UNIVERSITY OF ALASKA FAIRBANKS

Sustainability Plan

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FROM UAF CHANCELLOR BRIAN ROGERS

The University of Alaska Fairbanks has made outstanding progress towards sustainability in a very short time. Since creating the student-initiated sustainability fee in 2009, UAF has funded more than 84 energy- and sustainability-focused student projects. We have established programs in energy, recycling, alternative transportation and food security. For these efforts, the Association for the Advancement of Sustainability in Higher Education recognized UAF with a gold rating.

UAF will face different challenges and opportunities in upcoming decades. Student demands and expectations are changing. Moving towards sustainability is vital to maintaining UAF's position as a world leader in Arctic research and education.

This document is UAF's Sustainability Plan. It was developed in 2014 following extensive discussions with a steering committee of students, faculty and staff from across campus. Sixteen strategies within four focus areas are outlined, each with implementation steps. As we enter challenging times and an exciting future, this plan creates a roadmap to reach UAF's sustainability goals and communicate them to students, faculty, staff and the greater community.

The plan is ambitious. It demands campus wide engagement and planning. It requires a commitment to choices that are forward-thinking, operationally efficient, environmentally responsible and fiscally sound. As a living document, it will be reviewed annually and adjusted. We'll use it to evaluate progress and identify new obstacles.

Brian Rogers, Chancellor
University of Alaska Fairbanks

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SP Executive Committee

- Aaron Cooke, Cold Climate Housing Research Center Representative
- Darrin (Bear) Edson, Superintendent of Operations
- Bill Cox, Superintendent of Maintenance
- Cara Hollingswoth, Leadership Involvement Volunteer Experience (LIVE) Director
- Carla Browning, Marketing and Communications Internal Communications Manager
- David Valentine, Professor, Faculty Senate Representatvie
- Gary Kofinas, School of Natural Resources and Agricultural Sciences Representative
- Ian Johnson, Residence Life and Sustainable Village Representative
- Ian Olson, Director, Planning, Analysis & Institutional Research; UAF Master Planning Committee Representative
- John Hebard, Director, Procurement & Contract Services
- Lawrence Duffy, Faculty Senate Representative
- Martin Klein, Director, Auxiliary & Contract Services
- Michele Stalder, Dean, Community & Technical College
- Mark Meyers, Vice Chancellor for Research
- Pamm Hubbard, Dining Services Contract Manager
- Richard Machida, Staff Council Representative
- Richard Wies, Engineering Department Representative
- Scott Bell, Associate Vice Chancellor for Facilities Services
- Wyatt Hurlbut, Review of Infrastructure Sustainability and Energy Board (R.I.S.E) Representative

Other UAF Staff Participants

- Michele Mouton, Director, Office of Sustainability
- Christi Kemper, Office of Sustainability Administrative Assistant
- Erik Williams, SP Student Liaison

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1.0 EXECUTIVE SUMMARY

Colleges and universities across the nation have embraced sustainability as a tool to enhance student learning and development, reduce costs, increase efficiencies, drive research and innovation and preserve environmental qualities. Motivating students, faculty and staff to integrate sustainability in all aspects of campus creates a "whole school" approach to maximize its benefits.

Sustainability has been an active part of campus life, academics, research and operations at the University of Alaska Fairbanks for many years. In the spring of 2009, UAF students voted in favor of paying a $20 fee each semester. Originally called the Student Initiative for Sustainable Energy Now (SIREN) Fee, it is now known as the Student Sustainability Fee. These funds have been a catalyst for numerous energy efficiency programs and solar photovoltaic (PV) installations on buildings across campus.

The Review of Infrastructure, Sustainability and Energy (RISE) Board was created in 2009 to review proposals and to evaluate and prioritize projects funded by the fee. The Office of Sustainability was established in 2010 to champion and coordinate sustainability programs. The Office has since initiated and led many programs and provided student employees leadership opportunities. In 2011, with leadership from the Office of Sustainability, UAF submitted its first report to the Association for the Advancement of Sustainability in Higher Education's (AASHE's) Sustainability Tracking, Assessment and Rating System (STARS). The University received a Gold rating for its efforts across multiple performance areas including education, energy, water, transportation and waste. Since 2011 UAF has continued to implement a wide range of projects and provide students with rewarding, hands-on engagement opportunities.

This Sustainability Plan (SP) has been developed to further integrate sustainability across campus, as well as to support future improvements in UAF's scoring and rating under the AASHE STARS program. It is a product of input from across campus – including a Steering Committee, small group

interviews, a campus survey and input from a range of subject matter experts. The SP includes several recommended metrics for measuring success over time.

The 12 strategies and their associated actions will require investments of time, people and resources, but they will also result in many tangible economic, environmental and social benefits. The following summary table estimates costs and savings associated with the strategies. Taken together, the strategies would result in over $3.2 million in annual cost savings, with an estimated combined payback across all strategies of approximately 10 years. They would also result in significant reductions in greenhouse gas (GHG) emissions, energy and water use and other resources.

Implementation of this SP will involve a wide range of departments from across campus, as well as students, faculty and organizations within the Fairbanks community.

Summary of Potential Costs and Benefits from Implementing the SP Strategies

CATEGORY	ESTIMATED ANNUAL COSTS & BENEFITS
Greenhouse Gas (GHG) Emissions	Reduction of 18,000 Metric Tons of Carbon Dioxide Equivalent (MTCO2E)
Electricity	Savings of 10,000 Megawatt Hours (MWh)
Steam	Savings of 58,000 Thousand Pounds (klbd)
Potable Water	Savings of 12,000 Thousand Gallons (kgals)
Personal Vehicle Miles Traveled	Reduction of 647,000 Miles (mainly from commuting)
Waste	Reduction in 120 Tons
Annual Cost Savings	$3.25 million
Estimated Overall Simple Payback	10 years

2.0 INTRODUCTION AND PURPOSE

Alaska is undergoing rapid changes in climate, human population and demands on natural resources. Future planning that accounts for these changes can reduce costs and liabilities. Currently most policy and management planning for Alaska and elsewhere assumes that future conditions will be similar to those of our recent past experience. However, there is reasonable consensus within the scientific community that future climatic, ecological, and economic conditions will likely be quite different from those of the past.

These challenges provide opportunities for UAF and have prompted the University to become more energy and resource efficient. Beyond this UAF can also seek ways to build on its already successful partnerships and collaborations across campus to further educate and involve University students, faculty and staff in sustainability opportunities. Not only can these and other strategies help reduce UAF's impact on the environment, they can provide many additional benefits, from sustaining a healthy, productive learning and working environment to preparing students for the future. They can also help make UAF an even more attractive destination for the growing community of sustainability-minded students, faculty and researchers. As America's arctic research university, the University of Alaska Fairbanks leads the way in conducting climate change research that affects Alaska and the rest of the circumpolar North.

Funded by UAF's Student Sustainability Fee, this document has been developed to take stock of UAF's progress toward sustainability to date and create a cohesive plan for the University. The SP creates a road map for UAF and provides an overall framework for sustainability that includes key goals, strategies and actions to support sustainability in University facilities, operations, research and curriculum.

The SP provides guidance for further improving UAF's score under the Association for the Advancement of Sustainability in Higher Education's (AASHE) Sustainability Tracking, Assessment & Rating System (STARS). In 2011 UAF completed its first STARS report and received a "Gold" rating for its sustainability performance. Throughout this SP are references to various

WHAT IS SUSTAINABILITY?

Sustainability at UAF is the integration of cultural, economic, environmental and energy components and supports projects and perspectives that have positive impacts on future resources, ecosystem health and human wellbeing.

Sustainability is not a destination, it is a process. Sustainability is:

- An opportunity to transform/reinvent the community, organization and the world.
- A capacity for an interdisciplinary approach to solving problems.
- Meeting today's needs without compromising future generations' ability to meet their needs.

components of STARS and their connection to the specific strategies and action steps outlined in the Plan.

This SP provides an overview of the development process, a snapshot of UAF's current sustainability footprint and practices, and a framework for action to further sustainability. The goals and strategies identified in the SP have been developed around four focus areas identified by University staff and Steering Committee members

- **Protect Resources:** Energy, Water, Climate, Transportation, Grounds
- **Support the Campus Community (Faculty, Staff, Students):** Human Resources, Curriculum, Processes and Institutions
- **Close Loops and Conserve Materials:** Waste and Procurement
- **Shaping Alaska's Future:** Research**,** Investment**,** Public Engagement, Community Partnerships

This document presents an approach to implementation that looks at staffing, partnering, funding, measurement and reporting, and avenues for moving beyond University operations to the community as a whole.

For each focus area the SP includes goals, strategies, action steps with timelines, responsible parties and measures of success. Finally, the SP presents cross-cutting themes, including the important topic of marketing and communications.

2.1 History of Sustainability at UAF

Sustainability has been an active part of campus life, academics, research and operations at UAF for many years. Over 10 years ago the Sustainable Campus Task Force organized the first Annual Sustainable Living Conference at UAF.

In 2008 the Chancellor established a Sustainability Transition Team to assemble a document of recommendations. This planning text addresses goals related to energy, carbon, transportation and other topics.

2009-2013: The SIREN Fee as a Catalyst for Sustainability

In the spring of 2009, UAF students voted in favor of paying a $20 fee each semester called the Student Initiative for Sustainable Energy Now (SIREN) Fee, now known as the Student Sustainability Fee. To date, these funds have been applied to numerous projects including energy efficiency programs and solar photovoltaic (PV) installations on buildings across campus.

The Review of Infrastructure, Sustainability and Energy (RISE) Board was created in 2009 to review proposals and evaluate and prioritize projects funded by the Student Sustainability Fee. From green bikes to student-run recycling and student employment opportunities, the RISE board and Office of Sustainability have made great improvements at UAF.

The Office of Sustainability was established in 2010 to champion and coordinate sustainability programs across campus. The Office has since initiated and led many programs and provided student employees leadership opportunities.

In 2011, with leadership from the Office of Sustainability, UAF submitted its first AASHE STARS report, a transparent, self-reporting process using a framework for colleges and universities to measure their sustainability performance. The University received a Gold rating for its performance across multiple performance areas including education, energy, water, transportation and waste.

In 2013 the RISE board and Office of Sustainability hired a consulting firm to develop this SP. This planning document builds on the 2008 *Campus Sustainability Recommendations from the Chancellor's Sustainability Transition Team*, which provides a strong foundation for this newer-generation Plan.

HISTORY OF SUSTAINABILITY AT UAF

- **2004** – Sustainable Campus Task Force (SCTF) organizes first Annual Sustainable Living Conference.
- **Spring 2008** – Students in NRM 430 class prepare a first draft of a UAF campus sustainability plan.
- **Summer 2008** – Chancellor's Sustainability Transition Team develops recommendations for UAF Campus Sustainability.
- **Spring 2009** – Students vote in favor of $20/semester SIREN fee.
- **Fall 2009** – Review of Infrastructure, Sustainability and Energy (RISE) Board created to maximize the use of SIREN fee.
- **Spring 2010** – Student Initiative for Sustainable Energy Now (SIREN) fee up and running.
- **Fall 2010** – Office of Sustainability established. First UAF Sustainability Director hired.
- **2011** - STARS report completed.

2.2 UAF'S AASHE STARS Scorecard

UAF AND AASHE STARS

In 2011 UAF participated in AASHE's STARS (Sustainability Tracking, Assessment & Rating System) a transparent, self-reporting framework for colleges and universities to gauge relative progress toward sustainability.

The University received a Gold Rating with a total score of 65.88.

A driving purpose behind this SP is to help identify opportunities to improve UAF's STARS rating and score – and in the process move the University further toward sustainability in a number of areas.

The STARS system assigns a number of potential points across the broad topics of Education and Research; Operations; Planning, Administration & Engagement; and Innovation. Colleges and universities then submit a report documenting progress for a number of credits across these topic areas, which correlate to a set of points achieved. Points are totaled, and an overall score and level of achievement (Bronze, Silver, Gold, Platinum) is given.

The University is already a high-performing institution with respect to sustainability. It has implemented a number of initiatives related to staffing, communications, sustainability-related programs, curriculum, events and specific projects. The STARS Report Summary of Results for UAF shows that it is highly rated in a number of areas, including but not limited to Co-curricular Education and Research, Dining Services, Grounds, Purchasing, Coordination and Planning and Human Resources. UAF also provides significant opportunities for student involvement through the RISE Board, student positions and other programs. The Student Sustainability fee now funds the Office of Sustainability and an extensive student grant program.

UAF's STARS Report also indicates where there is opportunity to improve its sustainability performance. The SP addresses many of the gaps found in the 2011 STARS report including opportunities with respect to buildings and energy, transportation, waste, water and investment. Table 1 summarizes UAF's 2011 STARS report card performance.

TABLE 1: 2011 UAF STARS RESULTS

TOTAL SCORE	65.88 (GOLD)
EDUCATION & RESEARCH	Points Achieved/ Points Eligible
Co-Curricular Education	18.00 / 18.00
Curriculum	31.55 / 55.00
Research	26.77 / 27.00
OPERATIONS	Points Achieved/ Points Eligible
Buildings	6.13 / 13.00
Climate	2.25 / 16.50
Dining Services	6.70 / 8.50
Energy	3.02 / 16.50
Grounds	3.00 / 3.25
Purchasing	5.07 / 7.50
Transportation	4.63 / 12.00
Waste	5.79 / 12.50
Water	4.87 / 10.25
PLANNING, ADMINISTRATION & ENGAGEMENT	Points Achieved/ Points Eligible
Coordination and Planning	18.00 / 18.00
Diversity and Affordability	13.50 / 13.75
Human Resources	14.75 / 19.75
Investment	0.50 / 16.75
Public Engagement	21.10 / 31.75
INNOVATION	Points Achieved/ Points Eligible
Innovation	4.00/4.00

HELPFUL RESOURCES

- UAF Campus Sustainability Recommendations from the Chancellor's Sustainability Transition Team July 2008: http://www.uaf.edu/files/sustainability/commitments/CSTT.SustainabilityReportFinal.pdf

The University of Alaska Fairbanks is listed as one of the Top 50 Greenest Universities in America

http://www.bestcolleges.com/features/greenest-universities/

3.0 DEVELOPING THE SP

3.1 Overall Process

This SP lays the groundwork for moving UAF systematically toward sustainability. It provides an opportunity to implement a comprehensive and coordinated approach that is integrated with standard measures (metrics) of performance. It focuses attention on environmental, economic and social issues at all levels of the University and how these topics relate to University operations and programs. The SP also helps create efficiencies and consistencies among programs and provides a shared decision-making and problem-solving framework for University staff, faculty and students.

The SP is intended to be a constantly evolving rather than a static, one-time document. Figure 1 illustrates a proposed cycle of planning and action, including planning, implementing actions, monitoring progress and revising the SP– all working toward a long-term sustainability vision and mission. Built from the continuous improvement model of "plan-do-check-act," the SP starts an ongoing cyclical process aimed at long-term thinking and action for sustainability. As a result, the SP is meant to be a living document and planning process, with strategies implemented, progress toward goals measured and new strategies and actions added as previous goals are met and strategies completed.

FIGURE 1. PLAN-DO-CHECK-ACT PROCESS

3.2 SP Steering Committee and Small Group Interviews

Development of this SP included collaboration with a Steering Committee consisting of knowledgeable and interested stakeholders from across the University able to validate the inventory process, craft a vision and mission, help document existing University sustainability practices, create focus areas and goals, and develop strategies and implementation steps. The Committee represented a diversity of interest, from facilities and operations to research, student life, and curriculum. Over the course of developing the SP, the Committee met four times in workshop-style formats to achieve the following:

- Kick off the project and establish a forum for the collaborative tasks ahead;
- Recommend a vision/mission and focus areas for the SP;
- Craft goals that are uniquely suited to UAF and that will guide forward progress on sustainability; and
- Discuss strategies and actions for reaching established goals.

In addition to the SP Steering Committee meetings, the consultant team convened several small group interviews spanning across a variety of University departments. These interviews were designed to engage University staff, faculty and students and to give them a forum to discuss good things already happening related to sustainability at UAF as well as opportunities for improved sustainability in their unique areas of work or student life. These small group interviews covered a range of topics including curriculum, human resources, procurement and waste, transportation, buildings and facilities, and finance/investment. The many ideas generating from these interviews were particularly helpful in informing the strategies and implementation steps in the SP.

3.3 Campus Survey

The Office of Sustainability coordinated a campus-wide, two-part web-based survey to identify how the UAF community felt the University was performing with respect to sustainability and to assess current practices related to transportation (primarily commuting) for the SP's greenhouse gas inventory. Over 700 individuals across campus responded to the survey. Overall, over 90 percent of respondents were willing to help implement this SP.

Table 2 below presents a brief summary of the survey results. On the key topic of existing practices, survey results both show perceptions of what is "working well" on campus as well as opportunities for enhanced communications around the "don't know" topics. Full survey results can be found in (Appendix A).

THE SP SURVEY

Over 700 individuals responded to the campus-wide survey, including:

- Over 500 students
- Over 150 staff
- Over 60 faculty members

TABLE 2. SUMMARY OF SURVEY RESULTS

TOPIC	SURVEY RESPONSES
Sustainability Definition: Sustainability at UAF is the integration of cultural, economic, environmental, and energy components and supports projects and perspectives that have positive impacts on future resources, ecosystem health, and human wellbeing.	• 85.2% or 597 participants felt this was an acceptable definition for sustainability.
Existing Practices: *Where is UAF doing well with respect to sustainability?*	• **Doing well:** Curriculum, research, building operations, building design, lighting, grounds, transportation, waste and recycling. • **Don't Know:** Co-curricular education, carbon footprint, dining services, renewable energy, energy metering, purchasing.
Greatest Opportunities: *Where are the greatest opportunities to further sustainability at UAF?*	• Develop incentives for staff and/or students to participate. • Recognize schools, individuals or departments for accomplishments. • Hold competitions between schools or departments to see who can save the most energy/resources.
Willingness to participate in implementing the SP	• 91.3% of participants were willing to participate in implementing SP.

"As America's arctic research university, the University of Alaska Fairbanks leads the way in conducting climate change research that affects Alaska and the rest of the Circumpolar North. It's important to recognize that our state needs a lot of attention regarding the very real effects of climate change. There is no organization better poised to do that than UAF; where our world-class faculty and researchers conduct reliable research and use accurate science to identify those effects and how to deal with them."

- Brian Rogers, Chancellor UAF
January 2010

4.0 BASELINE INVENTORY AND BENCHMARKING

4.1 Greenhouse Gas Inventory: Background and Methodology

In 2010, UAF completed a greenhouse gas (GHG) inventory and footprint using Clean Air-Cool Planet's Campus Carbon Calculator, a methodology to calculate GHG (carbon) emissions specifically for colleges and universities. As part of the SP development process, the consultant team updated UAF's GHG inventory for calendar year 2013.

The University has two unique aspects that differentiate it from many other universities - a combined heat and power (CHP) plant and a water treatment plant. The CHP plant primarily burns coal and has auxiliary boilers that burn oil and natural gas[1]. The CHP plant provides electricity, steam and chilled water to campus buildings[2]. The water treatment plant provides potable domestic water to all campus buildings[3].

The University of Alaska's CHP plant provides energy and steam heat to more than 3.1 million square feet. The plant's main coal boilers were put into service in 1964. As these boilers began nearing the end of their 50-year lifespan UAF leaders began exploring different ways to provide heat and power for the future. A broad range of boiler system replacement options were examined with an eye on both fiscal stewardship and environmental responsibility. A key requirement of any upgrade is that is provides both heat and power to campus.

[1] http://www.uaf.edu/heatandpower
[2] http://www.uaf.edu/fs/services/utilities
[3] http://www.uaf.edu/fs/departments/utilities/water-plant

After extensive study, including advice from engineers and economists, and meetings with industry and environmental groups, UAF determined that a new solid fuel option made the most sense in terms of long-term operating cost and viability and reduced pollution.

The approved project will replace the existing coal boilers with two circulating fluidized bed boilers, which will burn coal and up to 15 percent biomass to generate up to 17 megawatts of power and enough steam to heat the campus. The university will retain its two existing backup diesel and gas boilers and will continue with campus energy conservation measures and exploration of renewable options. This plan will allow the university to meet its energy needs for the next 50 years and nearly eliminate the need to purchase higher cost electricity from local utilities companies.

The new, more efficient boilers will result in a marked decrease in regulated emissions:

- NOx (oxides of nitrogen) – 64 percent decrease
- CO (carbon monoxide) – 41 percent decrease
- PM (total particulates) – 65 percent decrease
- PM10 (coarse particulates, 2.5 to 10 micrometers) – 73 percent decrease
- PM2.5 (fine particulates, less than 2.5 micrometers) – 45 percent decrease
- SO2 (sulfur dioxide) – 60 percent decrease
- VOC (volatile organic compounds) – 9 percent decrease
- CO2 (carbon dioxide) – 3 percent decrease

At the time of the development of this Greenhouse Gas Emissions report, this project to upgrade UAF's current CHP plant had not yet been approved. Therefore, forecasting data in this report was based on the performance of the current plant.

A large portion of UAF's GHG emissions are from the CHP plant, accounting at the time of this report for over 80 percent of total emissions. Student and staff commuting are the next largest sources of GHG emissions, followed by air travel and purchased electricity. These emission sources and amounts were used to forecast GHG emissions for UAF, and to help form the strategies recommended in the SP.

Data reviewed to update the GHG inventory included the following:

- CHP plant carbon dioxide (CO_2) emissions
- Purchased electricity in kilowatt hours (kWh) from Golden Valley Electric Association (GVEA)
- Diesel and gasoline (gallons) used by the UAF vehicle fleet
- Estimated financed air travel miles
- Estimated commuting miles
- Landfilled waste (pounds)
- Recycling, 2011 and 2012
- Water produced by the treatment plant (gallons)
- Wastewater (gallons)
- Fertilizer (pounds)

Data for power plant emissions were obtained from the U.S. Environmental Protection Agency (EPA) Greenhouse Gas Reporting Program's Facility Level Information on GHG Tool (FLIGHT) that collects data from large emitters. Purchased electricity data were provided by the local utility, GVEA. Fleet fuel use was provided by UAF. Air travel miles were estimated based on a survey of 2011 and 2012 travel authorization (TA) forms. Commuting miles were estimated based on responses to UAF's 2013 SP survey.

Greenhouse gas emissions are typically organized into three "scopes". The purpose of scopes is to prevent double counting emissions between reporting entities. In general, Scope 1 emissions are direct emissions occurring within a designated boundary, Scope 2 emissions are those resulting from energy that is purchased by an entity but generated elsewhere (primarily electricity from power plants, and Scope 3 emissions are other indirect emissions that occur outside of the designated boundary as a result of the activities or demand generated by the entity.

For example, a power plant would report emissions from generating electricity as Scope 1, while consumers using that electricity would report their responsibility to those emissions as Scope 2. By segregating these emissions, they are allocated accurately and not added together.

4.2 GHG Baseline Inventory

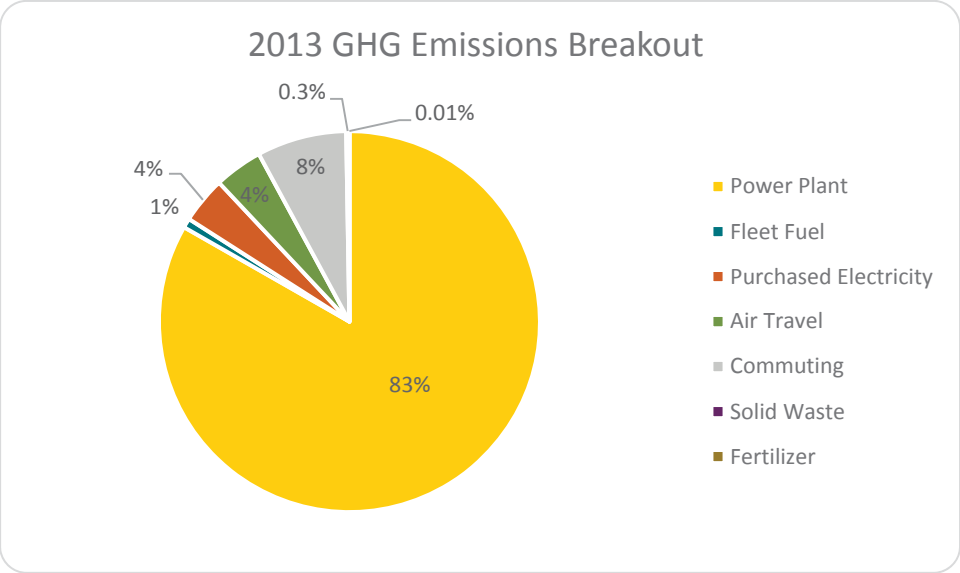
In 2013, UAF's GHG emissions totaled 155,800 metric tons of carbon dioxide equivalent (MT CO_2e). Table 3 summarizes the emission sources included in the UAF inventory with the scope for each indicated.

Figure 2 illustrates the breakout of each emission source, showing UAF's power plant accounting for over 80 percent of total emissions.

TABLE 3. 2013 GHG EMISSIONS BY SOURCE

SECTOR	SCOPE
Built Environment	
Power Plant (electricity, steam, chilled water)	Scope 1
Purchased Electricity	Scope 2
Transportation and Other Mobile Sources	
Fleet	Scope 1
Financed Air Travel	Scope 3
Commuting	Scope 3
Other	
Solid Waste	Scope 3
Fertilizer	Scope 1

FIGURE 2. 2013 GHG EMISSIONS

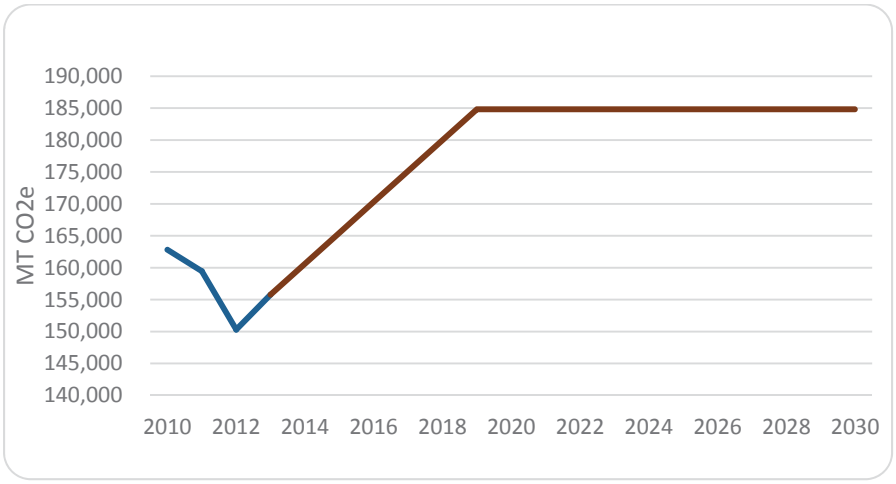


4.3 GHG Forecast

In addition to taking stock of UAF's 2013 GHG emissions, the consultant team also developed a forecast of future emissions based on projected campus growth. To do so, the team referenced the most current UAF campus master planning efforts and an ongoing space utilization study, which projects student enrollment increasing by 1,000 students in six years over a 2010 baseline. Actual enrollment has decreased since 2010, but this trend is expected to reverse in the coming years. Figure 3 shows the projected increase in GHG emissions based on enrollment increasing by 1,000 students over the 2010 baseline starting in 2014 and proceeding until 2020. After that time, it is unclear to what degree campus population will continue to increase.

The Sustainability Plan was developed before the decision to build a new coal fired power plant was made. The new plant is expected to come on line in 2016, and with increased efficiency, will likely result in reductions in total GHG emissions. Projections for these emissions will be considered in future reports

FIGURE 3: FORECAST GHG EMISSIONS



4.4 Existing Practices

In addition to updating UAF's GHG inventory, the team compiled information on UAF's existing practices related to sustainability, drawing from the 2011 STARS report, the Office of Sustainability web site, interviews and other sources.

It is important to note that UAF is not starting from scratch with respect to its sustainability efforts. These existing practices, further detailed in UAF's full AASHE STARS report[4], serve as a basis for identifying future opportunities and prioritizing strategies. For example, UAF has undertaken a number of efforts to make its operations more efficient. The University has established the Office of Sustainability, which oversees many sustainability projects and initiatives and communicates results through its website and other communication methods. Table 4 summarizes UAF's existing practices. It should be noted that most of these practices were taken from UAF's 2011 STARS report and may not reflect most recent efforts.

TABLE 4: SUMMARY OF EXISTING SUSTAINABILITY PRACTICES

[4] https://stars.aashe.org/institutions/university-of-alaska-fairbanks-ak/report/2011-08-26/

STARS REPORT CATEGORY	SUMMARY OF EXISTING PRACTICES
Education and Research	
Co-curricular Education	• There are multiple new student orientation activities, extracurricular events and peer-to-peer outreach activities on campus. New Student Orientation (NSO) incorporates an emphasis on sustainable practices in several ways including "Wilderness Welcome" - a multi-night, leave-no-trace adventure. • The University conducts sustainability outreach and student involvement through multiple outlets including its Office of Sustainability website, newsletters, volunteer opportunities, the Sustainable Campus Action Force (SCAF), Students In Free Enterprise (SIFE) and student Competitions coordinated by the Office of Sustainability. • The student RISE board approves over $250,000 annually for sustainability related projects and programs. • The University has an Integrated Lucid-backed auditing system. This includes meters in 20 buildings (including dorms and major student hubs) and screens displaying energy and water usage information. • UAF has an extensive trail system and walking maps for students and visitors. • Formerly known as the Sustainable Campus Task Force, the Sustainable Campus Action Force (SCAF) is a grassroots student group focusing on local sustainability issues. The SCAF has been responsible for many initiatives including earth day celebrations, sustainability conferences and engaging students about local food.
Curriculum	• Sustainability in the curriculum addresses the integration of cultural, economic, and environmental. Projects and perspectives that have positive impacts on future resources, ecosystem health and human wellbeing are supported. • The University offers 157 sustainability-focused courses (concentrating on the concept of sustainability) and 654 sustainability-related courses (incorporating sustainability as a course component) across 56 different departments.
Research	• There are 263 faculty members engaged in sustainability research across 70 departments. • The University's sustainability research themes include the following: o Climate change and adaptation o Culture and sustainability o Ecosystems and natural resources management o Energy efficiency and renewable and alternative energy o Food security and agriculture systems o Water quality and supply
Operations	

STARS REPORT CATEGORY	SUMMARY OF EXISTING PRACTICES
Buildings	• 2,939,076 gross square feet of building space are operated in accordance with sustainable operations and maintenance guidelines. • 2,959,548 square feet of building space are covered by an indoor air quality plan, policy and/or practices that include regular auditing or monitoring and a mechanism for occupants to register complaints. • The University has a strong green building educational program through the Cooperative Extension Service and the Cold Climate Housing Research Center (CCHRC).
Dining Services	• Dining Services has sustainability efforts, including posters outlining sustainability-related food service improvements made over the last 5 years such as recycling/composting and local food sourcing. • The University grows organic produce used in Dining Services. Students work in the community garden and gain experience with various organic methods including integrated pest management, vermiculture compost and organic fertilizers. Chemical pesticide use has been banned in greenhouses. The University has a separate integrated pest management plan. • Trayless dining halls reduce the volume of post-consumer waste and water/electricity used for washing. Reusable to-go containers are available. • UAF has a strong local focus with a policy giving advantages to organizations owned by Alaskans as well as non-profits and groups that have strong diversity. • Dining Services has partnered with local mushers to recycle protein scraps to fuel Alaskan sled dogs. Excess unprepared food is donated to the Fairbanks Community Food Bank.

STARS REPORT CATEGORY	SUMMARY OF EXISTING PRACTICES
Energy	• The University has a central Energy Management and Control System (EMCS). Most of UAF's buildings have Direct Digital Control (DDC) systems to provide building automation of Heating, Ventilation, and Air Conditioning (HVAC) and other systems. Each DDC system is centrally managed by the EMCS to provide monitoring, alarming and energy management of the buildings. • The UAF power plant is a CHP facility that provides electricity, domestic water and steam for heating. The plant is also operating a small turbine in place of a pressure relief valve to generate low pressure heating steam in winter. • Variable frequency drives have been routinely installed on projects for over 20 years. Facilities Services and Residence Life offer student, staff and faculty the opportunity to purchase green power from the GVEA Sustainable Natural Alternative Power (SNAP) program. • Utilities meter power generation, electricity and water usage and provide this information in online reports from Facilities Services, accessible to users. This provides the opportunity for future planning and decision-making. • Motion sensors have been installed across campus to reduce unnecessary lighting. Cathode ray tube (CRT) monitors have been replaced with more efficient liquid crystal display (LCD) flat panel monitors and 99 percent of campus lighting has been converted to more efficient fluorescent bulbs (an average 30 percent reduction in energy use). Vending machines have been retrofitted with Vending Miser motion sensor technology. • Facilities Services has begun testing light emitting diode (LED) technologies and converting to LED lighting on campus. Energy efficient products are included in design standards. • Mechanical air handling heating coils are installed in the Elvey building. There is a small solar panel installation at the Nenana parking lot shuttle station. • The University installed a photovoltaic (PV) system at the Sustainable Village as part of the GVEA SNAP program in the summer of 2013.
Grounds	• UAF mulch mows lawns and composts grass clippings and other landscape waste. Composted material is being applied in flower beds (food scraps, fish and bird waste, paper clippings and lawn materials). • Integrated Pest Management (IPM) and organic fertilizers are used in the greenhouse. Chemical pesticides are banned in greenhouses. Soaker hoses and trickle irrigation are used at Georgeson Botanical Garden (GBG) to reduce water usage for irrigation. • Native plants are used in the flower beds on campus to reduce maintenance and replanting.

STARS REPORT CATEGORY	SUMMARY OF EXISTING PRACTICES
Purchasing	• In UAF Procurement Policies and Procedures preference is given to purchasing products from companies that are both environmentally and socially responsible. This includes preference for recycled materials and for companies that are operating locally in a responsible way. • All purchasing at UAF is governed by the University of Alaska (UA) Procurement Policy. Under Section 7 preference is given to businesses in Alaska. The University supports local businesses whenever possible. • The University purchases locally produced coffee, baked goods, ice cream and some organic foods. Dining services uses 90 percent recycled napkins. • The University a member of the Responsible Purchasing Network, which is dedicated to socially and environmentally responsible purchasing.
Transportation	• Five of UAF's fleet vehicles are hybrids. • A fleet of mountain bikes is available for free long-term rental to students throughout the year. Tools and trained mechanics are on hand to help guide students through tuning up their personal bikes during regular office hours. • An 11-person passenger van being converted to electric. Power for heating vehicles is cycled to save energy. • All campus shuttles carry GPS trackers; displays in shelters and online show locations. Any UAF campus identification can be used to ride the Metropolitan Area Commuter System (MACS) public bus system for free due to a donation from the Chancellor. • To reduce dependence on personal vehicles on campus, UAF has a shuttle system and campus ride-share program utilizing AlterNetWays, a Certified Green Business. • Anti-idling zones have been established on campus.

STARS REPORT CATEGORY	SUMMARY OF EXISTING PRACTICES
Waste	• UAF's electronic waste is recycled through Interior Alaska Green Star or shipped to Total Reclaim. Total Reclaim recycles electronics and disposes of the hazardous waste in a safe and environmentally friendly way. • In Summer 2010 the UAF library donated several books to Fairbanks Literary Agency, keeping them from landfills. • The University hosts the Really Free Market on Saturdays from May through August. This provides the UAF community the opportunity to exchange materials that would otherwise not be used or thrown away. The left over material, including electronic waste, is then collected and recycled by UAF. • Maintenance is re-using door hardware where appropriate. Facilities Services is re-using old planters in greenhouses. Waste oil from Dining Services is used to make biofuel. • Newsletters and bids also now published electronically. • The University implements many paper-saving practices such as limiting free printing and publishing many materials, such as the UAF course catalog and schedules, online. The University replaced its 100 page hardcopy schedule with a 35-page registration guide. Additionally, UAF prints about 20,000 fewer copies per year than it did previously. • The UAF recycling program includes paper, aluminum, glass, ink, toner cartridges, batteries, clothing, batteries, coal ash and a limited amount of #1 and #2 plastics. • Construction projects are approached with sustainable practices including recycling, donating and recovering materials whenever possible. • The University manages hazardous waste as a large quantity generator, which requires Environmental Health and Safety and Risk Management to ship Resource Conservation and Recovery Act (RCRA) regulated hazardous waste from its facility every 90 days. All hazardous waste and non-regulated waste is removed from UAF every 90 days by a U.S. Environmental Protection Agency permitted disposal contractor.

STARS REPORT CATEGORY	SUMMARY OF EXISTING PRACTICES
Water	• Stormwater policy for new construction follows the Alaska Pollutant Discharge Elimination System General Construction Permit. University policy for existing buildings is governed by Fairbanks stormwater regulations. Combined, these policies attempt to eliminate pollutants such as chemicals and excess sediment in rainwater. • The plumbing shop has tested Sloan touchless water faucets. The Georgeson Botanical Garden (GBG) uses soaker hoses, trickle irrigation and mulching to reduce water use. Rainwater is captured to water plants. Stormwater is managed at GBG with porous gravel walkways, diversion ditches, directional slopes and paths. A large constructed rain garden at GBG reduces runoff. • The University has switched from chlorine to mixed-oxidant technology to disinfect water. • Building-level water consumption meters monitor where water enters each building. The meters have wire transmitters that send the data back to the water plant.
Planning, Administration, and Engagement	
Diversity and Affordability	• The Office of Multicultural Affairs and Diversity (OMAD), Student and Enrollment Services and International Programs offer support to all students. The OMAD is committed to raising awareness, respect,and understanding while striving for equal opportunities for all underrepresented individuals in UAF's campus community.
Human Resources	• Employee satisfaction surveys are conducted. • Every year on staff appreciation day UAF offers sustainability trainings. • The Early Childhood Lab School at the University of Alaska Fairbanks is committed to providing high-quality, licensed care to children of enrolled university students, faculty and staff, while providing rich observation and practicum experiences for University students studying early childhood education.

4.5 Waste Audit and Findings

As a supplement to this SP, UAF conducted a waste audit in a targeted subset of 16 campus buildings. Objectives of the waste audit included determining the current percentage of waste being diverted from landfills, identifying barriers to waste reduction and diversion and targeting opportunities for waste reduction and increased diversion. Interviews with building managers and occupants were conducted as well as a walk-through of the 16 buildings to identify current waste, recycling and materials management practices. In 2012, UAF generated 1,970,000 pounds [5] of waste (Figure 4) with a 51 percent diversion rate due to recycling, reuse and composting activities on campus.

Currently, UAF disposes of non-hazardous waste using four primary methods: landfilling, recycling, composting and reuse. The University is taking a number of steps to divert materials from landfill including recycling paper, cardboard, glass, aluminum, tin, ink cartridges and batteries. Additional practices include shipping electronic waste (e-waste) through the Interior Alaska Green Star program to Total Reclaim, where it is responsibly processed and separated into various raw materials such as plastic, glass, steel, copper and aluminum, which are then sold as commodities. Facilities Services recycles scrap metals locally and yard waste and pre-chop scraps from Dining Services are composted on campus.

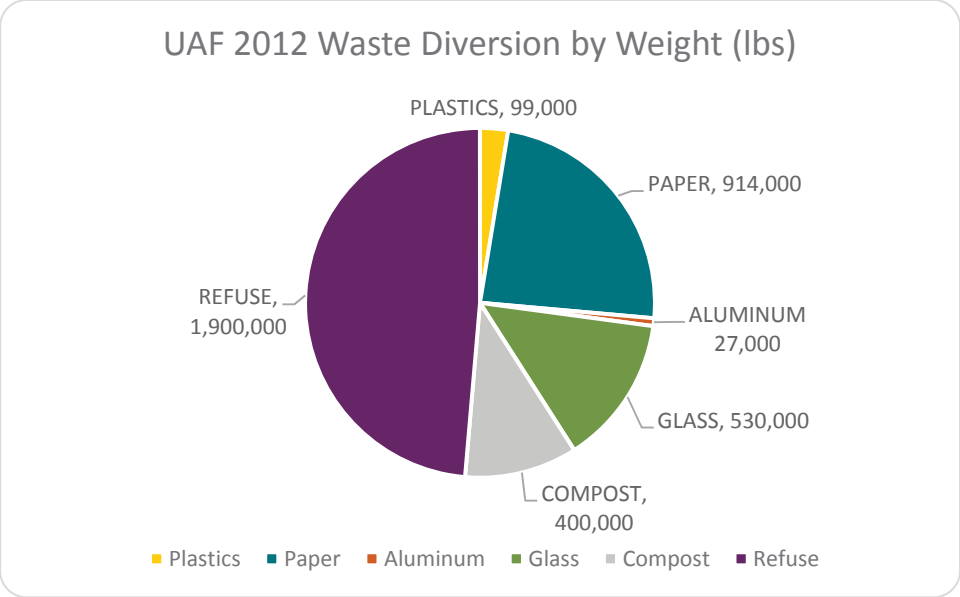
In addition to recycling and composting UAF offers a number of reuse programs. Property & Central Receiving has established a surplus warehouse for the inter-departmental reutilization of un-needed furniture and electronics. Surplus items that go unused by University employees are periodically auctioned to the public. Residence Life offers on-going student exchanges for clothing and materials. The University holds the Really Free Market, an annual yard-sale style summer event that allows Residence Life, UAF and Fairbanks community members to drop off and pick up items for free. The Athletic Department donates used, functional equipment to local schools and sports teams, and it auctions off old weight machines to the public.

During the audit, opportunities for increased waste diversion and reduction identified included:

- Source reduction
- Centralized waste and recycling collection
- Expanding composting capacity
- Campus education

[5] The recycling data used for this calculation were collected in 2012.

FIGURE 4: UAF SOLID WASTE DIVERSION BY WEIGHT



These opportunities have been integrated into the SP in waste-related strategies. The full waste audit report is included in Appendix B.

4.6 Benchmarking

To provide some context for sustainability performance compared to other institutions of higher education, the consultant team benchmarked UAF to a number of peers for which performance information was available through STARS, the American College and University Presidents Climate Commitment (ACUPCC's) Reporting System[6] or individual college and university websites. Benchmarking included GHG emissions, associated energy use and water consumption.

There are many factors that contribute to an institution's sustainability performance, and therefore benchmarks should be considered with care. The local climate's impact on heating and cooling systems, the available electricity resource mix, age of buildings and the nature of academic and research programs are just a few of the many factors that are largely outside of an institution's direct influence, and that can have a significant impact on performance measures such as GHG emissions. The fact that UAF has a CHP plant and a water treatment plant also contributes to the difficulty of making direct comparisons with other schools.

[6] http://rs.acupcc.org/

UAF is a nationally ranked research university. For this GHG report the contractor did not compare research focused building with academic focused buildings. Energy usage in research facilities was not accounted for and may be responsible for the high energy use per student when benchmarked with other universities. We anticipate that water usage in research facilities may also have skewed results.

There may be some value for future GHG reports in benchmarking emissions based on a per research dollar or per staff member basis. Another approach that may be valuable for identifying carbon emission reductions is comparing GHG emissions in buildings that house research facilities to other campus buildings.

Based on the lower energy usage and overall carbon intensity of these benchmarked institutions, UAF has the opportunity to continue to reduce the energy intensity of its buildings, and to seek lower carbon energy sources to make progress toward reducing GHG emissions.

The varying extent to which indirect emissions, like airline travel, are included in an institution's GHG inventory can also make comparisons difficult. Benchmarks for direct (Scope 1) and indirect electricity (Scope 2) GHG emissions are generally accounted for more consistently and therefore tend to be more comparable than Scope 3 emissions.

As Figure 5 and Figure 6 indicate, UAF's GHG emissions are on the higher end of the range of benchmarked schools on per student and per square foot of floor space bases. The four additional institutions selected for comparison were chosen because of their similar cold climate locations, and/or because they are considered peer schools to UAF.

FIGURE 5: SCOPE 1 AND 2 EMISSION INTENSITY PER STUDENT

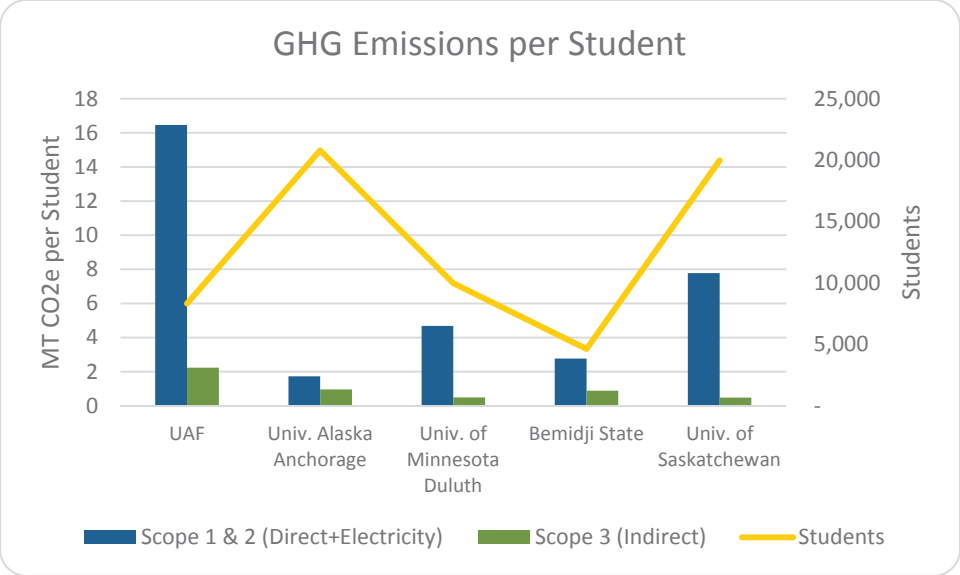


FIGURE 6: SCOPE 1 AND 2 EMISSION INTENSITY PER 1,000 SQUARE FEET

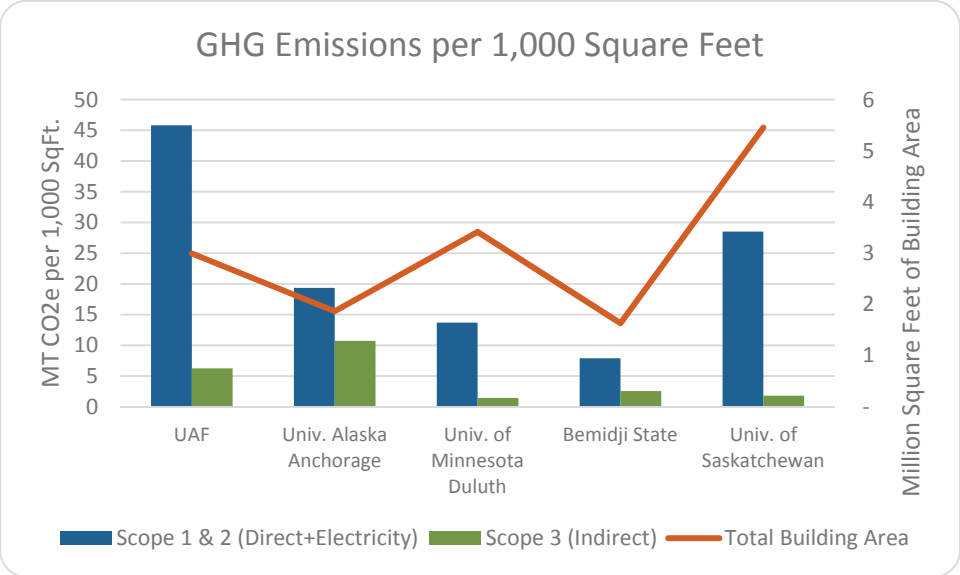
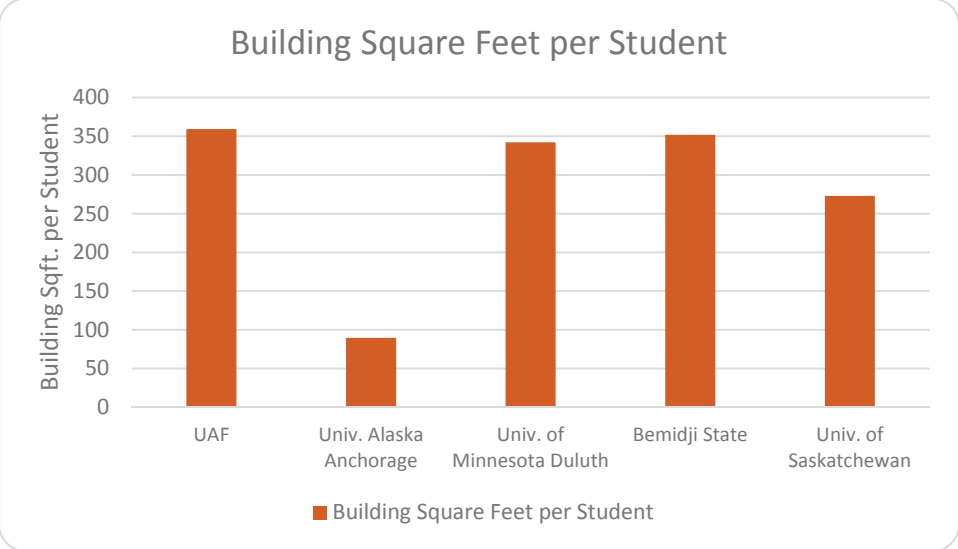


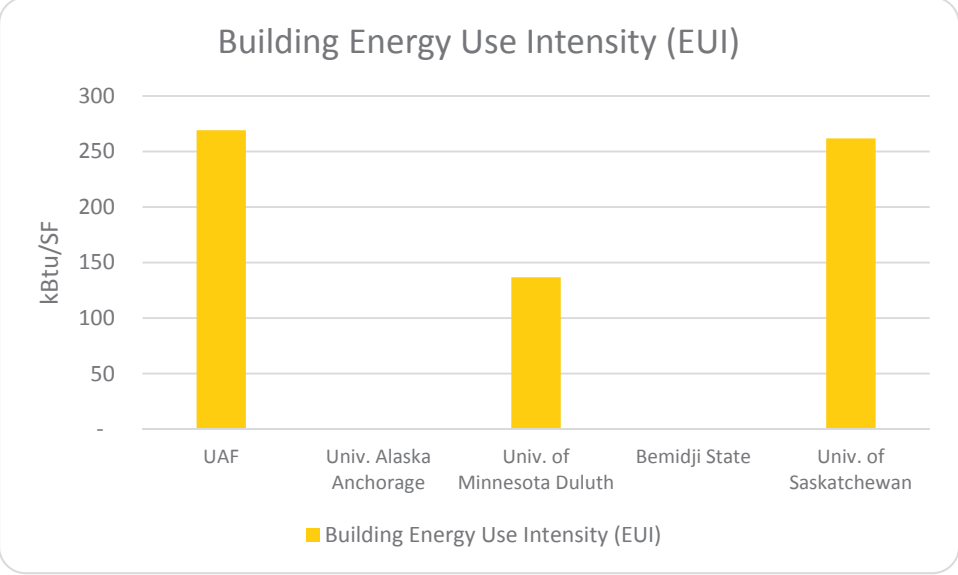
Figure 7 shows that UAF has comparable amount of building square footage per student with respect to peers, with the exception of the University of Alaska-Anchorage.

FIGURE 7: BUILDING SQUARE FEET PER STUDENT



UAF has high building energy use as shown by energy use intensity (EUI) in Figure 8a. Data on EUI for the University of Alaska-Anchorage and Bemidji State were not available.

FIGURE 8A: BUILDING ENERGY USE INTENSITY

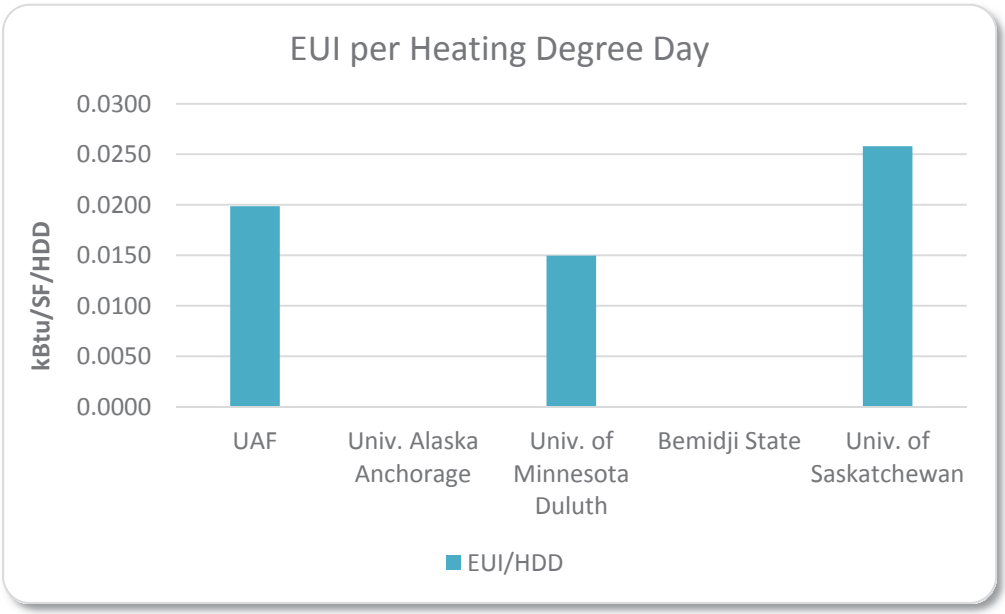


Heating Degree Day Normalizations

FIGURE 8b. EUI PER HEATING DEGREE DAY

Building energy use efficiency per heating degree day (HDD). HDDs were calculated for the year same year EUI was reported and vary by school: UAF (2013), Univ. of Minnesota Duluth (2011) and Univ. of Saskatchewan (2010). Calculations were made using a 65°F base temperature. Data on EUI for the University of Alaska Anchorage and Bemidji State were not available.

FIGURE 8B: HEATING DEGREE DAY NORMALIZATIONS

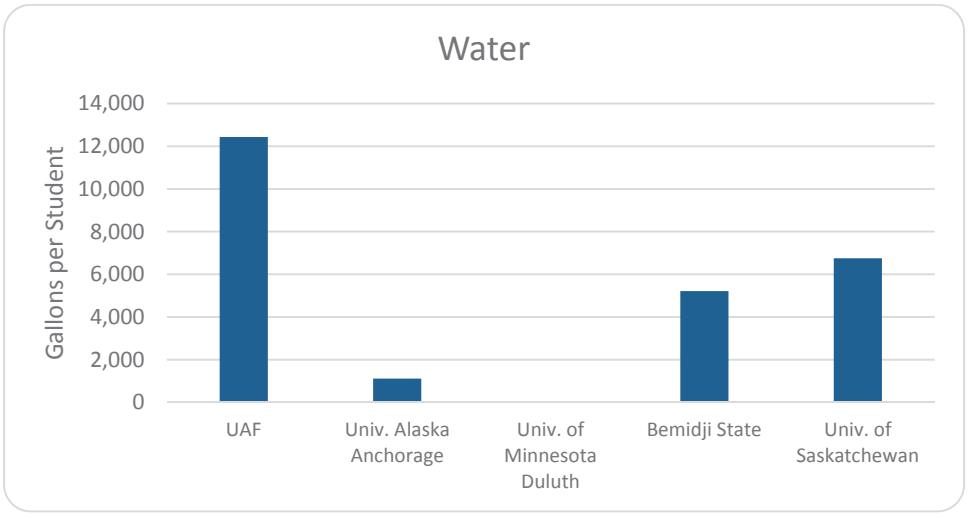


Benchmarking Rationale

To provide some context for sustainability performance compared to other institutions of higher education, the consultant team benchmarked UAF to a number of peers for which performance information was available through STARS, the American College and University Presidents Climate Commitment (ACUPCC's) Reporting System[6] or individual college and university websites. Benchmarked institutions were sought out that were located in the Circumpolar North that would represent similar climates. Additionally, universities considered a part of UAF's Standard Academic Peer Set were used including other research institutions. Benchmarking included GHG emissions, associated energy use and water consumption.

UAF also has high water use per student based on water produced at the treatment plant, as shown in Figure 9. Data for the University of Minnesota-Duluth were not available.

FIGURE 9: WATER USE PER STUDENT

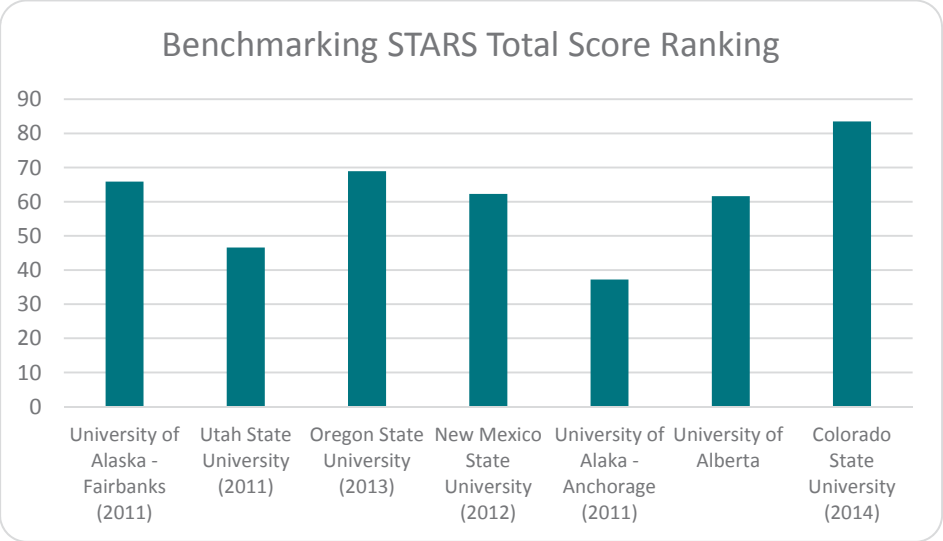


4.7 Comparing STARS Scores

To provide some context for UAF's STARS rating and performance compared other institutions of higher education, UAF was benchmarked against a number of peers and best in class institutions reporting to AASHE's STARS initiative.

As illustrated in Figure 10, UAF is a top performer among its peers. With a total of 65.88 points for its 2011 STARS report, the University is just 17.6 points away from the highest ranked institution in the nation, Colorado State University. Within the 18 specific topic areas on which universities are required to report, UAF's curriculum and research programs were especially high performing. Additionally, UAF showed noteworthy performance in building, energy, grounds and public engagement.

FIGURE 10: STARS BENCHMARKING



UAF has converted 99 percent of campus fluorescent lights to higher efficiency bulbs and ballasts, saving an average of 30 percent in energy use.

5.0 SP VISION, MISSION AND STRUCTURE

5.1 Introduction and Terminology

Central to this SP is the framework, or organization of the Plan, presented on the following pages and chapters. This framework brings together the various SP components – from its vision and mission to focus areas, goals and supporting strategies – into one cohesive plan for furthering sustainability at UAF.

The chapters of the SP are organized around four main "focus areas" that map to a number of AASHE STARS categories and incorporate terminology from other UAF strategic planning efforts: Protecting Resources, Supporting the Campus community, Closing Loops and Conserving Materials, and Shaping Alaska's Future (Figure 11; note that some STARS categories are addressed under more than one focus area). These were identified through a review of the AASHE STARS categories, a facilitated dialogue with the Steering Committee and a review of other major campus master and strategic plans.

For each of these focus areas the SP includes a number of goals, followed by detailed strategies and implementation steps to work toward the goals.

FRAMEWORK TERMS

The following definitions provide for a common and shared understanding of the framework among University students, faculty, staff and other stakeholders:

Focus Areas: Priority areas determined by the SP Executive Committee as themes under which goals and strategies are organized.

Goals: Short-term and long-term outcome statements to serve as "yardsticks" toward sustainability for each focus area.

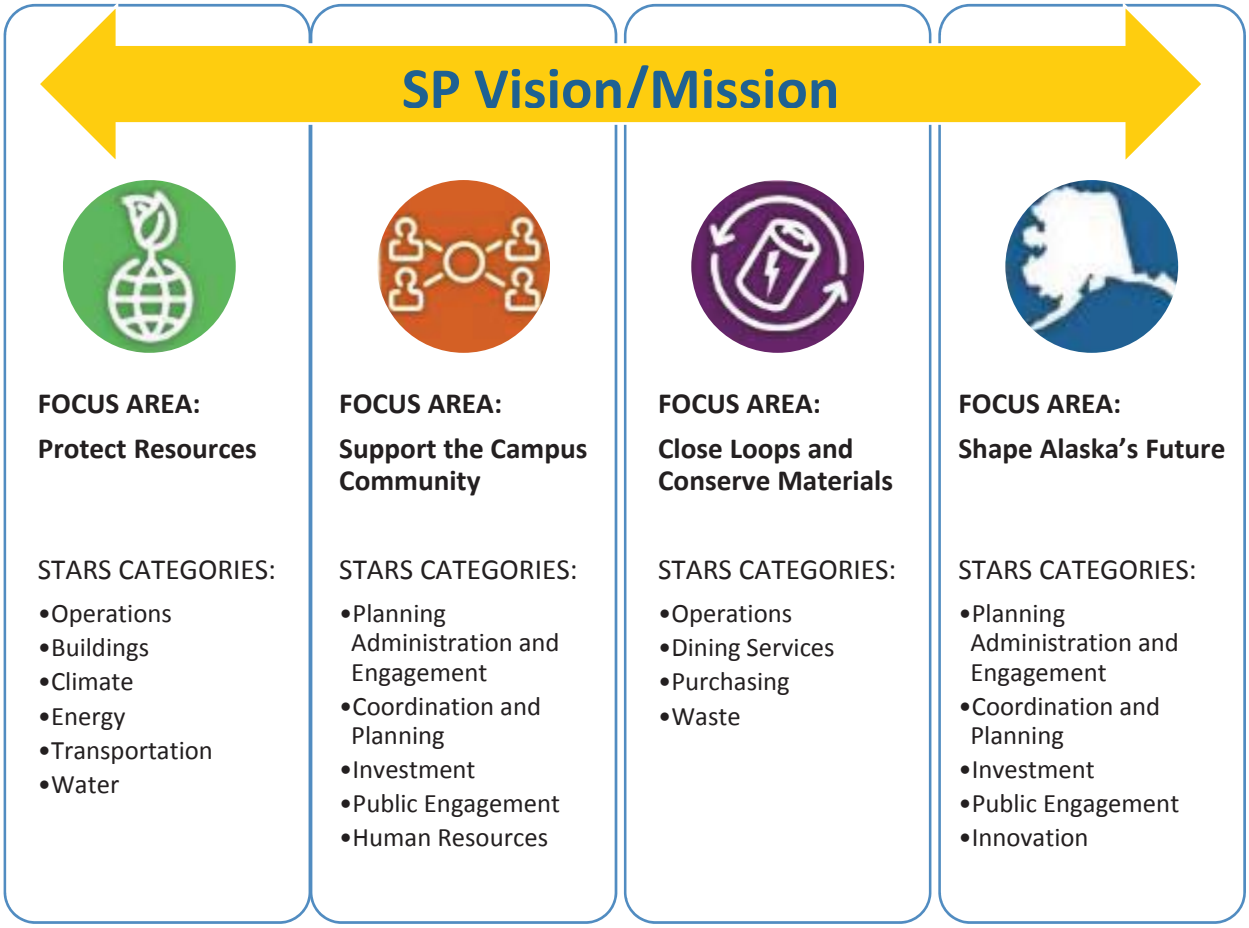
Strategies: The main paths for achieving goals – for example, energy efficiency improvements (under the Protect Resources focus area).

Implementation Steps: A specific set of steps/action items to complete each strategy.

Metrics: Quantitative measures that can be used to track and report progress toward sustainability for specific focus areas, goals and strategies.

Timeline: "Fall" refers to the time period between September 1st and December 31st; "Spring" refers to the time period between January 1st and May 31st; "Summer" refers to the period between June 1st and August 31st.

FIGURE 11. SP FOCUS AREAS AND STARS CATEGORIES



5.2 Vision and Mission Statements

The highest-level guidance for this SP is embodied in the Plan's vision and mission statements, provided below. These statements are products of dialogue and deliberation among Steering Committee members, as well as cross-referencing other UAF plans and strategic documents to help align them with past and ongoing efforts.

Vision

The defining vision for sustainability at UAF supports the SP effort as well as other University sustainability activities and collaboration with the broader community.

> *UAF inspires Alaska's diverse communities with leadership in environmental stewardship, energy and resource management, social justice and fiscal responsibility.*

This vision anchors the remaining components of the SP and provides direction for developing goals, implementing strategies, creating partnerships and involving the entire University in moving the SP forward.

Mission

Crafting a sustainability-specific mission for the University can help ensure the long-term viability of sustainability efforts at UAF, and help engage the entire campus community in working together toward shared outcomes.

> *UAF's sustainability mission is to be a model for the Circumpolar North by impacting future resources, ecosystem health and human wellbeing in a positive manner. We will do so by incorporating sustainability into research, curriculum, operations and campus life; allowing us to thrive now and be resilient in the face of a changing future.*

5.2 Goals

Goals are important components of the SP framework to more specifically articulate intended outcomes for charting progress toward sustainability. Each of the four focus areas contains a number of supporting goals. These goals will serve as yardsticks to which the University will strive, both over the near term as well as into the future, to map its progress toward sustainability and to improve its STARS score.

Goal statements in the SP embody both short-term and long-term goals. Longer-term goals are intended to keep UAF on a continual path of improvement

toward sustainability, employing new methodologies and technologies as they evolve.

Some of the SP's short-term goal statements are structured to follow a "SMART" format, ensuring that they contain specific, measurable, achievable, realistic and timely elements. This helps facilitate goals that are actionable, can be achieved over a specific time horizon and for which results can be tracked and measured. The Steering Committee expressed preference for a mix of goal types (SMART and non-SMART formats); as such, some goals in each focus area contain specific targets and timelines, while others are more open ended in nature.

S = Specific. Keeping short-term goals specific makes them more likely to be achieved. Identify who (is involved), what (to be accomplished), where (location, if applicable) and why (specific reasons or purpose of short-term goal).

M = Measurable. Establish concrete criteria for measuring progress toward each short-term goal. Answer how much, how many and/or how will we know when it is accomplished?

A = Attainable. Set short-term goals within reach to garner commitment and to increase the likelihood of success.

R = Realistic. Short-term goals should fit with the overall strategy and priorities of the organization, and the tools needed to accomplish the short-term goals should be available.

T= Time-bound. Set a time frame for each short-term goal that is measurable, attainable and realistic.

5.3 Strategies, Implementation Steps and Metrics

The strategies presented in the following chapters by focus area were developed on the basis of input from the Office of Sustainability, Steering Committee members, small group interview participants and best practices from other universities and organizations. Each focus area contains a number of strategies that align with and support goals.

Where feasible, strategies also include estimates of cost, savings and energy and resource reductions. These estimates were developed using an Excel-based cost evaluation tool that incorporates actual data from UAF, but also includes estimates for elements such as, for example, participation rates in commuting initiatives based on available research and benchmarks from other organizations. Conservative estimates have been used to avoid overstatement

of potential impacts/benefits. Where quantification is not feasible, more qualitative statements of benefits (economic, environmental, social) are provided.

It is important to recall the preceding introductions and descriptions of goals and strategies in this document. In particular, the **goals** represent the **greater desired outcomes** of the SP, while the **strategies** are **specific programs or initiatives to help reach the goals**. Strategies further contain **specific implementation steps** to complete the intended program or initiative as well as suggested **metrics to measure success.**

Many opportunities that relate to potential strategies were collected throughout the SP development process; organization and prioritization was then used to help focus efforts on the most relevant topics. This approach involved taking into consideration the overall mix of strategies and keeping a number of themes in mind such as:

- Cost effectiveness;
- Opportunities to improve UAF's STARS score;
- Existing University goals, practices and sustainability projects; and
- Leveraging existing University partnerships.

The UAF Office of Sustainability will be developing and to provide training and materials that define sustainability for members of the parties involved in strategy implementation.

5.4 Putting the Pieces Together

The following four chapters (Chapters 6.0 through 9.0) present the goals and strategies for each of the SP's four focus areas, as well as related STARS categories and credits, and metrics to measure success.

UAF's Office of Sustainability has offered student positions to approximately a dozen students to pursue interests and initiatives in alternative transportation, waste, education, and other topics.

6.0 PROTECT RESOURCES

THE ***PROTECT RESOURCES*** FOCUS AREA FOCUSES ON RESOURCE CONSERVATION THROUGH BOTH INCREASED OPERATIONAL EFFICIENCY AS WELL AS REDUCED CONSUMPTION OF RESOURCES FOR BUILDINGS, TRANSPORTATION AND THE CAMPUS AS A WHOLE.

RELATED STARS CATEGORIES:

- OPERATIONS:
  - AIR AND CLIMATE
  - BUILDINGS
  - ENERGY
  - TRANSPORTATION
  - WATER

PROTECT RESOURCES GOALS

- Reduce campus water use (indoor and outdoor) 7% per year below the 2012 baseline to achieve total reduction of by 70% 2025.
- Reduce UAF's carbon footprint by 3% per year below the 2012 baseline to achieve total reduction of 25% by 2025.
- Increase UAF's renewable energy generation by 2.5% per year (absolute, not compared to a baseline) to achieve total generation of 25% by 2025.
- Review and adapt campus design/construction standards to further integrate sustainability by 2015.
- Increase student, staff and faculty alternative transportation use by 25% by 2025 via incentives and challenges.

Note that water, energy and carbon goals may also be tracked on a building square footage basis (e.g., GHG emissions per square feet of building space).

6.1 Strategy: Increase Efficiency of Existing Buildings

DESCRIPTION

The University has made significant strides in increasing building energy efficiency and identifying conservation opportunities campus-wide. Previously implemented strategies include upgrading lighting and heating, ventilation and air conditioning (HVAC) controls as well as installing sub-meters on some campus buildings to identify water and energy use. This strategy outlines further building-specific energy savings opportunities.

FOCUS AREA: PROTECT RESOURCES

RELATED STARS SCORECARD ITEMS FOR THIS STRATEGY

- OP 8: Building Energy Consumption

MEASURES OF STRATEGY SUCCESS

- Building energy use intensity (kBtu/square foot)
- Lighting power density (watts/square foot) for individual buildings and campus wide
- Greenhouse gas emissions (MTCO2e)

IMPLEMENTATION STEPS

WHAT	WHO	WHEN
Conduct Re-commissioning and Retro-Commissioning Re- or retro-commissioning may include testing energy efficiency and thermal performance of a building's automatic control, heating, cooling and refrigeration systems. It can also include lighting controls (e.g., verify sensor calibrations) and building envelope systems.	**Facilities Services** (Conduct or contract commissioning services)	2015 - 2020
Implement Lighting Improvements Retrofit T8 fluorescent lighting with light-emitting diode (LED) lighting.	**Facilities Services**	2015-2020
Implement Envelope Improvements Leverage past building assessments to identify candidates for envelope improvements or demolition. Improvements can include adding additional insulation, upgrading to high performance windows and weatherization. Envelope commissioning could also be conducted if the following criteria are applicable: • Comfort issues exist near the perimeter of the building • Building pressurization issues exist • IAQ/mold/water infiltration issues exist • Roof replacement or other envelope work is planned (e.g. window replacement) Commissioning could include infrared testing, envelope pressurization and insulation inspection.	**Facilities Services** (Identify candidate buildings and implement improvements)	2015 - 2025

ESTIMATED COSTS AND BENEFITS

ECONOMIC IMPACTS

- Cost to implement: $22.3 million
- Cost savings (Utilities and Operations/Maintenance): $1.56 million/year
- Payback: 14.3 years

ENVIRONMENTAL IMPACTS

- Reduced electricity: 5,450 megawatt hours (MWh)/year
- Reduced steam: 30,000 thousand pounds (klb) /year
- Reduced GHG emissions: 9,000 metrics tons of carbon dioxide equivalent (MTCO2e)/year

SOCIAL IMPACTS

- Re-commissioning and envelope assessments can lead to improved indoor air quality and thermal comfort for building occupants

HELPFUL RESOURCES

- Commissioning Existing Buildings: https://www1.eere.energy.gov/femp/pdfs/OM_7.pdf
- Energy Star Equipment: www.energystar.gov/index.cfm?c=products.pr_find_es_products

FOCUS AREA: PROTECT RESOURCES

RELATED STARS SCORECARD ITEMS FOR THIS STRATEGY

- OP-5: Greenhouse Gas Reductions
- OP-8: Clean and Renewable Energy

MEASURES OF STRATEGY SUCCESS

- Exterior lighting power allowance (watts/square foot)
- Greenhouse gas emissions (MTCO2e)
- Percentage of energy from renewable energy sources

6.2 Strategy: Beyond Buildings - Reduce Campus Energy Use and Carbon Footprint

DESCRIPTION

This strategy focuses on campus-wide energy use and reaches beyond building-specific energy reductions. The University already has an energy efficient central power plant that is able to provide electricity, steam and chilled water to the entire campus. With the new coal powered central plant it is important to develop a strategy that focuses on improving system energy efficiency and reduces emissions in the near term. The strategy also includes a goal to have 25% of energy used generated from renewable sources by 2025. This goal is in-line with the State of Alaska's goal to receive 50% of its electric generation from renewable and alternative energy sources by 2025, under Alaska State Law: SCS CSHB 306.

IMPLEMENTATION STEPS

WHAT	WHO	WHEN
Upgrade Exterior Lighting A plan to upgrade exterior lighting is already underway; this strategy builds on this existing practice to replace all exterior lighting with high performance light-emitting diodes (LEDs).	**Facilities Services** (Continue lighting upgrades).	2015-2017
Expand Electric and Thermal Metering and Utility Tracking Infrastructure Expand metering throughout campus buildings to better understand where energy savings are being achieved and set specific energy reduction goals by building type. This also provides a more transparent connection between building utilities and building occupants.	**Facilities Services** (Expand metering and set goals). **Office of Sustainability** (Use expanded metering for occupant engagement).	2015-2018

WHAT	WHO	WHEN
Inventory and Prioritize Renewable Energy Application This action incorporates the AASHE STARS renewable energy credit with a focus on solar photovoltaics (PV) but also potentially technologies such as solar thermal. The calculations in this action assume that UAF is able to obtain 25 percent of their energy consumption from renewable sources by 2025. It includes an inventory of buildings for best renewable energy application, followed by implementation. Buildings without access to the campus CHP plant should be prioritized. UAF may wish to explore mechanisms such as Power Purchase Agreements (PPAs) to assist with financing.	**Facilities Services** (Conduct potential study). **Office of Sustainability** (Explore financing options).	2015-2025
Maximize Biomass Usage at the UAF Power Plant. Work towards increasing the amount of biomass being used in the UAF power plant.	**RISE Board** (Facilitate discussions and advocate) **Facilities Services**	Fall 2018
Replace Coal with Natural Gas As natural gas becomes available replace some of the coal fuel source with natural gas in power plant.	**RISE Board** (Facilitate discussions and advocate) **Facilities Services**	When a steady source for natural gas becomes available in Fairbanks.

ESTIMATED COSTS AND BENEFITS

ECONOMIC IMPACTS

- Cost to implement: $7.4 million
- Cost savings (utilities and O&M): $1.18 million/year
- Payback: 4.5 years

ENVIRONMENTAL IMPACTS

- Reduced electricity: 4,550 MWH/year
- Reduced GHG emissions: 6,000 MTCO2e/year
- Steam savings: 17,500 klb/year

SOCIAL IMPACTS

- Use more detailed metering an a learning opportunity for students
- Become a leader in renewable energy implementation in higher education

HELPFUL RESOURCES

- Exterior Lighting Power Allowance: ASHRAE 90.1-2010 Table 9.4.3B
- UAF Exterior Lighting Plan Draft 2013
- Sub-metering Case Study: http://www.bfrl.nist.gov/buildingtechnology/documents/SubmeteringEnergyWaterUsageOct2011.pdf
- Renewable Energy Alaska Project Alaska: http://alaskarenewableenergy.org/
- Alaska State Energy Policy http://legisweb.state.wy.us/InterimCommittee/2011/Alaska%20State%20Energy%20Policy%20-%202010%20HB%20306.pdf

6.3 Strategy: Manage Water Efficiently

DESCRIPTION

This strategy focuses on the efficient management of water resources on campus from both a quantity and quality perspective. This starts with being able to better track potable water consumption to identify the greatest opportunities for reducing water use. Once consumption patterns are better understood a more specific water reduction plan can be developed. Currently 1/3 of water used at UAF is for industrial processes at the CHP; this will need to be taken into consideration while working towards the following goals

IMPLEMENTATION STEPS

WHAT	WHO	WHEN
Identify Current High Water Usage Areas Identify high water usage areas and locations for additional meters and water savings.	**Facilities Services** **Office of Sustainability** **Engineering Interns**	2015-2018
Expand Water Use Metering Utilize new and existing water meters to collect information on existing practices and develop a baseline characterization of campus-wide water consumption. Identify how and where water is being used across campus.	**Facilities Services**	2015-2018
Develop Plan for Water Reduction Use this plan to provide a path to upgrading water fixtures, addressing leaks, installing higher efficiency equipment and encouraging water conservation through awareness and incentive programs. Look at increasing cost savings on hot water and sewer.	**Facilities Services** **Office of Sustainability**	2015 - 2018
Incorporate EPA Campus Rainworks Challenge Host a school-wide challenge for developing a stormwater management plan.	**Office of Sustainability**	2015

FOCUS AREA: PROTECT RESOURCES

RELATED STARS SCORECARD ITEMS FOR THIS STRATEGY

- OP 26: Water Use
- OP 27: Rainwater Management

MEASURES OF STRATEGY SUCCESS

- Potable water gallons per square foot
- Potable water gallons per campus occupant

ESTIMATED COSTS AND BENEFITS

ECONOMIC IMPACTS

- Cost to implement: $810,000
- Cost savings (utilities and O&M): $134,000/year
- Payback: 6.1 years

ENVIRONMENTAL IMPACTS

- Reduced water consumption: 11,000 thousand gallons (kgals)

SOCIAL IMPACTS

- Use more detailed metering an a learning opportunity for students
- Learning opportunities for stewardship of water resources

HELPFUL RESOURCES

- U.S. Environmental Protection Agency WaterSense Program: http://www.epa.gov/watersense/
- U.S. Environmental Protection Agency Rainworks Challenge: http://water.epa.gov/infrastructure/greeninfrastructure/crw_challenge.cfm

6.4 Strategy: Enhance Transportation Planning with Sustainability

DESCRIPTION

This strategy is intended to decrease the number of single-occupant vehicle trips by employees and students traveling to the UAF campus. It focuses on making alternative transportation modes (particularly transit use and cycling), carpooling, ridesharing and teleworking more appealing and convenient choices for commuters.

IMPLEMENTATION STEPS

WHAT	WHO	WHEN
Engage in the 2040 Fairbanks North Star Borough MTP Attend Policy and/or Technical Committee Meetings and Open Houses for the current 2040 Metropolitan Transportation Plan update (MTP) and Transportation Improvement Plan (TIP). Provide comments on policies, alternatives, project recommendations, and strategies to support or enhance campus-area circulation, parking, and multi-modal transportation opportunities in this Plan.	**UAF Office of Sustainability** (Attend meetings, review and recommend policies, projects and strategies). **FMATS** (Develop 2040 MTP).	Fall 2014-Ongoing
Update Campus Master Plan/Circulation and Parking Plan Integrate sustainability into transportation planning, parking and circulation plans (2010 Campus Master Plan and/or the 2004 Circulation and Parking Plan) to address transportation and sustainability-related issues and topics such as the following: • Carpooling and car-sharing • Electric vehicle parking and charging • Integration of the pedestrian, bicycle and shuttle/bus systems • Bicycle circulation, safety, and amenities (e.g., parking, repair stations) • Pedestrian and skier circulation, safety, and amenities (e.g., sidewalks, ramps, lighting, emergency systems	**UAF Master Planning Committee Circulation and Parking Subcommittee** (Lead Master Plan development).	Begin as early as 2015 but no later than 2017

FOCUS AREA: PROTECT RESOURCES

RELATED STARS SCORECARD ITEMS FOR THIS STRATEGY

- OP 21: Support for Sustainable Transportation

MEASURES OF STRATEGY SUCCESS

- Percentage of trips to/from and within campus using alternative modes

WHAT	WHO	WHEN
Explore Bicycle Friendly University Assessment/Designation Establish an inter-departmental team to assess Bicycle Friendly University Designation from the League of American Cyclists. If UAF is ready, begin to develop an application to apply for designation. Otherwise, follow the Quick Assessment process to pursue designation at a later time: http://bikeleague.org/bfa/quick-assessment/university	**Office of Sustainability** **UAF Transportation Services and Facilities Services** (Support application/assessment).	Spring 2015
Initiate a Shuttle Circulation and Parking Maximization Study Initiate a parking survey/study to evaluate employee, student, and visitor parking needs and identify opportunities to maximize efficiency and/or reduce parking demand.	**UAF Transportation Services and Facilities Services** (Support study development as funding is provided). **UAF Bursar's Office and Police Department**	Spring 2015
Encourage Bicycle and Pedestrian Improvements Encourage continued construction of bike, pedestrian, and ski routes, trails, and improvements identified in the 2010 Campus Master Plan (e.g., campus greenway trail extensions, pedestrian spine along Yukon Drive, and walkway widening).	**UAF Master Planning Committee** (as part of Circulation and Parking Plan update).	Ongoing
Advocate for Bicycle and Pedestrian Improvements to/from Campus and Develop a Bicycle Accommodation Policy Advocate for construction of improvements identified in FNSB and other regional transportation and corridor plans that enhance pedestrian and bicyclist access to campus (e.g., sidewalk on the south side of College Road, and restriping College Road to provide bicycle lanes).	**Fairbanks Metropolitan Area Transportation System, and Fairbanks North Star Borough,** **UAF Transportation Services and Facilities Services** (Coordinate campus connections).	Ongoing
Advocate for Transit Service Improvements Advocate for construction of improvements identified in FNSB and other regional transportation and corridor plans that enhance transit service to campus (e.g., installation of bus pullouts along College Road, increased evening and Sunday service on Blue and Red lines, and adding benches and shelters to key stops).	**Fairbanks Metropolitan Area Transportation System, and Fairbanks North Star Borough.** (Lead engineering and construction). **UAF Transportation Services and Facilities Services** (Coordinate campus connections).	Ongoing

Collaborate on Bicycle Sharing Program Continue to manage, support the Green Bike Sustainability program to provide free or low-cost rental bicycles to students and explore opportunities to collaborate with a bike share service.	**UAF Office of Sustainability** (Continue campus bicycle program).	Ongoing

COSTS AND BENEFITS

ECONOMIC IMPACTS

- Cost to implement (to UAF): $300,000
- Cost savings (annual fuel savings for commuters): $72,000
- Payback (to UAF): 12 years

ENVIRONMENTAL IMPACTS

- Reduced GHG emissions: 100 million MTCO2e (total through 2030)
- Air quality benefits

SOCIAL IMPACTS

- Personal commuting miles reduced by 342,000 miles annually
- Health benefits/physical fitness from active transportation modes (e.g., walking, bicycling, skiing)
- Enhanced bicycle and pedestrian safety and convenience
- Marketing Office of Sustainability and publicity/recognition as a bicycle-friendly campus

HELPFUL RESOURCES

- Fairbanks Metropolitan Area Transportation System
- 2040 Metropolitan Transportation Plan Update: http://fmats.us/programs/metropolitan-transportation-plan/
- Transportation Improvement Plan: http://fmats.us/programs/tip/
- College Road Corridor Study: http://fmats.us/collegeroad/
- Fairbanks North Star Borough: http://www.fnsb.org
- Long Range Transit Plan : http://www.co.fairbanks.ak.us/Transportation/LongRangeTransitPlan.pdf
- League of American Bicyclists
- Bicycle Friendly University Program : http://bikeleague.org/content/universities
- University Quick Assessment : http://bikeleague.org/bfa/quick-assessment/university
- United States Department of Transportation
- Bicycle and Pedestrian Accommodation Policy: http://www.fhwa.dot.gov/environment/bicycle_pedestrian/overview/policy_accom.cfm

6.5 Strategy: Enhance Commuting Choices in Fairbanks

DESCRIPTION

This strategy is intended to decrease the number of single-occupant vehicle trips by employees and students traveling to the UAF campus. It focuses on making alternative transportation modes - particularly transit use, cycling, carpooling, ridesharing, and teleworking - more appealing and convenient choices for commuters.

FOCUS AREA: PROTECT RESOURCES

RELATED STARS SCORECARD ITEMS FOR THIS STRATEGY

- OP 19: Student Commute Modal Split
- OP 20: Employee Commute Modal Split

MEASURES OF STRATEGY SUCCESS

- Total on-campus bicycle and pedestrian improvements (total number or length of new/improved segments)
- Green Bike program participation levels
- Participation rates in parking and circulator shuttle surveys

IMPLEMENTATION STEPS

WHAT	WHO	WHEN
Develop Bicycle Commuter Guidebook Develop a guidebook that identifies on-campus facilities and infrastructure for bicycle commuters including shower facilities, lockers, and bicycle parking/storage options.	**UAF Office of Sustainability** (Lead creation of guidebook.) **UAF Transportation Services and Facilities Services** (Support guidebook development).	Spring 2015
Conduct Teleworking and Ridesharing Focus Groups Conduct a series of focus groups with current teleworkers and supervisors of teleworkers to discuss current telecommuting policies, what is working well and areas for improvement. Conduct similar focus groups for carpoolers.	**UAF Office of Sustainability** (Convene focus groups). **UAF Human Resources** (Help identify focus group participants and facilitate).	Spring 2015
Draft Teleworking Policy Draft and adopt a teleworking policy for campus employees.	**UAF Human Resources and Staff Alliance Group** (Review, refine, and adopt policy).	Spring 2015

WHAT	WHO	WHEN
Create Incentives Program Develop incentives to increase participation in alternative transportation programs including but not limited to guaranteed ride home options, preferred parking options, and/or other discounts/stipends.	**UAF Human Resources and Transportation Services** (Support incentive development).	Spring 2015
Establish a Ridesharing Program Website Establish a Rideshare Service website to make it user friendly to find a carpool matches and to reflect the range of incentives offered. Integrate other apps/software (e.g. Hitch).	**UAF Human Resources and Transportation Services** (Create web site).	Fall 2015
Develop a Commuting Choices Employee Bulletin Develop and distribute an informational website/bulletin/guide about different commuting options for employees, including the bicycle commuter guide, teleworking policy, ridesharing program, and other opportunities.	**UAF Human Resources and Transportation Services** (Develop and distribute bulletin).	Fall 2015
Conduct a Bike/Ridesharing Marketing Campaign Conduct marketing campaign to encourage student and employee participation and enrollment in campus Bikesharing and Ridesharing programs. Methods might include online and print ads, flyers, a “meet your match” event, and prizes.	**UAF Marketing and Communications** **Staff Alliance and Associated Students** (Help create and disseminate information). **UAF Transportation Services**	Fall 2015
Explore Vanpool Options Conduct workshops to explore options for a shared vehicle/vanpool service in conjunction with other regional partners.	**UAF Office of Sustainability** (Organize and facilitate workshop). **UAF Transportation Services and Facilities Services**, **Fairbanks DOT, FNSB Transportation Department, FMATS and other interested parties** (Participate in workshop).	Fall 2015

ESTIMATED COSTS AND BENEFITS

ECONOMIC IMPACTS

- Cost to implement: $30,000
- Cost savings (annually to commuters in fuel savings): $57,000
- Payback: Immediate

ENVIRONMENTAL IMPACTS

- Reduced GHG emissions: 100 MTCO2e per year
- Air quality benefits

SOCIAL IMPACTS

- Reduction of 305,000 personal vehicle miles per year
- Improved safety and convenience for bicyclists
- Health benefits/physical fitness from active transportation modes (e.g., walking, bicycling)
- Enhanced opportunities for interaction and community-building
- Increased flexibility to reduce stress and time associated with long commutes

HELPFUL RESOURCES

- University of Alaska Rideshare Service website: http://alternetrides.com/zz_list_sponsor_dest_N.asp?Sponsor=5132696&GK=98427983&width=1920&height=1169
- UAF Parking Plan 2004: http://www.uaf.edu/files/mastplan/2004-01%20UAF%20Circulation%20and%20Parking%20Plan.pdf
- FMATS Non-motorized transportation Plan: http://fmats.us/wp-content/uploads/2012/08/fmats-nmtp-2012.pdf
- FMATS Bikeways Map http://www.co.fairbanks.ak.us/CommunityPlanning/bikeways.pdf
- FNSB Comprehensive Recreation Trail Plan 2006: http://co.fairbanks.ak.us/parksandrecreation/Forms/Trails/TrailsCompPlan.pdf
- UAF Online Trail Maps: http://www.uaf.edu/fs/northcampus/trailmaps/

7.0 SUPPORT THE CAMPUS COMMUNITY

THE ***SUPPORT THE CAMPUS COMMUNITY*** FOCUS AREA FOCUSES ON INTEGRATING SUSTAINABILITY INTO UNIVERSITY CURRICULUM, ENGAGING THE CAMPUS COMMUNITY AND GENERATING A RELIABLE STREAM OF FUNDING AROUND DEDICATED SUSTAINABILITY.

RELATED STARS CATEGORIES:

- ACADEMICS
  - CURRICULUM
- ENGAGEMENT
  - CAMPUS ENGAGEMENT
- PLANNING AND ADMINISTRATION
  - COORDINATION, PLANNING & GOVERNANCE
  - INVESTMENT
  - HEALTH, WELLBEING & WORK

SUPPORT THE CAMPUS COMMUNITY GOALS

- Further integrate sustainability into curriculum and co-curricular programming.
- Increase the availability of sustainability-focused curriculum by 20% by 2018.
- Secure a dedicated and steady stream of funding for sustainability by 2020.
- Engage 3% annually of University non-student employees in a sustainability champions program to achieve total engagement of 30% by 2025.
- Increase the transparency of and reduce “negative screens” (e.g. investments in weapons, tobacco, etc.) in endowment.

FOCUS AREA: SUPPORT THE CAMPUS COMMUNITY

RELATED STARS SCORECARD ITEMS FOR THIS STRATEGY

- EN 6: Employee Educators Program
- EN 7: Employee Orientation
- EN 8: Staff Professional Development

MEASURES OF STRATEGY SUCCESS

- Number of staff green teams and participating members
- Number of employees receiving voluntary sustainability training
- Number of buildings participating in the sustainability challenge

7.1 Strategy: Expand Employee Engagement

DESCRIPTION

This strategy focuses on further building staff knowledge, interest and engagement in campus sustainability initiatives through use of expanded training, incentives, and other resources. A "green team" structure serves as the primary platform to develop and deliver expanded training to support employees, and the offering of incentives will help fuel additional interest and involvement.

IMPLEMENTATION STEPS

WHAT	WHO	WHEN
Organize staff "green teams" Work with building coordinators and UAF department heads to organize and convene volunteer employee "green teams". Green teams might be established around buildings or campus areas; or around specific topic areas such as energy use, waste/recycling and/or multi-modal transportation.	**UAF Office of Sustainability** (Organize green team structure, identify/recruit participants, appoint team leaders). **All UAF Staff** (Participate on green teams as desired/requested).	Spring 2015 – Launch green teams
Conduct Employee Orientation Update new employee training materials to provide additional information about UAF's sustainability goals, programs and options. Incorporate sustainability efforts into the UAF "Naturally Inspiring" branding efforts such as short videos that can be used during new employee orientation.	**UAF Office of Sustainability** (Develop curriculum). **UAF Human Resources** (Provide new employee training).	Spring 2015 – Curriculum development Fall 2015 – Implement training

WHAT	WHO	WHEN
Train Supervisors Update supervisor training curriculum/suite to provide information about UAF's sustainability goals, programs and options to help build awareness at the supervisor level so that information can be passed on to employees.	**UAF Office of Sustainability** (Develop curriculum, present as needed). **UAF Human Resources** (Provide new supervisor training).	Spring 2015 – Curriculum development Ongoing – supervisor orientation
Train Employees In coordination with green teams, develop expanded semi-annual training and/or professional development opportunities around sustainability topics and practices (formal seminars or presentations, or informal lunch-and-learn or roundtable discussions about sustainability initiatives and ideas). Include guest speakers. Incorporate training into new employee onboarding.	**UAF Office of Sustainability** (Identify dates, establish schedule of topics/ presenters). **UAF Human Resources and Communications** (Publicize training opportunities, onboarding).	Semi-annual, begin Fall 2015
Expand Sustainability Grant Opportunities Expand opportunities for staff to submit proposals for projects that enhance campus sustainability (pending any new funding sources, staff do not pay sustainability fee)	**UAF Office of Sustainability** (Lead program review and recommend enhancements).	Fall 2015 – Pending new funding sources
Continue Holding the Green Carpet Awards Annually host sustainability awards event to recognize excellence in sustainability contributions to UAF.	**UAF Office of Sustainability** (Develop proposal for revised selection criteria for existing staff awards and/or new staff sustainability award). **UAF Chancellors and President's Offices** (Consider award criteria revisions).	Fall 2015

ESTIMATED COSTS AND BENEFITS

ECONOMIC IMPACTS

- Cost to implement: Additional costs annually for awards, training, meeting and marketing materials
- Cost savings (utilities and O&M): $79,000
- Payback: Immediate

ENVIRONMENTAL IMPACTS

- Reduced electricity annually: 320,000 kWh
- Reduced water annually: 1,000 kgals
- Reduced GHG emissions annually: 1,400 MTCO2e

SOCIAL IMPACTS

- Stronger knowledge base about campus sustainability efforts
- Increased professional development and training opportunities
- Enhanced leadership and interest around sustainability
- Greater employee recognition for sustainability contributions

HELPFUL RESOURCES

- Green Teams Manual – Engaging Employees in Sustainability: http://www.neefusa.org/pdf/greenbiz-reports-GreenTeams.pdf
- University of Texas Maverick Office Green Teams: http://www.uta.edu/sustainability/initiatives/administration-outreach/green-team.php
- Duke University Green Team Starter Resources: http://sustainability.duke.edu/action/greenworkplace/greenteam.html
- UAF Green Carpet Awards Program www.uaf.edu/sustainability

7.2 Strategy: Support Students: Curriculum and Co-curricular Initiatives

DESCRIPTION

This strategy focuses on further integrating and formalizing sustainability in the curriculum at UAF. It also addresses sustainability co-curricular activities and programs.

The strategy is built on recommendations by faculty and students provided while developing this Plan, best practices from other colleges and universities and as outlined by AASHE in the STARS framework and related training materials.

Higher education has a key role to play in helping society move to a sustainable future, including the following activities:

- Developing curriculum that examines how we shape a more sustainable world
- Preparing students for living sustainably both professionally and personally
- Explicitly helping students more deeply understand the interactions, interconnections, and consequences of actions and decisions.

Furthermore, AASHE indicates the role of higher education includes finding new ways to educate students differently – changing the pedagogy by using the campus and community as a living context for sustainability education. Thus, this curriculum and co-curricular strategy is linked to every other strategy in this Plan because the educational experience of students is a function not just of what students are taught and how they are taught, but also how UAF conducts research, operates, purchases, design facilities, invests, and interacts with local communities.

Engaging the student body will be integral to the successful implementation of the SP. Engagement, however, cannot be a onetime activity – it should be continually nurtured throughout a student's time on campus to ensure they are constantly reminded of UAF's efforts and given opportunities to get involved.

FOCUS AREA: SUPPORT THE CAMPUS COMMUNITY

RELATED STARS SCORECARD ITEMS FOR THIS STRATEGY

- AC1-AC8: Curriculum
- EN1-EN5: Campus Engagement

MEASURES OF STRATEGY SUCCESS

- Number of sustainability-focused courses: sustainability is the main focus of the course or a course that examines an issue through the lens of sustainability
- Number of sustainability-related courses: sustainability is incorporated as a module or unit
- Enrollment in sustainability-focused or -related courses
- Student participation in sustainability-focused or -related events
- Student sustainability literacy

IMPLEMENTATION STEPS: CURRICULUM

WHAT	WHO	WHEN
Identify Faculty Champions and Convene Curriculum Working Group This core working group would regularly convene to develop learning outcomes, create minor requirements and develop assessment methodologies.	**RISE Board Curriculum Subcommittee** **Faculty Senate**	Spring 2015
Develop Learning Outcomes for Sustainability This includes specific outcomes in terms of knowledge and professional competencies.	**RISE Board Curriculum Subcommittee**	Spring 2015
Identify Current Courses Suitable for Sustainability Minor Refer to the inventory of UAF courses completed for AASHE STARS/review additional courses suitable for a minor.	**RISE Board Curriculum Subcommittee**	Spring 2015
Develop an Organized Schedule of Sustainability Courses This could be a designator in the current course catalog.	**Faculty Senate**	Fall 2015
Develop a Sustainability Minor with Cafeteria of Courses Identify specific courses and requirements.	**RISE Board Curriculum Subcommittee**	Fall 2015
Identify Incentives and Awards for Innovation in Teaching Expanded incentives such as awards, time off, course releases, salary adjustments, continued grants from the RISE Board, or other recognition can encourage faculty participation in sustainability curriculum.	**RISE Board Curriculum Subcommittee** **Office of Human Resources**	Spring 2016
Conduct Campus Public Meetings Meetings would be convened across campus to educate faculty about this strategy and establish Provost buy-in.	**RISE Board Curriculum Subcommittee**	Spring 2016
Develop Student Guide on Integrating Sustainability Into Skills Development This resource will help students pursuing other degrees understand how sustainability literacy can enhance career opportunities.	**Office of Sustainability**	Spring 2016
Develop an Assessment or Capstone for Sustainability Literacy Develop UAF standards and methodologies for testing student proficiency in sustainability.	**RISE Board Curriculum Subcommittee**	Fall 2016
Integrate Coursework with Hands-on Learning Use the campus as a "living laboratory", identifying and expanding opportunities for students to earn course credit for hands-on sustainability projects across campus. Continue to coordinate with Office of Sustainability project funding opportunities.	**Office of Sustainability**	Fall 2016

IMPLEMENTATION STEPS: CO-CURRICULAR

WHAT	WHO	WHEN
Integrate Sustainability Leadership into LIVE Program	**LIVE Program**	Spring 2015
Integrate Sustainability into Student Housing Handbook Students already receive orientation materials on sustainability- this would integrate sustainability into ongoing Residence Life activities.	**Department of Residence Life** **Office of Sustainability**	Spring 2015
Further Integrate Sustainability in Student Orientation Materials Include information about this SP and its strategies.	**Office of Admissions and the Registrar** **New Student Orientation**	Fall 2015
Create Sustainability Guidelines for Campus Events Include waste, energy and water use, as well as communication guidelines.	**UAF Events Office**	Fall 2015

ESTIMATED COSTS AND BENEFITS

ECONOMIC IMPACTS

- Enhancing UAF's curriculum would require dedicated faculty time to develop guidelines, standards, and assessment methodologies.
- Diversifying UAF's curriculum and co-curricular programming could increase the University's competitiveness to attract students.

ENVIRONMENTAL IMPACTS

- Students will be better equipped with skills and knowledge to practice environmental sustainability in their career and personal lives.

SOCIAL IMPACTS

- Students will be better equipped with skills and knowledge to practice sustainability in their careers and personal lives, to think in systems, and to critically reflect on linkages to and impacts on sustainability.

HELPFUL RESOURCES

- National Wildlife Federation Campus Ecology Program: http://www.nwf.org/campus-ecology.aspx
- Sustainability Curriculum in Higher education: A call to action: http://www.aashe.org/files/A_Call_to_Action_final%282%29.pdf
- Sustainable Campuses Multi-stakeholder Guide: How to effectively engage diverse stakeholders on campus in your sustainability initiatives: http://www.syc-cjs.org/sites/default/files/Multistakeholder%20guide.pdf
- Engaging People in Sustainability: https://portals.iucn.org/library/efiles/documents/2004-055.pdf

SUSTAINABILITY CURRICULUM AT UNIVERSITY OF ALASKA FAIRBANKS ADDRESSES THE INTEGRATION OF CULTURAL, ECONOMIC, ENVIRONMENTAL, AND ENERGY COMPONENTS AND SUPPORTS PROJECTS AND PERSPECTIVES THAT HAVE POSITIVE IMPACTS ON FUTURE RESOURCES, ECOSYSTEM HEALTH, AND HUMAN WELLBEING.

7.3 Strategy: Integrate Sustainability into Planning and Design

DESCRIPTION

This strategy addresses the integration of sustainability into major campus plans, as well as into building design and construction guidelines. It includes developing and implementing a comprehensive set of sustainable design guidelines for both existing buildings and new construction/renovation that reflect UAF's culture and commitment to academic excellence and social responsibility, and address energy use while reducing significant costs for operation and maintenance over the lifetime of the building. This strategy would include updating UAF's current Design Standards for opportunities to increase energy performance thresholds, as well as look beyond their current focus on energy conservation.

In new construction, there is often no significant difference in the construction cost to build a new facility designed to higher sustainable design standards than to conventional methods. For projects that do have cost impacts, the typical range is less than 5 percent of total cost. This is especially true if an integrated design process is used throughout the process. However, sustainably designed and constructed facilities can use 25 to 30 percent less energy. Evidence also exists that suggests these methods increase building value 10 to 15 percent.

The University's 2010 Campus Master Plan (CMP) already addresses sustainability in Chapter 2. It is anticipated that this Sustainability Plan will be integrated into the overall update to the CMP. There are also opportunities to further integrate sustainability into the Strategic Plan 2012-2019.

FOCUS AREA: SUPPORT THE CAMPUS COMMUNITY

RELATED STARS SCORECARD ITEMS FOR THIS STRATEGY

- OP 4: Building Design and Construction
- PA 2: Sustainability Coordination

MEASURES OF STRATEGY SUCCESS

- Energy (kBtu) and water use (kgal) per square foot of new construction and major renovation
- Number of third party-certified buildings
- Percentage of sustainable materials used by total project cost

IMPLEMENTATION STEPS

WHAT	WHO	WHEN
Create a Sustainable Design Guideline Development Team This team would develop a proposed mission and goals for sustainability performance of new buildings and major renovations.	**Facilities Services**	Spring 2015
Review Existing Building Design and Construction Best Management Practices In addition to reviewing current guidelines, also review design and construction practices that may not be documented.	**Facilities Services**	Spring 2015
Review Third-party Certification Standards as Performance Thresholds This may include recommending formal certification to a standard (e.g., LEED), or simply integrating elements of performance without requiring certification.	**Facilities Services**	Spring 2015
Develop and Adopt Sustainable Design Guidelines Amend current guidelines to incorporate sustainability into design and construction practices. Include renewable energy and amend specific energy performance targets.	**Facilities Services**	Spring 2016
Integrate Sustainability into Campus Master Plan Update It is anticipated this Plan will become part of the updated CMP.	**Master Planning Committee (MPC)**	As CMP is updated
Integrate Sustainability into Strategic Plan 2012-2019 Update This includes opportunities to align this Plan's vision, mission, and goals with those of the Strategic Plan.	**Office of the Provost**	As Strategic Plan is updated

ESTIMATED COSTS AND BENEFITS

ECONOMIC IMPACTS

- Cost to implement: $100,000
- Cost savings (Utilities and Operations/Maintenance): $153,000
- Annual Operations/Maintenance: $80,500
- Payback: 2.3 years

ENVIRONMENTAL IMPACTS

- Reduced electricity: 50,000 kWh
- Reduced steam: 10,000 klb
- Reduced water: 100 kgal
- Reduced GHG emissions: 1,500 MTCO2e

SOCIAL IMPACTS

- High performance buildings can lead to improved indoor air quality, thermal comfort and associated occupant productivity.

HELPFUL RESOURCES

- US Green Building Council: www.usgbc.org
- University of Minnesota Sustainable Design Guide: www.sustainabledesignguide.umn.edu/
- University of Connecticut Sustainable Design Guide: www.masterplan.uconn.edu/images/SDG.pdf
- Oregon State University Sustainability in Construction Standards: http://oregonstate.edu/sustainability/green-building
- Harvard Green Building Standards and Checklist Tool: http://www.energyandfacilities.harvard.edu/green-building-resource/green-building-tools-resources/harvard-green-building-standards
- Penn State University Strategic Plan (references environmental sustainability): http://strategicplan.psu.edu/StrategicPlancomplete.pdf
- Green Building at University of Manitoba: http://umanitoba.ca/campus/physical_plant/sustainability/operations/422.html
- UAF Strategic Plan: http://www.uaf.edu/strategic/

7.4 Strategy: Increase Transparency in Investment

FOCUS AREA: SUPPORT THE CAMPUS COMMUNITY

RELATED STARS SCORECARD ITEMS TO THIS STRATEGY

- PA 13: Committee on Investor Responsibility
- PA 14: Sustainable Investment
- PA 15: Investment Disclosure

MEASURES OF STRATEGY SUCCESS

- Percentage of endowment with negative investment screens (e.g., weapons, tobacco, etc.)
- Percentage of endowment that is transparently shared with the campus community

DESCRIPTION

This strategy focuses on increasing the transparency of the University of Alaska system endowments. These endowments are currently managed and invested by the University of Alaska Foundation, a private non-profit corporation operated as a public foundation. The Foundation Board of Trustees sets investment policy for the UA system's Consolidated Endowment Fund.

The University's Land Grant Endowments consist of the Endowment Trust Fund, which is codified in Alaska Statute 14.40.400, and its companion Inflation Proofing Fund. The source of the funding consists of income from the sale or lease of land granted to the university by an Act of Congress approved January 21, 1929, other gifts, bequests and funds dedicated to the purposes of the Endowment Trust Fund by the Board of Regents. The Foundation Pooled Endowment Fund includes endowment and similar funds contributed to the foundation that do not have specific investment restrictions. Earnings from the Pooled Endowment Fund are primarily for the support of the UA system, subject to donor imposed restrictions.

The University of Alaska Foundation makes a list of all holdings available to trustees and senior administrators on a password-protected website. A list of asset allocation and external managers is available to the public and is sent upon request.

IMPLEMENTATION STEPS

WHAT	WHO	WHEN
Create a UA system-wide Coalition Identify and bring together stakeholders from UAS, UAA and UAF to identify institutional goals for sustainable investments.	**Office of Sustainability** **Development Office**	Fall 2014
Establish Committee on Investor Responsibility Foster dialogue on investment decisions. Include faculty, staff, students, alumni, trustees, other parties.	**Office of Sustainability** **Development Office** **UA Foundation Office**	Fall 2015
Develop Sustainable Investment Recommendations • Increased transparency in fund holdings (e.g., campus web site) • Investments in sustainable industries • Sustainability performance of funds • Investment manager consideration of sustainability factors • Guidelines for donors who want to invest in sustainability-related options • Shareholder resolutions and proxy voting	**Office of Sustainability** **UA Foundation Office**	Spring 2016
Present Recommendations to Foundation Trustees Include recommendations and draft policy statement.	**Office of Sustainability** **UA Foundation Office**	Winter 2016

HELPFUL RESOURCES

- Sustainable Endowments Institute: http://www.endowmentinstitute.org/
- Principles for Responsible Investment: http://www.unpri.org/
- University of Wisconsin Trust and Investment Policies: http://www.uwsa.edu/bor/policies/rpd/rpd31-13.htm
- Stanford University Statement on Investment Responsibility: http://apir.stanford.edu/stanford_statement
- Endowment Ethics: http://www.endowmentethics.org/

7.5 Strategy: Develop Sustained Funding for Sustainability

FOCUS AREA: SUPPORT THE CAMPUS COMMUNITY

RELATED STARS SCORECARD ITEMS TO THIS STRATEGY

- N/A

MEASURES OF STRATEGY SUCCESS

- Dollars of sustained annual funding

DESCRIPTION

With the pending future expiration of the sustainability fee, UAF has many options available to fund its sustainability initiatives – in addition to renewing this fee. Some of these sources can be used as one-time alternative sources for funding projects (such as federal grants), while others could be used to seed a revolving green loan fund – a mechanism for providing sustained funding for campus sustainability projects. Some of these major funding tools are summarized below and range from government grants and revolving greenfunds to loans, leases and tax credits.

A helpful resource for funding campus sustainability is the National Association of College and University Business Officers (NACUBO's) Financing Sustainability on Campus[7], the first comprehensive report for business officers who are seeking a clear explanation of a wide variety of financial tools and programs that can be used to promote sustainability on campus.

Revolving Green Loan Funds: These funds have become frequently used tools for funding campus sustainability projects. They offer flexibility and the benefit of supporting student engagement in sustainability. Essentially, these funds are self-replenishing pools that use interest and principal payments of outstanding loans to issue new loans. Some issues to address include how the fund will be seeded, how the fund and loan recipient will split returns, composition of the administering authority, rules governing administration, and the fund's legal status.

At colleges and universities with such funds, sources of funding have included:

- General operating budget
- Alumni donations
- Efficiency/conservation savings
- Cash reserves
- Capital budget
- Endowment investments
- Student government funding
- Student green fees
- Utility budgets
- Utility rebates
- Donation from an outside foundation/organization
- Funding from a campus environmental committee
- As an award from state energy-efficiency program

[7] http://www.nacubo.org/Products/Publications/Sustainability/Financing_Sustainability_on_Campus.html

Endowments: College and University endowment funds can be used to fund sustainability on campus and can be repaid through project income or savings. UAF may be able to explore options for setting aside a portion of annual endowment spending specifically for sustainability to provide a stable and predictable budget for carrying out sustainability projects.

Energy Performance Contracting: Energy performance contracting is a valuable financing tool for campuses whereby the energy services company performing the on-campus energy assessments and identifying efficiency and conservation opportunities is compensated through shared cost savings from identified projects.

Gifts: Alumni, corporate, and/or student gifts can be earmarked for specific sustainability projects on campus.

Federal Grants, Loans, Cooperative Agreements, and Partnership Programs: While federal funding opportunities change from year to year and between administrations, there are typically several opportunities for funding higher education sustainability initiatives. The U.S. Department of Energy and Environmental Protection Agency both offer several funding opportunities in the form of grants, loans, cooperative agreements, and partnership programs that address energy efficiency, renewable energy, pollution prevention, and other topics. The U.S. Department of Agriculture provides grants to colleges and universities pursuing research or education programs focused on agricultural projects related to sustainability. Both the Higher Education Opportunity Act and the Energy Independence and Security Act provide funding support for higher education institutions, although funding has varied based on congressional appropriation actions. The web site www.grants.gov is a helpful tool in researching federal grant funding opportunities from year to year.

National Science Foundation (NSF): The NSF's Science, Engineering, and Education for Sustainability (SEES) initiative supports interdisciplinary research and education related to sustainability. With a wide range of grants and assistance programs, SEES aims to: 1) support interdisciplinary research and education that can facilitate the move toward global sustainability, 2) build linkages among existing projects and partners and add new participants in the sustainability research enterprise, and 3) develop a workforce trained in the interdisciplinary scholarship needed to understand and address the complex issues of sustainability. Sustainability Research Networks, one of the programs under SEES, engages and explores fundamental theoretical issues and empirical questions in sustainability science, engineering, and education that will increase understanding of maintaining and improving the quality of life for the nation within a healthy earth system. The goal of the Sustainability Research Networks competition is to link scientists, engineers, and educators at existing institutions, centers, and networks and also develop new research efforts and collaborations. Finally, Sustainable Energy Pathways calls for innovative,

interdisciplinary basic research in science, engineering, and education by teams of researchers for developing systems approaches to sustainable energy pathways based on a comprehensive understanding of the scientific, technical, environmental, economic, and societal issues.

Power Purchase and Lease Agreements: A PPA is an agreement between the owner of a power generating facility ("power provider") and a power consumer ("power purchaser") whereby the power purchaser agrees to purchase energy and/or capacity at a specified price for a specified term. PPAs are a common and important component of renewable energy projects on college and university campuses that generate power to be consumed by end users other than the project's owner. In Alaska, the Regulatory Commission of Alaska must approve PPAs.

Lease arrangements are similar to PPA arrangements in that the owner and operator of the system is not the end user of the electricity. The difference between leases and PPAs is that the lease contract involves the actual equipment and not the sale of electricity. The same advantages exist (i.e., eliminating the upfront cost barrier and attracting companies to the state with significant buying power).

Private Foundations: The Foundation Center (http://foundationcenter.org) provides an online research tool to identify private foundation funding sources suitable for campus sustainability initiatives. Some of the larger foundations include Gordon and Betty Moore, David and Lucile Packard, William and Flora Hewlett, Ford, and the Energy Foundation. The Environmental Grantmakers association (http://ega.org/) is another helpful resource for researching potential grants.

State of Alaska Funding Opportunities

Renewable Energy Fund Grant: In May 2008, Alaska's governor enacted legislation authorizing the creation of a renewable energy grant fund. The legislation recommended that the program be administered by the Alaska Energy Authority (AEA). The grant program is intended to provide assistance to utilities, independent power producers, local governments, and tribal governments for feasibility studies, reconnaissance studies, energy resource monitoring, and work related to the design and construction of eligible facilities. In order to be eligible for a grant, a project must be located within Alaska. The list of eligible technologies includes solar, wind, geothermal, hydrothermal, certain types of biomass, biogas, wave, tidal, waste heat utilization, river in-stream power, and hydropower. Also eligible are fuel cells that use hydrogen generated from an eligible renewable resource or natural gas; certain natural gas projects located in small communities; and, electricity or natural gas transmission and distribution infrastructure projects that link an eligible project to related infrastructure.

Energy Efficiency Revolving Loan Program: In June 2010, the Alaska governor enacted SB 220, an omnibus energy bill, which created several renewable energy and energy efficiency programs, including the Alaska Energy Efficiency Revolving Loan Fund Program. This program is administered by the Alaska Housing Finance Corporation (AHFC) and offers loans to schools, the University of Alaska, state government, and municipal governments for energy efficiency improvements.

In order to participate in this program, the entity requesting the loan must assess existing energy use by participating in the Retrofit Energy Assessment for Loan (REAL) process. This ensures that energy efficiency measures funded by the loan will provide savings greater than the loan payments. An investment grade audit is also required and the energy efficiency measures eligible for a loan will be determined by this audit. There is a maximum term length of 15 years and no maximum loan amount. However, loans in excess of $1.5 million require special approval.

Tax Incentives: As a tax exempt entity, UAF cannot benefit directly from tax incentives. But they can benefit from them indirectly by attracting investors willing to contribute equity in return for tax benefits. One example is the Business Energy Investment Tax Credit, providing incentives for taxpaying entities to invest in certain renewable energy technologies. This includes a 30 percent credit for solar, fuel cells and small wind; and 10 percent for geothermal, micro-turbines and combined heat and power (CHP).

IMPLEMENTATION STEPS

WHAT	WHO	WHEN
Assess Current Portfolio Assemble a team to conduct a review of and asses the current portfolio for sustainability.	**Office of Sustainability**	Spring 2015
Convene Working Group Evaluate opportunities to establish a revolving loan fund or other sustained funding source (continued/modified fees, alumni donations, operating budget).	**Office of Sustainability**	Fall 2015
Create Feasibility Study Recommend options for sustaining up to $1 million in annual sustainability program funding.	**Office of Sustainability**	Spring 2016 – Fall 2017
Apply for/Establish Funding Source Actions could include seeding revolving loan fund by applying for grants, putting the sustainability fee up for renewal or requesting funding from the general operating fund.	**Office of Sustainability**	2019 (In place when Student Sustainability Fee expires)

HELPFUL RESOURCES

- Financing Sustainability on Campus: http://www.nacubo.org/Products/Publications/Sustainability/Financing_Sustainability_on_Campus.html
- Green Revolving Funds: An introductory guide to implementation and management: http://www.aashe.org/files/documents/resources/grf_intro_guide.pdf
- Greening the Bottom Line – Green Revolving Funds: http://www.aashe.org/files/documents/resources/greening-the-bottom-line-2012.pdf
- Sustainable Endowments Institute: http://www.endowmentinstitute.org

8.0 CLOSE LOOPS AND CONSERVE MATERIALS

THE **CLOSE LOOPS AND CONSERVE MATERIALS** FOCUS AREA FOCUSES ON MANAGING THE UNIVERSITY'S WASTE STREAM AND FOOD SUSTAINABILITY THROUGH RESPONSIBLE PURCHASING AND SOURCING, SOURCE REDUCTION AND DECREASING THE OVERALL VOLUME OF MATERIALS IT SENDS TO THE LANDFILL.

RELATED STARS CATEGORIES:

- OPERATIONS :
  - DINING SERVICES
  - PURCHASING
  - WASTE

CLOSE LOOPS AND CONSERVE MATERIALS GOALS

- Source annually 3% of food (by dollars) locally for a total achievement of 30% by 2025.
- Reduce packaging for delivered goods by 15% annually to achieve 90% packaging diversion by 2022 (including packaging take back, other strategies).
- Become a net-zero waste (90% diversion) campus by 2035.

FOCUS AREA: CLOSE LOOPS AND CONSERVE MATERIALS

RELATED STARS SCORECARD ITEMS TO THIS STRATEGY

- OP 17: Waste Reduction
- OP 18: Waste Diversion

MEASURES OF STRATEGY SUCCESS

- Percent by cost of all purchases for goods that include sustainability features (e.g. made from post-consumer content, recyclable, etc.)
- Metrics for specific products (e.g., percent of paper consumed with 100 percent recycled content, percent of electronics equipment certified to a certain EPEAT level, etc.)
- Decreased total volume of purchased materials

8.1 Strategy: Reduce Materials and Purchase Responsibly - Packaging, Promotion, Purchasing

DESCRIPTION

This strategy addresses materials introduced into UAF's waste stream and contributes to the larger goal of increasing diversion rates to 90% by 2035. Specific actions UAF can take to integrate into procurement decisions are outlined including the consideration of recycled content and waste minimization in the purchasing decision-making process – along with total life cycle impacts, cost and durability.

IMPLEMENTATION STEPS

WHAT	WHO	WHEN
Conduct Procurement and Packaging Inventory Develop tracking system to record and analyze incoming materials to pinpoint unnecessary packaging. Analyze procurement records to identify long-term purchasing trends at UAF.	**Office of Sustainability** (Develop draft tracking tool). **Procurement and Central Receiving** (Track and record incoming materials. Identify trends and opportunities).	Spring 2015 (ongoing)
Develop Detailed Environmentally Preferable Purchasing (EPP) Guidelines and Tools Expand EPP procurement guidelines beyond Section 7 of the UA Purchasing Policy and integrate EPP guidelines into department purchasing. Develop a decision making tool including guidelines and criteria for selecting green products. Incorporate guidelines into the procurement process and connect the developed decision making tool with an associated tracking/accountability method for determining progress.	**Office of Sustainability** (Lead development of guidelines and tools). **Procurement** (Support development and enforce implementation). **Auxiliary, Recharge and Contract Operations** (Provide input and support for developing guidelines). **Materials Management Working Group** (Provide input and support for EPP guidelines and tools development. Coordinate across departments during implementation).	Spring 2015

WHAT	WHO	WHEN
Identify and Train Building-level Procurement Champions Work with building coordinators and department heads to identify volunteer, building-level procurement champions. Champions will be responsible for building-level implementation, education and tracking progress.	**Office of Sustainability** (Lead procurement champion program). **Facilities Services** (Provide input and coordinate with members of their building captain program). **Key Departments and Building Coordinators** (Attend meetings, implement projects, report to Office of Sustainability).	Spring 2015
Develop UAF Environmentally Preferable Policy and Labeling Develop standards for environmentally preferable products and design a reusable label to be used in campus dining & retail that communicates to consumers which products are more environmentally friendly than their equivalents.	**Office of Sustainability** (Lead development of product guidelines and design the label). **Procurement** (Lead development of product guidelines). **Dining Contractor** (Provide input for product guidelines). **Campus Retail Contractor** (Provide input for product guidelines).	Fall 2015
Integrate Responsible Material Management Practices Across Campus and into Promotional Materials and Campaigns Develop University-wide materials management guidelines. This includes material reduction initiatives for all campus promotional materials, shifting from print media to electronic campaigns, and leveraging UAF's Office of Sustainability website and social media outlets for promotional purposes. Swap out printed content for digital files distributed on flash drives that students, faculty, employees and visitors can reuse.	**Office of Sustainability** (Lead development of guidelines). **Marketing and Communications** (Assist with development and dissemination of guidelines). **Materials Management Working Group** (Provide input, support and suggestions for guidelines). **Departments/Building Coordinators** (Attend meetings, building-wide education and guidelines implementation, report progress to Office of Sustainability).	Ongoing

ESTIMATED COSTS AND BENEFITS

ECONOMIC IMPACTS

- Upfront investment costs $13,000
- Annual cost-savings due to waste minimization (not based on purchased recyclable materials) $13,000
- Payback: 1.3 years

ENVIRONMENTAL IMPACTS

- Annual reduction of 100 MTCO2e
- Waste reduction of 100 tons

SOCIAL IMPACTS

- Enhanced leadership, engagement and interest in waste reduction

Helpful Resources

- U.S. Environmental Protection Agency Waste Reduction Resources: http://www.epa.gov/epaoswer/non-hw/muncpl/reduce.htm
- National Waste Prevention Council: dnr.metrokc.gov/swd/nwpc/index.htm
- Landscape Waste Reduction Outreach Partnership: wastediversion.org/landscaper/index.html
- Pacific Northwest Pollution Prevention Resource Center's (PPRC) Product Stewardship for Manufacturers Tool: http://www.pprc.org/pubs/epr/takeback.cfm
- Responsible Purchasing Network: http://www.responsiblepurchasing.org
- ENERGY STAR: http://www.energystar.gov
- Electronics Purchasing Environmental Assessment Tool: http://www.epeat.net
- WasteSpec: http://www.tjcog.dst.nc.us/regplan/wastspec.shtml
- Conservatree: http://www.conservatree.com

8.2 Strategy: Increase Diversion Rate

DESCRIPTION

With the SP goal of 90% waste diversion by 2035, this strategy builds on the University's existing recycling, reuse and composting practices, and feedback from the SP Steering Committee during goal-setting exercises. It creates a comprehensive waste management plan that integrates responsible disposal practices into the University's daily operations.

IMPLEMENTATION STEPS

WHAT	WHO	WHEN
Convene a Waste Reduction Committee The committee should be comprised of administrators, staff and students working across campus to build and improve UAF's diversion rate. The committee will create goals and objectives, prioritize actions and monitor progress.	**Office of Sustainability** (Lead outreach and organization of committee meetings). **Building Coordinators** (Participate as members of the Waste Reduction Committee). **Facilities Services** (Support Office of Sustainability in organization and implementation). **Design and Construction** (Participate on Waste Reduction Committee). **Marketing and Communications** (Assist with disseminating information about the goals, objectives and actions identified)	Fall 2014/ Spring 2015

FOCUS AREA: CLOSE LOOPS AND CONSERVE MATERIALS

RELATED STARS SCORECARD ITEMS FOR THIS STRATEGY

OP 17: Waste Reduction

OP 18: Waste Diversion

OP 20: Electronic Waste Recycling Program

MEASURES OF STRATEGY SUCCESS

- Annual solid waste generation (tons) and cost
- Annual diversion to recycling (tons) and cost
- Annual diversion to compost (tons) and cost

WHAT	WHO	WHEN
Create Waste/Recycling/Compost Tracking Tools and Continue to Monitor Progress Build on current RecycleMania efforts, and track all materials (waste, recycling, and compost) that are disposed of in order to gain a solid understanding of waste flow and to benchmark progress as the University implements projects to increase diversion rates.	**Office of Sustainability** (Lead tool development). **Facilities Services** (Support development and lead tracking and analysis). **Building Coordinators** (Building-level tracking).	Fall 2014/ Spring 2015
Consolidate Waste and Recycling Collection Services and Collection Points When ABM's contract expires in 2016, seek a service provider (ABM or other) that will collect all materials (waste, paper and recycling) on a building level. Restructure waste and recycling collection points in buildings to centralized locations with bins for waste and all recyclable materials that are clearly labeled with contents that can and cannot be placed in respective bins.	**Office of Sustainability** (Lead implementation). **Facilities Services** (Assist with coordinating and implementation). **Vice Chancellor of Admin Services** **Building Coordinators** (Support Office of Sustainability in implementation).	Fall 2014
Expand Composting Practices Expand composting in phases. Initial composting expansion should include post-consumer food in dining facilities. Leveraging knowledge from the Murie building zero waste pilot, expand program to include composting bins in academic and administrative buildings. Integrate compostable materials such as bioplastics into purchasing guidelines.	**Office of Sustainability** (Lead implementation). **Dining Services** (Assist with developing and implementing). **Facilities Services** (Build Department capacity to handle increased compost).	Fall 2014

WHAT	WHO	WHEN
Educate Campus Community about Increased Diversion Initiatives and Practices Increase awareness of both the importance of increased diversion rate and proper disposal practices. Reinforce the message with clear signage at points of disposal and include responsible purchasing reminders at on-campus points of sale.	**Office of Sustainability** (Work with Marketing to develop campaigns). **Marketing and Communications** (Assist with development of materials and disseminating information). **Building Coordinators** (Promote educational materials and media).	Ongoing
Create University Competitions Build off of diversion rate tracking system to create building or department-level diversion rate competitions. Offer financial incentives based on tipping fee cost savings.	**Office of Sustainability** (Develop competitions). **Student Activites Office** (Assist with promoting and implementing competitions). **ASUAF** (Assist with promoting and implementing competitions). **Residence Life** (Assist with promoting and implementing competitions). **Building coordinators** (Engage building occupants in participation).	Spring 2015 (Ongoing)

ESTIMATED COSTS AND BENEFITS

ECONOMIC IMPACTS

- Upfront investment in collection point consolidation, educational signage, and expanded composting $76,000
- Annual cost savings $1,700
- Extended payback

ENVIRONMENTAL IMPACTS

- Annual reduction in GHG emission by 10 MT CO2e
- Annual solid waste reduction 20 tons

SOCIAL IMPACTS

- Enhanced leadership, engagement and interest in waste reduction

HELPFUL RESOURCES

- Standardized waste and recycling bin labeling: http://www.recycleacrossamerica.org/
- ASHEE waste resources: http://www.aashe.org/resources/resources-waste-minimization-and-recycling-campus/
- U.S. Environmental Protection Agency waste-related best management practices: http://www.epa.gov/region1/assistance/univ/bmpcatalog.html#WasteManagement

8.3 Strategy: Integrate Sustainability into Food Services

DESCRIPTION

This strategy will build off of UAF's existing efforts to purchase locally and grow food on campus, and to help move UAF toward a more sustainable food system with local, organically grown and responsibly sourced ingredients. Working toward more sustainable food services involves addressing product liability related to local producers, establishing a commitment toward sustainable food systems and developing cooperative relationships with other institutions (local farms, etc.) to spur the supply and dependability of local foods and encourage surplus processing in local economies.

IMPLEMENTATION STEPS

WHAT	WHO	WHEN
Convene Dining Services Committee This committee will spearhead efforts to seek local partnerships (beyond coffee, ice cream, etc.) and avenues for increasing the use of responsibly produced, organic, low carbon and regional foods. It will also foster conditions to increase the use and availability of such foods.	**Office of Sustainability** (Lead committee organization and meetings) **RISE Board** (Participate in meetings) **Chancellor's Student Food Committee** (Participate in meetings) **Dining Services** (Support research and identification of opportunities)	Fall 2014/Spring 2015

FOCUS AREA: CLOSE LOOPS AND CONSERVE MATERIALS

RELATED STARS SCORECARD ITEMS FOR THIS STRATEGY

- OP 6: Food Purchasing

MEASURES OF STRATEGY SUCCESS

- Percentage of food purchased regionally
- Pounds of food produced on UAF land holdings
- Percentage of organic food purchased
- Percentage of Dining Service locations offering discounts for reusable containers
- Food donation program developed
- Percentage of Zero Waste catering events

WHAT	WHO	WHEN
WHAT	**WHO**	**WHEN**
Inventory Ingredients Used in Dining Services Explore local, organic, low carbon and/or sustainably produced ingredients that could replace current ingredients used by UAF that are not sustainably produced (e.g. dairy, meat, fish, seasonal produce).	**Dining Services Committee** (Lead exploration and recommendation efforts) **Office of Sustainability** (Provide assistance with implementation) **Dining Services Contractor** (Discuss findings and implementation avenues with parent company) **Cooperative Extension** (Provide assistance with developing relationships with local producers)	Spring 2015
Develop Local Supply Network and Purchasing Cooperative Identify and collaborate with other local institutions to leverage larger purchasing influence on suppliers and producers. Invite local growers and processors to submit product information.	**Office of Sustainability** (Coordinate with local partners and Dining Services) **Dining Services Committee** (Review applications and select feasible partners)	Spring 2015
Create Zero Waste Catering Option Work to make catering zero waste at UAF. Use sustainable cleaning products, washable table lines, reusable cutlery and ensure that all packaging is made from materials that can be recycled in Fairbanks. Offer composting and recycling of all items that are not able to be reused. Publicize the zero waste catering option to individuals and departments looking to have events catered.	**Dining Services** **Office of Sustainability** **Dining Services Contractor**	Spring 2015

Create Sustainable Food Options • Use sustainability raised and harvested seafood • Increase UAF garden usage • Encourage on-site options for food preparation and cooking • Investigate organic options for cost effective replacements • Include organic options at grab and go locations	**Dining Services** **Dining Services Contractor** **Cooperative Extension**	Fall 2015
Increase Visibility in Dining • Increase signage (environmental preferable labeling) for sustainable or low-carbon food options. • Sustainability efforts in Dining Services are advertised at dining locations, on the Dining S-ervices website and on campus.	**Dining Services** **Office of Sustainability** **Dining Services Contractor** **Procurement**	Fall 2014
Integrate Sustainability Requirements Include sustainability requirements in contract negotiations with dining services company.	**Dining Services**	Fall 2015
Reduce Waste in Dining Operations • Reduce packaging and avoid the use of items not recyclable in Fairbanks • Switch to recyclable beverage containers such as aluminum • Offer discounts for using reusable containers • Switch to recyclable/compostable containers at grab and go locations • Increase composting at all dining locations • Donate excess food produced on campus • Use waste cooking oil for heating or to make biodiesel • Implement post-consumer recycling of food items and paper products contaminated with food/grease • Investigate and possibly acquire funding for an ORCA (http://www.swrl.com/images/orca_green_machine/ORCA-Sales-Presentation.pdf) • Include composting and recycling options at catered events	**Dining Services** **Office of Sustainability** **Dining Services Contractor**	Summer 2015-Fall 2015

ESTIMATED COSTS AND BENEFITS

ECONOMIC IMPACTS

- Increase support for local and sustainable food economy

ENVIRONMENTAL IMPACTS

- Reduced GHG emissions associated with food miles (decreased fossil fuel consumption, air pollution)
- Preserved genetic diversity and protection of food supply

SOCIAL IMPACTS

- Sourcing food locally raises awareness about where food comes from and how it is produced
- Studies have indicated that organic, local foods retain greater portions of nutrients
- Fostering relationships with local producers gives a stronger sense of place, relationships, trust, and pride within communities

HELPFUL RESOURCES

- Eat Local Alaska: http://akfood.weebly.com/find-alaska-foods.html
- Alaska Division of Agriculture resources for school food services professionals: http://dnr.alaska.gov/ag/ag_SchoolFood.htm

9.0 SHAPING ALASKA'S FUTURE

THE SHAPE ALASKA'S FUTURE FOCUS AREA FOCUSES ON LAYING THE GROUNDWORK FOR UAF TO MOVE INTO A SUSTAINABLE FUTURE WITH STRONG TIES TO ITS BROADER COMMUNITY.

RELATED STARS CATEGORIES:

- PLANNING ADMINISTRATION & ENGAGEMENT:
  - RESEARCH
  - PUBLIC ENGAGEMENT

SHAPE ALASKA'S FUTURE GOALS

- Establish institutional policies/incentives for sustainability by 2018.

FOCUS AREA: SHAPE ALASKA'S FUTURE

RELATED STARS SCORECARD ITEMS

- AC 9-11: Research, Support and Access
- EN 9: Community Partnerships
- EN 14: Participation in Public Policy

MEASURES OF STRATEGY SUCCESS

- The Office of Sustainability website will have a page highlighting formal partnerships and public policy development programs that advance sustainability within the community and shape Alaska's future.

9.1 Continuing Research

The University already scores well in AASHE STARS for its research dedicated to sustainability. Sustainability research at UAF addresses the integration of cultural, economic, environmental and energy components and supports projects and perspectives that have positive impacts on future resources, ecosystem health and human wellbeing. Research projects focus on climate change and adaptation; enabling communities to exist in environmentally stable ways; ecosystem management; energy efficiency and renewable energy; water quality; and food security and agricultural systems. By continuing such research, UAF is well positioned to help shape Alaska's future.

9.2 Supporting Community Partnerships

Universities with thriving sustainability programs are also actively engaging in partnerships with the communities in which they reside. UAF, for example, already has partnered with K-12 schools and with the Fairbanks Borth Star Borough (FNSB) on various projects. As shown throughout this SP, there are even more significant opportunities to collaborate with community partners, from working with federal military bases on waste reduction to coordinating on regional transportation solutions. Partnerships can be informal and short term in nature, or they may be formalized, multi-year collaborations with the aim of catalyzing local and regional sustainability.

9.3 Shaping Policy

As a prominent institution in Alaska, a thought leader and a large organization with "purchasing power", UAF is in a strong position to shape public policy with respect to sustainability. From policy that supports wise and efficient use of energy and resources to actions that help prepare the state for a changing future, UAF can continue to offer ideas and innovations to shape such future policy and legislation.

WHAT	WHO	WHEN
Identify and formally adopt policies and repository programs. This will ensure open access to all new peer-reviewed research produced by UAF faculties in a designated repository.	**Office of Sustainability** **Rasmusson Library** **Center for Research Services**	Fall 2015
Develop a campus-wide survey. This survey will be used to identify the formal partnerships and public policy development that UAF is engaged in that will advance sustainability.	**Office of Sustainability**	Fall 2015

In 2012 UAF installed its first student solar project, a 13kW solar photovoltaic system, on the Student Recreation Center.

10.0 CROSS-CUTTING THEMES

10.1 Power Plant

As noted in the GHG inventory in Chapter 2, UAF's power plant is the most significant source of emissions attributed to UAF. Power plants present great opportunities to address emissions reductions, but also great challenges. As the time of development of this SP, plans had already been initiated to upgrade UAF's power plant with continued use of coal. As a result, there were limited opportunities to address strategies directly associated with power plant emissions. This should be a topic of continued dialogue at UAF, while simultaneously addressing topics such as improved energy efficiency and deployment of renewable energy where feasible.

10.2 Communications Plan for Sustainability

Communications is a critical cross-cutting theme for sustainability at UAF. As shown in the campus survey, even with the significant efforts of the Office of Sustainability many people on campus were unaware of UAF's sustainability practices. This is not an issue specific to UAF; campuses are complex systems with faculty, staff and students all having different drivers, perspectives and motivations.

Nonetheless, effective communication is key to the success of this SP and its strategies. This will depend on developing a sustainability communications plan with multi-stakeholder focuses and channels. It should include key messages, map out stakeholders to understand their needs and perspectives and include measures of success.

CHANNELS FOR SUSTAINABILITY COMMUNICATION

- Electronic newsletters and digital signage
- Web sites and email
- Videos and radio
- Events
- Posters and flyers
- Tours
- Student leadership
- Social media
- Peer-to-peer networks and discussion groups
- Press releases
- Campaigns
- Conferences
- Trainings and orientations
- Annual reports

WHAT	WHO	WHEN
Develop Best Practice List Develop a best practices list for sustainable marketing and disseminate information via web and Cornerstone.	**Office of Sustainability** **Marketing and Communications** **CTC Marketing**	Fall 2014
Integrate Sustainability into Communications Planning Integrate sustainability into UAF's Integrated Marketing and Communication Plan as appropriate.	**Marketing and Communications**	Spring 2015
Develop Communications Plan Work with Marketing and Communications to develop a communication plan that identifies target audiences and key messages. Promote programs once the plan is finalized.	**Office of Sustainability** **Marketing and Communications**	Spring 2015
Develop Ongoing Annual Review Process and Report Create a template for an annual report that highlights successes and identifies gaps and future priorities.	**Office of Sustainability**	Spring 2015
Evaluate Progress Evaluate marketing and communications annually using methods such as surveys.	**Office of Sustainability** **Marketing and Communications**	Spring 2016

HELPFUL RESOURCES

The University of California's Talking Louder About Sustainability is a good example of a broad and holistic communications plan and campaign for sustainability:

http://tgif.berkeley.edu/index.php/about/program-history/60-talkinglouder

11.0 IMPLEMENTATION AND MEASURING PROGRESS

11.1 Responsible Parties

The University is fortunate to have the Office of Sustainability, a department dedicated to keeping the SP on track from year to year. The Office of Sustainability will play a vital role in the implementation of the SP and how roles and responsibilities for implementation are carried out. This includes a charting of who is responsible for doing what parts of the Plan, who needs to be consulted or informed and ultimately who will be held accountable.

With interdepartmental support, the Office of Sustainability can be responsible for the yearly measuring of progress to goals and coordination of the implementation of the SP. Ideally, the UAF SP Steering Committee convened to support the initial development of this SP could continue in some form to meet to support implementation and to guide the continued evolution of the SP. As well, the UAF community is rich with sustainability expertise and resources that should be tapped in implementing the various strategies of this SP.

11.2 Implementation Timeline

In total, the above sections of the SP reference several different high-level strategies, each with its own set of implementation steps, costs and benefits, resources and partners and performance metrics. For the strategies to work together as a cohesive system, these distributed efforts need to be coordinated and integrated to accomplish the following:

- Ensure parts are not working at odds with each other.
- Maximize synergies between related strategies.
- Cross-pollinate lessons learned.
- Measure cumulative impacts relative to stated goals.
- Determine next meaningful paths based on progress and emerging opportunity.

11.3 Monitoring Performance and Reporting Progress

Monitoring is essential for evaluating the cumulative effect of the SP, especially as implementation across the different strategies continues to grow and mature in years to come. With the baseline GHG inventory established in the SP, a protocol and information management system has been provided to UAF to ensure ongoing measurement of the University's carbon footprint on an annual basis. The carbon footprint is aggregated from a number of supporting key metrics such as energy consumption, solid waste generation, recycling rates and transportation metrics that support short-term and long-term goals within the different focus areas of the SP. These measurements can then provide the basis for a quantitative and technically credible annual sustainability report to the community. The report would share quantitative progress toward goals while sharing success stories and communicating intentions for the upcoming year.

11.4 Future Updates to the SP

The monitoring and reporting process will not only reveal the University's progress toward its goals, it will also help identify opportunities for updates to the SP itself. These updates may include new goals, strategies, potential partners and resources and additional areas of focus beyond the SP's current focus areas. With the experience of having started to implement strategies and actions, UAF may wish to re-evaluate both the short-term and long-term goals identified in the SP and refine them based on progress and changing perceptions. For example, goals originally viewed as aggressive may be more achievable than initially thought, prompting staff to revise goals upward as progress is made.

WHAT	WHO	WHEN
Recognize the SP as an official UAF guiding document.	Master Planning Committee Chancellor	Fall 2015
Produce an annual report of sustainability activities highlighting accomplishments.	Office of Sustainability	First report in Fall 2015, update yearly

APPENDIX A: SP SURVEY RESULTS

UAF Sustainability Master Plan Survey

SurveyMonkey

1. Please indicate your affiliation with UAF. Use the blank box to indicate your specific department or school affiliation.

	Response Percent	Response Count
Student	72.8%	511
Faculty	8.5%	60
Staff	25.8%	181
Community Stakeholder	2.1%	15
List Department, School or Stakeholder Group		325
answered question		702
skipped question		0

2. Sustainability at UAF is the integration of cultural, economic, environmental, and energy components and supports projects and perspectives that have positive impacts on future resources, ecosystem health, and human wellbeing. Is this an acceptable definition?

	Response Percent	Response Count
Yes	85.2%	597
No	14.8%	104
Suggestions for modification:		129
answered question		701
skipped question		1

3. How do you think UAF is currently doing with respect to the following topic areas in terms of sustainaiblity? (If you have suggestions for improving topic areas please comment below)

	Poorly	Somewhat Poorly	Good	Very Good	Excellent	I don't know	Rating Count
Co-Curricular Education	2.7% (19)	9.9% (69)	31.0% (215)	11.8% (82)	4.8% (33)	**39.8% (276)**	694
Curriculum	3.0% (21)	12.6% (87)	**36.1% (250)**	16.9% (117)	7.5% (52)	23.8% (165)	692
Research	1.6% (11)	4.8% (33)	**27.5% (187)**	27.3% (186)	17.0% (116)	21.7% (148)	681
Building Operations	7.2% (50)	18.6% (128)	**32.9% (227)**	16.1% (111)	6.2% (43)	19.0% (131)	690
Building Design	8.4% (58)	18.9% (131)	**31.5% (218)**	16.9% (117)	7.5% (52)	16.8% (116)	692
Carbon Footprint	12.3% (85)	22.1% (153)	25.6% (177)	8.2% (57)	4.2% (29)	**27.6% (191)**	692
Dining Services	12.6% (87)	22.3% (154)	22.3% (154)	8.1% (56)	2.7% (19)	**32.1% (222)**	692
Renewable Energy	12.1% (84)	21.1% (146)	25.5% (177)	9.1% (63)	3.5% (24)	**28.7% (199)**	693
Lighting	7.3% (50)	20.1% (138)	**34.7% (238)**	13.0% (89)	7.4% (51)	17.5% (120)	686
Energy Metering	5.8% (40)	10.9% (75)	24.1% (166)	8.9% (61)	4.2% (29)	**46.2% (318)**	689
Grounds	3.9% (27)	9.8% (68)	**34.9% (241)**	17.2% (119)	9.7% (67)	24.5% (169)	691
Purchasing	5.8% (40)	11.8% (81)	24.7% (170)	7.1% (49)	3.2% (22)	**47.5% (327)**	689
Transportation	6.2% (43)	17.4% (120)	**31.2% (215)**	18.3% (126)	11.5% (79)	15.4% (106)	689
Waste and Recycling	10.0% (69)	15.7% (109)	**31.3% (217)**	19.0% (132)	10.8% (75)	13.1% (91)	693

Water	16.4% (113)	20.9% (144)	**23.1% (159)**	10.9% (75)	6.5% (45)	22.1% (152)	688
Diversity and Accessibility	5.7% (39)	10.3% (71)	**28.7% (197)**	19.7% (135)	11.8% (81)	23.9% (164)	687
Employee education	6.5% (45)	17.9% (123)	**27.9% (192)**	12.4% (85)	9.4% (65)	25.9% (178)	688
Public/community Engagement	5.2% (36)	13.3% (91)	**34.1% (234)**	18.7% (128)	10.8% (74)	17.9% (123)	686
Socially responsible Investments	6.5% (45)	9.0% (62)	21.0% (145)	11.3% (78)	5.8% (39)	**46.6% (322)**	691
Other(please specify below)	11.0% (23)	3.3% (7)	11.4% (24)	3.3% (7)	6.2% (13)	**64.8% (136)**	210

4. What sorts of tools, incentives, programs or other ideas do you think would best motivate staff, teachers, parents, students and/or other stakeholder to participate in implementing the SMP? Multiple answers are allowed.

	Response Percent	Response Count
Competitions between schools or departments to see who can save the most energy/resources	47.7%	316
Recognition of schools, individuals and/or departments for accomplishments	56.0%	371
Building accomplishments into annual employee reviews	21.1%	140
Developing more specific inter-school or departmental green teams to implement the SMP (e.g. teachers, students, parents)	35.4%	235
Developing incentives for staff and/or students to participate	**74.5%**	**494**
Requiring it as part of their daily tasks in their job	29.7%	197
Other (please specify)		79

5. How would you best describe how willing you would be to participate in implementing the SMP?

	Response Percent	Response Count
Not willing	7.6%	51
Occasionally willing	45.4%	304
Regularly willing	46.9%	314
Other (please specify)		47
answered question		669
skipped question		33

6. Are there any other thoughts you would like to share about the SMP?

	Response Count
	165
answered question	168
skipped question	534

7. How interested would you be in participating in a Sustainability focused or related course at UAF?

	Not at all	Not very	Not sure	Very interested	Definitely	Rating Count
Focused Class	15.7% (101)	16.9% (109)	35.3% (226)	22.2% (143)	9.9% (64)	645
Related Class	13.0% (87)	12.7% (85)	38.2% (256)	27.8% (186)	8.5% (57)	670
Why or why not?						321
answered question						699
skipped question						3

8. What Sustainability topics would you like to be covered? (Optional Question)

	Response Count
	181
answered question	181
skipped question	521

9. Do you live on or off campus?

	Response Percent	Response Count
On	20.0%	133
Off	80.8%	537
answered question		665
skipped question		37

10. If you live OFF CAMPUS Enter estimated one-way commuter distance (please see map below for estimated distances)

	Response Percent	Response Count
0-1 miles	22.6%	150
1-2 miles	12.8%	85
2-3 miles	12.0%	80
3-4 miles	9.6%	64
4+ miles	43.0%	286
Other (please specify)		102
answered question		665
skipped question		37

11. How often do you visit campus in the average week?

	1 time	2 times	3 times	4 times	5 times	6 times	7 times	8-10 times	10+ times
Personal Vehicle	16.8% (91)	10.2% (55)	5.9% (32)	7.1% (38)	31.4% (151)	10.0% (48)	5.2% (25)	3.7% (18)	4.6% (22)
Carpool	41.6% (69)	17.0% (28)	9.6% (16)	3.0% (5)	17.5% (29)	4.8% (8)	1.8% (3)	1.8% (3)	2.4% (4)
Public Transportation	47.7% (51)	15.0% (16)	14.0% (15)	2.8% (3)	10.3% (11)	1.9% (2)	1.9% (2)	1.9% (2)	4.7% (5)
Bicycling	58.3% (63)	8.3% (9)	7.4% (8)	3.7% (4)	9.3% (10)	4.6% (5)	3.7% (4)	2.8% (3)	1.9% (2)
Walking	40.4% (46)	9.6% (11)	4.4% (5)	6.1% (7)	8.8% (10)	0.9% (1)	1.8% (2)	7.9% (9)	20.2% (23)
Motorcycle/scooter	80.0% (44)	0.0% (0)	3.6% (2)	5.5% (3)	5.5% (3)	3.6% (2)	0.0% (0)	0.0% (0)	1.8% (1)
I live on campus	26.1% (29)	0.0% (0)	0.0% (0)	0.7% (1)	2.2% (3)	0.0% (0)	2.2% (3)	0.7% (1)	65.9% (89)

Other (please specify)

12. Which of these modes of transportation do you use to get to campus in the summer and w check all that apply.

	Personal vehicle	Carpool	Public transportation	Bicycling	Walking	Motorcycle/Scooter
Summer	70.6% (455)	15.6% (100)	12.4% (80)	39.4% (256)	25.6% (164)	3.4% (22)
Winter	74.7% (469)	20.8% (130)	13.6% (85)	7.0% (44)	11.9% (74)	0.5% (3)

Other (ples

answered

skipped

13. What is your PRIMARY mode of transportation to campus during the summer and winter?

	Personal vehicle	Carpool	Public transportation	Bicycling	Walking	Motorcycle/scooter
Summer	59.6% (282)	6.5% (47)	3.7% (24)	13.7% (87)	4.3% (28)	1.6% (10)
Winter	64.9% (420)	5.4% (51)	5.1% (55)	2.8% (18)	3.7% (24)	0.2% (1)

Other (plea

14. Where did you travel for your last:

	Stayed on Campus	Stayed in Fairbanks	Stayed in Alaska	Traveled out of state	Traveled overseas	Rating Count
Summer break	3.9% (24)	37.9% (235)	32.5% (169)	21.0% (130)	6.8% (42)	620
Thanksgiving Break	9.0% (62)	56.4% (387)	26.0% (178)	7.7% (53)	2.0% (14)	684
Winter Break	2.6% (17)	36.5% (241)	25.0% (165)	29.5% (195)	6.4% (42)	660
If you left the state or country, please state your final destination.						200
					answered question	665
					skipped question	37

15. Thank you for taking the survey. Enter your email below for a chance to win one of 10 prizes including two one-day Fat Back bike rentals from Green Bikes, Gift Cards to Local Restaurants, T-shirts and More!

	Response Count
	561
answered question	561
skipped question	141

APPENDIX B: CAMPUS WASTE AUDIT

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1.0 INTRODUCTION AND BACKGROUND

In 2014, the University of Alaska Fairbanks began the process of developing a Sustainability Plan. Through conversations and goal-setting exercises with UAF's SMP Steering Committee, one of the goals developed in the SMP is for the university to achieve "zero waste," a 90 percent diversion rate, by 2035. As part of this process, UAF conducted a waste audit to identify the strengths and challenges related to accomplishing this goal.

Objectives of the waste audit included determining the current percentage of waste being diverted from landfills, identifying barriers to waste reduction and diversion, and targeting opportunities for waste reduction and increased diversion. Additionally, UAF was interested in identifying cost-saving opportunities associated with increased waste diversion and exploring the possibility of becoming a zero-waste campus.

UAF received a gold rating under the Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment & Rating System in 2011. The STARS system is a transparent, self-reporting framework for colleges and universities to measure their sustainability performance. The STARS report covers a university's performance across multiple areas, including education, energy, water, waste and others. UAF scored 5.79 points out of a possible 12.5 points within the waste category.

A waste audit was conducted by the Brendle Group consultant team in April 2014; 16 buildings were sampled (see list below). During the audit, the team interviewed building coordinators, Office of Sustainability recycling staff and various members of the campus community. Walk-throughs of all 16 buildings were conducted with a focus on: a) identifying gaps and barriers to increasing UAF's diversion rates and b) identifying opportunities to increase UAF's total diversion rate. The following report contains opportunities for UAF to pursue greater waste reduction and diversion, creating a solid foundation for the SMP's goal of ultimately achieving zero waste by 2035.

The following buildings were strategically selected to represent a subset of UAF buildings:

1. Administrative Services (administrative)
2. Butrovich (administrative)
3. Central Receiving (administrative/operations)
4. Cutler Apartment Complex (student residence)
5. Duckering (academic/research)
6. Gruening (academic)
7. Lola Tilly Commons (dining)
8. Margaret Murie (academic/research)
9. Moore-Bartlett-Skarland Complex (student residence)
10. Nerland (student residence)
11. Physical plant/Facility Services (operations)
12. Rasmuson Library (academic)
13. Reichardt (academic/administrative/research)
14. Student Recreation Center (athletics)
15. West Ridge Research Building (academic/administrative/research)
16. Wood Center (dining)

KEY TERMS

Waste: Materials, substances, or byproducts discarded as no longer useful or required by a user.

Waste Management: Waste prevention, reuse, material recycling, composting and landfilling.

Gaps: Missing elements within existing university operations.

Barriers: Circumstances or obstacles currently preventing UAF from advancing its waste minimization and reduction efforts.

Opportunities: Chances for advancement or progress of waste reduction or diversion.

Source Reduction: Reducing use of nonrecyclable materials by replacing disposable materials with reusable materials, eliminating or reducing packaging, or using other similar means.

Waste Diversion: Prevention and reduction of generated waste through source reduction, recycling, reuse, or composting.

Zero Waste: Diverting 90 percent or more of waste from the landfill.

Waste Management Trends Across Universities

Because UAF is unique in its geographic location and circumpolar North climate, it is difficult to find universities facing such distinctive challenges in waste management. As a result, benchmarking UAF's waste management practices against peer universities proved challenging. Though it was difficult to find universities with similar characteristics, waste management case studies and campus practices from across the nation were explored. Despite the challenges UAF is facing, the university is already touching on many of the prominent waste management practices seen across the nation. Trends in university waste management include:

- Zero waste events and housing
- Water bottle bans
- Campuswide composting
- Paperless campus initiatives
- Sustainable purchasing polices
- Electronic waste recycling programs
- Educational campaigns
- Surplus and reuse exchanges

To increase recycling rates, universities have transitioned from source-separated to commingled recycling collection. Though implementation costs for switching to commingled recycling programs can be high, institutions such as the University of New Hampshire have seen great success with commingled recycling. Many institutions face budgetary challenges when trying to expand waste management services. To fund waste management and diversion programs universities are increasingly seeking

outside funding sources such as government funding, corporate sponsorship, or partnerships with local businesses or government to expand services outside of campus operations. Examples of university waste management efforts can be found throughout this report.

2.0 CURRENT CONDITIONS

2.1 Existing Practices

Currently, UAF disposes of nonhazardous waste using four primary methods: landfilling, recycling, composting and reuse. The university is taking a number of steps to divert materials from landfills, including recycling paper, cardboard, glass, aluminum, tin, ink cartridges and batteries. Additional practices include shipping electronic waste (e-waste) through the Interior Alaska Green Star program to Total Reclaim, where it is responsibly processed and separated into various raw materials such as plastic, glass, steel, copper and aluminum, and then sold as commodities. The Department of Facilities Services recycles scrap metals locally at C&R Metal Recycling, coal ash from the UAF power plant is used for paving university roads, and yard waste and pre-chop scraps from Dining Services are composted on campus.

In addition to recycling and composting, UAF offers a number of reuse programs. Property and Central Receiving have established a surplus warehouse for the interdepartmental reutilization of unneeded furniture and electronics. Surplus items that go unused by university employees are periodically auctioned to the public. Residence Life offers ongoing student exchanges for clothing and materials. The university holds the Really Free Market, an annual yard sale-style summer event that allows Residence Life, UAF and Fairbanks community members to drop off and pick up items for free. Finally, the Athletic Department donates used, functional equipment to local schools and sports teams, and it auctions old weight machines to the public.

Throughout campus, buildings are outfitted with waste and paper-only recycling bins. Recycling bins for glass, aluminum, tin, ink cartridges and batteries are marked with the Office of Sustainability logo and placed in roughly 40 campus buildings. While UAF encourages environmentally preferable purchasing[8], no formal tracking systems were identified that monitor or enforce it.

In the summer of 2014, UAF launched its first zero-waste pilot program in the Margaret Murie Building. This program will be a valuable learning tool and will help the university evaluate its capacity to manage a zero-waste building and identify opportunities for future improvements.

[8] http://www.epa.gov/epp/

UAF's current waste reduction and diversion efforts provide a foundation on which to build. The university scored an overall gold rating on its 2011 AASHE STARS report. In the STARS report's waste category, UAF scored 5.79 points out of a possible 12.5 points. The highest points were achieved in the STARS category of Hazardous Materials Management. The greatest opportunities for improvement were in the categories of Waste Reduction, Waste Diversion, and Construction Demolition and Waste Diversion. No construction sites were included in the April 2014 audit, and this report does not make recommendations specific to the Construction Demolition and Waste Diversion STARS report category. The university, however, may wish to evaluate these opportunities as part of potential updates to its sustainable design and construction guidelines.

TABLE 1UAF'S AASHE STARS WASTE RATINGS

CATEGORY	CREDIT POINTS
OP-17: Waste Reduction	0.77 / 5.00
OP-18: Waste Diversion	1.32 / 3.00
OP-19: Construction and Demolition Waste Diversion	0.20 / 1.00
OP-20: Electronic Waste Recycling Program	1.00 / 1.00
OP-21: Hazardous Waste Management	1.00 / 1.00
Tier2-1: Materials Exchange	0.25 / 0.25
Tier2-2: Limiting Printing	0.25 / 0.25
Tier2-3: Materials Online	0.25 / 0.25
Tier2-4: Chemical Reuse Inventory	0.25 / 0.25
Tier2-5: Move-in Waste Reduction	0.25 / 0.25
Tier2-6: Move-out Waste Reduction	0.25 / 0.25

2.2 Collection Process

The university has a collection process whereby three major parties are responsible for various stages of collecting and hauling waste and recyclables. The university contracts custodial services with ABM Industries[9]. The existing service contract is through June 2016 with the opportunity for two one-year extensions. As part of its contract, ABM is responsible for collecting waste and paper/cardboard recycling from campus buildings. The custodial team deposits materials into front-loading dumpsters (typically 8- or 10-yard bins) that are designated as waste- and paper-only recycling. As part of ABM's contracted services with UAF, waste and paper recycling bins are emptied according to the cleaning schedule below:

- Restrooms are sanitized and stocked once a day campus-wide.
- Classrooms are cleaned each evening before they are to be used.
- High-traffic reception office areas are cleaned daily.

[9] https://www.abm.com/pages/janitorial-industries-served.aspx

- Public areas such as auditoriums, hallways, stairs, lobbies, locker rooms, showers, laundry rooms, kitchenettes, break rooms and conference rooms are cleaned daily.
- Offices and research laboratories are scheduled for cleaning once a week.

Facilities collects waste from UAF dumpsters and hauls the refuse to the Fairbanks North Star Borough landfill on a daily basis. Dumpsters from housing services are emptied daily, while most administrative and academics building dumpsters are emptied on a rotating weekly schedule. Additionally, Facilities Services hauls paper to local company K & K Recycling once per week.

Facilities Services manages UAF composting as well. Pre-chop compost is collected from Dining Services twice a week and hauled to UAF's "eco dump." Yard waste, leaves and grass clippings are taken to the eco dump as well. In addition to producing compost for grounds maintenance, Facilities Services purchases compost from a local farmer to produce compost tea — a natural fertilizer for spraying campus grounds.

The Office of Sustainability provides two student employees to collect glass, aluminum, 1 & 2 plastics, tin, ink cartridges, and batteries from university buildings. Materials are transported in an electric cart (during warmer months) or a vehicle (during cold months) and deposited in containers at Taku parking lot, where K & K Recycling collects the materials and hauls them to an off-site location. Students collect recyclables two to five times per week, in addition to emptying bins on an on-call basis.

2.3 Purchasing Practices

Current UAF environmentally preferable purchasing practices include buying paper made of recycled content and Green Seal-certified cleaning products. University departments are able to order Forest Stewardship Council-certified paper from Printing Services, and Dining Services has removed Styrofoam containers and encourages purchasing locally sourced products when feasible. Due to individual department budgets, academic and administrative departments that are housed in the same building often purchase office supplies in small batches on an as-needed basis from local stores. While vendor take-back has been discussed, there are currently no known UAF contracts that include language about packaging take-back or delivering materials in reusable shipping containers.

Section 7 of UAF's purchasing policy does encourage EPP practices. Below are related guidelines found in UAF's Procurement Manual:

- *Section 7.3 Bidder/Offeror & Product Preferences:* (a) AS 36.30 requires that the following preferences be applied to the award of formal solicitations: (4) Recycled products — 5 percent.
- *Section 7.4 Recycled Paper Products:* In addition to the monetary preference for recycled products contained above, whenever the university purchases paper products, including cut stock, printing stock, envelopes, towels, tissues, computer stock, or other paper products, at least 25 percent of the quantity purchased shall be classified as recycled unless the responsible procurement officer determines that recycled paper is not available or that recycled paper, after application of the 5 percent preference, is more expensive than nonrecycled paper for the purchase in question.

- *7.5 Preferences in Specifications:* (a) Specifications shall not unnecessarily discriminate against the use of recycled materials. (b) Product minimum content guidelines and definitions are adopted by the Environmental Protection Agency (EPA) and can be found in 40 CFR 248 -253. (c) University departments should consider the following steps when preparing purchase requisitions that include recycled products: (1) Include sources that specifically provide recycled products. (2) Allow for alternative use of recycled products in specifications. (3) Specify use of recycled products and allow recycling in performance of service contracts and lease agreements. (4) Specify double-sided printing whenever possible as required by AS 44.99.020. Specify self-mailers (fold, staple, and address) to limit envelope use. Limit number of copies. (5) Allow both recycled and virgin materials in solicitation provisions. (6) Allow users to specify certain items as 100 percent recycled products.

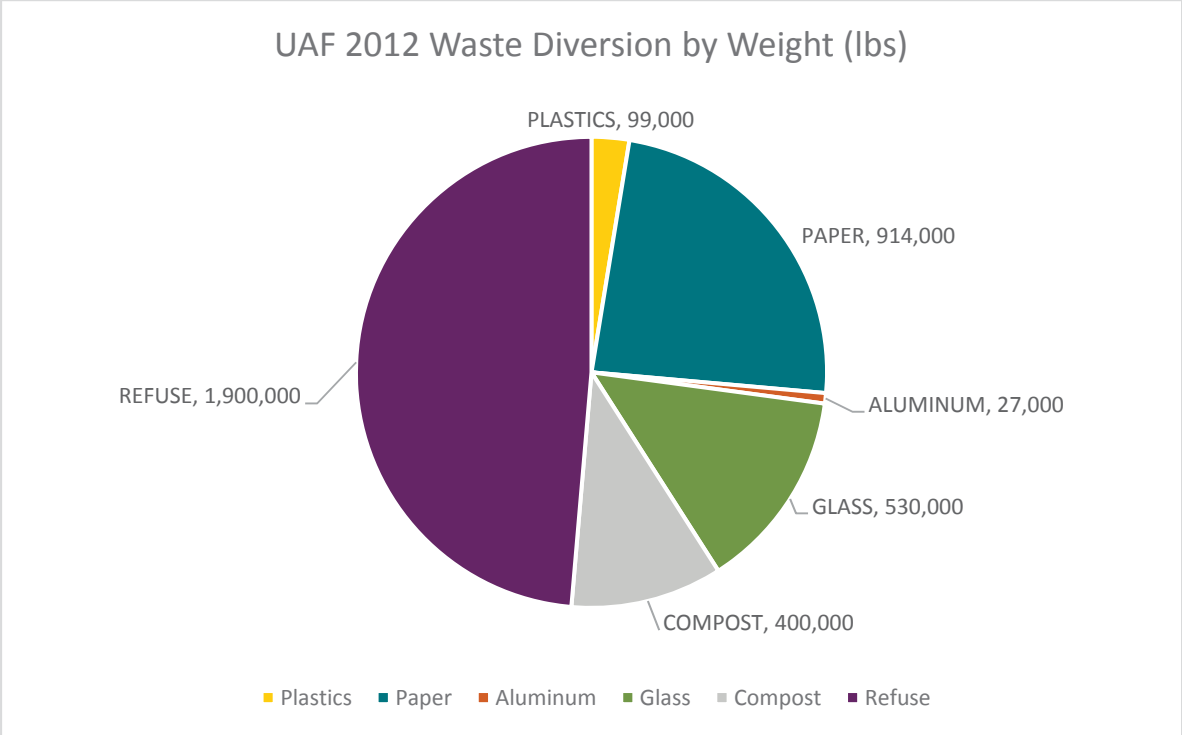
2.4 Waste and Recycling Data

UAF does not have a waste data tracking system in place. Total waste composition and breakdown by material were estimated based on the waste, recycling and composting volumes compiled by the Office of Sustainability and Facilities Services. The most robust data set available was from 2012, thus the data represented below reflect 2012 solid waste generation. Additionally, it should be noted that plastics are no longer accepted by K & K Recycling[10]. Plastics 1 and 2 are being collected as part of the Murie Zero Waste Pilot Program and are taken to the Rescue Mission for recycling. A similar program will be implemented in the MBS dorm complex in the fall of 2014. Plastics 3-7 and plastics collected from other buildings are being landfilled.

The waste diversion rate is the percentage of waste materials diverted from landfill due to UAF's recycling, reuse and composting initiatives versus the total amount of waste generated. Through existing recycling, reuse, and composting programs, UAF diverted approximately 51 percent of its waste, or roughly 1.97 million pounds of materials. Figure 1 (below) shows the amount of waste, by material, generated by UAF in 2012. Because UAF is no longer able to recycle most plastics, it can be assumed that UAF's percentage of waste landfilled has increased to include plastics, thereby decreasing UAF's total diversion rate.

[10] Recycling data are based on data collected during UAF's participation in RecycleMania, a two-month recycling competition for universities across the nation.

FIGURE 1 UAF 2012 WASTE DIVERSION BY WEIGHT (LBS)



The depiction of UAF's waste diversion rate (Figure 1 above) should be considered with a degree of caution due to limited data availability. The diversion rate represented above is not a highly accurate portrayal of the university's waste diversion for the following reasons:

- Recycling data solely reflects recyclables collected from student housing during an eight-week period of RecycleMania.
- Recycling data is from the year 2012 when UAF collected plastic recyclables. The University has since limited plastic collection and only accepts plastics 1 and 2 on a limited basis.
- Compost data was provided as an approximate estimate.
- The information above does not include hazardous waste or construction materials.

In order for UAF to provide a more robust portrayal of its diversion rate, it is recommended that the university begins to consistently track waste volumes generated across all sources. Additionally, UAF could undertake a week- or month-long waste sort that would allow a deeper dive into the actual composition of waste generated on campus.

2.5 Cost Data

Because multiple parties are responsible for collecting UAF's waste, recycling and compost, multiple cost factors fall into the waste management process. Based on costs the university was able to provide, it is estimated that UAF spends $44,000 per year hauling paper and waste off campus. This cost excludes building-level paper and waste collection provided by ABM. The university is currently paying ABM $3 million per year for its cleaning services, which includes paper and waste collection. The annual operating cost for the Office of Sustainability's recycling collection is $30,000, and Facilities Services reported composting labor and collection costs of $500 annually. In 2012, UAF paid a total of $100,000 in tipping fees. Excluding ABM's collection services, UAF's annual waste management services total $174,500.

TABLE 2 WASTE MANAGEMENT COSTS BY SERVICE

SERVICE	COST
Tipping Fees	$100,000
Sustainability Office	$ 30,000
Facilities	$44,000
Composting	$500
Total [11]	**$175,500**

3.0 GAPS AND BARRIERS TO WASTE DIVERSION AND REDUCTION

For the purposes of this analysis, gaps are defined as missing elements within existing university waste management operations. Barriers are defined as circumstances or obstacles currently preventing UAF from advancing its waste minimization and reduction efforts. For example, UAF's limited collection of waste data is identified as a gap because UAF collects recycling data during RecycleMania but is not fully utilizing its ability to track data year round. Building infrastructure is identified as a barrier because some of the university's existing buildings are not optimally designed for strategic placement of recycling bins.

[11] Excluding building-level paper and waste collection.

3.1 Gaps

An important part of improving waste management and increasing diversion rates is addressing gaps in UAF's waste management and associated operations. The university can use identified gaps to craft strategies for improving current shortcomings in its waste management practices.

TRACKING

An important part of any program is establishing goals and measuring progress and milestones as an institution moves towards goals, such as the SMP goal of becoming a zero-waste campus by 2035. Each year, UAF participates in RecycleMania, an eight-week competition where colleges and universities track the amount of trash and recycling collected each week and benchmark their progress against other participating schools. Beyond this eight-week competition, UAF does not have formal tracking systems in place for monitoring waste generation, diversion rates or purchasing trends. Improving data collection (e.g., extending data collection throughout the year) will allow UAF to better monitor its performance year-to-year, identify related opportunities and analyze long-term progress relative to its goals (e.g,. zero waste)

SOURCE REDUCTION AND PURCHASING POLICIES

While there has been general encouragement of source reduction and environmentally preferable purchasing practices, UAF does not provide its employees with formal tools or guidelines to enable and enforce EPP. During waste audit interviews with building coordinators, individuals were not able to point to EPP evaluation tools or resources for suggested EPP products[12].

The team identified a number of gaps between institutional purchasing, targeting purchasing toward recyclable materials, and product users. As opposed to an interconnected system that collaborates across departments, buildings and daily operations to manage material sourcing and consumption in the most efficient way possible, material flows largely remain siloed within a single department's operations. Given UAF's location and lack of recycling infrastructure, source reduction is an important opportunity to address for overall waste reduction.

WASTE COLLECTION PROCESS

There are many inefficiencies in UAF's current building-level waste and recycling collection process. The custodial service, ABM, collects waste and paper recyclables in the same buildings where the Office of Sustainability collects recyclables, duplicating collection efforts and increasing time and labor costs. Waste bins are emptied on a schedule independent of actual need. Often bins were reported to be less than 75 percent full when emptied by custodial staff, providing another opportunity for reducing pick-up frequency to increase overall collection efficiency.

[12] Purchasing paper products from recycled content is an exception to this comment, and was mentioned on a few occasions.

EDUCATION AND AWARENESS

A key to the success of a university waste management program is education that leads to action. The university offers a large number of sustainability-related courses, and the Office of Sustainability has a great number of students passionate about sustainability. Through these avenues, many important programs are already in place at UAF, although there remains a large number of student, faculty and staff unaware of current waste management opportunities or best practices. Furthermore, there seems to be a high level of confusion around proper disposal methods. Noticeable indicators of inconsistent practices included contaminated waste and recycling bins, building coordinators without knowledge of recycling bin locations or pick-up operations, reports of employees communicating confusion about recycling opportunities, and apathy toward proper disposal methods. Additionally, some waste and paper recycling bins lacked clear signage, resulting in receptacles being used interchangeably in a number of facilities.

3.2 Barriers

While UAF is taking a number of steps to manage discarded materials, including reusing mixed paper and cardboard campuswide and recycling oil from Dining Services into biofuels, it still faces some challenging barriers. Many of UAF's challenges, such lack of recycling infrastructure, are influenced by its relatively remote location. Below are some identified barriers that will require UAF to continue to explore innovative methods to further increase its diversion rates and reduce influx of materials.

LOCATION

The university is located in a region with few options in the way of established recycling infrastructure. This has created ongoing challenges for finding not only recycling outlets for common materials, such as plastic, but also innovative recycling or repurposing outlets that are more regularly available to universities in the Lower 48 states. Purchasing and transporting goods, such as bulk office supplies and seasonal food, is often a more sustainable option because of the need for fewer deliveries and or significant packaging. This, however, is also sometimes challenging for UAF because of its remote location in the circumpolar North.

CAPITAL INVESTMENT

Establishing infrastructure around a well-managed waste program requires both time and financial investment. For a state-funded university, finding funding for additional resources is always challenging. In the long term, decreasing UAF's diversion rate will generate cost savings from avoided tipping fees and decreased purchases, for example. To achieve these savings, however, UAF will have to invest some up-front capital to implement projects and build infrastructure around its waste management system. During a time of budget cuts and uncertainty around state funding, targeted efforts will be necessary to prioritize waste management in planning conversations.

CAMPUS CULTURE

Implementing behavioral shifts on a cultural level is often a difficult endeavor. Though UAF does have an established recycling and reuse program, there is still a need for a culture shift that generates widespread support for source reduction and proper disposal methods. This shift will require changing ingrained practices that have developed over many years.

INFRASTRUCTURE

Strategic placement of waste and recycling receptacles plays a large part in active waste management participation. Because UAF is working with existing buildings, fire codes and safety regulations can prohibit the use of space for receptacle placement, preventing some ideal waste station setups. UAF's source-separated recycling system also means that ideal waste station setups require a fair amount of space.

4.0 IDENTIFIED OPPORTUNITIES FOR WASTE REDUCTION AND INCREASED DIVERSION RATES

Although UAF's location provides some challenges, such as a limited market for recyclables and fewer options for local, sustainably sourced materials, there are also many opportunities. For example, there are benefits to UAF's location such as large amounts of land. Currently, UAF is only composting a portion of materials, such as post-consumer food waste, that it could be diverting. Because of the large amount of land available for expanding UAF's established composting programs and limited local regulations and fees related to composting, there is great opportunity for UAF to increase its diversion rate through expanded composting services. Opportunities are discussed in more detail below.

4.1 Low-Hanging Fruit

Low-hanging fruit are opportunities identified during the waste audit that will typically require a lower time investment, a smaller number of accountable parties, and/or a lower amount of upfront capital investment.

DINING SERVICES FACILITIES

As shown in Table 3 UAF Dining Services offers 10 dining options across six locations on campus.

TABLE 3 DINING SERVICES

HESS COMMONS	WOOD CENTER	RASMUSON LIBRARY	ARCTIC HEALTH RESEARCH BUILDING	MARGARET MURIE BUILDING	UA MUSEUM OF THE NORTH
Subway Campus Cache	Dine 49 Arctic Java Pita Place Southern Tsunami	Book & Brew	West Ridge Café	M^3 Café	Alaska Coffee Roasting Co.

Though each dining facility on campus has its own unique waste management practices, as a whole, Dining Services has a host of sustainable waste management practices including:

- Trayless dining halls.
- Composting pre-consumer food scraps, and partnering with local mushers to recycle protein scraps to fuel Alaskan sled dogs.
- Partnering with Denali Bio-fuel to converting used cooking oil into biodiesel .
- Providing napkins made from 90 percent post-consumer recycled paper.
- Offering reusable plastic to-go containers.
- Bulk condiment dispensers.
- Reusable china.

Table 4 (below) identifies additional practices UAF can implement to further increase Dining Service's contribution to UAF's diversion rate. It should be noted that waste management practices vary among individual dining facilities and some recommendations below might already be an existing practice in select locations.

TABLE 4 ADDITIONAL DINING

TYPE OF WASTE	HOW IT IS CURRENTLY DIVERTED	ALTERNATIVE METHODS OF DIVERSION
Pre-consumer food waste	Composted	Maintain practice – implement in all dining areas
Post-consumer food waste	Thrown away	Compost
Cardboard packaging	Majority thrown away	Bailed and recycled or resold
Tin, aluminum, glass	Majority thrown away	Recycled
Napkins	Majority thrown away	Recycle or compost
Packaging	Thrown away	Reduce use

Decrease Kitchen Waste Scheduled Pickups

Currently UAF's Dining Services contracts services through NMS Food Services. As part of this contract, NMS subcontracts out Lola Tilly Commons' waste collection separately through Alaska Waste. During the school year, Alaska Waste picks up a 20-yard dumpster twice a week for a fee of $608 per pickup. Pickups are reduced to one time per week during the summer. The university pays over $58,000 for Alaska Waste's collection services annually.

During waste audit interviews, Dining Services reported that the dumpster is not typically full when emptied by Alaska Waste. Dining Services should regularly monitor the trash dumpster, and, if it is consistently less than 100 percent full when emptied, it should reduce scheduled waste pickups to either an on-call basis or single weekly pickup year round. This is particularly important following changes or improvements to existing recycling and composting programs. For example, if the dumpster is 50 percent full when picked up during the semester, and Dining Services reduced waste pickup frequency from twice a week to weekly pickups, the result would be almost $26,000 in cost savings annually.

Compost Post-Consumer Food Waste

Dining Services currently composts pre-chop organic materials but does not compost post-consumer food waste because UAF does not have the equipment to handle these materials. Specifically, UAF could obtain a topsoil shredder, which would cost the university roughly $20,000[13]. If UAF were to decrease scheduled waste pickups at Lola Tilly Commons, for example, it could apply the $26,000 annual cost savings toward purchasing a topsoil shredder and expanding composting services. Furthermore, increasing post-consumer composting in dining areas will decrease the volume of waste generated, further reducing the frequency of waste pickups and associated costs.

Trayless Dining in Campus Facilities

Trayless dining facilities reduce food waste and help conserve water and energy as a result of reduced washing needs. Currently, UAF offers trayless dining in campus dining facilities, although during the waste audit there was mention of returning trays to dining centers when Lola Tilly is moved to the Wood Center. It is recommended that UAF avoids this reinstatement. Assuming UAF dining halls serve 150,000 meals annually and each student throws away 0.36 pound of food per meal[14], UAF currently is reducing food waste by roughly 75 tons and avoiding $6,900 in tipping fees annually.

[13] Quote for Royer Model 182, Honda Gas Engine. Direct from Royer Industries.

[14] Western Michigan University Composting Review and Assessment of Food Waste Composting

Recycle Aluminum and Tin in Kitchens

Aluminum foil and tin cans are commonly used in UAF kitchens, and there were no identified tin or aluminum recycling receptacles in the Wood Center or Lola Tilly Commons. Dining Services should install bins for all recyclable materials and educate employees on proper use. This includes setting up well-labeled, conveniently located recycling; educating kitchen staff through trainings; and working with staff members to meet their challenges in integrating recycling into other job responsibilities.

FIGURE 2. TO-GO SELECTION IN MURIE CAFE

Incorporate Compostable Products into Purchasing Policy

Should UAF expand composting services, it is recommended that the university work with the Purchasing Department to phase out disposable plastic, single-use items (to-go silverware, pre-packaged food containers, condiment cups, etc.) and replace them with compostable bioplastics or compostable paper products when possible. Because UAF is currently unable to recycle plastics, bioplastics are an ideal alternative for pre-packed foods, such as the grab-and-go meals sold in the Murie Building café (Figure 2).

- US Composting Council: http://www.compostingcouncil.org/
- SPI Bioplastics Council: http://www.plasticsindustry.org/BPC/
- Biodegradable Products Institute: http://www.bpiworld.org/

ACADEMIC AND ADMINISTRATIVE FACILITIES

REDUCE SMALL, FREQUENT OFFICE SUPPLY ORDERS

During the waste audit, many building coordinators and administrative personnel said office supplies were often purchased in small batches on an as-needed basis. Many of UAF's buildings house multiple departments, and within shared buildings there are few to no shared purchases. It is recommended that UAF establish a tool that allows departments to collaborate on bulk supply orders to reduce the frequency of small office supply orders. This will reduce the amount of waste generated by product packing and save costs related to transportation/delivery fees. Additionally, bulk-ordered products tend to cost less than smaller purchases.

CONTINUE PAPER REDUCTION

The university encourages double-sided printing, leverages electronic communication and has reduced the amount of materials printed, such as its class schedule. It also requires that 25 percent of purchased paper be comprised of recycled content when possible. The university is making great strides in paper reduction; however, there was still a large amount of paper identified in both recycling and waste bins during the audit. Each month, UAF hauls an average of 23 tons of paper to be recycled, indicating that reducing paper use lends itself to a significant opportunity for source reduction.

The university should continue its shift toward electronic and other paperless forms of communication, information dissemination and documentation when possible. This includes continued transitioning toward electronic and web-based formats for all university materials (catalogs, promotional materials and planning documents). In addition, UAF should create office standards and guidelines for what qualifies as essential printing content (e.g., official records that require signatures, items that must be sent via mail, etc.) and what materials should remain electronic (e.g., memos, agendas and electronic reports). Increasing requirements for the percentage of paper purchased from recycled content by 5 percent annually would result in 90 percent of paper being sourced from recycled content by 2027.

EXPAND SURPLUS'S SERVICES TO STORE REUSABLE BOXES

Building coordinators reported boxes being thrown away due to lack of space to store them for reuse in the office as well as confusion over responsibility for taking boxes out to the recycling dumpster. Because there are not dedicated areas for large cardboard recyclables, UAF staff are reportedly leaving boxes near waste bins. Simultaneously, there is often a need for boxes in departments, for moving offices or for shipping materials. Establishing a known location for exchanging reusable boxes would greatly increase the opportunity for reuse and reduce the chance of improper cardboard disposal.

RECYCLE OR COMPOST PAPER TOWELS IN RESTROOMS

Paper towels are an easy, low-cost opportunity to increase UAF's diversion rate. In 2013, the university consumed 2,700 cases of paper towels from hand dispensers. During the waste audit, trash receptacles were the only identified disposal option in university restrooms, so it is assumed all contents are thrown away. Replacing current waste receptacles with recycling bins would divert a large portion of paper currently being landfilled. Alternatively, composting is another opportunity for disposing of paper towels. Should the university expand its composting practices, compost bins would be another viable option for replacing current waste bins in restrooms.

There was not enough data to provide and accurate hypothesis of the cost for UAF to swap paper towels for hand dryers; however, a study conducted by Portland State University examined the costs and benefits of paper towel use[15] versus installing 350 hand dryers across the university's restrooms. Annually, PSU orders 2,600 cases of rolled paper towels, 185 cases of single-fold, and 265 cases of multifold at a cost of $74,000. The university estimated that hand dryer installation in all 245 restrooms would cost roughly $118,000, and electricity used by the dryers would cost between $3,100 and $5,800 annually. PSU estimated hand dryers would save about $70,000 each year, with a two-year payback.

[15] Source: Billings, Jacob; O'Flaherty, Rachel; Wissman, Dave. Hand Dryers or Paper Towels?

REPLACE PLASTIC VENDING MACHINES WITH ALUMINUM VENDING MACHINES

There are roughly 60 beverage vending machines on campus, most of which sell beverages in 20-ounce plastic containers. Because UAF is currently unable to recycle plastics, it is recommended that the university work with Aurora Vending to phase out machines that sell beverages in plastic bottles. Replacing plastics with aluminum will allow UAF to further increase diversion rates and avoid landfilling plastics.

OFFER ZERO WASTE EVENT SERVICES

The university hosts roughly 1,060 events annually, serving about 52,000 patrons. The university should consider using UAF-catered events as another net zero waste pilot program. Integrating zero waste management practices into events is an achievable goal that would continue to establish a solid footing for universitywide zero waste practices. For a small fee to the event hosts, the Office of Sustainability can rent out zero waste stations. Zero waste events would require a low-cost setup and teardown if labor is provided by Office of Sustainabililty student employees. Working with catering services, UAF can require that food for zero waste events is delivered in reusable containers, and reusable or compostable flatware is provided.

CASE STUDY: OHIO STATE UNIVERSITY

Since Ohio State University launched a zero waste event service program in 2010, it has hosted numerous events with more than 6,600 attendees and averaged a 96 percent diversion rate. Read more here.

Promote Waste Minimization and Recycling During Move-in and Move-out

The university has a well-established system for reducing student move-out waste through repurposing materials at the Really Free Market. During high volumes of waste generation, such as during move-in and move-out activities, UAF should increase the number of recycling bins available in student residencies. Student move-in is an excellent time to connect with individuals and educate them on best practices and material management. Select volunteer Student Life representatives can be on premises during move-in, educating students about proper disposal methods. Students can be provided with reusable cups as a tool and reminder for them to actively participate in source reduction.

ORGANIZATIONAL

CONVENE WASTE REDUCTION COMMITTEE

To ensure that UAF sets goals, organizes efforts, and monitors and tracks progress around diversion rates and materials management, the Office of Sustainability could convene an official waste reduction committee responsible for continually moving efforts forward and monitoring progress. The committee could be comprised of administrators, staff and students working across campus to build on and

improve UAF's diversion rate. It is recommended that the committee take on larger waste goals outlined by the UAF SMP and lead the charge in implementing waste-related strategies and tracking UAF's path to zero waste.

IMPROVE WASTE/RECYCLING/COMPOST TRACKING TOOLS AND MONITORING TOOLS

The university tracks recyclable materials during an eight-week competition each year called RecycleMania in which colleges and universities benchmark their recycling rates by volume against participating schools across the nation. Aside from RecycleMania, UAF has limited tracking tools to monitor and analyze the campus waste stream. To gain a solid understanding of waste flow and to benchmark progress as the university implements steps to increase its diversion rate, it is recommended that UAF create tracking systems for recycling, composting, waste and purchasing activities. Building on source reduction, EPP policies and education recommendations, UAF could use this opportunity to integrate efforts into the classroom and have students build a customized tool to track waste by building. Alternatively, there are many existing tools, such as the EPA's WasteWise, that UAF could use for this purpose.

CENTRALIZE AND STREAMLINE WASTE RECEPTACLES

The location of waste and recycling bins varies in UAF buildings. Some offices provide side-by-side waste and paper recycling bins at every desk, while other offices only provide desk-side waste bins, with paper recycling bins irregularly placed throughout work areas. Additionally, building coordinators reported that the custodial team occasionally misses bins during collection, likely because there are so many bins placed throughout offices and buildings. The university should centralize points of disposal in campus buildings. Central waste stations will increase proper disposal methods and collection efficiency. Custodial services will no longer be forced to stop and empty waste and paper bins at each desk in an office, but will make fewer stops with larger loads of waste and recycling, effectively reducing the amount of total time spent collecting materials.

Aluminum recycling containers are often placed by soda machines or in hallways with high traffic volumes. Glass, tin, battery, and aluminum recycling receptacles are placed intermittently throughout buildings as well. To increase proper disposal of materials, it is recommended that desk-side waste bins be removed and central waste and recycling stations set up throughout offices and buildings. Strategically located points of disposal will consolidate the number of pickups the custodial team will have to conduct, increasing efficiency and ensuring collection of all bins. Additionally, this will provide clear options for faculty, students, staff and visitors to properly dispose of materials. Many building occupants cited convenience as the reason for throwing recyclables in the trash bins at their desk. With centralized, clearly labeled bins, individuals will have to make little effort to properly dispose of materials, thereby increasing waste diversion. Furthermore, this recommendation will aid in achieving increased collection efficiencies by a single waste pick-up provider as noted the recommendation below.

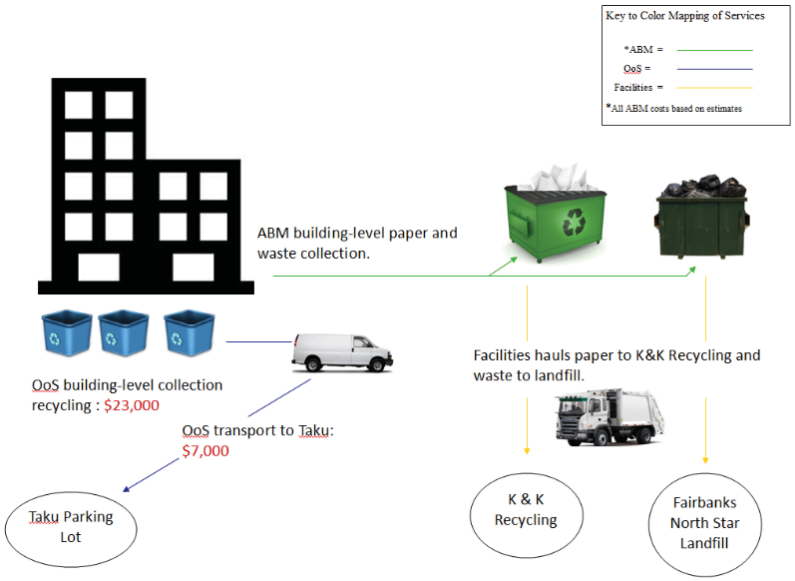
CASE STUDY: NEW YORK UNIVERSITY

New York University piloted a centralized collection system in which all existing trash cans and recycling bins were removed from one of the building's floors and eight centrally located pairs of trash and recycling receptacles were placed in common areas throughout the floors. The weight of recycled materials was measured for one month before and after. The results showed the average weight of recycled material increased by 178 percent with the consolidated bin arrangement. Read more here.

CONSOLIDATE RECYCLING COLLECTION SERVICES WITH CUSTODIAL COLLECTION SERVICES

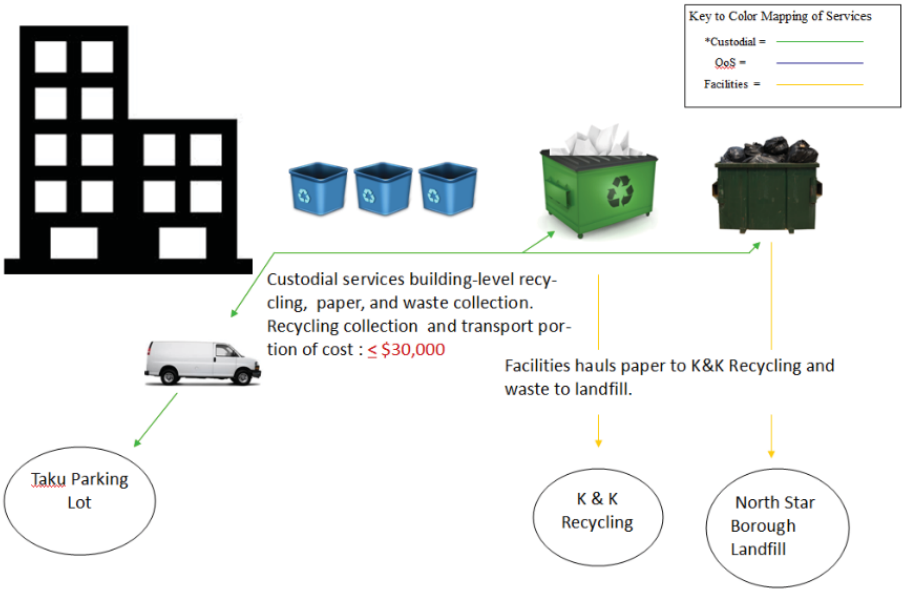
Currently, Office of Sustainability student employees collect all recyclable items (glass, tin, aluminum, etc.) from campus buildings with the exception of paper. Given the cost data provided for student employee labor hours, wages, and the recycling collection schedule, it is estimated that employees are spending 40 hours per week collecting materials from 40 buildings, resulting in an annual labor cost of $23,000, with an additional $7,000 spent on transportation and supplies. UAF's custodial service, ABM, is responsible for collecting waste and paper recyclables and UAF Facilities Services hauls the waste and paper recyclables off campus. The image below (Illustration 1) exemplifies UAF's current collection process.

ILLUSTRATION 1: CURRENT PROCESS



To streamline this currently duplicative process, UAF should seek a single service provider (AMB or another) that will collect all materials (waste, paper and recycling) from campus buildings. The image below (Illustration 2) illustrates the recommended pickup flow.

ILLUSTRATION 2: PROPOSED PROCESS



For it to be economically feasible for UAF to integrate recycling collection into a single provider's collection services, UAF should negotiate a not-to-exceed amount of $30,000 for recycling pickup and transportation to Taku parking lot and should include buildings that currently are excluded from collection services , such as Administrative Services and the Hutchinson Career Center.

This increased efficiency assumes custodians would spend 30 hours per week for recycling collection and transportation to the Taku parking lot at the hourly rate of $13.48[16]. Because the contracted service provider will already be working in campus buildings, it could potentially reduce recycling collection time by 25 percent compared to the Office of Sustainability's practices.

4.2 High-level Platforms and Strategies

High-level platforms and opportunities will likely require a long-term investment and collaborative efforts across multiple UAF departments as opposed to the low-hanging fruit opportunities. These recommendations will also require larger investment of both time and capital to achieve savings or reach cost neutrality.

SOURCE REDUCTION

Source reduction emphasizes the interconnections between purchasing and disposal. Reducing the volume of materials that enter UAF's campus requires analysis of materials entering and exiting campus. Though it can be overshadowed by recycling and reuse efforts, source reduction is integral to any waste reduction program, especially given UAF's limited regional capacity. Source reduction should be pursued aggressively in all aspects of campus operation and should be seen as a long-term venture that will generate cost savings by reducing the amount of materials purchased and disposed. At the moment, UAF does not have formal, university-wide source reduction tracking systems or implementation tools.

Reducing the amount of materials UAF consumes automatically decreases the volume of materials that can enter the waste stream. Implementing a source reduction program will help UAF prevent unnecessary waste from entering the university's campus and ultimately its waste stream.

IMPLEMENTATION STEPS

The following are recommendations for developing and implementing a source reduction program:

1. **Conduct a procurement and packaging inventory.** Work with Procurement and Central Receiving to develop a tracking system to record and analyze incoming materials with an eye toward identifying unnecessary materials/packaging. Analyze procurement records to identify long-term purchasing trends.
2. **Phase out excess materials.** After tracking and identifying materials coming into the university, begin phasing out materials identified as excess or avoidable.

[16]Assuming Bureau of Labor Statistic's occupational employee wages, the average hourly wage for University Custodial services is $13.48: http://www.bls.gov/oes/current/oes372011.htm.

3. **Revise contract language to include packaging specifications.** When entering into new contracts with vendors, include language that specifies requirements for orders to be delivered in reusable containers, or for vendors to take back packaging. Contact suppliers with existing contracts and make efforts to revise current agreements.
4. **Train building-level materials management champions.** Work with building coordinators and department heads to identify volunteer, building-level procurement champions. Champions will be responsible for monitoring building-level purchases and encouraging bulk purchases among building inhabitants and surplus material swaps.

Additional Opportunities Identified during Waste Audit

- **Increase interdepartmental purchases:** There is opportunity to better integrate sustainability considerations into smaller purchases for which purchasing orders are not necessary. For example, many building coordinators claimed to purchase small office supply orders directly from local stores, such as Office Max, without consulting other departments in the building that could potentially share in the order. Departments housed in the same building should work with local suppliers to split costs between invoices and allow combined orders. Purchasing bulk orders with less frequency will reduce the amount of packaging and waste generated.
- **Leverage purchasing power to reduce waste:** Research students working in labs, such as the Margaret Murie Building's facilities, reported purchasing lab equipment on an individual basis, separate from the needs of lab mates. Research departments and facilities should be encouraged to purchase in bulk, which is often less expensive and would reduce the amount of packaging brought in with multiple, small orders. Additionally, with combined purchasing power, students could lobby vendors to take back packaging or deliver supplies in reusable

ENVIRONMENTALLY PREFERABLE PURCHASING GUIDELINES

Although Section 7 of UAF's Purchasing Policy addresses EPP practices, building coordinators and those responsible for department-level purchasing did not indicate familiarity with these policies. It is recommended that UAF increase promotion of EPPs and provide individuals with readily available tools and guidelines to which they can refer when making purchases. The university should expand its EPP policies to encourage communication and coordination among departments and ensure that the campus community is trained on EPP expectations and best practices.

Furthermore, it is recommended that UAF increase the percentage of purchasing preference given to recycled content and incorporate specific language that encourages individuals to exceed recycled content thresholds composition if possible. To support individuals with purchasing responsibilities and create efficient processes and procedures for purchasing and contracting, guidelines should be developed providing specific materials and vendors supplying materials that meet EPP requirements.

IMPLEMENTATION STEPS

The following are recommendations for enhancing and expanding EPP:

1. **Conduct a procurement inventory.** Build on source reduction tracking methods to record and analyze incoming materials with an eye toward identifying purchases that should be reevaluated to identify more environmentally friendly choices.
2. **Expand on EPP guidelines and develop "quick reference" guidelines.** Based on best practices as well as the procurement and packaging inventory and existing procurement policies, expand procurement guidelines to increase recycled content requirements. Develop a "quick reference" decision making tool, including guidelines and criteria for giving preference to environmentally responsible products, made from recycled content when possible.
3. **Develop an EPP purchasing tracking tool.** Connect the "quick reference" decision-making tool with an associated tracking method for determining percent of EPP materials purchased (certified recycled content, Forest Stewardship Council certification, biodegradable, organic, etc.). This will keep individuals accountable, as well as build on UAF's overall waste tracking efforts.
4. **Actively implement EPP guidelines and monitor progress.** Work with building coordinators and department heads to identify volunteers responsible for building-level implementation, education and tracking progress.

SAMPLE ENVIRONMENTALLY PREFERRED PURCHASING POLICY (EPP)

The University of Oregon's Purchasing and Contracting Services Department supports EPP practices and encourages the purchase of products and services that effectively minimize negative environmental impacts through their material composition, manufacturing, transport, packaging, energy, consumption, maintenance, and recycling or disposal. Read more here.

EXPAND COMPOSTING SERVICES

Organic waste includes coffee grounds, food waste, paper towels, low-grade paper products, yard waste and compostable flatware. Composting is a controlled, natural, low-impact process that turns organic waste into a soil amendment that provides plants with nutrients and is a safe sustainable alternative to chemical fertilizers. The university already composts yard waste and pre-consumer food waste; however, a significant portion of organic materials is still thrown away.

In addition to collecting organic materials on campus, UAF purchases compost from a local farm to make a compost tea – a natural fertilizer used on campus grounds. Because of the large amount of land available to UAF, quantity of compostable materials that are currently landfilled, and the demand for composting byproducts (bedding for campus grounds and compost tea) at UAF, the university should consider expanding composting services.

IDENTIFIED COMPOSTING OPPORTUNITIES

- Dining facilities (post-consumer food waste, napkins)
- Kitchenettes in administrative and academic buildings (paper towels, coffee grounds and filters, food scraps)
- High traffic areas in academic and administrative buildings (food scraps)
- Student residency common areas and kitchens (paper towels, coffee grounds and filters, food scraps)
- Restrooms (paper towels)
- Student Recreation Center (paper towels, occasional food scraps)
- Rasmuson Library (food scraps)
- Retail dining, such as the Campus Cache, West Ridge Café, M3 Café, etc. (napkins, coffee grounds, stir sticks)

The university has a large amount of land available to physically accommodate increased compost volume. Additionally, as an educational institution, UAF could use expanded composting operations as a teaching opportunity by partnering with the agriculture program to offer a credit-based composting course. Increasing student involvement would decrease operational labor costs and provide valuable field experience for students, which would increase UAF's portfolio of sustainability-related courses.

While UAF could feasibly expand composting services with minimal additional costs associated with labor or land use, it would require an upfront investment in equipment. Additional disposal bins would need to be purchased and distributed throughout campus. To accommodate post-consumer food scraps, paper and/or bioplastics, UAF would need to invest in a topsoil shredder. Below is an estimated capital cost for expanding UAF's composting program.

TABLE 6: COSTS OF EXPANDING THE UAF COMPOSTING PROGRAM

INVESTMENT	COST
Capital cost	$20,000
Annual Operation and Maintenance	$3,000

IMPLEMENTATION STEPS

1. Procure funding to purchase a topsoil shredder.
2. Partner with the agriculture program to develop undergraduate composting course.
3. Expand boundaries of UAF's eco-dump to accommodate additional organic material.
4. Phase 1: Building off lessons learned in the current zero waste pilot building (Margaret Murie), roll out compost collection bins and educational materials in dining halls.
5. Phase 2: Incorporate composting bins for university-catered events.
6. Phase 3: Expand composting services to academic and administrative buildings.

CASE STUDIES: KEAN UNIVERSITY AND UNIVERSITY OF ARIZONA

- Kean University began an extensive on-campus food scraps composting program that incorporated student participation and education. In just over a year, the campus of 15,000 diverted over 141 tons of food and saved $20,000.
  Read more here.
- The University of Arizona's Compost Cats program has transformed composting into a successful business model. The student-run program initially offset composting expenses through compost sales, avoided tipping fees and community compost sales. Compost Cats eventually expanded operations to a commercial business composting program for the City of Tucson and increased Compost Cats' operational efficiency by having the city take over most waste transport. Compost Cats was then freed to focus on making, marketing and selling compost and conducting community education.
  Read more here.

EDUCATION

By nature, universities aim to engage their communities through education and involvement. Improving UAF's waste management practices is another opportunity to leverage UAF's institutional strength and engage the campus community on the benefits of waste management and proper disposal methods. An effective communication campaign is key to determining the quantity and quality of material being diverted from landfill. Because education and action were identified as a gap, it is recommended that UAF actively promote principles of responsible waste management practices through educating and engaging students, faculty, and staff. It is recommended that the university target education and engagement efforts to both illustrate the value of responsible waste management practices and teach UAF students, faculty, staff, and visitors which materials are recyclable and compostable.

IMPLEMENTATION STEPS

1. Convene waste management leaders and develop an interdisciplinary approach to waste management campaigns so that it can be integrated across all University departments.
2. Develop targeted "Reduce, Reuse, Recycle" campaigns for students, faculty and staff.
3. Develop standardized signage and receptacles for waste, recyclables and compost across campus. Make sure signs are clearly visible and detail what can and cannot be placed in bins.
4. Train staff and students annually on proper disposal methods (leverage student move-ins as an opportunity to have staff educate students on proper disposal methods).
5. Consider incentives and friendly competitions for proper waste disposal and increased diversion, such as linking building-level diversion rates to increased funding for departments.

ADDITIONAL OPPORTUNITIES IDENTIFIED DURING WASTE AUDIT: COMMUNICATIONS

During the waste audit, many questions and doubts were raised concerning the impact of recycling common items, such as office paper and aluminum cans. For daily campus activities, point-of-disposal is an effective time to provide information about recycling and increased costs in waste disposal. Posters on information boards reinforce the importance of recycling. To increase confidence that these actions are making a difference, effectively communicate why recycling is important and what happens to the materials when they are appropriately disposed. If UAF begins to regularly track waste and diversion data, it can leverage existing mediums to communicate results, such as the Office of Sustainability website and the many display screens throughout campus showing energy and water savings.

5.0 REGIONAL COLLABORATION

To explore the possibility of expanding UAF's recycling capabilities, the university should conduct a regional study to identify local demand for recycling, capacity for collection and storage, economic feasibility, and potential partners and funding sources. Building on exploration of the local market for recycling, it is recommended that UAF evaluate potential partnerships and opportunities for collaboration with local entities such as Fort Wainwright, the Fairbanks North Star Borough and the Rescue Mission.

For example, the local Army base, Fort Wainwright, recently ended its contract with K & K Recycling and is actively exploring alternative options for its internal recycling operations. There is a potentially significant opportunity for UAF to combine resources with the military to expand recycling operations through leveraging each organization's strengths — such as UAF's established hauling services, the military's capacity for hosting a sorting facility on base and the Rescue Mission's growing plastics recycling program. Additionally, Fort Wainwright has expressed interest in composting on base, creating another opportunity for collaboration and sharing costs related to composting.

CASE STUDY: BRIGHAM YOUNG UNIVERSITY

Brigham Young University-Idaho had an established recycling program for its campus with a processing facility to sort recyclables, but there was no available recycling operation for the City of Rexburg in which the university is located. The university's head of facilities management saw an opportunity to help the city and the university at the same time by letting the city use the university's processing facilities, while the city would provide recycling bins to its residents for free. This in turn would create jobs for students trying to get through college as well as provide the first recycling service to the residents of Rexburg, which would save the City of Rexburg thousands of dollars each year in landfill fees. Read more here.

6.0 CONCLUSION

This waste audit is aligned with the larger framework of UAF's SMP and one of the plan's long-term goals of becoming a zero waste campus by 2035. The platforms and opportunities recommended in this audit are meant to act as a catalyst for increased waste reduction and diversion on UAF's campus. The path to becoming a zero waste campus requires a large investment of time, resources and funding. However, the university has already taken an important first step by examining its current status and setting goals, It now has a list of strategies and implementation steps to further its progress towards being a zero waste institution.

Prioritizing recycling and integrating waste and materials management throughout UAF is a key piece of UAF's mission to incorporate sustainability into every facet of research, curriculum, operations and campus life. The university's path to achieving cost-neutral waste management solutions, or eventually cost-positive operations, will largely depend on its ability to increase efficiencies, promote responsible purchasing and disposal practices among the community and leverage local partnerships to share infrastructure and operational costs when possible.

It is recommended that UAF focus efforts on source reduction, examine the materials it consumes and identify opportunities for reducing the amount of disposable goods currently being purchased and ultimately thrown away. Source reduction is a key opportunity for UAF to reduce the volume of waste generated on campus each year.

To continue to increase the university's diversion rate, UAF should focus on leveraging the resources it currently has. As was previously mentioned, the university is in a unique climate and has fewer recycling resources than many campuses in the Lower 48. Though UAF has implemented a number of measures, it can still fine-tune and expand upon its existing practices, such as increasing composting services and increasing recycling rates of materials that are currently recycled on campus.