Sustainability Master Plan Draft

September 2014

Developed for University of Alaska, Fairbanks by Brendle Group, Inc.
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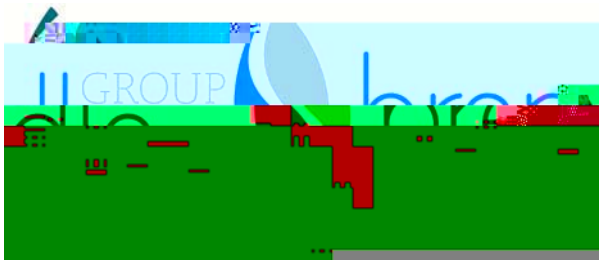

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ACKNOWLEDGEMENTS

The University of Alaska Fairbanks would like to acknowledge the efforts of the many individuals who participated in developing this Sustainability Master Plan (SMP). These include but are not limited to:

SMP Executive Committee

- Aaron Cooke, Cold Climate Housing Research Center Representative
- Darrin (Bear) Edson, Superintendent of Operations
- Bill Cox, Superintendent of Maintenance
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TABLE OF CONTENTS

1.0 EXECUTIVE SUMMARY

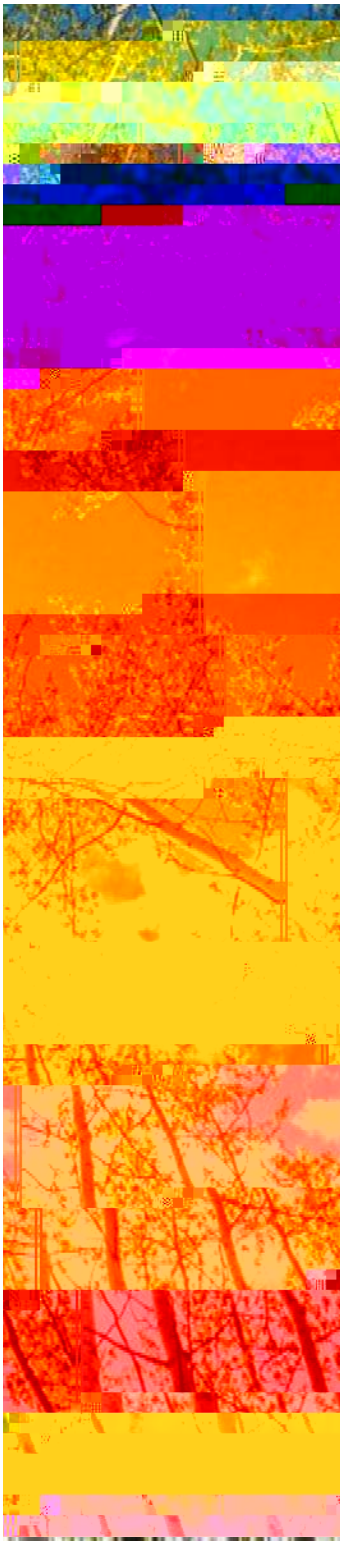
2.0 INTRODUCTION AND PURPOSE

The University of Alaska Fairbanks finds itself in a time of rapid change. Current economic challenges and energy and climate concerns in the Circumpolar North paint an uncertain future. These are pushing UAF to seek ways to be more resourceful.

These challenges also 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.

Funded by UAF's Student Sustainability Fee, this Sustainability Master Plan (SMP) has been developed to take stock of UAF's progress toward sustainability to date and create a cohesive master plan for the University. The SMP 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 and curriculum.

The SMP provides guidance for further improving UAF's score under the Association for under resourm 1 Tf -32.1486 -



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
- **Shape 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 SMP includes goals, strategies, action steps with timelines, responsible parties and measures of success. Finally, the SMP 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

2.2 UAF'S AASHE STARS Scorecard

A driving purpose behind this SMP 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

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TABLE 1: 2011 UAF STARS RESULTS

TOTAL SCORE	65.88 (GOLD)
EDUCATION & RESEARCH	PointsAchieved/ PointsEligible
Co Curricular Education	18.00/ 18.00
Curriculum	31.55/ 55.00
Research	26.77/ 27.00
OPERATIONS	PointsAchieved/ PointsEligible
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 & ENGAGEMI	PointsAchieved/ PointsEligible
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	PointsAchieved/ PointsEligible
Innovation	4.00/4.00

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 SMP

3.1 Overall Process

This SMP lays the groundwork for moving UAF systematically toward sustainability. It provides

FIGURE 1. PLAN DO CHECK ACT PROCESS

- Kick off the project and establish a forum for the collaborative tasks ahead;
- Recommend a vision/mission and focus areas for the SMP;
- 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 SMP Steering Committee meetings, the consultant team convened several small group

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TABLE 2. S

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.

4.0 BASELINE INVENTORY AND BENCHMARKING

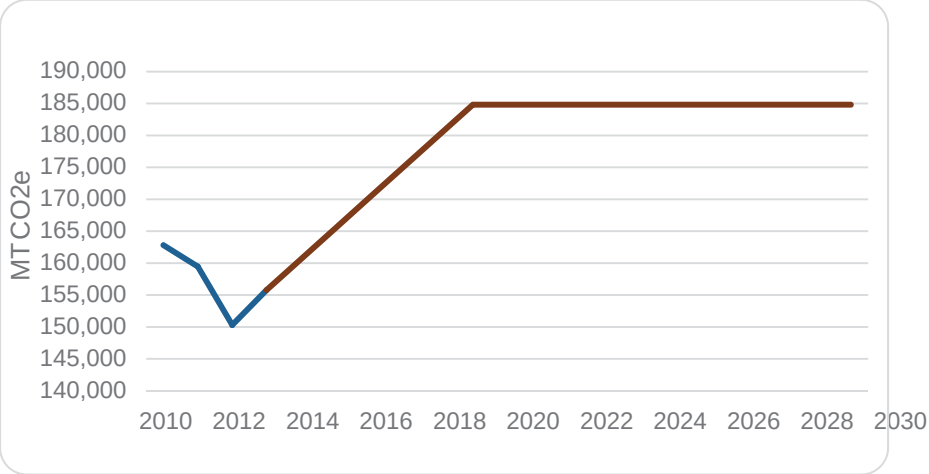
Data reviewed to update the GHG inventory included the following:

- CHP

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.

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

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

communicates results through its website and other communication methods. Table 4 summarizes UAF's existing practices. It should be noted that most of

STARS REPORT CATEGORY	SUMMARY OF EXISTING PRACTICES
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	
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 Food0ali7sIolicT4 1

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 meters power generation, electricity and water usage and provides 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 VendingMiser 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

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 hard copy 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

For this GHG report the contractor did not compare research focused building with

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

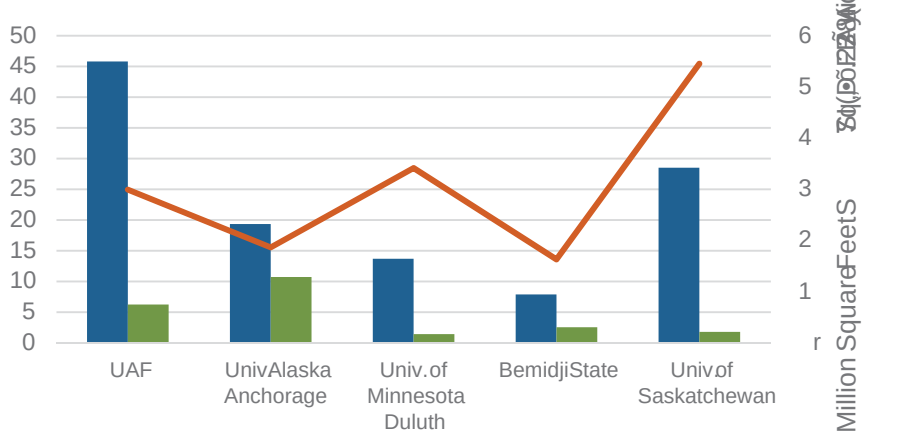
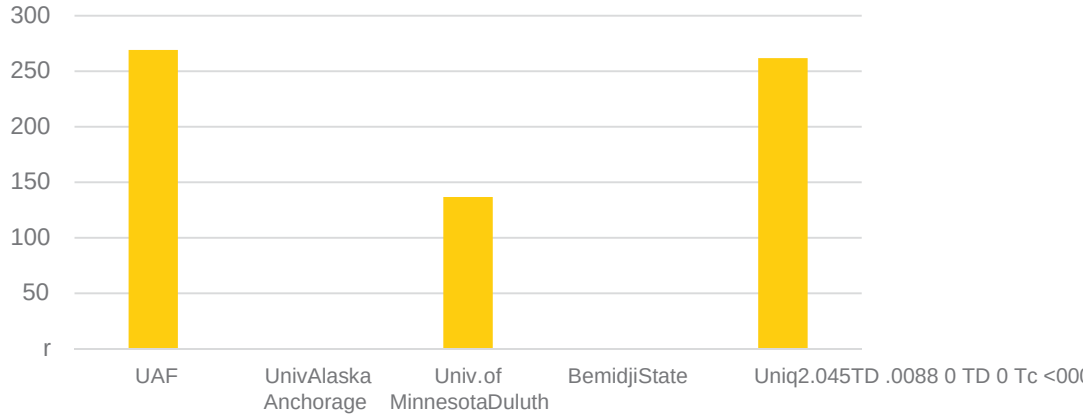


Figure7 showsthat UAFhascomparableamountof buildingsquarefootageper studentwith respectto peers,with the exceptionof the Universityof Alaskar Anchorage.

FIGURE 7: BUILDING SQUARE FEET PER STUDENT

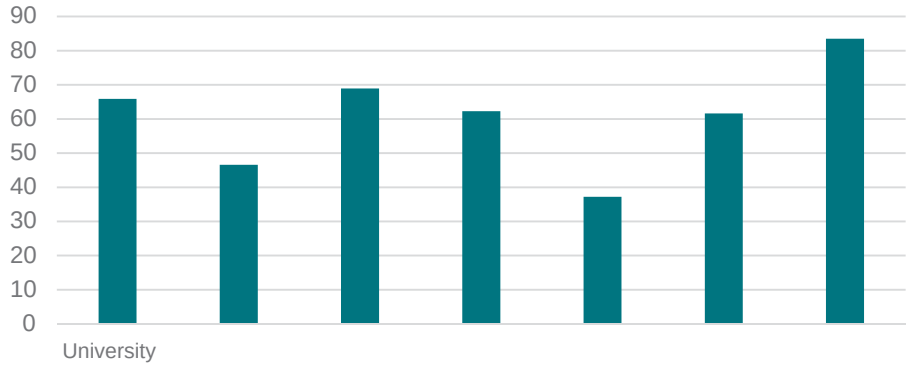
UAFhashighbuildingenergyuseasshownby energyuseintensity(EUI)in Figure8. Dataon EUIfor the Universityof AlaskaAnchorageand BemidjiState were not available.

FIGURE 8: BUILDING ENERGY USE INTENSITY



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 r Duluth were not available.

FIGURE 9: WATER USE PER STUDENT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5.0 SMP VISION, MISSION AND STRUCTURE

5.1 Introduction and Terminology

Centralto this SMPis the framework,or organizationof the Plan,presentedon the following pagesandin the following

FOCUS AREA:

Protect Resources

STARSCATEGORIES:

- Operations
- Buildings
- Climate
- Energy
- Transportation
- Water

FOCUS AREA:

Support the Campus Community

STARSCATEGORIES:

- Planning Administrationand Engagement
- Coordinationand Planning
- Investment
- Public Engagement
- Human Resources

FOCUS AREA:

Close Loops and Conserve Materials

STARSCATEGORIES:

- Operations
- Dining Services
- Purchasing
- Waste

5.2 Vision and Mission Statements

The highest level guidance for this SMP 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 SMP effort as well as other University sustainability activities and collaboration with the broader community.

UAF inspires Alaska's diverse

organizations. Conservative estimates have been used to avoid overstatement of potential impacts/benefits. Where quantification is not feasible, more qualitative statements of benefits (economic,