UNIVERSITY OF PENNSYLVANIA

FY18 SUSTAINABILITY ANNUAL REPORT

Progress in achieving the goals of the 2014 Climate Action Plan 2.0.

PENN SUSTAINABILITY

sustainability.upenn.edu

Contents

> “Penn’s success in reducing carbon emissions, constructing energy efficient buildings, and expanding our research and curricular focus on sustainability, has made our University a national leader in the effort to improve the environment. The importance of this commitment has never been more critical and our determination to set the standard in this vital realm is unwavering.”
>
> **DR. AMY GUTMANN, UNIVERSITY PRESIDENT**

A DECADE OF SUSTAINABILITY

’07

JUNE

President Gutmann signs the *American College and University Presidents Climate Commitment* (ACUPCC).

’09

SEPTEMBER

Penn launches its first *Climate Action Plan* defining its University-wide sustainability goals for 2014.

’10

MARCH

Penn issues *Century Bonds,* with $200 million earmarked for projects that combine deep energy retrofits, deferred maintenance, and sustainability.

’14

OCTOBER

Penn launches its *Climate Action Plan 2.0*, reporting on five years of accomplishments and establishing goals through 2019.

’17

JUNE

Penn joins eleven Ivy Plus universities in reaffirming commitment to climate change mitigation after U.S. withdrawal from the Paris Agreement.

Progress Summary

Throughout this report we use the following symbols to denote progress:

- We are achieving our goal.
- We have mixed success.
- We are not meeting our goal and will reevaluate.

This annual report highlights fiscal year 2018 progress on the *Climate Action Plan 2.0* (*CAP 2.0*), Penn's guiding document for reducing emissions, expanding engagement with students, staff, and faculty, and enhancing sustainability scholarship. Opening with a summary of academic programs, the report provides metrics on the status of the seven initiatives of *CAP 2.0* - initiatives designed to transform campus planning, design, and operations, as well as how the campus is used by the Penn community.

Highlights of FY18 include:

Academics	Progress ✓	The cumulative number of courses in the *Penn Sustainability Course Inventory* expanded from 124 to 401, a 220% increase in the number of courses included since 2014. PennDesign continues to be a global leader in urban ecological design as exemplified by the newly established McHarg Center for Urbanism and Ecology, a research center dedicated to cities and the landscape.
Utilities and Operations	Mixed Success ↱	Carbon emissions from buildings have decreased by 11.3% when compared to FY14. However, building energy use has increased by 4.0% as a result of operation of the steam-driven chillers.
Physical Environment	Progress ✓	Penn's main campus advanced its arboretum status from Level I to Level II, furthering Penn's commitment to the landscape. In addition, Penn continues to build and renovate to minimum LEED Silver standards, with three new projects achieving Gold certification.
Waste Minimization and Recycling	Mixed Success ↱	Waste sent to the landfill has decreased by 12 percent. However, the recycling rate is below the goal of 30 percent, due in part to changes in the recycling industry.
Purchasing Practices	Progress ✓	Penn Purchasing Services was recognized for exemplary efforts in analyzing green spend data by Office Depot through the Special Recognition for Greener Spend Analysis Award.
Transportation	Progress ✓	Sustainable transit options have expanded with nearly half of faculty and staff relying on sustainable transportation options when commuting. FY18 participation in Sustainable Transit Initiatives was the highest rate on record with over 4,000 participants.
Outreach and Engagement	Progress ✓	Outreach and Engagement programs have been revamped and expanded, most notably the development of the Student Advisory Group for the Environment (SAGE), which provides input and advice in the development of Penn's climate and sustainability plan.

As the University community looks ahead to the drafting of the next campus climate and sustainability action plan in 2019, this annual report provides an opportunity for Penn to reflect on current progress and address areas of concern in the remaining years of the *CAP 2.0*.

Please send any comments or questions to the Penn Sustainability Office (PSO) at sustainability@upenn.edu and for more information, please visit sustainability.upenn.edu

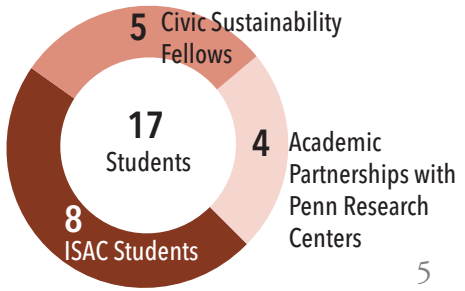
Academics

We are achieving our goal.
We have mixed success.
We are not meeting our goal and will reevaluate.

CAP 2.0 Mission

EXPAND OPPORTUNITIES FOR TEACHING, LEARNING, AND RESEARCHING SUSTAINABILITY AMONG STUDENTS, STAFF, AND FACULTY.

CAP 2.0 GOAL	FY18 PROGRESS
✓ Promote existing and new sustainability programs and classes to Penn's undergraduate and graduate student body while continuing to enhance and promote Penn's signature collaborative programs.	Penn's sustainability-related course offerings continue to expand. ***Integrating Sustainability Across the Curriculum* supported 13 professors** this year, introducing sustainability into 9 new or existing courses. ISAC has supported 61 professors since its launch. **2** Students graduated from the Vagelos Integrated Program in Energy Research (VIPER) program in FY18. **103** New courses included in the 2018 *Sustainability Course Inventory*, increasing the total to 401 courses. This is a 220% increase since 2014. Signature academic programs continue to flourish and expand, as exemplified by the Hayden Scholars, a new program for undergraduate research in the Department of Earth and Environmental Science. This year, the program supported a total of 8 researchers.
✓ Support faculty interest in researching and teaching sustainability.	While Penn's signature sustainability programs such as the Penn Program in Environmental Humanities, Vagelos Integrated Program in Energy Research, and Kleinman Center for Energy Policy continue to expand, FY2018 saw the launch of the Water Center at Penn (WCP), and the expansion of the Hayden Scholars. WCP studies water source protection, stormwater management, and public and private water utilities; Hayden Scholars, the Department of Earth Science's undergraduate summer program, advanced from a pilot to a fully-subscribed program, with eight students participating.
✓ Provide internships for graduate and undergraduate students through partnerships with the City of Philadelphia, and regional non-profits.	In 2018, PSO partnered with Schools to support student fellowships with non-government organizations and government agencies across the region. Penn Master of Environmental Studies students contributed to the work of City agencies to implement the Zero Waste and Litter Cabinet Action Plan, to support the City's Municipal Energy Master Plan, and implement the Tree Tenders training program. 60 internships have been funded since 2014.



Academic Programs for Sustainability

Expanding opportunities for scholarship research, and teaching

Penn's *Environmental Sustainability Advisory Committee* has strengthened Penn's approach to sustainability scholarship by expanding the Definition of Sustainability in Academics to include economic activity and social equity.

The Penn Sustainability Office has helped expand Penn's research, teaching, and student fellowships by partnering with academic departments and centers. The *Integrating Sustainability Across the Curriculum* program, *Penn Undergraduate Climate Action Grants*, *Penn Undergraduate Research Mentorship* research grants, and targeted internships in sustainability with non-profits and city agencies provide students a broad range of opportunities to collaborate with Penn professors in paid research projects over the summer.

In keeping with CAP 2.0 goals, Penn has developed a broad array of undergraduate, graduate, and professional courses focused on sustainability. Expansion of these programs since 2014 includes the dual degree VIPER program, a SEAS Minor in Energy and Sustainability, and a number of energy and sustainability master's programs.

PENN UNDERGRADUATE CLIMATE ACTION PLAN GRANTS

The Penn Sustainability Office has supported research fellowships through grant funding since 2010. In 2018, seven students carried out research on topics such as bioremediation, ice sintering in glaciers, and flood management in Sweden. Research mentors included professors from Earth and Environmental Science, Urban Studies, Biology, and Cinema & Media Studies. Students will present their work at a review with faculty in the fall semester of 2018. Projects can be found on the CURF sustainability website.

INTEGRATING SUSTAINABILITY ACROSS THE CURRICULUM (ISAC)

Thirteen faculty were recruited to participate in the 2018 ISAC program, including representatives from Environmental Studies, Environmental Science, Electrical and Systems Engineering, History and Sociology of Science, and Design. These faculty partners work with undergrad and grad research assistants to incorporate sustainability into new and existing courses. In 2018, ISAC assisted interested faculty in incorporating sustainability into 4 new and 5 existing courses. Since 2014, ISAC has supported 16 new courses and 34 existing courses.

ALTERNATIVE SPRING BREAK
ENERGY AND EXTRACTION IN WESTERN PENNSYLVANIA

Penn's Alternative Spring Break program launched a new, environmentally focused, week-long service learning trip. Eleven undergraduate students engaged with environmental professionals in central and western Pennsylvania to gain exposure to contemporary issues around natural gas hydraulic fracturing, coal mining and coalfield restorations, renewable energies, and the community impacts of extraction industries.

Utilities & Operations

✓ We are achieving our goal.
↱ We have mixed success.
G We are not meeting our goal and will reevaluate.

CAP 2.0 Mission

PROMOTE AND ADOPT BEST PRACTICES IN ENERGY MANAGEMENT, DESIGN, AND MAINTENANCE TO IMPROVE EFFICIENCY AND REDUCE PENN'S CARBON FOOTPRINT.

CAP 2.0 GOAL

✓ Emissions from campus buildings: 7% reduction by 2019 and 18% reduction by 2042, both of absolute emissions.

G Energy (campus electricity and steam) used by buildings: 10% reduction by 2019 and 27% reduction by 2042, both of absolute energy use.

✓ Deep energy retrofits: Target the 20% of buildings with highest energy use for deep energy retrofits by 2042. This is approximately 45 buildings, and includes nine *Century Bond* projects.

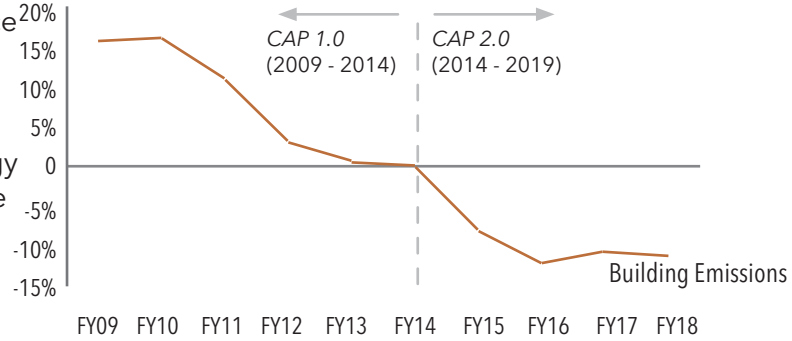
✓ Recommission the 20% of buildings with the highest energy use every five years, and the remaining 80% on a ten-year basis.

FY18 PROGRESS[1]

Total campus building-related emissions have **decreased by 11.3%**. Changes since 2009 shown in the graph*.

Total campus electricity and steam energy use **increased by 4.0%**, due in part to the use of the newly installed steam chillers. Energy used at the building level (excludes energy used in chilled water production), decreased by 4.7%.[2]

2018 PROGRESS ON EMISSIONS REDUCTION



*Emissions calculations were re-evaluated in FY18 leading to a change in emissions reported in FY17 through FY09.

As of 2018, the seven completed *Century Bond*[3] projects are meeting their anticipated energy reduction goals; four more projects are in construction. The *Century Bond* projects, in total, represent approximately $200M applied to building HVAC system replacements and lighting upgrades. For a complete description of projects, visit Penn Connects.

$2.7M Invested in *Century Bond*[3] projects in FY18

28% Estimated reduction in energy use due to completed *Century Bond* projects

The goal of recommissioning the **45 highest energy-using buildings on campus** is being met and **17 buildings were** recommissioned in FY18. In 2018, the first group of the 10-year cycle buildings were recommissioned for a second time.

[1] For more detailed information on metrics, please see our STARS report. All metrics in the STARS report refer to Penn's main, West Philadelphia campus, unless otherwise noted. For more information please refer to *CAP 2.0*.
[2] See page 9 for more information on the impact of the steam chilling system on campus energy use.
[3] $200M for projects that combine deep energy retrofits, deferred maintenance, and sustainability.

Greenhouse Gas Emissions

Carbon reduction

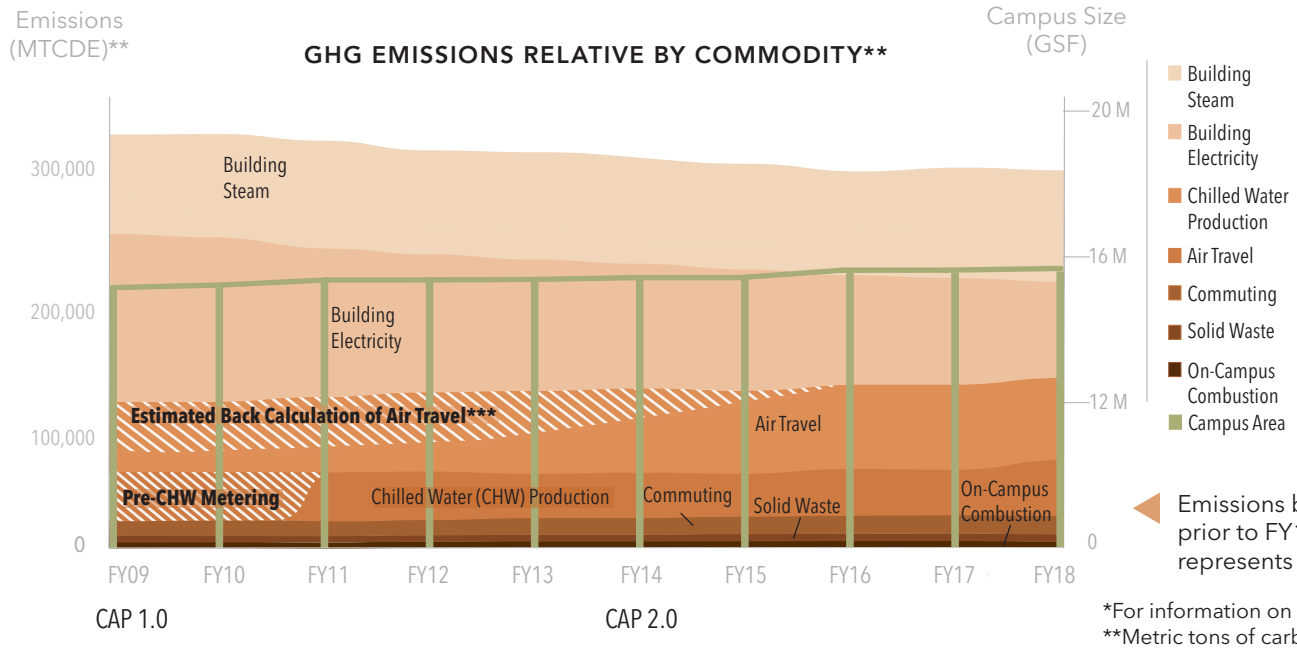
Penn ascribes to the *World Resources Institute* characterization of carbon emissions: Scope 1 (direct emissions from on-campus combustion), Scope 2 (emissions from off-campus utilities and RECs*), and Scope 3 (emissions from commuting, waste disposal, and university-related air travel). Because 80% of Penn's emissions are Scope 2 (primarily the energy used for conditioning and lighting buildings), the focus of our emissions reduction strategy is to improve building performance.

Penn's greenhouse gas emissions are calculated by the Center for Environmental Building + Design in Penn's School of Design. Emissions calculations to reflect Penn's district heating and cooling systems.

Programs to address Scope 2 emissions include *Century Bond* renovations, LEED certification, higher performing new buildings and renovations, re-commissioning of existing building systems, and improved user efficiency through education and engagement. Scope 3 emissions are addressed through outreach, engagement, and education programs that are designed to improve behavior regarding transportation, recycling, and waste minimization.

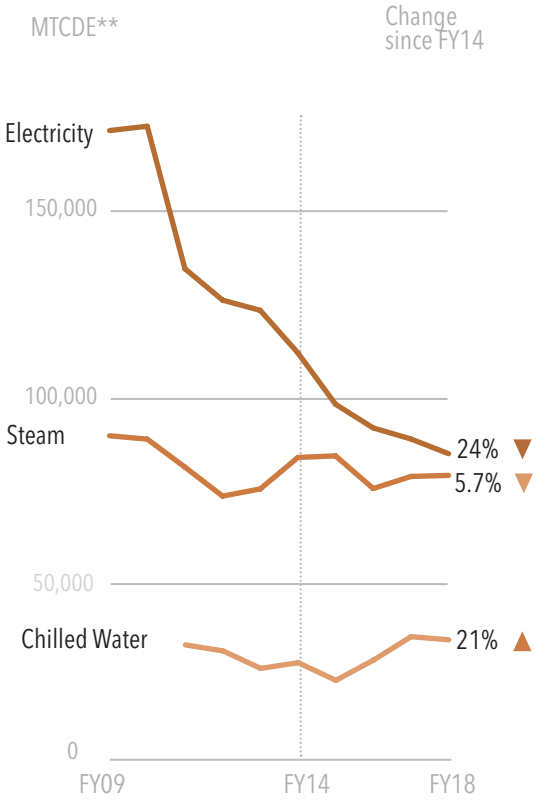
Conservation measures, coupled with an increasingly cleaner electric grid and improvements in the district steam system, have resulted in an **11.3% reduction** in Scope 1 and 2 GHG emissions.

GHG EMISSIONS RELATIVE BY COMMODITY**



Emissions by commodity source. Chilled Water (CHW) prior to FY11 was not metered and hashed area represents estimated consumption.

CHANGE IN GHG EMISSIONS BY SOURCE



Change in GHG emissions by emission type, shown with MTCDE* on the vertical axis. Emissions calculations were revaluated in FY18, leading to adjustments in historical reporting.

*For information on Penn's REC purchases visit the Penn Sustainability website.
**Metric tons of carbon dioxide equivalent
***Emissions from Penn sponsored air travel prior to FY16 were underreported, due to lack of data.

Campus Energy Consumption

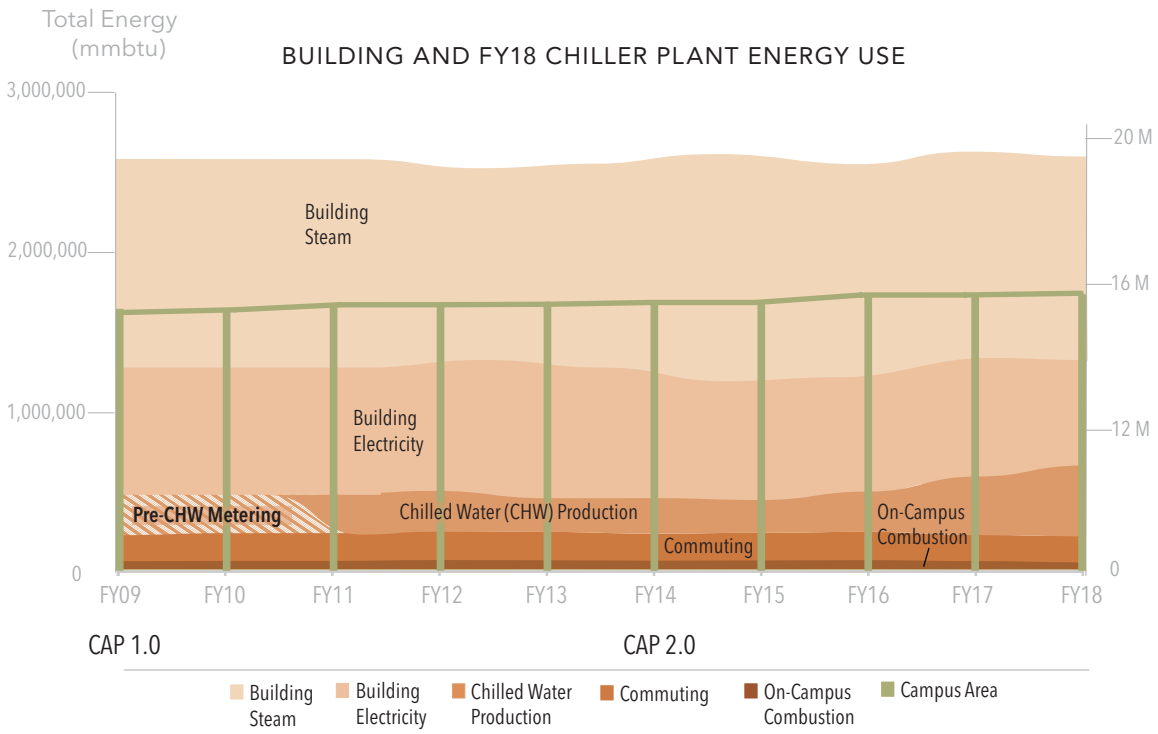
Ongoing efforts toward reductions

Penn's district steam and electricity use account for over 90% of total campus energy use. Continued use of two newly installed 5,000 ton steam chillers increased steam usage in the summer of FY18, resulting in substantial non-building related energy usage.

Penn's Operations and Maintenance (O&M) staff have reevaluated how energy-use is measured on campus. Building-level evaluation shows a 4.7% reduction due to improved building operations. However, measurement of the campus-level, which includes the steam chillers and distribution systems, shows a 4.0% increase in overall energy use. While the use of the steam chillers increases total energy use, they serve to shift campus air-conditioning from the regional electrical grid to a local, cleaner-burning natural gas cogeneration plant, reducing Penn's overall environmental impact.

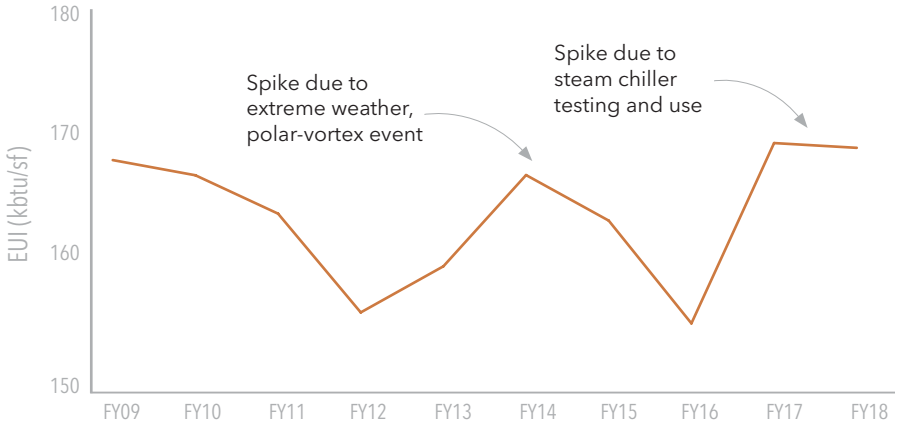
Penn's O&M team continues to focus on improving reliability and performance of campus heating and cooling while balancing improved environmental performance, energy use, and reduced costs.

BUILDING AND FY18 CHILLER PLANT ENERGY USE



Energy consumption, by commodity site energy use. Penn began separately measuring chilled water, used for cooling across campus, in 2011.

TOTAL CAMPUS ENERGY USE INTENSITY (EUI)
(INCLUDING FY18 STEAM CHILLER PLANT TESTING)



Building energy use divided by total core campus square footage (kBtu/sf), gives a representation of EUI for all main campus buildings.

Energy Use Intensity (EUI) measures the energy use per square foot. This graph shows site energy which measures energy used on-site and does not account for off-site production and delivery. For more information on site energy use, visit EPA ENERGY STAR Portfolio Manager.

Physical Environment

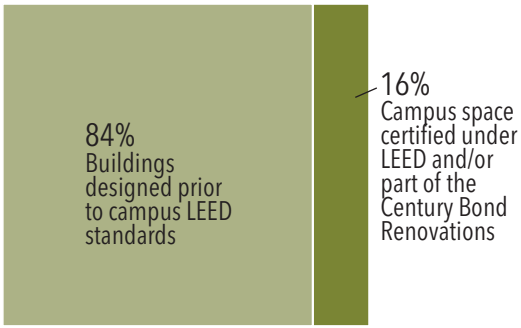
We are achieving our goal.
We have mixed success.
We are not meeting our goal and will reevaluate.

CAP 2.0 Mission

CREATE AND MAINTAIN A SUSTAINABLE CAMPUS BY INCREASING GREEN SPACE, DECREASING BUILDING ENERGY CONSUMPTION, AND INCREASING EDUCATION AND AWARENESS OF SUSTAINABLE DESIGN.

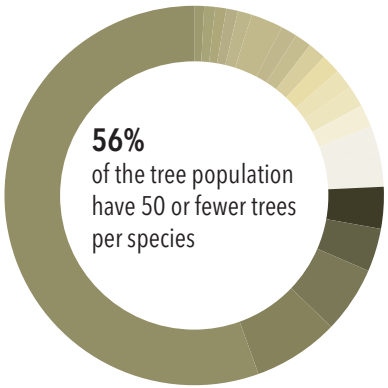
CAP 2.0 GOAL	FY18 PROGRESS
✓ Continue to pursue LEED Silver certification for all new construction and major renovations.	Penn added **three LEED projects** in 2018, bringing the total to 25 certified or with a certification pending. The three projects, Hill College House, Robbins House, and the Evans Centennial Century Bond Renovation, all earned Gold certification.
✓ Complete carbon inventories of the Hospital of the University of Pennsylvania (HUP), the Morris Arboretum, and New Bolton Center (NBC). Build on and institutionalize sustainability goals for Penn's real estate portfolio.	The new carbon inventories were completed in 2016. Carbon and energy reduction strategies are being evaluated by leaders at HUP, Morris, and NBC. Real Estate continues to prioritize sustainability in construction and management of the portfolio.
✓ Develop and implement an *Ecological Landscape Stewardship Plan* (*ELSP*).	The *ELSP* was completed in FY18; implementation plan being developed.
✓ Promote a biodiverse and ecological campus by protecting existing trees, promoting plant diversity through design, improving habitats for native flora and fauna, implementing bird-friendly glazing.	A tree census was conducted as part of the *ELSP* which articulates improved ecological design and management of landscape and open space across campus. Penn's main campus earned Level II **Arboretum Status** in 2018 through the ArbNet certification process.

CAMPUS BUILDING PROFILE BY AREA



CAMPUS TREE PROFILE

Penn promotes a biodiverse and ecological campus landscape by cultivating a varied tree population and avoiding monocultures.



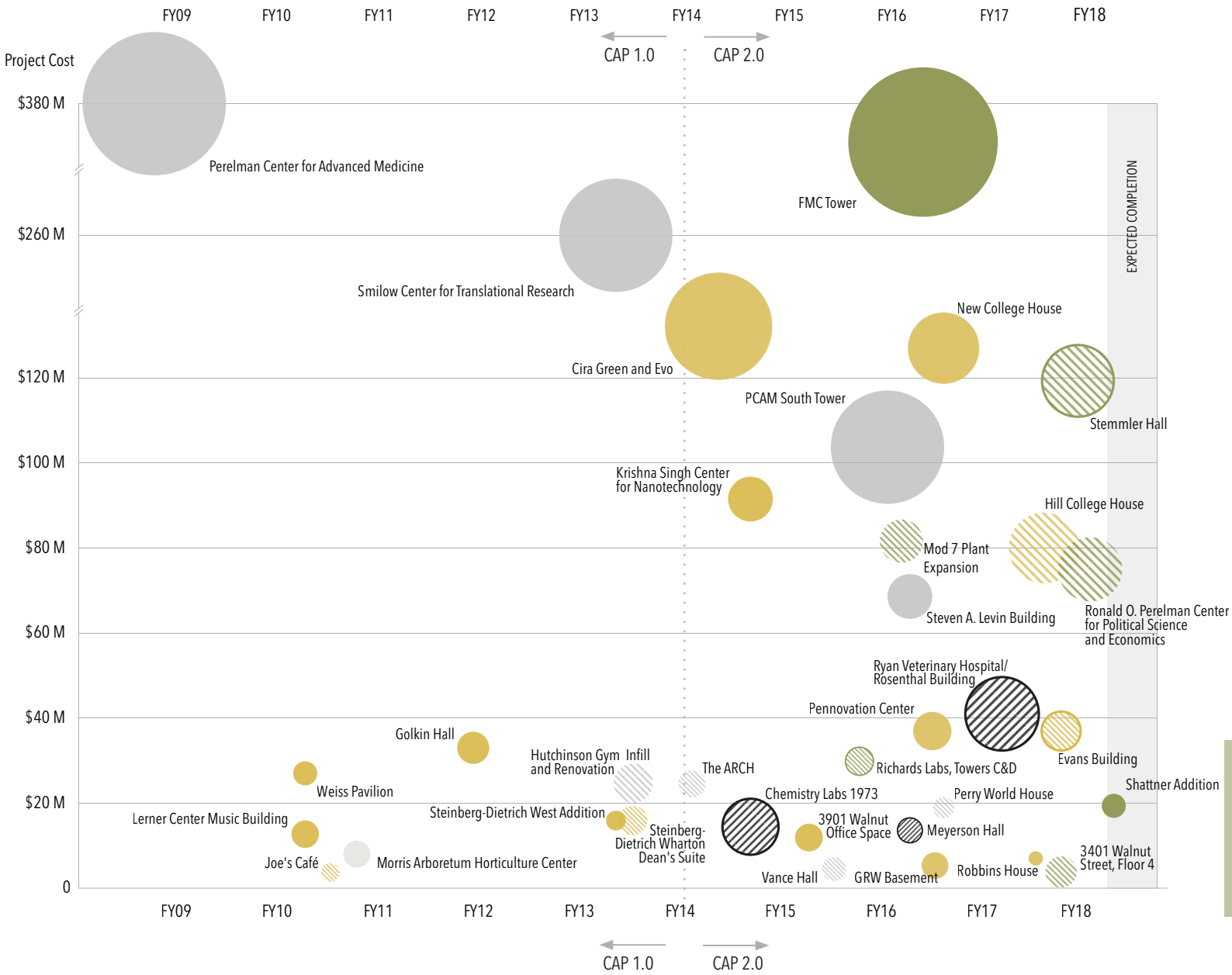
Honey Locust is the most common tree, representing **7%** of Penn's tree population.

London Plane represents **6%** of total trees

Sweetbay Magnolia and **Red Maple** each represent **4%.**

Sustainable Construction and Renovation

NEW CONSTRUCTION AND RENOVATION PROJECTS
COMPARISONS OF PROJECT COST, COMPLETION YEAR, & GROSS SQUARE FOOTAGE



PROJECT TYPE

- New Construction*
  *circle fill correspond to the certification color
- Renovation
- Century Bond Renovation
- Century Bond Renovation, no LEED certification

SQUARE FOOTAGE

100,000 gsf
50,000 gsf
20,000 gsf

CERTIFICATION

- LEED Gold
- LEED Silver
- LEED Platinum
- LEED certification Level Pending

Circles are to scale by building square footage. Included are: Penn's Main West Philadelphia campus, the Health System, Morris Arboretum, and Real Estate buildings. More information on the Health System, Morris Arboretum, New Bolton, and real estate projects is on page 10.

Per CAP 2.0, Penn has pursued minimum LEED Silver certification for new construction and large renovations.

Sustainability Across the University

Extending our commitment

Carbon inventories of the Morris Arboretum, the New Bolton Center, and the Hospital of the University of Pennsylvania (HUP) were completed in FY16 as part of *CAP 2.0*. PSO reviewed these inventories with leaders from each organization to document progress and identify strategies to improve environmental performance.

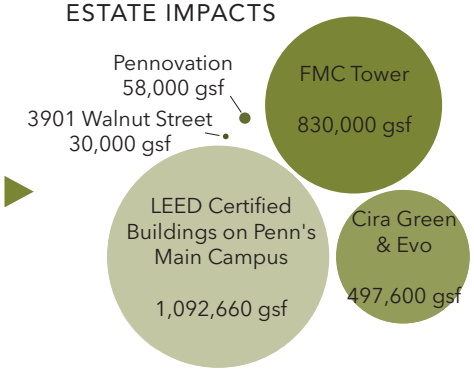
In 2018, the Morris Arboretum updated 40 parking lot lamps to LED and has begun to update their soil conservation plan through a Green Fund Grant.

The New Bolton Center was awarded a Green Fund Grant to update their 1977 soil conservation plan and keep abreast of new practices to exceed existing regulations for erosion and sediment control. Improvements will help improve water quality in their regional watershed.

In FY18, PSO Student Eco-Reps identified areas for energy efficiency improvements at HUP and presented their findings to campus leaders in April 2018.

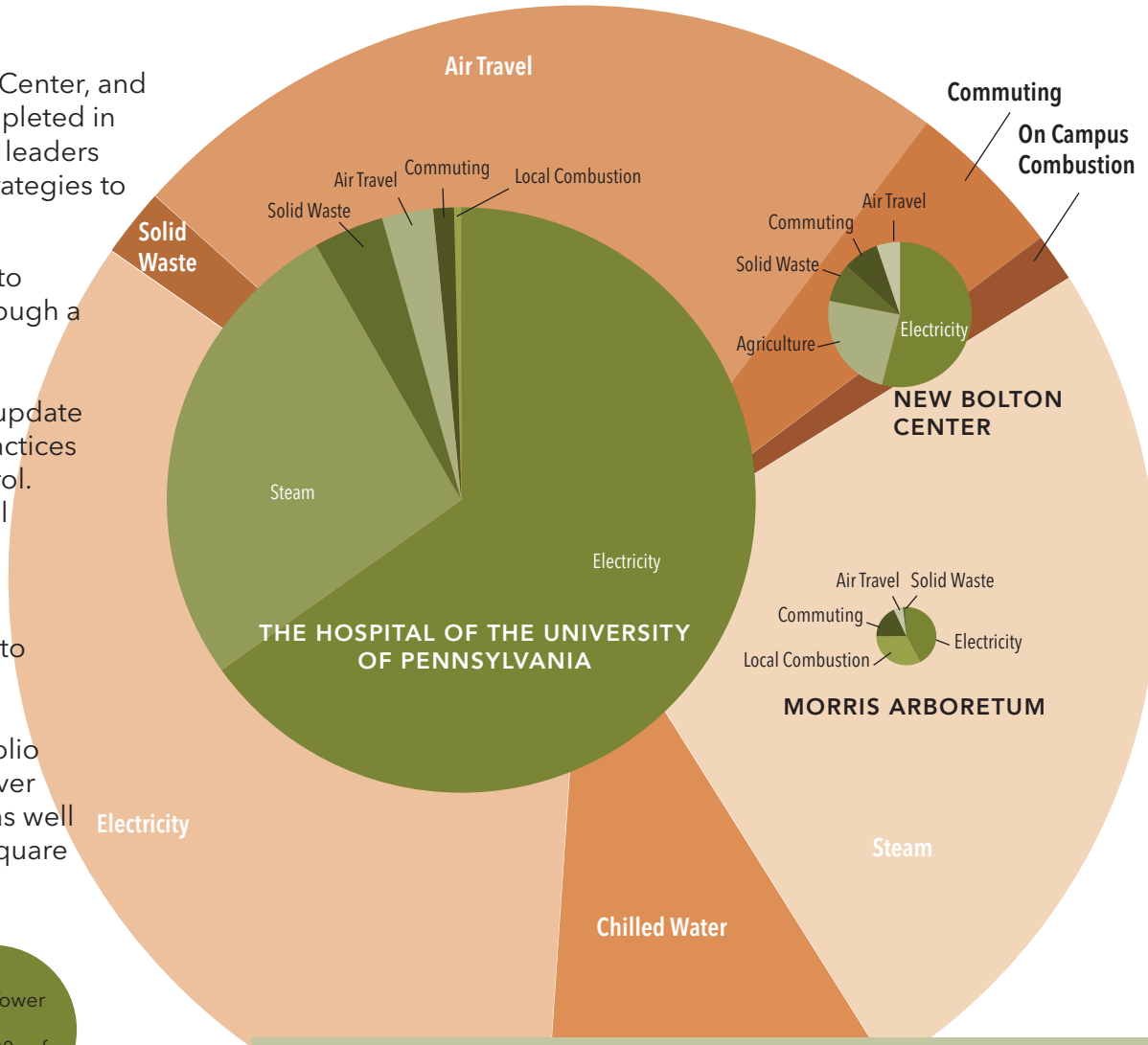
Penn's real estate management team has expanded the portfolio of building energy-use tracking to include fraternity houses over 10,000 square feet and apartments over 25,000 square feet, as well as the city required benchmarking of buildings over 50,000 square feet. New real estate projects in Penn's portfolio meet LEED Silver minimum certification.

SCALE OF GREEN REAL ESTATE IMPACTS



Penn's most recent LEED real estate projects compared to all campus LEED buildings by area, shown here to indicate environmental impact.

FY16 CARBON INVENTORIES OF THE HOSPITAL, NEW BOLTON, AND THE MORRIS ARBORETUM COMPARED TO THE MAIN CAMPUS



The largest carbon inventory shown above represents the emissions breakdown of Penn's West Philly academic campus. The relative size of the inventories for HUP, the New Bolton Center, and the Morris Arboretum show the potential impact of further emissions reductions in the greater Penn system.

Waste Minimization & Recycling

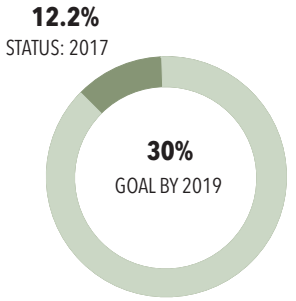
✓ We are achieving our goal.
We have mixed success.
We are not meeting our goal and will reevaluate.

CAP 2.0 Mission

IMPROVE PENN'S ENVIRONMENTAL PERFORMANCE BY MINIMIZING SOLID WASTE THROUGH COMMUNITY EDUCATION, APPROPRIATE INFRASTRUCTURE, AND PROPER DISPOSAL.

CAP 2.0 GOAL	FY18 PROGRESS
✓ Continue to reduce overall landfill waste.	In 2018, waste sent to landfill decreased **by approximately 12%** compared to 2014, largely due to increased use of waste-to-energy (WtE) incineration.
Increase recycling rate to 30% by 2019. (Recycling rate is measured by weight.)	On average, recycling has increased since 2009 in part due to the wide adoption of deskside recycling; however, the **recycling rate dropped to 12% in FY18**, in part due to the China Waste Ban.* In fall 2017, China, the world's largest importer of waste, dramatically changed practices, banned the import of many scrap materials, and enacted strict contamination regulations. Like many other universities and municipalities, Penn has felt the effect of this ban and seen a dramatic decrease in the amount of materials accepted for recycling. Penn worked to increase the amount of materials being diverted through compost, recycling, and other streams which resulted in a **diversion rate of 20%**** for FY18.
✓ Improve and expand composting operations on campus.	Pre-consumer (kitchen) composting at Penn Dining Cafés and local restaurants serviced by Penn **diverted over 100 tons** in 2018. Additionally, a compost pilot began at the Penn Garden behind Harrison College House for Penn students interested in composting their food waste.
Increase the number of zero waste events held by schools, centers, and departments	Zero-waste events were changed to low-waste events, as Penn can no longer send plant-based plastics to the local industrial compost vendor; however, Wharton is piloting a Zero Waste Events program centered around reusable serviceware and composting. Penn Purchasing Services is finalizing a Green Catering Guide to showcase caterers who minimize waste while on campus.

CAMPUS RECYCLING RATE



*For more information visit npr.org
**Waste-to-energy incineration is not included in diversion metrics. For more information, please visit EPA.

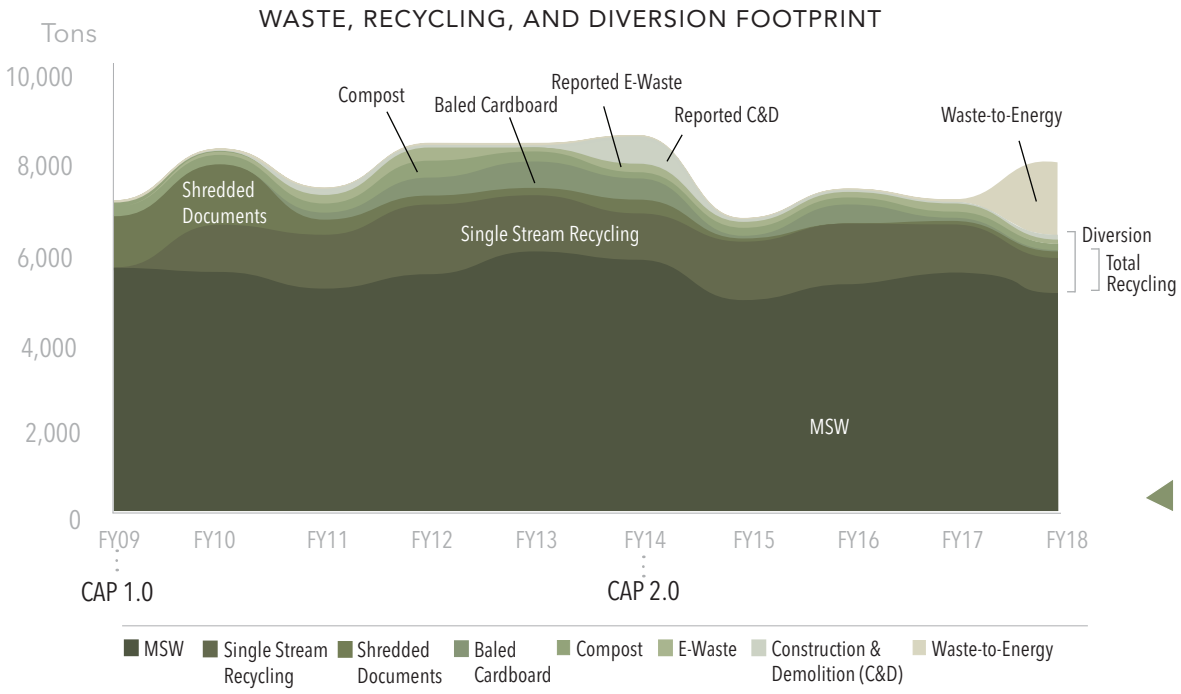
Waste Flows and Distribution

A closer look at the waste streams

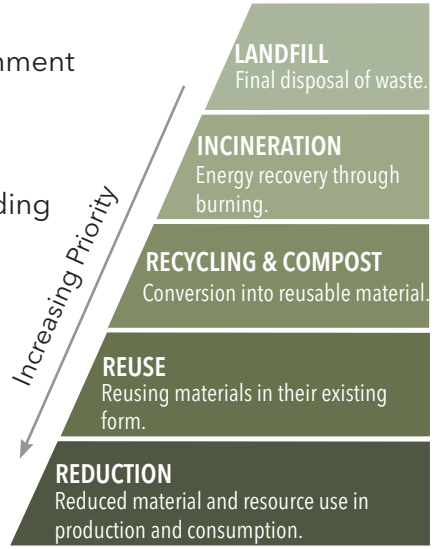
Waste on campus is tracked in three categories: landfill waste (also known as municipal solid waste or MSW), recycling, and diversion. MSW is composed of non-recyclable materials sent to landfill. Penn's recycling includes commingled plastics, paper, metal, and glass, as well as baled cardboard and shredded documents. Diversion includes recycling, as well as e-waste, compost, yard waste, and construction and demolition waste (C&D). Waste to energy incineration helps reduce the waste sent to landfill, but does not count towards diversion metrics per EPA standards.*

In fall 2017, China, then the world's largest importer of recycling, enacted a ban to safeguard their environment and improve human health. The ban, which covers 24 types of materials and sets recycling contamination limits, dramatically constricted the global recycling industry. Penn's waste hauler responded by enforcing strict recycling contamination rules, leading to a steep decline in material collected on Penn's campus as recycling. In an effort to minimize the landfill waste, Penn's Operations and Maintenance team began sending materials to a waste-to-energy facility.

Penn contracted with a new waste vendor at the start of FY19 whose facility allows for improved recyclable material sorting and utilizes a methane-capture landfill.



Composition and weight of recycling, waste, and diversion since FY09. The increase in recycling rate (weight of recyclables compared to MSW) has slowed as the weight of recycled materials has diminished and recycling standards have increased.



HIERARCHY OF WASTE MANAGEMENT

The least environmentally friendly methods are shown at the top. Waste-to-energy incineration, while more advantageous than landfill, should be considered only after all other methods of reduction, reuse, recycling, and compost are exhausted.

* For more information, please visit EPA.

Purchasing Practices

✓ We are achieving our goal.
We have mixed success.
We are not meeting our goal and will reevaluate.

CAP 2.0 Mission

CONTRIBUTE TO PENN'S OVERALL ENVIRONMENTAL PERFORMANCE AND WASTE MINIMIZATION EFFORTS THROUGH STRATEGIC PURCHASING DECISIONS.

CAP 2.0 GOAL	FY18 PROGRESS
✓ Deliver Green Purchasing solutions.	Among several initiatives, Purchasing Services has eliminated cardboard packaging for many office supplies deliveries by switching many deliveries to reusable plastic totes. Recycled printer toner is now the campus default and one of many preferred "green" office supplies. Purchasing Services is working to expand auto-replacement options, like the recycled-content paper and printer toner pilots, to other areas across campus.
✓ Recognize Green Purchasing champions for their efforts.	Purchasing Services continues to recognize individuals and teams advancing sustainable purchasing practices, and to celebrate projects that contribute to a more sustainable future through the *Green Purchasing Awards*.
✓ Modernize supplier contracts.	Purchasing Services now incorporates sustainability into new contract language and works with the Office of the General Counsel to promote sustainability with vendors and suppliers. In FY18, Purchasing Services worked with the Division of Facilities and Real Estate Services to update and issue a Request for Proposal (RFP) for waste-hauling services which included and highlighted sustainability as a major attribute.
✓ Connect with industry leaders in sustainable purchasing.	Purchasing Services continues to be an active member of the Sustainable Purchasing Leadership Council (SPLC). Additionally, Purchasing Services was recognized for exemplary efforts in analyzing green spend data by Office Depot through the Special Recognition for Greener Spend Analysis Award.

Penn received the Office Depot **Special Recognition for Greener Spend Analysis Award**

Purchasing Practices

Spending sustainably

Purchasing Services worked with the Department of Facilities and Real Estate Services to obtain a new vendor for waste management services. Purchasing Services worked to incorporate sustainability into the contract language, furthering the University's commitment to waste minimization, recycling, and diversion.

Purchasing Services has been working to improve sourcing and reduce the amount of disposable materials reaching campus. Purchasing Services has been able to build on successful programs like Managed Print Services and through supplier relationships such as Wash Cycle Laundry and Office Depot to further minimize waste on campus.

Two new initiatives are under development through Purchasing Services: establishing green guidelines for food purchasing and a latex glove recycling feasibility assessment. To this end, Purchasing Services convened an advisory group to develop strategies around food and catering purchases.

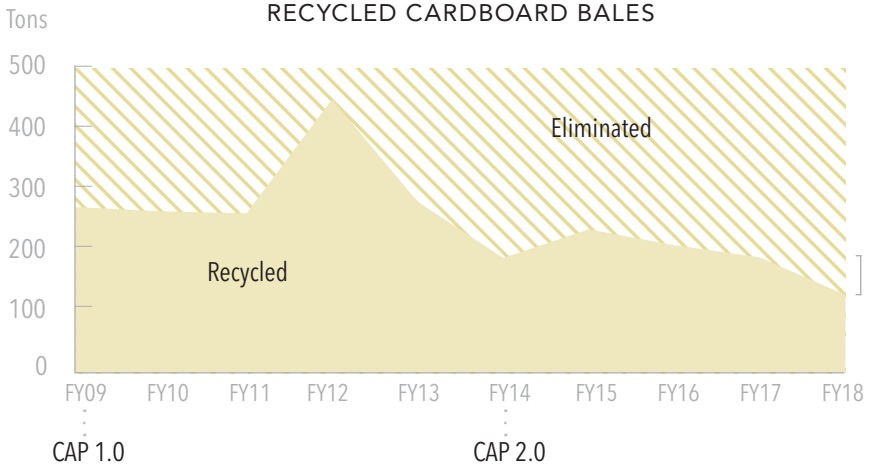
The Green Purchasing Award honors the actions of individuals or teams that advance sustainable purchasing at Penn, reducing waste, creating efficiencies, or providing energy conservation through best purchasing practices.

GREEN PURCHASING AWARDS 2018

Furniture Reuse and Recycling Team (2018)
The School of Arts and Science created a system to divert used office furniture from the waste stream. All furniture is first offered for reuse through the Netter Center for Community Partnerships; any furniture which cannot be reused is recycled.

One Less Campaign (2018)
The School of Nursing's One Less Campaign established a series of green gifts for Faculty and Staff which were distributed at the annual Service and Recognition Awards event. Gifts included tote bags and reusable mugs which are eligible for a cafe discount if used at the School's cafe.

RECYCLED CARDBOARD BALES



50+ tons of cardboard eliminated from Penn waste stream in FY18.

The drop in weight of cardboard bales is indicative of strong purchasing practices. Penn eliminated the use of cardboard delivery boxes and switched to reusable plastic totes.

Transportation

✓ We are achieving our goal.

We have mixed success.

G We are not meeting our goal and will reevaluate.

CAP 2.0 Mission

EMPHASIZE AND PLAN A QUALITY PEDESTRIAN CAMPUS ENVIRONMENT, ENCOURAGE THE USE OF BICYCLING AND PUBLIC TRANSPORTATION FOR COMMUTING, & PROVIDE SAFE, EFFICIENT, LOCAL TRANSPORTATION SERVICES.

CAP 2.0 GOAL

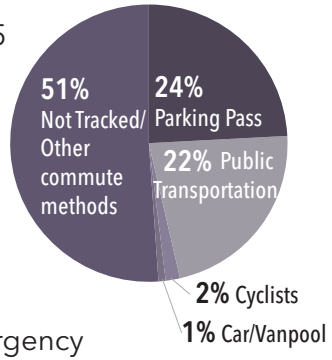
✓ Continue to support an efficient, pedestrian oriented campus by implementing sustainable transportation initiatives.

FY18 PROGRESS

Over **49% of employees** who participate in Penn commuter programs use Penn shuttles/buses, public transportation, carpools, or cycle. (While a large number are assumed to walk, there is no mechanism in place to track their commute.) Participation in the Occasional Parking Program rose to over 685 employees, **an increase of 211 since FY17**, and 505 more than in 2014.

Faculty and staff are eligible for pre-tax transportation benefits, including Penn subsidized and SEPTA discounted transit passes, free van-pool parking, discounted car-pool parking, and cyclist commuter reimbursements through the Bicycle Commuter Reimbursement Program. Additionally, the Occasional Parking Program offers discounted parking to commuters who require infrequent use of Penn garages and the Emergency Ride Home Program gives registered commuters a ride in emergency situations. Students are eligible for discounted SEPTA Passes.

TRANSPORTATION PATTERNS



✓ Expand bicycle commuting, continue to install new bike racks, upgrade older racks, increase the number of bike repair stations, and complete the University Bike Policy.

2018 marks the second year of Penn's Bicycle Commuter Expense Reimbursement Program, which provides up to $240 a year to faculty and staff who commute to work by bike.

Penn continues to add and renovate bike racks on campus, with almost 350 spaces added in 2018, bringing the total to over 6,500. A new covered bike corral and repair station were completed at Osler Circle, adjacent to the Biomedical Research Building II. Additionally, a second covered corral with 20 spaces was completed at the Chestnut and 34th Street garage.

6 Bike repair stations on campus; 3 added in FY18

Penn tied with NYU for **Number One in Transportation** by TransitScreen as the country's most transportation-friendly college campus.

Outreach & Engagement

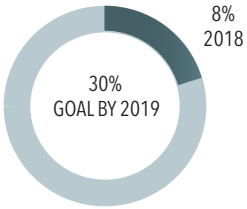
We are achieving our goal.
We have mixed success.
We are not meeting our goal and will reevaluate.

CAP 2.0 Mission

BUILD A CULTURE OF SUSTAINABILITY THAT INFORMS ALL CAMPUS CONSTITUENCIES

CAP 2.0 GOAL	FY18 PROGRESS
✓ Foster a student culture of sustainability by maintaining a vibrant Student Eco-Reps program and by collaborating with the Student Sustainability Association at Penn (SSAP).	19 Eco-Reps worked on 6 projects: 1-ply vs. 2-ply toilet paper study, developing a Nursing educational module, conducting a recycling campaign in Fagin Hall, recycling practices study in the Caster Building, minimizing bottled water use at the Penn Relays, and establishing a baseline of green practices across UPHS. The Student Advisory Group for the Environment (SAGE) was launched in partnership with Undergraduate Assembly, Graduate and Professional Student Assembly, and SSAP this year. SAGE, together with PSO, hosted a Sustainability Town Hall to share information from the *FY17 Sustainability Report*.
↱ Expand the Green Office Certification program to a goal of 30% of Penn staff working in certified offices by 2019.	Currently, **1,500 staff and faculty** work in **84** Certified Green offices, 13 of which applied for recertification in the past year. This is an increase from the 751 staff working in certified offices in FY17.
✓ Maintain a dynamic Staff & Faculty Eco-Reps program.	Staff and faculty participation has grown to 110 members, with **22 new members joining** in FY18.
✓ Work with School leadership to expand Sustainability Coordinator roles to all Schools at Penn.	Sustainability Coordinators have been established at **10 of Penn's 12 Schools**, as well as, Athletics, Morris Arboretum, New Bolton, and Business Services. The Coordinators continue to meet monthly to align their work with *CAP 2.0* goals.
✓ Restructure the Green Fund with direction from the Green Fund Review Board.	The Green Fund review board was restructured in 2017; it is now comprised of **7 Sustainability Coordinators**. Applications are reviewed on a rolling basis and approved projects are available for review on the PSO website.

GREEN OFFICE PARTICIPATION



$1.24M

Awarded to 65 projects since 2009.