



STRATEGIC SUSTAINABILITY PLAN 2016-2020

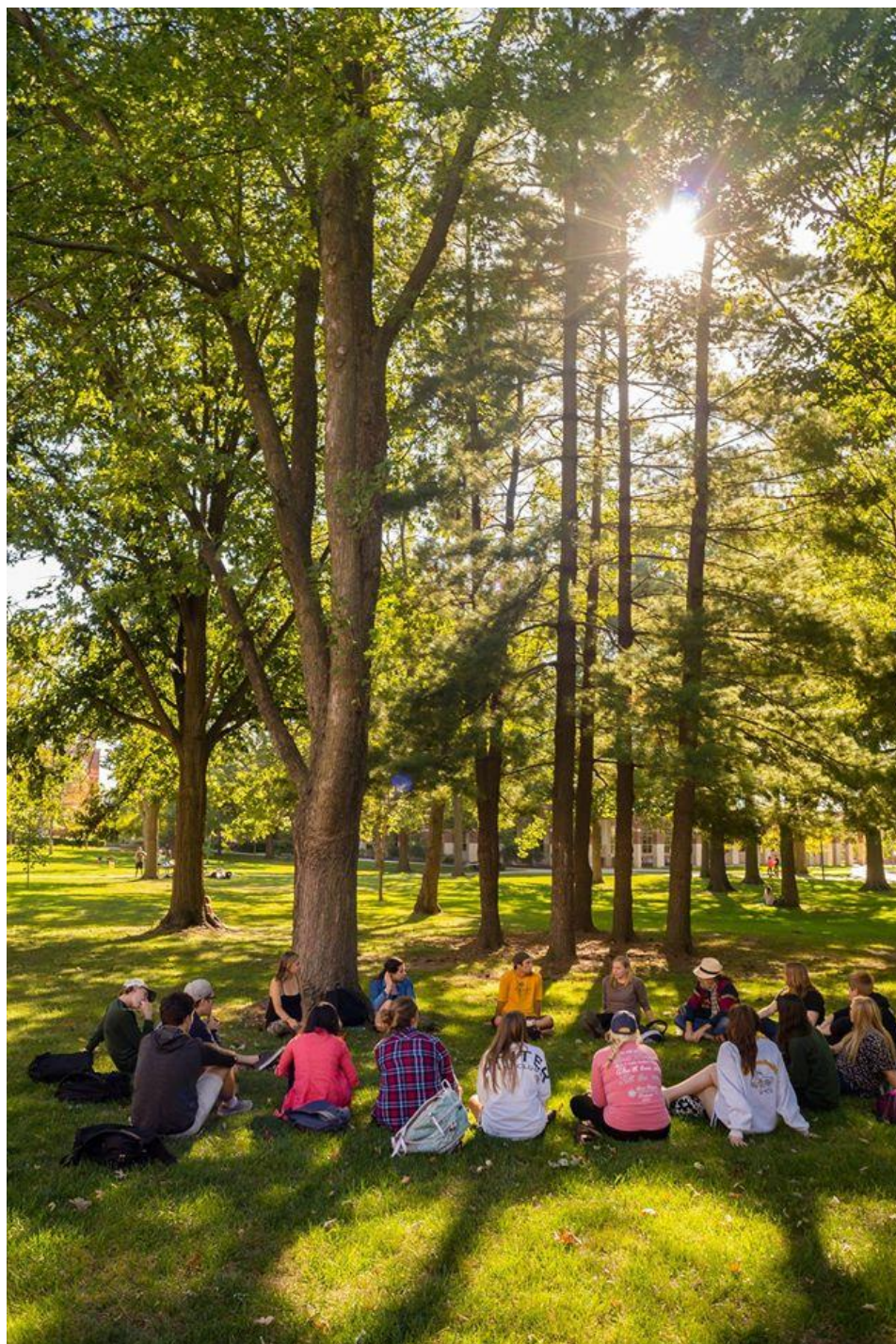


Table of Contents

Annual Report 2016-2017

- Academic Highlights through June 2017
- Engagement Highlights through June 2017
- Waste and Natural Resources Highlights through June 2017
- Economics and Planning Highlights through June 2017
- Recognition, Affiliations and Sustainability Pledge, 2016-2017 Committee Members
- Energy Audit 2015-2017
- Infographics:
 - Truman Sustainability Highlights
 - Farm-to-Table Program

**As of:
October 15, 2017**

Academic Highlights through June 2017

Revamped the ENVS minor, and increased enrollment 620%, from 5 to 36 students, in the Environmental Studies Minor.

Offered 15 Sustainability-focused & 66 Sustainability-related courses, representing a **TOTAL of 81 courses** across 14 DEPARTMENTS.

Academic Professional Development Center established a Faculty Fellow in Civic Engagement

Curriculum - By training and educating future leaders, scholars, workers, and professionals, higher education institutions are uniquely positioned to prepare students to understand and address sustainability challenges. Truman participates in this educational mission through:

- The minor in Environmental Studies was retooled and approved by the Faculty Senate. It has been updated to accommodate more in-class and experiential opportunities.
- The classes established for experiential opportunities include ENVS 340 (Practicum in Environmental Studies) and ENVS 471 (Internship: Environmental Science). PSAC used the ENVS 471 internship to pilot the establishment of a student sustainability office in the 2016-2017 academic year.
- The minor requires at least 15 Total Hours, including:
- at least two credits of community learning;
 - at least nine credits on-campus;
 - at least six credits at the 300+ level, and
 - at least one course (three or more credits) from two of the three areas: Science, Social Science, and Arts and Humanities.
 - No more than 6 credits from any prefix other than ENVS may be counted towards the minor.
 - All courses may double count with a student's major, minor, or LSP requirements.
- An online Sustainability Certificate (currently inactive).
 - Civic Engagement Project - Truman received a 2-year SENCER (Science Education for New Civic Engagement and Responsibilities) grant in 2016-2017 that focused on incorporating civic engagement into STEAM courses. This resulted in the creation of a Faculty Fellow in Civic Engagement, and this fellow works through the Academic Professional Development Center (APDC).
 - The PSAC committee and the Environmental Studies Minor Committee are working together whenever possible, utilizing cross-committee membership among the groups.

Engagement Highlights through June 2017

Named as a top volunteer-producing mid-sized university across the country by the Peace Corps. Truman was ranked **#19** in the nation.



Truman was included on the **President's Higher Education Community Service Honor Roll 2015** (and has been on the Honor Roll every year since 2008 - 2016 is still under review)

- Annual average, 5,626 students engaged in community service
- Annual average, 57,200 student community service hours

Sustainability Learning Community – Fall 2015 marked the first semester of the Residence Life learning community in the BNB residence hall.

Truman students organized the NEMO A.C.T. organization working on social justice and sustainability issues within the Kirksville Community.

Public Engagement - Volunteerism and the sense of compassion that community service helps develop are fundamental to achieving sustainability. Community engagement can help students develop leadership skills while deepening their understanding of practical, real-world problems. Truman addresses its public engagement responsibilities in several ways:

- Through community partnerships with the Green Thumb Project and the Ray Miller Elementary School, and through a recycling partnership with Community Opportunities, Inc. - Sheltered Workshop
- Through inter-campus collaboration with the Missouri Student Environmental Coalition (MSEC), and the Association for the Advancement of Sustainability in Higher Education (AASHE)
- Students are asked to take the sustainability pledge before they graduate
- Community service is included on the student's co-curricular record

Civic Engagement - Truman promotes health-enhancing behaviors and positive coping skills to help students make better out-of-class choices. To do this, Truman established a Civic Engagement Committee to define programs and curricular experiences.

- Truman participated with other COPLAC schools on the "Commitment to Place" project, which focused on civic engagement activities. Truman focused on food and education activities as part of this project.
- *Truman celebrated Constitution Day with an attempt to be the nation's largest group performing a simultaneous reading of the constitution.*

Green Thumb Project - In 2015, the Green Thumb Project was awarded a 2-year grant from the EPA to continue working in partnership with Truman State University and the local K-12 School System.

- An AmeriCorps VISTA volunteer (funded by a grant from the Missouri River Coalition) has been housed at Truman since 2010 and participates with the local K-12 schools on nutrition education and community gardening efforts.

Campus Engagement- Engaging students in sustainability issues through co-curricular activities allows students to deepen and apply their understanding of sustainability principles. Activities Truman has undertaken include:

- Continued providing sustainability hints and tips during new student orientation, as well as the Residence Life sustainability educators program.
- Sustainability Outreach Campaign - automated the graduation process to include a request to all graduating students to sign a sustainability pledge.

Annual Sustainability Events -

Timeframe	Sustainability Series Speakers	Campus Sustainability Day activities	Earth Week activities	Other
2012-2013	Fall - Jay Walljasper (with Global Issues) Spring- Anton Daughters (with Global Issues)	X	X	<ul style="list-style-type: none"> • Forward on Climate Rally • University Conference Day - professional development
2013-2014	Fall - GreenTown Joplin Spring -Wolfgang Hoeschele	X	X	<ul style="list-style-type: none"> • University Conference Day - professional development
2014-2015	Fall - Marcin Jakubowski	X	X w/Student Government	Environmental Studies - <ul style="list-style-type: none"> • Fall - Truman Celebrates Leopold & Green Fire screening • Spring - Environmental Studies Conference
2015-2016		X <i>Environmental Health 362 organized and managed</i>	X Arbor Day Celebration (with City) w/Student Government	Environmental Studies - <ul style="list-style-type: none"> • Spring - Environmental Studies Conference • Student Research Conference presentations
2016-2017	Fall - Michael Urban Combined with Environmental Studies Minor/major reception	X <i>Environmental Health 362 Capstone</i>	X w/Student Government Richard Riley	Environmental Studies conference integrated with Student Research Conference

Waste and Natural Resources Highlights through June 2017

composted per day

Ongoing Recycling

Paper / Cardboard	100% Electronics
Plastic Bottles	Metal/Steel Cans
Aluminum	Batteries (limited)
Toner Cartridges	Surplus Auctions
Glass	Mattresses

Approximately 300 lbs. of food waste is composted per day from the Truman dining halls

- Truman “Rot Riders” – Truman students also ride bicycles with trailers and collect food waste from homes and businesses in the city. This waste is added to the compost at the Farm.

>1,900 water-saving improvements implemented 2015-2017

7 types of gardens

- 1 University Farm
- 1 Arboretum
- 1 Rain Garden
- 30 20'x20' Community Plots
- 1 Riparian Buffer
- 1 Communiversity Garden
- 1 Green Thumb Partnership

Tree Campus USA since 2014



In March of 2014, Truman received its first designation of [Tree Campus USA](#). This included the development of a Tree Care Plan and student educational programs.

Received the MO Arbor Award of Excellence in the Institutional Category. This was a group effort between Truman, the City, K-12 schools/Green Thumb, and our student environmental organization.

Waste Diversion

Truman is moving toward zero waste by reducing, reusing, recycling, and composting. Efforts include:

- All electronic waste is sold at surplus or for scrap metal
- Truman utilizes the state contract with certified contractors to pick up and dispose of hazardous waste
- Extra materials are sold at surplus or traded through the Departmental Exchange Program website
- Duplex printing has been set as the default for student printing, with pricing incentives to print in duplex
- Course catalogs, schedules, and other directories are available online and not printed
- Recycling (and free-cycling) is encouraged during the move-out process
- Weighing food waste at the farm - Approximately 300 lbs. of food per day is wasted, and we are using this information to help educate students on portion control and waste.
- Recycled Mattresses -
 - 2013 = 19,200 lbs of recycled material
 - 2017 = 16,500 lbs of recycled material
- Re-upholstered furniture in many locations, this is ongoing.
- **EPA Food Recovery Challenge** – Participated in the EPA program to reduce purchasing and waste fees during 2014/2015 academic year.
- The grant for a city-wide glass recycling program was awarded to the City of Kirksville, and Truman students and PSAC collaborated on this effort. Student Government restarted the on-campus glass recycling program as a result of this grant. The bunker for the city-wide glass recycling program is underway, and a collection bin is located on campus.
- Introduced battery recycling on a limited basis.

Land Use and Storm Water Management

Water - Truman seeks to conserve water and is making efforts to protect water quality through:

- Establishment of a policy and plan to reduce storm-water runoff during new construction
- Tracking water usage for all buildings (each building has its own water meter)
- Use of energy efficient shower heads
- Limited use of sprinklers by following weather-informed irrigation practices (one building uses a moisture sensor)
- Over 1900 water-saving improvements (flushometer toilets-72, tank toilets-13, urinals-36, faucets-234, showerheads-737, lavatories-853, ice makers-4)

Grounds - Campus grounds can be planned, planted, and maintained while minimizing the use of toxic chemicals, protecting wildlife habitat, and conserving water and resources. Truman’s ground management efforts include:

- An integrated pest management plan (pesticides avoided)
- Preference is placed on using native plantings
- Mulching all grass and leaves
- Installation of a turf football field
- Worked with the Missouri Conservation Department on a plan for native trees on campus.
- Working to maintain and enhance the University grounds by establishing an arboretum on campus, including the creation of a “tree walk” map.
- **Bear Creek Restoration - Riparian Buffer** - More trees and shrubs were planted along Bear Creek as part of the Riparian Buffer erosion project.

Waste and Natural Resources Highlights through June 2017

Committed to sustainable purchasing & building practices

Dining Practices

Vegan Dining

Trans-fat Free

Trayless Dining

Meatless Monday

Re-usable Mug Discount

Re-usable Containers

No-Fry Fridays

Recycled Content Napkins

Free-style Drink Cups

Reduced carbon emissions by purchasing local food

380 miles - Loffredo max distance

430 miles - Sysco max distance

Sodexo partners with the University Farm to support a Farm-to-Table Program

Truman provides interns to work collaboratively with the Take Root Café

Purchasing - Truman uses its purchasing power to help build a sustainable economy through the following practices:

- All computers purchased are EPEAT Gold or EPEAT Silver compliant
- Historically Underutilized Businesses are used whenever possible, and included as part of the purchasing process
- Preference is given to Missouri vendors, supporting local businesses
- Integrated pest management using natural products
- Certified green cleaning products and procedures
- Sourcing locally grown food where possible
- 100% recycled dishware including carry-out containers, cups and flatware are compostable. Cooking oil is also recycled
- Cooking ventilation reduces kitchen effluent
- Office and bathroom paper products are 100% recycled fiber
- Individual printers have been replaced by multi-function devices and use of low waste soy-based color ink
- All vending machines are “reduced-energy” systems

Dining Services - Truman is working in partnership with Sodexo to help build a sustainable food system. Efforts to date include:

- Trayless dining in all Residence Halls
- Daily vegan dining options in all Residence Halls
- Establishment of Meatless Mondays and No-Fry Fridays
- Sodexo uses all trans-fat free items
- All salad production uses pre-consumer food waste composting
- Perishable foods are donated to nursing homes and food depots during class breaks
- Sodexo uses all recycled content napkins
- Reusable mug refill discounts of approximately 10%
- Reusable to-go containers available for student purchase
- Introduced the free-style drink cup (reusable cups with a chip that tracks refills based on the drink plan purchased).
- Use a floor cleaner that doesn't require soap.

Local Food

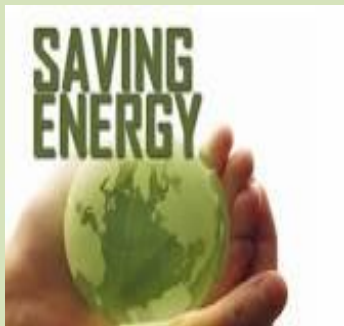
- Two interns were hired with sustainability fee funds to work on the farm, ensuring local produce for “Market on the Mall” and other local venues.
- Sodexo continues to look for more local GAP/GHP certified producers (i.e., producers who follow the Guidelines for Good Agricultural Practices and Good Handling Practices.)
- Investigating liability insurance options to support a local food partnership options with Sodexo.
- The Communiversy Garden student organization is responsible for growing local food and donating it to students or the local food bank.
- Purchased a furnace to install in the Greenhouse on the Farm to foster off-season growth.

Waste and Natural Resources Highlights through June 2017

The 5 solar panel arrays produced 108 kW of usable electricity. This resulted in a reduction of CO₂ emissions by 113.5 tons.



Truman State University is proud to have endorsed the official **White House American Campuses Act on Climate Pledge**, which defines our commitment to #ActOnClimate by investing our time and resources into sustainability measures



Truman entered into a \$10.5 million energy performance contract with an Energy Savings Company. The energy improvements affect more than 25 buildings on campus, and save over \$1 million annually, which is then to be used to pay for the improvements.

Climate and Energy

Energy - Implementing conservation measures and switching to renewable sources of energy can help save money and provide some protection from utility rate volatility. Truman conservation measures include:

- New boilers in the Physical Plant and Rec Center buildings.
- New chillers in McClain, Pershing, and Pickler Library.
- Building Energy Consumption - Created student and employee energy participation plans, and have included both of these plans as part of new student and new employee orientation.
- Heating, cooling and ventilating system improvements (air handler replacements, retro-commissioning in 6 buildings, fume hood control upgrades, refrigeration system improvements).
- Steam system improvements (steam trap replacements, condensate line replacements, steam distribution improvements, pipe insulation).

Completed a Guaranteed Energy Savings Program to:

- Reduce water consumption by over 8 million gallons annually - this amount of water would fill nearly 14 Olympic-sized pools.
- Reduce natural gas consumption by 50,908 MCF annually.
- Reduce electrical consumption by nearly 7.5 million kW per hour annually.
- Reduce our annual carbon footprint by 21,000,263 lbs of CO₂.
- Reduce annual emissions by an amount equal to:
 - The electricity used by 1,407 homes for one year.
 - 1,071,853 gallons of gasoline consumed.
 - Annual emissions of 2,004 passenger vehicles.
 - The carbon sequestered annually by 7,804 acres of US forest.

Green Power

- Renewable Energy - Completed the installation of solar panel arrays on five (5) campus buildings to help offset electrical costs. The solar arrays can generate up to 25 kilowatts each, accounting for about 2% of the total electrical needs for any given year.
- ***Bulldog Biodiesel fuels all equipment at the Truman Farm when temperatures are above freezing.***
Bulldog Biodiesel began in the fall semester of 2007 as a collaborative effort between the agriculture science senior practicum and the American Chemical Society. They purchased a BioPro190 automated processor in January 2008, and have since been producing biodiesel with waste vegetable oil donated by several cafeterias and community restaurants.

Building Automation Systems

- Completed the installation of building meters in the Library, Union, Rec Center and all of the Residence Halls. These meters are now measuring the electricity being used in each building. The usage information feeds to a University energy dashboard every 15 minutes, allowing us to track usage and patterns.
- Energy Management System upgrades in 14 buildings.

Laboratory Fume Hood System Improvements in Magruder Hall

- Replacement of pneumatic controllers and ancillary equipment.
- New "Aircuity" system to monitor indoor air quality.

Motion Sensors, Power Strips and LED Lighting

- LED lights installed on Pershing walkway.
- Over 5,000 fluorescent fixtures (new or re-lamped).
- Over 6,700 LED fixtures (new or re-lamped).
- Over 23,000 new LED and high-efficiency fluorescent lamps.
- Over 400 occupancy sensors.

Waste and Natural Resources Highlights through June 2017

Utility Dashboard –

Updated the utility dashboard with 5-10 years of data on utility usage and costs, this includes data for solar, electric, gas and water.

Replacing bulbs with LED reduces energy use by 50%

- Over 6,700 LED fixtures (new or re-lamped)
- Over 23,000 new LED and high-efficiency fluorescent lamps

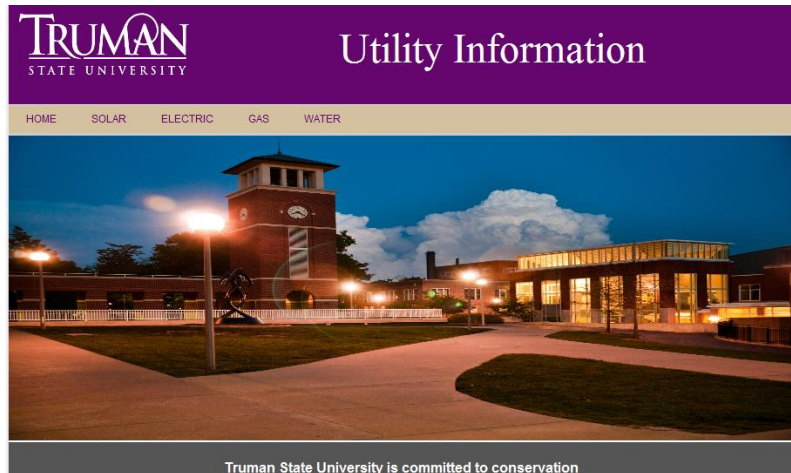
Bike Co-op B

TOBACCO-FREE CAMPUS since 2015

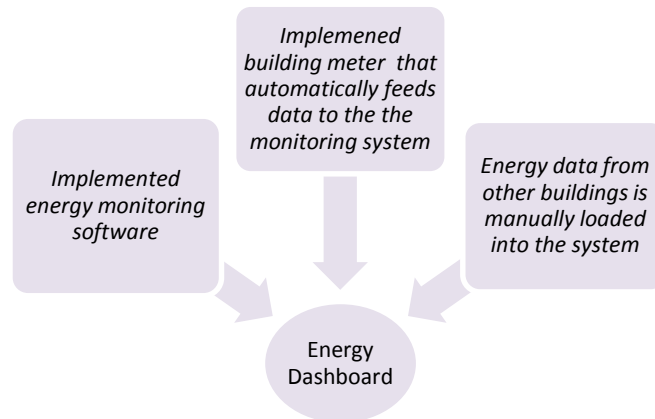
2016 Bicycle Friendly University Bronze Certification

Bicycle Co-Op partnership with the city of Kirksville

Energy Efficiency Measurement



- Energy Metering and Monitoring System



Air and Climate

Truman is working to protect ecosystems and human health by minimizing atmospheric pollution and protect outdoor air quality.

- As of July 1, 2015, Truman is a tobacco-free campus.
- Light Pollution - A Truman faculty member is conducting an undergraduate research project into light pollution on campus, including strategies to mitigate the effects.

Alternative Transportation

Moving toward sustainable transportation systems can reduce greenhouse emissions and other pollutants. Truman is adopting some sustainable transportation options:

- Awarded **Bronze Certification** in the 2016 [Bicycle Friendly University Program](#); This is a 5 year designation (up from Honorable Mention in 2015).
- Developed a plan for covered bicycle parking on campus.
- The City of Kirksville approved enhancements to the city-wide [hiking and biking trails](#).
- Ride Share Programs established for students and staff.
- Investigated a car sharing program-it was cost prohibitive.

Economics and Planning Highlights through June 2017

Students established a \$5 per student per semester Sustainability Fee

Established a Sustainability Office in 2016

President’s Sustainability Action Committee held the 1st carbon neutral Presidential Installation in the nation in 2010 (required purchase of 15 megawatts of Renewable Energy Credits).

President’s Sustainability Action Committee is responsible for sustainability efforts on campus, and Truman’s Strategic Plan includes a specific strategy on upholding Truman’s sustainability principles.

STARS Rating (Silver status expected)

Truman developed a Strategic Plan for Inclusive Excellence and is implementing this plan.

Established the Truman Sustainability Fund through Advancement.

Economics

- Student Sustainability Fee - The student body voted in a sustainability fee of \$5 per student per semester for students taking at least 6 credit hours. The fee was effective beginning in the Fall 2015 semester.

Approved Slate of Student Sustainability Fee Projects		
2015-2016	2 bottle refill stations farm duplex - solar panels 2 jet hand dryers solar bench	rainwater harvesting system 2 local food interns 30% recycled paper for residence halls
2016-2017	Bulldog Biodiesel machine 4 Water bottle refill stations Bike racks (4 locations) Rain garden Compost bucket-Green Wing TerraCycling	30% recycled paper for residence halls Light reflectors (for Globe Light Trial) 2 Outdoor recycling receptacles Perennial plants 2 jet hand dryers (Library) Build a future renewal project fund

Planning

Coordination and Planning - Truman is dedicating resources to sustainability coordination, incorporating sustainability into primary campus plans, and developing plans to move forward on sustainability. This is demonstrated through the following:

- Established a permanent Sustainability Office in VH1310 supported by ENVS student internship and practicum students. Work is underway to formalize ongoing office responsibilities, including interfacing with Residence Life on student education programs.
- Digital History - Established an internship to maintain the digital history of sustainability activities at Truman. The Digital History intern maintains a comprehensive update of the website, electronic timeline, photo gallery, and tree campus inventory.
- The President’s Sustainability Action Committee engaged the STATS 376 class to assist with sustainability research on campus. The statistics class helped to gather data and performed analysis on the following issues:
 - Perceptions from new and graduating students regarding their knowledge about sustainability issues, and whether Truman influenced their thinking
 - Food cycle and local food issues
 - Ways in which Truman could become a more bicycle-friendly campus
 - Follow-up research on how to create a better working environment for employees
 - Students identified they wanted to have more “hands on” experiential learning opportunities, and these should be done as part of their coursework

Diversity and Affordability - To achieve environmental and social justice, society must work to address discrimination and promote equality. Higher education opens doors to opportunities that can help create a more equitable world, and those doors must be open through affordable programs accessible to all regardless of race, gender, religion, socio-economic status and other differences. Truman is striving to address diversity and affordability issues through the following programs:

- The Office of Human Resources manages diversity and equity issues on campus
- Participate in the EBI campus-wide student climate/diversity assessment
- The Multicultural Affairs Center provides support for underrepresented groups
- The McNair Program supports programs for future faculty
- The Trio, Upward Bound and Upward Bound Bridge programs all strive to make Truman accessible and affordable to low-income students
- Gender neutral housing is accommodated for students upon request
- Cultural competence training is provided to students

Investment - Established a fundraising account for sustainable activities at Truman.

Economics and Planning Highlights through June 2017

PSAC, Human Resources, and Staff Council utilized the 2013, 2015, and 2016 survey results to implement several benefit improvements:

- Worked together to implement a flextime scheduling program for non-exempt staff.
- Staff Council was allocated a \$10,000 Staff Development Fund to assist employees with training to further their career opportunities.

Developed a sustainability brochure for new employee orientation.

Committed to survey employees regarding employee satisfaction issues at least once every 3 years.

The President’s Committee for Campus Wellbeing was established to promote employee and student wellness.

Wellbeing and Work - Investment in human resources is integral to the achievement of a healthy and sustainable balance between human capital, natural capital, and financial capital (the triple bottom line). Truman tries to address this balance by:

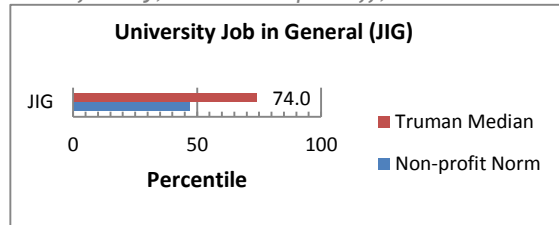
- Asking employees to complete an Employee Satisfaction Survey at least every 3 years.
- Promoting employee and student wellness through the President’s Committee for Campus Wellbeing, and the group developed a “Balance in Your Life” brochure.
- Providing counseling and referral services through the Employee Assistance Program.
- Educating employees about sustainability -- the President’s Sustainability Action Committee developed the employee orientation sustainability brochure.
- Updated the non-discrimination policy to be more inclusive.
- Employee Surveys -



Conducted an employee survey in the spring of 2013, covering commute issues, campus diversity, and employee satisfaction.

Survey Highlights:

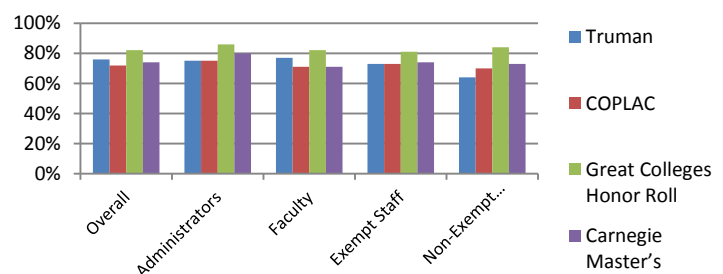
240 employees completed the survey, a 31.9% response rate overall 41.7% faculty, 31.7% exempt staff, and 26.7% non-exempt staff



- In 2015 and 2016, Truman participated in the [Great Colleges to Work For](#) survey administered by *The Chronicle of Higher Education*.
 - COPLAC institutions also agreed to take this survey and have established a benchmark for the consortium (graph below).

Job Satisfaction & Support		77% Truman	83% 2015 Honor Roll	74% Carnegie Masters
77% Truman Overall	97% Administrators	72% Faculty	85% Exempt Staff	68% Non-Exempt Staff

Overall Job Satisfaction & Support -- 43% Truman Response Rate



Recognition

Truman State University has been recognized for sustainability accomplishments by the following local, state, and national organizations:

- Tree Campus USA Award, 2014 – 2016
- Bicycle Friendly University (bronze level), 2016

Affiliations

Truman State University is affiliated with the following national, regional and local organizations:

- Association for the Advancement of Sustainability in Higher Education (AASHE)—Member Organization
- National Arbor Day Foundation—Tree Campus USA

Truman Sustainability Pledge

Truman created a Sustainability Pledge for all faculty, staff alumni and students to show their commitment to do their part in living a sustainable life.

- I pledge to do my laundry using a cold wash cycle (bright colors button).
- I pledge to reduce my water usage in the bathroom.
- I pledge to turn off lights when leaving a room and my computer when stepping away for more than 1 hour.
- I pledge to use alternative transportation when possible.
- I pledge to use a reusable bag every time I go to the store.
- I pledge to choose double-sided printing for any printing and copying that I must do.
- I pledge to use a reusable water bottle and not buy bottled water.
- I pledge to share the experiences I've had with this pledge to educate my friends about sustainable behaviors.
- *My personal sustainability pledge*

2016-2017 President's Sustainability Action Committee

- **Nancy Asher**
Dir. of Testing and Reporting & Assoc. Budget Officer
- **Sally Herleth**
Human Resources & Staff Council Liaison
- **Sue Limestall**
Director, Recreation Center
- **Donna Liss, Chair**
CIO, Information Technology Services
- **Lora Cunningham**
Director, Sodexo Food Services
- **Karl Schneider**
Director, Facilities Management
- **Lori Shook**
Design Project Manager, Campus Planning
- **Dr. Alicia Wodika**
Faculty Member, Environmental Studies Minor Chair
- **Dr. Michael Seipel**
Faculty Member and Chair, Ag Science Department
- **Liam Hazen**
Student Government Env. Affairs Committee Liaison
- **Julia Goldman, Becca Elder**
Student, Environmental Campus Organization
- **Judi Schweitzer**
Consultant, Sustainability Expert
- **Ashley Young**
Community Representative, City of Kirksville

Energy Audit 2015-2017 - SAVINGS ACHIEVED

Truman entered into a \$10.5 million energy performance contract with an Energy Service Company (ESCO). The energy improvements affected more than 25 buildings on campus, and save over \$1 million annually, which is then used to pay for the improvements.

Annual Savings: Guaranteed vs. Achieved

	Guaranteed Annual Savings	Achieved Annual Savings
Utilities	\$964,225	\$971,118
Operations & Maintenance (O&M)	\$18,323	\$18,323
Totals	\$982,548	\$989,441

While a major goal of this project was to reduce existing utility expenses and divert these dollars for investment in buildings, the benefits achieved go well beyond the energy savings, and include the following:

Improved indoor environment

Improving the lighting, heating and temperature control has an extremely positive impact. Students, faculty and guests will continue to benefit from a more comfortable and enjoyable learning and living environment.

New standardized equipment

Newer equipment has fewer maintenance problems, allowing staff to focus on upkeep and preventative maintenance that will increase the overall life of the equipment. Standardized equipment also allows for stocking smaller quantities of parts and makes replacements and repairs much easier.

Positive environmental impact

By implementing the energy-saving measures that were part of this program, Truman is saving energy annually in the amounts of 7,457,885 kWh of electricity and 50,908 MCF of natural gas. That has an overall positive impact on the environment, and is equivalent to:

- Saving 1,071,853 gallons of gasoline per year, or the amount of electricity used by 1,407 homes in a year.

Additionally, Truman has reduced its Carbon Footprint by 21,000,263 pounds of CO₂ per year.

Truman Guaranteed Energy Savings Program - Improvements

- Reduced water consumption by over 8 million gallons annually - this amount of water would fill nearly 14 Olympic-sized pools
- Reduced natural gas consumption by 50,908 MCF annually
- Reduced electrical consumption by nearly 7.5 million kW per hour annually
- Reduced our annual carbon footprint by 21,000,263 lbs of CO₂
- Reduced annual emissions by an amount equal to:
 - The electricity used by 1,407 homes for one year
 - 1,071,853 gallons of gasoline consumed
 - Annual emissions of 2,004 passenger vehicles
 - The carbon sequestered annually by 7,804 acres of US forest

Major Improvements Included in the Project:

Water Efficiency –
Annual savings >\$64,500

Lighting Improvements –
Annual savings >\$150,000

Weatherization – **Annual savings >\$8,400**

Controls – **Annual savings >\$370,250**

Laboratory Fume Hood System Improvements –
Annual savings >\$198,500

Heating and Cooling Plant Equipment Replacements – **Annual savings >\$34,000**

Heating, Cooling and Ventilating System Improvements – **Annual savings >\$67,000**

Steam System Improvements –
Annual savings >\$96,000

Energy Audit 2015-2017 - UTILITY SAVINGS DETAIL

	Energy Saving Measure	Buildings Affected	Guaranteed Saving	Achieved Saving	Recommendations to Enhance Energy Savings
Lighting Improvements	Fixtures - Over 5,000 fluorescent fixtures affected (new or re-lamped) Over 6,700 LED fixtures affected (new or re-lamped) Over 23,000 new LED and high-efficiency fluorescent lamps	LED - Barnett, McKinney, Power Plant, Pickler Memorial Library, Dobson, Student Union Fluorescent - General Services Building, Magruder, McClain, Ophelia Parrish, Rec Center	\$117,238	\$116,066	Only replace lamps and ballasts with the types installed. Turn off lights when not in use.
	Lighting Sensors - Over 400 new occupancy sensors		\$16,275	\$16,275	
	Water Efficiency	Over 1900 water-saving improvements (flushometer toilets-72, tank toilets-13, urinals-36, faucets-234, showerheads-737, lavatories-853, ice makers-4)	General Services, Kirk, McKinney, Pickler Memorial Library, BNB, Campbell, Centennial, Dobson, Missouri, Ryle, Student Union, West Campus Suites	\$60,361	\$63,383
Energy Management System & Building Controls	Energy management system upgrades in 14 buildings	Barnett, Health Sciences, Magruder, McClain, Ophelia Parrish, Pershing, Pickler Memorial Library, Violette, BNB, Dobson, Missouri, Ryle, West Campus Suites, Rec Center	\$370,254	\$370,254	Closely monitor schedules and set points to match occupied hours and establish set points for temperatures that optimize savings without overly impacting comfort.
	Retrocommissioning in 8 buildings	Barnett, Health Sciences, Ophelia Parrish, Pickler Memorial Library, Dobson, Student Union, West Campus Suites, Rec Center	\$37,802	\$37,802	
Heating & Cooling Plant Improvements	HVAC refrigerant system enhancements	General Services Building, Pershing, Ruth W. Towne, Campbell	\$3,807	\$3,915	Follow manufacturer's recommended maintenance.
	New Chillers	McClain, Pickler, Pershing	\$32,347	\$37,227	
	New Boilers	Rec Center	\$1,678	\$1,734	
	HVAC Improvements	Barnett (print shop), Magruder (Animal Care), McClain (ductwork and coil clean), Pickler Memorial Library (special collections)	\$10,313	\$10,313	
	Duct Insulation	Magruder	----	----	Repair/replace any damaged sections.
	Weatherization - Building Infiltration Improvements	Barnett, Bulldog Kennels, General Services Building, Kirk Building, Campbell, Centennial, Ryle, West Campus Suites	\$8,443	\$8,443	Repair any damage to weather stripping, caulking and sealing.
	Air Destratification Improvements	Rec Center	\$6,571	\$6,571	
Laboratory Fume Hood System Improvements	Replacement of existing pneumatic controllers and ancillary equipment	Magruder	\$198,643	\$198,643	Monitor air change rate settings and keep to minimum levels for safety.
	New "Aircuity" system to monitor indoor air quality				Utilize proper sash management procedures to keep sashes closed as often as possible.
Steam Plant Improvements	Steam trap replacement	Adair, Bulldog Kennels, Kirk, Magruder, McClain, McKinney, Ophelia Parrish, Pershing, Power Plant, Pickler, Violette, Campus tunnels, BNB, Dobson, Missouri, Student Union	\$24,380	\$24,380	Check traps regularly for failure. Replace failed traps and/or damaged lines.
	Condensate line replacement	Kirk to OP, Kirk to BNB, Kirk to Dobson	\$39,258	\$39,258	
	Steam distribution system improvements	Bulldog kennels, Kirk, Magruder, McClain, Ophelia Parrish, Pershing, Pickler, Violette, campus tunnels, BNB Hall, Dobson Hall, Missouri Hall, Student Union	\$23,603	\$23,603	
	Pipe insulation	Bulldog Kennels, Magruder, McClain, Pershing, Power Plant, Violette, campus tunnels, Dobson	\$5,564	\$5,564	Repair/replace any damaged sections.
	Steam insulation jackets	Bulldog Kennels, campus tunnels	\$3,308	\$3,308	
	DA Tank Optimization		\$4,380	\$4,380	
TOTALS			\$964,225	\$971,119	

TREE & LAND CONSERVATION



“Paino Pear” turns 7

Tree Campus USA since March, 2014



1 Arboretum with Tree Walk

Bear Creek Restoration:
Riparian Buffer

1 University Rain Garden

Number of trees on campus and select areas at the University Farm (excluding Bear Creek area)

1,671

CARBON EMISSIONS

CO₂ avoided
113.5 tons per year through production of **SOLAR** electricity

Reduced carbon emissions by purchasing local food

380 miles

Loffredo max distance

430 miles

Sysco max distance

Employee and Student **Ride-Share** Programs



Bike Co-op & **Bicycle Friendly University - 2016 Bronze Award**

WASTE REDUCTION

300 lbs.

Approximate amount of food waste composted per day



Ongoing Recycling

Paper & Cardboard
Plastic Bottles
Aluminum
Toner Cartridges
Electronics
Metal/Steel Cans
Batteries (limited)
Surplus Auctions
Glass

TOBACCO-FREE CAMPUS
Since July 1, 2015

AIR & CLIMATE

CIVIC ENGAGEMENT

Truman on President's Higher Education Community Service Honor Roll every year since 2006



Teach **81** Courses across **14** Departments

15 Sustainability-Focused Courses

66 Sustainability-Related Courses

Sustainability Learning Community since 2014
Established in BNB Residence Hall

ENERGY CONSERVATION

Managing Usage

ALL Buildings

Solar, electric, gas, and water data are collected and stored in the online Utility Dashboard

80%
Server power savings

93%
Desktop power savings

100%
Computers meeting EPEAT Gold standard

Renewable Energy

5 Solar Arrays

can generate

125 kW

of electricity per year

Bulldog Biodiesel
Fuels all equipment at the University Farm (Since 2008)

\$10.5 million

Energy Performance Contract (implemented 2015-2017)

AFFILIATIONS & PARTNERSHIPS



- Member, Midlands Sustainability Forum
- SGA Environmental Sustainability Fee (established 2015)
- Truman Civic Engagement, Wellness, and Environmental Studies Minor Committee Representation & Staff Council Liaison
- Partner with Various Truman Student Organizations

RESPONSIBLE FOOD PRACTICES

Dining Practices

Vegan Dining
Trans-fat Free
Trayless Dining
Meatless Monday
Re-usable Mug Discount
Re-usable Containers
No-Fry Fridays
Recycled Content Napkins
Free-style Drink Cups

Garden Partnerships

University Farm
Communiversy Garden
Green Thumb Project (Truman interns teaching in K-12 school)

33 20'x20' community garden plots

Farm-to-Table Program
(see next page)

Buy Local –

[Sodexo](#) strives to use local foods whenever possible. Besides utilizing local produce from the University Farm, Sodexo's suppliers out of Des Moines IA and Olathe KS ensure a large supply of local products from producers following the Guidelines for Good Agricultural Practices and Good Handling Practices.



[The Green Thumb Project](#)

– Truman has a formal partnership with the Ray Miller School (grades 3-5) whereby Truman students help guide gardening efforts at the school.



Community Garden -

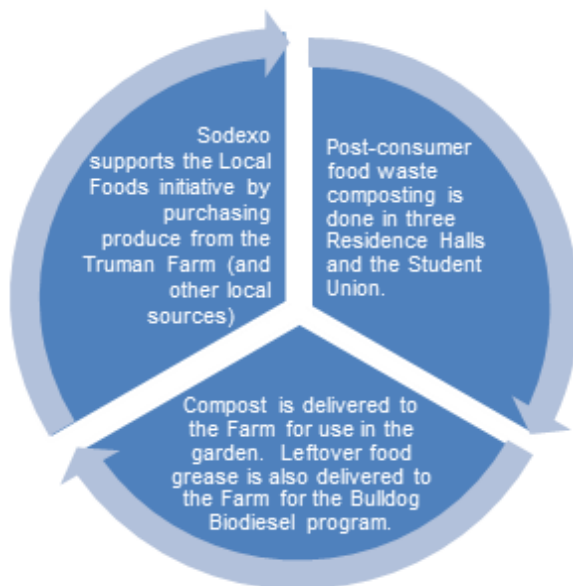
The Community Garden, started in 2010, is an organic garden managed by students on campus. All produce from the garden is shared among students and the community.

Community Garden -

33 20'x20' garden plots are available at the University Farm for anyone interested.



Farm-to-Table Program



Truman is working in partnership with Sodexo to build a sustainable food system.

Compost Project

The [Compost Project](#) is managed by a student intern receiving independent study credit; Truman students are responsible for gathering, weighing, and processing the waste into compost. (In addition to Truman sites, waste is gathered from local restaurants.)



Approximately 300 lbs of food waste is composted per day.

Truman “Rot Riders”

Truman students ride bicycles with trailers and collect food waste from homes in the city. This waste is added to the compost.



[Bulldog Biodiesel](#)

Agriculture Science purchased a BioPro190 automated processor and produces biodiesel with waste vegetable oil donated by several cafeterias and community restaurants.

When temperatures are above freezing, Bulldog Biodiesel fuels all equipment used on the Truman Farm.

Food Recovery Challenge

- Reduce purchasing & waste fees **by 5%.**
- Support the local community by feeding people, not landfills.
- Reduce our environmental impact and greenhouse gas emissions