campus SL & internships	IS, CIELO	In progress	Included in IS budget
ED3.3	Active learning procedures	IS, CIELO	In progress	Included in IS budget
ED4.3	Faculty participation	IS	Ongoing	Included in IS budget
EN1.1	Flow meters & temp sensors	FPDC, PPM	In progress	Flow meters & temp sensors required at 20 locations: total cost including piping, insulation, etc.: \$200,000 (\$150,000 already funded in prior budget under FPDC)
EN1.2	Electric meters	FPDC, PPM		\$6000 /meter installed. Approximately 25 locations- \$150,000 total cost
EN2.3	Prioritize improvements	FPDC, PPM	In progress	Energy efficiency improvements – budget for research + implementation, \$100,000
EN2.4	Lighting upgrades	FPDC, PPM	In progress	Exterior parking lot lights: \$10,000/each. Walkway lights-





Issue	Strategy	Party Responsible	Status	Cost
				\$8,000 each. B4 completed. Cleary Walk budgeted already.
EN2.7	Reduce office and lab computer power consumption	IT, IS, PTG, college techs. IT, USU IT	In progress	Project research being carried out under existing budgets.
EN3.4	User behavior	PPM, IS, Housing, AS	Ongoing	Will be included in SOP budget under AD1.4 and ED 1.1-1.3.
EN3.6	Consumption data visible	IS, AS		Indoor signage: \$10,000
EN5.1	New construction	FPDC	Ongoing	No additional costs
EQ1.1	Organic fertilizers	PPM, USU, IS, Housing		Use campus-generated compost. No additional costs
EQ1.2	Cleaning products	IS, PPM, USU, Housing	In progress	Cost neutral
OG1.1	Collect and record waste data	TUC, IS	In progress	Personnel in existing IS budget. Scale: \$5000
OG1.4	Receptacles in kitchens	TUC, IS, AS	In progress	Receptacles: \$2000
OG1.5	Coffee grounds	TUC, IS, AS	In progress	Under existing IS budget.
OG1.6	Expand compost operations		In progress	Shredder: \$2000, container relocation \$3000, additional labor: \$5,000
OG1.10	Waste vegetable oil	PPM, IS, TUC	Ongoing	\$15,000 for biodiesel converter
OG2.3	Garden internship program	IS	Ongoing	Included in existing IS budget
OG2.4	Student compost research	IS	Ongoing	Included in existing IS budget
OG3.5	Expand compost area	PPM, IS	In progress	Included in OG1.6
OG4.3	Tree inventory	FPDC, PPM, IS	In progress	Included in AD2.6
OG4.4	Landscape and native plants	FPDC, PPM	In progress	Included in PPM budget
PU1.1	Baseline paper usage	OM	In progress	Covered in existing budgets
PU1.3	Increase to 50% PCW paper	OM, IS, PCA	In progress	Cost increase of 7% to individual depts..
PU2.4	State recycle policy	PCA, PPM	In progress	No additional cost
PU3.1	Promote office programs	PCA, OM, IS, ASR	In progress	Included in SOP (AD1.4 and ED 1.1-1.3)
TR1.1	Student opps to live on-campus	FPDC, Housing	Ongoing	
TR2.3	Ridesharing	SA, AS, PS	In	Zimride is \$14,000 annually.



Issue	Strategy	Party Responsible	Status	Cost
	programs		progress	Ridelinks license is already available. Requires \$10,000 for faculty/student implementation thru' portal
TR2.8	Bike circulation infrastructure	FPDC	In progress	approx. \$100,000 for traffic engineer approved plan
TR2.9	Bike parking infrastructure	Facilities		\$97,000 for replacement of 700 bike capacity racks with Peak racks
TR2.10	Bike shop; bike rental program	A.S.	In progress	Supported and funded by AS
TR2.11	Education program	FPDC, IS, PS, AS		Signs to accompany new racks, approx cost \$10,000
TR2.12	Coordination with agencies	IS	Ongoing	None
TR3.10	Smart parking	IS, SA, AS, PS	In progress	Completion of project under CQFee: \$50,000
TR3.11	Zero emission fleet	PPM, PS	Ongoing	No additional cost
TR3.12	Avoid motorized vehicle use	FPDC, PPM, PS	Ongoing	Under TR2.8
TR3.14	Maintain vehicles	PPM	Ongoing	No additional cost
TR3.16	Reduced deliveries	PCA	In progress	No additional cost
WR1.1	Comprehensive assessment	PPM (Johnson, Logsdon), Asset Mgt (Thomas), Housing (Watson, Reeves), TUC (Killops), USU (Ross, Raab); AS Recycling (Signett); IS; PCA		Cost for installation of a 40 yard bin likely to be \$25K-\$30K per location plus compactor cost: \$50,000 +/- does not include installation, maintenance, and hauling. Energy and cost savings realized in pull frequency.
WR1.2	Paper towels v. blow dryers	PPM	In progress	Installation cost/dryer approx. \$1,000. 90 locations likely for \$90K total cost.
WR1.3	Electronic processes	IT, college IT reps., library		Cost savings
WR1.4	Office surplus program	AS, IS AM		Matador Exchange hosting fee (funded by AS)
WR2.3	Bins in VPAC lobby	AS, TUC, VPAC, PPM		Bin cost: \$550-\$750 each. Total: \$2,500.
WR4.1	Historical data assessment	PPM, IS, AS, USU, Housing, TUC		Funded under existing IS budget
WA1.1	Waterless and low-flow urinals	PPM	In progress	Low flush urinals (Cost for urinal replacement is \$150,000. There are few high



Issue	Strategy	Party Responsible	Status	Cost
				water use flushing urinals left around campus. These can be addressed with existing operating budgets.)
WA1.2	Retrofit plumbing fixtures	PPM, Housing	In progress	Toilet replacements cost \$400,000 for 400 toilets across campus. LADWP rebate is expected to be approx. \$100/toilet or \$40,000.
WA1.5	Reduce landscaped areas	FPDC	In progress	Moderate cost, short payback. Funded under existing PPM budget.

### PHASE 2 (3-5 years)

Issue	Strategy	Party Responsible	Status
AD1.5	CSUN Shine	<b>Advancement</b>	
AD2.4	Electronic forms (see AD2.1)		
AD2.8	Use of SOLAR	IT	
AD3.2	Cohesive story	<b>Advancement, IS</b>	Ongoing
DS2.1	Salad bars	<b>TUC</b>	
DS3.1	Food labeling	<b>TUC, IS, MMC</b>	
ED1.5	Film series	<b>IS, AS, SA, Housing</b>	
ED1.7	Informational signage	<b>IS, AS, TUC, PPM, SA sust. comm.</b>	Ongoing
ED1.8	Student media pieces	<b>IS, faculty, AS</b>	
ED1.10	Informal education in housing	<b>IS, Housing</b>	
ED1.11	Living-learning community	<b>Housing</b>	Summer 2014
ED2.1	Identify courses	<b>SCC, IS, LSP</b>	Ongoing
ED2.3	SLOs and SUST courses	<b>SCC, LSP</b>	
ED2.7	Online/hybrid SUST 300	<b>faculty</b>	In progress
ED2.8	Offer graduate certificate	<b>SCC, IS, Tseng</b>	On hold
ED3.4	Active learning outreach	<b>IS, CIELO</b>	Ongoing
ED3.5	Internship course	<b>SCC, Faculty</b>	
EN1.3	Real-time energy monitoring	<b>FPDC, PPM, IS, PTG</b>	
EN2.1	Prioritize retro-commissioning	<b>FPDC, PPM, IS</b>	In progress
EN2.2	Energy audits	<b>PPM</b>	
EN2.5	Indoor lighting assessment	<b>FPDC, PPM, IS</b>	
EN2.6	Power consumption assessment	<b>PPM, IS, academic departments</b>	Ongoing
EN3.3	Dashboard monitors	<b>Housing</b>	
EN4.3	Solar PV capacity	<b>FPDC, PPM</b>	
EQ1.5	Determine e-waste	<b>AM, IS, IT, USU</b>	
OG1.9	Biodiesel converter	<b>PPM, IS, EH&amp;S</b>	In progress
OG3.2	Outdoor classroom	<b>PPM, IS</b>	In progress



Issue	Strategy	Party Responsible	Status
OG3.3	Work area	PPM, IS	
OG3.4	Garden budget	IS	
OG4.1	Liquid fertilizer from compost	PPM, IS	
PU1.5	Spending incentives	IS	
PU1.10	EPP policy	PCA	
PU2.1	Product inventory	PCA, OM	In progress
TR1.4	Alternative instruction	Faculty, IS	Ongoing
TR2.1	Alt transport funding	FPDC, AS, PS	
TR2.2	Expand shuttle hours	A.S., PS	
TR2.4	Car-sharing program	A.S.	
TR3.6	Lower cost housing permit	Housing, PS	
TR3.7	Parking on periphery		
TR3.8	No-car policy in housing		
WR2.1	Recycling Center	AS, FPDC	In progress
WR2.2	Expand recycling program	AS, PPM	Pilot
WR2.4	Recycling in student housing	AS, Housing	
WR2.5	Vertical baler	AS	
WR2.6	Recycle #3-7 plastics	AS	
WR2.7	Item reuse in housing	Housing, AS, PPM	
WR3.1	Website of recycled items	AS, IS	
WR3.2	Signage for all bins	AS, PPM, TUC, Housing, USU	Ongoing
WR3.3	Signage in high waste locations	AS, PPM, TUC, Housing, USU	
WR3.4	Housing education program	Housing, AS	
WR3.5	Housing coordinator	Housing	
WR4.2	Data collection and accessibility	PPM, IS, AS, USU, Housing, TUC	

### PHASE 3 (5+ Years)

Issue	Strategy	Party Responsible	Status
AD2.7	Data management	FPDC, IS, IT- Ice, IR- Huber	
AD3.1	Sust material online	IT, IS, Advancement	Ongoing
DS1.6	Fresh produce	TUC	
ED2.2	Faculty development	SCC, LSP	
ED3.2	Community SL & internships	IS, CIELO	
ED4.1	Faculty research	IS, RGS	
ED4.2	Online directory	IS, RGS	
EN2.8	Motion-detection switches	FPDC, PPM	
EN4.1	Solar thermal analysis	FPDC, PPM, IS	
EN4.2	Invest in renewable energy	Faculty, FPDC	
EQ1.4	Materials inventory	EH&S	
OG1.2	Compost receptacles	AS, PPM, TUC, USU, Housing	
OG1.3	Compostable/reusable containers	TUC, AS	
OG1.8	In-vessel composter	PPM, AS, IS, TUC	



<b>Issue</b>	<b>Strategy</b>	<b>Party Responsible</b>	<b>Status</b>
OG2.2	Compost receptacle signage	PPM, AS, IS, TUC	
OG3.1	Greenhouse storage area	PPM, IS	
OG3.6	Horticulture class	IS, LSP, Tseng	In progress
OG4.2	Use/sell compost	PPM, IS	
PU1.4	Assess spending	PCA, OM, IS	
PU1.8	Consumption reduction goal	PCA, OM, IS	
PU1.9	Central resources	PCA, IS, ARP	
PU2.3	Purchase contracts	PCA	
PU2.5	EPEAT baseline	PCA, IT	
TR1.2	Staff opps to live locally	FPDC, TUC	Ongoing
TR1.3	Live local and reduce commuting	FA, HR, PS	
TR2.5	Preferential parking	S.A., A.S., P.S.	
TR2.6	Tiered parking fees	P.S.	
TR2.13	Pedestrian infrastructure	FPDC	Ongoing
TR2.14	Pre-tax transit passes	HR, PS	
TR3.1	EV charging stations		In progress
TR3.2	Info centers		
TR3.3	Discourage campus traffic		Ongoing
TR3.4	Alternative transportation days		
TR3.5	Pedestrian and bike only zones		
WR1.5	Disposable dinnerware	TUC	
WR4.3	Waste audits	PPM, AS, Housing, TUC, USU, IS	
WA1.4	Leak detection and repairs	PPM, Housing, USU	
WA1.7	Reclaimed water and runoff	FPDC, PPM, Housing, USU	
WA1.8	Water reuse opportunities	FPDC, PPM, Housing, USU	
WA2.3	Sub-meter campus buildings	PPM, Housing, USU	
WA2.4	Sub-meter irrigation zones	PPM, Housing, USU	





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## Appendix A: Planning Personnel

This plan was prepared by the following people:

### Planning committee

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## Appendix B: STARS Checklist

<b>Category 1: Education &amp; Research (ER)</b>			
<b>Credit Number</b>	<b>Credit Title</b>	<b>Possible Points</b>	<b>CSUN Strategies</b>
<b>Co-Curricular Education</b>			
ER 1	Student Sustainability Educators Program	5	WR3.4; ED1.11
ER 2	Student Sustainability Outreach Campaign	5	EN3.5; EQ2.1; TR2.11; WA3.2
ER 3	Sustainability in New Student Orientation	2	ED1.9; WA3.1
ER 4	Sustainability Materials and Publications	4	AD1.5; AD3.1; DS3.1; ED1.1; ED1.6; ED1.7; ED1.8; EN3.2; EN3.2; EN3.3; EN3.6; EQ2.3; OG2.1; OG2.2; PU3.2; PU3.3; TR3.2; WR3.1; WR3.2; WR3.3; WR3.6; WA3.2; WA3.4
<b>Co-Curricular Education Tier Two Credits</b>			
ER T2-1	Student Group	0.25	
ER T2-2	Organic Garden	0.25	OG2.1-2.3; OG3.1-3.5
ER T2-3	Model Room in Residence Hall	0.25	
ER T2-4	Themed Housing	0.25	ED1.11
ER T2-5	Sustainable Enterprise	0.25	OG4.2; TR3.10
ER T2-6	Sustainability Events	0.25	ED1.4; ED1.5; WR3.6; WA3.5
ER T2-7	Outdoor Program	0.25	
ER T2-8	Themed Semester or Year	0.25	
<b>Co-Curricular Education Total Points</b>		<b>18</b>	
<b>Curriculum</b>			
ER 5	Sustainability Course Identification	3	ED2.1; Indirect: ED2.6
ER 6	Sustainability-Focused Courses	10	ED2.3
ER 7	Sustainability-Related Courses	10	ED2.3
ER 8	Sustainability Courses by Department	7	ED2.3
ER 9	Sustainability Learning Outcomes	10	ED2.5
ER 10	Undergraduate Program in Sustainability	4	*
ER 11	Graduate Program in Sustainability	4	ED2.4, ED2.8
ER 12	Sustainability Immersive Experience	2	
ER 13	Sustainability Literacy Assessment	2	ED1.12
ER 14	Incentives for Developing Sustainability Courses	3	
<b>Curriculum Total Points</b>		<b>55</b>	
<b>Research</b>			
ER 15	Sustainability Research Identification	3	ED4.1; ED4.2
ER 16	Faculty Engaged in Sustainability Research	10	ED4.1; ED4.3



Credit Number	Credit Title	Possible Points	CSUN Strategies
ER 17	Departments Engaged in Sustainability Research	6	ED4.3
ER 18	Sustainability Research Incentives	6	ED2.2
ER 19	Interdisciplinary Research in Tenure and Promotion	2	
<b>Research Total Points</b>		<b>27</b>	
<b>Total ER Points</b>		<b>100</b>	

<b>Category 2: Operations (OP)</b>			
Credit Number	Credit Title	Possible Points	CSUN Strategies
<b>Buildings</b>			
OP 1	Building Operations and Maintenance	7	EN1.1-2.8; EN5.1
OP 2	Building Design and Construction	4	EN1.1-2.8; EN5.1
OP 3	Indoor Air Quality	2	*
<b>Buildings Total Points</b>		<b>13</b>	
<b>Climate</b>			
OP 4	Greenhouse Gas Emissions Inventory	2	AD1.1
OP 5	Greenhouse Gas Emissions Reduction	14	EN1.1-1.3, EN2.1 - 2.8, EN4.1-4.3
<b>Climate Tier Two Credits</b>			
OP T2-1	Air Travel Emissions	0.25	
OP T2-2	Local Offsets Program	0.25	
<b>Climate Total Points</b>		<b>16.5</b>	
<b>Dining Services</b>			
OP 6	Food and Beverage Purchasing	6	DS1.1-1.6
<b>Dining Services Tier Two Credits</b>		<b>2.5</b>	
OP T2-3	Trayless Dining	0.25	*
OP T2-4	Vegan Dining	0.25	DS2.2
OP T2-5	Trans-Fats	0.25	DS2.2
OP T2-6	Guidelines for Franchisees	0.25	DS1.3
OP T2-7	Pre-Consumer Food Waste Composting	0.25	OG1.4
OP T2-8	Post-Consumer Food Waste Composting	0.25	OG1.2,OG1.4
OP T2-9	Food Donation	0.25	
OP T2-10	Recycled Content Napkins	0.25	*
OP T2-11	Reusable Container Discounts	0.25	*
OP T2-12	Reusable To-Go Containers	0.25	OG1.3; WR1.5
<b>Dining Services Total Points</b>		<b>8.5</b>	
<b>Energy</b>			



Credit Number	Credit Title	Possible Points	CSUN Strategies
OP 7	Building Energy Consumption	8	EN1.1-2.8
OP 8	Clean and Renewable Energy	7	EN4.1-4.3
<b>Energy Tier Two Credits</b>			
OP T2-13	Timers for Temperature Control	0.25	
OP T2-14	Lighting Sensors	0.25	EN2.8
OP T2-15	LED Lighting	0.25	EN2.4
OP T2-16	Vending Machine Sensors	0.25	
OP T2-17	Energy Management System	0.25	*
OP T2-18	Energy Metering	0.25	*, EN1.2
<b>Energy Total Points</b>		<b>16.5</b>	
<b>Grounds</b>			
OP 9	Integrated Pest Management	2	
<b>Grounds Tier Two Credits</b>			
OP T2-19	Native Plants	0.25	OG4.4; WA1.6
OP T2-20	Wildlife Habitat	0.25	OG4.4
OP T2-21	Tree Campus USA	0.25	OG objective
OP T2-22	Snow and Ice Removal	0.25	
OP T2-23	Landscape Waste Composting	0.25	OG1.6, OG1.8
<b>Grounds Total Points</b>		<b>3.25</b>	
<b>Purchasing</b>			
OP 10	Computer Purchasing	2	PU2.5
OP 11	Cleaning Product Purchasing	2	EQ1.2
OP 12	Office Paper Purchasing	2	PU3.1
OP 13	Vendor Code of Conduct	1	PU1.10; PU2.3
<b>Purchasing Tier Two Credits</b>			
OP T2-24	Historically Underutilized Businesses	0.25	
OP T2-25	Local Businesses	0.25	
<b>Purchasing Total Points</b>		<b>7.5</b>	
<b>Transportation</b>			
OP 14	Campus Fleet	2	TR3.11
OP 15	Student Commute Modal Split	4	TR1.1; TR1.4-TR2.5, TR2.7-2.12, TR3.4,3.6 3.8,3.9
OP 16	Employee Commute Modal Split	3	TR1.2,1.3,2.2,2.5,2.7,2.8,2.12,2.14 ,3.4
<b>Transportation Tier Two Credits</b>			
OP T2-26	Bicycle Sharing	0.25	TR2.10
OP T2-27	Facilities for Bicyclists	0.25	TR2.9
OP T2-28	Bicycle and Pedestrian Plan	0.25	*
OP T2-29	Mass Transit Programs	0.25	TR2.7
OP T2-30	Condensed Work Week	0.25	*



Credit Number	Credit Title	Possible Points	CSUN Strategies
OP T2-31	Telecommuting	0.25	*
OP T2-32	Carpool/Vanpool Matching	0.25	TR2.3
OP T2-33	Cash-out Parking	0.25	TR2.14
OP T2-34	Carpool Discount	0.25	
OP T2-35	Local Housing	0.25	TR1.3
OP T2-36	Prohibiting Idling	0.25	*
OP T2-37	Car Sharing	0.25	TR2.4, TR3.9
<b>Transportation Total Points</b>		<b>12</b>	
<b>Waste</b>			
OP 17	Waste Reduction	5	WR1.1-1.5
OP 18	Waste Diversion	3	WR2.1-2.7
OP 19	Construction and Demolition Waste Diversion	1	*
OP 20	Electronic Waste Recycling Program	1	EQ2.1
OP 21	Hazardous Waste Management	1	EQ1.3
<b>Waste Tier Two Credits</b>			
OP T2-38	Materials Exchange	0.25	*, WR1.4
OP T2-39	Limiting Printing	0.25	PU1.7, AD1.4, EN3.1
OP T2-40	Materials Online	0.25	*, AD2.1, WR1.3
OP T2-41	Chemical Reuse Inventory	0.25	EQ1.4
OP T2-42	Move-In Waste Reduction	0.25	WR2.7
OP T2-43	Move-Out Waste Reduction	0.25	WR2.7
<b>Waste Total Points</b>		<b>12.5</b>	
<b>Water</b>			
OP 22	Water Consumption	7	WA1.1-1.8
OP 23	Stormwater Management	2	
<b>Water Tier Two Credits</b>			
OP T2-44	Waterless Urinals	0.25	WA1.1
OP T2-45	Building Water Metering	0.25	WA2.3
OP T2-46	Non-Potable Water Usage	0.25	WA1.7
OP T2-47	Xeriscaping	0.25	OG 4.4; WA1.6
OP T2-48	Weather-Informed Irrigation	0.25	*
<b>Water Total Points</b>		<b>10.25</b>	
<b>Total OP Points</b>		<b>100</b>	



<b>Category 3: Planning, Admin. &amp; Engagement (PAE)</b>			
<b>Credit Number</b>	<b>Credit Title</b>	<b>Possible Points</b>	<b>CSUN Strategies</b>
<b>Coordination and Planning</b>			
PAE 1	Sustainability Coordination	3	*, AD1.3
PAE 2	Strategic Plan	6	AD1.2
PAE 3	Physical Campus Plan	4	AD1.2
PAE 4	Sustainability Plan	3	This plan, AD1.2
PAE 5	Climate Action Plan	2	AD1.1
<b>Coordination and Planning Total Points</b>		<b>18</b>	
<b>Diversity and Affordability</b>			
PAE 6	Diversity and Equity Coordination	2	*
PAE 7	Measuring Campus Diversity Culture	2	*
PAE 8	Support Programs for Underrepresented Groups	2	*
PAE 9	Support Programs for Future Faculty	4	*
PAE 10	Affordability and Access Programs	3	*
<b>Diversity and Affordability Tier Two Credits</b>			
PAE T2-1	Gender Neutral Housing	0.25	
PAE T2-2	Employee Training Opportunities	0.25	*
PAE T2-3	Student Training Opportunities	0.25	*
<b>Diversity and Affordability Total Points</b>		<b>13.75</b>	
<b>Human Resources</b>			
PAE 11	Sustainable Compensation	8	*
PAE 12	Employee Satisfaction Evaluation	2	*
PAE 13	Staff Professional Development in Sustainability	2	*, ED1.2
PAE 14	Sustainability in New Employee Orientation	2	WA3.3
PAE 15	Employee Sustainability Educators Program	5	AD1.4; EN3.1; PU3.1; ED1.2
<b>Human Resources Tier Two Credits</b>			
PAE T2-4	Childcare	0.25	*
PAE T2-5	Employee Wellness Program	0.25	*
PAE T2-6	Socially Responsible Retirement Plan	0.25	*
<b>Human Resources Total Points</b>		<b>19.75</b>	



Credit Number	Credit Title	Possible Points	CSUN Strategies
<b>Investment</b>			
PAE 16	Committee Investor Responsibility	2	
PAE 17	Shareholder Advocacy	5	
PAE 18	Positive Sustainability Investments	9	
<b>Investment Tier Two Credits</b>			
PAE T2-7	Student-Managed Sustainable Investment Fund	0.25	
PAE T2-8	Sustainable Investment Policy	0.25	
PAE T2-9	Investment Disclosure	0.25	*
<b>Investment Total Points</b>		<b>16.75</b>	
<b>Public Engagement</b>			
PAE 19	Community Sustainability Partnerships	2	ED3.2
PAE 20	Inter-Campus Collaboration on Sustainability	2	*
PAE 21	Sustainability in Continuing Education	7	ED2.8
PAE 22	Community Service Participation	6	*
PAE 23	Community Service Hours	6	*
PAE 24	Sustainability Policy Advocacy	4	*
PAE 25	Trademark Licensing	4	
<b>Public Engagement Tier Two Credits</b>			
PAE T2-10	Graduation Pledge	0.25	
PAE T2-11	Community Service on Transcripts	0.25	
PAE T2-12	Farmer's Markets	0.25	
<b>Public Engagement Total Points</b>		<b>31.75</b>	
<b>Total PAE Points</b>		<b>100</b>	

An asterisk (\*) denotes strategies already in place





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