

University of Maryland

Sustainability Metrics Report 2010



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I. Introduction

In 2008, through its Strategic Plan, the University of Maryland established the goal to become “widely recognized as a national model for a Green University.” The Strategic Plan articulates a vision for a greener campus, stating that the campus will cut energy use, reduce its carbon footprint, expand green spaces, and build and retrofit buildings to strict environmental standards. The plan also establishes that the University’s commitment to sustainability must be evident through its teaching, research, and service.

The tenets of a green university presented in the Strategic Plan are consistent with the Office of Sustainability’s conceptual framework for a sustainable campus, which centers on:

- **Campus** – developing a carbon-neutral and resource-efficient campus infrastructure;
- **Culture** – fostering an environment where students, faculty, staff, and visitors can practice sustainability through everyday behaviors
- **Curriculum** – integrating sustainability across the curriculum and addressing sustainability challenges through research; and
- **Community** – engaging the broader community in sustainability through outreach and service.

This four-pronged approach is a comprehensive strategy for the University of Maryland to reach its ambitious goal of becoming a national model for a green university. The University has made great strides in each of these areas, but to date the institution has had no systematic and comprehensive process for measuring progress. The *Campus, Culture, Curriculum, & Community* framework provides a means of organizing diverse yet related activities, setting specific goals, and tracking progress campus-wide.

For more than eighteen months, Office of Sustainability staff collaborated with stakeholders around campus to determine how to measure and monitor the most important metrics associated with being a green university. The process of developing metrics was also influenced by the Sustainability Tracking, Assessment & Rating System (STARS) developed by the Association for the Advancement of Sustainability in Higher Education (AASHE) and a team of students from the Quality Enhancement Systems and Teams (QUEST) Honors Fellows Program who in the fall of 2008 researched campus and corporate sustainability reporting best practices.

The following campus sustainability metrics are the result of many hours of stakeholder dialogue, research, and analysis. They represent principles that are common among leading organizations striving for sustainability, such as reducing greenhouse gas emissions, reducing waste of all kinds, and inspiring and engaging people. But they also symbolize values that are unique to the University and the broader region in which it operates, such as protecting the Anacostia River and Chesapeake Bay. The metrics are grouped into the four categories described above – *Campus, Culture, Curriculum, & Community* – as a way of ensuring that progress is made across the institution and sustainability is infused into all aspects of campus life. The table on the following page provides a snapshot of the metrics.

It should be noted that the following set of metrics is a work in progress. A number of the indicators are new and the methodology for collecting data is still being developed, particularly in the areas of curriculum and community. In the coming years, the Office of Sustainability will work with campus stakeholders to strengthen the measurement and reporting process, to ensure that the campus tracks appropriate metrics and decision makers have the information they need to steer the institution on its path to becoming a national model for a green university.

II. Campus Sustainability Metrics Summary Table

	2008	2009	Trend
CAMPUS: Sustainable Infrastructure and Operations			
Greenhouse Gas (GHG) Emissions (MT-CO ₂ e)	311,345	277,086	😊
GHG Emissions per Capita (MT-CO ₂ e/person)	7.4	6.4	😊
GHG Emissions per Square Foot of Building Space (kg-CO ₂ e/sq. ft.)	23.3	20.5	😊
Electricity Consumption (MWh)	261,978	252,536	😊
Electricity Consumption per Community Member (MWh/person)	6.12	5.86	😊
Electricity Consumption per Building Space (kWh/sq. ft.)	19.60	18.79	😊
Steam Consumption	720,674	695,231	😊
Steam Consumption per Community Member (MLbs/person)	16.85	16.12	😊
Steam Consumption per Building Space (Thousands Lbs/sq. ft.)	53.91	51.74	😊
Potable Water Consumption (kgal)	512,049	470,752	😊
Potable Water Consumption per Capita (kgal/person)	11.97	10.91	😊
Potable Water Consumption per Building Space (kgal/sq. ft.)	38.31	35.04	😊
Non-Potable Water Use (gallons)	N/A	25,000	N/A
Green Cleaning (percent)	see report	see report	😊
Sustainable Food (percent)	N/A	11	N/A
Composted Food Waste (tons)	212	145	😞
CULTURE: Sustainable Behaviors			
Recycling Rate (percent)	45.8	57.4	😊
Non-Hazardous Solid Waste Generated (tons)	12,154	12,950	😞
Hazardous Waste Generated (pounds)	83,878	51,173	😊
Copy Paper Use (reams)	220,051	148,349	😊
Students Living On and Near Campus (percent)	N/A	N/A	N/A
Faculty/Staff Living Near Campus (percent)	N/A	N/A	N/A
Commuting Distance of Faculty, Staff, and Students (miles)	15, 16.3, 16.6	15, 16.3, 16.1	😊
Alternative Transportation (percent)	45.9	46.4	😊
Registered Bikes On Campus (count)	280	910	😊
Shuttle-UM Ridership (million rides)	2.34	2.60	😊
CURRICULUM: Sustainability Education (and Research)			
Courses Revised to Include Sustainability (count)	0	33	😊
First Year Sustainability Education (percent)	9	15	😊
Co-Curricular Education (count)	6	6	😊
COMMUNITY: Engaging the Greater Community in Sustainability			
Community Education and Outreach Programs (count)	57	57	😊

III. CAMPUS: Sustainable Infrastructure and Operations

The University of Maryland will be widely recognized as a national model for a Green University. In ten years time the University will have made substantial progress towards addressing energy issues. It will have slashed energy use, expanded green spaces, dramatically reduced its carbon footprint, and built and retrofitted buildings to strict environmental standards. The University will complement these concrete actions with its teaching, research, and development efforts in energy science and policy, smart growth, environmental mapping, sustainable agriculture, and other fields. As the third largest 'city' in the State, the University will have a significant impact as a leader and showcase for environmental sustainability.
(University Strategic Plan, p. 36)

Creating a resource efficient campus is a primary focus of campus sustainability programs around the world. At the University of Maryland, efficiency and conservation programs are prime examples of the University's commitment to environmental stewardship and fiscal responsibility. The University strives to reduce its environmental footprint, minimize costs, and lead by example in the State and nation by creating an academic setting where students learn about sustainability by living it.

The *Campus* section of this report focuses on University infrastructure and operations. Progress in this area is predominantly determined by University policies and procedures, however, the individual actions of students, faculty, and staff have significant impacts on campus performance.

In this section:

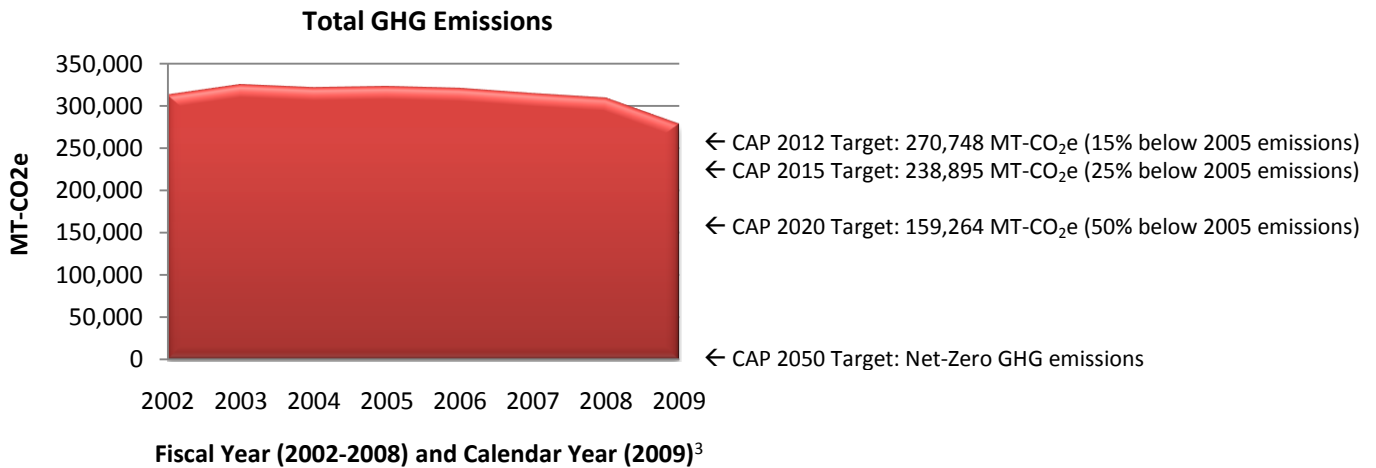
1. Greenhouse Gas (GHG) Emissions
 - a. Greenhouse Gas Emissions per Capita
 - b. Greenhouse Gas Emissions per Square Foot of Building Space
 2. Electricity Consumption
 - a. Electricity Consumption per Capita
 - b. Electricity Consumption per Square Foot of Building Space
 3. Steam Consumption
 - a. Steam Consumption per Capita
 - b. Steam Consumption per Square Foot of Building Space
 4. Potable Water Consumption
 - a. Potable Water Consumption per Capita
 - b. Potable Water Consumption per Square Foot of Building Space
 5. Non-Potable Water
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1. Greenhouse Gas (GHG) Emissions

Metric: The University's carbon footprint: the greenhouse gas (GHG) emissions – measured in metric tons of carbon dioxide equivalents (MT-CO₂e) – of the infrastructure, operations, and travel associated with the College Park campus

Recent Trends: In CY 2009, the University's total GHG emissions were approximately 277,086 metric tons of carbon dioxide equivalent (MT-CO₂e), 35,704 MT-CO₂e less than the previous year. The majority of the emissions came from on-campus energy use (purchased electricity and co-generated electricity and steam) and transportation. To put this number into perspective, CY 2009 emissions are equivalent to the amount of GHGs emitted by 47,100 cars¹ or sequestered by 83,200 acres of Maryland forest².

Emissions decreased approximately 10 percent between 2008 and 2009. Reductions were observed in refrigeration (36 percent reduction), solid waste (70 percent reduction due to sending waste to a landfill that burns methane gas or generates electricity instead of releasing it to the atmosphere), purchased power (24 percent reduction due to lower energy consumption and cleaner mix of energy sources), student commuting (16 percent reduction due to an updated average commuting distance and fewer drivers), and employee commuting (9 percent reduction due to fewer drivers). Further reductions resulted from improved data about students' vehicles (average miles per gallon). In 2009, students provided information about the make, model, and year of their vehicles while registering for parking permits. This information showed that the average fuel economy of student vehicles is nearly 24 miles per gallon instead of 22 miles per gallon, which was previously used as the default fuel economy provided by the Federal Highway Administration. The Climate Action Plan (CAP) set a goal of becoming carbon neutral by 2050.



¹ Assuming a car traveled 15,000 miles/year * 0.045 gallons/mile * 0.00871 MTCO₂e/gallon = 5.88 MT-CO₂e/year.

² Assuming an acre of mature trees absorbs 3.33 MT-CO₂e per year (Duke University study conducted by the Nicholas School of the Environment and Earth Sciences; 2003).

³ Methodology changed in 2009 from fiscal year to calendar year accounting of greenhouse gas emissions to be consistent with U.S. EPA reporting requirements.

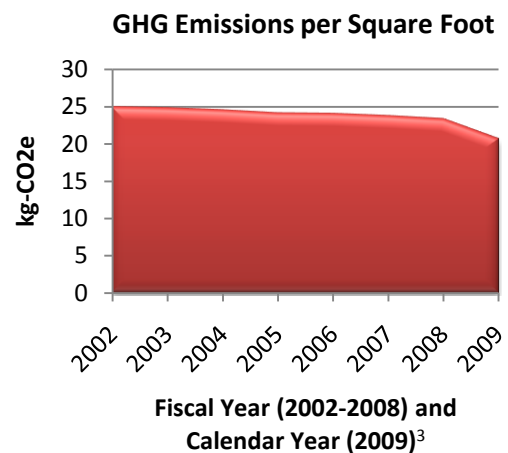
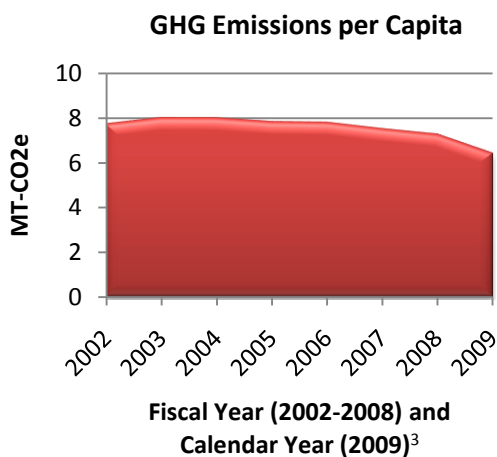
1A. Greenhouse Gas (GHG) Emissions per Capita

Metric: Metric tons of carbon dioxide equivalents (MT-CO₂e) per capita

1B. Greenhouse Gas (GHG) Emissions per Square Foot of Building Space

Metric: Kilograms of carbon dioxide equivalents (kg-CO₂e) per square foot of total building space

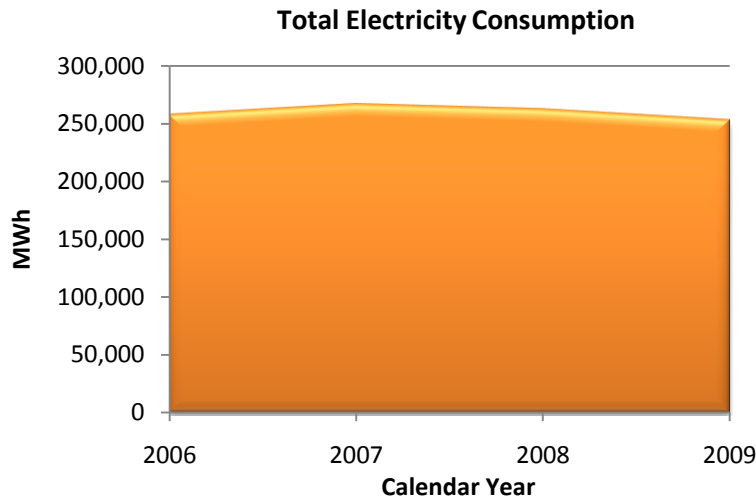
Recent Trends: Because adding personnel or a new building can significantly increase campus emissions, it is useful to control for growth by considering emissions by the total number of fulltime-equivalent (FTE) faculty, staff, and students who use the campus and by the total amount of building space. Between 2002 and 2009, per capita GHG emissions decreased 16.9 percent, while the campus community grew from 40,245 to 43,131. During the same period, GHG emissions per square foot of total building space decreased 17.2 percent, while total building space grew by 937,000 square feet, or 7.5 percent. These figures indicate that the energy efficiency of campus buildings and/or energy conservation behavior among individuals improved in recent years.



2. Electricity Consumption

Metric: Megawatt hours (MWh) used by facilities on the College Park campus. This metric includes electricity delivered to campus by the cogeneration power plant and purchased from off-site suppliers.

Recent Trends: Total electricity used by campus facilities decreased from 266,417 Megawatt hours (MWh) in 2007 to 252,536 MWh in 2009, a 5.2 percent reduction over two years.



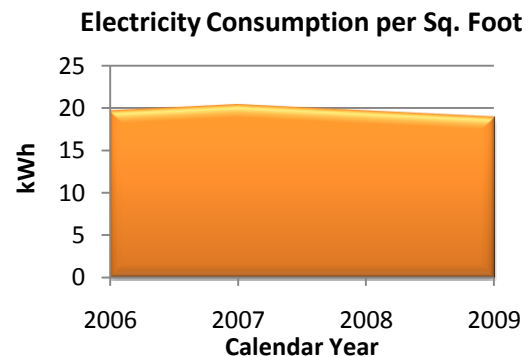
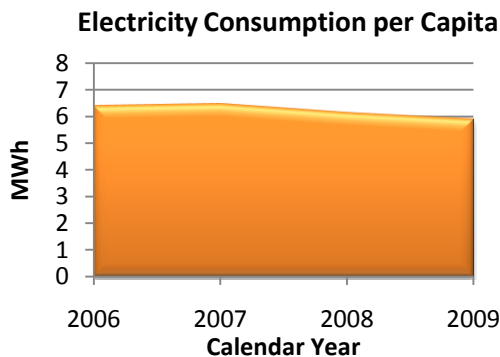
2A. Electricity Consumption per Capita

Metric: Megawatt hours (MWh) per capita

2B. Electricity Consumption per Square Foot of Building Space

Metric: Megawatt hours (MWh) per square foot of total building space

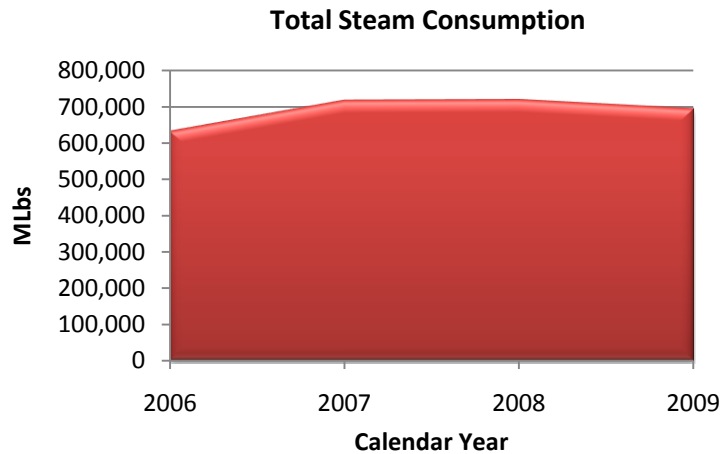
Recent Trends: Electricity consumption decreased 8.3 percent per community member and 6.7 percent per square foot of building space between 2007 and 2009, which outpaced the electricity reduction of the campus. These figures indicate that the energy efficiency of campus buildings and/or energy conservation behavior among individuals improved in recent years.



3. Steam Consumption

Metric: Million Pounds (MLbs) of steam used by facilities on the College Park campus

Recent Trends: The total amount of steam delivered to campus facilities increased slightly from 2007 to 2008 but then decreased in 2009. The net change from 2007 to 2009 was a decrease of 3.3 percent.



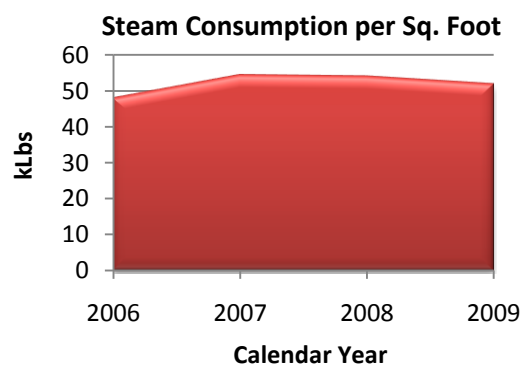
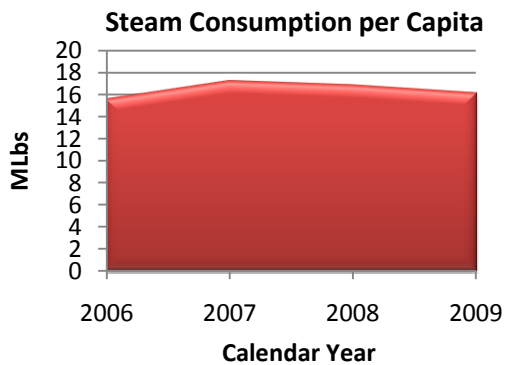
3A. Steam Consumption per Capita

Metric: Million Pounds (MLbs) steam consumed per capita

3B. Steam Consumption per Square Foot of Building Space

Metric: Thousands Pound (kLbs) per square foot of total building space

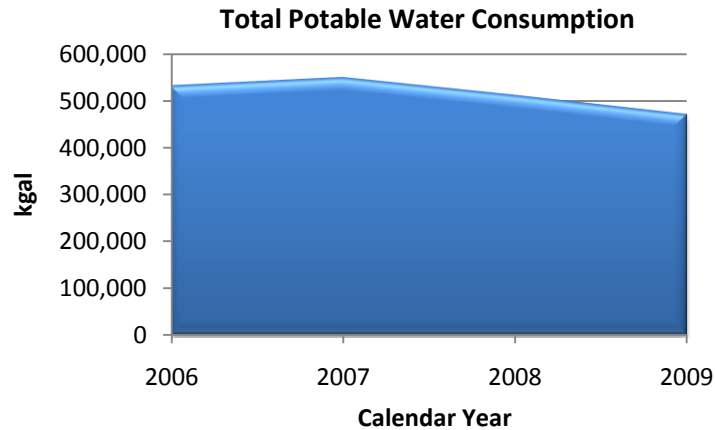
Recent Trends: Steam consumption decreased 6.5 percent per community member and 4.7 percent per square foot of building space between 2007 and 2009, which outpaced the steam reduction of the campus. These figures indicate that the energy efficiency of campus buildings and/or energy conservation behavior among individuals improved in recent years.



4. Potable Water Consumption

Metric: Thousand gallons (kgal.) of fresh water consumed on the College Park campus

Recent Trend: The campus uses approximately a half billion gallons of water annually. Water consumption decreased 14.4 percent from 2007 to 2009. Approximately 10 percent of the campus's water consumption is used by the central heating plant. Campus residence halls use 15 percent and dining operations account for roughly 3 percent of water use. The Office of Sustainability hopes to further disaggregate total water consumption in the future to better understand usage trends and conservation opportunities.



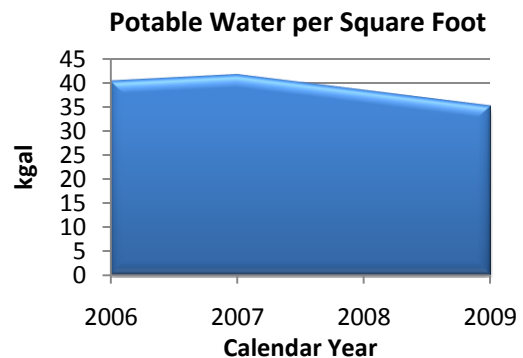
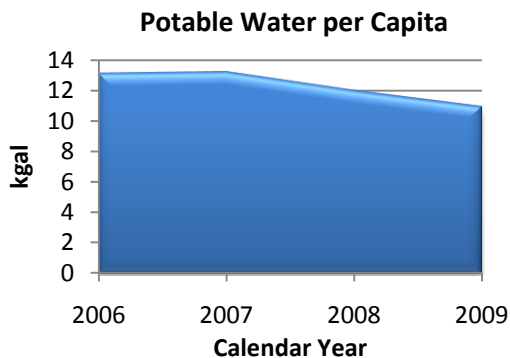
4A. Potable Water Consumption per Capita

Metric: Thousand gallons (kgal.) of fresh water consumed per capita

4B. Potable Water Consumption per Square Foot of Building Space

Metric: Thousand gallons (kgal.) of fresh water consumed per square foot of building space

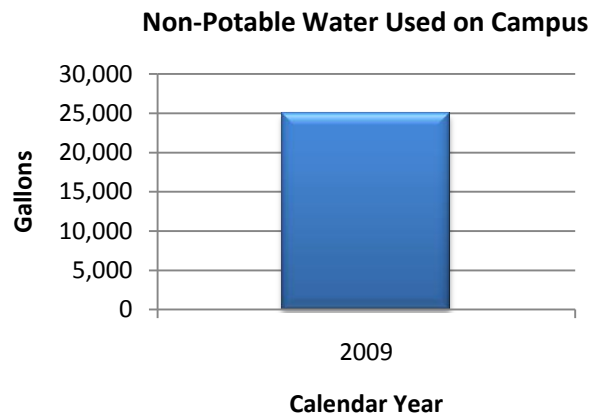
Recent Trend: Potable water consumption decreased 17.2 percent per community member and 15.6 percent per square foot of building space between 2007 and 2009, which outpaced the potable water reduction of the campus. These figures indicate that the water efficiency of campus buildings and/or water conservation behavior among individuals improved in recent years.



5. Non-Potable Water

Metric: Thousands of gallons (kgal.) of non-potable water used on campus

Recent Trends: Washington Quad is one area on campus that utilizes non-potable water. The 10,000 gallon cistern buried beneath the grassy quad collects rainwater that falls on the roofs of the surrounding residential buildings. Stored rainwater is used for irrigation of plantings around the quad. In FY 2009, approximately 25,000 gallons of captured rainwater was pumped from the Washington Quad cistern to irrigate plantings. Design estimates show a range for non-potable water used from 36,000 - 56,000 gallons depending on factors such as temperature, rainfall, humidity, and soil moisture. Other rainwater cisterns are planned for the campus, including one that was installed on the grounds of Knight Hall, but use of non-potable water remains sparse on campus.



6. Green Cleaning

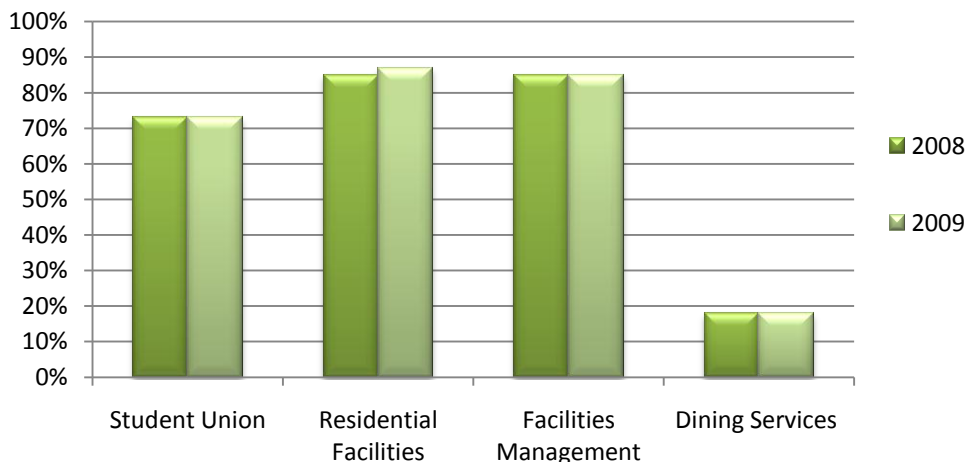
Metric: Percentage of the cleaning chemical budget spent on cleaning products certified as "green" or "sustainable" by a third-party organization (such as Green Seal).

Recent Trends: The percent of the cleaning chemical budget spent on green cleaning supplies varies across campus. Green cleaning products are typically made of biodegradable chemicals that preserve human health and environmental quality. Many of the green cleaning products used on campus have earned Green Seal Certification.

There are four units on campus responsible for cleaning: Residential Facilities, Facilities Management, Stamp Student Union, and Dining Services. Residential Facilities began using Green Seal Certified products and bio-renewable products in 2005 and have since converted to green cleaning products wherever possible. All of their core products (products used on a daily basis) are Green Seal Certified and some specialty cleaners they use, such as graffiti cleaner and oven cleaner, are bio-renewable products made from corn and soy. From FY 2008 to FY 2009, spending increased from 85 percent to 87 percent of their chemical cleaning budget on green supplies. The increase is a result of converting their hand soap to a Green Seal certified product, a foam type soap that is refilled using gallon jugs, which also reduces the use of plastic waste generated.

Facilities Management has also implemented a green cleaning program and ramped up to 85 percent Green Seal Certified products in 2008. This percentage is likely to remain the same because there are certain products required to be used in the commercial cleaning industry that by nature cannot be certified as "green products," such as sanitizers, disinfectants, and virucides. The Adele H. Stamp Student Union administration switched to green cleaning products in FY 2008 and approximately 73 percent of the chemical and equipment budget is currently for Green Seal Certified products. In FY 2009, 18 percent of Dining Services' cleaning chemical budget was spent on such products.

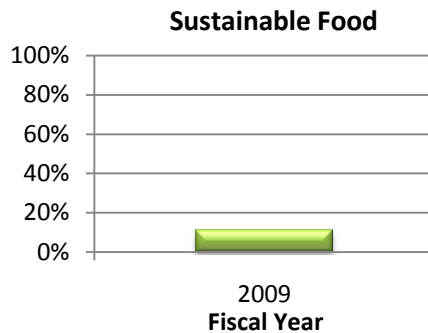
Percentage of Cleaning Products Budget Spent on Green Seal Certified Products



7. Sustainable Food

Metric: This metric comes from the Association for the Advancement of Sustainability in Higher Education's (AASHE's) Sustainability Tracking, Assessment, and Rating System (STARS). Percentage of total food budget that goes toward purchases of food that meets at least one of the following criteria: 1) grown and processed within 250 miles of campus, 2) third-party certified (USDA Certified Organic, Marine Stewardship Council Blue Ecolabel, Food Alliance, Fair Trade), and 3) grown on a farm that operates as a cooperative, has a profit sharing policy for all employees, or has a social responsibility policy covering all workers.

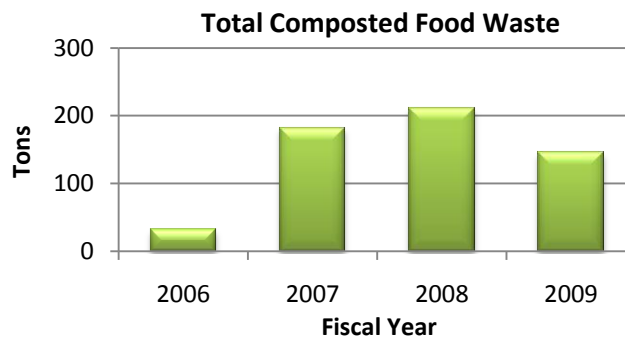
Recent Trends: In FY 2009, 11 percent of Dining Services' total food budget went toward purchases of sustainable food. This includes items sourced within 250 miles of campus and Fair Trade Coffee purchases. Dining Services does not purchase third-party certified items at this time. Local purchases primarily include chicken products, which originate in Delaware or Baltimore, and dairy products, which come from Green Spring Cloverland Dairies.



8. Composting

Metric: Tons of food waste composted

Recent Trends: The University began composting food waste through an outside vendor in March of FY 2006. Pre- and post-consumer waste is collected in the residential dining halls, pre-consumer waste is collected from food service operations in the Student Union, and post-consumer waste is collected during New Student Orientation and other special events. The decrease in FY 2009 is due to the fact that the current compost hauler did not provide service in July and August of 2008, which reduced totals for the fiscal year.



Future Campus Metrics

An area of future work concerns stormwater flow, a metric that captures the impact of our built environment on downstream neighbors and ecosystems. Projects such as the Cumberland Hall green roof, Washington Quad cistern, and various rain gardens are helping reduce stormwater flow and, in some cases, removing nutrients before water flows into local streams. Protection of the Anacostia River and Chesapeake Bay is a strong State ethic and government priority. Metrics for stormwater discharge quantity and quality may be included in the future.

IV. CULTURE: Sustainable Behaviors

TAKE RESPONSIBILITY FOR THE FUTURE, with dedication to enhancing the quality of life of all people, sustaining the natural environment, and reinforcing the capacity of Maryland's citizens to thrive and prosper in a diverse, ever-changing, globally competitive environment. (University Strategic Plan, p. 3)

The University of Maryland will achieve its goal of becoming a national model of a green university only with the participation of the campus community. Many students, faculty, and staff share the University's ethic of environmental stewardship; their passion for the environment is a reason the University is already recognized as a sustainability leader. For example, because of the commitment of the campus community, the recycling rate increased in recent years. More offices are minimizing their use of paper and purchasing paper made from recycled content, and more people are taking public transportation than ever before.

The following *Culture* metrics are indicators of the collective impact of individuals' participation in sustainable behaviors. Although campus policies and procedures affect each metric in this section, members of the campus community have the greatest control over the improved performance of each category. For instance, composting is included in the *Campus* section because it is largely confined to internal campus operations (i.e. many faculty and staff want to compost in their buildings but that service does not yet exist). The campus recycling program, on the other hand, is well developed and individuals have a widespread ability to participate.

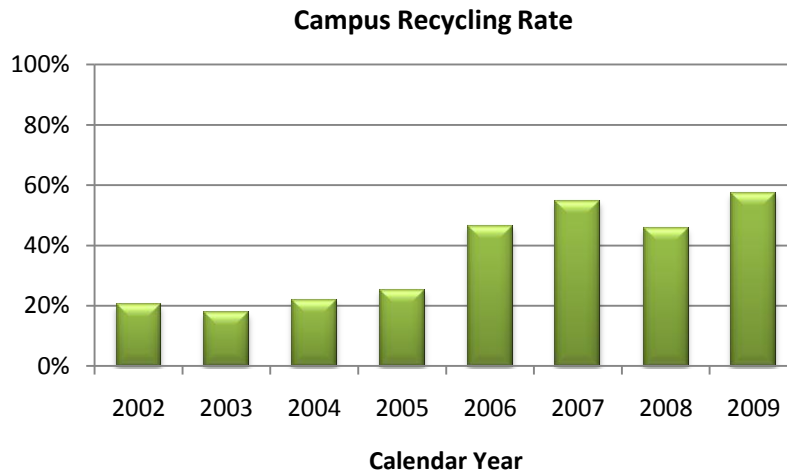
In this section:

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9. Recycling

Metric: Percentage of waste stream diverted from landfills

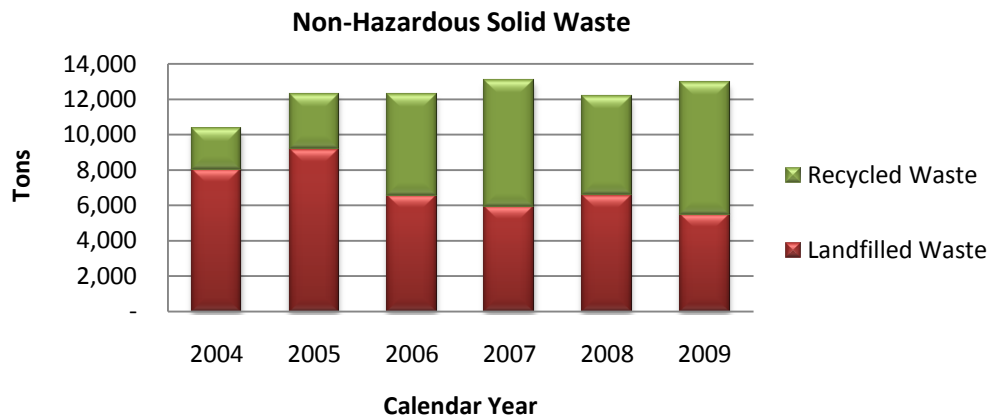
Recent Trends: The University significantly increased its recycling rate since 2003. Between 2008 and 2009, the recycling rate increased from 45.8 to 57.4 percent due in part to increased recycling of refrigerators and other appliances from dining halls and increased participation in paper recycling.



10. Non-Hazardous Solid Waste

Metric: Tons of non-hazardous solid waste landfilled and recycled

Recent Trends: Although the percent of solid waste that is recycled increased substantially from 2003 to 2009, the total amount of solid waste generated also increased over that period. Total tonnage of solid waste decreased from 2007 to 2008, but increased again in 2009.



11. Hazardous Waste

Metric: Pounds of hazardous waste disposed per 1,000 Net Assignable Square Feet (NASF)

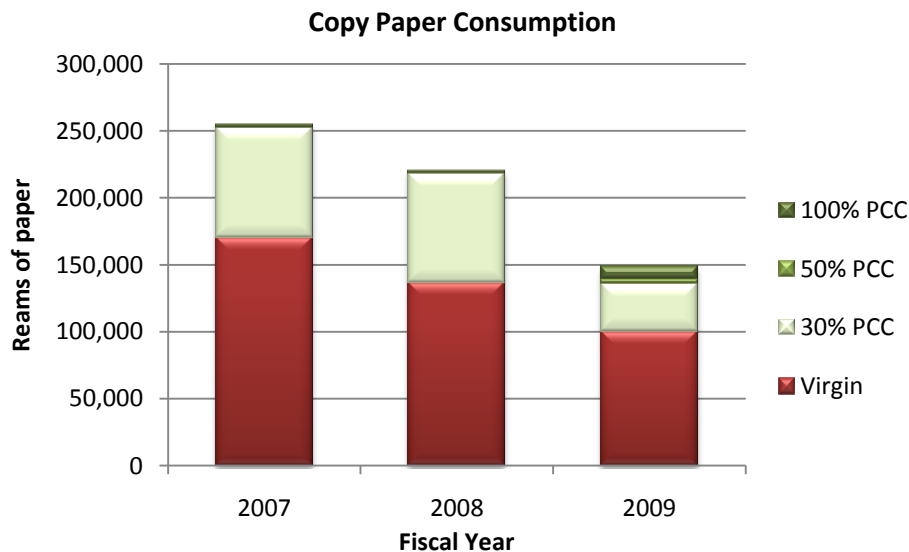
Recent Trends: The amount of hazardous waste that is managed on campus has been trending downwards since 2004, with a slight increase in 2008 and a sharp decrease in 2009. The data reflect the solid and liquid hazardous waste that has been collected each year by the Department of Environmental Safety, taking into account the change in campus size each year.



12. Paper

Metric: Reams of virgin and recycled-content paper purchased through Department of Procurement & Supply. Ream = 500 sheets. Department of Business Services paper purchasing is not included

Recent Trends: Paper use is trending in a positive direction with a year-to-year decrease in total paper purchased and an increase in the proportion of paper that is made with post-consumer content (PCC). In FY 2009, the usage of all types of multi-purpose copier paper dropped by 42 percent over a three-year period from 254,520 to 148,349 reams. During the same period, the usage of 50 percent and 100 percent PCC recycled paper jumped by over 600 percent.



13. Students Living On and Near Campus

Metric: Percentage of students living on campus and within a specific radius of campus (TBD)

Recent Trends: A sustainable community is, among other attributes, a place in which people live where they work and study. Although less than half of the student body lives on campus, many students choose to live in the neighborhoods that surround the University. In 2009, 41 percent of degree seeking undergraduates lived in college-owned, -operated, or -affiliated housing. There is no existing metric that examines off-campus students who live within a certain proximity to campus, so the percentage of students who live within walking and biking distance of campus is currently unknown.

14. Faculty/Staff Living Near Campus

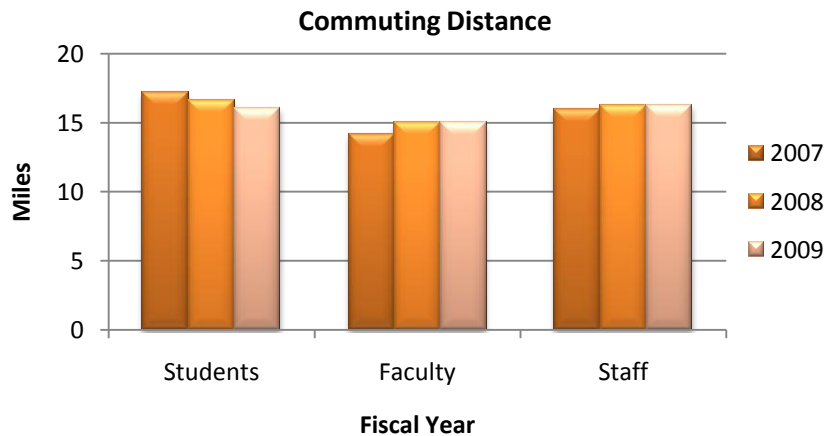
Metric: Percentage of faculty and staff living within a specific radius of campus (TBD)

Recent Trends: The Department of Facilities Management conducted a GIS study in 2005 showing that 3,155 faculty and staff (22.6 percent) lived within a 5 mile radius of campus (center of the radius is South Gate) and that 5,418 (38.7 percent) lived within a 10 mile radius. In the future, the Office of Sustainability would like to update the data set to evaluate if more faculty and staff are choosing to live closer to campus.

15. Commuting Distance

Metric: Average one-way commuting distance (miles) of faculty, staff, and students

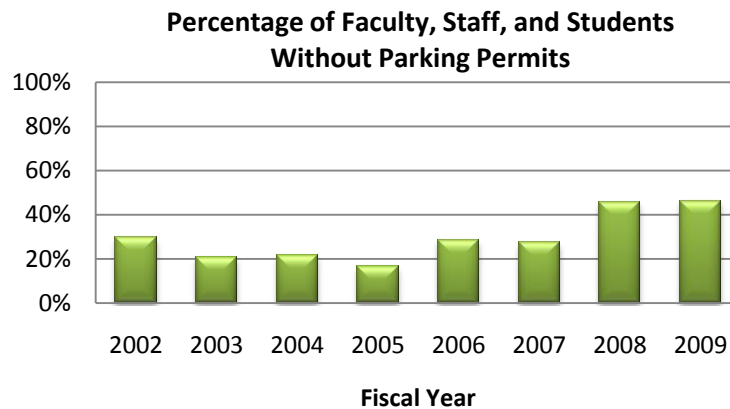
Recent Trends: Average commuting distance for students, faculty, and staff was calculated using the home zip codes of parking permit holders. The average commute is the shortest roadway distance between the center of the zip code to the campus. Based on a 2008 study, the average one-way commuting distances for faculty, staff, and students are 15, 16.3, and 16.6 miles, respectively. In 2009, the average distance for students decreased to 16.1, while faculty and staff remained the same.



16. Alternative Transportation

Metric: Percentage of students, faculty, and staff without a parking permit

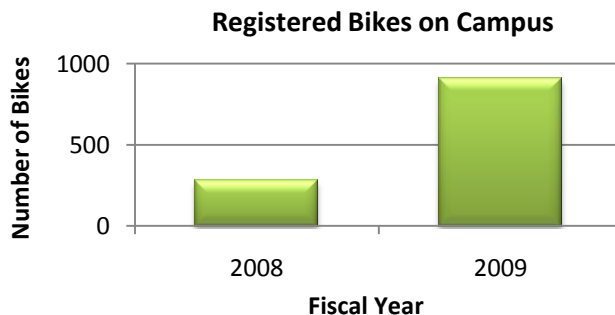
Recent Trends: In FY 2008, 46 percent of total students, faculty, and staff did not obtain permits from the Department of Transportation Services (DOTS) and used alternative methods of transportation to commute to and from the University or lived on campus. Part of the increase from FY 2007 to 2008 is due to a change in DOTS accounting practices; starting in FY 2008, DOTS no longer counted duplicate or temporary permits in its parking permit tallies. In FY 2009, the total number of people on campus without parking permits increased by less than one percent. The data for people without permits is based on the number of permits DOTS issued in FY 2009 and not necessarily the number of individuals who had permits. Other factors such as lost/stolen, cancelled, and reissued permits are not taken into consideration for this calculation.



17. Bikes On Campus

Metric: Number of bikes registered with the Department of Transportation Services (DOTS)

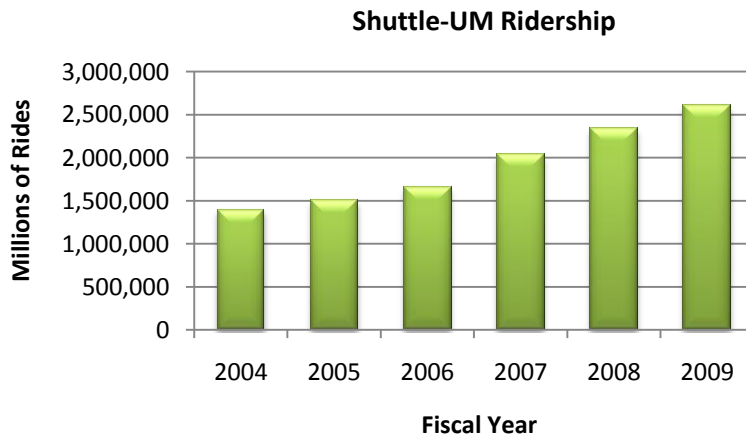
Recent Trends: The Department of Transportation Services began registering bikes in Fall 2008. In FY 2009 the Department of Transportation Services launched and supported several bike initiatives. To promote biking on campus, DOTS gave out free u-locks with bicycle registration, installed bicycle lockers on campus, created a bike blog, and increased monitoring at bicycle racks for abandoned bikes. The department continues to work with SGA, the Bicycle Advisory Group, the GSG, and other campus groups to improve biking conditions at UMD. Bicycle registration increased 225 percent from 2008 to 2009.



18. Shuttle-UM Ridership

Metric: Millions of rides on Shuttle-UM

Recent Trends: Shuttle-UM ridership increased by 87 percent from FY 2004 to 2009. From FY 2008 to 2009, DOTS saw an 11 percent increase in student ridership. Recently, DOTS has not only increased evening routes for students in the College Park area, but they have also created Shuttle operated Park and Ride routes to provide faculty, staff, and students with a more convenient commute to the University. In FY 2009, DOTS operated frequent shuttle service to local apartment complexes and commercial locations to encourage commuter students to ride the bus instead of driving to campus.



Future Culture Metrics

Metrics for a sustainable campus are in many cases not easily quantified. The Office of Sustainability will continue to develop metrics that attempt to capture the campus' journey toward being a more sustainable learning, working, and living environment.

V. CURRICULUM: Sustainability Education and Research

World-class universities anticipate emerging concerns and opportunities and marshal all their intellectual resources to address big issues ... We will be a university that seeks solutions to the world's most challenging and vexing problems. (University Strategic Plan, p. 3)

And

The University of Maryland will achieve international distinction for its ability to address big issues and problems ... We will be a force in fostering greater understanding of human relations and the natural environment, stimulating scientific and technological advances, and supporting economic development and creative activity. In addition, through its broadly educated graduates, the University will provide many of the leaders of tomorrow. The University of Maryland will be an institution with sweep and impact, where new ideas and ways of thinking make a difference. It will be the State of Maryland's most valuable asset, sustaining and enhancing the State's ability to compete in a rapidly changing global economic environment. (University Strategic Plan, p. 8)

The University of Maryland plays a critical role in preparing students to usher in a better, greener future. Students can choose among many exceptional academic programs to gain a deep understanding of sustainability topics. Recently, the University has made strides to increase opportunities for all students to learn about sustainability in the classroom. This section, called *Curriculum*, is an attempt to track curricular and extracurricular programs that enhance student learning for sustainability. Metrics regarding the integration of sustainability into campus research may be expanded in the future.

In this section:

19. Courses Revised to Include Sustainability
20. First Year Sustainability Education
21. Co-Curricular Education
Future Curriculum Metrics

19. Courses Revised to Include Sustainability

Metric: Count of courses revised to include sustainability as part of the curriculum

Recent Trends: In May 2009, 26 faculty participated in the inaugural Chesapeake Project, a two-day workshop designed to help University of Maryland faculty integrate sustainability across all academic disciplines. As a result of the workshop, 33 courses were revised in summer 2009 to include discussions, readings, assignments, and/or projects that link sustainability to disciplinary content. These revised courses introduce sustainability into diverse disciplines including Business, Dance, Education, Engineering, English, and Theatre.

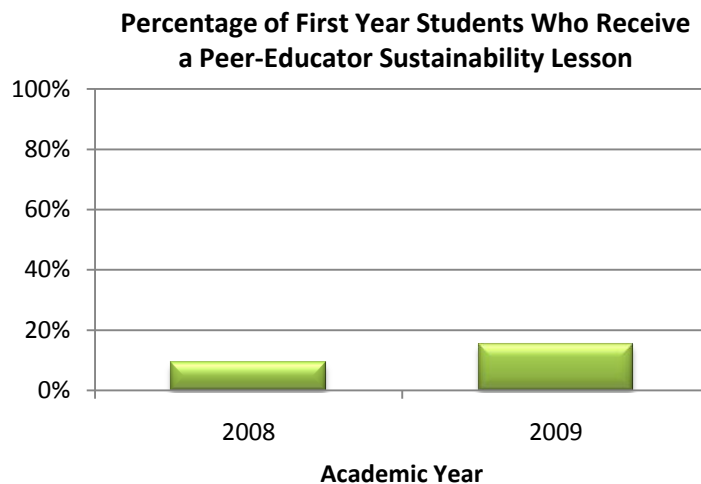
Courses Revised to Include Sustainability for the 2009-2010 Academic Year:

- ARCH 170: Introduction to the Built Environment (Ronit Eisenbach)
- ARCH 673: Building Culture (Amy Gardner)
- ARTH 360: History of American Art To 1876 (Renee Ater)
- ARTT 340: Printmaking: Intaglio (Margo Humphrey)
- BIOL 760: Plant Population Biology (Michele Dudash)
- BMGT 350H: Marketing Principles and Organization (Roxanne Lefkoff)
- BMGT 385: Operation Management (Kazim Ruhi)
- BMGT 495: Business Policies (Rhonda Reger)
- BMGT 496: Business Ethics and Society (Brian Nelson)
- BSCI 106: Molecular Genetics (Marcia Shofner)
- BSCI 279B: Strategies for Success in Chemical and Life Sciences (Marcia Shofner)
- BSCI 279P: Undergraduate Teaching Fellows Professional Development Seminar (Marcia Shofner)
- BSCI 410: Molecular Genetics (Boots Quimby)
- BUMO 758K: Management Consulting (Ken Gabriel)
- CMLT 298: American Indians in Literature and Film: Perspectives North and South (Regina Harrison)
- COMM 458P: Seminar in Political Communication: Political Discourse, the Environment, & Sustainability (Trevor Parry-Giles)
- CPSP 218L: College Park Scholars Program in Life Sciences (Michele Dudash)
- DANC 370: Kinesiology for Dancers (Sharon Mansur)
- EDCI 322: Curriculum and Instruction in Elementary Education: Social Studies (Lisa Eaker)
- ENCE 215: Engineering for Sustainability (Alba Torrents)
- ENGL 101: Introduction to Academic Writing (Linda Macri)
- ENGL 390: Science Writing (Marybeth Shea)
- ENGL 393: Technical Writing (Marybeth Shea)
- ENGL 398V: Writing about the Environment (Marybeth Shea)
- ENSP 101 and 101U: Environmental Science (Bruce James)
- ENSP 400: Capstone for Environmental Science and Policy Majors (Bruce James)
- ENST 440: Crops, Soils, and Civilization (Bruce James)
- HISP 200: The Everyday and the American Built Environment (B.D. Wortham-Galvin)
- HONR 228B: Planning for Cities (Alex Chen)
- HONR 289C: History of Evolutionary Thought (Michele Dudash)
- MIEH 498A: Introduction to Environmental Health (Betty Dabney)
- MIEH 600: Foundations of Environmental Health (Betty Dabney)
- THET 293: Black Theatre and Performance (Scot Reese)

20. First Year Sustainability Education

Metric: Percentage of first year students who receive a peer-educator sustainability lesson

Recent Trends: In their first semester, many new students enroll in UNIV 100: The Student in the University or any number of other first year seminar classes. In fall 2008, the Office of Sustainability worked with a group of juniors and seniors to develop a sustainability presentation that would engage first year students in conversation about sustainability and encourage them to get involved in finding solutions. That fall, these upperclass students, Student Sustainability Advisors, presented the lesson to 19 first year seminar classes, reaching approximately 380 students or 9 percent of new first-time students. In fall 2009, the number of lessons increased to 32 first year seminar classes, reaching approximately 640 students or 15 percent of new first-time students.



21. Co-Curricular Education

Metric: Count of living-learning programs with sustainability integration

Recent Trends: Many living-learning programs explore topics of sustainability. These six have either a stated mission or a strong demonstrated commitment to teaching about sustainability:

2009 Living-Learning Programs with Sustainability Integration:

- Beyond the Classroom
- College Park Scholars – Environment, Technology, and Economy
- College Park Scholars – Science and Global Change
- College Park Scholars – Science, Technology, and Society
- EcoHouse
- Gemstone

Future Curriculum Metrics

Existing curriculum metrics track the expansion of programs that serve to integrate sustainability across the curriculum; however, these metrics are considered a stop-gap to measuring what students actually know about sustainability. The next step for these metrics is to measure student learning and to assess how the University can better prepare students for the sustainability-related challenges that lie ahead. Also, this section may eventually include information about sustainability research activities including tracking sustainability research funding and cataloging sustainability research projects.

VI. COMMUNITY: Engaging the Greater Community in Sustainability

The University's capacity to look over the horizon and bring together expertise from across the disciplines and across the world to address issues of profound importance is powered by a host of advantages and assets. Our land-grant heritage; uniquely advantageous location; global connections and reach; culture of innovation, collaboration, and inclusiveness; and ability to cross disciplinary boundaries and partner with organizations all over the world will propel Maryland to a leadership position in enhancing the economic, cultural, and social life of the citizens of the state, region, nation, and world. (University Strategic Plan, p. 8)

While the vitality of the surrounding community is one that the University does not directly control, the institution recognizes that it is connected to the well-being of the community. The University has a number of service programs that work to enhance community health and the outcomes of these initiatives are chronicled in numerous campus publications. This metrics category is about that important service work but is also about the University's role in promoting sustainability in communities around the world. The University of Maryland has the mission and position to make a real and lasting impact on the quality of life for people, plants, and animals near and far.

In this section:

22. Community Education and Outreach Programs
Future Community Metrics

22. Community Education and Outreach Programs

Metric: Count of programs whose mission, outreach, or operations serve to enhance sustainability locally, in the State, and around the world.

Recent Trends: As the State of Maryland's land-grant institution, the University of Maryland has many programs that educate people in the surrounding community and State. There are also programs that connect the campus to communities around the nation and globe. In 2009, there were at least 57 University programs that focus on community education and outreach.

Community Education and Outreach Programs:

- America Reads * America Counts
- Biodiesel University
- Center for Social Value Creation
- Dingman Center for Entrepreneurship
- Engineers Without Borders
- Environmental Finance Center
 - Maryland Agricultural Exchange
 - Maryland Online Farmer's Market
- University of Maryland Extension
 - 4-H / Youth Development
 - Agricultural Nutrient Management Program
 - Annie's Project – education for farm women
 - Bay-Wise
 - Center for Agro Security and Emergency Management
 - Center for Healthy Families
 - Child Care and After School Programs
 - Commercial Horticulture
 - Community Resource and Economic Development
 - Cropping Systems Research & Extension
 - Environmental Horticulture
 - Expanded Food & Nutrition Education Program
 - Delmarva Gardens
 - Food Safety Services
 - Food Stamp Nutrition Education Program
 - Forages Program
 - Forest Stewardship Education
 - Genetically Engineered Crops
 - Grain Marketing
 - Grow It, Eat It! Program
 - Healthy Homes
 - Home and Garden Information Center
 - Integrated Pest Management Programs
 - Joint Institute for Food Safety and Applied Nutrition
 - LEAD Maryland Foundation, Inc.
 - Maryland Poultry
 - MarylandAgriculture.info
 - Master Gardeners
 - Mid-Atlantic Nutrition Conference
 - NurseryWeb
 - Nutrient Resources Network

- Obesity: A Public Health Issue
- Personal Finance
- Riparian Buffer Systems
- Maryland Rural Enterprise Development Center
- SheepGoatMarketing.info
- Sea Grant Extension Programs
- Small Farm Institute
- Small Farm Success Project
- Small Flock Growers
- Small Ruminant Page
- Sustainable Agriculture
- Pesticide Education and Assessment Program
- Vegetable Disease Forecasting
- Viticulture & Fruit
- Walk Across Maryland
- Water Quality & Environment
- Weed Science
- Wood's Aquaculture Facility
- National Center for Smart Growth Research & Education

Future Community Metrics

The above metrics attempt to track the University's community-focused programs, however, there are many other ways the University enhances sustainability in the greater community and around the world. The Office of Sustainability will continue to seek ways of showing how the University is creating sustainable communities locally and abroad through community outreach and engagement.

VII. Acknowledgements

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Authors: Mark Stewart, Heather Lair, and Scott Lupin

For more information about sustainability at the University of Maryland, visit www.sustainability.umd.edu

Please send comments to sustainability@umd.edu

Office of Sustainability
Department of Environmental Safety
3115 Chesapeake Building
University of Maryland
College Park, MD 20742
www.sustainability.umd.edu

