



A Proposal for Sustainability at Randolph College

The Environmental Sustainability Proposal for Randolph College is a set of goals and recommendations for the future that take into account the current status of the College's impact on the environment. The overall goal of the Sustainability Proposal is to describe strategies for improving Randolph College's sustainability that can be considered within the College's financial and organizational context.

Prepared by:

- Richard D. Barnes, Professor of Psychology and Environmental Studies
- Karin Warren, Associate Professor and Herzog Family Chair of Environmental Studies
- Ludovic Lemaitre '11, Environmental Science Major
- Megan Roberts '10, Environmental Studies Major, American Culture Minor
- Karl Sakas '10, Environmental Studies Major, Chinese Studies and Economics Minors

Contents

- Contents..... 2

- Why an Environmental Sustainability Proposal?..... 4

- Environmental Sustainability Initiatives at Randolph College 6

- Goals of the Environmental Sustainability Proposal Overview 8

- Goal 1: Facilities and Operations 9
 - Objective 1A: Land Use..... 10
 - Objective 1B: Buildings 12
 - Objective 1C: Landscaping..... 13
 - Objective 1D: Infrastructure and Energy Use 14
 - Objective 1E: Purchasing 15
 - Objective 1F: Materials Management and Recycling..... 16
 - Objective 1G: Dining Services 17
 - Objective 1H: Transportation and Power Equipment..... 18

- Goal 2: Education, Communication, and Research 19
 - Objective 2A: Curriculum..... 20
 - Objective 2B: Research..... 21
 - Objective 2C: Faculty and Staff Development..... 22
 - Objective 2D: Communication 23
 - Objective 2E: Co-Curricular Education 24
 - Objective 2F: A Campus Culture of Sustainability 25

- Goal 3: College Structures, Administration and Leadership 26
 - Objective 3A: Organizational Structures 27
 - Objective 3B: Environmental Leadership 28
 - Objective 3C: Facilities Planning 29

- Goal 4: Community Outreach..... 30
 - Objective 4A: Community Resource 32
 - Objective 4B: Collaboration with Other Colleges..... 33

- Summary and Conclusions 34

- Appendix A: The Talloires Declaration University Leaders for a Sustainable Future 35
- Appendix B: The American College & University Presidents' Climate Commitment 37
- Appendix C: Environmental Issues Council 39
- Appendix D: Overview of Sustainability Initiatives at Other Colleges and Universities 40
- Appendix E: Overview of Greenhouse Gas Inventory 42

Why an Environmental Sustainability Proposal?

An environmental sustainability proposal is a tool that many colleges and universities use to maximize the efficiency of their energy and resource use while decreasing their ecological footprint. Randolph College's impact on the natural environment must be taken into account when considering the overall sustainability of the College. Every member of the College community influences the natural world in ways that they consume products and create waste from what they use. This use and emission of byproducts from the consumption of goods has an impact on the quality of our surrounding environments. The individual human impact is known as an ecological footprint, which represents the amount of land necessary to support a person's lifestyle. Randolph College also has an ecological footprint that is affected by its energy use, water consumption, land holdings, emissions from energy consumption (greenhouse gas emissions), and physical and chemical waste. This footprint can be reduced through efforts by the College to become more sustainable, as well as through land holdings that can serve as an offset to carbon emissions because vegetation naturally captures CO₂ molecules out of the atmosphere.

The Environmental Sustainability Proposal for Randolph College is a set of goals and recommendations for the future that take into account the current status of the College's impact on the environment. It includes aspects of the college such as buildings, transportation, utilities, landscaping, education and research, as well as overall implementation of the goals and recommendations (as carried out through the administration and the Environmental Issues Council). **The overall goal of the Environmental Sustainability Proposal is to describe strategies for improving Randolph College's sustainability that can be considered within the College's financial and organizational context.**

Sustainability can be defined as the improvement of the quality of life without compromising the earth for future generations, or "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland Commission). Robert Gillman, editor of *In Context* magazine, notes that "sustainability refers to a very old and simple concept (The Golden Rule)...do unto future generations as you would have them do unto you." Many colleges are working to implement sustainability on their campuses (see Appendix D). The University of Virginia has conducted a thorough report on their current environmental status and is

Did you know?

Randolph College produces...

7,300 Metric Tons of CO₂
Equivalent*

235 T of Physical Waste

...and uses...

17.7 Million Gallons of Water

110,000 MMBtu of Energy

2,000 lbs of Synthetic Fertilizer

... ALL in 1 year.

*Includes other greenhouse gases such as methane and nitrous oxide .

implementing measures to become more sustainable. Others, such as Middlebury and Longwood Colleges, have created a position of Sustainability Coordinator on their campus staff or within their administration that oversees and coordinates all sustainability efforts on the campus. These colleges serve as examples to their surrounding communities and other colleges and institutions. In 2006, the Association for the Advancement of Sustainability in Higher Education was founded to “promote sustainability in all sectors of higher education - from governance and operations to curriculum and outreach - through education, communication, research and professional development” (<http://www.aashe.org>). Randolph College is a member of AASHE, along with hundreds of other colleges and universities. When planning for the future, Randolph College can learn from the examples provided by other colleges engaged in this process, and can serve as a model of environmentally sustainable practices to its students, staff, as well as the surrounding community and other colleges.

Randolph College’s Environmental Sustainability Proposal will help to facilitate implementation of more sustainable methods and practices at the College. Through this, the energy efficiency and overall sustainability of the college may be improved. Sustainable practices are long-term investments in the energy and resource efficiency of the College, and they also help Randolph College to become a better steward of the environment. Lastly, being a sustainable institution can be a draw for recruitment and retention of students, particularly those who have an interest in global environmental issues.

Environmental Sustainability Initiatives at Randolph College

Randolph College has had a long commitment to environmental responsibility. In the early 1990's, President Linda Lorimer was among the first college presidents to sign the Talloires Declaration sponsored by University Leaders for a Sustainable Future (Appendix A). This declaration committed the College to "create an institutional culture of sustainability" through its curriculum, administration, and facilities management policies. In 2000, the College established an Environmental Issues Council composed of faculty, staff and students to coordinate the College's recycling effort and to promote environmental sustainability initiatives on campus. In December 2006, the College became the first in Virginia to sign the American College and University Presidents' Climate Commitment (ACUPCC), sponsored by the Association for the Advancement of Sustainability in Higher Education (Appendix B). In the fall of 2007 President John Klein approved the College's participation in AASHE's sustainability tracking, assessment, and rating system pilot project (see below). This past summer (2009), Randolph College was nominated by AASHE to apply for a Sustainability Leadership Award.

Under the ACUPCC (hereafter referred to as the "Climate Commitment"), the college is encouraged to carry out a number of tasks towards the goal of eventual climate neutrality for the campus. The first requirement, completed by the deadline of November 2007, was to take immediate steps to reduce greenhouse gas emissions by choosing from a list of short-term actions such as adopting a policy of preferential purchasing of EnergyStar appliances and equipment. A greenhouse gas emissions inventory was completed in September, 2008 and updated in October, 2009. The next task is development of a Climate Action Plan setting a target date and interim milestones for becoming climate neutral. Work on the Climate Action Plan is ongoing and is scheduled for completion in January, 2010.

In fall 2007 the College was selected by the Association for the Advancement of Sustainability in Higher Education (AASHE) as one of ninety colleges and universities nationwide to participate in a pilot program to develop a sustainability assessment system for colleges and universities, called the Sustainability Tracking, Assessment and Rating System, or STARS (www.aashe.org/stars). According to AASHE, the goals of the STARS program are to:

- Provide a guide for advancing sustainability in all sectors of higher education, from governance and operations to academics and community engagement.
- Enable meaningful comparisons over time and across institutions by establishing a common standard of measurement for sustainability in higher education
- Create incentives for continuous improvement toward sustainability.
- Facilitate information sharing about higher education sustainability practices and performance.
- Build a stronger, more diverse campus sustainability community and promote a comprehensive understanding of sustainability that includes its social, economic and environmental dimensions.

The STARS pilot program started in February, 2008 and concluded in January 2009. Over the course of the year, the participating institutions provided feedback to AASHE and helped inform STARS version 1.0. Participation involved collecting data on the College's environmental practices and completing various credits to evaluate sustainability practices on our campus.

The current Environmental Sustainability Proposal incorporates these initiatives. Information from the ACUPCC Greenhouse Gas Inventory and the STARS pilot program, along with information from the infrastructure component of the Facilities Master Plan was used to construct a set of recommendations for improving environmental sustainability at Randolph College. The Environmental Sustainability Proposal was developed in conjunction with the College's overall Facilities Master Plan. Development of the Facilities Master Plan was guided by a Master Plan Steering Committee along with campus planning consultants from the architectural firm Hanbury, Evans, Wright and Vlattas. One component of the Facilities Master Plan is an assessment of the College's infrastructure, including electrical and water utilities, and HVAC. The Master Plan also addresses the College's land use and landscaping, and opportunities for sustainable design of proposed new and renovated buildings. However, the Facilities Master Plan does not specifically address overall energy conservation and resource use on campus. The Environmental Sustainability Plan comprehensively assesses the level of the College's environmental sustainability and provides recommendations for monitoring and improving the environmental performance of the College in the future.



Figure 1: Relationship of the Sustainability Plan to the Master Plan

Goals of the Environmental Sustainability Proposal

Sustainability involves not only the physical operations of the College, but also the degree to which environmental responsibility is infused into the curriculum, the organizational structure, and the culture of the College. A truly sustainable college takes into account the environmental consequences of all of its decisions and actions. In addition, the College can serve as a powerful model for sustainability, and as a resource for environmental efforts in the Lynchburg community and beyond. With this larger view of sustainability in mind, four overall goals were established for the Sustainability Proposal:

Goal 1: Facilities and Operations. Develop and maintain a healthy, efficient, and cost effective built environment and promote sustainable functions and operations.

Goal 2: Education, Communication, and Research. Foster an understanding of sustainability through education, communication, and research.

Goal 3: College Structures, Administration and Leadership. Enhance and develop organizational structures and leadership to promote college-wide collaboration on sustainability.

Goal 4: Community. Create a campus culture of sustainability and serve as a resource for the larger community.

Data collected through the College's participation in the Climate Commitment and the STARS pilot program provides information about the current status of the College's sustainability efforts. Based on this information, recommendations are made for advancing the College's sustainability in each of the four goal areas.

Goal 1: Facilities and Operations

The way the College manages its energy and resource use has the most direct effect on the College's impact on the environment. Efficient use of energy and resources not only is beneficial for the environment but also is prudent in terms of the College's financial health. The Facilities and Operations categories were chosen because they are similar to those addressed in the STARS sustainability tracking protocol.

Objective 1A: Land Use

Land Use includes the level of development intensity on the College's current property holdings, such as encouragement of the preservation of open spaces, expansion of the main campus buildings towards the James River, or the creation of hiking trails on the north part of campus. Through the preservation of areas such as the Riding Center, the back of the main campus, and the biology reserves in Campbell County, Randolph College reduces its carbon footprint through preserving the forests that reside on these land holdings. These areas also are used as educational resources for classes with ecological and environmental foci and could serve as low intensity recreational environments that are extensions to the constructed campus; such as nature and exercise trails.

The College's current land use promotes sustainability. The campus was designed as a compact community and incorporates timeless principles of campus design: walkability, connectivity, context sensitive buildings, scenic open spaces, small gardens, and numerous paths and walkways. In this way, it was both of its time and ahead of its time. Further, the campus is along a bus line and has always been connected to the downtown. Future land use policies should build on this tradition.

With Randolph College's expected growth to approximately 1100 residential students, some open spaces will need to be developed. The 2008 Facilities Master Plan proposes compact development of the campus in which residence halls are constructed on the current Maier Museum ridge, but other new campus buildings are sited within the currently developed sections of campus. In this Plan, the front campus is enhanced with a pond that retains storm water and also can be used for the study of wetlands, and hiking trails are added to the back campus.

Strategies:

- To the largest extent possible, preserve and maintain old growth forests and open space on the back 35 acres of the Randolph College Main Campus, utilizing it for outdoor recreation environments; putting in place nature and/or exercise trails, and using it as an outdoor classroom.
- Maintain forested reserves in Campbell County as carbon sinks, and continue use of these areas for research and teaching
- Look for opportunities for Randolph College land to serve as a living laboratory, providing hands-on teaching opportunities for the physical and natural sciences, and serving as an inspiration and example for the arts.
- Maintain and expand the organic garden. The Randolph College organic garden is unique in that it is available for students, faculty, staff, and members of the Lynchburg community to work together and learn organic gardening, using permaculture and Indigenous knowledge (IK) principles and practices. Future expansion plans include development of an adjacent orchard of native fruit trees, which will function both as a means of controlling erosion and a source of organic fruit for the College.

- Work with City of Lynchburg planning staff to coordinate master planning for the campus with planning for Riverside Park and the residential and commercial areas surrounding the College.
- Involve the College's immediate neighbors in plans for the development of the campus, so that the College's land use will relate well to the surrounding community.
- Limit the College's negative impact on the surrounding community by limiting light and noise pollution, and by taking steps to minimize the impact of student and staff parking.
- Consider conducting a scenic viewshed analysis of the campus

Objective 1B: Buildings

Randolph College's buildings embody quality construction that has stood the test of time. Many of the campus buildings have served the College for a century or more and continue to be adapted to modern educational practice and institutional uses. Members of the campus community develop strong emotional attachments to the aesthetic beauty and quality design of the campus. The maintenance and adaptive reuse of our existing facilities is in itself a strategy for sustainability.

Buildings are among the greatest consumers of energy and other resources such as water, which in turn makes them one of the largest sources of greenhouse gas emissions. According to the U.S. Green Building Council, buildings in the U.S. account for 40% of primary energy use, 72% of electricity consumption, and 13.6% of potable water consumption (www.usgbc.org). A building may be defined to be any structure on Randolph College property that is connected to utilities. Randolph College's student population has remained constant for the past several decades and new buildings have not been constructed since the 1970s. However, Randolph College plans to increase enrollment to approximately 1100 residential students. This will necessitate the construction of new buildings. Through the use of sustainable building design standards, such as the USGBC's Leadership in Energy and Environmental Design (LEED) standards, and innovative technologies that reduce energy and water use, Randolph College can construct and maintain buildings that are safe and healthy indoor environments while decreasing the building's energy cost and impact on the natural environment.

Strategies:

- Maintain the College's tradition of architectural design excellence in all new buildings and renovations.
- Emphasize adaptive reuse of existing buildings for new purposes to minimize the need for new construction. Consider acquisition of nearby apartment buildings for retrofitting as apartment-style dormitories for students.
- To minimize the need for new building construction, improve classroom usage by creating a more effective class schedule, and by using the different classroom spaces more efficiently.
- Continue and expand routine energy efficient and conservation measures; such as weather stripping and window caulking
- Consider LEED certification or other environmental standard when planning for new buildings and renovations to existing buildings. Establish a policy that new campus construction will be built to at least the U.S. Green Building Council's LEED Silver standard or equivalent standard
- Use salvaged materials and a minimum waste policy for all new construction and renovations.
- Consider the lifespan cost of buildings in financing of new buildings and renovations.

Objective 1C: Landscaping

Landscaping addresses the use of ground cover on Randolph College property and the implementation of more sustainable landscaping practices. These practices could include the use of native and drought-resistant plants, the reduction of pesticides, or a reduction of the amount of water used to water plants and natural ground cover; such as grass. Currently, the college utilizes cultural pest management practices and since 2000, has been phasing out the use of insecticides and fungicides. Most fertilizers are based on petrochemicals and organic alternatives have not been found to be as effective as chemically based fertilizers. The Buildings and Grounds Department is committed to becoming more organic in grounds upkeep, but is waiting for organic options to be cost competitive and equally effective. Through the use of sustainable landscaping practices Randolph College may be able to reduce the amounts of water, pesticides, fungicides, and herbicides consumed by landscaping practices. Not only would this decrease the impact that Randolph College has on its natural environment through the release of these chemicals into the local watershed, but it could also reduce the amount of work and man hours required to maintain campus grounds.

Strategies:

- Work with the City of Lynchburg to implement stormwater management policies consistent with the City's Combined Sewer Overflow project. Install rain gardens around major campus buildings to reduce the flow of stormwater off site.
- Implement drought-resistant (and if possible native) landscaping practices in order to reduce water consumption and man hours required for upkeep.
- Preserve old growth forest on back campus (and other properties) as a legacy and a carbon sink.
- Minimize use of pesticides, fertilizers, and herbicides
- Use low noise or electric blowers (as the gas ones create noise and air pollution and are disrupting to classes).
- Utilize campus landscaping to maximize infiltration of storm water and minimize runoff.
- Reduce need for mowing by planting alternatives to grass such as moss, ivy, pachysandra, or periwinkle.
- Gradually replace grass cover in organic garden with bark and stone pathways to reduce the need for watering and mowing.
- Continue composting of landscaping waste.

Objective 1D: Infrastructure and Energy Use

The campus infrastructure supplies the buildings and grounds with necessities such as water, electricity, and heat. Infrastructure and energy use constitute the largest operations expense for Randolph College. This expense can be reduced through the implementation of conservation and efficiency measures and technologies, as well as the employment of cleaner, more renewable energy sources. Randolph College currently uses electricity supplied by American Electric Power (AEP). According to AEP's 2008 Annual Report, 66% of AEP's power is generated by use of coal, 23% with natural gas, 6% with Nuclear, and 5% with wind, hydro, and pumped storage (<http://www.aep.com>). In 2011 Virginia will deregulate electrical utilities, allowing the opportunity for alternative electricity sources to be considered. The College currently uses a natural gas fired boiler system to supply heat to the college. Through reducing energy consumption and/or switching to alternative sources of our energy Randolph College can reduce its energy costs, while also reducing its greenhouse gas and other emissions.

A separate infrastructure master plan was completed in 2008 by Wiley and Wilson as part of the Facilities Master Plan. That plan details improvements needed to the college's electrical distribution system, steam heating system, water system, and other infrastructure.

Strategies:

- Upgrade the College's existing electrical service to provide sufficient power for current and future power needs.
- Continue the current energy-efficient appliance purchasing policy requiring purchase of Energy Star certified products in all areas for which such ratings exist
- Retrofit existing light fixtures with higher-efficiency options, including LED lights where feasible.
- Implement a full chilled water loop system.
- Consider converting the current steam heating system to a more efficient hot water system.
- Consider the feasibility of replacing the current steam boilers with a more energy efficient system.
- Explore options for automatic water leak detection systems.
- Continue voluntary efforts to reduce energy consumption in classrooms, laboratories, offices, dorms, and other spaces.
- Look for opportunities for on-site renewable energy generation to partially offset our purchase of power generated off campus. Possible projects might include small roof-top wind turbines on the Main Campus, a large wind turbine at the Riding Center; installation of solar hot water for PER pool and dorms, roof-top solar panels on Main Campus, and generation of biodiesel from the dining services oil to be used in campus vehicles.
- Purchase "green power" blocks through American Electric Power.

Objective 1E: Purchasing

Purchasing includes the process of product acquisition for the campus as well as the environmental impact of the products purchased. Currently Randolph College does not have centralized purchasing and there is no central tracking system for purchases. Purchases are made separately by each department and are charged to the department's budget line. Dining services conducts their own purchasing through ARAMARK (see Objective 1G). However, the Building and Grounds Department has made it a priority to only purchase EnergyStar qualified products whenever that rating is available. In addition, the College is evaluating the feasibility of shifting to 30% postconsumer recycled paper when possible. The Admissions Office, the Office of College Relations, and other administrative offices have begun implementing the use of recycled-content paper for some purposes. The Environmental Studies department purchases 100% post-consumer content recycled paper for its own use. Environmentally friendly products have been purchased for assorted other purposes as well, such as outdoor seating in public areas made from recycled plastic.

Strategies:

- Explore the feasibility of a centralized purchasing system to allow the College to take advantage of volume discounts and to explore options for environmentally preferable products. Savings from centralized purchasing could offset the cost of a half-time purchasing agent.
- Give preference to purchase of Green Seal or Environmental Choice cleaning products.
- Give preference to purchase of computers that are Electronic Product Environmental Assessment Tool (EPEAT) compliant.
- Explore the feasibility of purchasing 30% or 100% post consumer recycled paper and other paper based products) through paper products cooperatives.
- Establish criteria for purchase of environmentally preferable furniture for offices, classrooms, residence halls and lounges. Give preference to purchasing furniture made from sustainably harvested wood. When feasible, refinish or reupholster furniture rather than buying new.
- Establish a system for leasing / sell back of electronic equipment to reduce electronic waste.
- Use compostable or biodegradable dishware and eliminate the use of styrofoam or non-recyclable plastic.
- Continue the policy of purchasing Purchase EnergyStar equipment whenever feasible (see also Infrastructure and Energy Use).

Objective 1F: Materials Management and Recycling

Materials Management includes the reuse, recycling, or disposal of resources used by the College. Currently Randolph College recycles, composts, reuses, donates, or otherwise diverts approximately 24 tons of materials from the landfill each year.

However, The College disposes of approximately 230 tons of materials each year in the landfill. The College diverts waste through various initiatives. Our joint B&G and student led recycling program diverts 21 tons of plastic, aluminum, cardboard, and mixed paper, from landfills. In addition, the College recycled 127 electronic devices such as computers, monitors and printers through a Dell Computer recycling program. A recently established student run “free store” salvages high quality goods at the end of the year to be given out to incoming first years for free. Finally, the Dean of Students office collects approximately one half ton of clothes to be given to local charities at years end. The College disposed of 69 pounds of hazardous chemical waste through an outside vendor last year. The Randolph College Organic Garden has expanded considerably in the last year, and has plans for further development. As part of its operations, the garden includes composting of organic waste from the dining hall and the Student Center coffee shop, and also uses organic food waste as feed for the flock of 44 chickens.

Strategies:

- Continue to support and expand current recycling programs on campus, including electronics recycling.
- In the organic garden, continue the use of organic waste as chicken feed, and continue to compost materials from the dining hall and coffee shop.
- Establish a policy on paper conservation, including duplex copying, use of reverse sides of paper for notes, limits to paper allotments by departments.
- Compost dining services food wastes and coffee grounds.
- Continue and expand salvaging of discarded student items at the end of the year through “Free Store” program and donations to local charities.
- Explore feasibility of leasing/buyback of computer equipment.
- Explore carpet leasing programs for renovations and new construction
- Participate in the waste minimization component of the national RecycleMania competition and adopt associated measures to reduce waste (ACUPCC standard).

Objective 1G: Dining Services

Dining services at Randolph College is contracted to an outside vendor, ARAMARK Services. As a company, ARAMARK is committed to environmental stewardship in its food purchasing, supply chain, building operations, energy and water conservation, transportation, and waste management (<http://www.aramark.com>). The local and regional management of ARAMARK has expressed a willingness to work with the College's Environmental Issues Council in setting priorities and goals for sustainability in the College's food service. Currently, most of the dairy products for dining services are locally purchased and approximately 1/3 of the coffee budget is spent on Fair Trade Certified coffee. The Director of Food Services is a member of the Environmental Issues Council. He has implemented procedures to encourage reduction in the number of napkins used in the dining hall and has expressed interest in developing a system to compost food waste. In addition, the dining hall is now formally trayless, which helps in reducing the size of portions. However there is no tracking system in place for documenting purchases of organic food, or for food that is Food Alliance Certified (<http://www.foodalliance.org/>). The organic garden is becoming sufficiently productive to offer some produce and other items for purchase to the campus community each week. Recent items from the organic garden include produce and herbs, fresh-baked bread using garden-grown herbs, pesto, and free-range eggs

Strategies:

- Emphasize purchase of organic, locally produced, Fair Trade foods. Establish a system to track and record the amount of locally grown, organic, and Food Alliance Certified food purchases. Purchase of local food helps to support local farmers and preserves farmland in the surrounding counties.
- Increase program with the Organic Garden to compost food waste.
- Continue and expand of the Organic Garden weekly market
- Continue programs to encourage portion control.
- Eliminate purchase of Styrofoam products and encourage use of biodegradable dining products. ARAMARK has eliminated Styrofoam use in the dining hall, and is working to phase out Styrofoam use in the Skeller.

Objective 1H: Transportation and Power Equipment

As a small, primarily residential campus, Randolph College does not have an internal transit system. However, the College does maintain a small fleet of vehicles, primarily for use by B&G housekeeping and maintenance staff. The College also maintains several vans and minibuses for use by athletic teams and academic departments. In addition, the College uses gasoline-powered landscaping equipment (see Objective 1C), as well as a few golf carts and small utility vehicles used by IT staff, campus security personnel, and disability services staff. The College's faculty, staff, and Prime-Time students commute to campus primarily by car, but some live close enough to campus to walk or use bicycles. Last year, the College began a free Bike Share program, and currently maintains a fleet of ten bicycles that are available for use by faculty, staff, and students. Some bike racks and showers are available on campus for use of faculty and staff. For transportation of students to off-campus shopping, the College contracts with the Greater Lynchburg Transit Authority to operate a shuttle bus on the weekends during the academic year.

Strategies:

- Encourage faculty and staff to commute by walking or bicycle by providing more convenient bike racks and showers.
- Expand the current Bike Share program as enrollment increases.
- Give preference to purchase of diesel or hybrid vehicles for the College fleet.
- Continue to develop on-campus biodiesel production using frying oil from dining services and nearby restaurants.
- Discourage students from bringing cars to campus by raising parking fees gradually over several years. Consider prohibiting first year students from having cars on campus.
- Explore feasibility of collaborating with Lynchburg College and Liberty University to expand local shuttle bus service for students.
- Offer preferential parking or other incentives to faculty and staff who carpool or who drive alternative fuel vehicles, such as hybrids or biodiesel cars.
- Give preference to purchase of electric or biodiesel fueled landscaping equipment, when new equipment is purchased.

Goal 2: Education, Communication, and Research

Randolph College offers a liberal arts education known for its intellectual rigor, in a dynamic learning environment. Its dedicated faculty members serve as strong educational and community mentors to students. Randolph College offers 25-plus majors and 50 minors that hone skills and prepare students for a successful career. The global emphasis encourages students to be informed citizens of the world, valuable to their communities and professional fields. (Randolph College website)

Objective 2A: Curriculum

Randolph College has the opportunity to weave sustainability throughout its curriculum, educating not only its environmental studies and sciences students about worldwide problems and efforts, but all of the Randolph College community. The Environmental Studies Program has taken a liberal arts approach to the Environmental Studies major, focusing not only on the natural and physical sciences, but also on the environmental aspects of policy, economics, philosophy, literature, and psychology to name a few. The College also offers a rigorous degree in Environmental Science. By taking this interdisciplinary, liberal arts approach, many of the departments at Randolph College have added environmental courses, helping to thread environmental awareness throughout the curriculum. Through encouraging even more of a curriculum-wide emphasis on sustainability, Randolph College will set an example to other academic institutions and attract people with an interest in the world-wide environment as well as other subjects. Sustainability and efforts to reduce humanity's influence on the natural world should not be restricted to the Environmental Studies Department, but also influence the teachings of all departments on campus. Randolph College also values hands-on experience with sustainability, and has developed a number of internship and student research opportunities, included internships with the Organic Garden, and a number of environmental organizations in the surrounding community.

Strategies:

- Encourage environmental stewardship by including a class focusing on sustainability in the College's general education requirements.
- Support existing environmental education courses throughout the curriculum with funding for adjunct faculty and visiting speakers.
- Develop a minor program in Sustainability, drawing on courses from across the curriculum
- Continue to develop the Organic Garden internship program, maintain current internship and student research opportunities, and explore additional internship programs related to sustainability.

Objective 2B: Research

As demonstrated by the Summer Research Program, environmental research can take place across all disciplines spanning the Biology, Chemistry, Physics, Psychology, Economics, Environmental Studies, and even English departments. Additionally research can also reach into the facilities management and administration of the college, linking the function of the college to its academics (something not seen or even possible in larger universities and colleges). Environmental research at Randolph College is carried out by faculty across numerous academic disciplines, by students for senior honors projects and internships, incorporated into class research projects, and conducted by staff either independently or through the Summer Research Program in which students and staff collaborate.

Strategies:

- Continue to support environmental research through the College's Summer Research Program.
- Encourage faculty to apply for external grants to fund environmental research. Increase support for grant writing.
- Support faculty and student presentation of research at regional and national sustainability conferences.
- Publicize the College's environmental research efforts through the College's website and through local and national media.

Objective 2C: Faculty and Staff Development

Currently, Randolph College encourages faculty and staff development through supporting their attendance at regional and national conferences. Continued training and education of staff and faculty should also be considered as new environmental technologies are being developed at an increasing rate. By sending relevant teams of staff and faculty to conferences and supporting interaction of Randolph College faculty and staff with peers at other institutions, the College can ensure that classes and practices on campus remain up to date.

Randolph College maintains institutional memberships in sustainability organizations such as AASHE. Faculty members are involved in a number of professional organizations, public services, and non-profit organizations, such as the Greater Lynchburg Environmental Network, the Lynchburg Planning Commission, and the Natural Resources Advisory Committee. These activities have allowed faculty to provide educational and research opportunities for students as well.

Strategies:

- Continue to provide support for faculty and staff attendance at sustainability workshops and conferences.
- Promote opportunities for on-campus training through webinars or on campus workshops and presentations.
- Support membership of the college and individual faculty in sustainability organizations such as AASHE and the NWF Campus Ecology Program, and in non-profit and public service activities.

Objective 2D: Communication

Communication about sustainability within the Randolph College community is an area that needs attention. Currently, on campus communication about environmental issues is done through a variety of media, but is not well coordinated. The Environmental Studies Department maintains a web page with information about environmental issues, but the page is difficult to find from the College's main web page. Notices about Environmental Club meetings and environmental events and speakers on campus are conveyed through emails and portal announcements. Flyers are placed in the hallways for events. Information about recycling is included in new student orientation. Sustainable lifestyle hints and recommendations are posted in the BCD and Sundial. The organic garden has offered public workshops and posts frequent information about their activities, in addition to advertising the weekly market. Although there are many events and initiatives on campus around the issue of sustainability, they often are not effectively communicated to the campus community or to off-campus audiences.

Strategies:

- Establish a task force comprised of representatives of the Environmental Issues Council, Environmental Club, Environmental Studies Department and staff from College Relations to create a plan for improving the efficiency and coordination of sustainability information on campus.
- Create an Environmental Issues Council site on the Portal to communicate on campus information about sustainability

Objective 2E: Co-Curricular Education

Sustainability initiatives are carried out in the college community through co-curricular efforts made through student organizations such as the Environmental Club, the Organic Garden group, the Eco-Floor, and Experiential Learning Internships. Co-curricular, student initiated projects such as the free store, bike sharing program and organic garden are just a few examples of sustainability being promoted in the college community. Co-curricular activities also offer students leadership and learning opportunities by working through existing clubs or starting clubs of their own to explore their interests.

Strategies:

- Continue support of existing and new clubs focused on sustainability.
- Consider building a new EcoDorm or renovating an existing residence hall into a facility that can serve as a model for sustainable building technologies and sustainable living. Provide an academic component through Experiential Learning Internships for students who live in the EcoDorm.
- Continue to develop the Organic Garden internship program and consider establishing an Organic Garden living community on one of the floors in the dormitories.

Objective 2F: A Campus Culture of Sustainability

The creation and nurturing of a campus culture of sustainability is essential for the Environmental Sustainability Proposal to be effective. This culture will be represented at Randolph College as principles of sustainability become incorporated into fundamental decisions and actions made by the College. A campus culture of sustainability is a partnership among students, faculty and staff to implement sustainable programs on the campus and in the surrounding community. Through development and growth of this culture, the knowledge, values and techniques of sustainability will be shared and spread. If successful, the culture will not only influence decisions made by the College, but also those of students, faculty and staff in their lifestyle choices, consumption decisions, and their commitment to the improvement of their communities.

Once created, a campus-wide culture of sustainability will serve as a self-renewing and ever growing resource. The campus culture of sustainability will be developed recognizing that there is a connection between the college community and local and global environmental health. Through the development of this culture at Randolph College an expectation will be created that environmental issues are being considered in all parts of the College's functioning. It will be "in the water". In the 2009-2010 academic year, the College chose to develop a theme of Sustainable Living on campus, and has developed a series of events, speakers and other activities related to this theme. Many of these activities could be productively continued in subsequent years.

Strategies:

- Encourage students, faculty and staff engaged in environmental efforts on campus to share their commitment and enthusiasm with friends and family.
- Create "living communities" in the Residence Halls to promote campus sustainability, such as an Organic Garden Living Community.
- Create frequent campus events to celebrate the College's successes in moving towards greater sustainability (such as the Earth Day Fair).
 - Recognize and reward individuals and organizations who most contribute to campus sustainability (i.e. create an "environmental hero" award)
 - Partner with other local campuses to promote sustainability at local community events.

Goal 3: College Structures, Administration and Leadership

In order to integrate environmental sustainability throughout the College, support structures and leadership responsibilities must be defined, established, and nurtured. The College took a large step in this direction by creation of the Environmental Issues Council (EIC) in 2002. This council is composed of faculty, staff, and students and is responsible for promoting and coordinating environmental initiatives across campus (see Appendix D). Each year the EIC establishes working groups to coordinate work on specific tasks. Currently, the working groups are (1) Recycling and Waste Management, (2) Communication and Outreach, (3) Climate Action Plan, Energy and Infrastructure, and (4) Sustainable Design and Landscaping. The Chair of the Environmental Studies Department serves as the campus contact for the ACUPCC. In collaboration with the B&G department, the EIC coordinates the College's recycling program and works with the Environmental Club on specific projects to promote a more sustainable campus. However, no person at the College is designated as the Sustainability Coordinator. This role currently is filled collectively on a volunteer basis by the members of the EIC.

Objective 3A: Organizational Structures

Create and maintain campus organizational structures to promote environmental sustainability.

Strategies:

- Continue to support the work of the Environmental Issues Council. Provide a budget line to support the activities of the EIC.
- Include appropriate members of the EIC in discussions of campus facilities maintenance, renovations, and new construction.
- Continue to encourage student participation in the Environmental Club, the Organic Garden, and other clubs and activities with relevance to sustainability.
- Create opportunities for alumnae to assist in the College's sustainability efforts by sharing their professional expertise and experience.

Objective 3B: Environmental Leadership

Foster environmental leadership among faculty, staff, and students.

Strategies:

- Designate the Chair of the EIC as the College's Sustainability Coordinator. Provide appropriate compensation through course release time or pay.
- Continue the position of Faculty Representative to the Trustee Building and Grounds Committee to keep trustees informed of the College's sustainability efforts and to seek their support.
- Continue to designate a faculty member as representative to the ACUPCC (currently held by the chair of Environmental Studies)
- Encourage leadership and initiative among members of the EIC by delegating responsibility for overseeing specific aspects of sustainability (recycling, purchasing, energy conservation, etc...)
- Establish a position of Energy Manager in the Buildings and Grounds Department.
- Establish a position of Purchasing Agent (see Objective 1E) A combination of the positions of Purchasing Agent and Energy Manager could be self-supporting through savings generated from the position.
- Continue to encourage student leadership on sustainability initiatives by involving them in planning and decision-making.
- Designate a faculty or staff member in each building as Environmental Sustainability Liaison to the EIC.
- Develop the organic garden internship program to include a staff garden supervisor as a paid position, and funding for 2-4 student garden managers in the summer.

Objective 3C: Facilities Planning

Continue to incorporate sustainability into College facilities planning.

Strategies:

- Develop a College-wide Sustainability Mission Statement, tailored to our circumstances.
- Use information from the Environmental Sustainability Proposal and Facilities Master Plan to set priorities for environmental initiatives.
- Minimize new construction by using existing facilities more efficiently
- Develop environmental performance criteria for all renovations and new construction (such as LEED certification).
- Utilize consultants for energy projects aimed at reducing the College's carbon emissions in accordance with ACUPCC goals.

Goal 4: Community Outreach

Randolph College is actively engaged with the Lynchburg community and neighboring colleges in promoting sustainability and environmentally responsible planning and development. In its 2002-2020 Comprehensive Plan, the City of Lynchburg stated its commitment to becoming more environmentally sustainable:

“Lynchburg will take pride in being a sustainable community; one that protects and manages its limited natural, historic, and cultural resources in such a way that the community environment, which its residents value and which sustains us today, will sustain future generations.”

--- City of Lynchburg Comprehensive Plan 2002-2020, p. 2.

Randolph College faculty and students have been active partners with the City on a number of environmental projects. Since 2005 Professor Rick Barnes has served as a member of the Lynchburg Planning Commission and promoted establishment of a Natural Resources Advisory Committee (NRAC) to advise the planning commission on natural resource issues. Professor Karin Warren is the Chair of NRAC and over the past several years has led the committee in making recommendations on the city's storm water management ordinance, reviewing options for city membership in international climate initiatives, and developing a checklist to evaluate the environmental impact of proposed future development. Matea Osti, an Environmental Studies major, researched environmental checklists used by other cities and developed a draft checklist for Lynchburg as part of her senior honors project. Professor Elizabeth Perry-Sizemore supervised a group of economics students in evaluating the effects of housing blight on urban neighborhoods, and Professor William Bare has researched methods of lead abatement in city neighborhoods. Many of our students have participated in internships with the Lynchburg Department of Community Development and the Lynchburg Redevelopment and Housing Authority. In addition, students last year assisted in a Habitat for Humanity “Greenbuild” to construct an environmentally sustainable house for one of the College's employees.

Some RC faculty members also have been active in local nonprofit organizations that are concerned with environmental quality. Professor Laura-Gray Street is President of the Greater Lynchburg Environmental Network, and Professors Rick Barnes and Karin Warren serve on the board of GLEN. Professor Street also is on the board of the Central Virginia Land Conservancy. Several faculty members are active in environmental groups in their church or synagogue, and give presentations on environmental issues to local school and community groups.

Randolph College faculty members often collaborate with colleagues at Lynchburg College and Sweet Briar College in promoting local environmental efforts. Professor Warren's environmental science students conduct annual monitoring of the quality of water in Blackwater Creek and share their data with Lynchburg College's Watershed management Program, and the Environmental Studies departments at the three colleges share information about campus events and speakers. Recently, faculty

from Randolph College, Lynchburg College and Sweet Briar College collaborated in writing a grant proposal to the National Science Foundation to study Lynchburg's urban ecology.

The organic garden has become a conduit for community, both on and off campus. The student interns, in association with the garden supervisor, Shahriar Abbassi, have conducted public workshops. Community members serve as advisors for the garden, and also volunteer their time to work in the garden. The garden also has organized a series of workshops on topics such as bee keeping and orchard development and planning, which are open to members of the public.

Objective 4A: Community Resource

Maintain and expand outreach efforts to the local community as a resource on sustainability.

Strategies:

- Create a sustainability web page on the College website to be a clearinghouse for publicizing environmental projects and events both on campus and to the local community.
- Continue to develop the organic garden blog and website, including Facebook pages.
- Continue to expand outreach and community activities through the organic garden.
- Create an interpretive program to showcase the College's environmental efforts to the broader community. This could include a brochure, self-guided campus tour, or interpretive signs at appropriate sites around campus.
- Explore opportunities for outreach to local public and private schools in environmental education
- Serve as a model for sustainability for other local organizations through our on-campus environmental management
- Encourage participation of faculty and students in local environmental organizations
- Establish a Center for Environmental Studies to coordinate communication and collaboration with local government and community organizations
- Continue to publically share greenhouse gas inventories and climate planning documents on the ACUPCC's reporting website

Objective 4B: Collaboration with Other Colleges

Seek opportunities to partner with other colleges in promoting sustainability.

Strategies:

- Host meetings with appropriate faculty at Lynchburg College and Sweet Briar College to coordinate sustainability efforts and identify opportunities for collaboration.
- Promote collaboration and social interaction among student environmental clubs and other clubs at local colleges
- Continue coordinating environmental and sustainability outreach programs such as speakers, programs, activities, and student/staff training session

Summary and Conclusions

Randolph College has taken significant steps toward sustainability and in some ways has been a pioneer in campus sustainability efforts. We were one of the first colleges to sign the Talloires Declaration in the early 1990's, were among the first colleges to join the Association for the Advancement of Sustainability in Higher Education, and also were a charter signatory to the American College and University Presidents' Climate Commitment. Our small size has been an advantage in our ability to involve many students, faculty and staff in the College's sustainability efforts. However, our small size and limitations of staff and faculty time and financial resources have inhibited our ability to take on more ambitious environmental sustainability projects.

Given our limited resources, we can be proud of the steps we have taken toward environmental sustainability so far. However, there is much left to be done. The proposals and recommendations in this plan are intended to provide some inspiration and direction for our future efforts.

Appendix A: The Talloires Declaration University Leaders for a Sustainable Future

We, the presidents, rectors, and vice chancellors of universities from all regions of the world are deeply concerned about the unprecedented scale and speed of environmental pollution and degradation, and the depletion of natural resources. Local, regional, and global air and water pollution; accumulation and distribution of toxic wastes; destruction and depletion of forests, soil, and water; depletion of the ozone layer and emission of "green house" gases threaten the survival of humans and thousands of other living species, the integrity of the earth and its biodiversity, the security of nations, and the heritage of future generations. These environmental changes are caused by inequitable and unsustainable production and consumption patterns that aggravate poverty in many regions of the world.

We believe that urgent actions are needed to address these fundamental problems and reverse the trends. Stabilization of human population, adoption of environmentally sound industrial and agricultural technologies, reforestation, and ecological restoration are crucial elements in creating an equitable and sustainable future for all humankind in harmony with nature. Universities have a major role in the education, research, policy formation, and information exchange necessary to make these goals possible. Thus, university leaders must initiate and support mobilization of internal and external resources so that their institutions respond to this urgent challenge.

We, therefore, agree to take the following actions:

1. Increase Awareness of Environmentally Sustainable Development

Use every opportunity to raise public, government, industry, foundation, and university awareness by openly addressing the urgent need to move toward an environmentally sustainable future.

2. Create an Institutional Culture of Sustainability

Encourage all universities to engage in education, research, policy formation, and information exchange on population, environment, and development to move toward global sustainability.

3. Educate for Environmentally Responsible Citizenship

Establish programs to produce expertise in environmental management, sustainable economic development, population, and related fields to ensure that all university graduates are environmentally literate and have the awareness and understanding to be ecologically responsible citizens.

4. Foster Environmental Literacy For All

Create programs to develop the capability of university faculty to teach environmental literacy to all undergraduate, graduate, and professional students.

5. Practice Institutional Ecology

Set an example of environmental responsibility by establishing institutional ecology policies and practices of resource conservation, recycling, waste reduction, and environmentally sound operations.

6. Involve All Stakeholders

Encourage involvement of government, foundations, and industry in supporting interdisciplinary research, education, policy formation, and information exchange in environmentally sustainable development. Expand work with community and nongovernmental organizations to assist in finding solutions to environmental problems.

7. Collaborate for Interdisciplinary Approaches

Convene university faculty and administrators with environmental practitioners to develop interdisciplinary approaches to curricula, research initiatives, operations, and outreach activities that support an environmentally sustainable future.

8. Enhance Capacity of Primary and Secondary Schools

Establish partnerships with primary and secondary schools to help develop the capacity for

interdisciplinary teaching about population, environment, and sustainable development.

9. Broaden Service and Outreach Nationally and Internationally

Work with national and international organizations to promote a worldwide university effort toward a sustainable future.

10. Maintain the Movement

Establish a Secretariat and a steering committee to continue this momentum, and to inform and support each other's efforts in carrying out this declaration.

Appendix B: The American College & University Presidents' Climate Commitment

We, the undersigned presidents and chancellors of colleges and universities, are deeply concerned about the unprecedented scale and speed of global warming and its potential for large-scale, adverse health, social, economic and ecological effects. We recognize the scientific consensus that global warming is real and is largely being caused by humans. We further recognize the need to reduce the global emission of greenhouse gases by 80% by mid-century at the latest, in order to avert the worst impacts of global warming and to reestablish the more stable climatic conditions that have made human progress over the last 10,000 years possible.

While we understand that there might be short-term challenges associated with this effort, we believe that there will be great short-, medium-, and long-term economic, health, social and environmental benefits, including achieving energy independence for the U.S. as quickly as possible.

We believe colleges and universities must exercise leadership in their communities and throughout society by modeling ways to minimize global warming emissions, and by providing the knowledge and the educated graduates to achieve climate neutrality. Campuses that address the climate challenge by reducing global warming emissions and by integrating sustainability into their curriculum will better serve their students and meet their social mandate to help create a thriving, ethical and civil society. These colleges and universities will be providing students with the knowledge and skills needed to address the critical, systemic challenges faced by the world in this new century and enable them to benefit from the economic opportunities that will arise as a result of solutions they develop.

We further believe that colleges and universities that exert leadership in addressing climate change will stabilize and reduce their long-term energy costs, attract excellent students and faculty, attract new sources of funding, and increase the support of alumni and local communities. Accordingly, we commit our institutions to taking the following steps in pursuit of climate neutrality.

1. Initiate the development of a comprehensive plan to achieve climate neutrality as soon as possible.
 - a. Within two months of signing this document, create institutional structures to guide the development and implementation of the plan.
 - b. Within one year of signing this document, complete a comprehensive inventory of all greenhouse gas emissions (including emissions from electricity, heating, commuting, and air travel) and update the inventory every other year thereafter.
 - c. Within two years of signing this document, develop an institutional action plan for becoming climate neutral, which will include:
 - i. A target date for achieving climate neutrality as soon as possible.
 - ii. Interim targets for goals and actions that will lead to climate neutrality.
 - iii. Actions to make climate neutrality and sustainability a part of the curriculum and other educational experience for all students.
 - iv. Actions to expand research or other efforts necessary to achieve climate neutrality.
 - v. Mechanisms for tracking progress on goals and actions.
2. Initiate two or more of the following tangible actions to reduce greenhouse gases while the more comprehensive plan is being developed.
 - a. Establish a policy that all new campus construction will be built to at least the U.S. Green Building Council's LEED Silver standard or equivalent.
 - b. Adopt an energy-efficient appliance purchasing policy requiring purchase of ENERGY STAR certified products in all areas for which such ratings exist.
 - c. Establish a policy of offsetting all greenhouse gas emissions generated by air travel paid for by our institution.
 - d. Encourage use of and provide access to public transportation for all faculty, staff, students and visitors at our institution.

- e. Within one year of signing this document, begin purchasing or producing at least 15% of our institution's electricity consumption from renewable sources.
 - f. Establish a policy or a committee that supports climate and sustainability shareholder proposals at companies where our institution's endowment is invested.
 - g. Participate in the Waste Minimization component of the national RecycleMania competition, and adopt 3 or more associated measures to reduce waste.
3. Make the action plan, inventory, and periodic progress reports publicly available by providing them to the Association for the Advancement of Sustainability in Higher Education (AASHE) for posting and dissemination.

In recognition of the need to build support for this effort among college and university administrations across America, we will encourage other presidents to join this effort and become signatories to this commitment.

Signed,
**The Signatories of the American College & University
Presidents Climate Commitment**

Appendix C: Environmental Issues Council

The Environmental Issues Council is a college-wide committee whose responsibility is to support and facilitate efforts to enhance responsible management of College resources and to promote improvement of the quality of the environment at Randolph College.

Vision

Randolph College is committed to environmental stewardship at the local, regional and global levels. Members of the Randolph College community are aware of environmental issues and concerns, are inspired to take action, and support global environmental responsibility. Graduating students are educated for environmentally responsible citizenship and are prepared to assume leadership in environmental endeavors.

Mission

Working together, the EIC will:

- Promote environmental awareness and advocacy through orientation, education, and coordination of programs and initiatives throughout the campus and the larger community.
- Design and maintain guidelines for environmentally responsible practices from the individual to the community level.

2009-2010 Working Groups

- Communication and Outreach
- Recycling and Purchasing
- Climate Action Plan, Energy, and Infrastructure
- Sustainable Design and Landscaping

Membership

Chair of Environmental Studies Program

Faculty Representative to the Trustee Buildings and Grounds Committee

4 Faculty

3 or more Students (one representing the Environmental Club, one representing the Organic Garden, and one from Student Government)

Director of Buildings and Grounds, and Project Manager

Representative from Residence Hall Staff

Representative from the Development Office

Representative from College Relations Office

Representative From Food Service

One at-large staff representative

Appendix D: Overview of Sustainability Initiatives at Other Colleges and Universities

In order for Randolph Colleges Sustainability Proposal to be as effective as possible research was done comparing other college and university sustainability initiatives. This not only compared these efforts but also gave ideas of how Randolph College could best create, format, and implement sustainability initiatives on the Randolph College campus.

Table 1 summarizes and compares different college and university methodology for sustainability efforts and what aspects of the college/university are included or considered. By viewing Table 1, one may see trends in how sustainability plans were included within campus organization and what aspects were represented within them.

When looking at the methodology of how to implement sustainability efforts on a campus, institutions have many decisions to make. This includes where the institution decides to include the sustainability plan; such as within a Master Plan or separately, as well as how it wants to enforce the sustainability plan once it is implemented. Through a committee or a designated sustainability position, as well as who that given entity reports to, the administration or the Building and Ground Department.

The institution must also consider what aspects should be included in the sustainability plan (separate or included within another plan). This can cover a broad range of aspects in the operation of the institution including the buildings and utilities, land usage and management, transportation, purchasing, and financing of the institution. Lastly, the institution must also consider the population that the sustainability plan will include and influence. From this perspective an academic institution must consider whether to include students and facility in the implementation process or whether they would prefer for it to be maintained by the staff and/or the administration. In both of these cases the institution must consider also how the sustainability plans economic and educational values will trickle down to students and facility. This could include environmental and sustainability education and academic programs, research of students and facility, as well as continuing education for both facility and staff for the benefit of future planning at the college/university. Finally, the institution must consider the community surrounding it. This includes the level of involvement of the community on campus and influence of campus sustainability initiatives to the outside community.

Another aspect explored while researching other college and university sustainability plans was the structure of these plans. Within Table 2, one may see different structure examples. These include the structure suggested by AASHE in the STARS program as well as structures of four colleges/universities.

The colleges and universities that were examined were chosen for the existence of sustainability plans and efforts on the campus. Also considered were their size and the level of sustainability efforts on the campus. Many of the institutions

researched were found through their membership in the Association for the Advancement of Sustainability in Higher Education (AASHE). Although it would have been preferable to have more institutions of comparable size to Randolph College, many small colleges do not yet have sustainability plans in place to be considered. Therefore many of the institutions included in this research are larger than Randolph College. The research and conclusions still remain the same as the structures and aspects of many colleges and universities are similar. Differences may be found between the small and large institutions when considering transpiration.

Appendix E: Overview of Greenhouse Gas Inventory

The greenhouse gas inventory (GHGI) is a requirement of the American Colleges & Universities President Climate Commitment (ACUPCC), a document signed by RMWC President Ginger Worden in 2006 and stating that Randolph College pledged to set its own timeline to become carbon neutral. This inventory has for objective to assess how much greenhouse gas Randolph College emits every year since 1990. Responsibility for complying with the ACUPCC rests with our college's Environmental Council, consisting of faculty, staff, and students. Randolph College conducted the GHGI as a summer research project with faculty and students. Since Randolph College is small, it was fairly straightforward to get data from the Buildings and Grounds office and other relevant staff around campus. This was an efficient process because the team working on the inventory was able to communicate with everyone directly. The team gathered data through personal contacts and email communication, and kept a detailed list of contacts and data gathered to facilitate future updates to the GHGI. When data were not directly available, the team estimated emissions using approximation techniques with reasonable assumptions, and plan to refine these estimates with survey data (e.g. for travel-related emissions). The team was able to mostly complete the inventory in eight weeks over the summer during the 2008 Summer Research Program, primarily with one student and one faculty collaborating. The inventory was completed with the help of an Excel document pre-configured by the Clean Air-Cool Planet Campus Carbon Calculator. The team chose this calculator because it was sufficient for its needs, straightforward to use, and included the emission sources the team identified as relevant for Randolph College. The team also found the graphs generated by this tool to be useful for public presentation of the work. However, some data being too difficult or impossible to gather before the year 2001 made the inventory inaccurate during the period 1990-2001. Fortunately, having approximately 7 accurate years is enough to see the trend of the college emissions and where most of these emissions are coming from. We plan to update our GHG inventory every year, and are currently in the process of gathering the final numbers needed for the 2008-2009 inventory.

For the public data of Randolph College greenhouse gas inventory, visit <http://acupcc.aashe.org/ghg-report.php?id=227>

