ENVIRONMENT, INFRASTRUCTURE, AND SUSTAINABILITY

$110 MILLION
Economic impact and 800 jobs from capital spending in FY12

5,414
Pounds of acid reduced per day in Raccoon Creek through work of the Raccoon Creek Partnership

5,956
Tons of materials recycled FY11

$19,400
Annual savings in energy costs by composting

139,300
Tons of CO2 emissions reduced per year by the energy performance contract, Lausche Heating Plant Replacement, and Chillicothe Campus sustainability

5,956
Tons of materials recycled FY11

INTRODUCTION

As southeast Ohio’s largest employer, Ohio University (OHIO) leads the way in responsible investment in education and the environment, reducing the footprint not only of the University, but of the entire region.

OHIO’s work in environmental restoration, downtown revitalization, and similar efforts fosters a healthy and vibrant regional community. The University actively engages and collaborates with communities, providing valuable leadership, resources, and expertise.

Sustainability is infused into OHIO’s programs, curriculum, and everyday actions. These innovative and environmentally and socially responsible initiatives help change the mindsets and perspectives in the University and the region.
INVESTING IN EDUCATION RESPONSIBLY

Ohio University is committed to carrying out its mission to provide students with highly impactful, transformational education—and doing so responsibly. To this end, the University invests in education in a sustainable way that enhances students’ learning experience while providing significant benefits to the community, the region, and society.

Forward-Thinking Capital Planning

Ohio University has committed significant funds to improving infrastructure on its campuses. Overall, the University plans to spend $2.572 billion on necessary renovation and construction through 2032, with $977.5 million in funds spent by 2020. Infrastructure and capital investments include building renovations, new housing construction, bike path land easements and more. In fiscal year (FY) 2012, the University’s total capital spending of $52.9 million is estimated to have generated over $110 million in economic activity and more than 800 jobs in the state of Ohio. FY12 capital expenditures were in line with those of previous years; capital spending between FY07 and FY11 ranged from a low of $43.9 million in 2008 to a high of $72.6 million in 2009, with an annual average of $52.5 million. The University is determined to invest those funds in ways that will demonstrate its environmental stewardship and its commitment to local communities by adhering to sustainable building practices.

As University buildings continue to age, OHIO has devised a strategy to sustainably renovate and build new campus infrastructure. The 20-Year Capital Improvement Plan focuses on building and renovating current infrastructure through efficient and effective construction practices. For example, the University’s Sustainability Plan calls for significant renovation and construction projects to meet Leadership in Energy and Environmental Design (LEED) Silver Certification. The University applied for its first LEED Silver certification in FY12; as of May 2013, OHIO has five LEED projects underway and multiple OHIO project managers are seeking LEED accreditation.

OHIO also practices sustainability in procurement for maintenance and repairs. Before contracting maintenance and other services, the University reviews applications for key sustainability elements including use of low-impact chemicals and herbicides and preference for green products.

$977.5 MILLION

Funds to be spent on renovation and construction by 2020, approved by the Board of Trustees as part of the 20-Year Capital Plan

OHIO BUILDS

As University buildings continue to age, OHIO has devised a strategy to sustainably renovate and build new campus infrastructure.
Green, Efficient Student Housing

Among the University’s most significant planned capital investments is student housing: $363 million for necessary residence hall renovation and construction between 2011 and 2020. OHIO’s Housing Development Plan aims to improve students’ residential experience and provide a comprehensive living-learning environment on the Athens campus—all through responsible construction practices and sustainable budgeting in renovation and replacement of residence halls.

Much of OHIO’s residential housing is aging and inefficient in its use of space and energy. In three phases, the Housing Development Plan will replace many older residence halls with larger, more energy efficient buildings—all built to LEED Silver standards. Meanwhile, existing residence halls will be renovated to improve overall building efficiency and long-term sustainability, thus decreasing maintenance costs and environmental pollutants.

$363 MILLION

Funds will be invested in necessary residence hall renovation and construction between 2011 and 2020

“We articulated sustainability as a priority in our University’s strategic plan, Vision Ohio, because we believe our university community has a great responsibility to promote discussion and find solutions to environmental issues as well as be good stewards of our planet. LEED certification is just one way that we can do that and put our commitment into action by infusing it in the bricks and mortar of our campuses.”

— Ohio University President Roderick J. McDavis
Environmental and Economic Stewardship

Ohio University is currently engaged in contracting efforts to increase both the University’s overall efficiency and jobs for the local and regional workforce. Beginning in 2012, Ohio University began an energy performance contract to significantly improve the energy efficiency profile of its buildings.

Incorporated in the University’s FY 2013–FY 2018 Six-Year Capital Plan, the contract will lead to energy efficiency and water conservation measures for 72 buildings on the Ohio University Athens Campus. Through the contract, OHIO will realize more than $38 million in water and energy cost savings over a 15-year period. In addition, the new equipment to be installed at the Athens Campus will have a useful life of 30 years. Because equipment will not have to be replaced as often, the University will spend less on maintenance costs—savings that can be reinvested into OHIO’s students and infrastructure.

These efforts will not only save money, but also deliver environmental benefits: OHIO expects the plan to save 600,000 gallons of water and over 50,000 tons of CO2 emissions per year and reduce overall usage of electricity, coal, and gas.

In addition, the University also places a strong emphasis on the need to hire locally for construction and capital projects. As an example, over 70 percent—$20 million—of the Energy Performance Contract project’s $28 million budget went to local contractors, most of which are based in Athens. These contracts with local vendors and contractors will help stimulate growth and opportunities within the region, increasing available jobs and income.

$38 MILLION
Water and energy cost savings will be realized over a 15-year period through Ohio University’s contracting efforts to increase efficiency
RENEWING AND SUSTAINING THE ENVIRONMENT

Through collaborative efforts in environmental research and outreach, OHIO engages students, faculty, staff, and the community in restoring the region’s natural environment. Numerous collaborative, multidisciplinary, and innovative initiatives fuel OHIO’s goal to continually and positively enhance the health and vitality of the environment in southeast Ohio.

Prominent among these initiatives is the Consortium for Energy, Economics, and the Environment (CE3), housed in the Voinovich School of Leadership and Public Affairs. CE3 faculty, staff, and students collaborate with local, state, and federal government officials, industry representatives, and nonprofit groups to develop solutions to energy and environmental problems that promote economic growth and sustainability. CE3’s multidisciplinary approach bridges gaps between the natural and social sciences and policymakers, helping to explain the real-world impacts of proposed policies on future energy availability, including the environmental, social, and economic tradeoffs associated with resource extraction. In addition, the organization works directly with restoration and revitalization efforts in the region.

Since its inception in 2005, CE3 has catalyzed integrated research, teaching, and outreach. The consortium’s philosophy is that innovative research leads to innovative, engaged learning. From 2005 to 2013, researchers at CE3—including faculty and staff from 13 different departments—received $43.8 million in external grants and contracts to support their work on more than 550 projects.

$43.8 MILLION

External grants and contracts received to date by the Consortium for Energy, Economics, and the Environment (CE3) to support their work on more than 550 projects.
Leadership in Regional Environmental Restoration

From its leadership in regional water restoration to collaborating on the largest civil engineering cleanup project in the state, OHIO is restoring the environment while creating jobs and providing opportunities for its students to apply their knowledge in the real world.

Acid Mine Drainage Mitigation

Flowing through Athens, Hocking, Jackson, Vinton, Meigs, and Gallia counties, the Raccoon Creek Watershed covers 683.5 square miles, with more than 190 stream miles affected by years of acid mine drainage from historically unregulated coal mining, as well as sedimentation and erosion. For almost two decades, OHIO faculty and students have collaborated with grassroots efforts to improve water quality so that fish and the creatures they feed upon can survive in these waters. The Raccoon Creek Partnership—involving more than two dozen agencies and stakeholders, including faculty and staff from CE3’s Appalachian Watershed Research Group—has secured more than $9.7 million for 14 cleanup projects that have reduced acidity in the watershed by more than 5,400 pounds per day and restored 42 miles of previously impaired streams to a more pristine state.

The success of the Raccoon Creek Partnership inspired the creation of similar locally led watershed restoration groups across eastern Ohio involving dozens of OHIO students, faculty, and staff in collaboration with local communities:

- Launched in 1995, the Monday Creek Restoration Project has attracted $5.8 million in funding for 13 projects, leading to acid reduction of 3,800 pounds per day in the 116-square-mile watershed, which includes portions of Perry, Hocking, and Athens counties.

- Established in 1996, Huff Run Restoration Partners has received $4.6 million in funding for 12 projects, achieving acid reduction of 965 pounds per day in the 14-square-mile watershed, located in Carroll and Tuscarawas counties.

- Since its founding in 2000, Sunday Creek Watershed Group has leveraged $1.9 million in funding to run eight projects, with acid reduction of 18 pounds per day in the 139-square-mile watershed, which includes portions of Perry, Athens, and Morgan counties.
OHIO is also collaborating with a number of local, state and federal agencies on the cleanup of the Portsmouth Gaseous Diffusion Plant (PORTS). Opened in Piketon in 1956, PORTS was one of three such plants built by the U.S. Atomic Energy Commission during the 1940s and 1950s. The nuclear uranium enrichment plant once employed more than 20,000 residents of Pike, Scioto, Ross, and Jackson counties in rural southern Ohio. The region has never fully recovered from the plant’s closure in 2001; Pike County had the state’s highest unemployment rate for 2012 at 12.9 percent, and the four-county PORTS region averaged 10.25 percent unemployment, compared to a statewide average of 7.8 percent.1 Given such high and persistent unemployment rates in the PORTS region, revitalizing the area is extremely important for the region’s economic success.

The demolition and decontamination of the 3,777-acre site is the largest civil engineering project in the state of Ohio. CE3 is helping via a $2.4 million grant from the U.S. Department of Energy, which supports more than a dozen research and outreach activities to help expedite the cleanup and transform the site into a regional resource for research, manufacturing, and technology deployment. In addition, OHIO has surveyed over 1,000 residents to identify current needs and engaged over 1,100 community members in identifying feasible solutions for the future of the facility.

### PORTS CLEANUP

The demolition and decontamination of the 3,777-acre site is the largest civil engineering project in the state of Ohio facilitated in collaboration with Ohio University.

### $2.4 MILLION

Received from the U.S. Department of Energy by the Consortium for Energy, Economics, and the Environment (CE3) to help expedite the cleanup of the Portsmouth Gaseous Diffusion Plant and transform the site into a regional resource for research, manufacturing, and technology deployment.


### PARTNERING TO IMPROVE INFRASTRUCTURE

While the southeast Ohio region and the state as a whole benefit from Ohio University’s presence, it is equally true that the University depends on the communities it serves. Sound, vibrant communities help the University attract and retain top students, faculty, and staff; thus, OHIO actively seeks collaborations with local governments and strives to be a good corporate citizen. These mutually beneficial partnerships strengthen both the University and the region.
Revitalizing Uptown Athens

OHIO has been actively involved with the development and enhancement of Uptown Athens for years. In 2001, Ohio University undertook the renovation of the Athena Cinema, an 18,600 square-foot theater built around 1915 and the city’s only remaining Uptown movie house. The $2.45 million renovation, including $600,000 to purchase the facility, restored much of the original architecture and building accents while making the theater more accessible and updating its technology. Today, the Athena Cinema is the region’s primary source for independent, artistic films, and also provides space for campus events and OHIO’s film classes.

“The Athena Cinema] will continue to be a major player in the community and will operate as a commercial movie theater, showing films every night.”

— Michael Sostarich, Former Ohio University Vice President for Student Affairs
More recently, Ohio University signed a five-year lease of a vacant building in the heart of downtown. The building at 31 South Court Street, once the site of a Woolworth’s, has been vacant since the store closed in 1994. The lease, signed in 2012, allowed OHIO to create much-needed office and transitional space as the University undergoes capital improvements. The lease also supports downtown revitalization by bringing a once-vacant building back to life. The influx of University staff now working in the building will help support the local economy via increased spending in Uptown shops and restaurants.

Memoranda of Understanding with the City of Athens

As fiscal and regulatory pressures rise, both the City of Athens and Ohio University are affected by changes in the local, regional, national, and global economy. These pressures increase the importance of shared understanding and coordination to further the interests of the community and the common good. Some collaborative efforts between the city of Athens and Ohio University are formalized through Memoranda of Understanding (MOUs).

One MOU establishes a formal working mutual-aid relationship between the city and the University in support of emergency management planning, response, and recovery programs. This partnership will enhance and maximize emergency management capabilities of both the city and OHIO as well as facilitate periodic meetings to identify and assess hazards and associated risks.

This mutual aid pact was crucial to the city’s recovery from the derecho storms of late June 2012. The powerful storms ripped through the region, causing widespread power outages and significant debris. Under the mutual aid agreement, Ohio University and the city of Athens shared services to provide water, electricity, and shelter to many in need. As temperatures soared and power remained out, the University offered Baker University Center to residents as a cooling and comfort facility. Ohio Gov. John Kasich described the partnership as “a perfect example of the University working with the city working with the county.”

More recently, the University supplied generators to the city during a January 2013 waterline break, allowing the city to run sewage stations.

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One Memorandum of Understanding establishes a formal working mutual-aid relationship between the city and the University in support of emergency management planning, response, and recovery programs.
Mutually Beneficial Partnerships with the City of Athens

Ohio University also engages in formal partnerships through joint initiatives and financial contributions. OHIO has provided land easements to the city of Athens, including a total of 0.255 acres of permanent easements and 0.691 acres of temporary easements for the State Route 682 roundabout, the Hockhocking-Adena Bikeway, and the city’s wastewater treatment plant.

The University also contributes financially to the city. In addition to $250,000 toward the city’s purchase of a fire ladder truck, OHIO has donated a total of over $806,000 for rehabilitation construction projects on the Oxbow Bridge and East Union Street and for safety repairs on the Hockhocking Adena Bikeway.

In October 2012, it was the University that received invaluable support from the city. On October 17, over 14,000 people flocked to the University’s College Green for the chance to catch a glimpse of President Barack Obama, who visited the Athens Campus to speak on national and international affairs and the upcoming election. In preparation for the president’s visit, the city provided support for location scouting and tighter security throughout Athens. The city also closed a number of streets on the day of the event. The city’s financial support, employee time, and resources were essential to the president’s successful visit.

PRESIDENT OBAMA VISITS THE ATHENS CAMPUS
The city of Athens’ financial support, employee time, and resources were essential to President Obama’s successful visit to campus in October 2012.
As a regional leader, it is Ohio University’s duty to profoundly influence the mindsets and perspectives of students and community members. Through its initiatives, actions, and curriculum, OHIO sets the expectation of what it means to live sustainably and responsibly. The University models these expectations through operational and curricular decisions.

Sustainability Embedded in Education and Practice

Sustainability is embedded in the University’s long-term planning. Following President Roderick J. McDavis’s signing of the American College and University Presidents’ Climate Commitment in 2007, OHIO set target dates and plans for institutional carbon neutrality and integrating sustainability into the curriculum and college experience through the Ohio University Sustainability Plan and Ohio University Climate Action Plan. Depending on the measure, target dates range from 2011 through 2075.

50,000 TONS

Annual savings in CO2 emissions from Energy Performance Contracting—equivalent to CO2 emissions from 1,895,449 propane cylinders

LEARNING ABOUT SUSTAINABILITY

Ecohouse Residents, in collaboration with the Common Experience Project on Sustainability, engage in a hands-on lesson about food preservation during the Ecohouse Seminar, an OHIO course focused on sustainable living concepts.
In addition, the University works to develop the number of people versed in and actively practicing sustainability. One mechanism is OHIO’s Office of Sustainability, which provides services and support to the campus community; advocates for innovation and research; and ensures fulfillment of institutional commitments to environmental, social, and economic well-being.

Sustainability at Ohio University is not limited just to a single office or program, however. Through the Common Experience Project on Sustainability (CEP-S), students, faculty, and staff across campus are engaging in sustainability. A four-year project that began in 2012, CEP-S is intended to create a common learning experience for all Ohio University students through integrated curricular and co-curricular activities. Through CEP-S, students acquire a deep understanding of the principal concepts and issues related to sustainability and ecological literacy.

Sustainability is a priority at regional campuses as well. In 2012, Ohio University Chillicothe Campus saved 196,349 kilowatt hours of electricity and $53,178 in gas and electric bills by implementing sustainability practices. As a part of the American Electric Power Ohio savings incentives program, the Chillicothe Campus installed variable-frequency drives on all the campus’ large motors, allowing the use of energy on demand and the ability to shut off all equipment overnight. These sustainable practices saved 165 tons of carbon dioxide—the equivalent of planting 3,843 trees.

**Cost and Emission Savings on Energy and Heat**

Built in 1967, the Lausche Heating Plant provides heat to all buildings on the Athens Campus—more than 200 in all—by burning coal. Demonstrating the University’s commitment to environmental responsibility, OHIO is converting the plant to natural gas. OHIO piloted the conversion from April to November 2012, allowing the University to test the efficiencies of existing boilers, prepare accurate emission and cost projections, and provide initial training for employees who will be responsible for understanding fuel transitions in the near future.
The conversion from coal to natural gas is extremely important for the health of local, regional, and global communities. Compared to burning coal, burning natural gas emits half as much carbon dioxide, less than one-third the nitrogen oxides, and significantly lower levels of sulfur oxides and mercury. These reductions lessen the University’s overall impact on local communities and help to improve overall health and wellness.

In addition, switching from coal burners to natural gas boilers will prepare OHIO for future technological advances in heating and energy. As innovative approaches for using renewable energy are discovered, the natural gas plant at OHIO will more easily adapt to these sustainable fuels, ultimately saving additional resources—both financial and environmental—in the long run.

With natural gas as the primary fuel source, Ohio University is moving forward with a cogeneration system, which produces both electricity and heat. This system is expected to reduce costs and decrease institutional carbon and mercury emissions, including reducing institutional carbon dioxide emissions by 89,000 tons from 2010 levels, around a $1.3 million value; decreasing 99 percent of mercury emissions, and achieving reductions in other pollutants including sulfur dioxide, nitrous oxides, and carbon monoxide.

The pilot test of using natural gas instead of coal increased efficiency by 15 to 20 percent and saved the University $260,000 in fuel costs over seven months.

Leadership in Composting and Recycling

OHIO invests in and actively promotes involvement of students, faculty, staff, and the community in best practices for living sustainably, such as composting and recycling. Both composting (the process of recycling organic materials such as food into a nutrient-rich soil amendment) and recycling are critical to reducing landfill waste, decreasing methane gas emissions, preserving natural resources, and saving energy.

OHIO is a national leader in campus sustainability, with the nation’s largest university in-vessel compost facility (see sidebar).

LARGEST IN-VESSEL COMPOSTING SYSTEM

Ohio University is home to the largest university in-vessel composting facility in the nation. The facility includes a six-ton expandable in-vessel system, which enables the University to compost 100 percent of its pre- and post-consumer dining waste. In addition, the facility is powered entirely by a 31.1 kilowatt solar array, with an 88.2 kBTU solar thermal water heating system to improve workers’ ability to clean collection bins with harvested rainwater. Since the in-vessel system was expanded in 2012, energy-related cost savings for the compost facility for all 4 quarters of FY13 were $4,593. The energy-related cost savings of the solar arrays on top of the coal storage shed for FY13 were $11,025, resulting in total energy cost savings of $15,618 for both projects.

89,000 TONS / $1.3 MILLION

Amount and value of expected CO2 emission reduction (from the 2010 levels) as a result of the University’s switch to a heating and electricity system fueled primarily by natural gas.
The University purchased the composting facility in 2009 in part with a $350,000 grant from the Ohio Department of Natural Resources Division of Recycling and Litter Prevention. In June 2012, the University expanded the facility by installing a new system with 4 tons per day capacity, raising total recycling capacity to six tons per day. The new system is expandable should the university need additional organic waste processing capabilities. This initial investment and expansion has allowed the University to responsibly manage all organic waste generated on its Athens campus. In addition, compost facility tours educate the Athens community, students, faculty, and staff on the composting process, alternative energy options, and waste reduction efforts that can be adopted at home.

Ohio also actively engages the regional and university communities in recycling efforts. Targeting an 80 percent recycling rate by 2016 and a five percent reduction by weight of all solid waste every year over the next four years, the University recycled 3,383 tons of materials out of 5,527 tons of solid waste generated during FY12. A highlight of Ohio’s recycling efforts is the yearly recycling competition, RecycleMania. In 2013, RecycleMania attracted participation from 523 schools, including Ohio. Throughout the competition, Ohio diverted 425,591 pounds of recyclable materials from the landfill and 157,285 pounds of food waste by composting. Recycling and composting combined for a total of 593,626 pounds—more than 15 pounds of recycled material per full-time student.2

2 The per capita data is per full time student equivalent. It counts all full time students, staff and faculty on campus, accounts for part time students as a fraction of a full and subtracts out all online students.
CONCLUSION

Ohio University is a leader in strategic and responsible investments in sustainability on campus and throughout the region. Sustainable investments and quality educational opportunities model environmental responsibility for students and the community. The University also is committed to the long-term health of region’s economic and infrastructure, emphasizing local sourcing of labor and mutually beneficial partnerships with local governments. Ohio University’s responsible investment in education, interdisciplinary and collaborative partnerships, and action toward offering new ways of thinking about and measuring the important economic benefits provided by sustainable practices and ecological services set it apart as a local, regional, and national leader in environmental stewardship and sustainability.