UAF Campus Sustainability

Recommendations from the Chancellor's Sustainability Transition Team

July 2008

Please print only when necessary and always use double-sided paper

"Each of us has a part to play in sustainability…

What piece of the puzzle do you hold?"

—David J. Skorton, President, Cornell University

Sustainable Campus Transition Committee Members

Chair: Susan Todd, Assoc. Professor, Natural Resources Management, SNRAS susan.todd@uaf.edu

Authors of the chapters included in this document:

Ed Foster, Director of Operations & Maintenance, Facilities Services, efoster@fs.uaf.edu

Ron Johnson, Professor, Professor, Mechanical Engineering, ffraj@uaf.edu

Tomas Marsik Post-Doctoral Research Fellow, Electrical Engineering, fttm1@uaf.edu

Gary Newman, Systems Analyst, Fisheries & Ocean Sciences, gary@sfos.uaf.edu

Channon Price, Assoc. Professor, Physics, ffcpp@uaf.edu

Jonathan Rosenberg, Assoc. Professor, Political Science, ffjr@uaf.edu

Eli Sonafrank, NRM student, member SCTF, and Director of Recycling, fsaes1@uaf.edu

Members of the Committee whose schedules prevented them from taking an active role in writing:

Tom DeLong, Alaska Biological Research and Board Member of GVEA, advocate of GVEA SNAP program

Craig Fleener Former Executive Director at Council of Athabascan Tribal Governments chizhur@hotmail.com

Chelsey Kuester Community Development Director, Fairbanks Downtown association

Mike Musick Outreach Consultant, Cold Climate Housing Research Center

Rick Stiener UAA Professor, Marine Conservation Specialist UAA, Anchorage afrgs@uaa.alaska.edu

Richard Wies UAF Prof, Electrical & Computer Engineering ffrww@uaf.edu

Table of Contents

1. Introduction

> *Far from being a burden, sustainable development is an exceptional opportunity—economically, to build markets and create jobs; socially, to bring people in from the margins; and politically, to reduce tensions over resources.*
>
> *— Koffi Annan, Secretary-General of the United Nations*

What is sustainability?

Environmental sustainability is like old wine in a fashionable new bottle; the concept is old but the term is new. The concept is based on the fundamental rules of conservation that were recommended long before global warming was a concern. Those fundamentals are:

- Reduce dependence on non-renewable, non-recyclable materials, as these will run out.
- Harvest renewable resources no faster than they can be renewed, or they will also run out.
- Produce wastes no faster than nature can absorb or break them down, or we will poison our own nest.

Social sustainability, however, is a new and welcome addition to the mix. Socially sustainable communities strive to "create an enabling environment for people to enjoy long, healthy and creative lives." Or the full quote, as Pakistani economist Mahbub ul Haq, who created the United Nations Human Development Index, put it:

> The basic purpose of development is to enlarge people's choices. In principle, these choices can be infinite and can change over time. People often value achievements that do not show up at all, or not immediately, in income or growth figures: greater access to knowledge, better nutrition and health services, more secure livelihoods, security against crime and physical violence, satisfying leisure hours, political and cultural freedoms and sense of participation in community activities. The objective of development is to create an enabling environment for people to enjoy long, healthy and creative lives.

Why a sustainable campus plan for UAF?

In the spring of 2008, students in the NRM 430 class in natural resource management planning took on the task of preparing a first draft of a UAF campus sustainability plan. They came from four different countries and many different states and put a good deal of research, energy, thought and creativity into the effort. Their collective talents broke a trail for our transition team to follow.

One of the first questions the students needed to address was whether UAF needed to prepare a sustainability plan. We found their answers compelling:

- UAF is on the frontlines of climate change; the Arctic is experiencing greater rates of warming than other regions. Since we are the nation's only Arctic University, it is appropriate that UAF should take a leading role in the effort to reduce greenhouse gases.
- Our remote location, and that of Alaska's villages, makes us more vulnerable to the disruptive, snowballing effects of increases in energy prices.
- UAF's energy consumption contributes to the rising global pool of greenhouse gases.
- UAF should be setting an example; we should be leaders in this area, not followers.
- We can save money.
- The campus population can be healthier, thanks to better air quality and more exercise.
- The exercise from non-motorized transportation increases health, energy and concentration.
- Green buildings, sunlight, plants, and natural areas promote a sense of well-being and facilitate learning.
- Good local food is part of a healthy diet to facilitate learning and productivity.
- A healthy landscape is essential to a healthy mind.
- A just and supportive university is a sustainable university.

Nanook says: Please print only when necessary and always use double-sided paper!

63% of College Applicants Value a College's Commitment to the Environment

In addition to the above reasons, students across the country are starting to "vote with their feet"—they are gravitating to colleges that have a clear commitment to sustainability. According to a survey of 10,300 college applicants and parents, *The Princeton Review* found that "63 percent would value having information about a college's commitment to the environment and that it would impact their decision to apply or attend the school."

As a result, *The Princeton Review* will add a rating to its annual college guide. This rating will indicate how schools are "using their environmental practices to deliver a better campus experience and to prepare students to succeed in their future careers." http://www.themaneater.com/stories/2008/5/2/princeton-review-rank-sustainability-practices-col/

A Vision For Sustainability at UAF

The students in NRM 430 proposed the following vision for a sustainable UAF:

UAF will strive to be a model of environmental stewardship and social justice by incorporating the ideals of sustainability into every facet of campus life.

Key Recommendations and Organization of this Report

This report looks at nine issues. The proposed "vision" for each issue is presented below. In addition, we have included the American College & University Presidents' Climate Commitment and the Talloires Declaration, both of which we recommend signing.

1. Energy	Become a leader in sustainable energy use and generation in the north.
2. Transportation	Provide sustainable transportation systems for students, faculty members and staff. Increase fuel efficiency; reduce emissions and attempt to have no net carbon emissions from the transportation system. Transform UAF from a car-dependent commuter campus into a more compact and environmentally friendly, live-work community.
3. Purchasing	Purchase environmentally and socially preferable products whenever possible.
4. Waste Management	Reduce and ultimately eliminate waste on campus with the ultimate goal of a net zero waste campus.
5. Built Environment	Create superior places to work, study and live that enhance the health of building occupants and are environmentally responsible. Minimize the use of resources while reducing impacts on human health and the environment.
6. Food	Reduce the environmental and social impact of UAF's food supply and dining services. Increase awareness of the impacts of food production, reduce the energy-intensity of our campus food supply, reduce food waste and support the local and state economy by purchasing Alaska-grown foods.
7. Education & Curriculum	Make UAF a global leader in education, research, and dissemination of information on sustainability.
8. Social Sustainability	Form a committee to consider this in depth as we did not have adequate time or expertise to give this topic the attention it deserves.
9. Processes & Institutions	Establish a permanent sustainability committee and office. Create new and revise existing administrative and governance institutions and processes to make environmental sustainability a fundamental consideration in decision-making.
Appendix 1.	Sign the American College & University Presidents' Climate Commitment.
Appendix 2.	Sign the Talloires Declaration.

2. Energy

The economy is a wholly owned subsidiary of the environment. — Gaylord Nelson

Introduction

Many steps have been already taken by UAF Facilities Services to move the campus toward energy sustainability, but a lot more still needs to be done to accomplish this challenging goal. This section describes further steps recommended by the UAF Sustainability Transition Committee. Net carbon dioxide (CO_2) emissions were chosen in this report as a surrogate for energy sustainability due to their direct relationship to fossil fuels, but it should be pointed out that the recommendations presented here address a wide range of issues, such as depletion of recoverable energy sources, wars associated with energy security, and pollution. Because there are other sections of this report strongly related to energy (such as "Transportation", or "Built Environment"), this "Energy" section mainly covers recommendations that are not directly covered in other sections.

UAF Facilities Services has already:

Replaced the majority of incandescent bulbs with compact fluorescent bulbs.

Converted 99% of campus fluorescent lights to the more efficient T-8 and T-5 bulbs (an average 30% reduction in energy use).

Routinely installed variable frequency drives (VFDs) in projects for over 20 years and has the majority of our larger motors operated by VFDs.

Installed a small photovoltaic (PV) system as part of the Golden Valley Electric Association's (GVEA) Sustainable Natural Alternative Power (SNAP) program; and has established a system where anyone (not just those with an account at GVEA) can contribute money to the SNAP program.

Started installing motion sensors to reduce unnecessary lighting.

Replaced CRT monitors with more efficient LCD flat panel monitors.

Vision

Become a leader in sustainable energy use and generation in the north.

Goals

Goal 1	**Reduce UAF's net CO_2 emissions to 1990 levels by 2020.**
Goal 2	**Create a net zero CO_2 emissions campus by 2060.**

Objectives

Obj. 1 Energy Conservation	Reduce the fossil fuel consumption via a) more energy efficient technologies, and b) behavioral changes focused on saving energy.
Obj. 2 Renewable Energy	Substitute fossil fuel generated energy with energy from renewable sources.

Objective 1. Conserve energy.

Policy 1. Invite input by students, faculty, staff, and community on ways to save energy	• Establish a work-order based system for simple energy efficiency measures (such as "switch off street lights in Hess Village during day", etc.). • Advertise the above mentioned energy efficiency work order system and provide incentives for using it (e.g. give each month a reward for the "best" energy efficiency suggestion of the month). • Increase involvement and collaboration with ASUAF and Residence Advisors. • Hold public meetings where the Facility Services listen to the ideas of public and answer their questions.
Policy 2. Launch an energy education and awareness campaign	• Begin an environmental/energy column in the campus newspaper. • Start a "When not in use, turn off the juice" campaign. The objective is to place a sticker on every computer, light switch and non-essential appliance. • Hold a Campus Environmental Footprint seminar for all incoming students (part of the new student orientation). • Create a list of top priority behavioral aspects focused on saving energy and mass-email it to all faculty, staff, and students. This includes (but is not limited to): switch off lights when not in use, turn off any non-essential computers when leaving for the day, put computers to sleep when leaving for a little while, limit elevator use, etc. • Create a video describing various ways to save energy on campus to run before selected campus events and in the residence halls. • Develop a "sustainable energy park" that showcases energy efficient technologies (LED lights, etc.) and renewable sources of energy (wind, solar, biomass, etc.). Include hands-on demonstrations (such as a bicycle generator powering a bulb) to increase energy awareness. • Hold annual energy-saving competitions on campus. Consider two divisions (if current meter distribution allows that): Most Energy-Efficient Office Building and Most Energy-Efficient Dorm. Give significant rewards for the buildings that have the greatest reduction in electricity use per occupant and/or per square foot.
Policy 3. Use energy efficient technologies	• Expand the use of smarter control strategies. The strategies to consider include (but are not limited to): a. Making sure that lights in unoccupied rooms are turned off (motion sensors). b. Making sure that streetlights are off during day (e.g. use astronomical time clock). c. Making sure that parking lot outlets are off when it's warm and that the electricity is supplied with a certain delay after a vehicle is plugged in. • Use technologies that use less electricity (efficient lighting, Energy Star appliances, etc. – see "Built Environment" section for details).
Policy 4. Reduce energy use where it is not needed	• Remove bulbs in overlit areas. • Install multiple switches in rooms so that the users can choose how many lights to switch on. For example offices with large windows need very little additional light on summer days, but some only have one switch, which forces the users to switch all lights on. • Provide task lights for users who are willing to use them. • Charge for dryer use in the dorms, and install clotheslines where students can hang their clothes.

Objective 2. Produce and use renewable energy.

Policy 1. Promote & invest in GVEA's SNAP program	• Make a significant institutional contribution to GVEA's SNAP program for renewable energy. If UAF and other large organizations were to do so, it would greatly benefit the development of renewable energy and also serve as a model for students. • Advertise the Sustainable Natural Alternative Power (SNAP) program for contributors. Every-one now has the power to contribute to SNAP through UAF (obviating the need for having an individual account at GVEA). • Allow a regular (monthly) payment option. The contributions are now on one-time basis and people forget to contribute again. • Expand the current UAF's SNAP photovoltaic (PV) system. The SNAP program is currently paying $1.50 per kWh. Even with the estimated decrease to about $0.70 per kWh, the system has a relatively short payback period (about 10 years).

Objective 1 & 2. Common policies for energy conservation and renewable energy.

Policy 1. Assure long-term progress	• Sign the American College and University President's Climate Commitment (ACUPCC) and follow its guidelines. • Create a permanent Chancellor's Committee on Sustainability Policy and Practices that will, among other things, make recommendations for sustainable energy measures. • Develop a plan to meet the stated goals (CO_2 emissions down to 1990 levels by 2020 and net zero CO_2 emissions by 2060). The goals are to be met mainly via green energy measures (energy conservation and renewable energy) directly connected to the UAF campus. Meeting the goals via green energy measures at other locations (via purchasing carbon offsets) is also acceptable if the direct measures are found unfeasible, but because of the questionability of the real effects of carbon offsets, this means should not form a major part of the solution.
Policy 2. Facilitate sustainable energy measures	• Hire more personnel to help perform the energy-efficiency related work. Facilities Services are currently understaffed. The new positions will pay for themselves in energy savings. • Consider a sustainability fee for students (educate them, get their feedback, and then, if the feedback is positive, establish the fee).
Policy 3. Improve power generation and distribution	• Install absorption chillers to cool buildings on the West Ridge. They operate on excess power plant steam and can replace the current compression chillers which use a significant amount of electricity. • In the short-term, start feasibility studies of various power generation options that include (but are not limited to): a) Improved efficiency of the UAF power plant b) Use of alternative fuels, such as biomass c) Coordinating with GVEA on green power production options (e.g. wind near Healy) d) Use of natural gas when the gas pipeline is built • In the long-term, follow the trends in the development of renewable energy technologies and look for opportunities to use them on UAF campus. These include, but are not limited to (in addition to those stated above for the short-term options): a) PV systems for non-SNAP use b) Solar hot water systems c) Geothermal energy
Policy 4. Support sustainable energy research and education	• Support research on renewable sources of energy, such as PV, solar hot water, wind, geothermal (electricity, heat pumps), biomass (wood, biodiesel, etc.), hydro, tidal, ocean thermal, ocean currents, etc. • Support research on energy efficiency technologies, such as lighting, controls, HVAC, etc. • Support research on arctic methods of carbon capture and sequestration. • Encourage sustainable energy related courses at UAF.

3. Transportation

Roads were designed to move cars, not people.
There are far more efficient ways to move people.
— Smart Growth Manual

Vision

Provide sustainable transportation systems for students, faculty members and staff. Increase fuel efficiency; reduce emissions and attempt to have no net carbon emissions from the transportation system. Transform UAF from a car-dependent commuter campus into a more compact and environmentally friendly, live-work community.

Goal

Conserve energy and reduce the emissions created by commuting, intra-campus transportation, and business travel by 1) increasing the fuel economy of the UAF fleet; 2) reducing dependence on personal vehicles; 3) reducing the number of flights taken and offsetting emissions generated by air travel; and 4) making the campus more compact and providing more housing close to campus for students, faculty, and staff.

Objectives

Objective 1 UAF Fleet	Increase the fuel economy of the UAF fleet immediately and consider alternative vehicles (such as bio-fuel or zero-emission vehicles) in the future.
Objective. 2 Personal Vehicles	Reduce emissions from & dependence on personal vehicles by encouraging public & alternative transportation.
Objective. 3 Air Travel	Reduce the number of flights taken & offset the emissions generated by air travel.
Objective. 4 Follow "Smart Growth" Principles	Follow "smart growth" strategies to transform UAF from a car-dependent commuter campus into a more compact and environmentally friendly, live-work community with more housing close to campus for students, faculty and staff.

Objective 1. Increase the fuel economy of the UAF fleet & consider alternative vehicles (such as bio-fuel or zero-emission vehicles) in the future.

Policy 1. Increase Fuel Efficiency of Fossil Fuel Vehicles in Fleet	• Create strict policies on vehicle idling, particularly for Facilities Services vehicles that are frequently left idling even in warm weather. • Reduce the use of air conditioning in UAF vehicles, which greatly increases fuel consumption. • Scale vehicle size to actual use, i.e. big load/ big vehicle, small load/small vehicle. • Unless absolutely necessary to have a high fuel consumption vehicle, all vehicles purchased from now on should get at least 35 mpg. This is possible with clean diesel and hybrids.
Policy 2. Increase alternative fuel vehicles	• Increase the number of alternative fuel vehicles in the UAF fleet. • Experiment as soon as possible with electric vehicles (beyond golf carts) for intra-campus transportation. Charge during off peak hours and determine if there are any problems with these vehicles in the winter. There are lots of hybrid vehicles in Fairbanks now and they are not reporting any problems in the winter and more electric cars are being introduced. See the following site for a roundup of electric cars: http://www.metaefficient.com/cars/gas-free-electric-car-review.html. For example, Phoenix Motorcars claim that their zero-emission, all-electric Sport Utility Truck cruises at up to 95 mph while carrying five passengers and a full payload and that it will travel over 100 miles on a single 10-minute charge.

Objective 2. Reduce emissions from & dependence on personal vehicles by increasing the percentage of trips taken in modes other than single-occupant motor vehicles (public transit, walking, biking, carpooling, etc.) and by offering incentives for those who drive compact, fuel-efficient vehicles.

Policy 1. Increase awareness of the available alternatives	• Create large maps and information signs evenly spread over campus to show the new and improved trail/path system and encourage people to walk or bike (or ski in the winter time). • Hold an annual “Bike Bash” spring biking event, and a Bike To Work Day with a reward for biking to work that day (a free coffee or water bottle?). • Add a “Do you really need a car on campus?” page to the UAF parking permit web site • Offer brochures & maps about all available alternate modes of transportation at parking services and at new student, faculty and staff orientations. Include this on the UAF website also. • Publish statistics of the number of people using alternative transportation to commute to UAF. • Let employees know that with supervisor approval, they can work 4 days—10 hours a day or “telecommute” by working at home. Both approaches save fuel and reduce emissions. • Encourage people to use teleconferencing whenever possible to reduce intra- as well as extra-campus travel. Skype, iChat and other software allow free teleconferencing between several parties. iChat also allows video-conferencing between four people who can also view and edit files--all for free. This works across the street or across the globe. For small groups, this can work well right from one's desk without the need to go to a specific video conferencing room.
Policy 2. Make it easy and convenient to use alternative modes of transportation	• Connect the walk and bike paths on campus to the paths around and in Fairbanks to make it easy and safe for people to bike/walk to and from campus. • Install showers in each building so people can bike, walk, run or ski to work. • See if the Credit Union on campus would be willing to offer no interest loans of up to $500 so students can purchase a bike. • Provide bike racks with roofs or roofs & walls next to every building on campus. Increase the number of bike lockers that can be rented for a fee. This will show that UAF is willing to support more biking on campus. • Support/help create campus "bike library" program where people can check out a bike with their Polar Express Card. Schwinn has donated "yellow bikes" to several campuses to create a free bicycle rental program. See if Schwinn would do so for UAF. • A first phase bike station has been developed in a temporary location at the farm. Apply for federal transportation funding for a future Bike Station to provide a one-stop-shop for bicycle registration, a no-interest bike loan program, the bike share/check-out program, bicycle and bus information, a pump and tool board, regular bike maintenance services and classes, and covered and secure bike parking. • Complete Tanana Loop including paths or sidewalks on both sides and a way for skiers to cross over it or under it. This will also help make Yukon Dr safer for bicyclists and walkers. • Launch a partnership by the fall of 2009 with Zipcar, a car sharing program now on many campuses that allows members of the campus community age 21 & over to rent cars by the hour, giving them access to a vehicle without the need to own one. http://www.zipcar.com/ • Advertise the existing carpool website program. • Provide incentives for students, faculty and staff to use the current UAF Carpool Network. • Provide information and an opportunity to sign up for carpooling every time someone purchases a parking permit. • Create a dog daycare service (paid for by users) for people who skijor, dogsled, bike-jor, etc to campus, which would preserve local character & make UAF more unique & attractive. • Hold a "Car Free Campus" Day. Even Rome and Paris do this. Surely we can, too.

Policy 3. Ensure the safety of pedestrians & bicyclists	• Bike and pedestrian-friendly campuses require cars to yield to pedestrians and bicycles anytime/anywhere on campus! The main roads are still too dangerous for bicyclists and walkers. • Improve safety by providing good lighting (possibly LED) on all campus paved pedestrian paths and sidewalks. • Delineate a bike lane on each road, particularly Yukon Drive. • Close Yukon Drive to all motorized transportation but the shuttle bus and essential delivery vehicles. Fence off the shuttle route so the bus can travel faster without endangering pedestrians and bicyclists. • Change the schedule to have 20 minutes as the shortest break between classes to give students a chance to bike safely and to walk between the different areas without running. • Improve safety for pedestrians and bicyclists by separating biking and walking paths from each other and from cars. This can be done by constructing different paths or by dividing the existing ones in a clear way. When dividing one path, make it wider to prevent bicyclist/pedestrians accidents. • Improve and increase the number of walking and biking paths on campus. Every road should have sidewalks and a bike lane on both sides.
Policy 4. Offer incentives for using alternative modes of transportation	• Ask people to pledge to take alternative transport (anything but cars with 1 passenger) for one week. Have a contest to see which dept has the highest percentage of people who take the pledge. • Offer reduced parking fees for carpool vehicles and/or allocate some of the "best" parking spaces for carpool vehicles. • Give incentives, such as a $50 discount on parking permit fees, for those who drive vehicles that EPA rates as getting at least 35 mpg. • Consider giving a reward to those who do not use a motorized vehicle of any kind to commute to school. • Work with the FNSB to create a Park-and-Ride network so that people only need to drive part of the way.
Policy 5. Encourage the use of public transportation	• Create an outreach shuttle bus (or FNSB bus) that caters to the many students who live in a loop around campus, i.e. Goldhill Road, Sheep Creek, Goldstream Road and Ballaine Rd to UAF. The system could run just during peak periods, e.g. 7:30-10 am and 5 to 7:30. • Coordinate with FNSB transportation services so students can use their Polar Express cards on city buses. • Assist the FNSB bus system to acquire and install WiFi on all buses so that people can work while they commute. • Long-term: install a light rail loop along Tanana Loop and Yukon Drive. This would eventually connect to the planned downtown light rail system via College Road to Cushman, then west on Airport Way to the Airport. Light rail can move faster than buses and is cheaper than building parking garages or taking up valuable building space with acres of parking lots. • The shuttle needs to go faster to encourage people to take it. Create a barrier between the road and pedestrian & bike traffic so the shuttle can travel faster safely.
Policy 6. Discourage Parking	• In the early 1990s Cornell faced demand for building thousands of new parking spaces. Instead, they decided to create a new transportation demand management program, which emphasized expanded transit, increased parking rates, and strong financial incentives for carpooling. The results were dramatic. Over a 6-year period, the campus built only 350 new parking spaces, instead of the 3100 spaces that would have otherwise been required. After subtracting out the cost of the program, the total savings over the six years approached $13 million dollars. And, the program led to a 25% decline in the number of vehicles driven by faculty and staff to campus. • Create parking spaces for compact cars in desirable areas. This would increase the total number of spaces available and provide an incentive for people to drive more fuel-efficient vehicles. • Charge more for parking permits. Other campuses have shown this to be a major incentive for people to look for alternatives, such as carpooling, public transit, or bikes. • Refrain from building a parking garage or more parking lots.

Policy 7. Increase the efficiency and use of the shuttle bus system	• Students say that the shuttles often run with no one on board. Study the routes and usage to minimize the distance the buses travel empty. One potential solution is to have shuttle buses run only at the beginning and end of classes. • Install WiFi on all shuttle buses to encourage people to use the shuttle rather than driving on campus. • If a source of biodiesel is developed, retrofit one of the shuttle buses to operate on biodiesel fuel. • If natural gas becomes available, consider making natural gas-fueled buses part of the fleet. • Develop a transportation plan to maintain annual average automobile travel on campus at or below per capita levels in 2000. • Encourage students/staff to walk from one campus location to another whenever possible. This will both enhance physical fitness and may result in fewer miles driven by the campus shuttle.
Policy 8. Reduce the energy for vehicle plug-ins	• Provide temperature sensitive vehicle plug-ins that cycle more often at very low temperatures and not at all above 20°F. Consider the "Intelligent Parking Lot Controllers" (http://www.iplc.com/) that in addition to temperature-based cycling prevent the vehicle from drawing electricity for a certain period of time right after plugging it in (while it's still hot).

Objective 3. ***Reduce the number of flights taken & offset the emissions generated by air travel.***

Policy 1. Reduce the # of Flights	• Hold a contest to see which department on campus has the largest percentage reduction in their air miles. • Promote teleconferencing as a way to reduce travel. Anyone with a late model computer can use Skype or iChat, which are free. Speakerphones and advanced video-conferencing centers are also available on campus.
Policy 2. Offset emissions from air travel	• Establish a policy of offsetting all greenhouse gas emissions generated by air travel. • Air travel is estimated to account for 2% of global CO_2, but those releases have two to four times the impact given their release at high altitudes. Aircraft use an incredible amount of fuel and they burn it high up in the sky where the air is thin and the chemistry is complex and fragile. The overall impact is a warming effect that is 1.9 times that of carbon dioxide alone. http://www.climatechangeconnection.org/Solutions/Airtravel.htm • Require that all flights be compensated for by purchasing carbon offsets. http://www.nativeenergy.com/pages/organizations/5.php is one well-respected way to purchase credits. The Gold Standard reviews and investigates marketers of carbon credits to ensure reliability. http://cdmgoldstandard.org/about_goldstandard.php. Two other reviews of offsets are http://www.carboncounter.org/59/section.aspx/20 and http://www.carbonconcierge.com/learn/copy_of_offset-provider-evaluation.

Objective ***4. Follow "smart growth" strategies to transform UAF from a car-dependent commuter campus into a more compact and environmentally friendly, live-work community with housing close to campus.***

Policy 1 Create a sustainable community nearby	• When constructing new buildings on campus, fill in spaces so that the campus becomes more compact. This does not mean eliminating green spaces, but rather integrating green spaces *and* buildings to create outdoor living "room" (for more on designing enticing green spaces that people will use, see *A Pattern Language* by Christopher Alexander). • Work with developers to create a livable community within 5 miles of campus for those who work or study at UAF. It should be built *without* cars in mind—i.e. close to campus with trails, transit, and a mix of residential, retail, recreational, and natural amenities. It should offer sustainable housing, shared green space, a community garden, sidewalk cafes, bookstores, and shared renewable energy units such as wood fired boilers and/or solar panels and passive solar water heaters.

4. Purchasing

Introduction

The purpose of this policy is to support campus sustainability at UAF and to provide guidelines, information, and resources in procuring products that will minimize negative impacts on society and the environment to the greatest extent practicable. However, this policy should not be construed as requiring the purchase of products that do not perform adequately or are not available at a reasonable price.

Purchasing is placed before waste in this document because purchasing deals with inputs, while waste deals with what happens to these purchased items at the end of their life cycle.

Vision

Purchase environmentally and socially sustainable products whenever possible.

Goals

Reduce waste at the point of purchase. Faculty, staff and students can help achieve the university's waste reduction goals by practicing the three Rs: reducing, reusing, and recycling. Priority should be given to reducing waste upstream by purchasing products made from recycled material that can also be reused or recycled again.
Choose items that can be remanufactured, recycled, or composted in order to reduce disposal costs and waste when product is no longer in service. Many products made from recycled materials are available.
Purchase durable and reusable goods. Using life-cycle cost analysis, rather than automatically choosing goods with the lowest purchase price, can help departments identify the best long-term value. Factor in a product's estimated life span as well as its energy, maintenance, consumable supplies and disposal costs.
Lease and rent when appropriate. Consider an operating lease or rental rather than a purchase or capital lease. Lease and rental contracts give vendors the responsibility for the upkeep of goods such as computers and copiers, and for managing them at the end of their useful life. Businesses that lease equipment tend to manufacture more durable items, salvage reusable parts, refurbish, recycle, or donate used equipment that can no longer be leased. Renting is a cost-effective option for short-term equipment needs.
Specify product and packaging take-back. Increasingly, product vendors are offering to take back the products they sell when they become obsolete. By utilizing vendors who offer an Extended Product Responsibility (EPR) program, especially take-back, recycle, and disposal programs, departments are ensured equipment and products are disposed of properly whether recycled, donated, refurbished or disposed of without the added cost.
Buy goods in bulk or concentrated form. This practice can significantly reduce the packaging associated with lower product quantities and save costs. When using “concentrated form” products, they should be used in conjunction with the manufacturers measuring or dispensing device to prevent overuse and waste.

Additionally:

- UAF personnel will purchase recycled and environmentally preferable products whenever practicable.
- UAF Transportation Services will purchase vehicles that obtain a minimum of 35 mpg whenever practicable.
- UAF will have recycle containers available within reasonable distances of soda machines and in all dining establishments where canned or bottled drinks are served.
- UAF should promote the use of recycled and other environmentally preferable products by publicizing its sustainable procurement program. Materials produced for advertising, conferences, trade fairs, press releases, and other communications with clients and citizens can make reference to UAF's commitment and leadership in the use of recycled and environmentally/socially preferable products.
- The University Purchasing Department will make every effort to secure contracts with vendors that are socially and environmentally conscientious, and certified green whenever practicable.

Objectives

Policy 1.
 	
Procure commodities that are certified to meet sustainability standards.
	• Custodial Services will convert to using environmentally friendly cleaning products exclusively by the end of FY09. They will also be expected to use exclusively either recycled paper products or paper products made from rapidly renewable products by the end of FY09.
	• Establish recycled paper standards departments must adhere to when purchasing copy machine paper.
	• Paper and Forest Products:
	  • Forest Stewardship Council www.fsc.org
	• Chlorine Free Products Association www.chlorinefreeproducts.org
	  • Electronics and Appliances:
	• Energy Star www.energystar.gov/purchasing
	• Electronic Product Environmental Assessment Tool (EPEAT) - www.epeat.net
	• Cross-sector:
	  • Environmental Choice www.environmentalchoice.com
	  • Green Guard www.greenguard.org
	  • Green Seal www.greenseal.org
	• Scientific Certification Systems www.scscertified.com
	• Renewable Energy:
	  • Green-e www.green-e.org
	• Building Practices and Indoor Air Quality:
	  • Green Building Council (LEED) www.usgbc.org/leed

Policy 2. Procure remanufactured goods and use refurbishing services.	• It is generally less expensive to buy remanufactured goods such as remanufactured cartridges, or to use refurbishing services for computer upgrades, carpet repair, and furniture reupholster, than to buy new items. "Recharged" toner cartridges typically save departments 30 to 50 percent per sheet of paper. Remanufactured items should require no sacrifice in performance. Check with Purchasing for current contracts in place for remanufactured products
Policy 3. Purchase goods containing fewer toxic ingredients.	• By procuring goods with fewer or no toxic chemicals, departments can reduce their hazardous waste disposal, future liability concerns, and the risk of occupational exposure and spills. Low-toxicity products such as mercury-free medical supplies, printing ink low in volatile organic compounds (VOCs), and chrome and chlorine free cleaning supplies are increasingly available and cost-competitive. See the Cross-sector certifications to help selecting products (example: Green Seal certified cleaning products)
Policy 4. Reduce paper use.	• Ask all instructors, committees, and task forces to commit to going paperless and using only digital documents whenever possible. Consider adding a “d” designator to digital/paperless courses. • Set all printers, copiers, and fax machines to the default duplex mode if the function is available. • Purchase only printers that have duplex capability. • Change the default margins on MS Word to 1 inch or less on all sides. • Utilize technology to send and store information electronically. • E-mail document files instead of faxing hardcopies. • Instead of having forms preprinted and stored, fill out forms online and print only when essential. • Store documents electronically instead of storing hard copies.

	• Establish incentives for departments that reduce their paper usage. • Review Printing Services rate policy and restructure so the motivation isn't to sell more paper, but conserve it. • Encourage use of "scrap" paper including for students taking quizzes and for homework.
Policy 5. Include Sustainable requirements and Practices in all Contracts and Bid Documents	• Establish procurement guidelines and policies that require language in every solicitation for quote, price and/or services for sustainable products and/or practices. • Tailor scoring criteria for bid documents to allow incentive points for sustainable products and/or services.

Resources for Environmentally Preferable Purchasing

Center for a New American Dream's Procurement Strategies (www.newdream.org/procure)
EPA's EPP Web Site (www.epa.gov/oppt/epp)
EPPNet (www.nerc.org/eppnet.html)
INFORM (www.informinc.org)
Office of the Federal Environmental Executive (www.ofee.gov)

Examples of environmentally preferred products:
Recycled paper and paper products
Remanufactured laser printer toner cartridges
Energy Star Rated computers and appliances
Rechargeable batteries
Re-refined lubrication, hydraulic oils, and antifreeze
Recycled plastic outdoor-wood substitutes including plastic lumber, benches, fencing, signs and posts
Recycled content construction, building and maintenance products, including plastic lumber, carpet, tiles and insulation
Re-crushed cement concrete aggregate and asphalt
Cement and asphalt concrete containing glass cullet, recycled fiber, plastic, tire rubber, or fly ash
Compost, mulch, and other organics including recycled biosolid products
Re-manufactured and/or low or VOC-free paint
Cleaning products with lowered toxicity
Energy saving products
Waste-reducing products
Water-saving products

Socially Responsible/Ethical Purchasing Standards

In demonstrating a commitment to sustainability and seeking to ensure safe and healthy workplaces for the people who make products for UAF, purchasers should strive to ensure that the products they purchase meet International Labor Organization (ILO) manufacturing standards and Fair Trade Labeling standards. Learn more about the importance of ethical purchasing:

Verite (www.verite.org)
Workers Rights Consortium (www.workersrights.org)
Silicon Valley Toxics Coalition (svtc.igc.org/svtc/)

5. Waste Management

Our enormously productive economy demands that we make consumption our way of life, that we convert the buying and use of goods into rituals, that we seek our spiritual satisfaction, our ego satisfaction, in consumption. We need things consumed, burned up, worn out, replaced and discarded at an ever-increasing rate.

- Victor Lebow, Advertising Executive, 1950[1]

Introduction

Mr. Lebow was prescient; since 1950, we have consumed more goods than all previous generations combined[2]. Nationwide, we are running out of places to dump our trash and the quantity of toxic materials continues to increase in our soil, water and air.

In contrast to human wasteful systems, nature works in cycles. In the natural world, "waste equals food"—the waste of one organism becomes food for another. Nothing is "discarded." This is a zero waste system. In such a system, all wastes are viewed as inputs for another useful product. A zero waste strategy means that if we cannot reuse, compost, recycle, or incinerate an item for energy—we shouldn't buy it in the first place.

A realistic but firm commitment by UAF to reduce and divert its waste stream will demonstrate how human systems can emulate natural systems to produce "zero waste." This can be accomplished by making a commitment to **Reduce, Reuse, Recycle, and Recover** before thinking about burying an item in a landfill.

Reducing the volume of trash generated is the first step. Considering what items may be reused in their current form is the second. The third step entails recycling the item into raw material for a new product. Last, items that are burnable can be incinerated at a waste-to-energy plant or, as a last resort, landfilled.

Vision

Reduce and ultimately eliminate waste on campus with the ultimate goal of a net zero waste campus.

Goal

UAF will be a sustainable campus community in which all "waste" products are reused locally or are raw materials for use elsewhere.

Objectives: Reduce, Reuse, Recycle, and Recover (the remaining energy); decrease the amount of hazardous waste produced by the campus community.

Objective 1. **Reduce**	• *Waste prevention* or *source reduction* refers to the practice of decreasing the amount of garbage generated. Consuming and throwing away less garbage is one way we can manage solid waste. Source reduction is a way to actually prevent the making of trash in the first place. One way is to purchase durable, long lasting goods and products. Seeking products that have little packaging decreases the amount of trash made. • Buying fewer items, avoiding single-use items or avoiding buying things we don't need are all ways to reduce our trash. Using less hazardous items for cleaning, lawn care and other purposes is another component of source reduction.

[1] Quoted in Michael F. Jacobson and Laurie Ann Mazur, *Marketing Madness: A Survival Guide for a Consumer Society* (Boulder, Colorado: Westview Press, 1995), p. 191, note 18 (attributing quote to *The Journal of Retailing,* Spring, 1955, p. 7).

[2] Alan Durning. 1992. *How Much is Enough? The Consumer Society and the Future of the Earth.* W. W. Norton.

Objective 2 **Reuse**	• There's a saying, "Use it up, wear it out, make it do, or do without." We encourage everyone to use a product more than once. Reusing items by repairing them, donating them to charitable organizations and other community groups, or even selling articles is preferable to single use products. Some of the ways to reuse items include: 1) Use coffee mugs and real glass instead of plastic or styrofoam; 2) Refill bottles, especially water and sports bottles; 3) Donate clothing, equipment, furniture and other items to charitable organizations; 4) Use empty plastic containers for leftovers.
Objective 3 **Recycle**	• Recycling involves altering the physical form of an object or material and making a new object from the altered material. Although recycling is a good thing, ideally it would be better not to generate the waste in the first place.
Objective 4 **Recover The Energy**	• It is possible to recover the energy in trash by burning it to generate electricity. Connecticut, for example, has 4 waste-to-energy (WTE) plants and since 1992 they have saved over 32 million barrels of oil. In addition, the WTE process has reduced the volume of material destined for landfills by 90%.
Objective 5 **Reduce Hazardous Materials**	• By procuring goods with fewer or no toxic chemicals, departments can reduce their hazardous waste disposal. Centralizing hazardous material purchases saves on shipping and simplifies tracking of hazardous materials. Reductions in the hazardous wastes produced elsewhere by changing what is purchased could be counted toward UAF's reduction of hazardous wastes.

Objective 1. ***Reduce the amount of garbage generated.***

In 2007, UAF spent approximately $64,000 for the privilege of burying its solid waste materials, most of which have value if recycled. The borough landfill will also eventually need to be expanded onto new land at great cost to handle the vast waste stream that includes UAF's waste.	
Policy 1. Decrease the consumption of disposable products	*Disposable products are a large and easily reducible part of the waste produced at UAF. Disposable containers also symbolize an attitude toward resources and waste management which is unsustainable. Changing the way UAF acts toward disposable containers will begin to change the way members of the campus community view waste and consumption. Reusable alternatives to disposable containers can be made available in school spirited colors and designs.*
	• Provide reusable drink containers at cost in all cafeterias. Charge for the use of disposable containers with proceeds going to fund the recycling program and subsidize the reusable containers. • Provide reusable bags at a low but significant cost at the bookstore. Eliminate plastic bags on campus, or charge a fee for them, the proceeds of which can fund the recycling program and subsidize reusable bags. • Switch to a "trayless" system in the Lola Tilly Commons. This has been shown to greatly reduce the amount of food waste generated and save hot water and soap to wash the trays.
Policy 2. Decrease the use of virgin paper	*UAF consumes about 2,600 sheets per hour of non-recycled, bleached white office paper. The consumption of so much wood pulp puts a strain on our forest resources. Virgin white office paper is usually produced using chlorine bleach, which can cause dioxin pollution.*
	• Change the default settings on all computers on campus to print double sided. • Change the default settings in popular word processing programs to use smaller margins. • All new printers should be capable of printing double-sided documents as the default.
Policy 3. Conduct a waste characterization study	*In order to know how to most effectively reduce and divert our waste stream we must find out what it is composed of and where it is produced.*
	• Include in this study a campus-wide breakdown of the waste stream, as well as special cases which differ significantly from the average (i.e. proportion of food waste from the commons, or paper from Printing Services, etc.)
Policy 4. Use recycled building materials	*Using recycled materials in construction and renovation is one of the themes of green building, and is included in the LEED Green Building standards.*
	• In all new buildings and renovations preferentially use building materials made from recycled products (i.e. cellulose insulation, carpet, ceiling tiles, etc.)

Policy 5. Increase the recycled content of paper consumed	*Recycled paper consumes less energy in production and produces less pollution. Paper whitened with chlorine bleach can produce dioxin pollution in rivers into which waste water from paper plants is dumped.*
	• Increase the recycled content of paper purchased by Printing Services. Also preferentially buy paper that is whitened without chlorine bleach. • Encourage other departments to purchase paper with recycled content and whitened without chlorine bleach. • Encourage departments to preferentially purchase other office supplies with recycled content. • Preferentially purchase toilet paper with high recycled content, unbleached or whitened without chlorine bleach. • Where paper towel dispensers are preferable to air dryers, preferentially purchase paper towels with high recycled content, unbleached or whitened without chlorine.
Policy 6. Use remanufactured printer cartridges	*Printer cartridges can be found for most printers that are remanufactured from previously used cartridges. These save landfill space, consume less energy in manufacture, cost less, and can even be purchased locally.*
	• Preferentially buy printers that use cartridges that can be remanufactured locally. • Preferentially buy printer cartridges that have been remanufactured locally, rather than brand name ones made from new materials.

Objective 2. ***Encourage the reuse of products; discourage single use products.***

Policy 1. Initiate a local composting program	*Composting diverts a significant part of the waste stream from the landfill and is a direct way to add nutrients to the soil.*
	• Compost coffee grounds starting immediately. Offer used coffee grounds for sale to local gardeners or compost it in the local eco-dump, as it does not attract pests. Vegetable clippings can also be composted in the eco-dump. • Compost other types of food waste through Golden Heart Utilities. If it appears to be economically feasible in the long-run, start a food composting facility on campus.
Policy 2. Reduce the use of single-use products	*Discouraging a "throw away" mentality is an important way to reduce the waste stream.*
	• Reduce the use of disposable containers. Offer discounts to those who bring their own mug. Abandon Styrofoam to-go containers in favor of biodegradable containers (or reusable ones that require a deposit—these are currently being tried at U.Florida). • Encourage the use of "scrap" paper including for students taking quizzes and for homework. Similarly extend the use of other materials. • Avoid individually-packaged foods, drinks, and condiments. • Ask art students to create sculptures of our hourly consumption of aluminum cans (173), plastic PET bottles (104) and glass bottles (62) and one of our daily use of white office paper (126 reams).

Objective 3. ***Increase campus recycling efforts.***

Policy 1. Initiate a large scale recycling program	*In order to achieve a much higher recycling recovery rate, administration of the recycling program must switch to Facilities Services and conducted on a much larger scale.*
	• Expand the Facilities Services recycling program, including a larger budget and more employees. • Resume the paper recycling program by taking mixed paper to K&K Recycling as soon as August 2008. • Establish several large centralized recycling centers around campus, as well as distributed bins in buildings wherever appropriate. • Utilize the janitorial staff to pick up presorted recyclables in specially marked bins. • Use a baler to package and ship out sorted materials which cannot be sold or recycled locally (i.e. plastics)

Policy 2. Adapt campus consumption to materials recycled, and vice versa	*A higher recycling recovery rate can be achieved if the materials coming into campus match what can be recycled. Also the types of materials collected by the recycling program should be tailored to fit the types of waste produced by campus.*
	• If aluminum is more practical to recycle from UAF than plastic #1, adapt vending machine contracts to use aluminum can dispensing machines whenever possible. • Most printer cartridges can be remanufactured locally at a greatly reduced cost, but some cannot. Preferentially buy printers that use cartridges that can be remanufactured locally. • Some commonly sorted materials such as plastic #2 or newsprint may not be produced by campus in sufficient quantity to justify widespread collection. Materials such as this should be identified by the waste characterization study. Collection may still be justified at the larger recycling centers.
Policy 3. Conduct a public education campaign	*A successful recycling program depends on the users understanding what they need to do to participate and why they should. UAF should not only educate the campus community, but also make an effort to inform people in the surrounding community. The more successful the borough-wide recycling program is, the more UAF will be able to participate in it.*
	• Educate incoming students about the recycling program at orientation. • Create a page on the sustainability website about the recycling program; put the URL on all the bins.
Policy 4. Work to increase recycling statewide	• *If recycling efforts around the state are more unified, it will be easier to overcome the problem of being distant from recyclable material markets. A coordinated statewide effort would be able to create an intra-state market for some recyclable materials, and amass sufficient quantities of others to more efficiently ship them abroad.*
	• Work with the Fairbanks North Star Borough to create a borough-wide recycling program which UAF can participate in • Coordinate with other recycling programs in the state to reduce shipping costs and amass marketable volumes of materials. • Support and sponsor local specialized recycling efforts (i.e. electronics recycling, biodiesel production, bicycle rebuilding). • Create a business incubator to foster businesses that could make use of recycled materials locally (i.e. cellulose insulation manufacturing to make use of recycled newsprint).

Objective 4. *Recover the energy.*

Policy 1. Use the waste stream as an alternate energy source	*As the final stage of processing the waste stream, sustainably recover all available energy.*
	• Use our waste vegetable oil directly for heating in those buildings that are not connected to steam heat. Be a local resource for waste vegetable oil recycling. • If sufficient burnable products are left in the waste stream after recycling efforts, a "waste-to-energy" system could be developed at the UAF power plant (i.e. paper pelletizing, plasma incineration). Connecticut now has four powerplants that burn only trash, saving millions of gallons of oil every year. • The University of New Hampshire is obtaining energy from methane gas from the local landfill. Research this as a possibility for UAF.

Objective 5. *Decrease the amount of hazardous waste produced by the campus community.*

Policy 1. Centralize purchasing of hazardous materials	*Purchasing all hazardous materials through one central source, will allow bulk purchasing to save on shipping, and centralized tracking of all hazardous materials on campus. A waiver system could also be incorporated for departments that still need to purchase independently, as long as EH&S is informed as to the quantity and disposal. This will also make it easier for emergency response crews to know what hazardous materials are where on campus.*
	• Purchase hazardous materials in bulk through Environmental Health and Safety, which will keep track of all hazardous materials coming to campus. • Follow up with departments using hazardous materials to make sure they are all accounted for and disposed of properly.

Policy 2. Conduct a study on hazardous wastes produced elsewhere to supply UAF	In the interest of global environmental justice, UAF should account for not only the hazardous waste produced on campus, but also the hazardous waste produced elsewhere in the manufacture of the products consumed by the campus community. Reductions in the hazardous wastes produced elsewhere by changing what is purchased could be counted toward UAF's reduction of hazardous wastes**.**
	• Research the origins and manufacturing practices behind products consumed on a large scale at UAF (i.e. computers, paper, disposable containers, etc.) • Determine possible substitutes for products that involve the production of hazardous waste. Also determine if the hazardous waste is disposed of properly.

6. Sustainable Building Guidelines

Buildings fundamentally impact people's lives and the health of the planet. In the United States, buildings use one-third of our total energy, two-thirds of our electricity, one-eighth of our water, and transform land that provides valuable ecological resources.

— US Green Building Council

Green building is the practice of increasing the efficiency with which buildings use resources—energy, water and materials—while reducing impacts on human health and the environment. It does this through siting, design, construction, operation, maintenance, and final removal processes that are sensitive to environmental and human needs. Such building practices also teach by design and by example.

Effective green building leads to: 1) reduced operating costs by increasing productivity and using less energy and water, 2) improved public and occupant health and productivity due to improved indoor air quality, and 3) reduced environmental impacts by, for example, using non-toxic materials and lessening storm water runoff and the heat island effect.

A great deal of work has gone into the development of the US Department of Energy's Leadership in Energy and Environmental Design (LEED) Green Building Rating System™. While this system is not completely applicable to Alaska, it does provide useful guidelines and a starting place for further discussion of sustainable building practices at UAF. Sustainable buildings are constructed with a minimum of waste and using as much recycled material as possible, have minimum energy usage, optimize indoor environmental quality, and have flexible interior plans to minimize subsequent retrofit costs.

UAF's buildings, landscape and biotic environment outwardly represent the university's commitment to maintaining a sustainable future for campus and community.

Vision

Create superior places to work, study and live that enhance the health of building occupants and are environmentally responsible by minimizing the use of resources while reducing impacts on human health and the environment.

Objectives

Conserve Energy	• Optimize the energy performance of all buildings. • Use renewable energy whenever possible, such as photovoltaic and passive solar. • Install energy efficient appliances. • Prohibit the purchase of CRT computer displays that are energy-intensive.
Renovate First	• Whenever practicable, renovate and extend the life of aging buildings rather than building new ones. This will save money and reduce resource use. • Do an assessment of the need for renovation of existing systems and structures in order to improve energy efficiency and reduce green house gas emissions.

Develop Sustainable Sites	• Reduce pollution from construction by controlling soil erosion, runoff, and dust. • Design building sites to establish contiguous networks with other natural systems. Preserve mature trees on the site whenever possible. • Concentrate development in areas with existing infrastructure, thus protecting green space and preserving habitat and natural resources. Construct or renovate building to maintain a minimum density of 60,000 square feet per acre within 1/2 mile of at least 10 basic services and with pedestrian access between the building and the services. • Reduce pollution and land development impacts from automobile use. Ensure public transportation access, bicycle storage & changing rooms. Locate project within 1/4 mile of public or campus bus stops. • Protect or restore habitat by maximizing open space in developing the site. Use native vegetation for landscaping. • Reduce the heat island effect of the building. • Reduce light pollution from the site. • Use water efficient landscaping: reduce use of potable water for landscaping; reduce irrigation. • Use innovative wastewater technologies (gray water, harvested rainwater). • Reduce indoor building water use through use of low flow toilets, showers, etc.
Use Sustainable Materials & Resources	• Provide space for storage & collection of recyclables. • Whenever possible, retrofit buildings, i.e. maintain a high percentage of existing walls, floors & roof and interior non-structural elements. • Divert 50% or more of construction waste from disposal. • Use materials that are: energy- and water-efficient to produce and use, minimally air or water polluting to manufacture, non-toxic and durable. • Optimize use of materials with recycled content. • Optimize use of materials that are extracted, processed & manufactured regionally. • Utilize rapidly renewable materials such as bamboo, wool, cotton insulation, linoleum, and cork. • Specifiy the use of wood certified by the Forest Stewardship Council.
Maintain High Indoor Environmental Quality	• Monitor outdoor air intake • Increase ventilation • Use low-emitting adhesives & sealants, paints & coatings, carpet systems, composite wood, etc. • Control indoor chemical & pollutant sources • Install fine scale control of lighting & thermal systems • Increase natural lighting and views (LEED requires natural lighting of 75% of spaces and views for 90% of office and public spaces).
Adopt universal design principles in buildings	• *Universal design ensures universal accessibility to people of all abilities through the following principles.* • **Equitable Use.** The design is useful and marketable to people with diverse abilities. • **Flexibility in Use**. The design accommodates a wide range of preferences and abilities. • **Simple and Intuitive Use**. Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. • **Tolerance for Error**. The design minimizes hazards and the adverse consequences of accidental or unintended actions. • **Low Physical Effort.** The design is efficient, comfortable, and minimally fatiguing. • **Size and space for approach and use**. Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.
Educate the Community about Green Building	• Build skills and knowledge on green design, construction, and materials selection. • Use the physical campus to educate the community on green building. • Develop a curriculum related to green building. • Post signs in high-traffic areas in notable buildings to raise awareness about specific green building practices that have already been implemented at UAF. • Make design and development processes more transparent to a wider range of UAF stakeholders.

7. Sustainable Education and Curriculum

Introduction

Successful sustainability programs strive to develop citizens who have the capacity to see themselves as part of, rather than separate from, the social, economic and physical environment in which they live (e.g., they understand where their water comes from, where their waste goes, how their food is harvested and processed and by whom for what pay). For example, a survey of 150 graduating seniors at Penn State found that:

- 40% did not know the size of the world's population to the nearest billion;
- 63% were unable to name one federal or state law that protects the environment;
- 40% were unable to name even two tree types on campus.

To change this, universities that wish to become leaders in sustainability must: (1) teach sustainability concepts and practices across the curriculum (including the social sciences and humanities as well as science, mathematics and engineering); (2) prepare students to actively promote sustainability practices in their chosen disciplines and careers; (3) create new incentives for students to learn and apply sustainability concepts and practices through new courses, course content, and revised graduation requirements; (4) connect learning, research, and practice by making sustainability a key aspect of student internships, experiential learning activities; and community engagement; and (5) use their roles as educators of current and future K-12 teachers as a means for spreading sustainability concepts and practices to the next generation of students.

Vision

Make UAF a global leader in education, research, and dissemination of information on sustainability.

Goals

Goal 1	Brand UAF as a global leader in sustainability education.
Goal 2	Make UAF a center for training and research in sustainability, for dissemination to public and private sectors and the NGO community.
Goal 3	Make UAF a prime target for agencies, organizations and businesses seeking personnel (interns and professionals) interested in and versed in sustainability issues.
Goal 4	Make sustainability issues an area of positive engagement between UAF and the wider community—businesses, NGOs, CBOs and government agencies.
Goal 5	Make sustainability principles an integral part of UAF's service to K-12 education.

Objectives

Objective 1	"Mainstream" sustainability into curricular and degree requirements.
Objective 2	Make sustainability and interdisciplinary studies key curricular and research goals for UAF.
Objective 3	Support interdisciplinary graduate education that emphasizes sustainability.
Objective 4	Raise the profile and prestige of sustainability studies on campus.
Objective 5	Make "hands on" experience with sustainability issues an integral part of the undergraduate curriculum.
Objective 6	Teach sustainability principles and practices to teachers and K-12 students.
Objective 7	Make UAF an integral part of national and global networks for sustainability education.

Objective 1. "Mainstream" sustainability into curricular and degree requirements.

Policy 1. Raise students' awareness through curricular changes	• Direct students' attention toward the importance of sustainability concepts and practices to their educational and career goals. • Consider sustainability and/or the environment as a new Core Curriculum requirement; or include more courses on related topics (e.g., social sustainability, ecology) as options in Perspectives on the Human Condition, and Natural Sciences Core requirements. • Review existing curricular resources; make information available to new students at orientation and to continuing students at appropriate campus events. • Provide an array of introductory-level classes in various disciplines that emphasize sustainability and fulfill university degree requirements.
Policy 2. Support development of new courses	• Provide support (administrative support, funding, faculty release time, student research funding, etc.) to develop appropriate courses and modules that may fulfill Core Curriculum, major or minor requirements. • Seek extramural funding for course and program development. Develop partnerships with local, state, national and global private sector and non-governmental organizations that may provide course content, external expertise, and opportunities for experiential learning. • Create a sustainability academic resource facility (real and/or virtual) from which faculty and students can access course and research materials, view existing syllabi, build new syllabi, and discover ways to integrate sustainability into their courses and research. Network with other UAF faculty and students with similar interests. • Identify current courses with sustainability content for commendation and as examples of good practice.
Policy 3. Provide resources for revising existing courses	• Encourage the inclusion of sustainability concepts and materials in relevant existing courses. • Provide support (administrative support, funding, faculty release time, student research funding, etc.) to develop appropriate courses and modules that may fulfill Core Curriculum, major or minor requirements. • Encourage curricular development for sustainability education through positive incentives and workload adjustments. • Coordinate, support, publicize, and find synergies among academic programs and departments that currently offer coursework relevant to sustainability issues.
Policy 4. Core Curriculum	• Consider sustainability and/or the environment as a new categorical Core Curriculum requirement; or include more courses on related topics (e.g., social sustainability, ecology) as options in Perspectives on the Human Condition, and Natural Sciences Core requirements.

Objective 2. Make sustainability and interdisciplinary studies key curricular and research goals for UAF.

Policy 1. Support innovative program development	• Inventory programs, majors, minors, classes (collect course syllabi), and campus organizations concerned with environmental and social sustainability. • Develop relationships for student exchanges and co-curricular activities with other colleges and universities committed to sustainability. • Recommend that faculty and deans familiarize themselves with and contribute to existing data bases of syllabi and instructional materials, such as the Association for the Advancement of Sustainability in Higher Education, and the Campus Ecology Program of the NWF. • Coordinate, support, publicize, and find synergies among academic programs and departments that currently offer coursework relevant to sustainability issues.
Policy 2. Partnerships	• Seek extramural funding for course and program development. Develop partnerships with local, state, national and global private sector and non-governmental organizations that may provide course content, external expertise, and opportunities for experiential learning.
Policy 3. The Honors Program	• Utilize the Honors Program to promote coursework and student research on sustainability that integrates humanities, social and natural sciences; including interdisciplinary honors seminars and theses. Include a strong educational component (classroom and experiential) in the Honors House Retrofit project. • Integrate sustainability topics (environmental, economic and social) in Humanities and Social Science Core Courses.

Policy 4. Recruitment	• Recruit students, faculty and administrators who are interested in and can contribute to sustainability goals.

Objective 3. Support interdisciplinary graduate education that emphasizes sustainability.

Policy 1. Support faculty participation in graduate programs	• Provide faculty and students with the means to pursue and support sustainability research, including additional FTEs to departments seeking to create or expand appropriate graduate programs and/or participate more actively in existing programs such as the IND PhD, and RAP/IGERT.

Objective 4. Raise the profile and prestige of sustainability studies on campus.

Policy 1. Raise awareness of current efforts and needs	• Survey faculty, department chairs, deans and directors; make presentation at fall new student orientation; put sustainability "button" on homepage of UAF website; solicit student input on campus sustainability practices.
Policy 2. Advising	• Direct students' attention toward the importance of sustainability concepts and practices to their educational and career goals.
Policy 3. Awards	• Provide student (undergraduate and graduate) and faculty awards and fellowships for sustainability studies.

Objective 5. Make "hands on" experience with sustainability issues an integral part of the undergraduate curriculum.

Policy 1. Coordinate existing efforts	• Inventory all majors, minors and programs offering and/or requiring internships or civic engagement projects.
Policy 2. Expand opportunities	• Provide UAF students with more opportunities for experiential learning about sustainability issues on and off campus. • Provide administrative support to interested departments and programs or a central clearinghouse for appropriate internship and civic engagement opportunities. Establish a "sustainability liaison" with local, state, national and international businesses, NGOs and governmental agencies for the purpose of identifying opportunities and placing students. Coordinate the efforts of and discover synergies among the various programs already attempting to identify such opportunities.
Policy 3. Community engagement and careers	• Integrate the activities of relevant campus organizations, centers, institutes and programs into the curriculum through experiential learning and student internships. Encourage local and state organizations, agencies and businesses to look to UAF students as a source for "sustainability conscious" personnel. • Establish two-way communications between the UAF community (students and faculty) and local government, businesses and NGOs on sustainability issues.
Policy 4. Support student engagement	• Establish sustainable sources of financial support (an endowment or budgetary line) for students wishing to pursue careers related to all aspects of sustainability (including social) and to support students in internships and civic engagement projects that would otherwise be unfunded or self-funded.

Objective 6. Teach sustainability principles and practices to teachers and K-12 students.

Policy 1. Educating Teachers	• Work with the Dean of SoE and faculty to integrate sustainability education more thoroughly into BA, MAT, MEd, and licensure programs. Establish liaison with local schools (K-12) to offer sustainability education (short courses for teachers; special programs for students & continuing education) using UAF faculty and students.
Policy 2. Licensure	• Encourage cooperation between UAF SoEd and FNSB School District; dialog with AK Dept of Education on sustainability standards and competencies.
Policy 3. Support for K-12	• Offer "sustainability consultations" by UAF faculty and students to local schools and/or the FNSB school district.

Objective 7. Make UAF an integral part of state-wide, national and global networks for sustainability education.

Policy 1 Participate in national initiatives	• Sign the American College & University Presidents Climate Commitment. • Promote participation in established national and international associations and networks for sustainability education.
Policy 2 Make global connections	• Work through established institutional arrangements such as the University of the Arctic. • Develop relationships for student exchanges and co-curricular activities with other colleges and universities committed to sustainability. • Encourage and support greater student participation in sustainability-themed International Programs and exchanges. • Host regular international symposia of scholars and practitioners at UAF.
Policy 3 Publicity	• Publicize goals and achievements in appropriate media and scholarly venues.

8. Sustainable Food Systems

Introduction

Colleges and universities should commit to the sustainability of our food supply. Many people now lack the information to understand the consequences, both personal and public, of their choices about what they consume. Food and agriculture have a broad range of impacts in areas as diverse as labor issues, animal welfare, diet-related health concerns, fossil fuel derived fertilizers and pesticides, water usage, soil health, energy, wildlife protection and local economies. It is essential that future generations regain this awareness and locally UAF can play a role in transmitting that information.

Vision

Reduce the environmental and social impact of UAF's food supply and dining services.

Goal

Increase awareness of the impacts of food production, supply healthier, fresher foods, reduce the energy-intensity of our campus food supply. Reduce the waste and social impacts associated with our food system. Support the local and state economy by purchasing Alaska-grown foods.

Objectives

Objective 1 Reduce Waste	• **Reduce the use of disposable containers**. Offer discounts to those who bring their own mug. Abandon Styrofoam to-go containers in favor of biodegradable containers (or reusable ones that require a deposit—these are currently being tried at U.Florida). • **Use recycled paper products.** Napkins and paper towels and other recycled paper products are available. Table tents, handouts and brochures should be printed on 100% recycled, double-sided paper using a vegetable-based ink. • **Use washable or biodegradable dishware.** • **Reduce food waste**. UAF Dining Services serves roughly 2,000 meals/day and generates *310 gallons of food waste per day* (Linda Bahr, General Manager Dining Services, pers. comm.). Plate waste—food that was taken but not finished—accounts for the greatest part. To reduce plate waste, use smaller trays, smaller plates, and consider charging for food thrown away. During a one-week trial in Spring 2008, when trays were eliminated in the Commons, food waste was reduced by 45%. There were many complaints about no trays at all, but smaller trays and plates might work. • **Give food that was produced in excess to the Food Bank** or soup kitchen. • **Compost coffee grounds starting immediately**. Offer used coffee grounds for sale to local gardeners or compost it in the eco-dump, as it does not attract pests. Vegetable clippings can also be composted in the eco-dump. • **Compost other types of food waste** through Golden Heart Utilities. If it appears to be economically feasible in the long-run, start a food composting facility on campus. • **Use our waste vegetable oil directly for heating or to make biodiesel** (in which case it will probably need to be combined with waste oil from other sources). • **Avoid individually-packaged** foods, drinks, and condiments.

Objective 2 Increase awareness	• Educate the campus community about the environmental, social and health challenges associated with food production, and about the benefits of local/regional farms, organic growing methods and Fair Trade. • Sponsor food education programs via posters and table tents to create respect for food, reduce the adverse health effects of a poor diet, and reduce food waste.
Objective 3 Reduce the energy intensity of our food supply	• **Reduce the fossil fuel energy used in food production.** This can be done by purchasing Alaska-grown and local food and by purchasing organic food that avoids inorganic fertilizers and pesticides, which require large quantities of petroleum products in their production. • **Reduce the fossil fuel energy used in transporting our food**. An estimated 80% of the energy used by the food system comes not from growing food, but from transporting and processing it. Buying local, regional or state-grown foods will lower the emissions produced by transporting our food. • **Sponsor a "Low Carbon Diet Day"** each semester with a carbon point system so that diners can calculate the impact of their food choices. Give prizes for those with the most food for the lowest carbon points. • **Reduce the use of beef by 25%.** Livestock production is responsible for 18% of greenhouse gas emissions. Increase the number of vegetarian dishes offered on a regular basis and consider offering a meatless meal once a week.
Objective 4 Supply healthier, fresher foods, & reduce other environmental impacts	• **Offer foods that are grown as close as possible.** This will increase freshness as well as decrease emissions associated with transporting them. Prioritize sources as follows: local foods—first priority, Alaska-grown—second priority, North America and Hawaii—third priority, and sources beyond North America and Hawaii should be reserved strictly for special occasions/events. • **Establish an organic garden for research, demonstration and production** at the Experimental Farm on campus. Plant mixed vegetables and focus on good growing practices. Produce could be sold to Dining Services at market value, while actively avoiding competition with local growers. Encourage students and community members to volunteer at the farm. Offer curriculum centered around the garden. • **Eliminate trans-fats from UAF dining services products.** • **Offer organic foods as an alternative**. Organic produce, milk and eggs, and free-range meat and poultry produce less pollution than conventional agriculture. Shade-grown coffee supports a more diverse ecosystem.
Objective 5 Reduce the social impacts	• Agriculture and food processing are among the most dangerous, and lowest-paid occupations in the US. Improve the working conditions of those who work in food production and food processing by purchasing products from socially responsible providers. • Include Fair Trade products whenever possible. Fair Trade is a movement and certification process that focuses on the rights, health and working conditions of the workers who produce these products. Include Fair Trade coffee at all dining locations.

A. STRONGLY RECOMMENDED:

1. Food

- ☐ Use locally grown/produced foods whenever possible.
- ☐ Use organic foods whenever possible.
- ☐ Use fair trade coffees and teas
- ☐ Serve foods— such as fruits and vegetables or cheese and crackers—that are not individually packaged or that require utensils. Serve drinks, including water, in pitchers or other containers. Drinks in cans and bottles are one of the biggest contributors to waste on campus.
- ☐ Use washable dishes, cutlery, and glasses/cups. If this is not possible, use biodegradable dishes, cutlery and glassware.
- ☐ Use cloth tablecloths and napkins if possible. If not, use paper ones that are made from recycled paper.
- ☐ Avoid individually wrapped condiments (no sugar/sugar alternative packets, no salt/pepper packets, no individual creamers). Use bowls and shakers that can be reused and people can serve themselves. Milk/cream should be in original cartons on ice or in pitcher.
- ☐ Omit plastic coffee stirrers, paper doilies, straws, or packets of plastic flatware.
- ☐ Use sustainable table centerpieces – such as potted plants, local/pesticide-free flowers, cut tree branches, candles, or fruits that guests can take home.
- ☐ If you're having a buffet, use smaller than dinner-sized plates for the food. This helps people avoid taking too much food that would just go to waste.
- ☐ Avoid using disposable, non-biodegradable packaging, such as saran wrap. Aluminum foil is preferred as it can be washed and recycled.
- ☐ If food is provided from local farms, note it as such. Place small cards in front of the food indicating what it is, from what farm, and where the farm is located.

2. Waste

- ☐ Coordinate with ASUAF Recycling to have the appropriate number of recycling receptacles in place (cans/bottles/mixed paper). If you hire caterers who will be present on site cooking and/or serving food, ensure that their staff comply with your efforts to make it a sustainable event by using the appropriate trash/recycling receptacles provided to them.
- ☐ Collect and reuse plastic name tag holders.
- ☐ Coordinate with a local food bank or soup kitchen to donate any leftover food.
- ☐ Provide **biodegradable** "To-Go" containers for participants to take leftover food with them.

3. Advertising/Printed Material

- ☐ Go Paperless: Post event information, downloadable versions of programs, handouts, and itineraries on a web site for event participants.
- ☐ Ensure that program guides, handouts, and other written materials are limited and, when needed, printed on 100% post consumer paper and double sided using a vegetable-based ink.
- ☐ For reoccurring or annual events, avoid printing dates and slogans on signs, posters, and banners so that they may be easily reused.
- ☐ 100% Paperless Advertising: Promote and invite electronically. Require participants to register or RSVP electronically as well.

B. RECOMMENDED:

1. Energy

- ☐ Hold the event during the day and in a location that will provide adequate natural lighting.
- ☐ Calculate the carbon footprint of the event and purchase renewable energy certificates (RECs) to offset the event's CO_2 emissions.

2. Transportation

- ☐ Encourage and give incentives for the use of alternative transportation. Highlight bike routes to the event location and ensure that an adequate number of parking spaces for bikes are available. Provide resources on public transportation in the area including routes and schedules as well as the location of bike racks.
- ☐ Offer virtual conferencing. Make the event a podcast, Webcast or video conference for attendees who are not local.

9. Social Sustainability

Injustice anywhere is a threat to justice everywhere.

— Martin Luther King

Do your little bit of good where you are; it's those little bits of good put together that overwhelm the world.

— Desmond Tutu

Even as broad agreement has emerged among scholars and practitioners on the importance of sustainability, identifying key areas of concern and the appropriate policies to address them continue to generate controversy. Much of this controversy comes from the complex and interdependent nature of the huge set of problems that need to be addressed in a sustainable fashion; and the fact that solutions require substantial behavioral changes as well as new policies, institutions and practices.

The concepts and documents that guided this committee and that have become the common points of departure for most sustainability planning and management efforts in colleges and universities around the world—the Brundtland Commission Report and Agenda 21—clearly state that environmental, economic, cultural and social practices all impact each other in ways that are both fundamental and difficult to predict.

Originally, this transition team included social sustainability in its areas of concern. UAF faces challenges in becoming a more socially sustainable campus, i.e. a place where faculty, staff, students, administrators and the supporting communities can be secure, productive and valued; a place that promotes a stable but dynamic sense of community and that values difference and diversity as well.

However, it quickly became apparent that to address these concerns would require a significant additional effort and an expertise not readily available to the team. We, therefore, strongly urge the Chancellor to consider the establishment of a separate team or committee on social sustainability that could tackle the following issues (among others).

- Fair compensation for students, staff, and faculty for the purposes of effective recruitment and retention
- Genuine equal employment opportunity and fair compensation regardless of gender, race, age, religion, etc.
- Enhanced efforts to promote gender, ethnic and racial equality
- Adequate and affordable healthcare (including dental, eyeglasses and mental health programs) for all students, staff, adjuncts, and faculty
- Enhanced consideration for the requirements of disabled members of the UAF community including the incorporation of ADA standards in all construction and renovation, and retrofitting classrooms and other facilities to better accommodate the hearing and visually impaired.
- Enhanced respect and support for cultural diversity
- Increased attention to accommodating the professional and personal needs of spouses and family members in recruitment and retention of faculty and staff
- Affordable housing and childcare on campus
- Upgrading of on-campus housing stock for faculty and students
- Student wages have not changed since 2003 and are on a par with Walmart, Sam's Club and McDonalds.
- Over half of all undergraduates at UAF have student loans, which average over $28,000 when they graduate. Direct more students to grants and other non-loan funding sources. Educate students about terms of student loans and long term consequences of student loan debt. Move students away from unsubsidized loans.

10. Processes and Institutions

Introduction

The proposed institutional changes aim to make sustainability an integral part of key decision-making processes with only a minimal expansion of the organizational structures and processes of governance, policy-making and implementation. Changes to established institutions and processes should facilitate a participatory approach to the making and implementation of sustainability policy and practices and ensure sufficient administrative capacity and commitment to carry out and fine-tune sustainability standards.

Vision

Establish a permanent, staff office of sustainability and advisory committee. Create new and revise existing administrative and governance institutions and processes to make environmental sustainability a fundamental consideration in decision-making

Goals

Goal 1	Establish institutions and processes that promote "bottom up" and participatory practices for achieving the specific sustainability goals identified in the other sections of this report.
Goal 2	Establish institutions and processes that promote administrative responsibility and capacity for the execution of sustainable policies and programs in all campus operations as well as in relationships between campus and community.
Goal 3	Communicate to government funders of UAF—its programs and research activities—that sustainability is an integral part of the university's mission.
Goal 4	Make the Chancellors of the 3 MAUs advocates for sustainable policies and practices in their relations with UA statewide administration and Regents.

Objectives

Objective 1	Make sustainability considerations an integral part of campus budgetary and assessment processes.
Objective 2	Develop the necessary administrative capacity and authority to implement the recommendations of faculty, staff and students for enhancing sustainability in all aspects of UAF functions and operations.
Objective 3	Include sustainability considerations in the policies and resolutions of established institutions and processes for faculty, staff and student self-governance.
Objective 4	Make sustainability a prime consideration in UAF government relations such as UA and UAF lobbying efforts on state and federal budgetary and educational policies.
Objective 5	Empower the UAF Chancellor to urge the adoption and funding of sustainability requirements with peers, UA system-wide administrators and the UA Board of Regents.

Objective 1. ***Make sustainability considerations an integral part of campus budgetary and assessment processes.***

Policy 1. Budgeting	• Develop methods for considering medium- and long-term sustainability impacts in annual budgeting at the campus-wide, college/school/institute, and program/department levels.
Policy 2. Assessment	• Make sustainability considerations an integral part of program assessment and outcomes-based budgeting methodologies.
Policy 3. Metrics	• Develop sustainability performance metrics appropriate to the various units of the university.

Objective 2. ***Develop the necessary administrative capacity and authority to implement the recommendations of faculty, staff and students for enhancing sustainability in all aspects of UAF functions and operations.***

Policy 1. Chancellor's Committee	• Create a Chancellor's Committee on Sustainability Policy and Practices as a permanent advisory body capable of providing the Chancellor and Provost with specific, authoritative analysis and recommendations. Membership of this committee should follow the same principle used to constitute the Transition Teams, i.e. effective representation of faculty, staff, students, community, and rural campuses with consideration given to garnering input from the relevant areas of academic and technical experience and expertise.
Policy 2. Task Forces	*Establish such functional groups to oversee and make recommendations regarding the implementation of new sustainability policies, practices and standards.* • These groups should take the form of task forces that can provide the administrative and technical expertise necessary to operationalize and implement the recommendations contained in this report. • These groups will need the authority and administrative capacity to formulate and monitor specific practices. • For those reasons, the composition and position of these groups is a key consideration. For example, an energy task force should be made up personnel involved in the day-to-day operations of physical plant and have members from the engineering faculty but be autonomous of those offices. • The task forces should be directly responsible to the Chancellor and offer periodic reports to the committees of the Faculty Senate and Staff Council mentioned below. • The decisions of task forces should be reported to UAF policy-makers and stakeholders; become a matter of public record; and be subject to challenge and reconsideration through established procedures of governance.

Objective 3. ***Include sustainability considerations in the policies and resolutions of established institutions for faculty, staff and student self-governance.***

Policy 1. Faculty Senate and Staff Council	Encourage Faculty Senate and Staff Council to establish committees on sustainability as: (1) sources of faculty and staff input on general university policies that impact environmental sustainability; (2) authoritative bodies for reviewing faculty and staff governance decisions for their impacts on sustainability; and (3) liaisons to the proposed Chancellor's Committee on Sustainability Policy and Practices (e.g., chairs of the faculty and staff committees could sit on the Chancellor's committee).
Policy 2. Student Participation and ASUAF	Work with ASUAF and the student recycling program to establish a set of programs and practices aimed at mainstreaming sustainability in ASUAF policies and programs, to provide student input to the Chancellor's Committee and to report regularly to Faculty Senate and Staff Council on campus sustainability from the students' perspective. • Encourage the use of student referenda for setting policy related to ASUAF functions and practices, food services, procurement, Residence Life, and campus events. • Require student membership on Task Forces and Chancellor's Committee.
Policy 3. Linking to academic requirements	Work with UAF students to develop a set of academic incentives for participation in sustainability activities. (See the Curriculum section of this report.)

Objective ***4. Make sustainability a prime consideration in UAF government relations such as UA and UAF lobbying efforts on state and federal budgetary and educational policies.***

Policy 1. Lobbying for sustainability	• Encourage effective communications and regular consultations between the Chancellor's Committee on Sustainability Policy and Practices and the UA Office of University Relations.
Policy 2. Public advocacy	• Make UAF a catalyst for the development of a local advocacy network for sustainability through the dissemination of information on the activities of the Chancellor's Committee on Sustainability Policy and Practices and the various task forces (recommended above) to borough and municipal governments, and local business and non-governmental organizations (e.g., Chamber of Commerce, service organizations, and local environmental and civic organizations).
Policy 3.& Community relations and participation	• Whenever appropriate invite local, non-UAF stakeholders to participate in the newly formed bodies recommended above.
Policy 4. Relations with statewide administration and Regents	• Make chancellors of the 3 UA MAUs advocates for sustainability policies and practices to UA statewide administration and UA Regents.

11. Appendix 1— 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

12. Appendix 2—Talloires Declaration

(pronounced Tal-Whar) http://www.ulsf.org/programs_talloires.html

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.