

NC STATE UNIVERSITY

# ANNUAL SUSTAINABILITY REPORT

## 2012-2013

*Creating a leaner, smarter, stronger NC State  
that improves the environment, economy and society*

# SUSTAINABILITY AT NC STATE IS ABOUT CREATING IMPACT WHERE IT MATTERS MOST: THE ECONOMY, THE ENVIRONMENT AND SOCIETY.

In this Annual Sustainability Report, you will find NC State's progress toward becoming a more sustainable university, including stories, metrics and other accomplishments. The report also tracks the university's 2012-2013 fiscal year progress toward implementation of its five-year Sustainability Strategic Plan.

A university that's leaner, smarter and stronger is better able to achieve its mission, and at NC State, sustainability is helping accomplish exactly that. Campus energy and water use are down while student engagement is at an all-time high. This year, NC State put into motion a sustainability student ambassador program, a sustainability-themed living and learning village, a student-initiated sustainability fund and even campus-grown produce in campus dining halls. Academic colleges continue to elevate sustainability efforts, and two more university buildings received LEED certification.

This sustainability progress and momentum continue to earn local and national recognition for NC State, including the City of Raleigh's 2013 Environmental Stewardship Award and designation by the Princeton Review as one of the nation's greenest colleges.

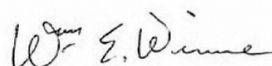
As you will discover in this report, sustainability at NC State is work that matters. The university's sustainability efforts are driving down costs, improving efficiency, advancing transformative research, educating a new generation of leaders and ultimately helping create a better world.



Jack K. Colby,  
Co-Sustainability Officer  
Assistant Vice Chancellor for Facilities Operations  
Co-Chair, Campus Environmental Sustainability Team



Tracy Dixon  
Director, University Sustainability Office



Dr. William E. Winner  
Co-Sustainability Officer  
Professor, Department of Forestry and Environmental Resources  
Director, Environmental Sciences Academic Program  
Chair, University Energy Council  
Co-Chair, Campus Environmental Sustainability Team

# IN THIS REPORT



ACADEMICS & RESEARCH

01



COMMUNITY & CULTURE

08



ENERGY & WATER

15



GREEN DEVELOPMENT

21



PURCHASING & WASTE REDUCTION

28



TRANSPORTATION

35



EVENTS, AWARDS & HONORS

40



ACKNOWLEDGEMENTS

42

# ACADEMICS & RESEARCH

*PREPARING STUDENTS AND INNOVATIONS THAT  
CREATE A MORE SUSTAINABLE WORLD*

As a preeminent research university preparing tomorrow's workforce, NC State is committed to academic excellence and research that improves the world. By educating about sustainability, students are better prepared for the complex social, environmental and economic challenges that the future holds.



IMAGE: During a senior design class at NC State, Tate Rogers developed a new way for developing countries to manage human waste. With \$100,000 from the Bill and Melinda Gates Foundation, Rogers and the development team are designing, producing and testing auger-based technology.



# ACADEMICS & RESEARCH

## 2012-2013 HIGHLIGHTS

### SUSTAINABILITY ADVANCES IN ACADEMIC COLLEGES



CALS Sustainability Office launched a Pollinator Health Initiative that will establish live and demonstration beehives around campus for research, education and outreach about honeybee health.

In its first year, the College of Agriculture and Life Sciences' (CALS) Sustainability Office led an executive short course on sustainability, launched an initiative about pollinators, became an online resource for sustainability in agriculture and supported college researchers.

At the Poole College of Management, Jessica Thomas was selected as the director of the college's new Sustainability Initiative starting August 2013.

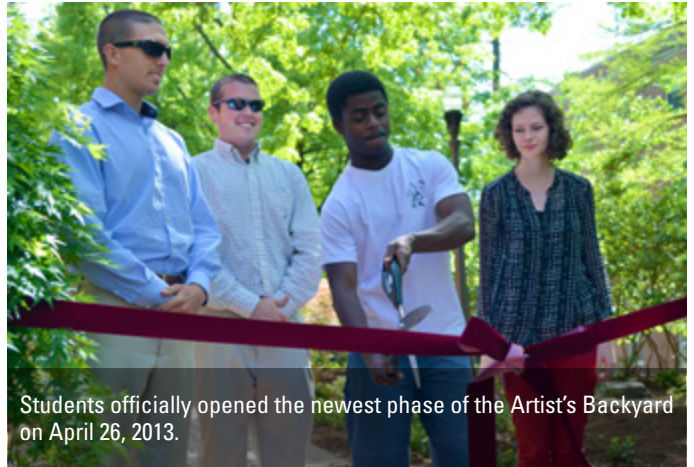
### TWO SUSTAINABILITY-RELATED RESIDENCE VILLAGES APPROVED

In fall 2013, campus residential options expand to include two new living and learning communities: EcoVillage and Wood Wellness Village. Each village will offer theme-based programming and educational opportunities, including a 1-hour academic course for first year students.

### NC STATE HOSTS ACC CLEAN ENERGY CHALLENGE

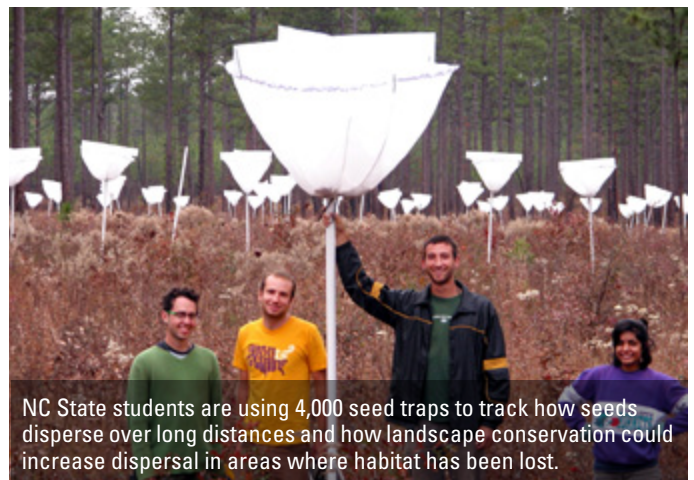
On April 9, 2013, student business teams from across the Atlantic Coast Conference converged at NC State for the \$100,000 ACC Clean Energy Challenge. Granular Systems, an NC State team, was among the finalists for the competition's top prize: funding to develop a new clean energy business.

### STUDENTS IMPROVE CAMPUS ONE LANDSCAPE AT A TIME



Students officially opened the newest phase of the Artist's Backyard on April 26, 2013.

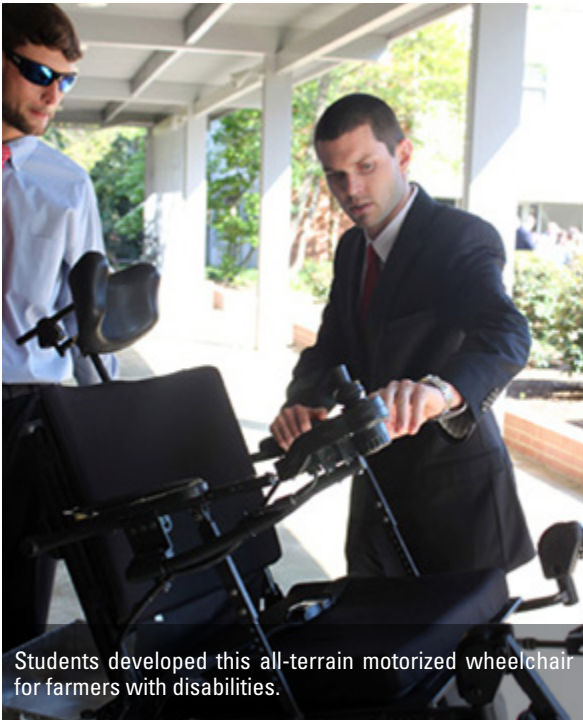
During this fiscal year, NC State landscape architecture students unveiled two campus projects: the next phase of the Artists' Backyard in between Owen and Turlington residence halls as well as a rain garden behind Lee Hall. Both projects will improve stormwater control and help filter contaminants from reaching Rocky Branch Creek, which runs through campus. The projects have received numerous awards, including a City of Raleigh Environmental Award and professor Andrew Fox was honored with the North Carolina Housing Officers' Faculty Partnership and Academic Collaboration Award for partnering with University Housing on this project.



NC State students are using 4,000 seed traps to track how seeds disperse over long distances and how landscape conservation could increase dispersal in areas where habitat has been lost.



## STUDENT INVENTIONS ENABLE FARMERS TO OVERCOME DISABILITY



Students developed this all-terrain motorized wheelchair for farmers with disabilities.

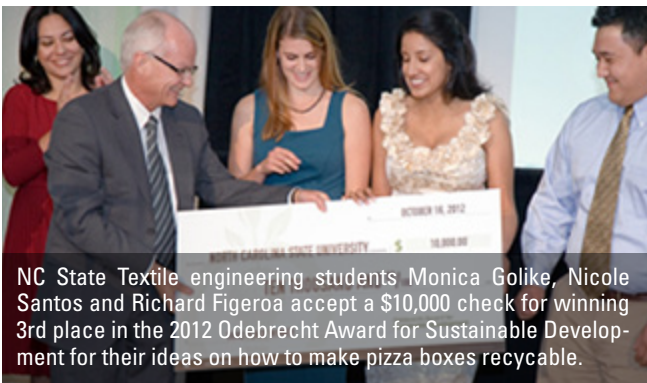
In partnership with NC AgrAbility, NC State seniors from the Department of Biological and Agricultural Engineering developed an all-terrain motorized wheelchair to help farmers with disabilities. Students also designed a solar-powered hydraulic delivery system so that a farmer with chronic health issues could more easily water plants and livestock.

## ENGINEERING STUDENTS ENHANCE ENERGY SAVINGS AT HOMES, BUSINESSES

Energy Solutions, a program of NC State's Mechanical and Aerospace Engineering (MAE) department, provides hands-on experience for students to work with industrial, commercial, governmental and institutional facilities to save energy and conduct research. Among the program's upcoming contracts is facilitating measurement and verification for a seven-year, \$25 million LED project to increase energy efficiency at all University of North Carolina system schools. Also in 2013, student ambassadors from the MAE department conducted two days of home energy audits for 21 local homes, informing homeowners how to use energy more efficiently through simple upgrades and lifestyle changes.



The College of Design's annual sustainability seminar exposed students to green building methods and concepts through site visits, speakers and preparation for the LEED Green Associate exam, which 11 students passed to earn green building professional credentials.



NC State Textile engineering students Monica Golike, Nicole Santos and Richard Figeroa accept a \$10,000 check for winning 3rd place in the 2012 Odebrecht Award for Sustainable Development for their ideas on how to make pizza boxes recyclable.

## BIOTECH SEMINAR SERIES LAUNCHES

With funding from BASF Plant Science, NC State launched the "Frontiers" campus seminar series on biotechnology with the first event on April 25, 2013, featuring speaker Dr. Pamela Ronald on the benefits, controversy and world impact of transgenic crops.



NC State International Affairs and the College of Natural Resources hosted an international doctoral seminar on climate change.



# ACADEMICS & RESEARCH

## TRANSFORMATIVE RESEARCH

### GRANTS FUEL SUSTAINABILITY RESEARCH

Among the research grants that NC State faculty received in fiscal year 2012-2013 were a \$3.9 million grant to the university's Center for Environmental Farming Systems, which is exploring how to expand local food systems, and a \$9 million grant to the NC State-based Future Renewable Electric Energy Delivery and Management Systems (FREEDM) Center, which is developing affordable residential solar panels that can be purchased and installed in one day.

### ADVANCING ENVIRONMENTAL LITERACY IN MINORITY STUDENTS



Environmental education programs that took middle school students outdoors to learn helped minority students close a gap in environmental literacy, according to NC State research from the College of Natural Resources. The study showed that time outdoors seemed to impact African-American and Hispanic students more than Caucasian students, improving minority students' ecological knowledge and cognitive skills, two measures of environmental literacy.



#### BOOSTING RURAL TOURISM

Several College of Natural Resources faculty developed People-First Tourism to enhance rural economies by connecting rural tourism entrepreneurs with tourists seeking off-the-beaten-path experiences.



#### RESEARCH SPARKS SOLAR ENERGY IMPROVEMENTS

NC State researchers are creating technology that could make solar energy more efficient, such as thinner thin-film solar cells developed by Dr. Linyou Cao that could significantly decrease manufacturing costs for solar energy.



#### ANIMAL TRACKING SYSTEM HELPS RESEARCH TAKE FLIGHT

NC State professor Dr. Roland Kays helped develop a method of tracking bird migration and weather, enabling research on how climate change impacts global animal movement.



**FILTERING RUNOFF FOR INCREASED BEACH SAFETY**

NC State biological and agricultural engineering researchers developed filtration systems at Kure Beach, N.C., that reduced bacteria in stormwater runoff by 96 percent, creating a safer beach for visitors.

**IMPROVING WELL-BEING FOR OLDER ADULTS**

A team led by NC State psychology professors Dr. Jason Allaire and Dr. Anne McLaughlin discovered that older adults who play video games have higher levels of emotional and social well-being. Future studies will explore whether video games could improve mental health.

**QUICKER CONVERSION OF NATURAL GAS**

NC State professor Dr. Fanxing Li led research that identified a new mechanism to convert natural gas into energy up to 70 times faster, while effectively capturing the greenhouse gas carbon dioxide.

**ADDITIONAL NC STATE SUSTAINABILITY-RELATED RESEARCH IN 2012-2013 INCLUDED:**

- ▶ Increasing the sustainability of strawberry growing in the Carolinas.
- ▶ Developing healthier, more portable combat rations for U.S. soldiers.
- ▶ Studying the relationship between Pre-K children and LEED certified buildings.
- ▶ Drawing connections between sports management and the natural environment.
- ▶ Developing cyberlearning technologies, media and digital storytelling that will enable children at a museum to explore the impact of their decisions on the environment.
- ▶ Creating technology that could make wireless charging possible for electric vehicles.
- ▶ Using carbon dioxide to create useful products.
- ▶ Predicting public response to water reclamation and reuse.
- ▶ Converting wood to bio-oil, which could help spur more effective and efficient ways of converting farmed and waste wood into useful bio-oils.
- ▶ Designing a flexible classroom that improves accessibility for students while slashing administrative costs.
- ▶ Exploring the toxicity of algae in the Gulf of Mexico, which could help improve safety for human and sea life.
- ▶ Helping long-term sustainability of artisanal oyster harvesting in North Carolina.
- ▶ Assessing freshwater sustainability across the southern United States to determine the best long-term use of water supplies in the face of population growth.
- ▶ Studying the reproductive effects of pesticide exposure over multiple generations.
- ▶ Mapping global biodiversity to determine how to save species.

# ACADEMICS & RESEARCH

## PROGRESS TOWARD STRATEGIC GOALS

### STRATEGY 1

DEVELOP THE SCHOLARSHIP, INCLUDING THE COURSES, CURRICULA AND RESEARCH NEEDED FOR STUDENTS TO BECOME LITERATE ABOUT ENERGY, ENVIRONMENT AND SUSTAINABILITY.

#### TACTICS:

Submit a renewable energy minor to the University Courses and Curriculum Committee (UCCC) for consideration.

#### 2012-2013 PROGRESS:

16 credit hour renewable energy minor approved by the UCCC.

### STRATEGY 2

EXPLORE THE CONCEPTS UNDERLYING SUSTAINABILITY IN COURSES AND CURRICULA TO BUILD THE CASE FOR SUSTAINABLE PRACTICES.

Explore the role of sustainability living and learning communities in sustainability learning outcomes.

Two new sustainability-themed living and learning communities were approved to start in fall 2013. The EcoVillage will be in the north wing of Bragaw Hall and the Wellness Village will be housed in Wood Hall.

### STRATEGY 3

ENGAGE IN DISCUSSIONS FOR ADVANCING SUSTAINABILITY TO OPTIMIZE THE USE OF ENERGY, WATER, BUILDINGS, LAND, TRANSPORTATION AND EXISTING SPACE THROUGH PARTICIPATION IN CAMPUS ENVIRONMENTAL SUSTAINABILITY TEAM WORKING GROUPS.

Convene a group of faculty from each college to serve as the Academics and Research working group of the Campus Environmental Sustainability Team.

First meeting included sustainability directors from the College of Agriculture and Life Science (Dr. Danesha Seth Carley), College of Natural Resources (Dr. Mary Watzin), College of Design (Dr. Traci Rose Rider), Environmental Sciences (Dr. Bill Winner) and Facilities/Finance and Business (Tracy Dixon).

Continue monthly meetings of the Energy Council to make recommendations to university executive officers about energy issues.

The Energy Council met monthly and completed the following: 1) A second survey of energy related courses at NC State, 2) Provided recommendations for a smarter campus partnership to include a smart grid demonstration and 3) Supported the sustainable energy minor.

### STRATEGY 4

USE THE PHYSICAL CAMPUS AS A CLASSROOM AND RESEARCH FACILITY TO DEMONSTRATE AND EXPLORE SUSTAINABILITY PRINCIPLES AND PRACTICES.

Establish PackLink as the go to location for sustainability projects in which students can gain professional experience.

The PackLink website was streamlined and projects have been added. The full launch and communication to campus is scheduled for the fall 2013 semester.



## STRATEGY 5

PROMOTE RESEARCH TO ADVANCE SUSTAINABILITY INCLUDING DISCOVERING NEW TECHNOLOGIES, SECURING PATENTS AND EMPLOYING NEW WORKERS THAT ALIGN WITH A NEW ENERGY ECONOMY.

### TACTICS:

Convene smart grid researchers and stakeholders on campus and form a collaborative vision.

### 2012-2013 PROGRESS:

The Smart Grid Advisory Team and the Energy Council created a prospectus and scope for a smart grid demonstration on Centennial Campus.

## STRATEGY 6

ENGAGE FACULTY RESEARCHERS IN SUSTAINABLE PRACTICES TO INCREASE THE RESOURCE USE EFFICIENCY OF RESEARCH EQUIPMENT AND SPACES NEEDED TO CONDUCT STATE-OF-THE-ART RESEARCH.

Include standard operating procedures (SOP) for equipment purchase that reflect sustainability goals.

A draft SOP includes Energy Star standard equipment for applicable equipment.

## STRATEGY 7

PROVIDE SERVICE LEARNING OPPORTUNITIES THAT BRIDGE EDUCATION, RESEARCH AND THE PRACTICAL APPLICATION OF SUSTAINABILITY.

Create a student sustainability ambassador program.

A team of six students helped design a new sustainability ambassador program called the NC State Stewards. The students helped create the program's vision and objectives and recruit a team of 18 students serving as sustainability ambassadors for the university. The 18 Stewards start their role in fall 2013.



A man wearing a red baseball cap with a white 'S' logo and a red t-shirt is using a power drill to work on a brick wall. He is wearing blue work gloves. The background shows a blue sky with white clouds and some green foliage.

# COMMUNITY & CULTURE

## *CREATING A CULTURE OF SUSTAINABILITY ON CAMPUS*

Sustainable universities thrive. When faculty, staff and students embrace sustainable actions, the entire university benefits. During this fiscal year numerous events, awards, partnerships, programs and student-led initiatives embedded sustainability more in campus culture.

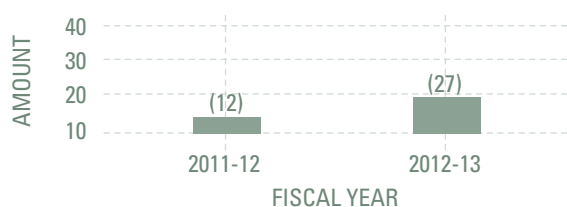
IMAGE: Alternative Service Break provided an opportunity for students to spend their spring break helping others in locations such as Nicaragua (pictured) and Costa Rica, where students visited rainforests and learned more about sustainability.





## 2012-2013 HIGHLIGHTS

### WOLFPACK CERTIFIED GREEN EVENTS ON CAMPUS



### NC STATE GREENHOUSE GAS EMISSIONS

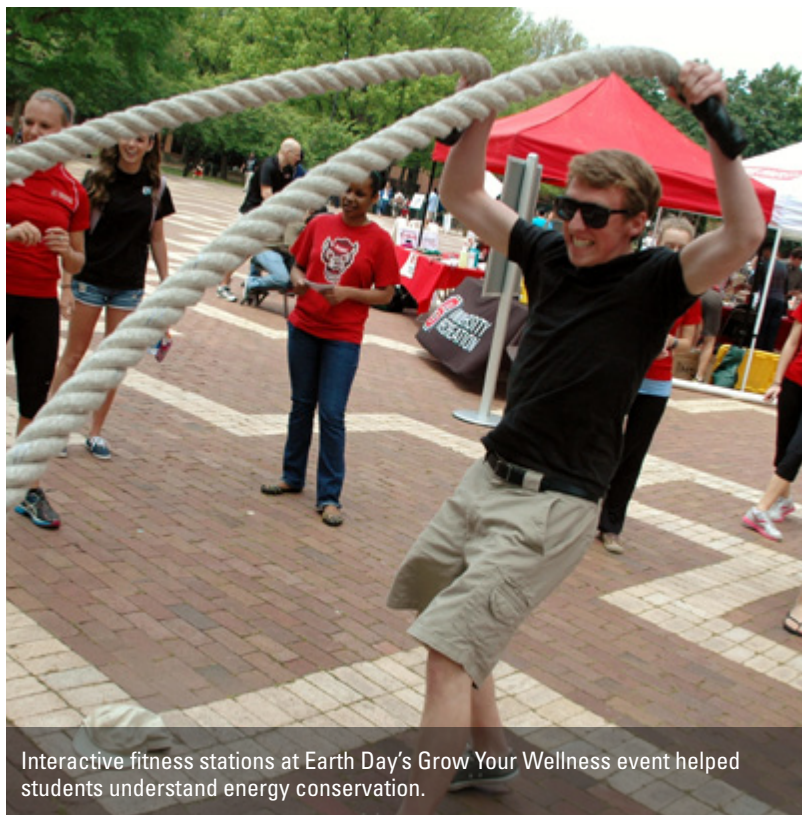
(MEASURED EVERY TWO YEARS)



### CAMPUS MOVIE FEST DEBUTS SUSTAINABILITY CATEGORY

Student filmmakers had the opportunity to vie for a new prize in the annual Campus Movie Fest competition. The "Better World" category challenged students to create a film highlighting a sustainability-related issue. The winning film focused on addressing homelessness.

### EARTH DAY PROVIDES LOCAL FOOD FOR THOUGHT



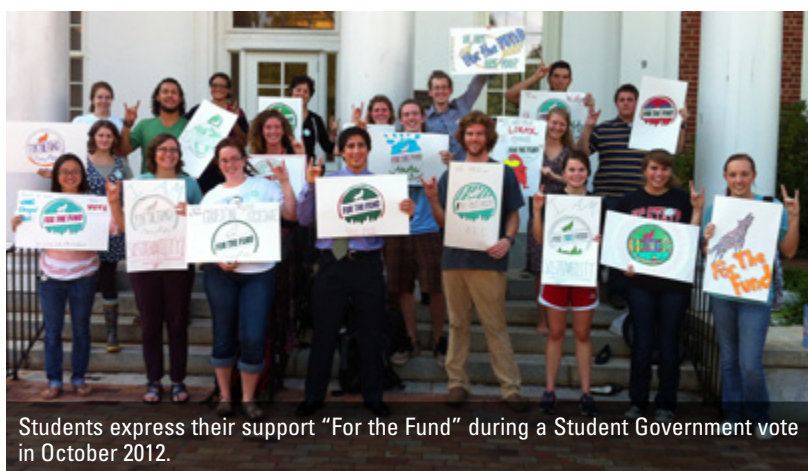
NC State celebrated the planet and local food April 13-18, 2013, through a planting day at the campus Agroecology Education Farm, a movie screening about sustainable food, the annual Borlaug Lecture with forestry advocate Frances Seymour, an Earth Day celebration on the Brickyard and Farm Feast, which featured local food and the presentation of NC State's 2013 Green Brick Awards. Throughout the week, 750 students signed a pledge of support for more campus-grown food in university dining halls.



# COMMUNITY & CULTURE

## 2012-2013 HIGHLIGHTS

### STUDENTS PASS CAMPUS SUSTAINABILITY FEE



Students express their support "For the Fund" during a Student Government vote in October 2012.

Beginning in fall 2013, all NC State students will contribute \$3 per year to a sustainability fund that will be used to finance future campus sustainability projects. The fee was approved in response to the more than 2,000 student signatures in support of the new fund. The fund will create multiple ways for students to become involved in sustainability, while enabling the university to increase its efficiency and sustainability through grants for campus projects.

### CAMPUS SUSTAINABILITY DAY CELEBRATES RECHARGING, REUSE



A team from the Wolfpack Environmental Student Association (WESA) won the Reusable Regatta race.

On Sept. 21, 2012, as the university celebrated the addition of 10 electric vehicle charging stations, the campus community had the opportunity to test drive three of the latest electric vehicles on the market courtesy of local car dealerships. Student teams also participated in the Reusable Regatta, a boat race on Lake Raleigh featuring boats made of recycled material.

### SERVICE RALEIGH PROJECTS FOCUS ON SUSTAINABILITY

During Service Raleigh, an annual day of service organized by NC State's Park Scholars, a volunteer team removed litter near Carter-Finley Stadium and PNC Arena as part of Adopt-a-Highway. Other teams planted trees or partnered with Raleigh-area parks, greenways and community gardens. At the Rubbage Ride, nearly 100 volunteers rode bicycles as they beautified campus by removing 550 pounds of litter.



Woodworking students at the Craft Center use reclaimed lumber and finishes. The center also offers free bicycle repair classes and equipment access for student cyclists.

### SUSTAINABILITY LEADS TO EFFICIENCY IMPROVEMENTS FOR REPAIR AND RENOVATION

NC State's Repair and Renovation is operating more sustainably than ever. As part of a departmental-wide sustainability emphasis, employees learned more about sustainability and how it relates to their work. A small group of employees have started meeting regularly to brainstorm and implement ideas that improve operational and material use efficiency.





In spring 2013, 32 Grounds Management employees volunteered to clean up Lake Raleigh, collecting 256 pounds of debris, some of which was recyclable.



Plastic Propaganda, a student-led educational campaign about plastic waste, created 1,000 plastic flowers from reclaimed soda bottles to demonstrate plastic waste on campus.

## NC STATE RECEIVES LOCAL, NATIONAL SUSTAINABILITY RECOGNITION



NC State received the Raleigh Environmental Stewardship Award on Earth Day.

NC State received the City of Raleigh's highest honor for sustainability, the 2013 Raleigh Environmental Stewardship Award. The university was also included in Princeton Review's 2013 *Guide to 322 Green Colleges*. This is the second year NC State has been selected as one of the nation's most environmentally responsible schools.

## SOLAR-POWERED PAVILION OPENS ON CAMPUS

The power of the sun can now charge electronics at a pavilion between Gold, Welch and Syme residence halls. In July 2012, a two-year, student-led project culminated in the addition of three solar panels atop an existing campus pavilion. The project, which received funding from winning the Student Government Sustainability Commission's Think Outside the Brick competition, also sparked a new group on campus called Students for Solar.

## ENERGY OUTREACH HELPS COMMUNITY, STATE

Since 2009, E3 (Economy, Energy and Environment) specialists from NC State's Industrial Extension Service have conducted more than 170 technical assessments and trained more than 300 N.C. manufacturing employees on sustainable practices, adding up to \$9.2 million in cost savings for N.C. manufacturing companies. Also, the North Carolina Solar Center at NC State expanded its services this fiscal year to include additional solar product testing and courses in advanced solar photovoltaics and wind energy.

# COMMUNITY & CULTURE

## 2012-2013 HIGHLIGHTS

### WOLFPACK HOSTS FIRST GREEN FOOTBALL GAME



Mr. and Mrs. Wuf visited the pre-game sustainable tailgate demonstration.

NC State's green football game on Sept. 15, 2012, included pre-game promotion, a sustainable tailgate demonstration and in-game sustainability-themed video messages. After the game, composting was collected inside the stadium for the first time, leading to the discovery that 75 percent of in-stadium waste is compostable or recyclable. A post-game survey found that many fans welcomed and even expected environmental engagement by NC State Athletics.

### STUDENT SUSTAINABILITY AMBASSADOR PROGRAM BEGINS

In spring 2013, six students helped start the NC State Stewards program. These campus sustainability ambassadors promote sustainable practices through peer education, workshops, presentations and campus events. In August 2013, the inaugural class of NC State Stewards hits campus running with a vision for a more sustainable NC State.



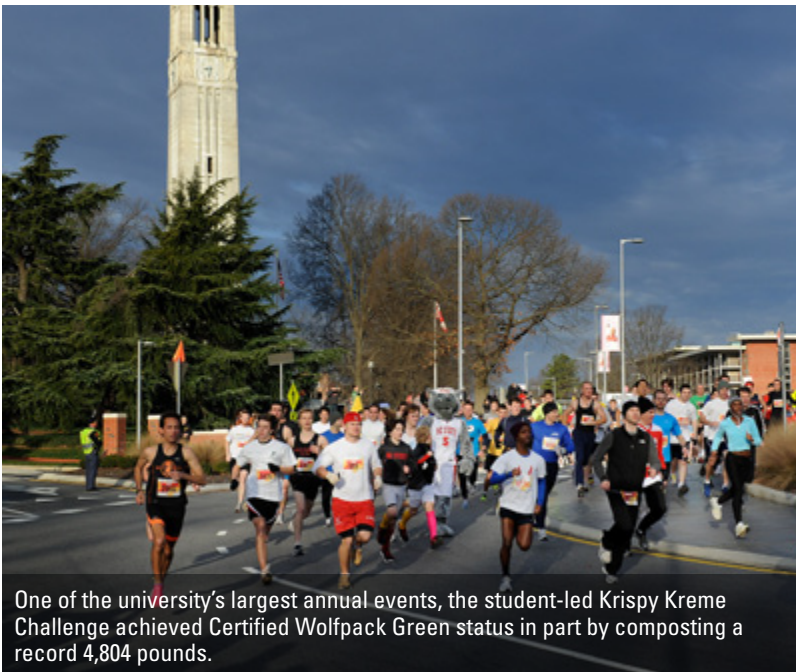
The Gregg Museum's "Streaming: New Art from Old Bottles" in fall 2012 featured 5,000 plastic bottles and 50,000 bottle caps to increase awareness of plastic use and waste.

### STUDENTS WIN FUNDING FOR SUSTAINABLE CAMPUS PROJECTS

Think Outside the Brick Competition, sponsored by the Sustainability Committee of Student Government, awarded \$1,000 for a project to install a solar panel charging station outside of the Atrium on main campus. Quad Bikes, a free bike sharing initiative for the Honors Village, received \$500 in start-up funding. Both projects are student-led initiatives.

### ONBOARDING CENTER IS ONE-STOP RESOURCE FOR NEW EMPLOYEES

The Onboarding Center, the first shared service center under the University Business Operations Division, opened in spring 2013 as a central resource for new university employees. This center and other future shared services will help streamline the university's resources, enabling cost savings and improved processes.



One of the university's largest annual events, the student-led Krispy Kreme Challenge achieved Certified Wolfpack Green status in part by composting a record 4,804 pounds.



# PROGRESS TOWARD STRATEGIC GOALS

## STRATEGY 1 ADOPT, PROMOTE AND ADHERE TO A SUSTAINABILITY POLICY.

### TACTICS:

Seek approval for campus sustainability policy and energy and procurement regulations.

### 2012-2013 PROGRESS:

A draft sustainability policy was submitted for official university review with accompanying standard operating procedures to be developed over the next year.

## STRATEGY 2 REPORT SUSTAINABILITY INFORMATION ON A NATIONAL SCALE TOWARD BECOMING A NATIONAL LEADER IN SUSTAINABILITY.

Not applicable.

Reporting is only required every three years. NC State will report again in 2015.

## STRATEGY 3 SUPPORT FUNDING OPPORTUNITIES FOR SUSTAINABILITY SUCH AS GRANTS, UNIVERSITY CAMPAIGNS, A STUDENT FEE AND SEED MONEY.

Propose a student sustainability fund (fee).

A \$3 per student sustainability fee was approved and begins in 2013-14.

Work with University Development to include sustainability in the university's campaign.

Sustainability projects were submitted for consideration as campaign concepts.

Pursue funding to continue the Energy Fellows program.

A Ph.D. candidate wrote a grant merging two previous program models and applied for Americorps funding. Funding announcements are forthcoming.

## STRATEGY 4 IMPLEMENT A COMPREHENSIVE SUSTAINABILITY EDUCATION AND AWARENESS PROGRAM THAT UTILIZES PEER-TO-PEER NETWORKS.

Develop future plans for Change Your State, a campus sustainability campaign.

The revamped campaign launching in fall 2013 expands beyond energy conservation to include other areas such as zero waste, local food and wellness.

Develop sustainability talking points for leaders.

Talking points were written and will be distributed to key groups.

## STRATEGY 5 CREATE A SUSTAINABILITY NETWORK AMONG LOCAL UNIVERSITIES, GOVERNMENTS, CORPORATIONS AND NON-PROFITS.

Seek opportunities to learn about sustainability from sectors beyond higher education.

Sustainability Office staff attended the Net Impact conference and Leadership North Carolina Forum to learn best practices to bring to NC State.

Continue to act as catalyst for regional collaboration.

NC State played an active role in University of North Carolina System Energy Program, Appalachian Energy Summit and Southeast Sustainability Network.



# COMMUNITY & CULTURE

## PROGRESS TOWARD STRATEGIC GOALS

### STRATEGY 6

GROW THE CAMPUS ENVIRONMENTAL SUSTAINABILITY TEAM (CEST) AS A CROSS-CAMPUS TEAM OF FACULTY, STAFF, STUDENT AND COMMUNITY MEMBERS ENGAGED IN CAMPUS SUSTAINABILITY.

#### TACTICS:

Identify new CEST members as original three-year appointments end.

#### 2012-2013 PROGRESS:

This tactic will be carried forward to 2013-2014 fiscal year.

### STRATEGY 7

ESTABLISH ANNUAL CAMPUS EVENTS TO EMBED SUSTAINABILITY AS A PART OF THE CAMPUS CULTURE.

Fully implement the model of obtaining leadership from beyond the University Sustainability Office and Campus Environmental Sustainability Team as chairperson of the Earth Day committee.

Two College of Agriculture and Life Sciences faculty, Dr. Danesha Seth Carley and Dr. Michelle Schroeder-Moreno, served as the chair and vice chair of the 2013 Earth Day events, connected by the theme "Barn to Brick: Sustainable Food and Agriculture at NC State."

Establish event activities that will define annual Campus Sustainability Day with an energy theme.

In fall 2013, Campus Sustainability Day will occur as part of Energy Action Month, building on the October energy theme for Change Your State. Staff Senate will coordinate the Alternative Vehicle Showcase and an energy-themed film will be shown at the Campus Cinema. Other events are still in discussion.

More thoroughly include sustainability in New Student Orientation.

Sustainability is included in campus tours, the model dorm room and on the University Admissions website. Materials such as a sustainability packing list and map are distributed by campus partners during informational sessions of New Student Orientation. Sustainability is presented as a way to get involved on campus during a presentation given to all incoming students. Sustainability will be present at most Wolfpack Welcome Week events in fall 2013.

### STRATEGY 8

CREATE INCENTIVES AND PROVIDE RECOGNITIONS AND REWARDS TO PROMOTE SUSTAINABILITY ACROSS CAMPUS.

Continue the Green Brick awards and seek an ongoing sponsor.

Dr. Walter Robinson served his second year as chair of the Green Brick Awards. Coca Cola agreed to be an ongoing sponsor of the program.

Continue the reach of Certified Wolfpack Green events.

27 events received Certified Wolfpack Green status in fiscal year 2012-2013.



# ENERGY & WATER

## *ACCELERATING CAMPUS UTILITY EFFICIENCY AND COST-SAVINGS*

With yet another year of energy conservation success in fiscal year 2012-2013, NC State has reduced campus energy use by 21 percent and water use by 49 percent in the last decade.

The university's aggressive energy management strategies during last fiscal year resulted in a 9 percent energy reduction per gross square foot over the previous year, totaling annual cost savings of more than \$700,000.

The university also posted an 11 percent reduction in water use over the previous year, totaling annual cost savings of more than \$63,000.

This progress moves the university closer to its 2015 goal of using 30 percent less energy than campus used in 2003 and within easy reach of its goal to cut 2002 water consumption in half by 2015.

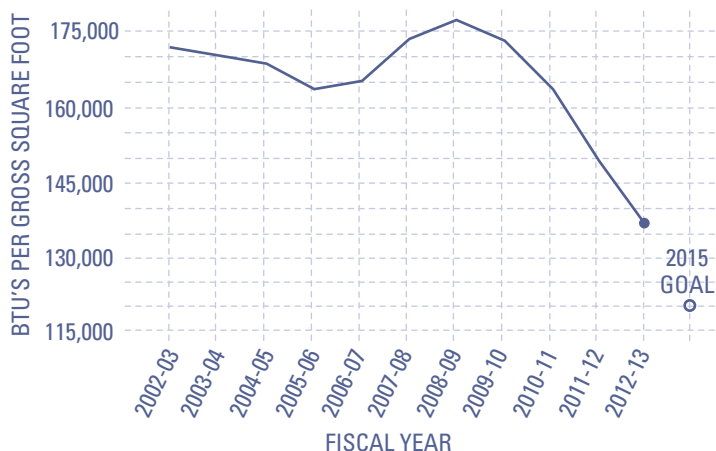
IMAGE: NC State's Combined Heat and Power Utility Plant, which opened in 2012, is expected to save millions in energy costs each year.



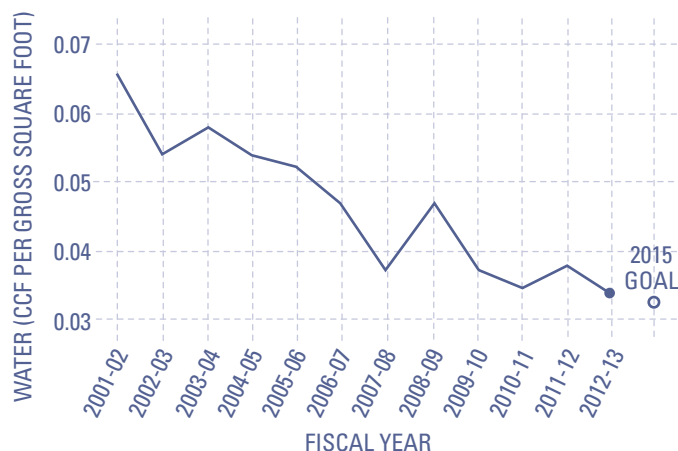
# ENERGY & WATER

## 2012-2013 HIGHLIGHTS

### CAMPUS ENERGY CONSUMPTION



### CAMPUS WATER CONSUMPTION



### REINVESTING SAVINGS FOR FUTURE PROJECTS

NC State filed the FY 2013 Reinvestment Act requesting that its annual energy savings of \$2,089,653 be reinvested in future projects to make campus even more energy-efficient. The university was granted \$1.3 million in funding for energy improvement projects.

### LIGHTING THE WAY FOR SOLAR ENERGY

Installing solar energy at the 17 schools in the University of North Carolina system became easier thanks to a team at NC State, which developed streamlined processes and templates for campuses working with solar developers.

### COMBINED HEAT AND POWER FACILITY OPENS



NC State Chancellor Randy Woodson officially marked the opening of the renovated Cates Utility Plant on Nov. 14, 2012.

An 11 megawatt combined heat and power plant now produces electricity and steam for NC State's main campus. In its first year, this highly-efficient facility provided millions of cost savings and an estimated annual emissions savings of 25,000 metric tons of carbon dioxide.

### EQUIPMENT IMPROVEMENTS BOOST ENERGY SAVINGS



Ultrasonic meters identified faulty steam traps, which were repaired or replaced to save energy.

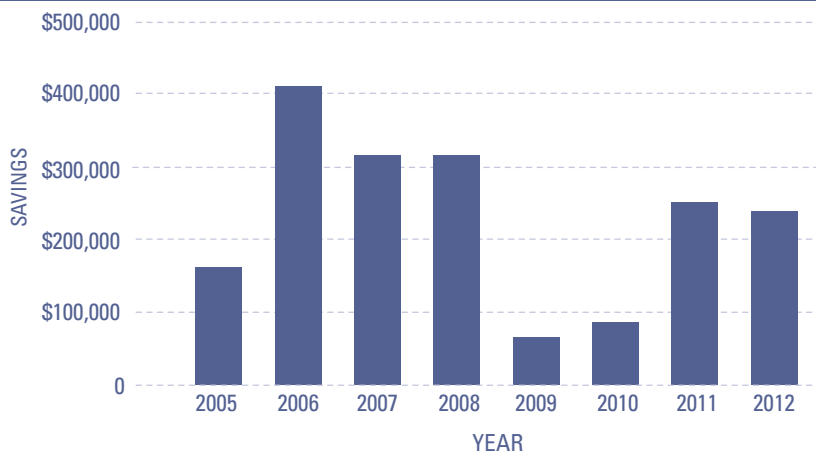
NC State's network of live steam pipelines provide heat for many campus buildings. Repairs made to faulty steam traps, which keep live steam in the pipelines, resulted in more than \$80,000 in annual energy savings. Also in 2013, a newly-formed commissioning team from Building Maintenance and Operations retrocommissioned four campus buildings, improving HVAC performance, saving energy and increasing occupant comfort.





Camelina plants part of groundbreaking biofuel research are growing under some of the most energy-efficient greenhouse lights in the nation thanks to a cost-matching partnership between Energy Management and the Department of Plant and Microbial Biology. Specially designed to maximize plant growth, the 17 new LED fixtures use 65% less energy than metal halide lamps and radiate no heat, which also reduces cooling costs.

### CAMPUS WINTER BREAK ENERGY SAVINGS



### POWERING DOWN FOR WINTER BREAK ENERGY SAVINGS

NC State students, faculty and staff pulled the plug, hit the switch and saved the university \$281,774 in avoided energy costs during winter break, Dec. 21, 2012 – Jan. 1, 2013. Since the baseline year of 2004, this annual energy-saving initiative has generated more than \$2.1 million in savings, which are used to finance future energy-efficient upgrades in university buildings. This campus-wide effort facilitated by Energy Management looks for energy reducing opportunities, such as temperature reduction, in buildings that are unoccupied over winter break.

# ENERGY & WATER

## PROGRESS TOWARD STRATEGIC GOALS

### STRATEGY 1

ACHIEVE A 30 PERCENT REDUCTION IN BUILDING ENERGY CONSUMPTION BY 2015 AGAINST THE 2003 BASELINE.

#### TACTICS:

Continue developing more accurate semester building schedules to operate building mechanical systems that are aligned with actual building use. Install zone override buttons to accommodate building occupants.

Define scope of the fiscal year 2013-14 self performance energy conservation contract.

Conduct fume hood modernization pilot for energy conservation.

Pilot renewable technology on campus.

Implement a building automation system modernization at D.H. Hill Library, installing direct digital controls that will enable point-and-click capability and increased energy efficiency. The building will then be re-commissioned to ensure optimal peak energy-efficient operation.

Building Maintenance and Operations will establish a building re-commissioning team to tune-up building heating, ventilating and air conditioning systems on a rolling schedule.

Replace inefficient interior lighting systems with modern energy-efficient lighting and occupancy sensors that turn off common area lights when not in use.

The extensive campus network of live steam pipelines that heat buildings includes more than 5,000 steam traps that keep live steam in distribution pipelines. A steam trap survey and repair program will be implemented to inspect and replace defective steam traps on a rolling schedule, resulting in energy savings.

#### 2012-2013 PROGRESS:

A three-staff member in-house Building Recommissioning Team formed. Existing buildings are being surveyed and building liaisons are providing information on building use schedules. The Recommissioning Team and Control Shop are using the survey information to refine building operating schedules that will yield energy savings.

Initial scope of work includes 13 campus buildings and infrastructure improvements at the Centennial Campus Central Utility Plant. An independent engineering study to validate scope of work and payback potential is underway.

A fume hood upgrade pilot at College of Textiles was completed. While the modified fume hoods did perform in a more energy-efficient manner, the energy savings goals were not achieved due to latent building HVAC defects. A new partnership between Environmental Health and Safety and Energy Management will seek further lab energy conservation opportunities.

No progress due to lack of funding or sponsorship.

Funding has been capitalized from prior year campus energy savings, which is made possible by N.C. House Bill 1292. Project has been awarded to Schneider Electric.

A three-staff member Building Recommissioning Team formed and multiple campus buildings are undergoing recommissioning.

Lighting upgrades completed at the College of Veterinary Medicine, Monteith Research Center and McKimmon Center.

A steam trap survey of central utility plant and associated campus distribution system was completed. 34 defective steam trap units were identified. To date, 12 of the units have been replaced and the remaining 22 units are scheduled to be replaced.



## STRATEGY 2

ACHIEVE A 50 PERCENT REDUCTION IN BUILDING WATER CONSUMPTION BY 2015 AGAINST THE 2002 BASELINE.

### TACTICS:

Develop reporting and tracking processes for campus contractor water use.

Develop improved reporting and tracking process for campus irrigation water use.

### 2012-2013 PROGRESS:

Existing processes require review and standardization. A thorough review is planned for fiscal year 2013-2014.

Scheduled for development in fiscal year 2013-2014.

## STRATEGY 3

IMPROVE ENERGY DATA MANAGEMENT CAPABILITIES AND MAKE DATA-DRIVEN DECISIONS UTILIZING ENHANCED ENERGY DATA.

Develop energy dashboard weekly and monthly measurement and tracking reports for the campus combined heat and power facility.

Install campus level energy analysis software with exception reporting tools to more closely monitor building energy use. The software will integrate with the existing campus building automation system and will have the ability to generate energy dashboards suitable for public kiosk or other campus video displays. Similar expert systems have been used to reduce building energy use 5 - 10 percent.

A performance and tracking report and a real-time and trending energy dashboard have been developed. Further performance and tracking refinements are being developed by a consulting engineer.

Capital funding was approved in April 2013. A request for proposal (RFP) was prepared and issued; however, the vendor bids were not responsive. A new, less restrictive RFP will be issued in the second quarter of fiscal year 2013-2014.

## STRATEGY 4

TRAIN AND EDUCATE STAFF AND BUILDING END-USERS TO PROPERLY OPERATE AND MAINTAIN BUILDING SYSTEMS IN AN ENERGY-EFFICIENT MANNER.

Implement a Campus Energy Regulation.

To achieve optimal peak efficiency, develop a rolling schedule of evaluation and tune-up of the 40 stand-alone boiler systems that produce heat for campus.

Draft of standard operating procedures have been presented to the Campus Environmental Sustainability Team to supplement the proposed sustainability policy.

Building Maintenance and Operations is developing a building boiler evaluation and tune-up program. Funding is authorized.



## STRATEGY 5

**ENSURE A COST-EFFECTIVE AND RELIABLE ENERGY SUPPLY BY DEVELOPING BUSINESS SCENARIOS AND STRATEGIES FOR DIVERSIFYING FUEL SOURCES.**

### TACTICS:

Solicit bids for natural gas from qualified energy marketers or energy suppliers for up to a five-year term.

### 2012-2013 PROGRESS:

Unexpected authorizing agency roadblocks delayed implementation. The natural gas request for proposal is planned in fiscal year 2013-2014.

## STRATEGY 6

**EVALUATE UTILITY FINANCIAL STRUCTURES THAT CREATE INCENTIVES FOR SAVING ENERGY.**

Conduct the second year of the ultra-low temperature freezer rebate program. Target 10 new energy-efficient units with a stretch goal of 20 new units.

Due to staffing changes, the program did not gain traction this year; however, a cost-share arrangement between campus researchers and staff was achieved that installed new LED greenhouse lighting at a Method Road Greenhouse unit.

## STRATEGY 7

**IMPLEMENT GREEN STANDARDS AND PRACTICES FOR INFORMATION TECHNOLOGY AND COMPUTING.**

Continue green IT policy development and stakeholder discussions. Develop program goals and road map for execution of energy-efficient IT infrastructure.

An ad hoc Green IT committee has formed and is informally chaired by the Office of Information Technology's director of outreach, communication and consulting.

Explore the impact of a new campus data center from an energy perspective.

Plans for a new data center are on hold. Energy conservation opportunities will be incorporated when the data center design process begins.

Survey existing campus server room and identify opportunities for energy conservation and/or consolidation/modernization.

Data Center II and small server rooms were noted during the 53-building energy audit in 2012. Further opportunity exists to quantify energy conservation opportunities. Energy Star for Data Centers is being evaluated by the ad hoc Green IT committee.

Continue migration from servers to cloud computing.

This opportunity is being evaluated by the ad hoc Green IT Committee.

# GREEN DEVELOPMENT

*BUILDING AN EFFICIENT, SUSTAINABLE CAMPUS*

NC State's campus serves as a living laboratory for students, providing hands-on learning opportunities in smart resource management and environmental sustainability.

By applying innovations that increase occupant health and well-being while reducing the environmental footprint of campus, NC State models environmental, social and economic sustainability in the local and global community.

IMAGE: Students use the micro tile wall at the IPearl Immersion theater in the new, LEED-certified James B. Hunt Jr. Library which opened in 2013 as one of the nation's most advanced libraries.

# GREEN DEVELOPMENT

## 2012-2013 HIGHLIGHTS

### TWO UNIVERSITY BUILDINGS EARN NATIONAL LEED CERTIFICATION

NC State's James B. Hunt Jr. Library achieved Leadership in Energy and Environmental Design (LEED) Silver certification and the Eastern 4H Environmental Conference Center was certified LEED Gold. Because of many benefits including long-term cost savings in energy use and building maintenance, NC State has committed that all new construction projects larger than 20,000 gross square feet earn at least LEED Silver certification. Also in 2013, the university earned a LEED master site credit for green housekeeping that will help simplify the LEED certification process for future campus projects.



JAMES B. HUNT JR. LIBRARY

- ▶ Bookbot, a robotic book retrieval system enabled the library to be 40 percent smaller
- ▶ Designed to use 31 percent less energy and 38 percent less water than a standard building its size
- ▶ Green roof assists with rainwater runoff and keeps the building cooler
- ▶ 12-collector solar thermal system preheats the building's hot water



EASTERN 4-H CONFERENCE CENTER

- ▶ Occupancy sensors, low-E glass windows and an efficient geothermal system provide year-round energy savings
- ▶ Rain garden
- ▶ Bamboo flooring, recycled ceramic tile and insulation made from recycled denim

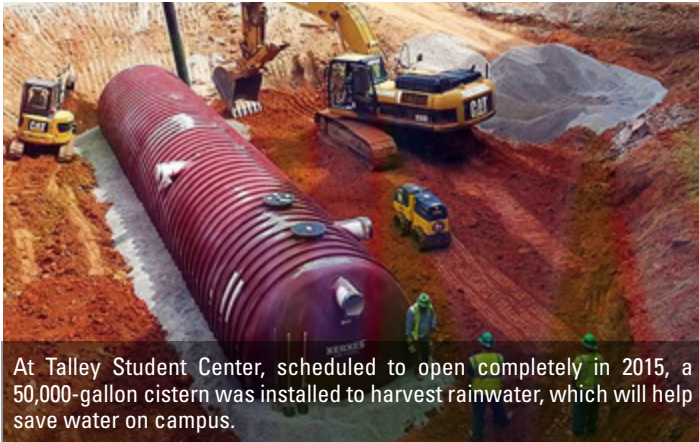


Using low or zero VOC paint and adhesives are among more than 20 sustainability guidelines adopted this year as part of a Green Building checklist for smaller, informal construction and renovation projects on campus.



NC State's Grounds Management collaborated with a horticulture class to install a green wall at Poe Hall.





At Talley Student Center, scheduled to open completely in 2015, a 50,000-gallon cistern was installed to harvest rainwater, which will help save water on campus.

## NEW FACULTY HIRES PROMPT SPACE REALLOCATION EFFORTS

Instead of building new facilities, NC State searched internally for existing campus space to accommodate the hiring of up to 50 new faculty members over the next several years as part of the Chancellor's Faculty Excellence Program. Colleges and other campus entities identified about 80,000 square feet for designation as strategic space reserves that may be renovated for future campus growth, preventing the construction and expense of additional buildings.

## SUSTAINABILITY IN CAMPUS PLANNING

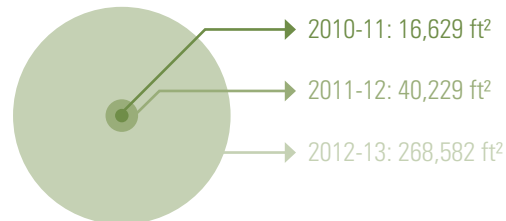
As NC State began developing its 2012 Physical Master Plan, sustainability remained a foundational component. A sustainability task force with more than a dozen members representing varied areas of the university began working in 2013 to update the Physical Master Plan's vision for campus sustainability.



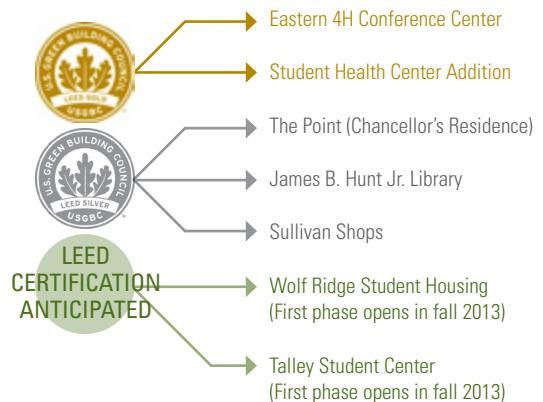
CALS Office of Sustainability coordinator Dr. Danesha Seth Carley, center, leads a turfgrass class at Lonnie Poole Golf Course.

## BY THE NUMBERS

### LEED CERTIFIED SPACE ON CAMPUS



### LEED CERTIFIED BUILDINGS ON CAMPUS



### PERCENTAGE OF UNDERGRADUATES LIVING ON CAMPUS



### WALKABLE BUILDINGS ON CAMPUS (WITHIN 600 FEET OF COURTYARD, PLAZA OR CAMPUS STREET)



## LONNIE POOLE GOLF COURSE EARNS INTERNATIONAL SUSTAINABILITY CERTIFICATION

The university's golf course passed strict sustainability standards to become a certified Audubon International Signature Golf Sanctuary. Developed in 2007, Lonnie Poole Golf Course is one of only two university-owned golf courses in the world to earn the certification. A living lab for sustainable turfgrass management and environmental stewardship, the facility features extensive vegetative buffers, native plants and grasses, constructed wetlands that naturally filter water and variety a of wildlife.

# GREEN DEVELOPMENT

## PROGRESS TOWARD STRATEGIC GOALS

### STRATEGY 1

UPDATE THE CAMPUS PHYSICAL MASTER PLAN TO INTEGRATE AND COORDINATE TRANSPORTATION, LAND USE, UTILITIES, BUILDINGS AND STORM WATER PLANNING.

#### TACTICS:

Complete Physical Master Plan update workshops.

Establish Physical Master Plan update task forces.

#### 2012-2013 PROGRESS:

Completed seven public workshops and published the highlights Workshop Summary document.

Nearly all 10 task forces started work in fiscal year 2012-2013 with several task forces nearing completion of their recommendations.

### STRATEGY 2

ADOPT A SUSTAINABILITY VISION STATEMENT AND INCLUDE IT AS PART OF THE SCOPE STATEMENT FOR ALL PROJECTS OVER \$500,000.

Develop a procedure for integrating sustainability teaching, research and extension expertise into physical campus projects.

A sustainability brainstorming session occurred at all Physical Master Plan workshops, which were open to campus community. Other avenues will be pursued.

### STRATEGY 3

INTEGRATE SUSTAINABLE STRATEGIES FOR ALL NEW CONSTRUCTION AND RENOVATION PROJECTS INCLUDING PUBLICLY OWNED, PRIVATELY OWNED, AND LEASED OR PARTNERSHIP PROPERTIES.

Instill the values of total cost of ownership and total life cycle costing in purchasing and project decision making.

Make campus-wide sustainability efforts and progress more visible. Add temporary signage/flyers to educate campus about the sustainability efforts that have been implemented.

Re-evaluating tactic to be more measurable.

A Construction Sign prototype was developed. Signs will be posted at project sites to communicate sustainability initiatives on projects.

### STRATEGY 4

EXCEED NC STATE'S ESTABLISHED MINIMUM COMMITMENT TO ACHIEVE LEED SILVER CERTIFICATION.

No tactics in 2012-2013.

N/A



## STRATEGY 5

**GIVE PRIORITY TO HOLISTIC BUILDING AND PROPERTY MODIFICATIONS THAT MAXIMIZE EFFICIENT AND EFFECTIVE RESOURCE USE.**

### TACTICS:

Use training, education and funding to obtain buy in of new technology use, operation and maintenance.

### 2012-2013 PROGRESS:

News articles relating success with green initiatives were used to improve communication and outreach.

## STRATEGY 6

**DESIGN NEW BUILDINGS AND UTILIZE EXISTING FACILITIES AS LONG-TERM FLEXIBLE RESOURCES.**

Develop interior finish guideline for the NC State Design and Construction Guidelines.

The Interior Finish section of the NC State University Design and Construction Guidelines has been completed and is available on the Facilities website.

Make sustainability part of Facility Modification process that includes external review (checklist, refer to university guidelines, narrative, etc.).

Facility Modification position in place by April 15. This person will implement changes to include making sustainability a heightened aspect of the process.

## STRATEGY 7

**ENHANCE UTILIZATION AND MANAGEMENT OF CAMPUS AND BUILDING SPACE TO INCREASE EFFICIENCY AND TO REDUCE THE NEED FOR NEW CONSTRUCTION.**

Determine tools and processes needed for assigning individuals to office space and research space.

Implementation of new space management software is in process and must be completed before assignment of people to space can be completed. Projected completion dates are early fall 2013 for software implementation and late fall 2013 for assignment of people to space.

Establish productivity metrics for research space allocations.

Reviewed peer institutions and shared productivity tools with university administration.



# GREEN DEVELOPMENT

## PROGRESS TOWARD STRATEGIC GOALS

### STRATEGY 8

CREATE PEDESTRIAN-FRIENDLY, MIXED-USE NEIGHBORHOODS TO REDUCE THE DISTANCE BETWEEN NECESSARY SERVICES AND AVOID SINGLE OCCUPANT VEHICLE USE.

#### TACTICS:

Implement top priority project from the Landscape Implementation Plan.

Participate in design of Blue Ridge Road and Hillsborough Street intersection.

Implement top priority projects from the Bike and Pedestrian Plan.

Participate in Capital Area Metropolitan Planning Organization's Western Boulevard Pedestrian Study

#### 2012-2013 PROGRESS:

Installing Central Campus Gateway at Varsity Drive. Replaced exterior stairs near Kilgore Hall. Implemented first phase of an improved entrance on the northeast side of University Plaza (The Brickyard).

Helped to advance implementation of an economic development entity for the corridor. Discussions are underway to pool resources with other organizations to create the development entity for the corridor.

Installed brick walks on Gorman Street and Faucette Drive. Installed stairs to connect Method Road Greenhouses to the sidewalk on Method Road.

Study is complete, including an assessment and cost estimate for a pedestrian tunnel under Western Boulevard at Morrill Drive and Avent Ferry Road.

### STRATEGY 9

INCREASE THE ACREAGE OF CAMPUS OPEN SPACES.

Finish construction of Walnut Creek Greenway.

Approximately 70 percent of the project has been completed, including trail grading and addition of most of the required stone base. The project is scheduled for August 2013 completion.

Continue development of The Oval.

Completed a Tree Master Plan for The Oval.

Continue work on relocation of research field buildings along Varsity Drive.

The contents of several buildings have been relocated to other buildings.

### STRATEGY 10

INCREASE THE PERCENTAGE OF UNDERGRADUATE STUDENTS LIVING ON CAMPUS TO REDUCE TRANSPORTATION NEEDS AND TO ENHANCE RETENTION.

Continue construction of Wolf Ridge Apartments.

Under construction. Two buildings open August 2013 and the remaining four buildings open summer 2014.

Continue Greek Village development.

Second house at Greek Village is under construction.



## STRATEGY 11

CREATE AND ADMINISTER A STORM WATER MASTER PLAN FOR CAMPUS IN CONJUNCTION WITH THE NC STATE STORM WATER PROGRAMS AND THE COMPREHENSIVE CAMPUS MASTER PLAN.

### TACTICS:

Establish a Storm Water Working Group.

### 2012-2013 PROGRESS:

This tactic will be carried forward to 2013-2014 fiscal year.

## STRATEGY 12

IMPROVE AND ENHANCE CAMPUS OPEN SPACES, NATURAL AREAS AND HABITATS.

Continue Development of The Oval and Partners I Courtyard on Centennial Campus.

Partners I Courtyard is complete as is Phase I of The Oval Tree Master Plan.

## STRATEGY 13

STRENGTHEN TREE REFORESTATION PLAN FOR CAMPUS.

Establish a Heritage Tree Program.

25 trees/groves have been selected as Heritage Trees. A recommendation to establish a program oversight committee is being made to the administration.

Install the final tree plantings at Lonnie Poole Golf Course to complete the reforestation requirements of the Centennial Campus Tree Conservation Plan.

The final tree planting was completed in December 2012, and all four planting areas were inspected and accepted by City of Raleigh.

Submit Greek Village Conservation Plan to City of Raleigh.

This tactic will be carried forward to 2013-2014 fiscal year.

## STRATEGY 14

DEVELOP A LAND MANAGEMENT PLAN FOR LAKE RALEIGH WOODS.

Initiate study to remove invasive plants as part of a student multi-semester project.

This tactic will be carried forward to 2013-2014 fiscal year.

## STRATEGY 15

EMPLOY BEST PRACTICES FOR SUSTAINABLE OPERATION OF CAMPUS BUILDINGS AND GROUNDS SUCH AS INTEGRATED PEST MANAGEMENT, BIODIVERSITY, GREEN CLEANING, COMPOSTING, RECYCLING AND WATER REUSE.

Work to include sustainability principles into operational agreements for Centennial Campus.

In development with the Centennial Campus Development Office.



# PURCHASING & WASTE REDUCTION

## *STRIVING FOR SUSTAINABLE MATERIALS AND ZERO WASTE ON CAMPUS*

A university needs resources, which have a life of their own - from where they originate and how they are produced to how long they can be utilized and what happens when they have no more useful value.

At NC State, sustainability starts at the source as more economically, environmentally and socially beneficial products make their way on campus. When these resources reach the end of their useful life, the university's robust waste diversion program reduces campus waste through recycling and reuse programs that successfully redirected 45 percent of campus waste from landfills in fiscal year 2012-2013.

IMAGE: Yellow recycling bins for electronics joined NC State's recycling bin lineup in 2012.

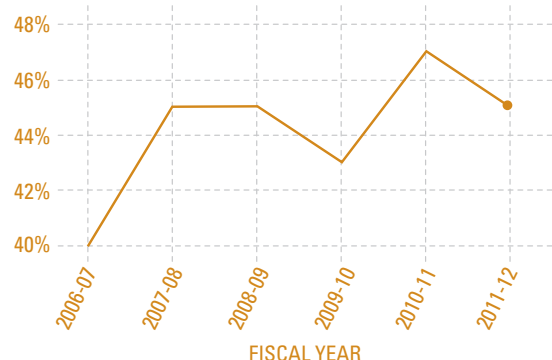




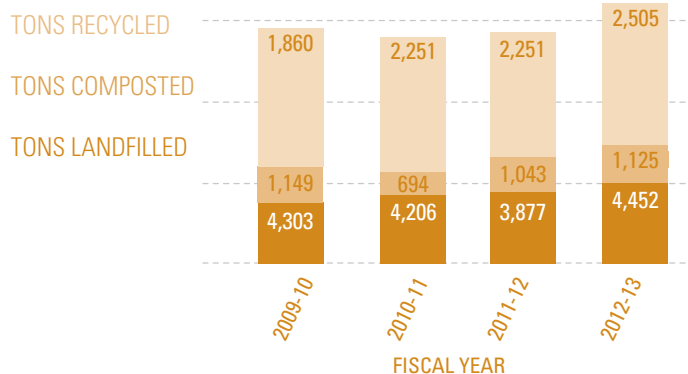
## 2012-2013 HIGHLIGHTS

### PERCENTAGE OF CAMPUS WASTE DIVERTED FROM LANDFILL

DECREASE ATTRIBUTED TO ADVANCEMENTS IN MEASUREMENT AND REDUCED PAPER/CARDBOARD USE ON CAMPUS



### CAMPUS MATERIAL RECYCLED, COMPOSTED & LANDFILLED



### CAMPUS-GROWN FOOD SERVED IN DINING HALLS FOR FIRST TIME



The roots for campus-grown food on NC State's Agroecology Education Farm were planted as part of the university's 2013 Earth Day activities.

It doesn't get more local than growing food on campus, for campus. In April 2013, about 100 students, faculty, staff, alumni and community members kicked off campus Earth Day by planting seedlings at the university's Agroecology Education Farm, a six-acre farm where students learn sustainable farming techniques. With the help of additional summer volunteers, NC State's garden grew. Over the course of the summer, the farm's harvest totaled several hundred pounds of produce for University Dining, which served the food in campus dining halls.

### STUDENTS DONATE 26,000 POUNDS OF ITEMS TO CHARITY

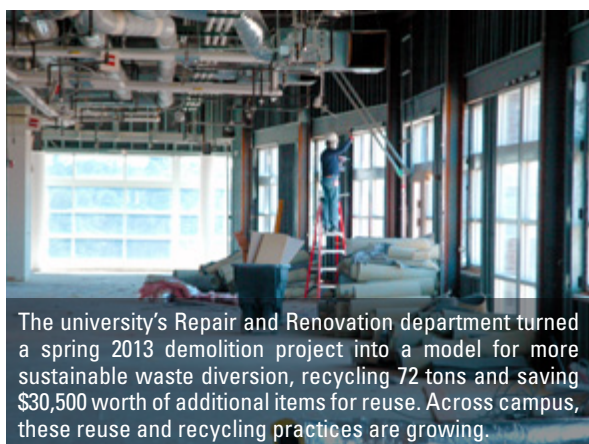
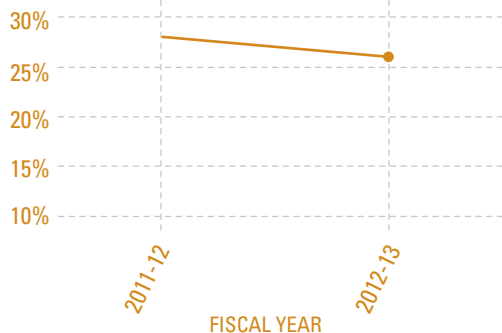


Pack N Give contributions are at an all-time high.

When the Wolfpack packed up and moved out of residence halls in May 2013, students left behind reusable items for local nonprofits to distribute to individuals in need. This "Pack N Give" partnership between Waste Reduction and Recycling and University Housing helped the university divert from landfills one third of all material discarded during residence hall move out including 11 percent more donations than last year and 47,500 pounds of recyclable material.

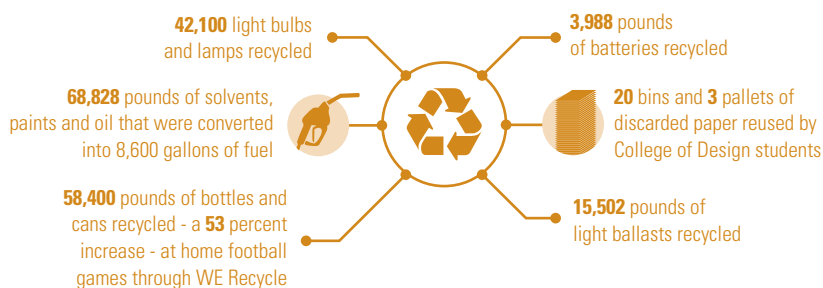
## PERCENTAGE OF LOCAL FOOD SERVED IN CAMPUS DINING HALLS

DECREASE ATTRIBUTED TO LOSS OF A MAJOR LOCAL SUPPLIER



## BY THE NUMBERS

Through recycling and reuse programs in fiscal year 2012-2013, the offices of Waste Reduction and Recycling and Environmental Health and Safety diverted many items from landfills including:

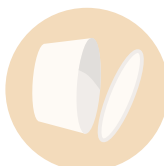


## NEW THIS YEAR



Wolf Copy begins offering double-sided printing as the default setting for all campus multi-functional devices.

Campus adds new yellow bins for electronics recycling, and commingled recycling in blue bins becomes available at residence halls.



Rigid plastic materials become recyclable through the university's Dearstyne Roll-off Convenience Site, which reuses or recycles more than 90 percent of material discarded at the site.

New measurement scales on Waste Reduction and Recycling trucks will enable improved, location-based data collection about campus recycling and waste.



Pairing more recycling bins with trash bins so that recycling is easy for students, faculty and staff.

An herb garden outside Fountain Dining Hall provides extra seasoning for dining hall chefs.





# PURCHASING & WASTE REDUCTION

## PROGRESS TOWARD STRATEGIC GOALS

### STRATEGY 1

INSTILL TOTAL COST OF OWNERSHIP AND TOTAL LIFE CYCLE COSTING VALUES INTO PURCHASING AND PROJECT DECISION MAKING.

#### TACTICS:

Begin to implement university mandated language into contracts and bids over \$5,000.

Complete compliance with mandated language for paper, appliances and computers.

#### 2012-2013 PROGRESS:

This tactic will be carried forward to 2013-2014 fiscal year.

Work with structural flow chart to tackle three mandated commodities and update in future. Then grow/build to tackle other commodities.

### STRATEGY 2

ACHIEVE A 60 PERCENT LANDFILL DIVERSION RATE BY 2015.

Develop formal evaluation process to determine program effectiveness and potential improvements. Conduct training with Grounds and Housekeeping to ensure buy-in and proper procedure.

Continue educating campus about self service recycling and waste diversion opportunities.

Evaluate residential diversion opportunities: trash chutes, composting pilot and increasing opportunities for recycling and waste reduction.

Implement construction and demolition recycling and diversion plan.

Further institutionalize zero waste programs throughout campus: mini bin pilot, zero waste athletics events, event diversion and removal of extraneous trash cans.

Trainings have been implemented with Grounds and Housekeeping. A plan is in place for future training and feedback.

Created Housekeeping brochure, signs for residence halls and bin labels.

Eliminated trash cans that are unpaired with recycling bins and creating central sites in residential hall common areas.

Moving forward with Design and Construction Services as well as Repair and Renovation. Pilot and planning phase have taken place with positive project results. Next steps are to make changes and formalize the project.

Conducted a pilot of the mini bin program with Grounds Management employees, who provided feedback about the program through a survey. Also, implemented a phased in zero waste approach for Carter-Finley Stadium with a goal of zero waste by 2014.



# PURCHASING & WASTE REDUCTION

## PROGRESS TOWARD STRATEGIC GOALS

### STRATEGY 3

IMPLEMENT SOURCE REDUCTION AND ENVIRONMENTALLY PREFERABLE PURCHASING INITIATIVES TO DECREASE WASTE BEFORE IT OCCURS.

#### TACTICS:

Collaborate with Shack-a-Thon participants to reduce waste and ensure materials can be reused.

Continue work on plastic bag elimination in the University Bookstore and C-Stores.

"One Less Cup" initiative with University Dining to reduce the number of disposable one-use cups.

Develop repurpose/reclamation clauses for furniture and large purchases and an online auction to sell materials internally.

#### 2012-2013 PROGRESS:

Coordinated waste reduction efforts with event planners, educated builders about reducing the amount of paint on wood and constructing with bulk pieces.

Students started a "Plastic Propoganda" campaign to address plastic waste on campus. Campaign goals are being formalized.

A campus partnership purchased and distributed 3,000 cups. University Dining began offering a 10 cent discount to customers with their own cup.

Bi-monthly workshops are being developed on waste reduction and purchasing topics. This tactic will be modified in fiscal year 2013-2014.

### STRATEGY 4

INCREASE THE AMOUNT OF ENVIRONMENTALLY AND SOCIALLY RESPONSIBLE MATERIALS PURCHASED.

Create incentives for purchase of more sustainable products and services.

Highlight sustainable materials for the commodity of paper products on the Marketplace website.

Track sustainable products and educate campus on sustainable vendors.

Researched Marketplace data to identify campus users who already purchase sustainable products. Develop future incentive opportunities.

Completed with current suppliers and added to new vendor criteria.

This tactic will be carried forward to 2013-2014 fiscal year.

### STRATEGY 5

IMPLEMENT SUSTAINABLE PURCHASING STANDARDS.

Help departments further develop the university sustainability policy.

Develop bid specifications that require vendors to provide sustainable options in their convenience contracts for products by commodities.

Integrate sustainability standards into the vendor onboarding checklist.

This process will follow the campus adoption of the Green Procurement standard operating procedure and Sustainability Policy.

This tactic will be carried forward to 2013-2014 fiscal year.

Complete.

**STRATEGY 6**

**DEVELOP A COMPREHENSIVE CLOSED LOOP PROGRAM TO CAPTURE ORGANIC WASTE (FROM FOOD, YARDS, ANIMAL BEDDING, ETC.) FOR COMPOSTING AND UTILIZE THE COMPOSTED PRODUCT ON CAMPUS.**

**TACTICS:**

Reach out to agricultural departments to establish working relationship and gather data on composting and diversion opportunities.

Formally evaluate composting opportunities throughout campus. Establish criteria and scope.

Work with Grounds Management to utilize organic materials produced on campus as soil amendment.

**2012-2013 PROGRESS:**

This tactic will be carried forward to 2013-2014 fiscal year.

This tactic will be carried forward to 2013-2014 fiscal year.

This tactic will be carried forward to 2013-2014 fiscal year.

**STRATEGY 7**

**DEVELOP A MORE EXTENSIVE OUTDOOR WALKWAY RECYCLING PROGRAM TO CAPTURE ADDITIONAL RECYCLABLE MATERIALS AND REMOVE THEM FROM THE WASTE STREAM.**

Complete placement of outdoor recycling bins and continue education. Work with receipt-supported areas to fund placement in those areas.

More than 50 containers were installed. In fiscal year 2013-2014, Centennial Campus placements will be completed and walkway recycling bin funding will be part of building service agreements for receipt-funded buildings.

**STRATEGY 8**

**UTILIZE MODERN WASTE COLLECTION CONCEPTS AND PRACTICES TO STREAMLINE SERVICES, IMPROVE PROGRAMS, AND INCREASE OPERATIONAL EFFICIENCIES AND CUSTOMER SERVICE.**

Work with University Housekeeping to streamline indoor recycling collections.

Examine necessity of full-size trash cans for desk-side recycling.

Offer co-mingled, single-stream recycling.

Increase recycling education and marketing.

Add news/bulletin boards at recycling locations.

Add a message to vending machines about recycling in partnership with University Dining.

Site evaluations and educational training have been initiated and will continue through fiscal year 2013-2014.

Pilot complete with Grounds Management. Sixty percent of participants indicated they would like to continue to use a mini waste bin.

Relabeled and commingled recycling at residence halls for improved user ease.

Ongoing.

Budget for and create design guidelines for future additions of bulletin boards.

Coca Cola and University Dining have added "give it back" messaging on soda machines.

## STRATEGY 9

### INCREASE PARTNERSHIPS AMONG NC STATE, LOCAL FARMERS, PRODUCERS AND MANUFACTURERS IN NORTH CAROLINA, RESULTING IN MORE SUSTAINABLE FOOD PURCHASES BY UNIVERSITY DINING.

#### TACTICS:

Establish target percent for local food and sustainable food purchases.

Continue enrollment in the 10% campaign.

Work with Got to Be NC to maximize North Carolina product purchases.

Highlight use of local and sustainable products within University Dining.

Continue work with food suppliers to incorporate sustainable foods into menus.

Work with the franchised food service operations to determine local foods that can be incorporated into menu planning.

Partner with the College of Agriculture and Life Sciences' Agroecology Education Farm to create Farm to Fork educational opportunities.

Actively partner with NC State Earth Day to showcase University Dining's local food programs.

Begin formulating the development of an on campus garden over the next five years, which will eventually provide education for students and faculty, and also provide fresh produce for use in all dining halls.

#### 2012-2013 PROGRESS:

In response to the interest of students, University Dining is focused on first increasing local food purchases.

University Dining remains a participant in the 10% campaign.

University Dining has worked with Got to be NC as a resource for locating difficult-to-find food products and increasing those purchases.

Through the "My Roots are at NC State" program, local and alumni suppliers are highlighted in campus dining halls.

More local foods have been added to menus across campus. The addition of several new food service operations provides even more opportunity for expansion of local food offerings.

As the franchised food service operator increases its local food supply, University Dining is exploring how these products can be incorporated in menus.

The first Farm to Fork event was held in October 2012 at the farm. A second major event, a planting day at the farm, was held in April 2013 as part of campus Earth Day activities.

University Dining sponsored two major Earth Day events and participated in other Earth Day activities, including a student pledge for more local food on campus.


In summer 2013, NC State's Agroecology Education Farm provided campus-grown food to campus dining halls for the first time. Options for future partnership will be explored.



# TRANSPORTATION

## *PROPELLING SUSTAINABLE TRANSPORTATION ON CAMPUS*

On a thriving campus, people are on the move. From work to class and everywhere in between, students, faculty and staff travel to, from and around campus. Every year, campus sustainable transportation options grow, reducing energy use and greenhouse gas emissions while creating a more pedestrian-friendly and less congested campus.

A photograph showing three students from behind as they walk up a wide set of concrete stairs. The student in the foreground is wearing a dark t-shirt, blue jeans, and a large black backpack. The student in the middle is wearing a light-colored t-shirt, dark pants, and a black backpack. The student in the background is wearing an orange hoodie and light-colored pants, also with a backpack. The sky is a clear, bright blue. The stairs have some graffiti on them, including the word "FRIEDAY" and some numbers.

Several new sidewalk projects and the weekday closure of Dan Allen Drive, a major campus thoroughfare, have created a safer campus for pedestrians in 2012-2013.

# TRANSPORTATION

## 2012-2013 HIGHLIGHTS

### NC STATE CHARGES AHEAD WITH 10 NEW ELECTRIC VEHICLE CHARGING STATIONS



At Campus Sustainability Day, the student-built electric EcoCar2 charged at one of the new campus electric vehicle charging stations on Centennial Campus.

The university's Centennial Biomedical Campus and Centennial Campus both added electric vehicle charging stations in 2012-2013, bringing the campus total to 18 stations. Meanwhile, NC State researchers continue to make advances in electric vehicle charging, paving the way for a future that could include wireless charging and quick chargers that can recharge a car in under an hour.



In fall 2012, several recommendations from the Campus Mobility plan were implemented, including expanded Wolfline night service, improved Wolfline travel times between campuses, and new Wolfline service to Cameron Village. Also in 2012, campus welcomed five new Wolfline buses, which are powered by ultra-low sulphur diesel fuel.

### CAMPUS TAKES THE CHALLENGE TO REDUCE COMMUTES

From April 1 to May 31, 2013, the campus-wide Commute Challenge inspired students, faculty and staff to use alternative transportation, resulting in:



116 PARTICIPANTS  
logged

42,687' MILES  
OF ALTERNATIVE TRAVEL  
( )

THAT'S NEARLY  
ENOUGH TO  
CIRCLE THE  
GLOBE, TWICE!



the effect?

THE COLLECTIVE EFFORT OF  
LESS THAN ONE PERCENT  
OF STUDENTS, FACULTY & STAFF

SAVED

23,320  
POUNDS OF CO<sub>2</sub>  
EMISSIONS

\$16,342  
IN COMMUTING COSTS

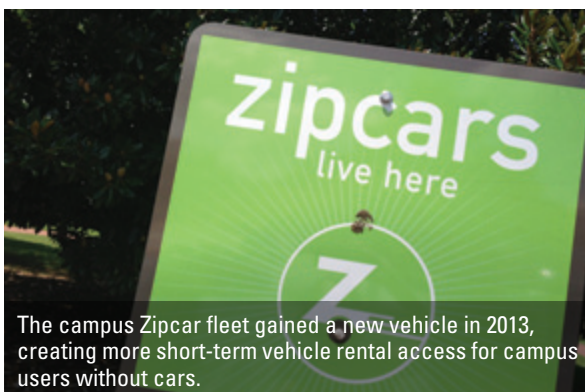




With three utility bicycles available for use, Facilities Division employees now have the option to travel sustainably to projects and meetings around campus.

## DRIVING DOWN VEHICLE TRAFFIC ON DAN ALLEN DRIVE

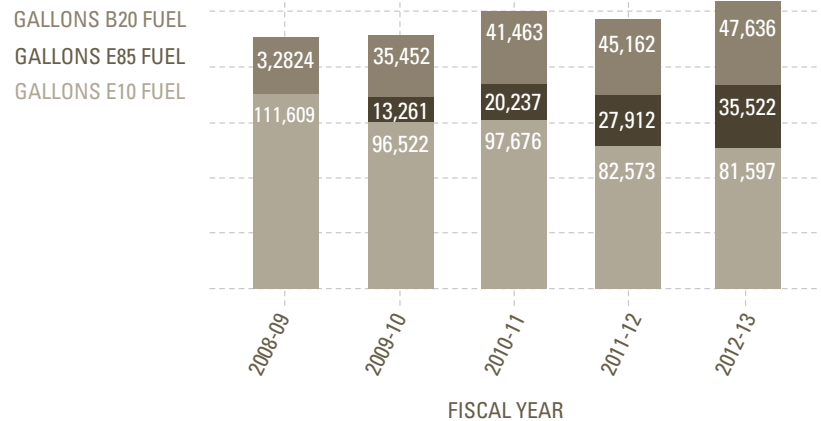
In January 2013, NC State improved pedestrian and other sustainable travel access on campus by restricting weekday vehicular traffic on Dan Allen Drive between 9 a.m. and 5 p.m. By reducing vehicular access to just service vehicles and Wolfline campus buses, pedestrian and bicyclist safety improved and Wolfline on-time performance improved 16 percent.



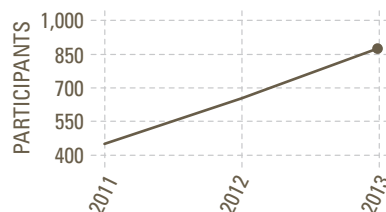
The campus Zipcar fleet gained a new vehicle in 2013, creating more short-term vehicle rental access for campus users without cars.

## BY THE NUMBERS

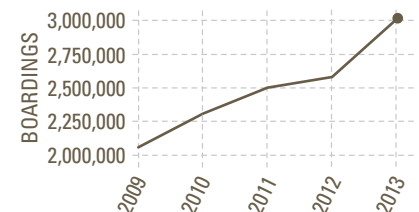
FUEL TYPE USED IN FACILITIES OPERATIONS FLEET



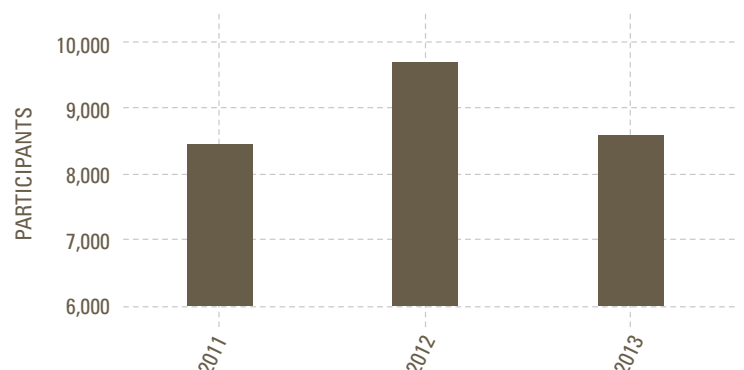
PARTICIPANTS IN WOLFTRAILS ALT. COMMUTING PROGRAM



PASSENGER BOARDINGS ON WOLFLINE BUS SYSTEM



NUMBER OF STUDENTS, FACULTY AND STAFF USING GOPASS REGIONAL BUS TRANSIT CARDS





# TRANSPORTATION

## PROGRESS TOWARD STRATEGIC GOALS

### STRATEGY 1

DEVELOP A LONG-TERM CAMPUS VISION ADDRESSING ALTERNATIVE TRANSPORTATION, PARKING, CAMPUS CONNECTIVITY AND CONGESTION IN COORDINATION WITH THE COMPREHENSIVE CAMPUS MASTER PLAN.

#### TACTICS:

Support development of campus Physical Master Plan update.

#### 2012-2013 PROGRESS:

Transportation Task Force Revisions are slated for completion in July 2013.

### STRATEGY 2

REDUCE THE CONSUMPTION OF PETROLEUM PRODUCTS IN THE UNIVERSITY AND WOLFLINE FLEETS BY INCREASING THE USE OF ALTERNATIVE FUEL AND LOW-EMITTING VEHICLES.

Begin reviewing alternatives to continued reliance upon low-sulfur diesel Wolfline coaches in making future fleet management decisions.

No fuel changes anticipated under current First Transit contract, which has been extended through August 2017. Future technical fleet/fuel type specifications for the Wolfline transit system will be addressed in a system services request for proposal anticipated for release fall 2015. In the interim Transportation may evaluate alternative fuel buses brought to campus for short demonstration projects.

Conduct best-practice study of alternative fuel and low emission vehicles in use on other N.C. college and university campuses to determine most cost-effective vehicles for university motor pool and departmental fleets.

No progress. Upcoming opportunity to initiate this discussion at the July 2013 Appalachian Energy Summit focused on University of North Carolina system-level strategy.

### STRATEGY 3

INCREASE WOLFLINE RIDERSHIP AND ENSURE THAT WOLFLINE CONTINUES TO PROVIDE A HIGH LEVEL OF SERVICE THAT MEETS USER NEEDS.

Conduct periodic commuter survey of students and staff.

Commute travel behavior survey of employees was completed in spring 2013 with results to be reported by late July 2013. A comparable student survey will occur in fall 2013.

**STRATEGY 4****IMPROVE BICYCLE AND PEDESTRIAN ACCESS ON CAMPUS.****TACTICS:**

Close Dan Allen Dr. through-access for vehicles to improve bicycle and pedestrian safety along the corridor.

Add/update sharrows where appropriate around campus.

**2012-2013 PROGRESS:**

On January 14, 2013, Dan Allen Drive closure initiated 9 a.m.-5 p.m. on week-days when classes are in session.

New sharrows are programmed for campus roadways in fiscal year 2013-2014.

**STRATEGY 5****RESEARCH AND DEVELOP MORE SUSTAINABLE PARKING POLICIES INCLUDING THOSE THAT WOULD INCREASE CARPOOLS, SHIFT PARKING TO THE CAMPUS PERIPHERY, AND PRIORITIZE PARKING OF LOW-EMITTING VEHICLES.**

Increase carpool promotion for faculty and staff.

Examine more sustainable parking alternatives for consideration in the Physical Master Plan, including reducing planned parking spaces and more peripheral parking locations.

Ongoing through WolfTrails and other programs.

Ongoing through Physical Master Plan transportation task force.

# EVENTS

**Wolfpack Bound Trips**, July 15-20, 24-27, 29 - Aug. 3, 2012  
**Green Meeting and Event Workshop**, Aug. 7, 2012  
**Service NC State**, Aug. 16, 2012  
**Packapalooza**, Aug. 18, 2012  
**Solar Pavilion Grand Opening**, Aug. 21, 2012  
**Campus Farmer's Market**, Wednesdays  
**Smart Commute Challenge**, Sept. 1 - Oct. 15  
**All Carolinas Meal**, Sept. 5, 2012  
**Lee Hall Rain Garden Ribbon-Cutting Ceremony**,  
Sept. 13, 2012  
**Green Football Game**, Sept. 15, 2012  
**Campus Sustainability Day**, Sept. 21, 2012  
**Shack-A-Thon**, Sept. 22-24, 2012  
**Ramblings of an Avalanche: Rachel Carson's *Silent Spring***  
Sept. 27, 2012  
**Energy Action Month**, October 2012  
**Plastic Bottle Ban Freeze**, Oct. 1, 2012  
**True Cost of Coal**, Oct. 8, 2012  
**National Wolfpack Service Day**, Oct. 13, 2012  
**TerraBlight movie screening and speaker**, Oct. 28, 2012  
**Ribbon-Cutting Ceremony for NC State's Cogeneration  
Utility Plant**, Nov. 14, 2012  
**America Recycles Day recycling drive**, Nov. 15, 2012  
**North Carolina Student Energy Network: Fall Summit**,  
Nov. 17-18, 2012  
**Lunch-And-Learn Workshop: Capital Area Friends of Transit:  
Mass Transit in Wake County**, November 29, 2012  
**Wild Foods Supper**, Feb. 9, 2013  
**Lunch-And-Learn Workshop: University Housekeeping,  
Green Cleaning and You**, Feb. 22, 2013  
**Alternative Service Break**, March 1-10, 2013  
**Southeastern Wildlife Conclave**, March 7-10, 2013  
**Movie Screening of *Nature of Cities***, March 13, 2013  
**North Carolina Arbor Day Celebration**, March 16, 2013

**15th Annual Water Resources Research Institute  
Conference**, March 20-21, 2013  
**Water, Energy, & Security: Colliding Imperatives Seminar**,  
March 21, 2013  
**Service Raleigh and Rubbage Ride**, March 23, 2013  
**TedxNCSU**, March 23, 2013  
**Commute Challenge**, April 1- May 31, 2013  
**Dedication of James B. Hunt Jr. Library**, April 3, 2013  
**Movie Screening of *Switch***, April 8, 2013  
**ACC Clean Energy Challenge**, April 9, 2013  
**Movie Screening of *No Impact Man***, April 10, 2013  
**Design in the Food System**, April 11, 2013  
**Innovative Prospects Symposium: Integrating Tropical For-  
est Conservation and Sustainable Livelihoods**, April 12, 2013  
**Planting My Roots**, April 13, 2013  
**Grow Your Wellness**, April 16, 2013  
**Norman Borlaug Lecture**, April 16, 2013  
**NC State Earth Day**, April 17, 2013  
**Earth Day Movie, *Fresh***, April 17, 2013  
**Farm Feast**, April 18, 2013  
**Green Brick Awards**, April 18, 2013  
**Movie Screening of *Do the Math***, April 21, 2013  
**City of Raleigh Environmental Awards**, April 22, 2013  
**Wolf Pack N Give**, April 23-May 12  
**Artist's Backyard Phase III Ribbon-Cutting**, April 26, 2013  
**Sustainable Transportation Education Program (STEP)  
Student Competition**, April 27, 2013  
**Grand Opening of the Center for Earth Observation  
Visualization Lab**, May 9, 2013  
**Climate Change Adaptation for States, Tribes and Local  
Governments Webinar Series**, June 3-12, 2013  
**CALS Office of Sustainability's Pollinator Health Initiative  
Meet and Greet**, June 21, 2013





# AWARDS & HONORS

## **Princeton Review**

NC State was included in the Princeton Review's *Guide to 322 Green Colleges* and was also ranked sixth on the national Princeton Review/*USA Today* list of best values in public higher education. Sustainability was among NC State's highest scores in the 30 areas factored into the best value assessment.

## **GoTriangle Golden Modes Awards**

Among local employers with 5,000 - 14,999 employees, NC State was recognized with the Employee Commuting Award for providing a variety of alternative transportation commuting options and incentives plus the SmartCommute Challenge Leaderboard Award for the highest employee participation in the regional SmartCommute Challenge.

## **Raleigh Environmental Awards**

NC State won the 2012 Raleigh Environmental Stewardship Award, the city's highest honor for sustainability, plus:

- James B. Hunt Jr. Library, Green Design (Nonresidential) Award
- University Dining, Pioneering Efforts Award
- Artists' Backyard, Natural Resource Conservation Award
- Sullivan Shops, Natural Resource Conservation Award
- Students Wei Wang and Robert Smith, Donna Jackson Trailblazer Award for environmental public service announcement

## **Food Service Director's Grand Goldie Award**

University Dining was recognized for its sustainability efforts through the My Roots are at NC State campaign.

## **Green Brick Awards**

Student Carlos Vega, staff member Rick Gardner and faculty member Dr. Jonathan Casper received NC State's annual Green Brick Awards from the Campus Environmental Sustainability Team.

## **Sir Walter Raleigh Awards for Community Appearance**

NC State's campus took home the 2012 Outstanding Site Improvement Award for the Watauga Club Gateway Project, Outstanding Maintained Appearance Award for J.C. Raulston Arboretum and the Tree and Landscape Conservation Award for Centennial Campus Stream Reclamation Project.

# ACKNOWLEDGEMENTS

NC State's Annual Sustainability Report is produced on behalf of the Campus Environmental Sustainability Team by the University Sustainability Office.

## WRITING AND EDITING:

Carla Davis, University Sustainability Office

Tracy Dixon, University Sustainability Office

## DESIGN:

Mariel Eaves, University Sustainability Office

## CONTRIBUTORS:

Alex Barnett, University Bookstore

Lindsay Batchelor, University Sustainability Office

Elizabeth Bowen, University Sustainability Office

Charles Brown, Design and Construction Services

Ellen Buckner, Environmental Health and Safety

Jonathan Casper, College of Natural Resources

Christopher Dunham, University Dining

Rebekah Dunstan, University Sustainability Office

Stacy Fair, Visitors Center

Tilla Fearn, College of Natural Resources

Sean Fokes, University Housing

Analís Fulghum, Waste Reduction and Recycling

Abby Gingrich, Sustainability Commission of Student Government

Shannon Helm, NC Solar Center

Matthew High, Staff Senate

Scott Jennings, Facilities Motor Fleet

Lisa Johnson, Office of the University Architect

Sumayya Jones-Humienny, Office of the University Architect

Robert Kelly, NCSU Biotechnology Program

Jennifer Kendall, University Housing

Sarah Ketchum, Grounds

Sharon Loosman, Purchasing

Roger Manley, Gregg Museum of Art & Design

Kevin Martin, Energy Solutions

Paul McConocha, Energy Management

Lisa Muane, Design and Construction Services

Brian O'Sullivan, Transportation

Michael Ousdahl, Transportation

Claudia Powell, Energy Management

Nikki Price, Business Operations

Gray Rinehart, Industrial Extension Service

Carrie Rogers, CALS Office of Sustainability

Traci Rose Rider, College of Design

Lisa Schabenberger, College of Natural Resources

Valerie Schwartz, Park Scholars

Danesha Seth Carley, CALS Office of Sustainability

Tom Skolnicki, Office of the University Architect

Amneris Solano, Kenan Fellows

Lynn Swank, Office of the University Architect

George Thomas, Craft Center

Cheryl Tran, Mechanical & Aerospace Engineering

Marianne Turnbull, Student Health Promotion

Kristin Vickers, Purchasing

Jennifer Weston, College of Engineering

TJ Willis, University Student Centers

Blain Woods, Purchasing



# CONTACT INFORMATION

## **CAMPUS ENVIRONMENTAL SUSTAINABILITY TEAM (CEST)**

Jack K. Colby, CEST Co-Chair  
Assistant Vice Chancellor for Facilities Operations  
Co-Sustainability Officer  
jack\_colby@ncsu.edu, 919.515.2967

William E. Winner, CEST Co-Chair  
Professor, Department of Forestry and Environmental Resources  
Director, Environmental Sciences Academic Program  
Chair, University Energy Council  
Co-Sustainability Officer  
wewinner@ncsu.edu, 919.515.5780

Tracy Dixon, Director of University Sustainability Office  
Tracy\_Dixon@ncsu.edu, 919.513.0211

## **MAILING ADDRESS**

University Sustainability Office  
NC State University  
Campus Box 7536  
Raleigh, NC 27695-7535  
sustainability@ncsu.edu  
sustainability.ncsu.edu

## **PHYSICAL ADDRESS**

Administrative Services III  
2701 Sullivan Drive  
Raleigh, NC 27695





View the Annual Sustainability Report online by scanning the QR Code with a mobile device or visiting [go.ncsu.edu/SustainabilityReport](http://go.ncsu.edu/SustainabilityReport)



100 copies of this report were printed for campus distribution on 100% post-consumer recycled, chlorine-free paper that is Forest Stewardship Council Certified.

