

A Proposal for Creation of An Office of Sustainability

April 2016



The U.S. Green Building Council (USGBC) is excited to learn a proposed Office of Sustainability at UNLV which will collaborate and connect all economic, social and environmental disciplines. This is an essential tool for the university and by pioneering these efforts in the higher education system indicates that, not only is UNLV committed to a well-educated Nevada, but that they recognize that building healthy, resilient buildings and communities has been and always will be a cornerstone in a sustainable city, state, and region.

—Kelly Thomas, LEED AP BD + C; Director, Community – Nevada; U.S. Green Building Council; Las Vegas, NV

“When I meet with my fellow university presidents, I am constantly struck by how many report that today’s students are totally captivated about creating a sustainable planet. It’s an enthusiasm and urgency I haven’t seen since my days as a student during the space race and the national drumbeat for better science...We have the unique capability to leverage our strengths – in science, technology, economics, human health, social science and public policy – to confront the complexity of building a sustainable world.”

—Dr. Mary Sue Coleman, Former President, University of Michigan

Sustainability is an important topic for all of us to work towards improving. I think that a dedicated focus on sustainability is something that would be great for our university to support.

—Katie Decker, Principal – Walter Bracken & Walter Long STEAM Academies, Las Vegas

I would support establishment of a coordinating office that can manage the council, support communications, provide training/seminars and in-house progress reports in house and serve as unified forum to engage students, staff and a faculty to improve sustainability at UNLV.

—David E. James, PhD, PE F.NSPE, Director, Solar and Renewable Energy Programs, Associate Professor, UNLV Department of Civil and Environmental Engineering and Construction

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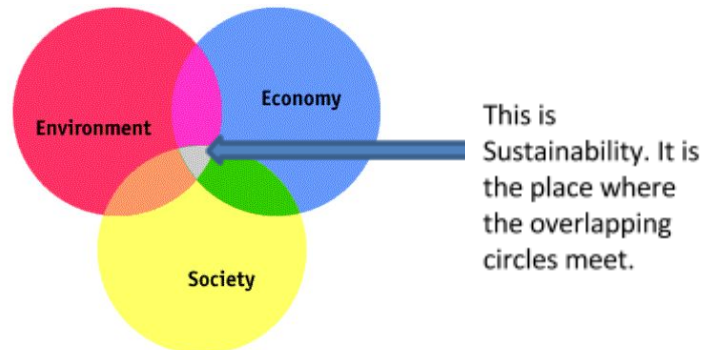
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Introduction

This is a proposal for the creation of an Office of Sustainability at UNLV. It documents the need for such an office, in addition to the current status of sustainability at UNLV, progress made to-date, case studies, budget needs, and possible revenue streams. Unless indicated otherwise, all statistics in this document come from the Association for the Advancement of Sustainability in Higher Education's (AASHE) publication entitled "*Status of Sustainability Staff in Higher Education 2015.*" We also would like to thank Tara Pike and Monica Garcia for providing information on the history of sustainability at UNLV.

Sustainability is what is described as a "three-legged stool" that encompasses three areas: the environment, the economy, and society. Each facet is seen as equally important, and they overlap as can be seen by the below diagram.



On a university campus, sustainability programs develop systems to help create a vibrant campus environment, and a good quality of life for the faculty, staff, students and local community. They respect the need to sustain natural resources and protect the environment, while still allowing its human residents to thrive. Such programs result from an institution's commitment to sustainability in its entirety.

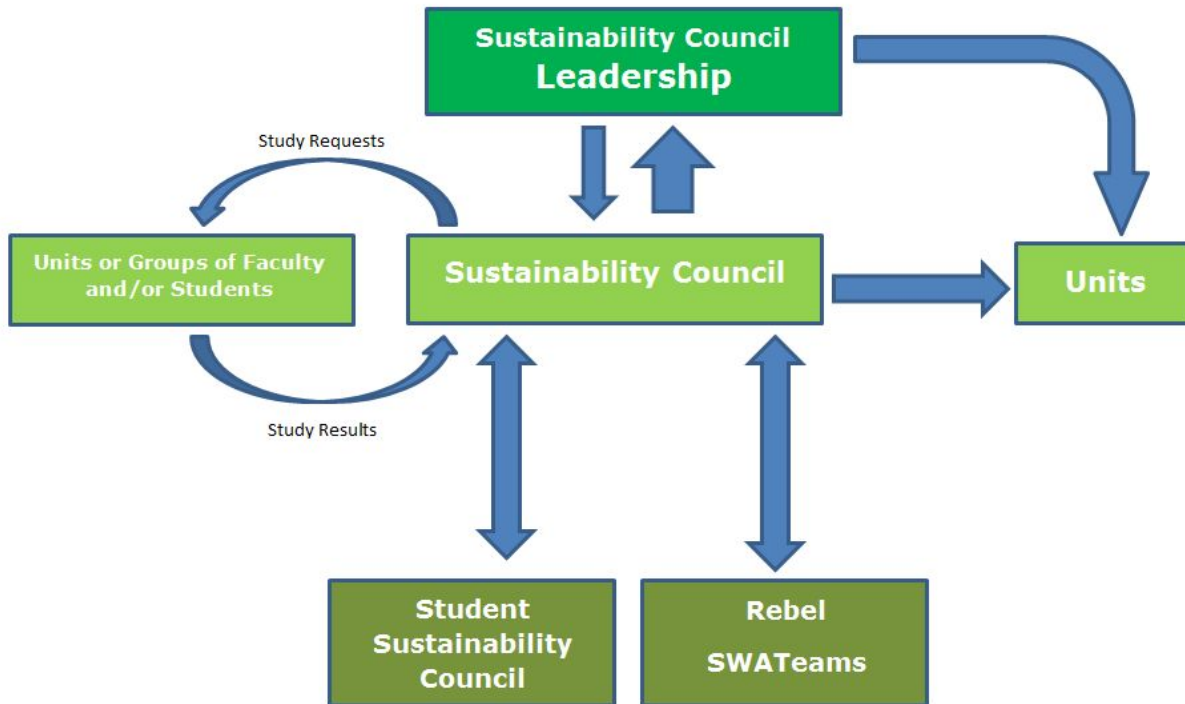
Sustainability is complex and broad, and by its very nature can help break down the silos so often found on a university campus. While it compliments other efforts, such as community engagement and diversity, in order to address it properly it cannot be diluted. It needs its own office.

Current Status of Sustainability at UNLV

Current Staffing and the Sustainability Council

Addressing the environmental facet of sustainability, in 1995 a recycling coordinator position was created, and Ms. Tara Pike was hired into that role. In 2008, a Sustainability Task Force was formed at UNLV. The Task Force created a document with recommendations, and one of those was for UNLV to hire a Sustainability Coordinator. In 2009, Tara Pike became the Sustainability Coordinator while maintaining her position as the Manager of Recycling. Shortly afterward, Tara Pike and Dr. Thomas Piechota recommended that a Sustainability Council be formed. The Council worked on the first Sustainability, Tracking, Assessment and Rating System (STARS) submission to AASHE. After the completion of the submission, and with no further mission identified, the Sustainability Council stopped meeting as Dr. Piechota's position at UNLV changed, and members of the Council started to retire or leave UNLV. In 2015, Ms. Monica Garcia was added to the staff on an LOA as Assistant Sustainability Coordinator with the specific task of forming and supporting a stronger UNLV Sustainability Council.

In 2015, the Sustainability Council was re-activated. There are approximately 30 staff, faculty and students who attend the monthly meetings on a regular basis. There are two co-chairs, and a Council structure has been developed in which Rebel Sustainability Working Advisory Teams (Rebel SWATeams) lead efforts to address various elements of sustainability, keeping in mind the three facets of sustainability. There is currently a budget (in Facilities Management) of \$7,500 for the Council's use. The proposed Council structure is represented below:



A key part of the Council is the SWATeams. There are currently 15 teams, focusing on topics ranging from community outreach and transportation to a green office certification and transportation. They are open to non-Council members, in order to attract faculty, staff and students who have particular interests.

The Sustainability Council's mission envisions having the UNLV campus serving as a living model of sustainability, providing learning experiences that students, faculty and staff may develop, apply and practice at on campus, in the community, and in their lives. Creating a culture of sustainability at UNLV is important to maintaining this UNLV Sustainability Council.

Sustainability Activities at UNLV

There are many faculty, staff and students who have initiated projects related to sustainability at UNLV. A sample of these is as follows:

Overall

- STARS Silver Rating, 2011 and 2015

Operations

- Zipcar operation on campus
- One LEED Silver, and one LEED Gold building
- Interior and exterior re-lamping project to change fluorescent lights to LEDs
- Over 1 megawatt of roof-top solar energy
- 980 tons of materials diverted from landfill in 2015

Research

- Center for Energy Research, College of Engineering, multiple funded studies
- Sajjad Ahmad, Engineering, funded studies on Lake Mead's declining levels
- Thomas Jones, Hospitality, funded studies on sustainability in the curriculum
- Deirdre Clemente, History, funded symposia on Nevada
- Michael Nussbaum, Education, funded study on Promoting Sustainability Awareness Through Educational Computer-Simulations

Student Projects

- Solar Decathlon, Multidisciplinary, led by College of Engineering
- Architecture Efforts (I e-mailed Fernando Gonzalez to get info)

Community Outreach

- Sustainability Speaker Series, Lee School of Business
- Christmas Tree Recycling

Proposed Structure of an Office of Sustainability

UNLV has identified sustainability as a priority and as such, adding this Office would ensure that sustainability measures are constantly met. By UNLV adding the Office of Sustainability to its campus, UNLV would then join the team of schools possessing sustainability leadership throughout the country. With this addition, UNLV would become even more appealing to incoming students that see sustainability as a top priority. The percentage of institutions of higher education with at least one office, center or institute with “sustainability” in its name has increased from 71 percent in 2012 to 76 percent in 2015, indicating that sustainability is a growing priority in higher education.

We request that the Office be situated under the Office of the President. That office is positioned to institutionalize sustainability across the institution, and to share a vision for sustainability, provide planning, and provide recognition for the efforts. This is a common placement for this type of office. In the early days of the Sustainability movement, Sustainability positions were often located under Facilities; however, in 2015, 68.4% of the offices are situated under the campus president, provost, or other top person in finance or administration.

In a later section the necessary budget resources are described, as well as ideas on how the proposed funds could be raised. The positions required for a high functioning Office are:

- Sustainability Director
- 2 Sustainability Program Managers
- Community Garden Coordinator
- 3-4 interns

We feel that there should also be a strong collaboration with Facilities, for coordinating activities in Recycling, Energy Management, Grounds, and other operational areas. They are already very strong in their ‘green’ efforts, and we would want to support them.

Benefits to the University

Top Tier Positioning

Creation of an Office of Sustainability would address a number of items in the Top Tier plan. Below is a non-exhaustive selection of top tier criteria, and how an Office of Sustainability would assist UNLV on its high profile path:

- **VM K1** – An Office of Sustainability would assist in increasing the amount of research that is conducted on sustainability related issues. This research could be conducted in all areas of campus, encompassing such topics as water, energy, social justice, art as an expression of urban sustainability, sustainable business, environmental health and safety in medical facilities - each School/College could define their own expression of sustainability.
- **VM K2** – An Office can assist the students in achieving the sustainability learning outcome by increasing their awareness of the topic through academics, campus life, peer-to-peer mentoring and research.
- **VM K8** – Through projects with the community on topics of environmental, social and economic sustainability, an Office will deepen UNLV’s engagement with the city and region.
- **VM K5** – An Office will increase intellectual and entrepreneurial activity through the multidisciplinary nature of sustainability.
- **RSC A3** – By strengthening the research areas that already address sustainability (Clean Energy, Global Health, etc.), an Office will assist in boosting UNLV’s ability to attract funding and recognition.
- **RSC K6** – By increasing the amount of sustainability research and outreach, faculty will be able to publish in highly ranked journals (SCOPUS, <http://www.scimagojr.com/journalrank.php?category=2105>), such as *Energy and Environmental Sciences*, *Sustainable Energy Reviews*, *International Journal of Sustainable Transportation*, *Sustainable Cities and Society*, and *Solar Energy Materials and Solar Cells*.
- **STA K2** – There are many rankings used by students to select a university. Peterson’s Survey of Sustainability Efforts in Higher Education and the College Sustainability Report Card are two rankings which focus on sustainability in higher education. Additionally, the [Princeton Review](#) includes a rating that provides a

comprehensive measure of a school’s green performance. According to a 2015 survey by the Princeton Review, 60% of respondents (prospective students and parents) said that having information about colleges’ commitment to environmental issues would contribute to their application/attendance decisions.

- **STA K4** – A goal of the Office will be to increase student engagement around sustainability topics. It will oversee the Student Sustainability Council, and sponsor events that will inform and involve students.
- **CMP K1** – An Office would have many opportunities to be involved with the UNLV Community Engagement Center, because it would involve students, faculty and staff in community-oriented sustainability projects.
- **CMP K2** – There would be many opportunities for partnerships and collaborations with other NSHE institutions around sustainability topics and events.
- **CMP K3** – As a part of evaluating the effectiveness of the Office, community engagement efforts would be tracked along with the number and satisfaction of participants with those efforts.
- **CMP K9** – As an Office engages faculty, staff and students in sustainability projects, it would increase the breadth and depth of economic and cultural impact of UNLV’s activities on the community.
- **ISG K1G** – Bringing in the three facets of sustainability will not only allow for increased engagement of faculty and staff, but will also increase our employee’s quality of life and their satisfaction with UNLV as an employer.

Financial Benefits

Beyond attracting students, and increasing our standing among research intensive institutions of higher education, there are tangible benefits for the bottom line from promoting sustainability on campus. One that has already proved itself, but that could be improved, is the diversion of materials from the waste stream. Over the past three years the recycling center has diverted the following tonnage:

- 2015 - 980 tons
- 2014 - 935 tons
- 2013 - 769 tons

As we promote sustainable principles, the tonnage should increase, and thus our savings from recycling. Additionally, xeriscaping, lawn reduction and integrated pest management strategies all reduce the water and chemical burden.

Energy costs are another metric by which sustainability efforts can be measured. As we promote lower water and electricity usage, energy costs can be significantly reduced.

With the promotion of green offices and dining/catering, efficiency in operations will increase. With better use and conservation of resources, operations will be streamlined and costs will decrease. Simple changes such as mandating smaller margins can result in savings of hundreds of thousands of dollars in paper costs, as stated by the EPA (https://www.epa.gov/sites/production/files/documents/paper_usage.pdf).

And lastly, we can impact employee turnover and morale, making UNLV into a place where people want to work. Employees want to work with companies who are ‘doing the right thing’ and being proactive with corporate environmental and social programs. A 2007 survey by [Adecco](#), an international HR company, found that 52% of employed adults feel their companies should do more about the environment.

Our Comparison Schools

Appendix II has a number of case studies from UNLV’s Primary and Secondary Comparison Schools, and other universities that are sustainability leaders. All of the efforts at these campuses began small, and caught the attention of campus leadership. Vice Presidents and Presidents were essential in each case to make the efforts grow and expand to their current nationally recognized successful levels. The results in each case vary, with different emphases at each campus; however, they all emphasize a campus commitment to sustainability.

For comparison with these case study universities, to follow is a chart that indicates the office size and funding models for each school.

University	# of Staff, and Positions	Funding Model
Arizona State University	The academic Global Institute of Sustainability has over 50 staff led by a Director, COO and a Dean. There are currently 88 appointed faculty.	Funded through a combination of: <ul style="list-style-type: none"> ● state appropriations ● university operating funds ● one-time university funds for special projects

	Recycling, a bike valet service, the garden/edible landscaping program, sustainable grounds keeping, and energy conservation are under Facilities. The numbers of staff in this area was not available.	<ul style="list-style-type: none"> • Garden plot fees • Minor salary offsets paid by other university departments that have secured grants for projects to which the department staff contributes expertise • Grants are being looked at for future initiatives.
University of Houston	1 full-time sustainability manager and 1 full-time sustainability coordinator (position open right now). 9 student assistants report to the manager	Office situated in Auxiliary Services. Parking fees provide budget for operations, garden, outreach and manager's travel. A separate Auxiliary budget line supports salaries/wages. Manager applies for grants and fundraises for additional funds she needs. A proposal has gone to cabinet to get more funding for sustainability, as they just got a STARS Gold rating.
University of Central Florida	4 staff: <ul style="list-style-type: none"> • Asst. VP of Sustainability Initiatives • Coordinator • Social Outreach Assistant • Engineering Student Assistant <p>UCF also has Utilities & Energy Services (U&ES), which is a department under their Facilities & Safety division. Their staff is comprised of professional engineers, technical experts, and skilled specialists, and is tasked with advancing the University's strategic goal of carbon neutrality.</p>	Supported by general funds. They have also created a green initiatives fund through their Foundation and are just beginning to promote it to alumni and the community.
University of Colorado-Boulder	11 FT Positions: <ul style="list-style-type: none"> • Director • Associate Director • Recycling Program Manager • Outreach and Engagement Manager • Energy & Climate Justice Program Manager • Academic Outreach and Education Manager • Office Manager • Senior Transportation Fellow • Green Labs Program Manager • Sustainable Practices Program Manager • Transportation Program Manager <p>And, 112 student positions</p>	In 1973, students voted to fund the Environmental Center (E-Center) with student fees. A few years later CU Recycling was founded and the University of Colorado Student Union (UCSU) began allocating student fees to help support recycling.
UT-Austin	1 full-time sustainability director, 2 full-time coordinators – one for operations, the other for academics.	Office is part of Facilities operations budget Student Fee - \$5/semester, \$2.50/summer – used for projects
University of California - Berkeley	2 Full-time Positions: Director of Sustainability, and Energy Sustainability Manager Student Team (each works 2-5 hours per week): Communications Associate, Carbon Neutrality Fellow (2) Carbon Neutrality Student Green Department Associate Communications Associate Carbon Neutrality Student Engagement Fellow Green Department Associate (2) Engagement Fellow Research Associate Lead Green Department Associate	Funding for the office comes from three departments: - Administration/Finance - Facilities - Vice Provost Office Funding for campus sustainability initiatives flows through their Student Environmental Resource Center, and comes from a \$6 Sustainability Fee per semester. The fee generates approximately \$250,000-\$300,000 a year.
University of Oregon	There are 2 FT staff, a Director position and one that spends 1/2 time on curricular and 1/2 on monitoring projects. They have a 1/2 time GA also.	Their funding comes out of the general fund, tuition dollars and state funds. 20% of their budget comes from grants.
University of Vermont	2 full-time staff, four graduate fellows and several undergraduate interns. FT staff are: a director, and a projects coordinator.	General operating funds and University of Vermont Clean Energy Fund fee. This is a student-imposed fee of \$10 per university student.

Proposed Activities of an Office of Sustainability

The Office of Sustainability would become a campus resource collaborating extensively with Business and Finance (including Facilities Management), the Office of Research and Economic Development, Student Affairs, and the Provost's Office. This Office would serve as an easy and efficient way for students to learn more about campus sustainability efforts, bridging the gap between operations, academics, student experience and research. As a result, this addition is an effort to lead University of Nevada, Las Vegas (UNLV) toward a new era of sustainability and education.

The Office of Sustainability, in addition to collaborating with other campus entities, would work extensively with students, having student and department engagement as a top priority. In order for campus culture to shift, this office would continuously engage with individual students, student groups and campus events. The Office will coordinate two events every semester. These events will be marketed to the entire campus community to help raise awareness of sustainability and encourage student participation. Possible events include hosting a Farmer's Market, Eco-Conscious Art Exhibitions, and/or Rebels Go Green. In addition to these larger events, the Program Coordinator will also organize smaller monthly workshops aimed at specific target groups and sustainability initiatives on campus.

The Office would work with Housing & Residential Life to develop, pilot, scale and manage programs that engage students living in residence halls, fraternity/sorority chapter houses and the departmental staff who will work with these populations in sustainable behaviors and create a culture of sustainability in these residential communities.

Another activity would be funding projects through our proposed Incentive Fund (see budget), based on proposals received from faculty, staff and students. Fund projects through our operating funds, based on proposals received from faculty, staff, and students. Typically called a Green Fund, many campuses use this type of program to help expand sustainability projects through a campus by providing other departments the opportunity and incentive to make their unit more sustainable.

The Office would provide oversight for the UNLV Sustainability Council and its multiple Rebel SWATeams, as well as the Student Sustainability Council. The Office would particularly want to work with the Resources SWATeam to apply for grant and gift funding.

Sustainability in the Curriculum

The literature on sustainability learning outcomes supports that educating students to participate in solutions for a sustainable future also develops the skills they need to succeed in the workforce for the 21st century ([Rowe & Hiser, 2016](#)). A survey of graduate students by Net Impact found that most graduate students care about impact issues and 83% are willing to take a 15% pay cut to have a job that seeks to make a social or environmental difference in the world ([Net Impact, 2014](#)).

The Director of Sustainability would direct their staff to work diligently to embed sustainability learning into the curriculum on a university wide level. This will support the sustainability learning objective that UNLV has already established.

The key to sustainability in higher education is that students are "doing" and "getting" a sustainability education. The concept of "doing" sustainability means that students have the opportunity to participate in sustainability related events and activities, with recycling being probably the most high profile example; however, certainly not the only example. The concept of "getting" sustainability refers to the students' opportunity to have sustainability taught to them on the macro level and within the major and career path they have chosen to pursue.

Sustainability is important in many fields – for example, business, engineering, architecture, medicine, and hospitality. In addition, there is a wide range of sustainability jobs available to students that we should prepare our students for - those interested in sustainability can pursue careers in clean energy, technology, education, management, communications, political science, business, operations and more.

Proposed Budget

Positions and Roles

Sustainability Director

\$88,460 per year, 12 months

The Director is a senior management position responsible for providing the vision, organizational strategy, and focus for advancing operational sustainability efforts at University of Nevada – Las Vegas. This position provides administrators, faculty, staff and students with the knowledge, skills, and motivation to integrate sustainability values and practices into: strategic planning processes, operations, academics and research, and resource management, and overall University practices. This individual will collaborate with students, faculty, and staff and relevant student organizations to support and enhance current sustainability initiatives and will provide leadership in assisting the University to expand and improve its efforts with regard to sustainability programs. This position will elevate UNLV on a national level, and help improve its reputation among peer institutions. Sample job descriptions for this type of position can be found at <http://www.aashe.org/resources/example-job-descriptions>. Job Functions/Responsibilities will include:

- Working with faculty to integrate sustainability concepts into courses and research.
- Developing and implementing a long-term strategic plan to integrate sustainability principles into the operational functions of the University.
- Communicating, informing and promoting these principles and programs throughout the University.
- Acting as the campus spokesperson on sustainability and providing outreach to local and national organizations as well as funding agencies.
- Managing the department's finances and actively seeking revenue generating opportunities.

Sustainability Program Managers

2 x \$50,000 per year, 12 months = \$100,000/year

The Managers would focus on changing the culture and effecting behavioral changes on campus. They would prioritize proposed environmental projects and create a unified strategy to move University of Nevada – Las Vegas towards sustainability in the most efficient and effective manner. They would work with various staff and faculty (e.g., energy manager, recycling coordinator, etc.) to coordinate efforts across campus. The managers would propose sustainability initiatives and perform the necessary background research on initiatives proposed by other departments. The individuals would assess their cost effectiveness, technical feasibility and means of achieving acceptance. They would then work with the appropriate university departments to implement such projects. Additionally, one of the individuals would be responsible for Sustainability Council management. Job Functions/Responsibilities will include:

- Develop opportunities both in the community and on campus for students to enhance their classroom experience thru hands-on and experiential learning opportunities.
- Supervise the intern's effort.
- Create opportunities for students, staff, and faculty to engage with sustainability issues through event planning and outreach, such as annual Earth Week event.

Community Garden/Marketing Coordinator

(100% effort combined), 12 months, \$60,000

Community Garden: 50% effort. Under general direction, the Garden Coordinator is responsible for the community garden planning, operations, organizing and program delivery. Job Functions/Responsibilities will include:

- Oversee UNLV community garden operations
- Reach out to faculty and students that may be interested in the garden
- Recruit and coordinate volunteers for garden operations
- Organize and coordinate plot dispersal
- Facilitate workshops and be available to provide assistance and advice
- Work with Sustainability Council's Garden and Backyard Composting Rebel SWATeam

Marketing: 50% effort. Under general direction, manages and maintains University of Nevada – Las Vegas' sustainability online presence and web marketing infrastructure; initiates, assesses, writes, edits, and organizes web-related projects and ultimately educate UNLV students about environmental, social, economic sustainability and offer resources to make a difference. Maintains and directs social media campaigns about sustainability at UNLV. Job Functions/Responsibilities will include:

- Maintain a database of all sustainability-related activities

- Design and execute electronic marketing campaigns to promote programs and events;
- Develop and maintain social media/marketing outlets (Facebook, Twitter, LinkedIn, etc.)
- Develop, plan and implement promotional programs to publicize and promote various activities, events and/or items; establish methods for increasing participation in such programs.
- Analyze, plan and coordinate sales programs; identify and coordinate marketing of services, programs and/or merchandise.

3-4 Sustainability Interns (Undergraduate)

\$5,500 each, 9 months = \$16,500

The sustainability interns would work to assist the Office, and to advise the campus community on sustainability and other environmental projects. As a UNLV sustainability representative, the interns would aid in educating UNLV students, as well, about environmental, social and economic sustainability and maintain awareness of the larger “green” community. These interns would serve as the peer-to-peer mentors that have been popular and successful at other campuses.

Annual Budget Summary:

Personnel	
Sustainability Director	\$88,460
2 Sustainability Program Managers	\$100,000
Community Garden/Marketing Coordinator	\$60,000
Interns	\$16,500
Total Salaries	\$260,960
Fringe Benefits	
Staff (36% over \$50k salary, 33% under \$50k salary)	\$104,926
Students (2%)	\$330
Total Fringes	\$105,256
Operations	
Set-Up of Office (Furniture, computers, etc.- one-time cost)*	\$6,000
Office Supplies	\$5,000
Phone Charges	\$500
Events (refreshments, banners, etc.)	\$7,500
Garden operations: Water, Maintenance	\$5,000
Incentive Fund (to fund projects)	\$10,000
Travel for conferences (1/full-time staff/year)@\$1500 each	\$6,000
Total Budget, First Year*	\$401,216

*Consecutive year budgets would be minus the \$6,000 set-up fee

Potential Funding for the Office of Sustainability

The proposal is for a combination of funding sources for the Office. Initially, investment would be primarily through university funds. As sustainability is an across-campus effort, a possibility would be to ask each Vice President to commit a percentage of their division’s funds for the first one to two years of operation of the Office. Other sources of funds will be as follows:

1.) Student Sustainability Fee

We propose instituting a Student Sustainability Fee in the amount of \$5/student/semester (\$2.50 summer). This would bring in – at our current enrollment – over \$300,000 per year. This would fund over half of the budget we propose.

Specific examples of other universities use of campus sustainability fees are available from the [University of Memphis, University of Georgia, UT Austin](http://www.aashe.org/resources/mandatory-student-fees-renewable-energy-and-energy-efficiency). Also, AASHE provides a summary of such programs at <http://www.aashe.org/resources/mandatory-student-fees-renewable-energy-and-energy-efficiency>

2.) Internal UNLV Funds

There is a Regents Service Program which funds campus interns. This will be requested the first year.

3.) CSUN Funding

The Council has submitted a request to CSUN for \$20,000 per year in funding for sustainability initiatives.

4.) Rebel Raiser

We would request the ability to raise funds through the official crowd funding site, <https://rebelraiser.unlv.edu/>

5.) Establish a Green Revolving Fund (GRF). A GRF is an internal fund that provides financing to parties within an organization to implement energy efficiency, renewable energy, and other sustainability projects that generate cost-savings. These savings are tracked and used to replenish the fund for the next round of sustainability initiatives, thus establishing a sustainable funding cycle while cutting operating costs and reducing environmental impact. Four examples of such funds can be found in Appendix I.

6.) External Funding

There are opportunities for funding sustainability efforts, and the Sustainability Council's Resources SWATeam would assist the Office in locating and applying for funding. In the first year, a request would go to AmeriCorps to help fund several interns for the Office and the Council.

If a GRF is established, this can be attractive to donors. For example, the Jessie Ball duPont Fund recently launched the first [foundation grant-making program](#) in the country specifically designed to help seed green revolving funds at a select group of colleges.

Other opportunities exist from federal agencies, private foundations and corporations. Much of the federal funding (e.g., NSF, NREL, DoE, DoT, and even NEH and NIH) would go towards faculty-led research projects. NSF funding could also be used to promote sustainability-related STEM curricula. Local corporations – in particular the casinos – have an interest in sustainability as it relates to their bottom line and social responsibility. Foundations such as Toyota, Honda, Surdna, Russell Sage, Hewlett, Walmart – and many smaller ones – fund projects ranging from energy research to environmental education to community engagement. Coordination with Foundation Relations and OSP will be key to locating and applying for funding.

Conclusion

As other campuses around the country have shown, what begins as a grassroots effort can then grow and become a fruitful and well-run department, helping to make their university a national leader in sustainability. Through campus, community, and organizational collaborations for resources and personnel, the UNLV Office of Sustainability will become a successful reality.

Appendix I. Four Examples of Successful Green Revolving Funds

			Project Criteria	Measuring Savings
Agnes Scott College	Alumni and foundation donors, utility savings	Sustainability Steering Committee	Payback critical for selection – flexible time periods	Repayments based on estimates and measured savings
California Institute of Technology	Money market fund within endowment	Sustainability Director and Energy Manager; with approval from AVP of Facilities and VP of Business and Finance	6-year payback requirement	Repayments based on estimates and measured savings
Iowa State University	President's administrative funding	Director of Sustainability; Advised by Loan Fund Advisory Committee	5-year payback requirement	Repayments based on estimated savings but confirmed with measurement and verification
The University of Vermont	Operating cash reserves	VP of Finance and Administration; Advised by Energy Initiatives Committee	7-year payback requirement; GRF returns 5 percent of its outstanding balance annually to cash reserve	Varies by project

Information retrieved from http://greenbillion.org/wp-content/uploads/2013/01/GRF_Implementation_Guide.pdf:

Green Revolving Funds: An Introductory Guide to Implementation & Management

A co-publication of the Sustainable Endowments Institute & the Association for the Advancement of Sustainability in Higher Education

By Indvik, J; Foley, R.; Orlowski, M. 2013

Appendix II. Case Studies

Case Study 1: Arizona State University

Location: Phoenix, Arizona Campus Population: 91,357 University Size: 642 acres

“The Julie Ann Wrigley Global Institute of Sustainability is the hub of ASU's sustainability initiatives. The Institute advances research, education, and business practices for an urbanizing world.”

In 1956 Arizona State University achieved their first solar furnace installation. From there, the ground was soon broken in 1965 for the College of Nursing, the eventual home of the Julie Ann Wrigley Global Institute of Sustainability. Arizona State University model for sustainability operations and has made compelling strides in certain key areas: climate neutrality, zero solid and water waste, active engagement and principled practice.



ASU's School of Sustainability was created in 2006 and approximately a year after, the Global Institute of Sustainability and University Sustainability Practices (USP) was created. University Sustainability Practices is housed under ASU's Business Services and receives its funding mainly through that office. USP is a hub for on-campus sustainability. This office has five full-time positions to help integrate sustainability culture throughout campus. These staff positions are the following:

- Director
- Program Manager
- Program Coordinator; West and Downtown Campuses
- Program Coordinator; Polytechnic Campus
- Program Coordinator, Sr; Tempe Campus
- 10 undergraduate and 1 graduate student employees

USP is primarily responsible for leading and coordinating campus sustainability. Some of the office's primary responsibilities also include engagement, measurement, and reporting. USP works in tandem with Facilities Development and Management who is responsible for construction, design, operations, and maintenance at ASU. USP also works closely with the Julie Ann Wrigley Global Institute of Sustainability who is responsible for research, education, solutions, and community outreach.

Some specific USP efforts:

- Student engagement in coordination with Residence Life
- Staff engagement through a variety of programs like the Green Devil Network and Green Certification programs
- Community Garden at the Poly Campus
- Conducted a Sustainability Literacy Survey of campus
- Measurement and tracking for a variety of internal and external reports including AASHE STARS and the Second Nature Climate Commitment
- Sustainability Strategic Planning and Development including the Climate Action Plan with support from Facilities Development and Management

ASU's 2015 annual review report states that the university's accomplishments include a total of 81,424 solar panels, 1,455,969 riders annually on campus shuttles, 2,659 tons of landfill waste diverted, 45 LEED certified buildings and 24.1 MWdc solar capacity generated. Additionally, ASU is one of only 51 colleges and universities nationally to receive The Association for the Advancement of Sustainability in Higher Education (AASHE) Sustainability Tracking, Assessment & Rating System™ (STARS) Gold rating.

Case Study 2: University of Houston

Location: Houston, TX

Campus Population: 42,704

Campus Size: 594 acres

Four year and graduate institution, over 15,000 student FTE

“You can have a large institution that cares about the environment and that is actively working to make the world a better place”.



The University of Houston (UH) is rated as one of the nation's greenest colleges. UH became the first Texas institution of higher

education to receive an AASHE STARS gold rating in 2015. For the third year in a row, UH has become the top municipal purchaser of renewable power in the nation. The campus did not always score high or get national recognition for sustainability efforts. In 2008 the university received a grade of “D” on the Campus Sustainability Report Card administered by the Sustainable Endowments Institute. Receiving this score is what gave the University of Houston motivation to improve their campus’ sustainability initiatives.

Because of their “D” score on the report card, the University of Houston created a sustainability task force. Their Office of Sustainability was recommended in 2008 by this sustainability task force. These initiatives were spearheaded by passionate staff, faculty and students who called their movement GreenUH.

UH’s Office of Sustainability goal is to improve campus life and the natural environment and it serves as the hub for UH sustainability efforts. The identified initiatives for this office include the following:

- Fostering collaboration on campus and in the community
- Facilitating education and outreach programs
- Collecting institutional sustainability data
- Managing the campus community garden
- Communicating about sustainability topics
- Recommending campus sustainability improvements
- Supporting sustainability governing bodies
- Driving institutional sustainability progress
- Encouraging sustainable actions in individuals’ daily lives

UH also has a student sustainability team that assists in individual projects dealing with the following: communications, engagement, outreach, events, training, governance supports, institutional research, waste diversion and minimization, gardening, and biking. Apart from the projects that the student sustainability team is responsible for - the campus has various campus-wide sustainability efforts that are constantly monitored. Some of these campus-wide projects include: a campus community garden, single-stream recycling, water bottle refill stations, a solar array, educational events, car sharing and commuter clubs. UH’s dining hall is LEED silver certified and their Keelan Design Center features the only sloped green roof in Houston.

For their campus community garden, they do not charge for garden plots. The garden is primarily used for education (local schools), although volunteers can take food home. Most of the food is currently donated to local food pantries. A need-based application for plots will be implemented this fall for students, and they have added plots to accommodate that.

Case Study 3: University of Central Florida

Location: Orlando, FL

Campus Population: 60,810

Campus Size: 1,415

The University of Central Florida is a leader in creating a greener college campus for the 21st century. In 2001, David Norvell became the first Energy Manager at UCF. Norvell’s mechanical engineer knowledge allowed him to quickly understand areas throughout campus that could save more energy. Then in 2005, the term “sustainability” was created which started the conservation amongst universities everywhere to start utilizing that term for education and operational purposes. Norvell became the Director of the Department of Sustainability and Energy Management where he spearheaded the sustainability program, and continued to save the university more than \$14M in energy through efficiency projects. During 2011-2015, he transitioned positions and became the Assistant Vice President for Facilities tasked with the reconstruction of the university’s largest department. Once Norvell was able to finish that task, he became the Assistant Vice President of Sustainability Initiatives.

They have a Sustainability Advisory Committee and Student Sustainability Advisory Committee. Their Utilities & Energy Services department develops and implements policies, plans, and programs, and oversees operations practices, to reduce energy consumption.

UCF Sustainability Initiatives include:

- UCF has been named an exemplary green institution in the 2010 Princeton Review’s Guide to 286 Colleges.
- In 2007, President John Hitt committed UCF to becoming climate neutral by the year 2050. Since then, they have made remarkable progress toward that goal. They design our buildings more efficiently, employ the latest energy saving technologies, use cleaner energy, and conserve our natural resources. As a result, existing buildings use 38 percent less energy than when efforts began. UCF’s Climate Action Plan is posted on their website.
- New construction at UCF is designed to the highest standards of efficiency from the Leadership in Energy and Environmental Design. We meet a third of our campus energy demand by using natural gas rather than other fossil fuels. And, as a major metropolitan research university, we conduct groundbreaking research to find cleaner and more efficient energy resources.

- The UCF Creative School for Children, typically known for its unique learning environment, can also be recognized for its support of the natural environment. In recognition of nature’s splendor, the school recently expanded its outdoor-based curriculum. Its emergent “outdoor classroom” follows their usual no-worksheet learning style and instead encourages sensory, play-based developmental programs.
- In May 2015 more than 250,000 plastic water bottles filled the UCF reflecting pond in an attempt to show waste and promote sustainability. With the help of David Norvell, assistant vice president of sustainability, and UCF Recycles, event coordinators were able to successfully calculate and collect the number of plastic bottles it would take to fill the pond.
- A new Faculty Cluster Initiative centers around coastal systems research, evolving beyond its typical limits by integrating an interdisciplinary focus in a new collective opportunity. To no surprise, coastal systems research is vital to the state of Florida, given that its wellbeing maintains the economy and environment.
- Courses on sustainability are included in the College of Arts & Humanities, College of Business Administration, College of Engineering & Computer Science, College of Undergraduate Studies, College of Health & Public Affairs, and the College of Sciences. Research initiatives include projects in the Arboretum, their Advanced Transportation Simulation, Hydrosociences, drinking water treatment, solar energy research, and municipal solid waste treatment.
- Their Sustainability Initiatives website includes a Building Dashboard that continually monitors campus buildings’ energy usage.

Case Study 4: University of Colorado-Boulder

Location: Boulder, CO

Campus Population: 30,265

Campus Size: 600 acres



“For more than half a century, UC-Boulder has been a leader in climate and energy research, interdisciplinary environmental studies programs and engaging in sustainability and “green” practices both on campus and in the larger world.”

The University of Colorado-Boulder’s main sustainability hub is located at the Environmental Center. This center was established in 1970 by the students who organized the first Earth Day event at CU. Today, it is the largest student run environmental center in the United States and has served as a model for other universities in creating similar centers. To support the efforts of the students involved at the center, there are eleven permanent professional staff positions.

In 1973, students voted to fund the Environmental Center (E-Center) with student fees. A few years later CU Recycling was founded and the University of Colorado Student Union (UCSU) began allocating student fees to help support recycling. During the 1980’s Steve Smith was hired as the first full-time, non-student director of the E-Center and student involvement increased by 400 percent. In 1984, Jack DeBell became the first professional Director of CU Recycling. In addition to these full time positions, the E-Center now has individuals that hold the following professional positions: Recycling Program Manager, Outreach and Engagement, Energy & Climate Justice Program Manager, Academic Outreach and Education, Office Manager, Senior Transportation Fellow, Associate Director, Director, Green Labs Program Manager, Sustainable Practices Program Manager, and Transportation Program Manager (total of 11 full time people). Currently, the E-Center has 112 student positions. The E-Center also has a CU Student Government Environmental Board. This board oversees the activities, budget, and programs of this center. The members of this board are all volunteers, but the co-chairs receive a small stipend.

The E-Center provides major services for the whole campus, the services include the following:

- CU Recycling
- Sustainable Transportation Programs
- Energy Conservation and Renewable Energy Programs
- Enabling Student Involvement, Leadership and Action
- Campus Sustainability
- Environmental Literacy and Education

The E-Center also provides services for off campus efforts, these services include the following:

- Sponsored research for various agencies, like the US Environmental Protection Agency, the Colorado Office of Energy Management and Conservation, and Boulder County
- Provides transportation research and outreach programs
- “Green Teams” provide peer education and proper recycling, waste reduction and energy conservation techniques to students living off campus
- Community Energy Connections trains student energy assessors to perform energy audits for low-income households and

student rental units

Several of these efforts have been nationally recognized and have also received awards from entities including the US Environmental Protection Agency, the National Recycling Coalition, Renew America, Colorado Alliance for Environmental Education, Colorado Environmental Leadership Program, and the Colorado Governor's Office.

Case Study 5: University of Oregon

Location: Eugene, OR

Campus Population: 24,181

Campus Size: 295 acres

Four-year and Graduate Institutions over 7,500 FTE



The Office of Sustainability at the University of Oregon was established in 2007 to assist in setting goals, monitor progress, make policy recommendations, support students, faculty and staff initiatives, and tell the UO's sustainability story. Since 2007, the office has assessed conditions on the ground and identified the needs and opportunities that exist to expand programming. Through this work, UO was able to develop a network of partners. The projects that were developed are now implemented and therefore bringing progress to UO. This institution also has student groups, services, policies, programs and academic departments that assist in the effort of making sustainability a top priority at their school.

This office maintains a small staff; it houses three regular staff/student positions which totals to 2.4 FTE. Depending on the amount of funding, the office also supports one half-time temporary classified position. The office also employs approximately 20 students annually who perform short-term, part-time field work in support of UO's co-curricular programs. This office receives accounting and budgeting support from Campus Planning Design and Construction.

Through the assistance of the Office of Sustainability, UO has had many sustainability accomplishments. In 2007, UO became an early adopter of the American College and University President's Climate Commitment (ACUPCC) when former president Dave Frohnmayer signed. In 2010, the Office of Sustainability developed a Climate Action Plan (CAP) - this document has assisted in supporting tangible, transparent actions to reduce the University's greenhouse gas emissions, and have reported the results of this work. Through signing the commitment, UO has accomplished the following:

- Completed an annual Greenhouse Gas (GHG) emissions inventory
- Established a Faculty-Led Sustainability Council
- Model for Sustainable Development
- Establish a Green Revolving Loan Fund
- Taken action to integrate sustainability into the curriculum
- Continued progress in Waste Reduction

During the 2012-14 academic year, the UO CAP was up for review and revision. The Environmental Issues Committee assisted by identifying ambitious but realistic projects to do. A survey was developed to help in this task; the survey asked respondents what were the most important next steps toward reducing UO's emissions. Other accomplishments the Office of Sustainability has developed are the following:

- A Comprehensive Environmental Policy
- Oregon Model
- Carbon Offsets Purchasing Policy

The Office of Sustainability has numerous projects that were initiated by them, either alone, but often in collaboration with other units on campus and community partners. There are active projects that are still in operation and being managed by the Office of Sustainability. Completed projects were undertaken in the past, but are now inactive, and transferred projects were incubated by the Office of Sustainability, but are now being actively managed and operated by another unit on campus.

This office is separate from the campus' Zero Waste Program which has two managers, and five coordinators.

Case Study 6: University of California, Berkeley

Location: California, Berkeley

Campus Population: 36,000

Campus Size: 1,232 acres

The UC Berkeley Office of Sustainability was formed in January of 2008. It provides leadership to campus by setting ambitious sustainability goals and strategies and by accelerating the achievement of these goals through project implementation, planning, partnerships, and community engagement.

Berkeley's mission is to integrate cutting-edge sustainability practices into our operations, foster the culture of sustainability at home and in the world, and enable and improve excellence in sustainability. UC Berkeley's campus initiatives focus on energy, climate, water, built environment, waste, procurement, food, transportation, land use, academics & learning, research & metrics. For each campus initiative, there are goals in place that set standards of where the university wants to go toward. UC Berkeley works to find solutions to global environmental, economic, and social challenges--inequality, climate change, food security, water shortages and more. We set goals, take action, and share our work.

UC Berkeley has several measures to fund its sustainable initiatives. "The Green Initiative Fund" (TGIF) provides funding via grants for projects that improve and support UC Berkeley's campus sustainability efforts. Student fees support TGIF. UC Berkeley also gets funding from an annual Chancellor's Green Fund Grant program and a donation driven fund called UC Berkeley's Climate Action Fund.

Annually, UC Berkeley has developed a campus sustainability report, which tallies the university's progress toward its sustainability goals. One success includes the university's reduction on greenhouse gas emissions. Other successes include the Sustainability Department's Engage program which has implemented awareness through a "Green Walking Tour" that allows individuals to experience some of the sustainable practices to be integrated into daily life as well as sustainability oriented classes and green certification for departments and events. Some milestones include a campus Strategic Energy Plan that outlines almost 200 energy efficiency projects that the campus is implementing; in 2009, the Climate Change Action Plan was completed; and the goal of reducing fuel use from fleet and commute by 25% was met and exceeded.

Case Study 7: University of Texas at Austin

Location: Austin, Texas

Campus Population: 50,000

Campus Size: 431 acres

"The University of Texas at Austin is committed to the preservation of natural resources so that they can be enjoyed by your generation and the generations to come."

The University of Texas at Austin is one of the largest public universities in the United States with a 431-acre main campus with 17 colleges and schools, about 24,000 faculty and staff, and more than 50,000 students. More than 8,700 bachelor's degrees are awarded annually in more than 170 fields of study and 100 majors. The university has one of the most diverse student populations in the country and is a national leader in the number of undergraduate degrees awarded to minority students.

Sustainability became an official priority when the Campus Sustainability Policy was adopted in April 2008. This policy requires that university policies, practices and curricula should, when possible, embody approaches that reduce life cycle costs, restore or maintain the functioning of natural systems, and enhance human well-being. The Office of Sustainability was established to promote sustainable campus operations. The university hired its first director of sustainability in 2009 to support and promote the many existing efforts on campus as well as to initiate new collaborations among students, faculty, and staff in pursuing sustainability on campus.

The Office of Sustainability houses the following positions:

- Director of Sustainability
- Program Coordinator Operations
- Program Coordinator Academics

Sustainability Key initiatives include:

- The University of Texas Board of Regents approved a major update to the Campus Master Plan on May 9, 2013. The Campus Master Plan serves as a framework for the future, aligning the academic vision with the creation of a world-class physical learning environment. Sustainability is woven throughout the Campus Master Plan documents, as well as Phase 2 initiatives.
- A student majority Green Fee Committee (GFC) has been established to solicit, review and award funds for environmental service related projects on campus. The green fee was collected with tuition beginning in Fall 2011. The green fee is \$5.00 per long semester and \$2.50 for the summer session.

Case Study 8: University of Vermont

Location: Burlington, Vermont

Campus Population: 22,000

Campus Size: 460 acres

"The Office of Sustainability aims to foster sustainable development and environmental responsibility at the University of Vermont by strategically academic activities of teaching, research, and outreach with the operations of



promote bridging the the University."

After an Environmental Studies faculty member, Stephanie Kaza, attended the Yale University Campus Earth Summit in 1994, she proposed to the University of Vermont to create the Environmental Council as a step to bridge the gap between campus sustainability operations and academic research. Larry Forcier, Dean of the School of Natural Resources, accepted the proposal and Ray Lavigne, Vice President for Administration, pulled funding from the administrative and academic sectors for a half-time graduate assistant.

Within the next five years, more staff positions were formed to help the sustainability team thrive on campus initiatives. Various funding sources were established to help create more positions and sustain short and long-term goals. The main goals of this department are

- Support organizational strategic planning for the "Environmental University",
- Track UVM's sustainability bottom line,
- Educate and involve the campus community and the public at large,
- Stimulate and select feasible ideas for sustainability related projects,
- Create implementation plans and manage projects, and
- Celebrate campus successes

These goals are also sustained through the University of Vermont Clean Energy Fund fee. This is a student-imposed fee of \$10 per university student. Through this fee, new staff and graduate assistant positions were created and various projects were accomplished. Most recently, 134 solar panels were installed at their Spear Street Farm through the funding provided by the sustainability fee.

Other campus accomplishments that have been accomplished through the help of the Office of Sustainability are the following:

- In January 2012, UVM became one of the first institutions nationwide to end the sale of bottled water on campus and mandate that one-third of drinks offered in vending machines be healthy options.
- UVM became the 34th college in the nation to commit to the Sustainable Endowment Institute's Billion Dollar Green Challenge, agreeing to establish a revolving fund to finance on-campus energy efficiency improvements. UVM's Board of Trustees passed a resolution in February 2012 to earmark \$13 million for the fund, making it the largest challenge to date.
- UVM became the fifth school in the nation to sign the Real Food Campus Commitment in March 2012.
- Through the help of the UVM Office of Sustainability and other campus entities, major accomplishments have been made and serve as a great role model for other universities.

As of fall 2015, all new University of Vermont undergraduates will be required to complete a Sustainability Requirement as part of the general education requirements of the University. [Sustainability Learning Outcomes](#) approved by the Faculty Senate in 2014 describe students acquiring knowledge of social, ecological, and economic dimensions of complex problems; developing skills in rigorous and complex discussions about solutions; negotiating multiple values; and analyzing their own experiences and actions. Students may choose from a variety of courses and, in future, experiences. The current list of approved courses can be found [here](#).