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Achieving Campus Climate Neutrality:
A Review of the University of Florida Campus Master Plan,
With Recommendations and Proposed Policies

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Executive Summary

Addressing anthropogenic climate change will be one of the greatest challenges of the 21st century. The University of Florida has pledged to be a leader among academic institutions by declaring the intention to become a climate neutral campus. To achieve this ambitious goal UF is updating it's 1996 to 2001 greenhouse gas (GHG[1]) profile. The current GHG profile update is developing a comprehensive database for the quantification of emissions from travel and campus buildings and the university wide carbon sink, laying the groundwork for the annual reporting of the University's net carbon emissions.

The report "Review of the University of Florida Campus Master Plan to Facilitate the University of Florida becoming a Climate Neutral Campus" is an overview of the climate neutral activities currently taking place at UF, at other academic institutions and an analysis of the Campus Master Plan 2005 – 2015 for implicit and explicit support for the climate neutral objective. The Campus Master Plan, as the guiding document for campus operations, should reflect the climate neutral objective. Additionally, Florida Governor Charlie Crist's Executive Order 07-126 specifies emission reductions for state agencies and departments under the directive of the Governors office. Accordingly an amendment to the master plan is proposed to bring the University of Florida in line

[1] Greenhouse Gas (GHG) – The six gases of concern listed in the Kyoto Protocols are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), HFC's (hydrofluorocarbons) and PFC's (perfluorocarbons). CO_2 is the benchmark GHG. The other gases are measured in terms of carbon dioxide equivalents (CO_2e). One ton of CO_2 = 272.73 kg C.

with the State of Florida targets, facilitating the University of Florida in becoming a climate neutral campus.

Implementation Recommendations

- Office of Sustainability oversees the development and maintenance of an annual report of net-greenhouse emissions generated for main campus and Alachua County satellite properties. The Office of Sustainability report should synthesize data from:

  - PPD, which should develop an annual report of greenhouse gas emissions generated from the campus power plant and from activities related to operating and maintaining buildings.

  - PPD Motor Pool, which should compile an annual report of fuel consumption by all university vehicles.

  - PPD Grounds *(with assistance from the School of Forest Resources and Conservation and Department of Botany)*, who should compile an annual report of the campus carbon sink capacity. The inventory of sequestered carbon on campus should be updated on a yearly basis.

  - University-wide travel offices, the accounting for which should be adapted to include travel information including fuel consumption for ground and point to point travel routes for air travel.

- Greenhouse gas emissions should be quantified in units of tons of CO_2 equivalents (tCO_2e) or global warming potential (GWP) for purposes of establishing benchmarks and comparison with peer institutions.

- The University should establish a policy requiring the purchase of ENERGY STAR certified products in all areas for which ENERGY STAR rating exists.

- Within one year of committing to the presidents climate neutral pledge, the University should begin producing or purchasing 15% of the electricity consumed on the campus from renewable sources or else reduce electricity consumption by increasing electricity-use efficiency.

- The University should establish a policy to offset all greenhouse gas emissions generated by air travel paid for by the University.

- The University of Florida should become climate neutral by 2020.

Section 1
Rational for Climate Neutrality

Introduction

Addressing anthropogenic climate change will be one of the greatest challenges facing humanity in the 21st century. Though scientific consensus on anthropogenic climate change is building, questions remain on the magnitude of the eventual change (IGPCC 2001). While these questions fuel debate regarding the merits of action in this country, the ratification of the Kyoto Protocol by Russia in 2004 brought the international accords into force, legally binding signatory countries to meet targets of reducing greenhouse gas (GHG) emissions to 5% below 1990 levels by 2012 (UNFCCC 2006).

Even thought the United States has not signed the Kyoto Protocol, regional initiatives are evolving such as the Northeast Regional Greenhouse Gas Initiative and California's Global Warming Solutions Act of 2006 (RGGI 2006, LCC 2006). In the summer of 2007, Florida Governor Charlie Crist signed an executive order mandating the reduction of GHG emissions from state agencies and departments under the direction of the Governor's office. The Chicago Climate Exchange, with members that include national and international companies, state and local communities and private and public colleges and universities has been trading carbon since 2003 (CCX 2006).

Bringing together the next generation of community, business and political leaders, university campuses as living laboratories can lead by example, addressing climate change by demonstrating creative solutions for reducing GHG emissions. Across the nation, universities from Yale to the University of California, Santa Barbara are inventorying their GHG emissions from power plants, buildings, transportation, and university related activities (Buttazzoni et al. 2005, Ahmed et al. 2006). The size of many small cities, a university campus, particularly one as large as the University of Florida, with over 35,000 employees and an annual enrollment of more than 50,000 students (UF Facts 2006) can begin to have a significant impact on GHG emission reductions.

The University of Florida President Bernie Machen's American College and University Presidents Climate Commitment pledge to achieve climate neutrality places the UF at the forefront of the Campus Climate Neutral movement. Within two years of signing, signatory institutions pledge to complete a complete GHG inventory, develop a comprehensive plan to achieve climate neutrality and declare a target date for achieving neutrality (ACUCCP 2007). This report evaluates the current

status of the University of Florida's GHG emissions inventory, the extent to which the Campus Master Plan addresses climate change and climate neutrality, and provides conclusions and recommendations for facilitating achievement of these goals.

Section 2

Data and Analysis:

Review of the Carbon Neutral Assessment Project and the Campus Master Plan

Introduction

Part one of this section reviews the history of climate neutrality efforts at UF, the status of the current carbon neutral assessment project and an overview of what is going on around the country at UFs peer institutions. Part two is the review of the Campus Master Plan 2005 – 2015 for implicit or explicit support for meeting the objective of a climate neutral campus. Part three is an analysis and discussion of the Campus Master Plan.

2.1 Climate Neutrality at UF and Other Institutions

In 2001 UF President Charles Young and the Faculty Senate asked the Sustainability Task Force (STF) to develop a plan for UF to become a "global leader in sustainability." The STF final report, approved by the Faculty Senate in 2002, included 48 recommendations to address sustainability in areas ranging from research and education, campus operations, organizational policies and practices, to the campus community and community outreach and integration. One specific recommendation was to "map all UF-related GHG emissions and develop a strategy for carbon neutrality with an ambitious, yet realistic timeline" (STF 2002). The initial GHG emission assessment was completed in early 2004 with the release of the Carbon Neutral Assessment Project report (CNAP 2004).

The Carbon Neutral Assessment Project profiled UFs GHG emissions for the five years prior to 2002 by quantifying energy consumption from metered buildings, fuel consumption by campus vehicles and campus potable water usage. The project defined the operational boundary as the main campus and explored available energy use reduction technologies and options to develop carbon neutral scenarios for UF (figure 1). The 2002 study was limited somewhat by data availability, but presented a picture of where UF was at and where it might be heading.

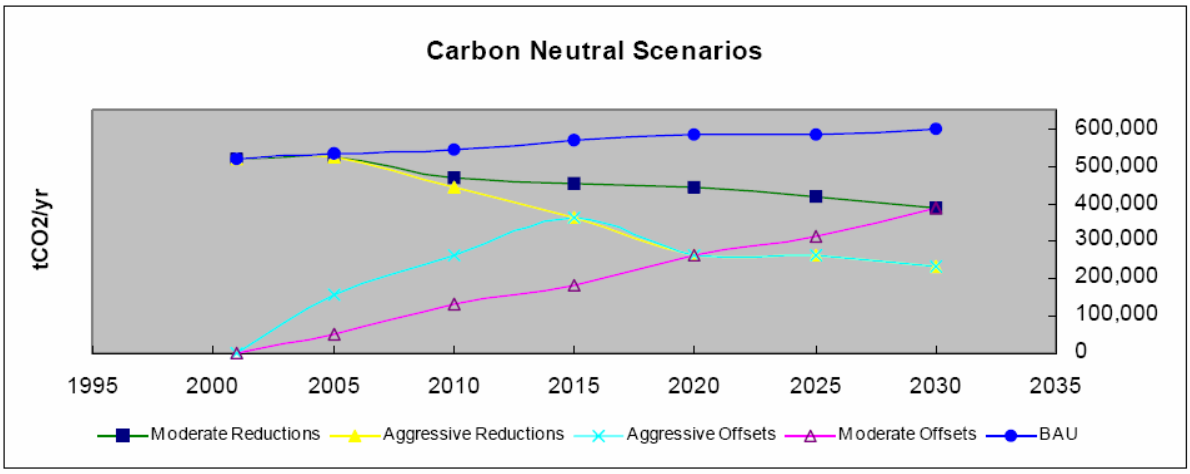
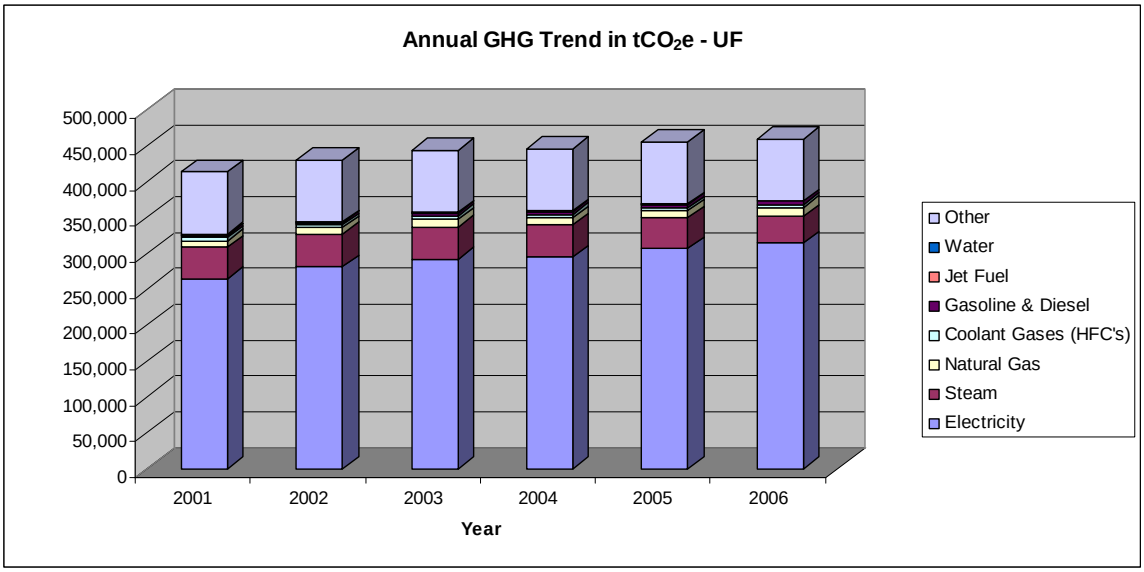


Figure 1. UF carbon emissions under different scenarios of reduction strategies and offsets are projected to be net-zero between 2015 and 2030. (Adapted from CNAP 2004)

Following on the 2002 study, the Energy and Climate Change Taskforce (ECC-TF) of the Sustainability Committee is currently updating and expanding the GHG assessment to include a comprehensive inventory of emissions from all UF holdings. Data availability continues to remain the largest challenge for developing a complete picture of the UF GHG emission profile. Some buildings on campus still are not metered; travel records for the university fleet include fuel and mileage when the vehicle is refueled at motor pool but for off campus fuel purchases often only a purchase amount is available; flights purchased for university travel include the ticket price with beginning and destination, but may not include number of or locations of stops along the travel route; accounting for commuting has huge uncertainties; many off campus buildings are not owned by UF creating difficulty accounting for emissions; vendors on campus in dining facilities may not make data available for accounting; and finally, much of the required data was not even considered for collection in 1990, so developing an estimate of 1990 emission levels is difficult. The data that is available for the UF profile of main campus (which appears to account for nearly 80% of UFs emissions), 2001 through the third quarter of 2006 (figure 2), continue to show a gradual increase in emissions from different sources on the main campus. To achieve a stated objective of climate neutrality, the ECC-TF is exploring energy conservation and waste reduction strategies, alternative transportation and energy generation options.

Independent of the on-going administration activities, the students of UF recently approved a referendum for a fee increase for a renewable energy fund, joining schools

Figure 2. UF GHG emissions (tCO2e) 2001 through 2006 by catergory.



across the nation in a growing movement to bring renewable energy to their campuses. Students at the University of Colorado, Boulder voted in 2000 for a fee increase to purchase 2 MW of wind energy. Today they are purchasing 8.8 MW of wind energy and have installed a 7.5 kW photovoltaic system (UCEC 2005). In 2004, Carleton College built a 1.65 MW wind turbine which supplies 40% of the college's electricity (CCFM 2006). Napa Valley College installed a 1.2 MW photovoltaic system in 2006 that supplies 40% of the schools electricity (PowerLight 2007). Elsewhere, the State University of New York at Buffalo has had a comprehensive energy conservation program since the late 1970's that has reduced their energy consumption an estimated 40 to 50%, saving the school over 167,000 MWh annually (Hogan and Flanigan 1996, UB Green

2007). Harvard University has established an interest-free revolving fund to capitalize projects that reduce pollution, resources and energy consumption. This innovative Green Loan Fund overcomes the hurdle of separate capital and operating budgets that institutionalize disincentives to invest in energy efficient designs (HGCI 2007). Tufts University is a founding member and the first university member of the Chicago Climate Exchange, now joined by Hadlow College, Michigan State, Idaho, Iowa, Minnesota and Oklahoma Universities (CCX 2006). The ten campuses of the University of California system have a stated policy of obtaining 20% of their electricity from renewable sources by 2017, 10 MW from local sources by 2014, with the UC Santa Cruz campus committed to purchasing 100% electricity from renewable sources now; all new building and renovations must be to LEED standards; tracking and reducing university-related personal trips and to convert up to 50% of the UC fleet system-wide to low/carbon-free emission vehicles by 2010, and they will have an action plan in place by 2008 for climate neutrality for the entire system (UCOP 2007).

At the University of California, Santa Barbara (UCSB), a 2006 Masters Student group project sponsored by the National Association of Environmental Law Societies, examined strategies for reducing the GHG emissions of their campus. While their inventory included consumption of electricity, natural gas, the UCSB fleet, student, faculty and staff commuting, fugitive coolant emissions and solid waste they could only use the first three for their study due to data quality issues (Ahmed et al. 2006). Their operational boundaries included the World Resource Institute Scope I, II and III emissions[2]. To get a comprehensive understanding of their universities' climate footprint they included in their inventory the six GHG considered by Kyoto – carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6) plus the coolant chlorodifloromethane ($CHClF_2$) also known as R-22. They then developed three emission reduction scenarios – Kyoto (7% below 1990 by 2010), two California state targets (2000 levels by 2010, 1990 levels by 2020) and climate neutrality (net zero by 2020).

The Yale Climate Initiative was also a student initiated project that was competed in 2005. The comprehensive inventory of the universities' 'footprint' included emissions due to electricity generation, chilled water and steam, buildings, refrigerants, waste management, transportation and emission sinks in university owned forests. Transportation emissions were determined based primarily on fuel use, secondarily on passenger/vehicle distance traveled and third by financial records. They found that while fuel use data was collected electronically at the pump, there were discrepancies with distance traveled due to input errors during manual mileage recording. Commuting was calculated based on zip codes of residence and

[2] Scope I are direct emissions from sources owned or controlled by the entity, Scope II are emissions due to electricity generation consumed by the entity, and Scope III are emissions that are a consequence of activities of the organization.

permanent addresses. Air travel was based on average GHG emission per air-mile traveled. About 30% of travel was through the university travel agency, which can track travel routes for the top 'city pairs' – point to point travel. Sinks were estimated by converting timber inventories, minus harvests, to biomass, 50% of which was assumed to be sequestered carbon (Buttazzoni et al. 2005).

An umbrella of sorts for these ad hoc efforts in renewable energy, conservation measures and GHG inventories can be found in the American College & University Presidents Climate Commitment (ACUPCC). Founding members of the ACUPCC include the presidents of University of Florida, Arizona State, Ball State, California State in Chico, and Pacific Lutheran Universities, Bainbridge Graduate Institute, College of the Atlantic, Oberlin and Ohlone Colleges, Cape Cod and Lane Community Colleges and Los Angeles Community College District. To date, 434 signatories have committed to creating and making public a comprehensive inventory of their institutions GHG emissions, implement actions to reduce GHG emissions in the short-term and develop a plan and set a target date for their institution to achieve climate neutrality (ACUPCC 2007).

It is in this context that UF approaches the current GHG inventory. The purpose of this report is to examine the Campus Master Plan to see where it explicitly or implicitly facilitates meeting the objective of a climate neutral campus.

2.2 The University of Florida Campus Master Plan (CMP) Review.

Many of the recommendations from the Sustainability Task Force's 2002 final report are evident in the Campus Master Plan (2005-2015) that was adopted in the spring of 2006. The concept and principals of sustainability has been incorporated into the Vision and Value Statements and can be found in many of the elements. Following the format of the CMP, this section reviews the relevant components that explicitly and implicitly support the goal of reaching climate neutrality for the University of Florida.

Campus Master Plan Vision Statement includes"… make it a safe, sustainable and attractive place to learn, work and live."

Campus Master Plan Value Statement is: The University of Florida Campus Master Plan shall be maintained in an open and inclusive process with emphasis placed on values of academic excellence, sustainability and community partnership.

The value statement further cites the University of Florida Ad-Hoc Committee on Sustainability's definition of sustainability as "providing for the needs of the present without compromising the ability of future generations to provide for themselves. Decision-making at a sustainable university integrates the pursuit of environmental, social and economic welfare across campus and within the broader community."

Campus Master Plan Guiding Principles for Policies and Recommendations	Capital Investments:	Capital investment shall "consider life-cycle costing".
	Transportation approaches:	Shall discourage single-occupant vehicles access.
Campus Master Plan Organization	Plan Adoption and Amendment Process[3]	Per Florida Statue, "the campus development agreement must address mitigation if any public facilities and services are found to be deficient for university growth".
	Jurisdiction	The plan's jurisdiction applies to main campus, a list of Gainesville and Alachua County satellite properties, and the Fort Lauderdale and Mid-Florida Research and Education Centers (RECs). The CMP does not list the Ordway-Swisher Biological Station, county extension offices, or other RECs.
	Definitions	Defines sustainability as "Processes, procedures, policies, and practices that provide for the needs of the present without compromising the ability of future generations to provide for themselves."

[3] See Appendix A

Element	Objective	Policy	Item
Urban Design	1.1	1	University of Florida Design and Construction Standards include standards for lighting, irrigation and utilities.
		2	The campus design guidelines should include LEED considerations.
	1.4	7	Calls for maintaining an inventory of campus trees by the Physical Plant, SFRC and Botany.
		8	Procedures for protection and replacement of existing trees on campus. Standards available at: www.facilities.ufl.edu/dcs/index.htm.
		9	Tree mitigation must be approved by the Lakes, Vegetation and Landscaping (LVL) Committee. 2-for-1 replacement policy for all trees larger then 3" DBH. "Off-site mitigation and alternative approaches, such as Conservation Area enhancements, may also be negotiated by the LVL committee in lieu of and a comparable cost of 2-for-1 tree replacement."
Future Land Use			This element defines a variety of land use classes including green space buffer, conservation, urban park and utility.
Academic Facilities	1.1	8	Calls for the use of the campus as a living laboratory for educational opportunity, "particularly as a model of sustainability-related application, research and teaching."
Conservation			Defines conservation land use as "areas on campus that shall be preserved and managed to protect natural features including topography, soil conditions, archaeological sites, plant and animal species, wildlife habitats and wetlands." Management and preservation of conservation lands "shall be conducted in accordance with a Conservation Land Management Plan and policies of the Campus Master Plan."
	1.1	1	Calls for the proper removal and disposal of exotic species.
Transportation	2.2		Provide facilities that accommodate walking and bicycling.
	2.3	6	Explore the feasibility of alternative transit vehicles and fuels with RTS (Gainesville's Regional Transit System).
	2.7		To maintain or improve air quality and reduce fuel consumption.
		1	State-of-the-art green fleet policy encouraging highly fuel-efficient vehicles, use of alternative fuels or not motorized transportation.
		2	Specifies bio-diesel and other alternative fuels.
General			This element states that recycled waste accounts for

Infrastructure			approximately 40% of the total waste generated on campus. The university will actively work to increase that percentage to minimize solid waste disposal in landfills.
Solid Waste Sub-Element	4.2	6	States that the university will strive to recycle 100% of solid waste by the year 2015, continuously increasing recycling rates every year until target is achieved.
Utilities	1.1	4	A campus-specific set of cooling and heating criteria shall be maintained and published based on standards set by the American Society of Heating, Refrigerating and Air-Conditioning Engineers. These criteria specify indoor summer and winter temperatures and humidity.
	1.2	8	A saturated steam level that provides and maintains a minimum of 300 degrees supply temperature to meet building heating needs.
		9	Chilled water which provides and maintains a minimum of 45 degrees chilled water to meet cooling demands.
	1.4	1	The HVAC system shall maintain a 16 degree minimum temperature difference between supply and returned chilled water temperature.
	2.2	4	Ensure redundancy of electrical energy and other fuels that provides and maintains supply to the campus buildings.
		6	The University shall encourage the development of alternative fuel sources and energy recapture where appropriate. Examples of alternatives include biomass (biorefinery), solar and wind.
Public Safety	1.2	12	The University shall assess, manage and monitor Alachua County Satellite Properties with strategies that include controlled burns to reduce the potential for or impacts of wildfires.
Facilities Maintenance	1.3	1	The Director of Physical Plant Division is responsible for establishing and maintaining a priority system to address energy conservation, among other issues.
	1.3	7	Maintenance and other facility improvements projects shall incorporate sustainable building concepts and energy efficiency to conform to the principles of the LEED program.
Capital Improvements	1.1	14	Capital projects shall consider life-cycle costing and pursue the principle of sustainable design as expressed in the LEED program.

2.3 Discussion of the CMP

The concept of sustainability is infused throughout the CMP. While climate neutrality is not directly stated in the CMP there are a number of points that explicitly or implicitly support climate neutrality. The CMP vision and value statements both mention sustainability, defined explicitly to consider the needs of future generations. The guiding principles for Polices and Recommendations state that capital investments shall consider life-cycle costing while transportation approaches specifically shall discourage single-occupancy vehicle access to campus. Implementation of either of these policies will have the effect of reducing GHG emissions.

The campus design guidelines of Urban Design elements 1.1.1 and 1.1.2 call for LEED considerations, while the standards for lighting, irrigation and utilities reside in the design and construction standards of Facilities, Planning and Construction. The design and construction standards include requirements for compact florescent bulbs and other energy conservation measures. Urban Design element 1.4.7 calls for maintaining an inventory of campus trees by Botany, Physical Plant and SFRC, and 1.4.8 states that there will be 2-for-1 replacement, which will contribute to and assist in the quantification of carbon sequestration. Tree mitigation is approved by the Lakes, Vegetation and Landscaping Committee (Urban Design 1.4.9) which will be responsible for approving plans for carbon sequestration on campus.

The Future Land Use element defines land use classes on campus. In event that carbon sequestration banks are established on campus, a new carbon-bank land use overlay may need to be defined and could be incorporated here. The Academic Facilities element calls for the campus to serve as a living laboratory for educational purposes, "particularly as a model of sustainability-related application, research and teaching". The Conservation element defines conservation land use and directs that their management and preservation shall be according to the policies of the CMP and a Conservation Land Management Plan. A potential conflict with the Conservation element is the management of carbon sequestration on campus, which will likely include harvesting of mature trees to maintain continual carbon uptake. Policy 1.1.1 of the element calls for the proper removal and disposal of exotic species. Exotic plant biomass will have carbon sequestration value and should be considered in the carbon-sink inventory. When exotic species and mature trees are to be removed, the use of the biomass as an input into a biomass-fueled energy production system will contribute to reducing net GHG emissions for the campus. The Public Safety element 1.2.12 covers management of controlled burns on Alachua County satellite properties for wildfire mitigation. Controlled burns will also have to be included when calculating the UF carbon sink.

The Transportation element objective 2.2 stipulates that accommodations are made to facilitate walking and bicycling to, from and on campus. Policy 2.3.6 directs that alternative vehicles and fuels be explored for Gainesville's Regional Transit System. Objective 2.7 seeks to maintain or improve air quality and reduce fuel consumption by the development of a state-of-the-art green fleet, with policy 2.7.1 encouraging highly-fuel efficient vehicles, alternative fuels or non-motorized transportation. Policy 2.7.2 specifies the use of bio-diesel and other alternative fuels.

The General Infrastructure element states that UF has a stated objective of reducing solid waste disposed of in landfills by recycling 100% of waste generated on campus. Solid Waste sub-element 4.2.6 stipulates 2015 as the target date for 100% recycling of solid waste. The Utilities element 1.1.4 says that heating and cooling criteria shall be based on the American Society of Heating, Refrigerating and Air Conditioning Engineers standards, which specifies indoor summer and winter temperatures and humidity. 1.2.8 and 1.2.9 states minimum temperatures for saturated steam for heating and chilled water for cooling, 1.4.1 specifies the HVAC system shall maintain a minimum temperature difference between supply and returned chilled water temperature, and 2.2.4 requires a measure of redundancy of electrical energy and fuels that provide for and maintain supply for campus buildings. Physical Plant Division's (PPD) Office of Energy Conservation is exploring what flexibility may exist for adjusting these specifications to reduce energy consumption. Policy 2.2.6 encourages the university to develop alternative fuel and energy sources such as biorefineries, solar and wind. PPD is tasked to establish and maintain a priority system to address energy conservation in the Facilities Maintenance element 1.3.1. Facilities Maintenance 1.3.7 specifies that maintenance and facility improvement shall conform to LEED principles for energy efficiency and sustainable building concepts. The Capital Improvements element 1.1.4 also calls for consideration of life-cycle costing and LEED principles of sustainable design in all capital projects.

The concept of sustainability was a guiding principal during the development of the UF Campus Master Plan 2005 – 2015. Sustainability is defined and the concept is used throughout the document. Many of the policies in place that support sustainability will have the effect of reducing GHG emissions. However, at the time that the CMP 2005 – 2015 was being developed the concept of a climate neutral campus had not matured enough to make it into the plan. The limits of the jurisdiction of the CMP must also be recognized; the CMP applies only to the main campus, Gainesville and Alachua County satellite properties and two specified Research and Education Centers. A comprehensive inventory of UFs GHG footprint will have to include all the UF owned and controlled resources. UF properties outside the jurisdiction of the CMP should be monitored consistent with the properties covered by the CMP. As the guiding document for the main

campus, where the majority of UF's emissions originate, the climate neutral concept can be incorporated into the CMP as per the procedure outlined in appendix A. The President's climate commitment has put campus climate neutrality on the table and it is appropriate for the CMP to be modified to reflect the objective of making the University of Florida climate neutral (appendix B). Like sustainability, the climate neutral concept should be implicitly or explicitly present in all current and future UF policies. Climate neutrality is not a one-off but rather a long-term goal that will require consciences efforts at all levels of the University.

Section 3

Conclusions and Recommendations

Conclusions

- The Sustainability Task Force profiled UFs GHG emissions and released their report "The Carbon Neutral Assessment Project" in the spring of 2004. This report laid the foundation for later GHG inventories, but was limited in scope to the main campus of the university due to data availability. The 2003 GHG emissions inventory is currently being updated.

- Outside of the ongoing Energy and Climate Change Taskforce GHG inventory, the university does not quantify annual greenhouse gas emissions. Some emissions, such as coolants, are not quantified directly, rather annual purchases are used as a proxy for determining quantities emitted. The university is in the process of getting all buildings metered, with the objective of eventually having all campus buildings on real-time, internet accessible meters.

- The university record system is currently inadequate for comprehensive quantification of emissions from travel. The university record system records beginning and destinations of travel but not necessarily en-route stops. Likewise, receipts for rental cars are required, but with unlimited mileage contracts, exact mileage and amount of fuel consumed may not be known. Additionally, monthly expense reports compiled by the individual university departments quantifying financial expenditures, not fuel consumption by transportation type.

- There currently is no inventory of the university-wide carbon sink. The Austin Carey Memorial Forest, managed by the School of Forest Resources and Conservation maintains permanent plots on the forest for management purposes and carbon sequestration research is being conducted, but the carbon sink for the forest is not quantified annually. The university has developed a database of every individual tree on main campus, however annually updating the database remains a challenge. The extent and land cover of the universities holdings throughout the state also remain to be mapped.

- As a founding member of the American College and University Presidents Climate Commitment, UF is in the forefront of academic institutions taking action addressing climate change. The pledge indicates that UF is committed to have a plan for achieving climate neutrality in place within two years of signing.

- While the concept of sustainability is evident throughout the CMP and many of the policies have the objective of reducing GHG emissions, climate neutrality per se is not explicit.

Recommendations

- Office of Sustainability oversees the development and maintenance of an annual report of greenhouse emissions generated for main campus and Alachua County satellite properties. The Office of Sustainability report will synthesize data from:

  - PPD, which will develop an annual report of greenhouse gas emissions generated from the campus power plant and from activities related to operating and maintaining buildings.

  - PPD Motor Pool, which will compile an annual report of fuel consumption by all university vehicles.

  - PPD Grounds (and the School of Forest Resources and Conservation and Department of Botany), who will compile an annual report of the campus carbon sink capacity. The inventory of sequestered carbon on campus should be updated on a yearly basis.

  - University-wide travel offices, the accounting for which shall be adapted to include travel information including fuel consumption for ground and point to point travel routes for air travel.

- Greenhouse gas emissions are to be quantified in units of tons of CO_2 equivalents (tCO_2e) or global warming potential (GWP) for purposes of establishing benchmarks and comparison with peer institutions.

- Depending on availability of data for determining 1990 greenhouse gas emission levels, the university shall reduce greenhouse gas emissions to 7% below 1990 levels by 2012.

- The University shall establish a policy requiring the purchase of ENERGY STAR certified products in all areas for which ENERGY STAR rating exists.

- Within one year of committing to the presidents climate neutral pledge, the University shall begin producing or purchasing 15% of the electricity consumed on the campus from renewable sources or else reduce electricity consumption by increasing electricity-use efficiency.

- The University shall establish a policy to offset all greenhouse gas emissions generated by air travel paid for by the University.

- The University of Florida shall become climate neutral by 2020.

Appendix A
Master Plan Amendment Process

I. GENERAL PROCEDURES

The Florida Legislature has established special provisions for campus planning and concurrency in Section 1013.30, Florida Statutes, which supersede the requirements of Part II of Chapter 163, Florida Statutes, except when stated otherwise. These procedures are similar to local government comprehensive planning procedures but are codified under a different section and include specific provisions for review by certain state, local and regional agencies. Sec. 1013.30 (3), F.S., gives the University Board of Trustees the task of preparing and adopting campus master plans. Most importantly, Sec. 1013.30(5), F.S., requires the campus master plan to be consistent with the State Comprehensive Plan and not to conflict with local government comprehensive plans and thus university campuses are required to work with various agencies and committees before submitting a proposed campus master plan. The Department of Community Affairs and other agencies must be allowed to review and comment on the draft plan. Sec. 1013.30(6), F.S. The law further states that the reviewing agencies have 90 days after the date of receipt of the campus master plan from which to conduct their reviews and provide comments to the University Board of Trustees. Also, Section 1013.30, F.S., requires universities and applicable local governments to enter into Campus Development Agreements in order to address deficiencies in facilities service, which may be caused by the proposed campus development. Campus Master Plans must be updated at least every five years. Sec. 1013.30(3), F.S. These statutes on campus planning have changed twice since 1996. Before 2002, the authority was 6C-21.213 F.A.C., portions of which were repealed after 2002 when responsibilities were devolved to individual university Board of Trustees, and §240.155, F.S. which was repealed and replaced by §1013.30, F.S.

For the University of Florida there is currently a campus master plan for the years 2000-2015 and an associated campus development agreement in effect through 2015. On March 31st, 2006 the UF Board of Trustees prepared and adopted an updated campus master plan for the years 2005-2015 for the main campus and Alachua County Satellite Properties, as defined in the campus master plan. Before submission of the final proposed campus master plan, the plan was reviewed in accords with statues and operating policy, reviewed by the University Land Use and Facilities Planning Commission and by the Vice President for Finance and Administration.

II. CHALLENGING PROCEDURES

Section 1013.30 (7 & 8) sets forth the challenging procedures to a campus master plan, specifying that affected persons and local governments, as defined in the statute, are allowed to challenge. The statute indicates that the board of trustees must submit any petition challenging a campus master plan or amendment to the Division of Administrative Hearings. Section 6C-21.108 (1), F.A.C. also sets forth some procedures for challenging and limits challenges to "affected persons who submitted comments on the draft campus master plan or amendment."

III. AMENDING PROCEDURES[4]

[4]*Submittal, Review, Adoption and Public Hearing Process of Campus Master Plans and Campus Master Plan Amendments,* University of Florida Internal Operating Memorandum, March 28, 2003

According to Section 1013.30 (9), only amendments to campus master plans which fit the criteria set forth in §1013.30 (9)(a)(b)(c) are reviewed and adopted in the same manner 5-year updates to the campus master plan are adopted. Amendments that meet the statutory criteria are defined by University Operating Memorandum as Major amendments that require public hearings and review of multiple state, regional and local agencies. Amendments that do not meet the statutory criteria have a more internal approval process including a "courtesy review" provided to the local governments that are party to the university's campus development agreement through the review process of the University Land Use and Facilities Planning Committee where those agencies have representation. Note that some Minor Amendments when taken in conjunction with others might have cumulative impacts and thus fall into the Major Amendment criteria. The minor amendments may be adopted by the Board of Trustees upon the discretion of the University President or independently by the University President with notification to the Board of Trustees.

Appendix B
Proposed Campus Master Plan Amendment:
Amendment to the Conservation Element

Introduction

(Insert in the first paragraph)

The Conservation element also applies to the contribution of the University of Florida main campus and Alachua County Satellite Properties to global climate change from greenhouse gas emissions.

(New paragraph)

As the effects of air emission are not localized, the University of Florida is responsible for its contribution to global climate change from campus-wide greenhouse gas emissions. A pledge by the university president to achieve climate neutrality signifies the intent to reduce to zero the contribution of the University of Florida campus to global climate change. Achieving climate neutrality requires reducing to zero the net emissions of the greenhouse gases carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), HFC's (hydrofluorocarbons) and PFC's (perfluorocarbons). The emissions of these greenhouse gases can be quantified in terms of carbon with units of global warming potential equivalents (GWPe), where 1 GWPe = 1 CO_2. Emissions can be reduced by increasing efficiency of buildings, vehicles, power generation and other sources. Emissions can be offset by carbon that is sequestered in the soils and vegetation on the main campus and Alachua County Satellite Properties. Emissions can also be mitigated by directly financing or purchasing emission reduction credits for programs that support increased efficiency at other institutions and/or increase sequestration offsite. Net emissions are the sum of the campus greenhouse gas emissions minus the sum of carbon offsets from sequestration and mitigation. Areas affected by this action include those areas subject to the campus master plan, including buildings, transportation, utilities and facilities maintenance in addition to conservation areas.

Goal 2: To Achieve Climate Neutrality on the Main Campus and Alachua County Satellite Properties.

Objective 2.1: In order to meet the standards laid out by Governor Crist in Executive Order No. 07-126[5], the University of Florida shall seek to, at a minimum, reduce greenhouse gas emissions that contribute to climate change generated by the main campus and the Alachua County satellite properties to 10% below 2007 emission levels by 2012, 25% below 2007 emission levels by 2017, and 40% below 2007 emission levels by 2025.

Policy 2.1.1: The Office of Sustainability shall oversee the development and maintenance of a comprehensive database of campus-wide greenhouse gas emissions and carbon sequestration for purposes of determining, recording and documenting net greenhouse gas emissions.

Policy 2.1.2: The Office of Sustainability shall oversee development of a Climate Neutral Action Plan (CNAP) by 2008, with an implementation strategy for reducing emissions and offsetting greenhouse gas overages and achieving carbon neutrality. The CNAP shall include the milestones, target goals, and baselines for achieving carbon neutrality.

[5] "Establishing Climate Change Leadership by Example: Immediate Actions to Reduce Greenhouse Gas Emissions from Florida State Government," State of Florida, Office of the Governor, Executive Order 07-126 (July 13, 2007); http://www.dep.state.fl.us/climatechange/files/200707_13_eo_07_126.pdf.

Policy 2.1.3: The University shall seek to achieve climate neutrality by 2025 by reducing and offsetting net greenhouse gas emissions, implemented through the CNAP. The University shall explore all available options to meet neutrality goals on campus first, where possible, without interfering with ongoing research, and without conflicting with existing management plans. The University shall seek to offset all further carbon overages through carbon mitigation options specified in the CNAP.

Objective 2.1: The University of Florida shall seek to reduce greenhouse gas emissions that contribute to climate change to 7% below 1990 emission levels by 2012 for the main campus and the Alachua County Satellite Properties.

Policy 2.1.1: The Office of Sustainability shall oversee the development and maintenance of a comprehensive database of campus-wide greenhouse gas emissions and carbon sequestration for purposes of determining, recording and documenting net greenhouse gas emissions.

Policy 2.1.2: The University shall seek to achieve climate neutrality by reducing and offsetting net greenhouse gas emissions. The University shall explore all available options to encourage carbon sequestration on campus first, where possible, without interfering with ongoing research, and without conflicting with existing management plans. The University shall offset all further carbon overages through carbon mitigation options such as but not limited too conservation, aforestation and clean development mechanism[6].

Policy 2.1.3: The Office of Sustainability shall oversee development of an action plan with an implementation strategy for offsetting greenhouse gas overages by 2008.

[6] The clean development mechanism (CDM) is an option in the Kyoto Protocol where by GHG reduction commitments in developed countries can be meet by investing in projects that reduce emissions in developing countries.

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