

# 2016 Campus Master Plan & Climate Action Plan Update

April 2016

## Why Planning is Important

Mizzou's Campus Master Plan and Climate Action Plan is updated annually, allowing for flexibility to better address the needs of a growing, ever-changing campus. Begun more than 30 years ago, MU's master planning effort addresses current and future needs, while remaining mindful of Mizzou's commitment to fiscal and environmental stewardship. This year's plan emphasizes the importance of input from students, faculty and staff in planning the landscape (page 3), infrastructure (page 7) and tracking sustainability efforts at MU (page 10). The combined efforts of planning professionals and those who use the campus every day to learn, teach and conduct important research is essential to a successful master plan and climate action plan.



Students in Candace Galen's biology capstone class use Mizzou Botanic Garden as their learning lab, studying and journaling about their chosen plants and then giving a tour at the semester's end to classmates and Friends of Mizzou Botanic Garden members.

**13,319** FULL-TIME FACULTY, STAFF  
AND MU HEALTH WORKERS

**35,448**  
FALL 2015 ENROLLMENT

**357** BUILDINGS  
ON **1,262** ACRES

**GOLD  
STARS  
RATING**

2015 PUBLIC WASTE COLLECTION EVENT:

**26** TONS  
OF TIRES

**31** TONS  
OF E-WASTE

**15** TONS OF HOUSEHOLD  
HAZARDOUS WASTE

SUSTAIN  
MIZZOU  
COLLECTED **6,188** POUNDS OF  
ELECTRONIC  
RECYCLING

**\$320 MILLION** ECONOMIC  
IMPACT\*  
FROM PLANNING, DESIGN & CONSTRUCTION'S FY 2015 PROJECTS

\*The total economic impact a particular project had on the gross state product. The direct spending for development and operations generates additional jobs and increases payroll. These dollars are re-spent within the local, state and national economies, generating additional economic benefits

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# Master Plan Principles

MU's Master Planning Principles were created nearly 30 years ago and are intended to guide the development and implementation of the university's master plan and to create physical spaces that reinforce the academic, research, student life and service missions of the university.

## Respect

### **Diversity with Unity**

Create and maintain campus settings that bring together the diversity of people, heritages and culture.

### **Natural & Architectural Heritage**

Design facilities to respect the scale, materials and textures embodied in the historic architecture and natural landscape of the campus.

### **Create Positive Multi-Transit Environment**

Remain mindful of providing optimal access to all persons and modes of transportation on a primarily pedestrian-dominant campus.

## Responsibility

### **Planning & Design Integrity**

Provide facilities and grounds that meet the functional needs of the institution and that comply with the intent of the Design Principles to provide an overall aesthetic and pleasing campus experience.

### **Environmental Sustainability**

Embrace suitable strategies in promoting sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality.

### **Prudent Expansion of Campus Functions**

Provide for facilities expansion in ways that respect neighbors and effectively utilize limited land resources, while conserving and protecting natural resources.

### **Facilities and Grounds Stewardship**

Preserve the quality and utility of existing facilities for sustainable use of established resources.

## Discovery

### **Pride of State**

Express the importance of the campus to the state, nation and world.

### **Community Spirit**

Locate campus functions in close proximity to enhance scholarly activities and social interaction within a safe and secure campus.

## Excellence

### **Recruitment-Retention**

Emphasize the qualities of the campus that help attract and keep students, faculty and staff.

### **Strong 'Sense of Place'**

Make the campus a distinctively meaningful and memorable place for all members of the university community and for the citizens of Missouri.

### **University Mission & Values**

Organize facilities and places to promote MU's mission and values.

# Landscape Master Plan

The Landscape Master Plan (LaMP) was initiated in fall 2014 to advance the goals of the Campus Master Plan and to create an iterative process by which landscape and building goals can be mutually affirming. It is expected to be completed in fall 2016.

The LaMP is being developed through the collaborative efforts of a diverse committee of faculty and staff who care deeply about the mission and the future of the university, and who believe that campus landscape has a profound contribution to both. The LaMP encourages thinking beyond the traditional values of aesthetics to include academic collaboration, ecology, maintenance and the growth of the Mizzou Botanic Garden as important factors in successful historic and future landscape projects.

The LaMP is one of many important plans developed by the university to guide decision making, and is intended to serve as a companion guide to these planning processes, raising awareness of the importance of landscape elements in campus projects.

Chapters, written by Campus Facilities staff involved in the LaMP, include regional natural systems, campus development, qualities of landscape space by typologies, campus districts, metrics by which future improvements can be measured, and implementation recommendations.



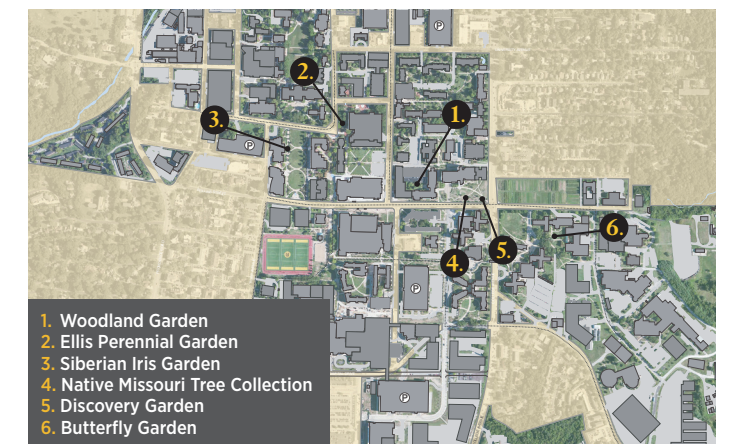
A bioswale outside of Gateway Residence Hall filters and reduces stormwater runoff and pollution.

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## Candace Galen

Professor, Biological Sciences

In my senior capstone course, "Life of a Garden," biological sciences majors have the opportunity to investigate a genuine research problem of their choosing in a campus garden. This experience is a highlight of their senior year. Sharing impressions and insights from their garden research with the Friends of the Mizzou Botanic Garden provides my students with an opportunity to engage in science outreach and communication. Overall, Mizzou Botanic Garden is a wonderful resource that brings my students' learning experience to a deeper level.



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## Shibu Jose

Professor, Agroforestry

We are blessed with a beautiful campus that doubles as a living laboratory for our students and an outdoor space for our community. The Landscape Master Plan is critical to the sustainable development of our campus to accommodate future growth while maintaining and enhancing the green space and historic landscape we consider priceless. Overall, the Landscape Master Plan will help ensure a campus that is an integral part of the educational and cultural experience of our students and that of an urban community.



# Mizzou Future

MU continues to invest strategically in its core Educational and General (E&G) buildings, using the Mizzou Stewardship model that emphasizes full renovation or replacement to eliminate 100 percent of facility needs, including deferred maintenance and building code deficiencies. A full-time manager for sustainable design and construction oversees Mizzou's increasing portfolio of energy-efficient and sustainable projects.

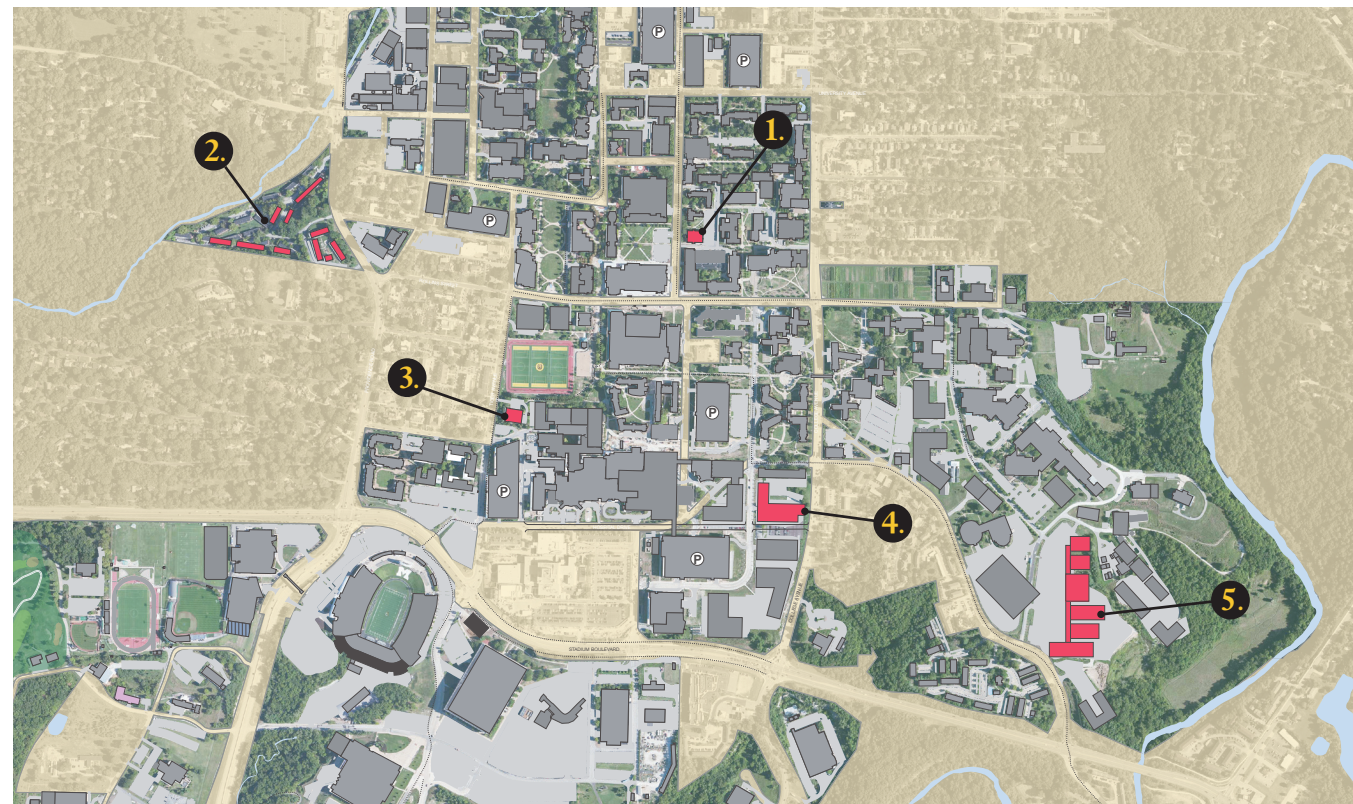
## 1. McKee Gymnasium Replacement

McKee Gymnasium will be replaced on-site with a new mixed-use building that will include science class labs, nutrition and exercise physiology labs, two performing arts class labs, and faculty/staff work space. This project helps Mizzou provide much needed space to support the state's expectation for the number of students graduating in STEM fields. This project fits within the Mizzou Stewardship model, which emphasizes full renovation or replacement of buildings to improve academic performance and building condition, while reducing the annual maintenance liabilities. Because the original structure was constructed over 90 years ago to accommodate uses far different than those needed by the university today, replacement of the building was found to be more cost effective than renovation, and will result in more flexible learning spaces for the future.



## 2. Graduate Student and Family Apartments

The university currently is preparing a request for proposals for affordable graduate student housing on portions of the former University Village site. Respondents are asked to consider apartment-style housing and opportunities to incorporate cooperative daycare space. Current on-campus childcare space includes the Child Development Lab operated by the College of Human Environmental Sciences and the Cub Hub operated by the College of Education through ParentLink.



## 3. New Sinclair School of Nursing building

This project is currently in the programming phase and would construct a new School of Nursing building on the Crowder Hall site to accommodate the rising demand for highly skilled nurses. The existing nursing building site would become available for future development, and ROTC uses currently in Crowder Hall would be housed in another facility. The project may be completed in phases, with the target build-out of approximately 104,000 gross square feet. The building will showcase multiple simulation laboratories, research laboratories, classrooms and seminar rooms, an auditorium, and faculty, staff and student multi-purpose rooms and work spaces.

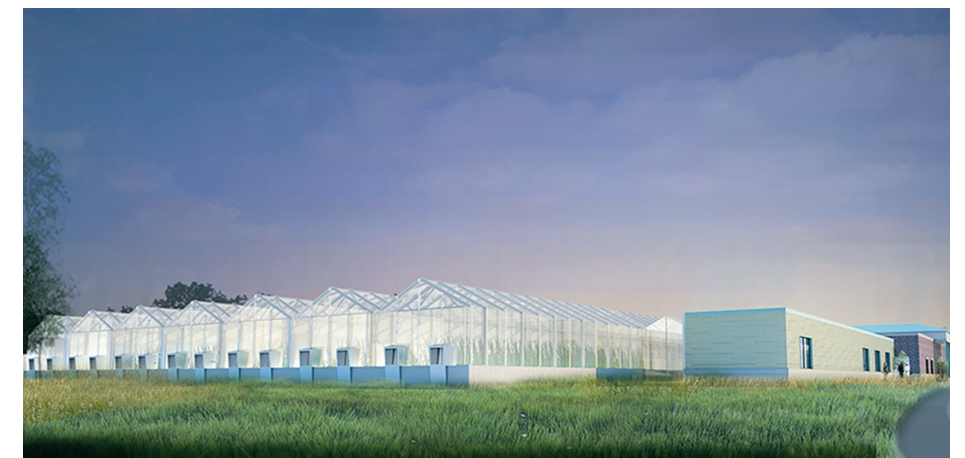


## 4. Translational Precision Medicine Complex

MU has completed the programming phase for a 200,000-245,000 gross square foot research laboratory facility to accommodate interdisciplinary collaboration in the areas of Medicine, Veterinary Medicine and Engineering. The new building will include a spectrum of flexible laboratory modules, computational dry labs, clean rooms, high-resolution imaging, animal holding and care facilities, and work spaces. The site identified is the parcel south of Gateway Hall with frontage on both College Avenue and Hospital Drive.

## 5. East Campus Plant Growth Facilities (Phase 1)

A programming study has been completed for the first phase of Plant Growth Facilities. These facilities are proposed for the far eastern portion of East Campus where a portion of the surface parking is today. Phase 1 will include two glasshouse growing facilities and a building for contained environments. Combined, they will contain 28 glasshouse research compartments, 52 growth chambers and rooms, and seed storage and processing. This site offers expansion potential in future phases for additional glasshouse growing facilities.





# Integrated Planning

Mizzou's Campus Master Plan and Climate Action Plan are updated annually, allowing for flexibility to better address the needs of an ever-changing campus. Several complementary plans are integrated into the Campus Master Plan effort.

## Res Life Master Plan

The Residential Life Master Plan (RLMP) was initiated in 2000 to anticipate enrollment growth and accommodate additional students in on-campus housing. It was renewed in 2005 and again in 2012. Current residence life projects underway include two buildings to replace Jones Hall and Dobbs Pavilion, and consideration for new graduate housing north of University Heights.



## Health System Master Plan

The Health System Land Use Plan was completed in 2014 to study how future growth in Nursing, Medicine, Health Professions and Health Care could be accommodated on the area South of Rollins Street. Current Health System projects include an expansion to the Missouri Orthopaedic Institute and a new Patient-Centered Care Learning Center for the School of Medicine west of Lottes Health Science Library and planning for a new building for the School of Nursing on the site of Crowder Hall.



## Research Facilities Master Plan

A Research Facilities Master Plan was initiated in January of 2016 to coordinate with and enhance the MU Master Plan. The study intends to provide direction for future research facility renovations or construction, and to focus the discussion around locations and types of facilities necessary to support the initiatives of various MU schools, colleges and departments. Currently the land use planning exercise at Research Commons will further the Infill Study highlighted in the 2015 Campus Master Plan, and will provide recommend densities and heights of development; consider best approaches for industry partnerships; and address access, parking, transportation, and stormwater management.

## Intercollegiate Athletics Master Plan

Potential growth in and around Missouri Athletic Training Center continues as a primary aspect of the ongoing Intercollegiate Athletic Master Planning. Possible increased premium seating opportunities will be explored at Memorial Stadium, as will continued improvements of the game day experience for all Tiger fans. Improvement to facilities within the Sports Park, as well as the spaces in between, also are addressed by the ICA Master Plan Update.



## Utility Master Plan

In 2015, Energy Management began developing a Utility Master Plan to forecast necessary changes within campus utility systems to ensure MU continues to be served with reliable, efficient and sustainable utility services. Fovea Services (formally Confluenc) was hired to assist in this program. Fovea Services brings a unique, customizable analytical modeling tool which is being used to evaluate the best solutions to meet the utility needs of campus. The effort has developed a forecasted reference case to meet future utility needs while addressing necessary major asset replacements which will be ending their useful life. Additionally, with input from the Energy System Student Advisory Group (ESSAG) a number of possible scenarios were developed to help MU become more sustainable in its energy usage.

Integrated with the overall campus Master Plan and Climate Action Plan, this unique Utility Master Plan is set to help MU meet its campus utility needs and continue to be a leader in the use and application of sustainable energy systems.

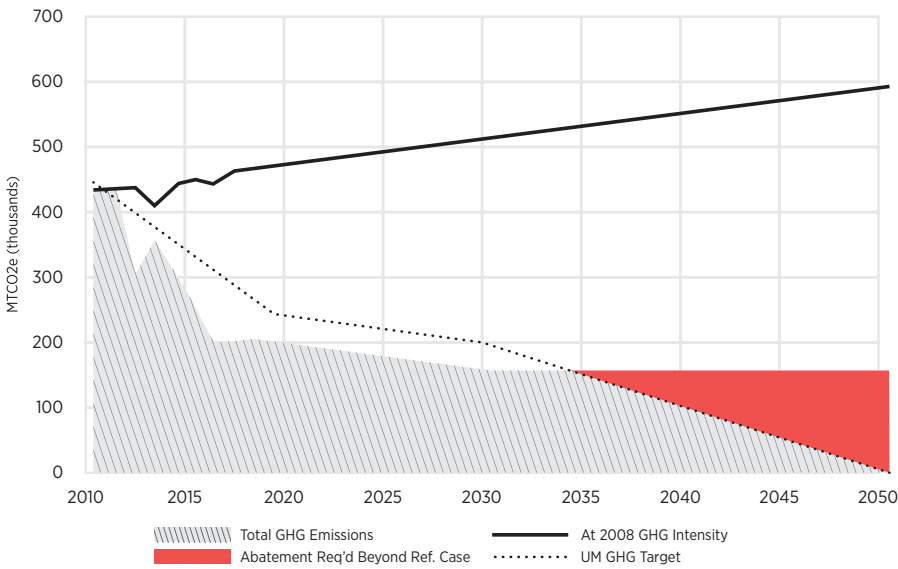
## Parking & Transportation Master Plan

MU Parking and Transportation has hired Walker Parking Consultants to create a Parking and Transportation Master Plan for campus. Walker will work with faculty, staff and student volunteers to determine current and future parking needs as well as trends in traditional and alternative means of transportation. In an effort to fully understand the wide range of personal experiences and opinions across campus, this information will be gathered by the use of an online survey, focus groups, an open forum and other research methods. The study is projected to be finished in May 2016.

## Stormwater Master Plan

In an effort to maintain the bioretention areas on campus, landscape services staff developed a care manual for storm water features across campus. This manual offers guidance on maintaining and caring for the plants that help manage stormwater runoff in these areas. Several new bioretention areas were constructed in 2015 and will be planted in 2016.

## Greenhouse Gas Emissions Forecast





# CAMPUS MASTER PLAN

## MAP LEGEND

### PROJECTS RECENTLY COMPLETED

- 1: East Campus Chiller Plant Phase 2 ⚡
- 2: Jesse Hall ♦
- 3: Gateway Hall 🏠
- 4: Johnston/Wolpers Renovation 🏠

### IN DESIGN OR CONSTRUCTION

- 5: McKee Gymnasium Replacement 🏠
- 6: Swallow Hall Renovation & Reconstruction 🏠
- 7: Dobbs Group Replacement 🏠
- 8: Missouri Orthopaedic Institute Addition & Renovation 🏠
- 9: Patient-Centered Care Learning Center 🏠
- 10: Lafferre Hall Renovation (1935/1944 Additions) ♦
- 11: Stewart Hall Renovation 🏠
- 12: Veterinary Ambulatory Teaching Facility ♦
- 13: Softball Stadium 🏠
- 14: State Historical Society – Center for Missouri Studies 🏠
- 15: Trulaske College of Business Applied Learning Center 🏠

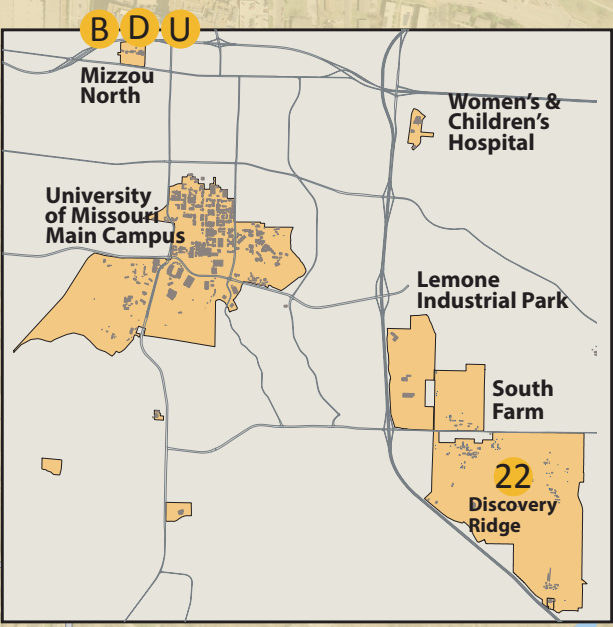
### IN PLANNING

- 16: School of Music Building ♦
- 17: Veterinary Medicine Addition ♦
- 18: Tiger Welcome Center 🏠
- 19: Dalton Cardiovascular Research Center Addition ♦
- 20: Center for Translational Plant Sciences 🏠
- 21: Teaching & Research Winery Addition ♦
- 22: Discovery Ridge Data Center 🏠
- 23: Meats Education & Training Center ♦
- 24: Manor House 🏠
- 25: eLearning Innovation Center ♦
- 26: Memorial Union Vertical Addition & Facility Improvements 🏠
- 27: Fine Arts ♦
- 28: School of Nursing ♦
- 29: Plant Growth Facilities Phase 1 ♦
- 30: Translational Precision Medicine Complex ♦

### EDUCATION & GENERAL BUILDINGS REQUIRING RENOVATION, REMOVAL OR REPLACEMENT

- |                                   |                                |
|-----------------------------------|--------------------------------|
| A: 1110 S. College                | T: Middlebush Hall             |
| B: A.P. Green Building            | U: Mizzou North                |
| C: Agriculture Building           | V: Mumford Hall                |
| D: Allton Building                | W: Neff Hall                   |
| E: Arvarh E. Strickland Hall      | X: Neff Hall Addition          |
| F: Chemistry                      | Y: Noyes Hall                  |
| G: Columbia Professional Building | Z: Old Student Health Center   |
| H: Curtis Hall                    | AA: Parker Hall                |
| I: Eckles Hall                    | AB: Physics Building           |
| J: Ellis Library                  | AC: Pickard Hall               |
| K: Gannett Hall                   | AD: Read Hall                  |
| L: Heinkel Building               | AE: Research Park Development  |
| M: Hill Hall                      | AF: Stanley Hall & Addition    |
| N: Laboratory Animal Center       | AG: Veterinary Diagnostics     |
| O: Lefevre Hall                   | AH: Veterinary Medicine – West |
| P: Lewis Hall                     | AI: Veterinary Science         |
| Q: Loeb Hall                      | AJ: Waters Hall                |
| R: McAlester Hall                 | AK: Whitten Hall               |
| S: Medical Science                |                                |

- |                                 |                              |
|---------------------------------|------------------------------|
| 🏠 Possible Future Structures    | 🌱 Seeking LEED Certification |
| 🏠 Existing University Buildings | ♦ E&G Building               |
| 🅑 University Parking Structures | 🏠 Auxiliary Building         |
| ⋯ Major Bikeways                | ⚡ Utility Project            |





# Climate Action Plan Transition

Mizzou issued its first Climate Action Plan in 2011 with a commitment to amend the plan annually. This update highlights recent sustainability related accomplishments on campus and looks optimistically toward the future. Both the Sustainability Office and the Environmental Affairs and the Sustainability Committee use the Sustainability Tracking, Assessment & Rating System (STARS) to benchmark progress.

## Environmental Affairs and Sustainability Committee

This year marks a revitalization of the Environmental Affairs and Sustainability Committee (EASC). Formerly identified as the Environmental Affairs Committee, the group of faculty, staff and students commenced its first study of the impacts of campus activities on the environment in the fall of 2000. The committee updated the study annually after its initial release in 2003. In 2009, after signing the American College and University Presidents' Climate Commitment, Chancellor Deaton charged the group to include comprehensive sustainability and hence renamed the committee.

## Committee Charge

The Environmental Affairs and Sustainability Committee is an advisory committee for the Vice Chancellor of Operations & Chief Operating Officer on issues concerning campus environmental, social and economic sustainability as it relates to academics and engagement, operations and planning and administration. The EASC assesses MU's campus sustainability and reviews and recommends strategies for improvement to be included in the Campus Sustainability Plan.

## Committee Members

Faculty Council appointed chair (three-year term)  
Vice Chancellor Student Affairs representative (three-year term)  
Vice Chancellor for Operations representative (three-year term)  
Vice Chancellor for Marketing and Communications representative (three-year term)  
Vice Chancellor for Finance representative (three-year term)  
Vice Chancellor Human Resources representative (three-year term)  
Director Intercollegiate Athletics representative (three-year term)  
Campus Facilities-Energy Management representative (three-year term)  
Campus Facilities-Facility Operations representative (three-year term)  
Campus Facilities-Planning, Design & Construction representative (three-year term)  
Faculty Council appointed faculty members as chair (one), and with teaching and research focus (two) (three-year term)  
Staff Advisory Council representative (three-year term)  
MU Health Care representative (three-year term)  
MSA student representative (one-year term)  
GPC student representative (one-year term)

Ex-Officios:  
Environmental Leadership Office advisor  
Sustainability Office manager

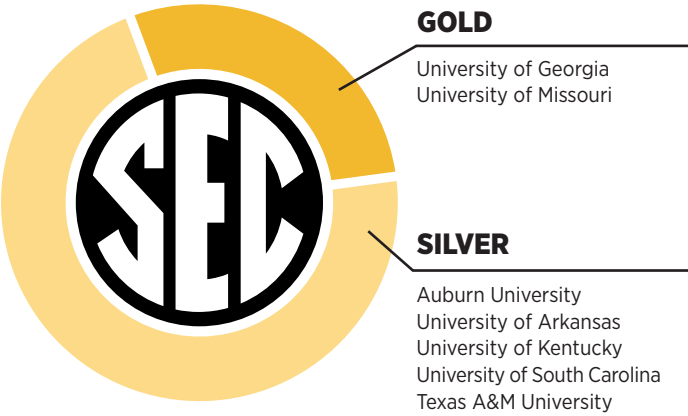
## Energy Strategies Student Advisory Group

The Energy Strategies Student Advisory Group (ESSAG) has continued to develop its skills as a resource to MU administration. Students from ESSAG presented to the Chancellor and his Cabinet in May 2015 regarding the role of the group, student survey results and how MU might reduce its reliance on fossil fuels in the coming years. In October 2015, ESSAG sent a contingent to the Association for the Advancement of Higher Education (AASHE) conference in Minneapolis, MN. Students and staff from MU presented a round table discussion, a think tank and two posters about issues and research related to energy conservation at our university. In addition, ESSAG has been consulting with Fovea to explore alternative scenarios for renewable energy development and coal-free energy production on Mizzou's main campus by 2030. Meanwhile, the group has developed contacts with a sustainability professional at Microsoft and several local sustainable resource scientists. ESSAG explores coal-free alternatives for the MU Power Plant, and its primary mission is to advise MU in advancing its energy portfolio in an environmentally, fiscally and socially responsible way.

# STARS Results

MU has expanded EASC committee membership to reflect the campus's diverse interests related to sustainability and to align with the assessment categories in the STARS rating system.

## SEC Comparison



**TOTAL POINTS** ..... **125.1/202**  
+4 Innovation Credits

## Innovation

**INNOVATION** ..... **4.00/4.00**  
Institutionalizes sustainability by dedicating resources to sustainability coordination, developing plans to move toward sustainability, and engaging students, staff, faculty and community stakeholders in governance.

## Academics

**CURRICULUM** ..... **24.73/40.00**  
Addressing sustainability through formal education programs and courses.

**RESEARCH** ..... **12.12/18.00**  
Researching sustainability topics.

## Engagement

**CAMPUS ENGAGEMENT** ..... **19.00/20.00**  
Creates sustainability learning experiences outside the formal curriculum.

**PUBLIC ENGAGEMENT** ..... **15.84/22.00**  
Offers sustainable community partnerships and service projects.

## Planning & Administration

**COORDINATION, PLANNING & GOVERNANCE** ..... **7.33/8.00**  
Institutionalizes sustainability by dedicating resources to sustainability coordination, developing plans to move toward sustainability, and engaging students, staff, faculty and community stakeholders in governance.

**DIVERSITY & AFFORDABILITY** ..... **8.62/10.00**  
Advances diversity and affordability on campus.

**INVESTMENT** ..... **0.00/7.00**  
Makes investment decisions that promote sustainability.

**HEALTH, WELLBEING & WORK** ..... **4.00/7.00**  
Incorporates sustainability into their human resources programs and policies.

## Operations

**AIR & CLIMATE** ..... **6.93/11.00**  
Measures and reduces greenhouse gas and air pollutant emissions.

**BUILDINGS** ..... **2.04/8.00**  
Improves sustainability performance of buildings.

**DINING SERVICES** ..... **1.64/7.00**  
Supports a sustainable food system.

**ENERGY** ..... **3.47/10.00**  
Reduces energy consumption through conservation and efficiency, and switches to renewable sources of energy such as solar and wind.

**GROUND**S ..... **3.11/4.00**  
Plans and maintains grounds with sustainability in mind.

**PURCHASING** ..... **2.30/6.00**  
Uses purchasing power to help build a sustainable economy.

**TRANSPORTATION** ..... **3.49/7.00**  
Moves toward sustainable transportation systems.

**WASTE** ..... **5.05/10.00**  
Moves toward zero waste by reducing, reusing, recycling and composting.

**WATER** ..... **5.43/7.00**  
Conserves water, making efforts to protect water quality and treating water as a resource rather than a waste product.



# Climate Action Plan Update

## Recent Accomplishments

As of July 2015, the campus already has achieved a 43 percent reduction in greenhouse gas emissions from the 2008 emissions baseline.

**Renewable Energy:**  
MU's renewable energy portfolio reached 27 percent in FY2015.

**Energy Conservation Projects:**  
Continued conservation efforts at Mizzou North and Radil, campus LED lighting standard, Jesse Hall controls upgrade, Lewis and Clark controls design, updated combustion controls on stand-alone boilers at Poultry Nutrition and 1110 South College Avenue, and Conley Avenue Garage LED lighting conversion.

**Energy Conservation Savings:**  
Energy conservation saves MU \$8.9 million annually, which is equivalent to \$253 annual reduction in tuition per student. Since the program started, the total cumulative cost avoidance has reached \$71.2 million.

**Conley Ave Garage LED Lighting Conversion:**  
The old original "yellowish" high pressure sodium lights were recently replaced with a LED light technology that includes integral motion sensing and dimming. A total of 285 lights were replaced with only 207 LED lights that provide a better light dispersion and color along with significant maintenance and energy savings. Early metering data shows these new lights have reduced the energy consumption by two-thirds.

## 2016-2020 Plan

Target a 57 percent carbon-emission reduction from the 2008 emissions baseline, based on the following assumptions:

**Fuel mix:**  
Target an 86 percent reduction of coal use and increased use of biomass and natural gas from the fiscal year 2008 baseline.

**Renewable Energy:**  
MU will continue to purchase wind power and explore other renewable technologies for its renewable energy portfolio.

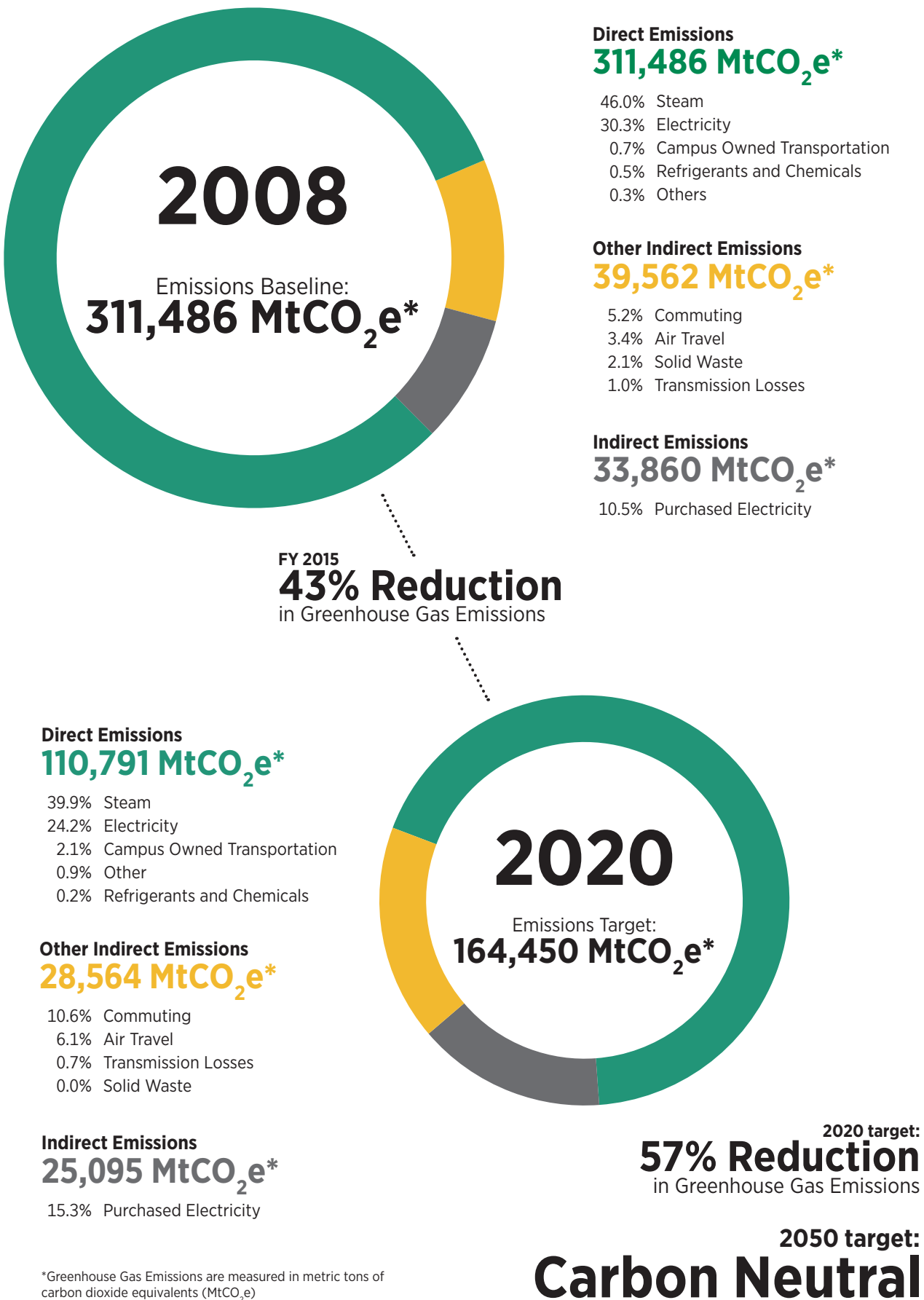
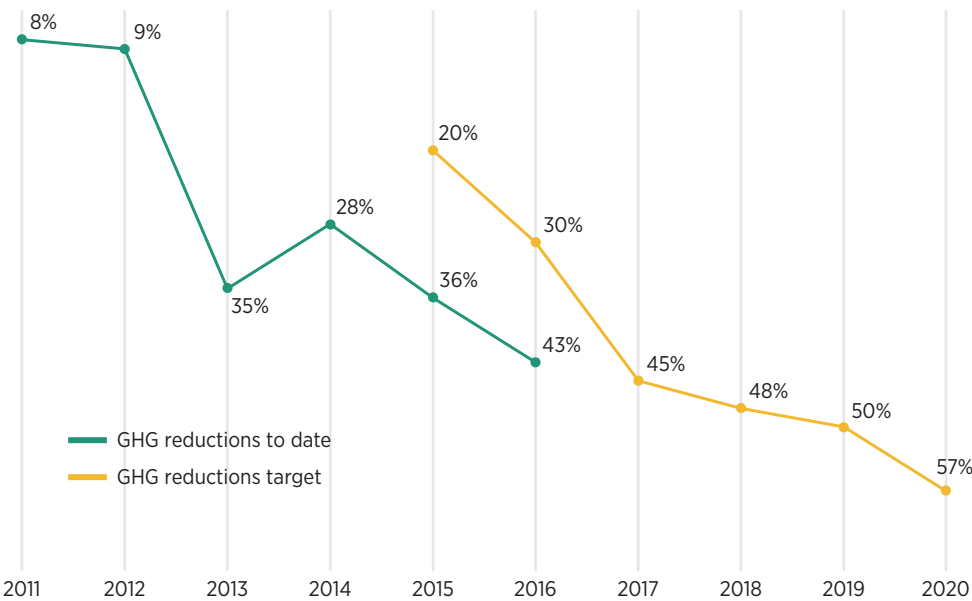
**Utility Master Planning:**  
MU uses a unique long-range utility master planning effort to prepared for future utility needs for the campus including evaluating various sustainable energy alternatives.

**Energy Conservation Projects:**  
Lewis and Clark energy controls, additional energy controls projects, LED lighting conversions in garages and campus buildings, waste energy recovery with a reducing steam turbine generator, application of ECM motors, controls fault detection, and continuous controls commissioning.

**Energy Conservation Savings Target:**  
Reduce campus energy cost by 1 percent annually.

## GHG Reductions and Targets

Using 2008 as its emissions baseline, MU's first climate action plan realized an 8 percent reduction. The CAP projects emissions targets five years out and has consistently exceeded its targets. Its target in 2011 was a reduction of 20 percent by 2015, yet the actual reduction was 36 percent.





# Patient-Centered Care Learning Center

Currently under construction, the university's new Patient-Centered Care Learning Center will act as a much needed expansion to the Medical Science Complex. It exemplifies how an integrative design process leads to a highly sustainable building.

Working together, the client (School of Medicine), the design team and the builder followed an integrative design process requiring collaboration while considering sustainable aspects throughout design and construction. The process resulted in a building that supports the project's program while meeting environmental and fiscal goals.

## Daylight and Views

1. The designers reduced cooling loads by minimizing windows on the east and west elevations and shading with a tinted glass fins to deflect the harsh summer sun.
2. A central atrium brings daylight into classrooms and workspaces through glass walls and doors.
3. By contrast, to optimize daylight and views, the design maximizes glazing on the north and south elevations.



## Minimal Materials

1. The design decision to expose the structural system reduces the amount of finish materials such as ceiling tiles.
2. This also permits greater height in the windows allowing more natural light to enter the space, in turn reducing the electrical load for lighting.
3. Other finishes will be sourced from previously used materials such as the wood finished walls found on the main level of the building (see rendering).



# New Faces in Sustainability

## MU Sustainability Office

As MU Sustainability manager, Srinivasan "Raghu" Raghavan is wasting no time getting to know others on campus who share a passion for protecting the earth's resources whether it be recycling efforts at Mizzou, a citywide Bike Share program or research on biomass.

Raghu holds a bachelor's in chemical engineering; master's in information management and environmental engineering; and an MBA. His education and work experience include a combination of sustainability, teaching, energy conservation, information technology, business management and engineering. With his diverse, interdisciplinary background, it is Raghu's charge to develop, promote, coordinate and integrate sustainability efforts and position MU as a national leader in sustainability thought, practice and education – certainly not a small goal nor one that can be done singlehandedly.

Formerly a graduate research assistant, Hannah Peterson works full time as sustainability assistant in the MU Sustainability Office. Her graduate project focused on fan behavior in Mizzou's football stadium regarding waste separation and diversion. She is originally from Texas where she received her undergraduate in environmental science, which encouraged her to become more involved in the topic of sustainability. Now she is excited to be a part of creating a more sustainable future for Mizzou.



Hannah Peterson, sustainability assistant, center, and Srinivasan "Raghu" Raghavan, sustainability manager, work Sustain Mizzou's e-waste collection drive at the MU Student Center.

## RHA

MU's Residence Halls Association (RHA) appointed its first student sustainability coordinator in Spring 2016, and each residence hall elected its own sustainability leader last fall. The coordinator and leaders together form the RHA Sustainability Committee, which serves the residence halls government and constituents. Plans are under way for many exciting initiatives:

### Short term:

Bike Share: Extend the bike share program to the Bingham area.  
Recycling: Expand recycling in all residence halls.

### Long term:

Green Room Certification: Create a green room certificate students can earn for recycling and decreasing utility usage.

### Hall Competitions:

Motivate students to show their hall pride by evaluating which hall is most sustainable. The winning halls will earn rewards.

### Additional Projects:

Giving students free recyclable water bottles.  
Working with Missouri Stream Team to clean Columbia's parks.



MU Residence Hall Association's first student sustainability leaders were elected by their halls.



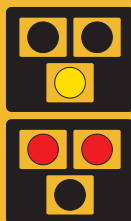
# HAWK SIGNAL HOW TO

Unsafe conditions along College Avenue prompted the Missouri Department of Transportation to install high-intensity activated crosswalk (HAWK) signals and a vertical barrier. MU and the City of Columbia contributed additional funding to see the project through.



**PUSH THE WALK BUTTON** to trigger the flashing lights. It can take several seconds to activate.

The lights will flash yellow then red, indicating to motorists that a pedestrian is entering the crosswalk.



Pedestrians can cross when the white walk signal appears.

When the lights flash red, motorists can continue through the crosswalk, after ensuring that it's clear.



Two short HAWK Signal How-To videos on MU Operations YouTube account show pedestrians and drivers how to use the new signals along College Avenue.

Hawk How-To: <https://youtu.be/E4WgCHLRPGU>  
Hawk by Car: <https://youtu.be/OyBS1rmGjj0>

ENVIRONMENTAL STATEMENT				
The University of Missouri saved these valuable resources by using 80% recycled paper containing 60% post-consumer waste, processed chlorine free and manufactured with electricity that is offset with Green-e certified renewable energy:				
TREES 3.3 fully grown	WATER 1,548 gallons	ENERGY 1.5 million BTU	SOLID WASTE 104 pounds	GREENHOUSE GASES 505 pounds of CO <sub>2</sub>

Calculations based on research by Environmental Defense and other members of the Paper Task Force

[masterplan.missouri.edu](http://masterplan.missouri.edu)  
[mumasterplan@missouri.edu](mailto:mumasterplan@missouri.edu)

# Stay Involved

## Mizzou Botanic Garden

**Native Pollinators Dinner and Fundraiser:** Support Mizzou Botanic Garden at its first fundraiser dinner, featuring pollinated foods. 6 p.m., June 19, Reynolds Alumni Center

Guest speaker is Gary Nabhan, W.K. Kellogg Chair in Southwest Borderlands Food and Water Security, he is author or editor of 26 books translated into six languages. In addition to his research, teaching and community service on sustainable food systems, Nabhan farms during the summer in Patagonia, Ariz.

**Native Pollinators Symposium:** Discover the importance of pollinators to our food systems through lectures, roundtable discussions and Q&As with national experts, 8 a.m. to 3 p.m., June 23, Monsanto Auditorium, Bond Life Sciences Center.

Speakers include MU's Candace Galen; University of Vermont's Doug Tallamy; Roy Diblik, Northwind Landscape Design; and Christine Nye, Shedd Aquarium, Chicago

**Web:** [Gardens.Missouri.edu](http://Gardens.Missouri.edu)

**Twitter:** @MizzouBotanic

## Sustainability Office

**Tiger Treasures:** Residential Life and the Sustainability Office work with the University YMCA to collect donated items for its annual rummage sale. Proceeds help to send low-income youth to the University Y's summer camp, Camp Mudd.

- Pick up in residence halls May 10-16
- Community drop-off at Surplus Property, 1507 Capen Park Road, May 25 and June 1
- Sale: 6 to 11 a.m., June 4, Surplus Property, 1507 Capen Park Road

**Twitter:** @MuSustainOffice

**Facebook:** MU Sustainability Office

## Environmental Leadership Office

**Farmers' Market:** Environmental Leadership Office coordinates the MU Farmers' Market on Lowry Mall to bring fresh, locally grown produce and meat to students, staff and faculty. Spring dates: April 7, 14, 21, and May 5; Fall dates: Sept. 8, 22; Oct. 6, 20.

**Bike Resource Center:** On-site bicycle mechanics can make minor repairs or refer you to a local bike shop. Hours: Noon to 2 p.m., Monday through Friday on Lowry Mall during spring and fall semesters, when the temperature is 50 degrees or warmer. Occasionally, the mechanics will set up at Speakers Circle.

Bicycle air pumps are located on the east and north sides of the MU Student Center.

Students can borrow a Bike Share bicycle for free to run an errand, get some exercise or pedal to class. Show your student ID at the MU Student Center info desk to join the Bike Share program.

**Twitter:** @MUEnvleadership

**Facebook:** MU Environmental Leadership