



ECU®

SUSTAINABILITY PLAN
2019-2023



LETTER FROM CHANCELLOR CECIL P. STATON



Dear Pirates,

Being good stewards of our environment and natural resources requires individual responsibility and campuswide engagement, but it also demands that we assume a leadership role in our region.

Sustainability is not just a one-and-done project. It is an ongoing commitment to a more thoughtful approach to the way we live, the way we learn, and the way we grow our university and the communities around us.

I am very happy to report that the pieces are coming together to reveal a clearer picture of a more sustainable future at ECU. With our Comprehensive Master Plan and ECU Strategic Plan 2017-2022 (*Capture Your Horizon*), we have laid the groundwork for exciting developments. This Sustainability Plan is an outgrowth of and complement to our overarching plans, integrating sustainability into ECU's core research and teaching

mission and reflecting ECU's commitment to sustainability in both operations and academics.

Much careful work went into this plan. The university sustainability manager and many students, faculty, staff and community members came together over the course of a year to offer insights and perspective. Through the planning process, a powerful vision of ECU anchoring the region emerged: "to provide leadership in fostering a culture of sustainability at ECU and demonstrate a commitment to the well-being of a very diverse people and environment in eastern North Carolina."

I am proud of the work accomplished by so many campus and community leaders who charted a course toward a more vibrant and sustainable future. The horizon is in sight.

A handwritten signature in cursive script that reads "Cecil Staton".

Dr. Cecil P. Staton



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COMMUNITY PARTNERS

ACRONYMS AND DEFINITIONS

The following acronyms and definitions are used throughout the Sustainability Plan. Though they have been defined upon their first appearance in the plan, please use this list as reference when needed.

AASHE	Association for the Advancement of Sustainability in Higher Education (aashe.org)
CY	calendar year
EUI	energy use intensity
ECU	East Carolina University
FY	fiscal year
GHG	greenhouse gas
GUC	Greenville Utilities Commission
GREAT	Greenville Area Transit
HSC	Health Sciences Campus
LEED	Leadership in Energy and Environmental Design (see usgbc.org)
Real Food Challenge	A sustainable food assessment and program for higher education’s dining halls
ROI	return on investment
Scope 1 emissions	Scope 1 emissions are direct greenhouse gas emissions from sources that are owned and controlled by ECU, such as on-campus electricity generation, natural gas usage, transportation for campus operations, use of refrigerants and chemicals, and agricultural activities.
Scope 2 emissions	Scope 2 emissions are indirect greenhouse gas emissions from sources that are neither owned nor operated by ECU, but whose products are linked to campus energy consumption, such as purchased electricity.
Scope 3 emissions	Scope 3 emissions are other greenhouse gas emission sources that are neither owned nor operated by ECU, but are either directly financed (e.g. waste removal and commercial air travel paid for by ECU) or are otherwise linked to the campus via influence or encouragement (e.g. daily commuting by faculty, staff and students). Emissions associated with paper consumption, solid waste disposal and wastewater treatment are also included.
SGA	Student Government Association
SOV	single-occupancy vehicle
STARS	Sustainability, Tracking, Assessment, and Rating System, a program of AASHE (see aashe.org)
WRC	West Research Campus

The **vision** for this plan is to provide leadership in fostering a culture of sustainability at ECU and demonstrate a commitment to the well-being of a very diverse people and environment in eastern North Carolina.

BACKGROUND

Building on Our History

ECU's Sustainability Plan for 2019-2023 builds on the school's historical commitment to the region and to environmental stewardship. This has long included energy and water conservation, waste reduction and recycling, as well as preserving trees and fostering a culture of sustainability on and off campus. A historical commitment to resource conservation and public health, as well as strong collaboration with students, staff and faculty to improve campus sustainability, are the foundation for this plan.

Building for Our Community

The geographic location of campus and the university's role in the eastern North Carolina region played an important role in the impetus for embarking on a sustainability planning process. Sustainability is a key factor in building on the region's strengths to create successful economic opportunities for rural populations and coastal community resilience. It is also a key factor in continuing to provide affordable access to health and wellness resources, supporting innovation in biotechnology and agriculture, assisting the U.S. military, and providing a sustainable tourism sector in the region.

Building on Our Plans

With this plan, ECU has committed to investing in planning for the future sustainability of its campus and leading a transformation of sustainability in the region. This plan brought together key academic and operational stakeholders to map out the future of sustainability at ECU, outline our short-term commitments, and create an action plan for how ECU will meet its institutional goals of promoting sustainable environments and becoming a leader in workplace wellness. The goals and strategies of this plan will result in benefits such as lower greenhouse gas emissions, reduced waste, and avoided costs from increased energy and water efficiency. This plan also aligns with the ECU Strategic Plan 2017-2022 (*Capture Your Horizon*) and Comprehensive Campus Master Plan (published in 2012).

Building on Our Strengths

The Sustainability Plan links campus sustainability with ECU's strengths in engineering, public health, diversity, social entrepreneurship, service learning and community engagement. It is also based on ECU's 2017 Sustainability Tracking, Assessment, and Rating System (STARS) report with regard to planning, operations, outreach and academics. The plan reveals ample opportunities for ECU to use the campus as a living laboratory, giving students a chance to develop valuable skills and to obtain real-world experiences while pursuing their education.

TIMELINE

1990

ECU IMPLEMENTS RECYCLING ON CAMPUS

2003

ECU CREATES BASELINES FOR WATER AND ENERGY CONSUMPTION

2007

THE DINING SERVICES IMPLEMENTS A TRAYLESS DINING PROGRAM

2009

NORTH CAROLINA IMPLEMENTS A UNC SYSTEM-WIDE SUSTAINABILITY POLICY

2011

ECU COMPLETES FIRST GREENHOUSE GAS AUDIT (SCOPES 1 AND 2 ONLY)

ECU HIRES ITS FIRST ENERGY MANAGER

2010

ECU FORMS A SUSTAINABILITY COMMITTEE

CROATAN DINING HALL IS CERTIFIED LEED SILVER

ECU INSTALLS THE FIRST PERMEABLE PAVEMENT PROJECT

2012

ECU PUBLISHES COMPREHENSIVE MASTER PLAN: A CAMPUS WITHIN CONTEXT

ECU CREATES A CAMPUS FRUIT AND VEGETABLE GARDEN AT RIVERS BUILDING

2013

ECU APPOINTS REPRESENTATIVES TO UNC SUSTAINABILITY ALLIANCE AND NAMES THE FIRST CHIEF SUSTAINABILITY OFFICER

ECU CREATES A TRAVEL CARE CODE FOR ALL COMMUNITY MEMBERS

2014

CLUB SPORTS INITIATES THE GO GREEN PROGRAM FOR ATHLETICS

2016

ECU HIRES ITS FIRST SUSTAINABILITY MANAGER

ECU COMPLETES ITS FIRST ENERGY PERFORMANCE CONTRACT AS WELL AS ITS SECOND GREENHOUSE GAS INVENTORY OF ALL THREE EMISSION SCOPES

A MAJORITY OF ECU CLEANING PRODUCTS ARE GREEN SEAL AND/OR CERTIFIED JANITORIAL PAPER PRODUCTS

ECU BECOMES A DESIGNATED TREE CAMPUS USA AND IMPLEMENTS RAIN BIRD SMART IRRIGATION SYSTEM

ECU SUPPORTS THE IMPLEMENTATION OF THE GREENVILLE COMMUNITY GARDEN

2015

SUSTAINABILITY IS INCORPORATED INTO ECU'S STRATEGIC PLAN: *CAPTURE YOUR HORIZON*

2017

ECU RECEIVES AASHE STARS BRONZE RATING

ECU COMPLETES ITS THIRD GREENHOUSE GAS INVENTORY OF ALL THREE SCOPES

ECU STARTS ITS FIRST SUSTAINABILITY PLANNING PROCESS

2018

ECU IMPLEMENTS A CAMPUS BIKE SHARE PROGRAM

ECU HOLDS A "BUY GREEN EXPO" FOR ALL CAMPUS DEPARTMENTS



CONTEXT

Referencing a Framework

The university’s overarching strategic plan for 2017-2022, *Capture Your Horizon*, charts how the institution’s responsibility to promote sustainable environments and be a leader in workplace wellness are part of the foundations for our commitments to student success, serving the public and leading regional transformation.

A Plan to Dig Deeper

The sustainability plan upholds those recognitions by:

- **incorporating** sustainability into the university’s focus on wellness;
- **engaging** students, staff and faculty in the planning process;

- **enhancing** a culture of sustainability across academics, operations and outreach, and
- **identifying** clear and measurable goals with strategies for ECU to achieve meaningful sustainability results for the university.

ECU has adopted the UNC System’s policy of sustainability as a core value of institutional operations, planning, capital construction and purchasing practices. ECU has also committed to the UNC System goal of carbon neutrality by 2050. The UNC System Sustainability Policy has also led to the development of campus sustainability programs, staff positions and financial support for sustainability initiatives on campus. ECU founded a Sustainability Committee in 2009, assessed their institutional sustainability in 2017, and have tracked greenhouse gas emissions on an annual basis since 2016.

Future Opportunities to Implement Sustainability

As ECU looks toward developing the East Carolina Research and Innovation Campus (millennial campus), the university will both expand its open-to-business model and increase its student body. The university is predicted to grow its student body population to 35,000 in the next 10 years and the expansion will enhance the focus on the engineering, medical, dental, nursing and public health programs on campus. ECU deepening its commitment to sustainability in academics is an excellent opportunity for ECU to contribute to the social, environmental and economic health of the region.

Progress to Date

In the last two years, ECU has centralized its sustainability efforts on campus by hiring its first university sustainability manager. This position assists in carrying out and accomplishing the sustainability initiatives and goals at ECU.

In 2017, ECU earned a Bronze rating in the Association for the Advancement of Sustainability in Higher Education (AASHE) Sustainability Tracking, Assessment, and Rating System (STARS). ECU has used the STARS model for this planning process to integrate sustainable activities and efforts across all campus sectors. The STARS assessment created a comprehensive view of ECU’s sustainability efforts to date and helped to identify appropriate sustainability goals and strategies for this plan.

ECU is proud of its first rating within the STARS. The Bronze rating shows that ECU has already achieved important work and has a solid foundation for the school to continue to improve its sustainability efforts. ECU’s sustainability progress to date can be broken down into **academics, operations, administration and outreach efforts**.

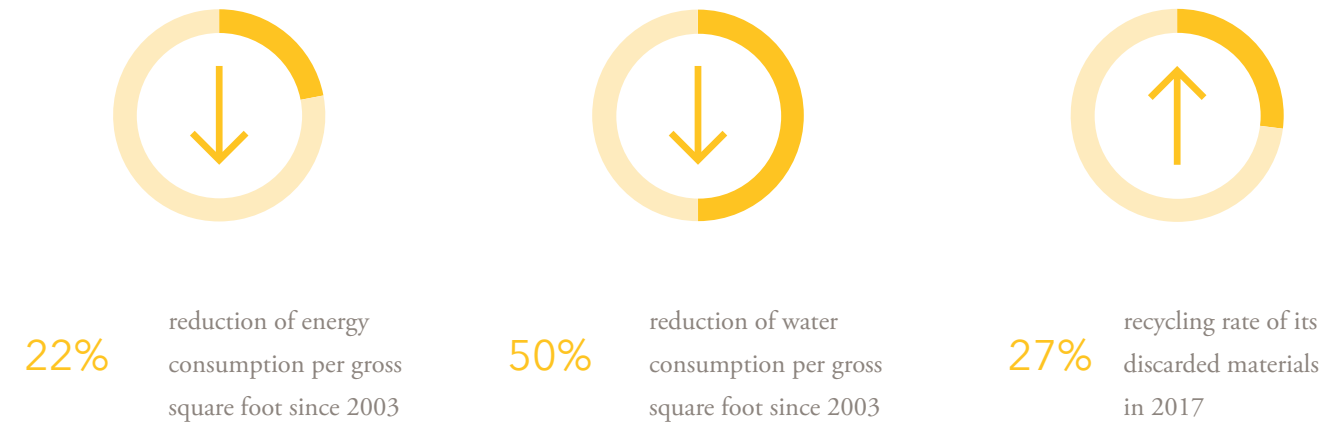
CELEBRATING SUSTAINABILITY SUCCESS

Even with a relatively new sustainability program and one full-time sustainability staff member, ECU has achieved significant strides in sustainability in recent history.



Prior to the planning process that led to this Sustainability Plan, ECU finished its first Sustainability Tracking, Assessment, and Rating System (STARS) report, which established an important baseline for campus sustainability metrics. The outcome of this report also provided visibility and direction on what areas ECU would focus on for this first plan under the larger sustainability framework.

Resource Conservation Progress



High Scores in STARS



Parallels to ECU’s Strategic Plan

Public service and community partnership — ECU’s Sustainability Office partners with the Center for Leadership and Civic Engagement to coordinate local and regional sustainability partnerships and expand sustainability service opportunities for students

Affordability and access — The Office of Undergraduate Admissions works closely with all students who have shown an interest in attending ECU, especially those from low-income backgrounds. Of all ECU students entering per year, 60 percent are from low-income backgrounds. On average, nearly 50 percent of need is met for students who are awarded any need-based aid and approximately one third of students graduate with no interest-bearing student loan debt.

Diversity and equity — The ECU Office of Equity and Diversity (OED), LGBT Resource Office, Campus Multifaith Alliance and Ledonia Wright Cultural Center (LWCC) work collectively to offer services to underrepresented groups of students, staff and faculty as well as to host events and trainings to raise awareness about diversity and equity among our campus community.

Health and wellness — ECU offers multiple wellness programs and activities that are available to students, staff and faculty. The sustainability program also partnered with the Brody School of

Medicine’s Department of Public Health, now a part of the newly established School of Rural Public Health, to host a Climate Change and Health Symposium in March 2017. The importance of this connection cannot be underestimated, especially in eastern North Carolina where climate change is leading to an increase in heat-related illnesses of farm workers, the seasonality of allergies is lengthening, and more climate-induced health concerns persist.

Rural development — Ample opportunities exist to support the chancellor’s Rural Prosperity Initiative through sustainable development in the region. For example, ECU is promoting the development of waste to energy opportunities in regional livestock operations as well as exploring the opportunity to divert food waste as animal feed to area producers. Furthermore, there is an increased interest in ecotourism as a way to diversify the rural economy. Nature-based tourism (e.g., hunting and fishing tours, estuarine cruises, wildlife tours, natural history field trips, backwater paddle adventures, horseback riding trails and camping trips) blends with the region’s agricultural, historic, coastal, and cultural destinations.

Coastal community resilience — The Coastal Studies Institute and ECU’s Coastal Resources Management and Urban Planning programs both work to support this goal of the ECU Strategic Plan.

BENCHMARKING

ECU has identified best practices in sustainability among its peer institutions. When identifying peers, ECU looked both within the UNC System (NC State, UNC Chapel Hill, UNC Charlotte, Appalachian State University and UNC Greensboro) and outside to schools that compare well with ECU’s size, endowment and current sustainability needs, such as Western Michigan University and the University of Louisville.



ECU learned from other institutions’ sustainability work and their relevant efforts, strategies and goals when developing the focus areas of ECU’s sustainability plan. The three comparison categories that ECU focused on when reviewing their peer’s accomplishments were staffing, STARS ratings and energy consumption.

Peer Comparisons in Paid Sustainability Staff

ECU found that all of the UNC System schools have developed dedicated sustainability offices with established sustainability plans. Of these institutions, all have at least two full-time equivalent (FTE) staff members, whereas ECU only has one FTE in sustainability (see Table 1).

Table 1. — Sustainability staffing at ECU’s peer institutions

UNC system peer institutions	FTE staff	Sustainability office year established
ECU	1	2016
NC State (Raleigh, NC)	4.5	2010
UNC Chapel Hill	2	2001
UNC Charlotte	2.5	2010
Appalachian State University (Boone, NC)	7.5	2008
UNC Greensboro	2.5	2010

Peer Comparisons in STARS Rankings

Although ECU has the most current STARS ranking, completing their submission in 2017, they have the lowest score amongst the UNC System schools and their other peer institutions (see Table 2).

Table 2. — STARS rankings at ECU’s peer institutions

UNC system peer institutions	STARS rating
ECU	Bronze (2017)
NC State (Raleigh, NC)	Gold (2016)
UNC Chapel Hill	Gold (2014)
UNC Charlotte	Silver (2016)
Appalachian State University (Boone, NC)	Gold (2015)
UNC Greensboro	Gold (2015)
Other peer institutions	
University of Louisville (KY)	Gold (2016)
Western Michigan University (Kalamazoo, MI)	Gold (2014)

Peer Comparisons in Energy Consumption

All UNC System schools use less energy per square foot (British thermal unit per square foot, or Btu/ft²) than ECU. Table 3 illustrates the energy use intensity as well as the total water use of each UNC System school. This

table also shows that while ECU has the highest energy use per square foot among its peers, it uses the third lowest amount of water each year. Table 4 shows ECU’s energy and water use from 2002 to 2017.

Table 3. — Energy and water use comparison among ECU’s peer institutions

Institution data from 2016	Total square feet (gsf)	Total energy use (MMBtu)	Energy use intensity (Btu/ft²)	Total water use (kgal)
ECU	6,868,261	923,166	134,410	172,498
NC State	15,119,248	1,749,176	115,692	360,943
UNC Chapel Hill	18,943,498	2,526,858	133,389	671,604
UNC Charlotte	9,383,653	763,028 ¹	79,850	225,898
Appalachian State University	5,174,003	483,959	93,537	91,347
UNC Greensboro	6,053,737	642,376	104,218	133,052

¹ 2016 data



Table 4. — ECU’s energy and water use data, 2002–2017

Year	Energy \$ avoided	Energy \$/gsf	\$/MMBtu	\$/MMBtu % change)	Btu/sf	Btu/sf % change	Water \$ avoided	\$/kgal	\$/kgal % change	Gal/sf	Gal/sf % change
2002-03		\$2.13	\$12.50		170,724			\$4.69		51.43	
2003-04	-\$1,130,619	\$2.33	\$2.33	-2%	189,287	11%	\$105,628	\$4.87	4%	47.04	-9%
2004-05	-\$140,266	\$2.47	\$14.29	14%	172,569	1%	\$388,649	\$5.66	21%	38.52	-25%
2005-06	-\$615,896	\$2.96	\$16.66	33%	177,567	4%	\$365,955	\$5.44	16%	38.99	-24%
2006-07	\$1,368,245	\$2.56	\$16.30	30%	157,404	-8%	\$709,569	\$5.67	21%	31.57	-39%
2007-08	\$3,239,094	\$2.44	\$17.14	37%	142,573	-16%	\$815,644	\$5.74	22%	30.25	-41%
2008-09	\$3,561,260	\$2.72	\$19.16	53%	142,207	-17%	\$997,608	\$6.45	37%	27.70	-46%
2009-10	\$1,081,983	\$2.86	\$17.71	42%	161,238	- 6%	\$931,172	\$6.64	41%	29.64	-42%
2010-11	\$2,869,387	\$2.61	\$17.84	43%	146,059	-14%	\$969,942	\$7.07	51%	30.39	-41%
2011-12	\$2,899,180	\$2.56	\$17.58	41%	145,433	-15%	\$1,220,903	\$8.05	72%	28.18	-45%
2012-13	\$3,405,995	\$2.42	\$17.15	37%	141,416	-17%	\$1,349,254	\$8.20	75%	26.25	-49%
2013-14	\$3,357,400	\$2.43	\$17.13	37%	141,752	-17%	\$1,397,859	\$8.20	75%	26.25	-49%
2014-15	\$3,846,835	\$2.51	\$17.97	44%	139,480	-18%	\$1,736,159	\$9.05	93%	23.45	-54%
2015-16	\$3,973,665	\$2.14	\$15.93	27%	134,410	-21%	\$1,732,465	\$9.59	104%	25.12	-51%
2016-17	\$3,779,065	\$2.08	\$15.35	23%	135,262	-21%	\$1,510,135	\$8.29	77%	25.19	-51%

HOW THIS PLAN CAME TO BE

ECU’s Sustainability Plan is the university’s first formalized document focused on bringing together sustainability efforts across all campus stakeholders. Over the course of a year (2017-2018), students, faculty, staff and community representatives participated in a facilitated process to map out the direction for ECU’s sustainability program from 2019 to 2023.

Using a combination of STARS reporting, benchmarking data and the university’s overall strategic priorities, ECU created four sustainability priorities and committees to develop goals within each category:

Working closely with the university sustainability manager, each committee chair collaborated with a diverse set of stakeholders in their focus area to develop and provide important insight into the goals, strategies and action items outlined in this plan.

ECU invested in a yearlong planning process that actively engaged more than 60 students, faculty, staff and community members in plan development, recognizing that community buy-in for both the planning and implementation phases would be a crucial component of the plan’s success.

Building on Partnerships

The ECU Sustainability Program has developed numerous partners both on and off campus. On campus, several departments, offices and other entities have collaborated to participate in sustainability initiatives and host green events such as Earth Week, the Center for Sustainability Symposium, Climate Change and Health Symposium, and many more.

Over the past two years, the university sustainability manager has become very active in the local community, working to build relationships off campus, as well. Within the State of North Carolina, the university sustainability manager and the chief sustainability officer both serve on the UNC System Sustainability Alliance. In addition, they, as well as other ECU staff and faculty, attend the annual Appalachian Energy Summit and the North Carolina Association of Physical Plant Administrators (NCAPPA) Conference.

Beyond state lines, ECU is also represented in the Southeast Sustainability Network and often attends and presents at the annual Association for the Advancement of Sustainability in Higher Education (AASHE) conference.

Other ways that the ECU Sustainability Program stays in communication with campus and local partners include their sustainability website and social media accounts, monthly email newsletters, student orientation, faculty and staff orientation, guest lectures, annual film and discussion series, articles in *The East Carolinian* student newspaper and *The Hook* magazine, ads in the *Pirate Preview* and other student media publications.

Plan Timeframe

This plan outlines goals and strategies for 2019-2023. The majority of the goals and all of the strategies within this plan have specific, measurable and achievable milestones within the bounds of the next five years. Note that some goals stretch beyond these five years because they are tied to aspirational and ambitious targets that will take longer to achieve.

Unless otherwise stated, all completion dates within this plan refer to the end of ECU’s fiscal year, June 30, 2023.

*“ECU’s strategic plan for 2017 to 2022, Capture Your Horizon, charts out how the institution’s responsibility to **promote sustainable environments and be a leader in the workplace wellness** are part of the foundation for ECU commitment to student success, public service and regional transformation.”*



ECU underwent an inclusive and stakeholder-driven strategic planning process.

Step 1 | Baselineing ECU sustainability | ECU collected data and information on its sustainability work to date, areas of institutional growth, and best practices among its peers.

Step 2 | Reviewing the current state and creating a vision | The support team kicked off the stakeholder engagement process with a full-day gathering of all members of the four focus areas: (1) *academics and research*, (2) *campus grounds*, (3) *materials management*, (4) *climate change mitigation*. Everyone reviewed the work to date and create a shared vision for the plan.

Step 3 | Setting ambitious and implementable goals and strategies | Each focus area had three facilitated working meetings to decide on appropriate goals and implementable strategies within each focus area for the sustainability plan.

Step 4 | Incorporating stakeholder feedback and synergy | All focus area members came together for a half-day gathering to review and learn from others’ work. After offering each other feedback, focus area members created action plans for implementation.

Step 5 | Community review and institutional endorsement | ECU leadership provided feedback and endorsement of the goals and strategies. The support team held an open house for the ECU community at large to provide feedback and learn about the sustainability plan.



CLIMATE CHANGE MITIGATION

chaired by Griffin Avin,
Director of HSC Facilities

- | | |
|-----------------|-----------------|
| Praveen Malali | Austin McIntyre |
| Brian Glover | Ray Schmit |
| Katherine Swank | John Fields |
| Les Hewlett | Robert LaGesse |
| Paul Carlson | Paul Safrit |
| Nick Parker | Dan Hemme |
| Josh Rossnagel | David Ames |



ACADEMICS & RESEARCH

chaired by Chad Carwein,
University Sustainability Manager

- | | |
|-------------------|-----------------|
| Brandon Morrison | Justin Waters |
| Tarek Abdel-Salam | Dennis McCunney |
| Craig Becker | Camille Kresz |
| Beth Bee | |
| Rebecca Powers | |
| Jeanne Hoover | |
| Erik Kneubuehl | |



CAMPUS GROUNDS

chaired by John Gill,
Campus Landscape Architect

- | | |
|-------------------|----------------|
| Thad Wasklewicz | Michael Talton |
| Carol Goodwillie | Gene Stano |
| Charles Humphrey | Willie Ehling |
| Anuradha Mukherji | Chris Horrigan |
| Claudia Jolls | Matt Butler |
| Misun Hur | |
| Bill McCartney | |



MATERIALS MANAGEMENT

chaired by Aaron Lucier,
Director of Housing Operations

- | | |
|---------------|---------------|
| Terry Little | Joyce Sealy |
| Tim Kelley | Ann Maxwell |
| Stacey Schley | Dan Sokolovic |
| Tim Daughtry | Kay Sokolovic |
| Rocky Howell | Cheryl Tafoya |
| Carl Thorell | |
| Eddie Johnson | |



CLIMATE CHANGE MITIGATION (CCM)

The Climate Change Mitigation (CCM) focus area crosses departments and fields and reaches to the core of ECU’s Sustainability Plan, greatly reducing the environmental impact of ECU. The CCM focus area broadly refers to the pursuit of outcomes designed to reduce ECU’s greenhouse gas emissions both on and off campus.



Baseline

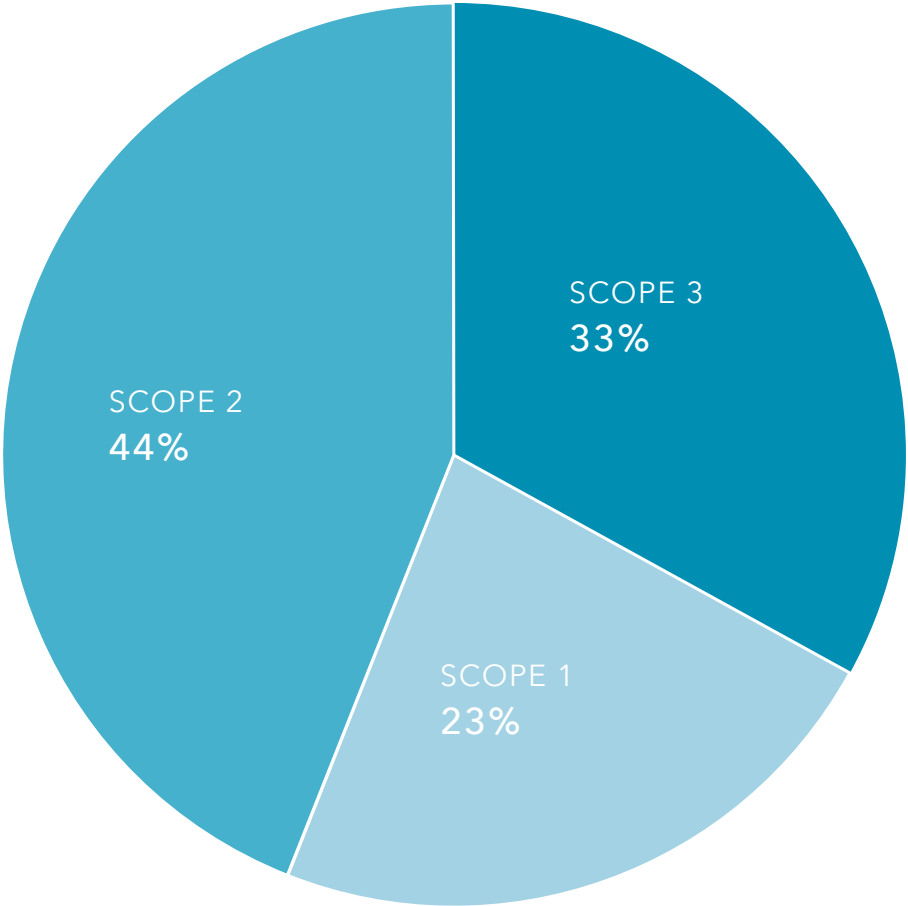
ECU used their STARS data as a baseline when creating the goals and strategies for this portion of the plan.

Table 5 shows ECU’s STARS scores for climate change mitigation categories.

Table 5. — ECU’s points earned for AASHE STARS in climate change mitigation

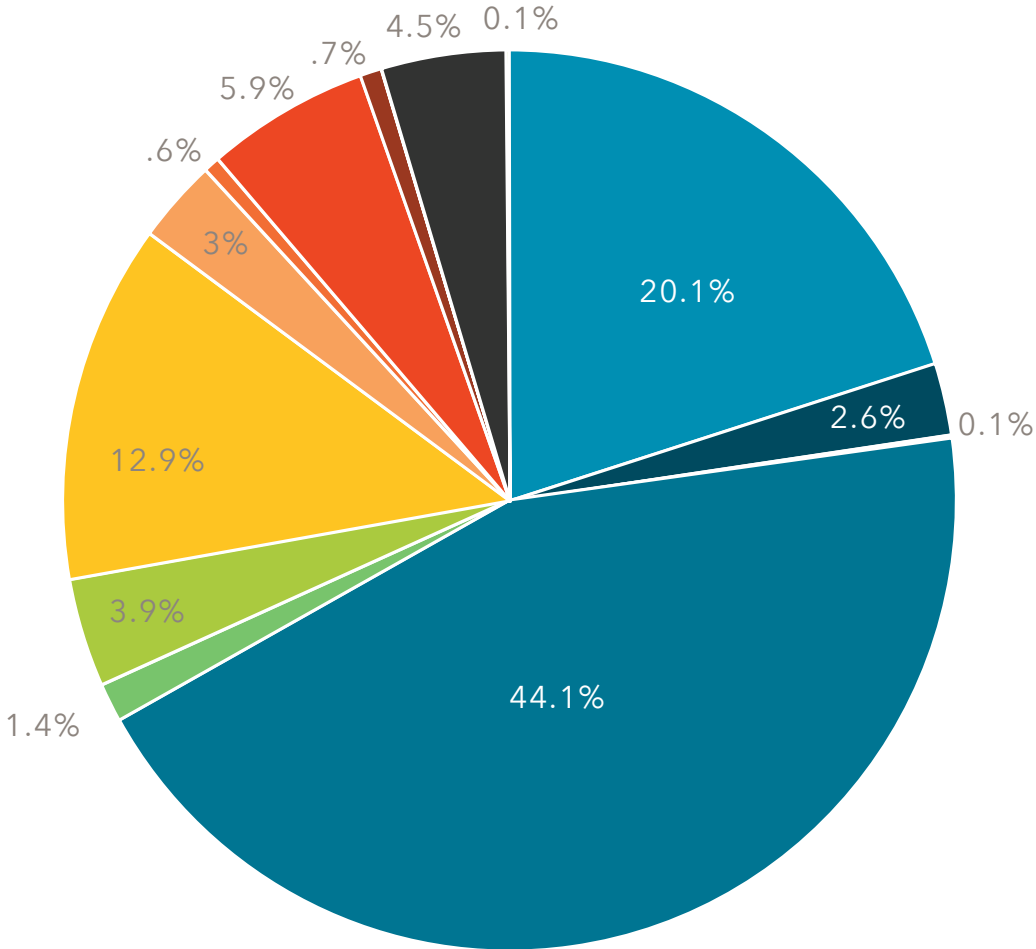
Topic	STARS category	Title	ECU points	Max points
CCM generally	OP-1	Greenhouse Gas Emissions	2.99	10.0
	OP-3	Building Operations and Maintenance	1.00	5.0
Building efficiency	OP-4	Building Design and Construction	0.87	3.0
	OP-5	Building Energy Consumption	2.17	6.0
Energy production	OP-6	Clean and Renewable Energy	0.00	4.0
	OP-15	Campus Fleet	0.08	1.0
Transportation	OP-16	Student Commute Modal Split	1.58	2.0
	OP-17	Employee Commute Modal Split	0.34	2.0
	OP-18	Support for Sustainable Transportation	2.00	2.0
	IN-14	Bicycle Friendly University	0.50	0.5
Water use	OP-22	Water Use	0.42	4.0
	IN-17	Natural Wastewater Systems	0.00	0.5
SUBTOTAL			11.95	40.0

Figure 1. — ECU’s greenhouse gas emissions breakdown by scope (2017 data)



Scope 1 emissions	Scope 1 emissions are direct greenhouse gas emissions from sources that are owned and controlled by ECU, such as on-campus electricity generation, natural gas usage, transportation for campus operations, use of refrigerants and chemicals, and agricultural activities.
Scope 2 emissions	Scope 2 emissions are indirect greenhouse gas emissions from sources that are neither owned nor operated by ECU, but whose products are linked to campus energy consumption, such as purchased electricity.
Scope 3 emissions	Scope 3 emissions are other greenhouse gas emission sources that are neither owned nor operated by ECU, but are either directly financed (e.g., waste removal and commercial air travel paid for by ECU) or are otherwise linked to the campus via influence or encouragement (e.g., daily commuting by faculty, staff and students). Emissions associated with paper consumption, solid waste disposal, and wastewater treatment are also included.

Figure 2. — ECU’s greenhouse gas emissions breakdown by type (2017 data)



ECU’s current emissions breakdown is illustrated in Figures 1 and 2 and Table 6.

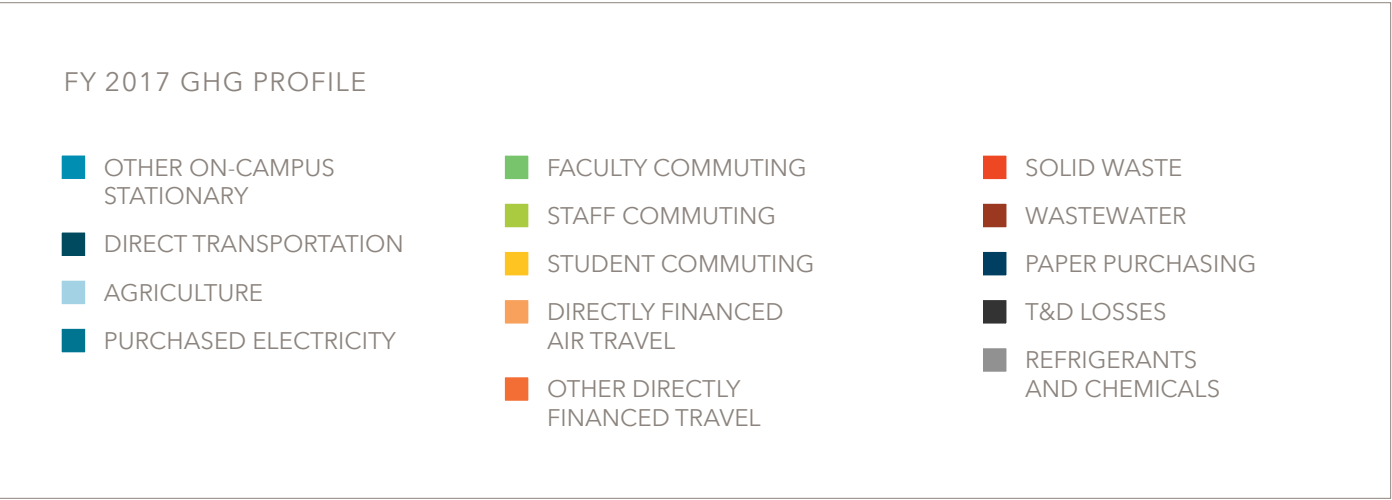


Table 6. — ECU’s greenhouse gas emissions in metric tons of carbon equivalent (MTCO₂e) (2017 data) and percent of total

Scope	Source	GHG MTCO ₂ e	% total
1	Other on-campus stationary	25,898.71	20.1%
	Direct transportation	3,329.28	2.6%
	Refrigerants and chemicals	175.77	0.1%
	Agriculture	42.58	0.0%
	Subtotal Scope 1	29,446.34	22.9%
2	Purchased electricity	56,861.14	44.1%
	Subtotal Scope 2	56,861.14	44.1%
3	Faculty commuting	1,831.12	1.4%
	Staff commuting	5,040.15	3.9%
	Student commuting	16,576.00	12.9%
	Directly financed air travel	3,871.35	3.0%
	Other directly financed travel	818.26	0.6%
	Solid waste	7,600.74	5.9%
	Wastewater	1,007.37	0.8%
	Paper purchasing	0.18	0.0%
	Transmission and distribution losses	5,740.80	4.5%
Subtotal Scope 3		42,485.96	33.0%
TOTAL		128,793.44	100%

Work to Date

In 2011, ECU hired their first energy manager with the intention of reducing its campus’ net energy consumption. Two years later, ECU contracted a consulting firm to compile its first GHG audit, analyzing Scopes 1 and 2 emissions. In 2016, ECU hired its first sustainability manager, expanded its sustainability program, completed its first energy performance contract, and completed a second comprehensive GHG audit that included Scopes 1, 2 and 3 emissions.

Opportunities

Climate change mitigation strategies may be grouped into four categories: building efficiency, transportation, water consumption, and energy consumption and production.

Building efficiency

Building efficiency includes both the maintenance and operations of existing buildings and new building design and construction. Because buildings are generally the largest consumer of energy, they are also the largest source of greenhouse gas emissions on college campuses, unless they are energy independent or source their energy from renewable resources. Buildings also use significant amounts of potable water due to occupant actions such as flushing toilets and running sinks. Labs, a subset of buildings included in this category, consume even more energy because of the high-intensity needs of lab work. By targeting buildings, ECU will be able to make environmental impact on a larger, institutionalized scale.

Transportation

Transportation is a major source of greenhouse gas emissions and other pollutants due to the prevalence of combustion engines. These emissions not only negatively affect the environment by releasing carbon into the atmosphere, but they also contribute to health problems such as heart and respiratory diseases.

Incentivizing alternative modes of transportation can help reduce ECU’s carbon footprint as well as promote healthy lifestyles and less impactful commuting options for students, staff and faculty. Examples of such incentives include carpool permits, designated parking spaces for carpooling and low or zero emissions vehicles (LEVs and ZEVs), emergency rides home, and prizes for commuters who walk, ride bikes or use public transit. Goals and strategies involving transportation will produce parallel effects for both environmental sustainability and the growing wellness campaigns across campus.

Water consumption

Pumping, delivering and treating water consumes great amounts of energy. Institutions can help reduce energy use and the greenhouse gas emissions associated with energy generation by conserving water. Water conservation and effective rainwater and wastewater management also reduce effluent discharge into local water supplies, helping to improve the health of local water ecosystems. Opportunities for reducing greenhouse gas emissions associated with water use include: water efficient retrofits to sinks, showers and toilets, waterless urinals, and rainwater and greywater flush toilets.

Energy consumption and production

North Carolina has the second-highest amount of solar electric capacity installed nationwide. Though this progressive programming benefits the state at large, challenging regulations limit the ability of public institutions, such as ECU, to purchase or generate solar energy. Public institutions are not eligible for the Production Tax Credits (PTC), nor are they currently permitted to enter into net metering agreements under current state policies. Implementing conservation measures and switching to renewable sources of energy can help institutions save money and protect them from utility rate volatility. Renewable energy can also be generated locally which would allow energy users to support their local economic development while reaching their energy reduction goals. Furthermore, institutions can help shape markets by creating demand for cleaner, renewable sources of energy.

GOALS AND STRATEGIES



ECU reviewed the best practices and challenges of their peer institutions as well as their baseline, including STARS and other campus data, to produce ambitious yet achievable goals for climate change mitigation. Both opportunities and challenges are reflected in these goals. To improve the sustainability infrastructure at ECU, and therefore lessen its overall carbon impact, the following goals were created.

GOAL 1:

Cut Scopes 1 and 2 greenhouse gas emissions 5% by 2023

Scopes 1 and 2 emissions account for over half of all of ECU's inventoried emissions. Scope 1 emission sources amount to 23 percent and Scope 2 accounts for 44 percent of total emissions. ECU can become a leader in the region and beyond by encouraging sustainable consumption practices among its students, faculty and staff. The cost reduction of reducing greenhouse gas emissions will also free up funds to implement sustainability initiatives elsewhere on campus.

Strategies
1. Work with ECU's Campus Living Office to plan, promote and run one energy and water competition per semester in residence halls
2. Reduce water usage across campus by an additional 5 percent over the next five years (2019-2023) through the use of rainwater collection and high-efficiency fixture upgrades
3. Ensure all major ECU facilities are metered for all energy and water consumption over the next five years (2019-2023)
4. Initiate retro-commissioning processes on facilities with the highest energy consumption to identify building optimization opportunities over the next five years (2019-2023)

GOAL 2:

Explore the potential for large-scale renewable energy projects and demonstrate renewable energy sources through small-scale installations by 2023

Despite a challenging regulatory environment, North Carolina has the second-highest installed solar photovoltaic capacity in the United States, with many located in the eastern part of the state.² ECU has the opportunity to explore viable options for large-scale renewable energy developments on and around campus by producing energy from small-scale renewable energy sources. Producing renewable energy will not only benefit ECU through cost avoidance, but also by making ECU a regional leader in the development and use of renewable energy sources. This opportunity will allow ECU to teach its surrounding communities about the environmental and cost impacts associated with adopting renewable energy sources, which in turn will increase the positive impact the region has on the environment.

Strategies
1. Compile options for the purchase or sale of renewable energy through Greenville Utilities Commission (GUC)
2. Request nonrecurring state funds to implement renewable energy projects on university-owned properties over the next five years (2019-2023)

GOAL 3:

Reduce greenhouse gas emissions from transportation sources 5% by 2023

Emissions from direct transportation and commuting account for more than 20 percent of the GHG profile. Direct transportation includes all student, faculty and staff commuting (not including travel to campus at the beginning and end of semester or during academic breaks). As Greenville continues its transition into a regional, economic and cultural hub, smarter and more effective transportation solutions will be needed to offset increasing congestion and pollution. ECU can be transformative in this field by adopting new technologies to reduce university fleet emissions and encouraging campus members to use public and alternative modes of transportation.

Strategies
1. ECU, the Greenville Urban Area Metropolitan Planning Organization (MPO) and Greenville Area Transit (GREAT) will produce documentation to define a cooperative partnership between the university and the city by fall 2020
2. Create incentives for using public and alternative modes of transportation by fall 2019
3. Install idle reduction devices and educate fleet vehicle users via the U.S. Department of Energy toolkit by fall 2019



² Solar Energy Industries Association (SEIA). From <https://www.seia.org/research-resources/top-10-solar-states>.



ACADEMICS AND RESEARCH (AR)

The academics and research focus area includes integrating sustainability into the curriculum as well as tracking, supporting and expanding sustainability related research conducted by students and faculty on campus. This focus area also covers living laboratory initiatives, immersive experiences and sustainability literacy.



Baseline

The sustainable academics and research accomplishments ECU has achieved have resulted in the STARS scores represented in Table 7. These scores not only illustrate ECU’s commitment to sustainability in research, but also support the need for improvements to traditional education opportunities for students to get involved with sustainability. By addressing the categories where ECU is lacking points, major progress can be made to graduate students with a strong foundation of applicable sustainability knowledge to positively impact the future of the planet.

Table 7. — ECU’s points earned for AASHE STARS in academics and research

Topic	STARS category	Title	ECU points	Max points
Research and academics	AC-9	Research and Scholarship	11.58	12.0
	AC-10	Support for Research	1.0	4.0
	AC-11	Open Access to Research	1.0	2.0
Curriculum	AC-1	Academic Courses	8.1	14.0
	AC-2	Learning Outcomes	5.14	8.0
	AC-3	Undergraduate Program	1.5	3.0
	AC-4	Graduate Program	3.0	3.0
	AC-5	Immersive Experience	0.0	2.0
	AC-6	Sustainability Literacy Assessment	0.0	4.0
	AC-7	Incentives for Developing Courses	0.0	2.0
	IN-1	Sustainability Course Designation	0.0	0.5
	IN-2	NSSE Sustainability Education Consortium	0.0	0.5
	IN-3	Academy-Industry Connections	0.0	0.5
Living laboratory	AC-8	Campus as a Living Laboratory	0.0	4.0
SUBTOTAL			31.32	63.5

Work to Date

ECU has a solid foundation of bringing sustainability concepts into the classroom, campus and community.

Excelling in sustainability scholarship

ECU has more than 450 courses related to sustainability and more than 50 academic departments offering sustainability courses. For example, research at the UNC Coastal Studies Institute covers a broad range of pressing environmental concerns faced by coastal North Carolina and the delicate ecosystems that are present. The Center for Sustainability at ECU has also expanded beyond its original focus of sustainable tourism to encompass a wide range of industries with a broadened goal to develop projects that address the three pillars of sustainability: people, planet and profit.

Beyond the classroom

In addition, ECU has unique natural areas and facilities that offer space for students to engage in field work related to sustainability outside the classroom. West Research Campus provides a resource for research and education in ecology and biodiversity close to the ECU Health Sciences Campus. The diversity of the buildings on our Main Campus also presents ample opportunities for engineering students to conduct energy efficiency testing and assessments.

ECU serves the greater community

Finally, ECU has a long and passionate commitment to public service. More than 7,000 of the university’s students engage in community service, volunteering more than 30,000 hours per year.

Opportunities

Sustainability education can be interwoven

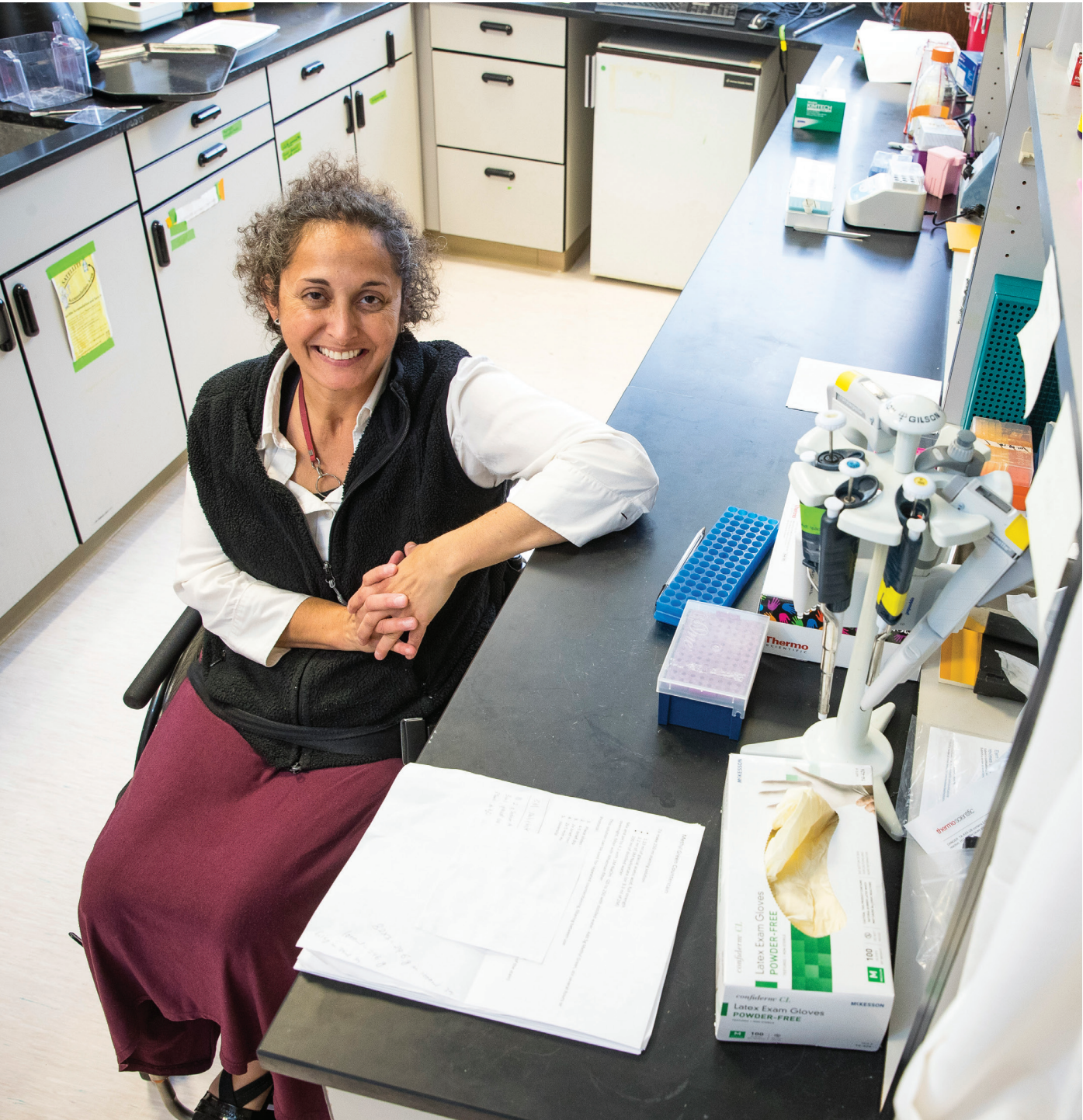
Institutions of higher education are uniquely positioned to understand and address sustainability challenges. Colleges and universities help equip students to lead society to a sustainable future by providing the necessary education to make impactful and informed decisions after graduation. These opportunities include faculty development in sustainability, sustainability-minded course offerings, sustainability and related degree programs, living laboratory initiatives, immersive experiences, and sustainability literacy opportunities.

Campus as a living laboratory

Living laboratories are defined as campuses that “merge academics and...facilities management to provide students with real-world skills and, for the institution, a path to meet its sustainability goals.”³ Living laboratories incorporate the natural spaces, human created environments, and communities on campus into coursework. By using existing challenges on campus, living laboratories provide students with real-life, hands-on experiences that improve the students’ learning and campus operations. ECU can embrace this exciting opportunity to create a dynamic, practicable learning environment that embeds sustainability into all aspects of life.

Building on community relationships

This plan aims to continue this commitment and strengthen the bonds between campus and community through sustainability-related service opportunities moving forward. The City of Greenville is currently undergoing a period of unprecedented growth, which will provide both service and immersive experiences to ECU students. For example, the upcoming development of Greenville could provide a platform for planning students to learn about and assist with smart urban planning and growth.



³The Campus as a Living Laboratory: Using the Built Environment to Revitalize College Education (2013). From <http://www.theseedcenter.org/Special-Pages/Campus-as-a-Living-Lab.pdf>.

GOALS AND STRATEGIES

Building on the strengths of academic programs in engineering and technology, public and environmental health, geography and tourism, ECU is in a great position to integrate sustainability into the curriculum as well as research. To attain this vision of collaborative sustainability education, the following goals were developed.



GOAL 1:

Be a sustainability research leader for the region

Eastern North Carolina needs leadership from an institution such as ECU to model sustainable development. By continuing the path of leadership in this region, ECU can help foster a culture of sustainability between the Triangle and the coast. Rural economic development, smart urban growth and community well-being are all areas in which ECU can take the lead and establish a higher standard of living for the residents of eastern North Carolina.

Strategies
1. ECU will add an academic sustainability coordinator position to staff before 2023
2. Hold a regional sustainability-related conference once every three years

GOAL 2:

All undergraduate students are literate in sustainability by graduation

In the past, Greenville has suffered from “brain drain,” in that students come to ECU for a great education, get their degrees and then move out of town for places with more opportunities, such as Raleigh, Charlotte and beyond. Our community is making a conscious effort to change that course and set sail toward supporting local business growth by providing a place for students to live, play, work and invest in Greenville beyond their time at ECU. Ensuring that students are literate in sustainability by graduation will enhance this experience and help ECU transform the region in a positive manner beyond their tenure as students. Specifically, sustainability literacy will enhance local efforts to help retain students beyond graduation, which will ultimately help with ECU’s strategic plan goal of regional transformation.

Strategies
1. Add a three-credit “sustainability” category to the general education requirements for undergraduates OR add environmental or sustainability designation to specific courses that will show on their transcripts by 2023
2. Create an interdisciplinary environmental studies or sustainability studies minor in the Thomas Harriot College of Arts and Sciences that addresses the three E’s of sustainability (equity, economics and environment) by 2023
3. Assess pre- and post-sustainability literacy of freshmen and seniors every three years starting in spring 2019
4. Establish a student educator program for collaboration between academics, operations and student life by 2023
5. Offer at least one immersive sustainability-focused educational program per year that is one week or longer in length of study by fall 2019

GOAL 3:

Increase the use of campus and community as a living laboratory for sustainability

Currently, ECU and the City of Greenville are experiencing an unprecedented rate of growth, which is providing ample opportunities to use the campus, as well as the community, as living laboratories for sustainability. With that growth, however, comes a responsibility to protect natural resources and serve the public by advocating for social equity. ECU is best positioned to assist with smart and sustainable growth by utilizing their extensive base of passionate students in creating community partners.

Strategies
1. Provide more sustainability-focused days of service, new community partners focused on sustainability, and course development grants related to sustainability objectives
2. Increase the number of capstone projects related to sustainability to increase awareness and curricular integration
3. Establish a sustainability fee by working with SGA, Student Affairs, Administration and Finance, and the ECU Board of Trustees



CAMPUS GROUNDS (CG)

The campus grounds focus area includes landscaping, gardens, incorporation of wildlife habitats, biodiversity preservation, aesthetics, water balance, stormwater and nitrogen flow.



Baseline

Even with great accomplishments in this arena, ECU has room to improve sustainable management of its campus grounds and to further improve its STARS score. Table 8 shows ECU’s STARS scores for this focus area.

Table 8. — ECU’s points earned for AASHE STARS in sustainable campus grounds⁴

Topic	STARS category	Title	ECU points	Max points
Campus grounds generally	IN-11	Grounds Certification	-	0.5
	OP-23	Rainwater Management	0.5	2.0
Stormwater	IN-15	Stormwater Modeling	-	0.5
	OP-2	Outdoor Air Quality	0	1.0
Nitrogen	IN-16	Campus Water Balance	-	0.5
Gardens	IN-12	Pest Management Certification	-	0.5
Landscape	OP-9	Landscape Management	0	2.0
	OP-10	Biodiversity	0	1-2
	SUBTOTAL		0.5	8-9

⁴Dashes indicate areas where points are not applicable

Work to Date

ECU has made significant advancements in the responsible care and maintenance of the immediate and broader environmental impacts of its activities.

Growing a biodiverse campus

In collaboration with Sound Rivers, a nonprofit organization that works to protect the Tar-Pamlico River system, ECU Grounds Services has installed numerous best management practices (BMPs) on campus. Grounds Services plants a wide variety of native and non-native trees, shrubs, perennials and groundcovers to ensure diversity and educational resources. Many of these plantings are marked by signage that educates the university community on the environmental impacts of each area, such as how rain gardens and wet pond bioretention areas mitigate stormwater runoff and improve water quality by filtering rainwater.

The best example of Sound Rivers and ECU Grounds Services' collaborative efforts is the constructed wetland behind the Belk Building parking lot. Installations like these serve as great sites for students to learn about sustainable landscaping firsthand via walking tours for classes in the planning department.

In addition to their work with Sound Rivers, ECU has implemented many other environmentally conscious efforts in landscaping. These include many runoff-centered projects, such as reducing turf use across all grounds, installing permeable pavements consistently since 2010, and introducing a Rain Bird smart irrigation system. Other best practices include rainwater harvesting, relocating trees and vegetation during infrastructure renovation projects, reducing turf use across all grounds, and installing Feed a Bee habitats.

Electrifying the campus fleet

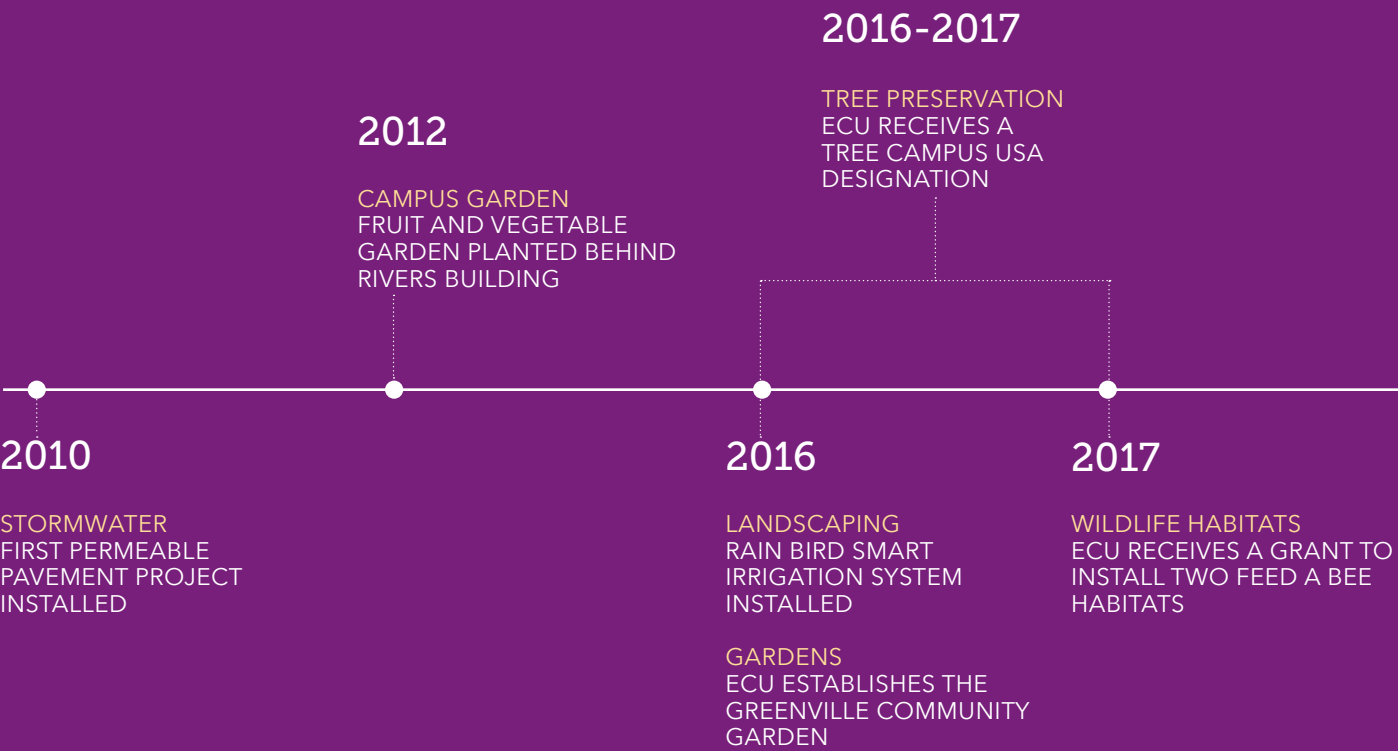
Grounds Services has started the conversion from gasoline to electric equipment. They have currently replaced 12 broken gasoline John Deere Gator utility vehicles with electric versions, purchased a new electric truck, and been able to reuse five other electric vehicles from other campus departments. They also recently purchased four propane-powered mowers, replacing gas and diesel mowers.

Interlacing plans

With the 2012 Campus Master Plan, *A Campus Within Context*, the school has been able to integrate its values and goals into the physical aspects of campus. These features include the creation of a Campus Bicycle and Pedestrian Plan (2013), a Campus Tree Care Plan (2016), and becoming a certified Tree Campus USA (2016 and 2017).

Opportunities

By making the switch to electric equipment, ECU will be able to mitigate greenhouse gas emissions related to campus grounds and maintenance services. Sourcing this equipment by reusing and only replacing old equipment when it is no longer effective ensures that there is minimal waste associated with revamping the equipment stock.



GOALS AND STRATEGIES

ECU has developed two main goals for the campus grounds. The intention of these goals is to reduce the pollution, prevent floods, and keep the water balance of the landscape, while ensuring a safe environment for people and nature.



GOAL 1:

Create a safe and sustainable campus for people and nature

This goal addresses the need for specific programs to link human and environmental safety with sustainable practices across campus. These practices will include green landscaping and groundskeeping as well as maintaining best practices in campus building and air quality management. Enhancing outdoor spaces and increasing exposure to nature will also lead to more positive attitudes toward the environment amongst students, staff and faculty.

Strategies
1. Plant more native species on campus over the next five years (2019-2023)
2. Improve maintenance and increase use of natural areas to support academics and research and promote positive attitudes toward the environment over the next five years (2019-2023)
3. Set up Clean Air Carolina PurpleAir monitoring devices by fall 2018 and continue to monitor particulate matter (PM) over the next five years (2019-2023)
4. Create a plan of support for outdoor classroom space to enhance and improve the overall outdoor space utilization by fall 2019
5. Reduce fertilizer application on campus 20% over the next five years (2019-2023)

GOAL 2:

Reduce reliance on potable water for irrigation and improve stormwater management

ECU will continue to focus on irrigation to make tangible improvements on resource consumption campus wide. Flooding is a growing concern for the City of Greenville and ECU can help mitigate stormwater through the installation of Best Management Practices (BMPs) and reduction of impervious surfaces. ECU will also see financial benefits from this goal by reducing their need for transportation and heating/cooling of water on campus.

Strategies
1. Install additional best management practices (BMPs) to retain more stormwater and reduce runoff over the next five years (2019-2023)
2. Create a campuswide survey of hardscape and softscape by type and use by fall 2019
3. Develop a rainwater management plan by fall 2019
4. Strategically increase the number of IQ irrigation systems on all campuses to reach 50 percent coverage area over the next five years (2019-2023)
5. Renovate existing parking spaces on campus using sustainable materials and/or practices over the next five years (2019-2023)





MATERIALS MANAGEMENT

Materials management includes the consumption and disposal of all products purchased on ECU’s campus. This includes recycling, composting, reusing, repurposing, donating and sending discarded materials to landfill.



Baseline

Current on-campus material management projects and procedures have resulted in the STARS scores shown in Table 9.

Table 9. — ECU’s points earned for AASHE STARS in materials management

Topic	STARS category	Title	ECU points	Max points
Material management	IN-13	Spend Analysis	0.0	0.5
	OP-19	Waste Minimization and Diversion	2.6	8.0
Waste	OP-20	Construction and Demolition Waste Diversion	0.7	1.0
	OP-21	Hazardous Waste Management	0.8	1.0
Environmentally preferable purchasing	OP-11	Sustainable Procurement	1.3	3.0
	OP-12	Electronics Purchasing	0.8	1.0
	OP-14	Office Paper Purchasing	0.4	1.0
	IN-7	Fair Trade Campus	0.0	0.5
Green cleaning	OP-13	Cleaning and Janitorial Purchasing	0.6	1.0
	IN-8	Certified Green Cleaning	0.0	0.5
Food and dining	OP-7	Food and Beverage Purchasing	0.0	6.0
	OP-8	Sustainable Dining	1.0	2.0
	IN-10	Sustainable Dining Certification	0.0	0.5
SUBTOTAL			8.2	26.0

Figure 3. — Total pounds of ECU’s recycled materials collected in fiscal year 2016-2017⁵

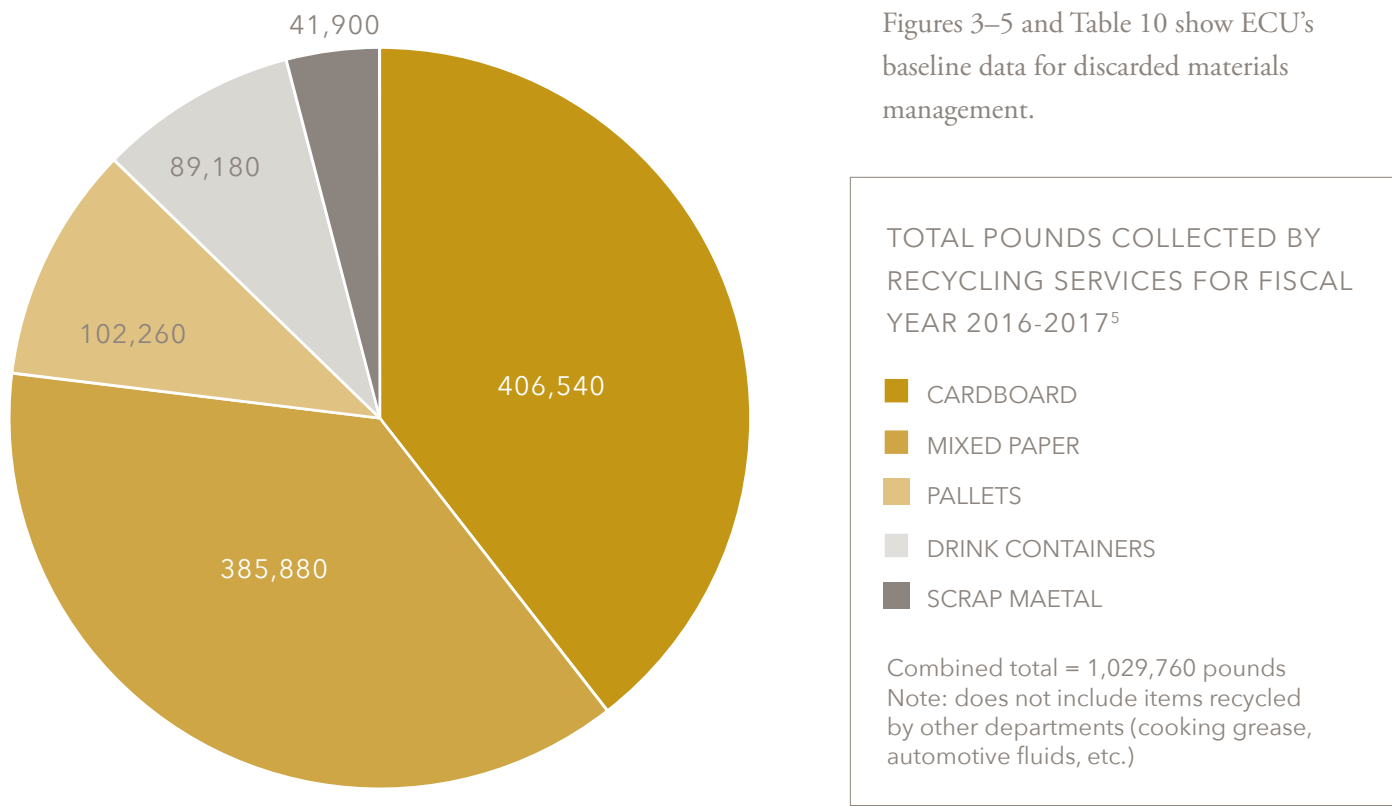


Figure 4. — Breakdown of ECU’s total waste stream for fiscal year 2016-2017

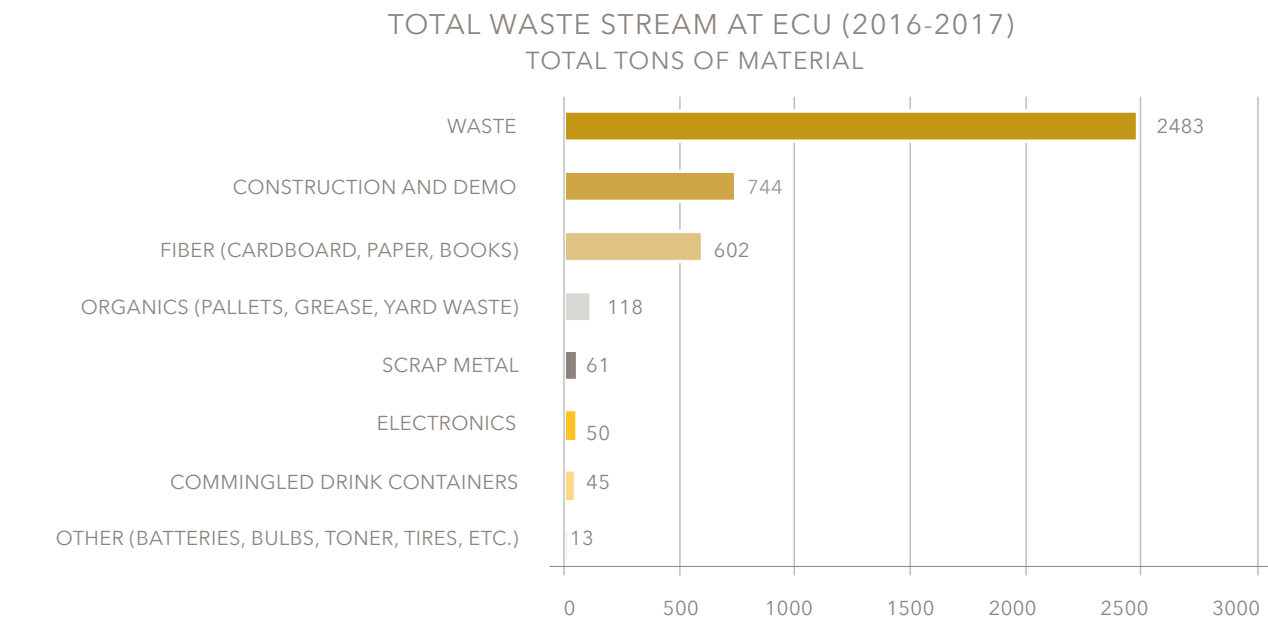


Figure 5. — Recycling rate at ECU (with and without construction and demolition, or C&D) from fiscal year 2016-2017⁶

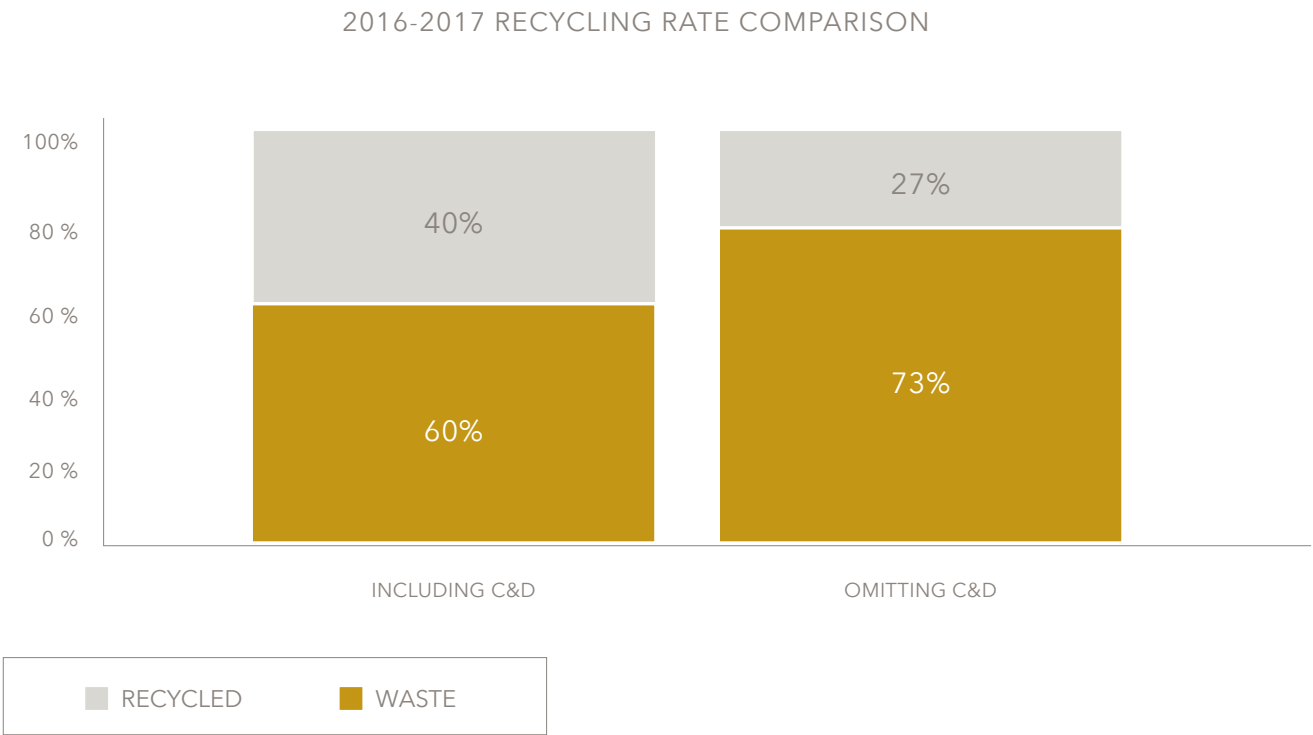


Table 10. — ECU recycling quantities for fiscal year 2016-2017 (in tons)

Type of material	Tons
Reuse for university and community ⁷	137
Electronics recycling (Powerhouse)	50
Construction and demolition	755
Dual-stream recycling services program	515
Other recycled materials	131

⁵These figures include material collected by Recycling Services and other university departments. Central Stores’ scrap metal and e-waste is included, but surplus furniture and equipment is not.

⁶Most recycled materials were from the Fieldside and Maritime History projects.

⁷Weights are approximated

Work to Date

ECU has laid the groundwork for sustainable practices in several ways related to materials management. Table 11 shows ECU’s current practices in procurement of sustainable materials.

Table 11. — ECU’s sustainable purchasing practices (2016-2017)

Percentage of total expenditure	Sustainable expenditure on products
80%	Total electronics expenditures—servers, computers and displays, imaging equipment, televisions, and mobile phones—rated EPEAT Gold by the Green Electronics Council
100%	Expenditures on janitorial paper products of Forest Stewardship Council (FSC), Green Seal™, or UL ECOLOGO® certified products
23%	Expenditures on cleaning products within ECU’s Housekeeping Services on Green Seal™ or UL ECOLOGO® certified products
90%	Office paper contains 30 percent recycled content
100%	Campus-sold coffee at ECU that is Fair Trade and Rainforest Alliance certified 131

Reducing, reusing and recycling in construction

Demolition and rebuilding projects produce much more waste and have an immensely large carbon footprint when compared to renovation and retrofitting projects. In order to minimize the impact of demolition on campus, ECU promotes recycling and reuse of materials during all demolition projects. In the Stratford Arms renovation, all brick and concrete from the site was ground up and used as base stone on other campus and city locations. Charitable organizations were also contacted and took everything that they could reuse from the site.

Opportunities

Procuring strategically

Purchasing of materials for institutions of higher education is unavoidable, but making mindful decisions directly ties to the environmental impacts of the institution. Ensuring that no more than the appropriate amount of resources are purchased for campus consumption and sourcing from certified environmentally conscious institutions allows ECU to create less stress on the waste stream. Organizations such as the Real Food Challenge have created criteria and procedures for choosing sustainable, lower impact sources for campus essentials. While the Real Food Challenge supports campuses in purchasing from conscious food producers, other groups have tools to support purchases of “harder ware” such as electronics and office supplies.

⁸ This data is sourced from Central Stores and does not include University Printing and Graphics

⁹ ECU is not a certified “Fair Trade Campus.” This does not include privately owned campus coffee sellers such as Starbucks.

Recycling and reusing

Use and reuse are extremely important, but sometimes brushed over, factors in the health of our waste stream. Purchasing fewer single-use wares is a good first step. The next, more actionable, step is to ensure that all materials on campus are being used to their full extent before disposing of them properly. If materials or items no longer serve a purpose on campus, but are otherwise functional, donation would be the best next stage of life decision. Donation would not only reduce the waste that ECU sends to recycling and landfill facilities, but would also provide a service to the community at large.

Waste diversion

Many people, institutions and organizations are working globally to combat disposal of materials to landfill. Extensive composting and recycling programs (including products that are not accepted for recycling in traditional recycling programs such as film plastics) create opportunities for single-use and biodegradable products to be disposed of in ways that divert them landfill and often greenhouse gas emitting incineration plants. Potential opportunities to explore for food waste diversion include setting up an on-campus composting system and sending food scraps to an off-campus animal feed operation.

Considering the life-cycle impact of wasted materials on campus, ECU will be able to reduce the impact of their waste stream while simultaneously create a positive impact for socially and sustainably-minded vendors.



GOALS AND STRATEGIES

ECU has developed a set of goals within the category of materials management to help reduce the amount of waste that leaves ECU’s campus. These goals will serve to lessen ECU’s environmental impact by diverting waste from the landfill stream and by limiting the amount of non-recyclable, non-compostable and non-reusable materials purchased by ECU.



GOAL 1:

Increase diversion of waste

This goal targets the waste already being produced on campus at ECU. Diversion of waste will include, but not be limited to, increased recycling, increased composting and an increase in reuse and donation of materials.

Strategies
1. Increase recycling 10 percent over the next five years (2019-2023) by improving recycling infrastructure and community engagement
2. Increase pre-consumer food waste diversion 50 percent over the next five years (2019-2023)

GOAL 2:

Reduce consumption of disposable products

By reducing the total amount of disposable products purchased, and therefore consumed on campus, ECU is targeting one of highest percentages of wasted materials and in turn reducing its total tonnage of waste. This goal will reduce emissions related to waste from sourcing to disposal.

Strategies
1. Locate space for a reuse center for departments, starting with arts and theatre by fall 2019, and expanding efforts to serve others over the next five years (2019-2023)
2. 100 percent of Port, Procard and major purchasers will be trained on green procurement practices within two years and maintain 100 percent compliance through 2023 and beyond
3. Eliminate single-use plastic bags, straws and bottled water over the next five years (2019-2023) by educating students and employees and distributing reusable alternatives free of charge

GOAL 3:


Increase amount of food sold on campus that qualifies for the Real Food Challenge

The Real Food Challenge defines sustainable food and its sources by determining if it meets four categories: local & community based, fair, ecologically sound and humane. They provide standards and procedures to ensure that the food being purchased on college campuses meets these standards. By using the tools provided by the Real Food Challenge, ECU will ensure that at least 30 percent of food sold on campus qualifies under the above categories by 2030.


Strategies
1. Increase expenditures to ensure that 10 percent of food served on campus qualifies as local, fair, ecological or humane over the next five years (2019-2023)



SUMMARY OF GOALS AND STRATEGIES



Climate Change Mitigation


 **Goal 1: Cut Scopes 1 and 2 greenhouse gas emissions 5% by 2023**

1.1 Work with ECU's Campus Living Office to plan, promote and run one energy and water competition per semester in residence halls

1.2 Reduce water usage across campus by an additional 5 percent over the next five years (2019-2023) through the use of rainwater collection and high-efficiency fixture upgrades


1.3 Ensure all major ECU facilities are metered for all energy and water consumption over the next five years (2019-2023)

1.4 Initiate retro-commissioning processes on facilities with the highest energy consumption to identify building optimization opportunities over the next five years (2019-2023)

 **Goal 2: Explore the potential for large-scale renewable energy projects and demonstrate renewable energy sources through small-scale installations by 2023**

2.1 Compile options for the purchase or sale of renewable energy through Greenville Utilities Commission (GUC)

2.2 Request nonrecurring state funds to implement renewable energy projects on university-owned properties over the next five years (2019-2023)

 **Goal 3: Reduce greenhouse gas emissions from transportation sources 5% by 2023**

3.1 ECU, the Greenville Urban Area Metropolitan Planning Organization (MPO) and Greenville Area Transit (GREAT) will produce documentation to define a cooperative partnership between the university and the city by fall 2020

3.2 Create incentives for using public and alternative modes of transportation by fall 2019

3.3 Install idle reduction devices and educate fleet vehicle users via the U.S. Department of Energy toolkit by fall 2019



Academics and Research

 **Goal 1: Be a sustainability research leader for the region**

1.1 ECU will add an academic sustainability coordinator position to staff before 2023

1.2 Hold a regional sustainability-related conference once every three years

 **Goal 2: All undergraduate students are literate in sustainability by graduation**

2.1 Add a three-credit “sustainability” category to the general education requirements for undergraduates OR add environmental or sustainability designation to specific courses that will show on their transcripts by 2023

2.2 Create an interdisciplinary environmental studies or sustainability studies minor in the Thomas Harriot College of Arts and Sciences that addresses the three E's of sustainability (equity, economics and environment) by 2023

2.3 Assess pre- and post-sustainability literacy of freshman and seniors every three years starting in spring 2019

2.4 Establish a student educator program for collaboration between academics, operations and student life by 2023


2.5 Offer at least one immersive sustainability-focused educational program per year that is one week or longer in length of study by fall 2019

 **Goal 3: Increase the use of campus and community as a living laboratory for sustainability**


3.1 Provide more sustainability-focused days of service, new community partners focused on sustainability, and course development grants related to sustainability objectives

3.2 Increase the number of capstone projects related to sustainability to increase awareness and curricular integration

3.3 Establish a sustainability fee by working with SGA, Student Affairs, Administration and Finance, and the ECU Board of Trustees



Campus Grounds

 **Goal 1: Create a safe and sustainable campus for people and nature**


1.1 Plant more native species on campus over the next five years (2019-2023)

1.2 Improve maintenance and increase use of natural areas to support academics and research and promote positive attitudes toward the environment over the next five years (2019-2023)

1.3 Set up Clean Air Carolina PurpleAir monitoring devices by fall 2018 and continue to monitor particulate matter (PM) over the next five years (2019-2023)

1.4 Create a plan of support for outdoor classroom space to enhance and improve the overall outdoor space utilization by fall 2019

1.5 Reduce fertilizer application on campus 20 percent over the next five years (2019-2023)

 **Goal 2: Reduce reliance on potable water for irrigation and improve stormwater management**

2.1 Install additional best management practices (BMPs) to retain more stormwater and reduce runoff over the next five years (2019-2023)

2.2 Create a campuswide survey of hardscape and softscape by type and use by fall 2019

2.3 Develop a rainwater management plan by fall 2019

2.4 Strategically increase the number of IQ irrigation systems on all campuses to reach 50 percent coverage area over the next five years (2019-2023)

2.5 Renovate existing parking spaces on campus using sustainable materials and/or practices over the next five years (2019-2023)



Materials Management

 **Goal 1: Increase diversion of waste**

1.1 Increase recycling 10 percent over the next five years (2019-2023) by improving recycling infrastructure and community engagement

1.2 Increase pre-consumer food waste diversion 50 percent over the next five years (2019-2023)

 **Goal 2: Reduce consumption of disposable products**

2.1 Locate space for a reuse center for departments, starting with arts and theatre by fall 2019, and expanding efforts to serve others over the next five years (2019-2023)

2.2 100 percent of Port, Procard, and major purchasers will be trained on green procurement practices within two years and maintain 100 percent compliance through 2023 and beyond

2.3 Eliminate single-use plastic bags, straws and bottled water over the next five years (2019-2023) by educating students and employees and distributing reusable alternatives free of charge

 **Goal 3: Increase amount of food sold on campus that qualifies for the Real Food Challenge**

3.1 Increase expenditures to ensure that 10 percent of food served on campus qualifies as local, fair, ecological, or humane over the next five years (2019-2023)

Community Partners

Campus Collaborators

Division of Student Affairs
ECU Transit
Campus Living
Campus Dining
Campus Recreation and Wellness (CRW)
Center for Leadership and Civic Engagement (CLCE)
Student Involvement and Leadership (SIL)
Student Activities and Organizations (SAO)
ECO Pirates Student Group
Division of Administration and Finance
Parking and Transportation
Materials Management
Campus Operations
Facilities Services
Recycling Services

Division of Academic Affairs
Joyner Library
Biology Department
Geography Department
Center for Sustainability
Health Education and Promotion Department
Environmental Health and Safety (EH&S)
Student Government Association (SGA)
University Environment Committee
ECU Sustainability Committee
Staff and Faculty Senate
ECU News Services
ECU Student Media
Dowdy Student Store

Local Collaborators

ReLeaf Inc.
Sound Rivers
Love A Sea Turtle (LAST)
Keep Greenville Beautiful
Sierra Club Cypress Group

Unnatural Resources Institute
Friends of Greenville Greenways (FROGGS)
City of Greenville Neighborhood Advisory Board
City of Greenville Bicycle and Pedestrian Commission
City of Greenville Environmental Advisory Commission
Pitt County Farm and Food Council

State Collaborators

UNC System Sustainability Alliance
Appalachian State University App Energy Summit
North Carolina Association of Physical Plant Administrators (NCAPPA)

Other Collaborators

Southeast Sustainability Network
Association for the Advancement of Sustainability in Higher Education (AASHE)



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Prepared and supported by GreenerU