



2015

Sustainability Guide

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**Ball State University**

# A Message

# Campus Map

Get familiar with our campus. University landmarks are labeled to give you an idea of your location.



The Ball State community takes great pride in our university's international reputation in sustainability. In fact, our strategic plan, *The Centennial Commitment (18 by '18)*, specifically identifies our intent to leverage sustainability as a key branding element of Ball State University.

Our Board of Trustees, our leadership team across campus, faculty, staff, and especially students are actively involved in sustainability projects and remain critical to the continuing success of our efforts in this area.

This brochure provides for you a snapshot of some of the many exemplary sustainability efforts we have made in facilities management, campus planning, and building operations and includes a list of many awards and recognitions that the university has received.

I am hopeful that you will use this to gain a clear perspective on sustainability at Ball State University—and then explore more deeply into the opportunities for participation by going to the web pages indexed at [bsu.edu/sustainability](http://bsu.edu/sustainability).

With best regards,

A handwritten signature in black ink, appearing to read "Paul W. Ferguson".

Paul W. Ferguson  
President  
Ball State University



## Ball State's Commitment to Sustainability

Ball State believes in protecting and enhancing the environment of not only the campus but also the surrounding community. We seek to have responsible practices in every area of our university, including but not limited to all operations and programs. We seek to inform, educate, and promote on sustainability awareness and best practices. Some of this includes local action and global thinking.

## Contents

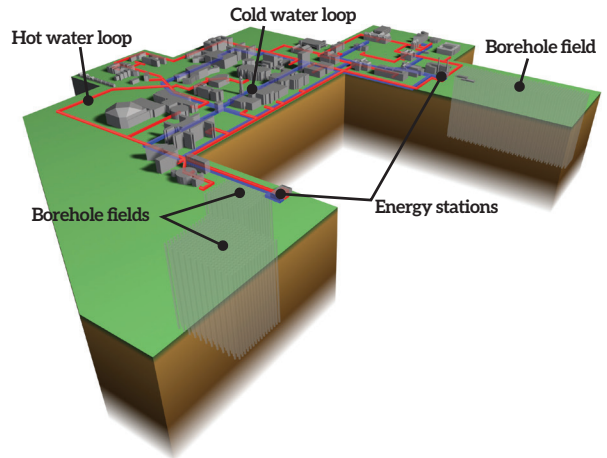
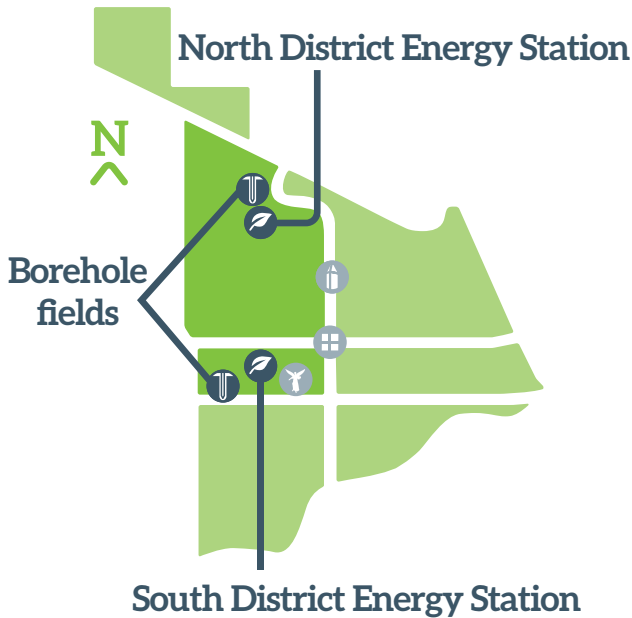
04	Geothermal	13	Awards
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# 04 Geothermal

## How Does it Work?

The district-scale geothermal heating and cooling system uses the Earth's ability to store thermal energy (heat) or release thermal energy. The stable temperature of the Earth at 55 degrees Fahrenheit makes this process very efficient and effective. Instead of using a furnace or boiler to burn fuel and heat water or a cooling tower to dispense heat into the air, a ground source heat-pump-chiller is used to simultaneously produce hot and cold water.

The geothermal system is made up of four main components: boreholes, energy stations, hot and cold water distribution loops, and building interfaces.



## Ball State's Geothermal Project

Ball State began construction on the world's largest geothermal project of its kind in 2009. In the spring of 2012, hot and cold water produced by the ground source geothermal operation began to flow throughout campus. With this development, Ball State was able to eliminate its use of coal as a fuel in March 2014. When the geothermal system is fully implemented, Ball State will save \$2 million dollars annually.

10 miles  
of distribution pipes  
and 1,000 miles  
of borehole pipes  
buried beneath  
Ball State's campus

7.2 million  
square feet of campus  
heated and cooled

### Boreholes

A borehole is a 5.5- to 6-inch diameter hole drilled 400 to 500 feet deep containing a 1.5-inch diameter closed loop pipe that is bonded to the Earth by a grout material. Water is circulated through the pipe loop to remove or add thermal energy from or to the Earth.

### Energy stations

The North and South energy stations contain eco-friendly ground source heat-pump-chillers, pumps, and other equipment used in the production of the hot and cold water.

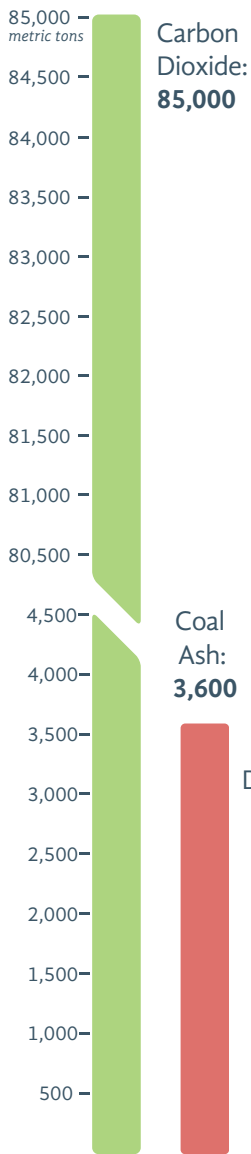
### Hot and cold district loops

Large supply and return pipes deliver hot and cold water to all buildings on campus.

### Building interfaces

The hot and cold water flows to all buildings on campus. The water is used by mechanical units in each building to maintain the desired building temperature by blowing air across a coil containing hot or cold water to heat or cool the air.

## Building geothermal



**Annual on-campus emissions eliminated with the removal of coal combustion:**  
**86,920 metric tons**

**and waste eliminated:**  
**3,600 metric tons**

**500 billion**

BTUs saved

**3,600**

boreholes

**40%**

reduction in energy use

**45 million**

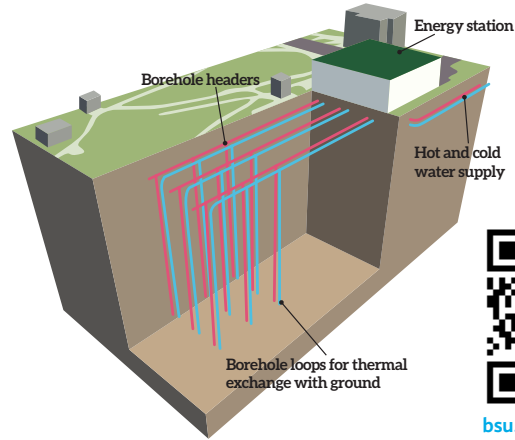
gallons of water saved

**650%**

increase in system efficiency

**2,300 jobs**

created in Indiana



[bsu.edu/geothermal](http://bsu.edu/geothermal)

### The World's Largest Ground-Source Geothermal Project of Its Kind

With the construction of this geothermal project, Ball State has been able to provide an estimated 2,300 direct and indirect jobs. The system will heat and cool 7.2 million square feet of space in 47 buildings and yield \$2 million in annual savings by eliminating coal burning and operating more efficiently. This development benefits both the economy and environment.

**2009**

**2010**

**2011**

**2012**

U.S. Senator Richard Lugar breaks ground with the start of the first bore-hole drilling; construction begins on the north side of campus.

The Hoosier Environmental Council awards Ball State with the Technology Innovator of the Year Award.

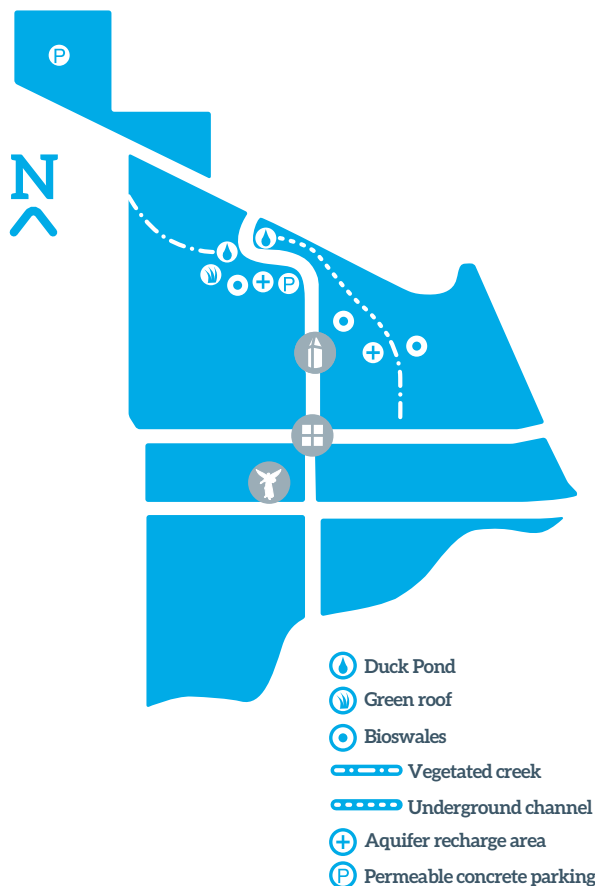
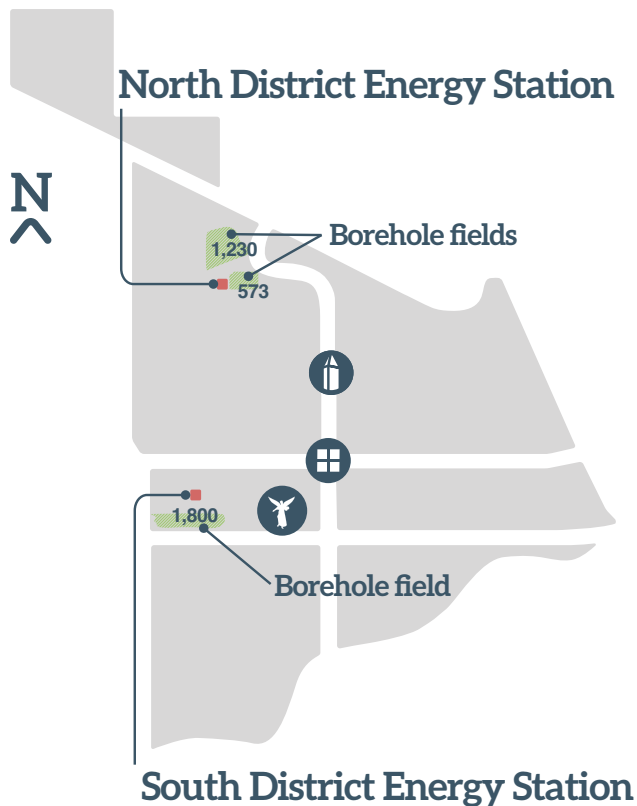
The North District Energy Station is completed and contains the environmentally friendly heat-pump-chillers.

Hot and cold water produced with the energy station begins to flow throughout campus.

# As of 2015, geothermal has...

47 buildings cooled & 33 buildings heated

# 09 Water



2014

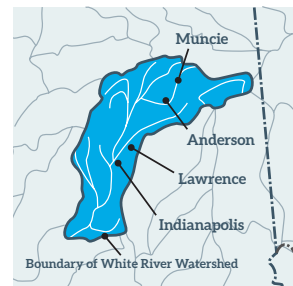
The south borehole field is completed in December.

2015

The South Energy Station, which is connected to the south borehole field, began flowing hot and cold water to buildings on campus in January.

## From Campus to the River

Ball State's campus has a great number of impervious surfaces. Storm water running across these does not get filtered or treated before it makes its way into the White River. As rainwater travels to the storm drains, any debris or chemicals picked up go straight to the river.



# Storm Water on Campus

Ball State is part of the White River watershed into which its storm waters flow as they join with other storm runoffs making their way to the Gulf of Mexico.

## Cardinal Creek

Cardinal Creek originates from a natural spring near Park Hall. It runs north between Studebaker and Noyer residence hall complexes and then below grade at Neely Avenue, past the Gora Student Recreation and Wellness Center, and then below grade near Worthen Arena. It resurfaces at the east end of the Duck Pond. On this run, it gathers storm water runoff from nearby parking, walk, road, and grounds areas.

## Duck Pond

Although the Duck Pond is a prime aesthetic feature on the Ball State campus, it actually serves as a sedimentation basin from which the university periodically dredges material. This prevents such sediment from reaching York Prairie Creek and then White River. When the pond is dredged, the university protects the fish and turtles in the pond so as to maintain a vibrant aquatic life.

## Green University Practices

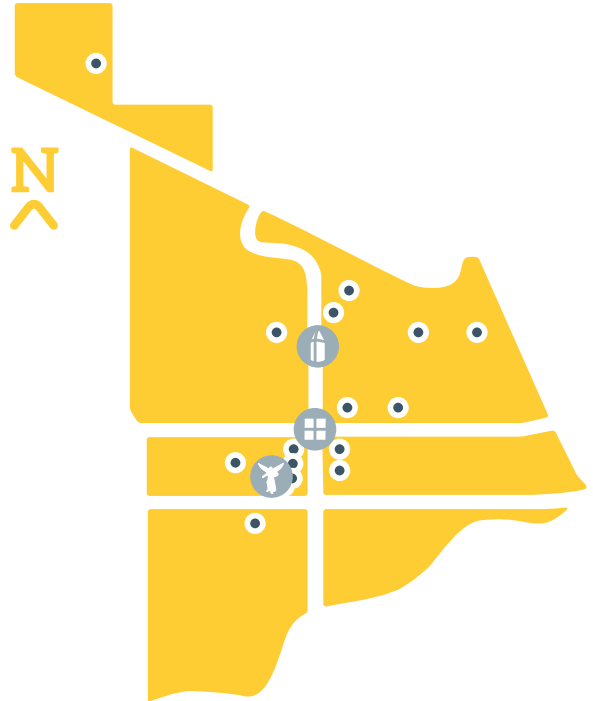
- Permeable concrete is used in parking lots to prevent sediment from reaching the Duck Pond.
- Vegetative creek banks are used for erosion control.
- Bioswales and aquifer recharge areas are used to replenish groundwater and filter sediment.
- Vortex storm structures are used to capture oil and sediment in the storm water runoff.
- Campus roadways and parking lots are routinely swept to remove some 700,000 pounds of debris annually that otherwise would flow into the creek and Duck Pond.
- Some 8,000 campus trees mitigate surface water runoff from storms, provide shade, reduce local heat buildup from the sun, and absorb CO2 while producing oxygen.
- A green roof on the North District Energy Station manages storm water runoff, mitigates solar thermal load, and supports the foraging of bees, butterflies, and birds.

## Storm Drain Medallions

Look for these medallions on Ball State storm water drains. Keeping these storm drains clean positively affects the local water supply on campus, in the White River, and, ultimately, the Gulf of Mexico.



# 11 Waste



- Buildings with water-bottle filling stations (avoiding bottle waste)

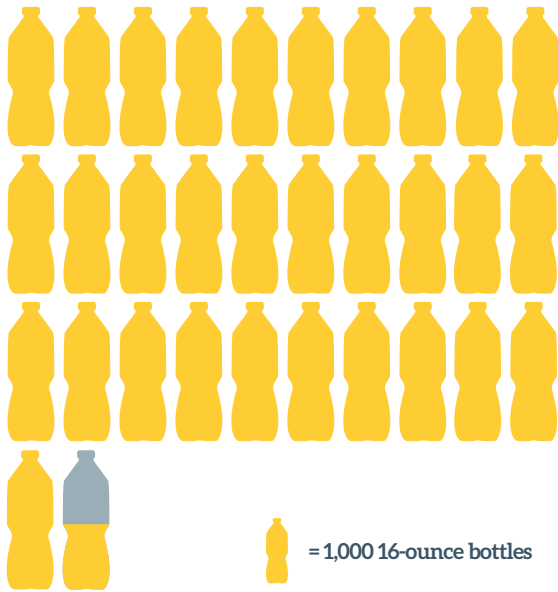
## Waste Reduction

Ball State has been reducing its waste throughout campus in a variety of ways, including waste diversion, materials exchange, chemical reuse, and the reduction of waste products.

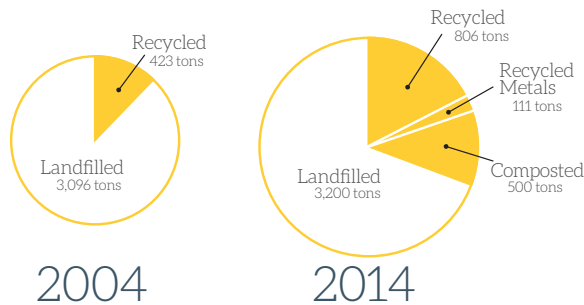
32 stations

installed to refill and reuse water bottles in 15 buildings across campus as of March 2015.

## Avoided bottle waste



## Other solid waste



## Waste Initiatives

- Sponsoring of recycling systems and throughout dining services, residence halls, and at events.
- Recycling containers placed throughout campus, including academic and administrative buildings.
- Recycling boiler ash (ended with closing of coal plant in March 2014).
- Recycling cardboard.
- Purchasing 30% post-consumer recycled copier/printer paper

# 13 Awards

## What Awards Have We Received?

### 2012 AASHE STARS Program Gold Rating

Ball State's Gold rating placed it among the highest-rated institutions tracked by the Association for the Advancement of Sustainability in Higher Education (AASHE).

### 2012 Excellence in Integration Award

The International Sustainable Campus Network (ISCN) named Ball State its first recipient of this award. The award recognizes single projects or broad initiatives that have successfully integrated sustainability into the culture, community, and/or operations of a campus.

### 2010 Technology Innovator of the Year Award

The Hoosier Environmental Council (HEC) recognized Ball State with this award during its third annual Green Policy Forum.

### 2010 Climate Leadership Award for Institutional Excellence in Climate Leadership

Ball State received Second Nature's first Climate Leadership Award and was recognized at the fourth annual American College and University Presidents' Climate Commitment (ACUPCC) Summit.

### 2007 Lugar Energy Patriot Award

U.S. Senator Richard Lugar presented the August 2007 Lugar Energy Patriot Award to Ball State's Council on the Environment (COTE).

### 2002 Best Practice Sustainability Award

The Sustainable Building Industry Council (SBIC) awarded Ball State with the Best Practice award for 2002 in Category 5, Sustainable Design Curriculum, for its Clustered Minors Program.

### 2000 Indiana Governor's Award for Excellence in Recycling

Facilities Planning and Management personnel included specifications for recycling on campus renovation projects.

## Sustainability Trailblazer

*"We seek to foster a community that sustains ecological systems and educates for environmental awareness, local action, and global thinking."*

—University Statement on Sustainability, [bsu.edu/sustainability](http://bsu.edu/sustainability).

7 awards  
for sustainability  
efforts since 2000

16+ honors  
for sustainability  
efforts since 2001

## What Recognitions Have We Received?

### 2015 *Guide to 353 Green Colleges*

The Princeton Review listed Ball State for the fifth straight year; this year, Ball State ranked #50.

### 2014 *Guide to 332 Green Colleges*

#### 2014 *Sierra Magazine's "Cool Schools"*

Ball State Ranked #81

#### 2014 *Teaching Sustainability: 100 Colleges Doing Green Right*

Best College Rankings blog, Top Online University Ratings and Reviews cited Ball State for its sustainability efforts.

#### 2013 *Sierra Magazine's "Cool Schools"*

Ball State Ranked #72

### 2012 *Guide to 322 Green Colleges*

### 2011 *Guide to 311 Green Colleges*

### 2010 *Guide to 286 Green Colleges*

#### 2009 *Sierra Magazine's "Cool Schools"*

Ball State is the first public institution in Indiana to be listed among the most environmentally responsible colleges and universities in the U.S. and Canada.

#### 2009 *Campus Sustainability Casey Study*

National Wildlife Federation, Campus Ecology Program

#### 2009–2011 *College Sustainability Report Card*

Sustainable Endowments Institute

#### 2008 *Kiwi Magazine's Green College Report*

"Fifty schools that will help your kids save the planet."

#### 2008 *Campus Report Card on Sustainability in Higher Education*

National Wildlife Federation, Campus Ecology Program

#### 2002–2007 *Campus Ecology Yearbooks*

National Wildlife Federation, Campus Ecology Program

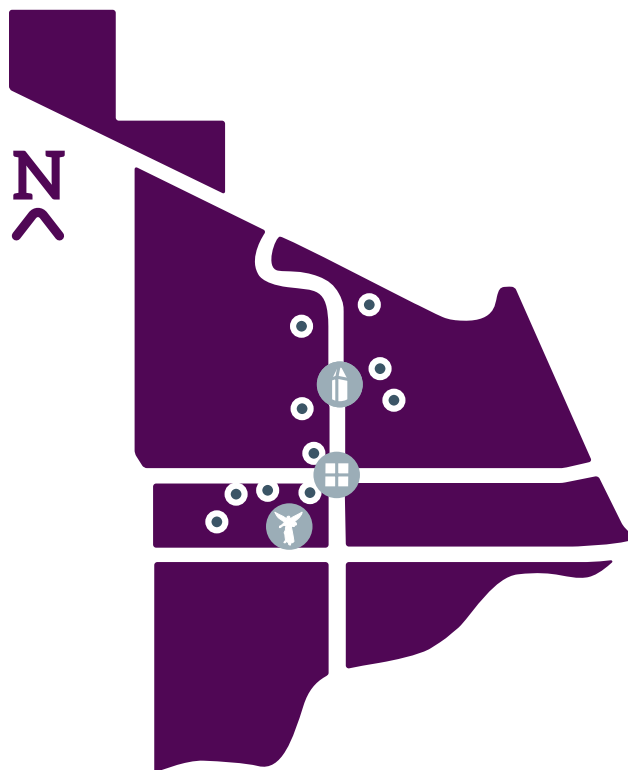
#### 2001 *NWF Campus Ecology Best Practices Institution*

Ball State was cited as a Best Practices Institution in the categories of "Doing More with Recycling, Solid Waste and Materials Flow," and "Leading Schools for Recycling 60% or More of Total Waste."

#### 2001 *Best Practice Institution*

Ball State was featured as a Best Practices Institution for its Green-2 Committee implementation of the Talloires Declaration.

# 15 Groups



• Buildings which house student organizations

## Student Organizations

Student organizations are an excellent way for students to develop leadership skills and expand their network of friends while preparing for future careers. The following pages describe those groups that specifically address issues of sustainability.

450+

student organizations focused on making a better Ball State

10

student organizations actively engaged in sustainability content



## Featured Groups

### Ball State Energy Action Team

The Ball State Energy Action Team is a student-led group aimed at reducing on-campus energy use and promoting green initiatives by students and faculty. As Ball State's student voice for environmental issues, BEAT seeks to reduce the university's carbon footprint by sponsoring educational events; promoting campus sustainability efforts; and providing practical ways students, faculty, and staff can engage sustainability practices.

Advisor: **Kevin Kenyon**, [kkenyon@bsu.edu](mailto:kkenyon@bsu.edu)

Website: [bsubeat.com](http://bsubeat.com)



### Emerging Green Builders

This organization's mission is to integrate students and professionals into green building education and to create a network of emerging green leaders. Alongside the U.S. Green Building Council, the organization strives to promote green education and the LEED AP exam.

Advisor: **Robert J. Koester**, [rkoester@bsu.edu](mailto:rkoester@bsu.edu)

Website: [usgbc.org/organizations/ball-state-university](http://usgbc.org/organizations/ball-state-university)



### Student Voluntary Services

In order to improve and sustain the quality of life on the Ball State campus and in the surrounding communities, Student Voluntary Services promotes education, leadership, and community development through community service, service learning, and social awareness.

Email: [svs@bsu.edu](mailto:svs@bsu.edu)

Website: [bsu.edu/svs](http://bsu.edu/svs)



### American Fisheries Society

This organization promotes the conservation, development and wise use of fisheries, promotes and evaluates development and advancement of all branches of fisheries sciences, and gathers and disseminates to society members technical and other information about fisheries science.

Advisor: **Thomas Lauer**, [tlauer@bsu.edu](mailto:tlauer@bsu.edu)

Website: [bsuafs.iweb.bsu.edu](http://bsuafs.iweb.bsu.edu)



### Oxfam America

The Oxfam America Ball State Chapter helps run global poverty reduction campaigns on Ball State's campus. Members aim to educate the student body about global injustices, especially related to poverty and hunger worldwide.

Email: [oxfambsu@gmail.com](mailto:oxfambsu@gmail.com)

Website: [bit.ly/BSUOxfam](http://bit.ly/BSUOxfam)



**OXFAM**  
America

### Students for Creative Social Activism

Students for Creative Social Activism has three main goals: 1. educating members on the nature of social change, community organizing, and raising awareness; 2. educating the campus/community on issues relating to current events and social issues in Muncie and around the world; 3. elevating existing solutions to social problems focusing on programs that empower people, increase the general quality of life, and support equality of opportunity.

Email: [scsa@bsu.edu](mailto:scsa@bsu.edu)

Website: [scsabsu.wordpress.com](http://scsabsu.wordpress.com)



### Natural Resources Club

This community of students is concerned with the preservation and conservation of the natural world. The members seek to raise environmental awareness and concern on campus through service projects, speakers, and activities.

Email: [nrclub@bsu.edu](mailto:nrclub@bsu.edu)

Website: [bsu.edu/nrem](http://bsu.edu/nrem)

## Air and Waste Management Association

The goals and activities of the Air and Waste Management Association include encouraging professional contacts within the field(s) of environmental science; providing members of the student chapter with official representation; promoting professional relations among members of the student chapter with other chapters; promoting involvement in professional activities beyond the classroom; providing a local forum for the exchange of ideas and information about trends, issues, and opportunities in the profession; and increasing awareness of national issues within the profession and environmental science.

Advisors: **Brian Kowalski**, [bskowalski@bsu.edu](mailto:bskowalski@bsu.edu) or

**Kyle Ritchie**, [kjritchie@bsu.edu](mailto:kjritchie@bsu.edu)

Website: [bsu.edu/nrem](http://bsu.edu/nrem)

## Student Action Team

Student Action Team is a Housing and Residence Life organization. Students learn leadership skills by organizing their own programs and service projects that help Ball State and help the Muncie community value the issues important to college students.

Email: [sat@bsu.edu](mailto:sat@bsu.edu)

Website: [bsu.edu/sat](http://bsu.edu/sat)

## Students for Responsible Consumerism

This organization aims to inform Ball State about the effect products have on the economy, environment, and people around the world. Members of the organization hope to encourage students to take steps toward a better world through changes to their daily choices while enriching their sense of value in labor, products, and currency.

Email: [src@bsu.edu](mailto:src@bsu.edu)

Website: [responsibleconsumerism.tumblr.com](http://responsibleconsumerism.tumblr.com)

# Check Sheet

## Have you seen these yet?

- Aquifer Recharge Areas
- Beneficence*
- Bicycle Garage
- Bicycle Lockers
- Bicycle Racks
- Bioswales (3)
- Borehole Fields (3)
- Cardinal Creek
- Christy Woods
- Duck Pond
- Energy Station, North District
- Energy Station, South District
- Green Roof
- Groups
- LEED Building Plaques
- Permeable Concrete Parking
- Princeton Review Listing
- Recycling Bins
- Shafer Tower
- Scramble Light
- Sierra Club Cool Schools Listing
- Storm Drain Medallions
- Sustainability Website
- Underground Creek Channel
- Vegetated Creek Banks
- Water Bottle Filling Stations
- White River
- York Prairie Creek



Council on the Environment  
765-285-1135  
cote@bsu.edu

[bsu.edu/sustainability](https://www.bsu.edu/sustainability)