

2016-2017

TEMPLE UNIVERSITY
ANNUAL REPORT ON SUSTAINABILITY
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Introduction

Philadelphia is a national leader in climate action. As an early adopter of sustainability efforts, the City has pioneered efforts in both reducing Philadelphia's environmental footprint and building stronger infrastructure to weather the impacts of climate change. Philadelphia's comprehensive approach includes setting an aggressive 80% greenhouse gas emission reduction goal, developing a plan to create a more just and sustainable food system, and making significant investments in energy efficiency and renewable energy projects. The City is internationally recognized for its commitment to clean water, and has recently released a plan to engage its residents in creating a greener Philadelphia. Most recently, Mayor Kenney announced that the City of Philadelphia would continue to meet the greenhouse gas reduction standards set forth in the Paris Climate Agreement, and called on local governments and institutions to lead the way for a more just climate future.

As Philadelphia's public university, Temple is a critical partner in creating a greener Philadelphia. Temple is the fourth largest employer in the city, has the largest alumni base in the region, and welcomes over 38,000 students each year to Philadelphia. Its leadership in operations, education and research result in real reductions in carbon emissions and serve as a catalyst for broader climate conversations around replicability, scaling and how to balance climate leadership with competing goals, such as maintaining affordability and access.

This annual report highlights the university's efforts during FY2017 to create a greener Temple University and a more sustainable Philadelphia. It redefines the university's previous definition of sustainability to incorporate principles of "Just Sustainability", emphasizing Temple's acknowledgement that sustainability is not just ensuring that resources continue to exist in the future, but that they exist and are tapped in an equitable manner.



Learning through a Living Laboratory

Temple's primary mission is education, and it views its campus operations as an opportunity to enrich the lessons learned in the classroom. The university uses the campus as a living learning laboratory for sustainability and includes project-based learning activities. Highlights from FY2017 are described below.

Main Campus

Completed in spring 2017, the Temple Tiny House is a student designed and student constructed sustainable building located at the Temple Community Garden. The 175 square foot net-zero structure features a high performance thermal envelope construction, vegetated roof, rainwater harvesting, off-grid photovoltaic system, a thermal energy collection system and a composting toilet and will serve as a food access programming space for the Temple Community Garden and a university sustainability demonstration project. Since its inception, the project has offered interdisciplinary project-based learning opportunities for students and faculty, including a design-build course, a green roof workshop, volunteer work days, project opportunity for an engineering senior design team, video documentary opportunity for a media and communication student, site design opportunity for a landscape design communication class and assessment of the Living Building Challenge by an Environmental Studies Senior Seminar class. In addition, student members of the Temple Community Garden were given the opportunity to act as consultants to the tiny house project throughout the design and construction phase.

A number of project-based learning activities in FY2017 focused on the growing issue of food insecurity on college campuses. Two Public Health interns created a budget friendly, healthy cookbook to help address food insecurity on Temple's campus. The Sustainable Marketing Business course developed poster displays and created resource guides to help raise awareness about student food insecurity. A Public Rhetoric Senior

Seminar class held a pop-up pantry and developed a communication plan to help advocate for a food pantry at Temple. An Environmental Studies Senior Seminar class developed standard operating procedures and policy and procedure action items to for a food pantry start up.

Other project-based learning activities included: Two graduate student groups from the Fox School of Business MBA program who developed business plans for the Rad Dish Café, a student governed and run sustainable food café. The plans addressed the social mission of the café; A spring Landscape Architecture and Horticulture Green v. Gray class that helped to increased recycling rates in residence halls during RecycleMania by distributing individual room recycling containers; and, an Environmental Studies Senior Seminar class who hosted a teach-in with Philly Energy Hub.

In addition, the Temple community is able to explore campus sustainability initiatives through maps available on the Office of Sustainability website. The Seeing Green maps offer highlighted tours of energy, transportation, waste minimization, water and food initiatives. The Bird and Bird Habitat Tour is a bird habitat and pollinator plant tour through Main Campus.

Ambler Campus

An introductory-level Landscape Architecture and Horticulture studio performed a detailed site analysis and individual landscape design explorations for the welcome center building. Landscape Architecture and Horticulture students worked on several projects that helped to support stormwater runoff, recycling efforts, diversity and bird migration. In addition, a thirteen piece furniture collection was constructed as part of a Landscape Architecture junior studio design-build project.

The fall 2016 Landscape Management class worked on several projects, including: the installation of several hundred perennials and woody plants



outside the West Hall entrance to diversify and enhance the landscape; and, the creation of the Cottage Rose Garden which provided additional berries for birds, flowers for pollinators and an overall lower maintenance regime. Both projects included recycled plants from the Philadelphia Flower Show exhibit and used cardboard and newspaper recycled from campus operations. The spring 2017 Woody Plants II class worked on several projects, including the installation of trial plants donated by local nurseries and plants and trees from the Philadelphia Flower Show exhibit. The spring 2017 Food Crops I class installed compost from Ambler compost piles for reuse in raised garden beds. The class also grew vegetables and fruits from donated seeds that would have been thrown out due to expiration. All of the food from the garden goes to the area food bank that serves 700 people during the summer months. These courses devoted over 1,500 hours of student and faculty time for projects.

During the April 2017 Tree Tenders event, five willow trees were planted from the Philadelphia Flower Show in the detention basin across from the Learning Center. There were over 60 people in attendance, including residents from across the region and students. The event devoted a total of 120 hours of student, faculty and other participant time for planning, pruning and installation of trees.



Educating Future Change Agents

An important element in Temple's Climate Action Plan is to promote broad sustainability efforts through academic programs that prepare students for leadership in this area.

At Temple University, sustainable curricula address systemic connections among five interrelated dimensions: the natural environment, the built environment, food and public health, climate and energy and cultural meaning systems. During the 2016-2017 academic year, Temple offered 39 sustainability degree and certificate programs and over 385 sustainability courses spanning 62 departments.

The Office of Sustainability offers class lectures to help engage students in the campus sustainability movement. During the 2016-2017 academic year, the Office of Sustainability gave 32 class lectures.

In 2010, the university launched its interdisciplinary Certificate in Sustainability for undergraduate students. The certificate provides an opportunity for students to further their knowledge of sustainable systems from the viewpoint of different disciplines, to help them become effective leaders and agents of change for sustainability, and to make them more competitive in the changing job market as some sectors move to a green collar economy. In FY 2017, four students received the certificate.

Temple students have been recognized for their work in sustainability. Aaron Weckstein was awarded the prestigious Udall Undergraduate Scholarship in April 2017. Aaron is an Environmental Studies major with a passion for sustainable urban design. Temple's Department of Landscape Architecture and Horticulture won multiple awards at the 2017 Flower Show for their exhibit Nieuwpolders: Regenerating the Dutch Custom of Land Recovery, including a Philadelphia Horticulture Society Gold Medal and the Bulkley Medal of the Garden Club of America.



Researching for a more Sustainable Future

As a large public research university, Temple continues to focus on and expand its research initiatives in sustainability.

Temple University offers a number of opportunities for students to conduct research in sustainability. Undergraduate and professional students can apply for funding through the Creative Arts, Research, and Scholarship (CARAS) Program through the Office of the Provost. This program provides funding twice a year in support of scholarly, research or creative arts projects with the supervision of a faculty mentor. Sustainability projects supported in FY2017 included: "The Impact of Urban Agriculture on Food Justice" by Casey Mitchell; "Green Stormwater Infrastructure and its Impact on Crime and Safety Perceptions" by Aaron Weckstien; and, "A Development of Predictive Models for Reaction Kinetics of Organic Contaminants in Reducing Environments", by Lyle Winklerprins.

Temple Libraries offers the Livingstone Undergraduate Research Award which awards the best research projects produced by Temple undergraduate students. The 2017 award in Sustainability and the Environment was given to Andrew Bertolazzi for his project "Decentralized Methods of Water Treatment for Reuse of Residential Gray Water".

In 2015, the Office of Sustainability developed the Graduate Research Award Sustainability Program (GRASP) which provides funding to a graduate student to conduct sustainability research. In 2017, the GRASP was awarded to Alexis Nawotka for his project titled "Development of Sustainable Remediation Techniques for Persistent Organic Contaminants". Alexis is a Master of Science student in the College of Science and Technology and his research will focus on sustainable remediation of contaminated soils.

Temple collaborated with Villanova and PennDot to mitigate stormwater runoff from a section of I-95 by installing rain gardens. College of Science and Technology Professor Laura Toran and Tyler School of Art Associate Professor Sasha Eisenman have both contributed to the project.

Research conducted by the Office of Sustainability included studying how student problem- and project-based learning have helped identify campus bird-window collision mitigation strategies. The findings were published in a paper titled "Fauna Protection in a Sustainable University Campus: Bird-Window Collision Mitigation Strategies at Temple University".

In FY2017, a Temple Fox School of Business alumnus endowed an annual scholarship to allow a student from the School of Sport, Tourism and Hospitality Management to pursue a hands-on internship in sustainable tourism in the U.S. Virgin Islands.

College of Engineering Assistant Professor Erica McKenzie is studying ways to mitigate stormwater runoff from Interstate 95 in a partnership with PennDOT.





Fostering a Sustainable Community

Temple's campus is a meeting place, where community is built through the pursuit of knowledge and the open exchange of ideas. Individuals come together across disciplines to create a shared vision for a more just and sustainable world. Through programming, co-curricular activities and friendly competition, Temple University has been able to foster a sustainable campus culture and build a community of environmental stewards.

Programming

Sustainability served as the central theme for campus programming during FY2017. Collaborators from across the university sponsored "Seeing Stories: Visualizing Sustainable Citizenship", a year-long programming series aimed at bringing artists, activists and social practitioners to campus to explore how individuals could take an active role in create a more sustainable future. The series consisted of 20 programs and drew 945 attendees, with an average of 47 attendees per event. Highlights included an artist talk with Mel Chin, a fruit tree adoption program by the Fallen Fruit Collective, a talk and community design charrette with the Land Arts Generator Initiative and a screening of This Changes Everything. The diversity of participants and sponsoring organizations both on and off campus highlighted the sense of urgency felt about issues of climate change, sustainability and resiliency.

In addition, the Office of Sustainability continued its tradition of hosting a fall and spring semester Campus Sustainability Week. During Fall 2016, Campus Sustainability Week addressed the theme of "Creating a More Environmentally Just Philadelphia" via 13 events that drew approximately 590 attendees. Events included a talk and walking tour of green affordable housing, a tour of an urban farm managed by black identified farmers, and a teach-in about incinerators in Chester. The Office of Sustainability also hosted a pop-up thrift store

at the Bell Tower, where Temple community members rushed to buy items collected during the end of year move out. The pop-up thrift store resulted in the sale of approximately 1,100 recycled clothing items, the donation of an additional 2,500 pounds of clothing to Goodwill and the raising of \$2,200 for Hurricane Matthew relief efforts in Haiti. During spring Campus Sustainability Week, the Office of Sustainability aimed to raise awareness about food insecurity among college students through a Food Justice fair, a budget friendly chopped competition in J&H dining hall, and a panel featuring administrators of food pantries at nearby colleges and universities. Spring Campus Sustainability Week had a total of 8 events and reached approximately 260 participants. Both series were covered by the Temple News and Temple Update, which helped expand the programming's reach.



A sustainable campus community requires strong leadership and a growing base. Through co-curricular programming, Temple strives to create a pipeline of environmentally just leaders on campus. During FY2017, the Sustainability LLC engaged 14 students in its sustainably themed housing and corresponding first year seminar course. Students in the LLC participated in monthly programming on sustainability, including a community garden harvest party, a thrift store crawl and an urban riding basics course. They also participated in a project based learning seminar, which challenged them to make sustainable changes in the 1940 residence hall. By the end of the course, the students had made a proposal for addressing food security on campus, increased the number of recycling containers in 1940, and installed a composting collector for the 1940 community garden. Residential Life also grew its sustainability capacity through the election of Sustainability Coordinators on each RHA Community Council. The Sustainability Coordinators were active in FY2017, meeting every two weeks to promote recycling and waste minimization in their building. Each building organized a k-cup recycling drive, hosted a campus clean-up, and participated in improving the recycling signage in their building. They were also active partners in RecycleMania.

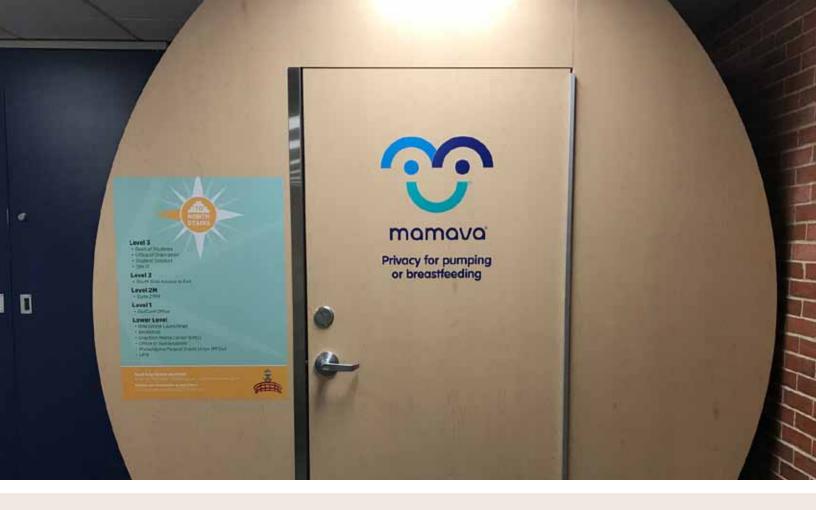
Student organizations and student government provide students with an additional path for engagement and leadership development. Temple has a wide variety of active green student organizations, including Temple Community Garden, Students for Environmental Action, Engineers without Borders, Temple Student Government, Net Impact, and the Rad Dish Co-op Café. Representatives from these groups sit on the Green Council, which works to promote collaboration and coordination between the sustainability focused organizations. In FY2017, the Green Council and member organizations rallied behind the Temple Student Government's renewed commitment to sustainability. Temple Student Government

had an ambitious FY2017 agenda which included pushing for a greater renewable energy buy, a universal university pass program, banning plastic bags on campus and reducing food waste. Additionally, they successfully championed investments in visible sustainable technologies, like installing high efficiency handryers in the student center. Through its town halls and active campaigns for change, TSG reinvigorated student participation in fostering climate action on campus.

Competitions

Cooperation and collaboration are keys to building a sustainable community; however, a little friendly competition can also generate interest in sustainability. Temple University participates in RecycleMania, a national competition between colleges and universities to see who can recycle the most and minimize waste the best. In FY2017, Temple recycled 372,000 pounds of material and limited waste to 32 pounds per FTE during the 8-week RecycleMania competition. The Office of Sustainability also used this opportunity to give its Temple Office Supply Swap program and residence hall recycling program a boost. The Office of Sustainability coordinated the distribution of collection bins to administrative units throughout the campus and encouraged them to collect unwanted supplies for TOSS. During the door knocking, sustainability representatives encouraged offices to host a paper purge and remind staff about the proper recycling procedures. During this program, it is estimated that the Office of Sustainability had over 50 points of contact.





Creating a Campus for All

Inclusivity has been and remains central to Temple's mission. The university's founder Russell Conwell emphasized the importance of democratizing higher education. As it has grown, Temple has consistently reaffirmed its commitment to fostering a diverse and inclusive campus culture through advances in inclusivity themed programming, facilities and focused curriculum and research.

Temple recognizes that no one department is responsible for creating a diverse culture on campus. Instead, Temple fosters university collaborations to develop inclusive programming, with IDEAL, the university's institutional diversity office, providing coordination and core competency expertise. IDEAL's Diversity Peers program enlists student leaders to provide departments and student organizations with technical assistance in creating culturally based programs for campus. The Diversity Peers can provide trainings and workshops on issues such as race relations, microaggressions, social justice, bystander intervention, and gender and sexuality. IDEAL has also partnered with the Wellness Resource Center and the Office of University Housing and Residential Life to offer Safe Zone Trainings and inclusive themed programming, such as National Coming Out Week and a series of Multicultural dialogues. In FY17, Temple's Office of Sustainability partnered with IDEAL to foster dialogue between community members and students on environmental justice opportunities in Philadelphia. The conversations required a deeper dig, and the Office of Sustainability dedicated its entire fall Campus Sustainability Week programming to further exploring environmental racism and justice in Philadelphia.

Temple's commitment to diversity is also reflected into new additions to Temple's facilities. In FY17, the university announced that it offers gender inclusive housing in its residence hall. This builds on the university's gender inclusive amenities, such as gender-neutral bathrooms. The Temple Student Center also added private breastfeeding facilities for nursing mothers. In addition, IDEAL announced in FY17 that it is opening a

Social Justice Library that will be focused on components of cultural understanding, social justice, ethnicity and LGBTQIA issues. This library will build on IDEAL's The Burrow, a social space available to the Temple community to gather and dialogue on challenging social justice topics.

Diversity and inclusion have been incorporated into the academic curriculum via the General Education requirements, Mosaics, and the Diversity graduate certificate program. Additionally, the university offers majors in Africology and African American Studies, Asian Studies, Jewish Studies, Latin American Studies, Women's Studies, Religious Studies, and a LGBTQ minor. In FY17, Temple welcomed Dr. Sara Golderick-Rab to Temple's faculty. Dr. Goldrick-Rab's research centers on addressing economic insecurity facing students and ensuring that higher education is accessible.







Leading Healthy Lifestyles

Sustainability is a search for balance – on our planet, in our ecosystems, in our communities and within ourselves. Temple University is committed to promoting the health and wellness of its campus community. The university offers a number of initiatives that foster the emotional and physical health of its staff, faculty and students.

Temple's wellness programs have been developed to proactively address the holistic wellness needs of its community. Students are engaged in semester stress buster activities through programming like Paley Library's "Crunch Time Café", Campus Recreation's "Stress Less Week" and individual school and college programming like stress relieving therapy dogs during finals. This programming builds on Student Affairs' core wellness programs, such as the CARE Team case management services, Tuttleman Counseling Center and wellness peer education efforts sponsored by the Wellness Resource Center.

During FY2017, the Tuttleman Counseling Center provided services to 3,548 students, which represents a 6% increase from FY2016. Additionally, 3,128 individuals completed an online mental health screening via the Center's website. The university was recognized for this critical prevention strategy. It was ranked 10th nationally out of 600 institutions and received a certificate of achievement.

The Wellness Resource Center engaged 6,944 participants in its education programs, trainings and events. The Human Resources department also provides resources for the emotional health of the university's staff through its Employee Assistance Program.

Physical wellness programs on campus not only promote physical health, but also create social bonds between staff members and students. In FY17, Temple University boasted 8 intramural sports, 1 extramural

sport and 36 athletic clubs for its students. The university also hosted events like social bike rides and 5k run/1 mile walk events on campus. These events were successful in getting the campus moving while also encouraging networking among and between students and staff. Human Resources' wellness program engaged 18% of all employees. Highlights from its robust wellness programming includes its 15th annual Health and Wellness Fair and the National Workplace Activity Day. It also launched its Ready Set Move challenge, which drew over 706 participants and 80 teams.

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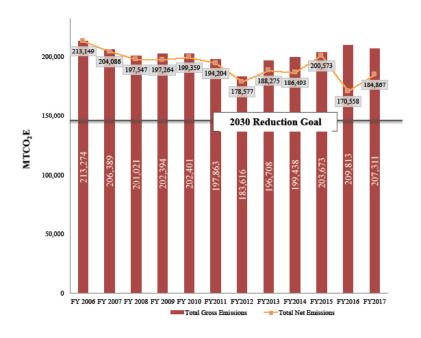
Building for Resiliency

Climate

Temple University signed the American College and University Presidents' Climate Commitment in 2008 and again in 2016, pledging to become carbon neutral by 2050. Temple's long range Climate Action Plan established an interim goal of reducing greenhouse gas emissions by 30% in 2030. Greenhouse gas emissions are attributed to stationary sources (fuel burned on campus), purchased electricity, transportation, solid waste and other small contributors (refrigerants, fertilizers, purchased steam and transmission and distribution losses). Temple measures it greenhouse gas emissions annually, with FY2006 as the base year from which the university will reduce its emissions.

Between FY2006 and FY2017, greenhouse gas net emissions have decreased by 13% from 213,149 metric tons carbon dioxide equivalent (MTCO2E) to 184,867 MTCO2E. This decrease occurred while the gross square footage (GSF) increased by almost 17% or 1.4 million GSF and the student full-time equivalent (FTE) increased by 32% or 8,700 FTE students.

The FY 2017 greenhouse gas inventory showed that the majority of Temple's greenhouse gas emissions were derived from buildings (stationary sources, electricity and steam), accounting for 76% of the total. Since FY 2006, Temple's energy consumption has increased by more than 13%. Therefore, implementing energy conservation measures and improving building energy efficiency continue to be a critical step in reaching the university's reduction goals for greenhouse gas emissions.



Energy

With a large portion of its carbon emissions attributed to energy, the use of green power is important in meeting Temple's carbon neutrality goal. Temple substantially expanded its green power procurement in 2016 by allocating a portion of its utility budget to purchase additional renewable energy credits (RECs). By doing this, Temple became an Environmental Protection Agency (EPA) Green Power Partner in 2017 for utilizing green power RECs for 25 percent of its total electricity needs, well exceeding the three percent minimum benchmark requirement set forth by EPA. As a result of this commitment, Temple was ranked 18th on the EPA's Top 30 College and University list of the largest green power users from the Green Power Partnership.

Buildings

Three quarters of Temple's greenhouse gas emissions come from building operations. In order to help meet its 2050 climate neutrality goal, the university has implemented initiatives focused on reducing energy use in buildings and greening campus infrastructure.

In FY2017, Temple saved over \$450,000 and 6,500 tons of carbon emissions by implementing energy conservation measures in its buildings through projects such as lighting upgrades and mechanical equipment optimizations.

Sustainable design has been made a priority for all new building construction on campus. Temple established a green building policy as part of its 2014 Campus Master Plan, and as of FY2017, Temple has six LEED certified and three LEED registered buildings. The Temple Tiny House project has been registered under the International Living Future Institute's Living Building Challenge, a rigorous green building certification program, becoming the first registered building in Philadelphia.

In addition to creating more sustainable buildings, Temple is making great strides to reduce its impact on Philadelphia's stormwater system. The new Temple Sports Complex is estimated to be approximately 95% disconnected from city's storm sewer system with the construction of a small detention basin for the building runoff, large crushed stone beds with perforated drain under each field, a porous asphalt parking lot and perimeter grass and landscape areas. Additional pervious paving was installed on the west side of Polett Walk and a green roof and rain barrels were installed as part of the Temple Tiny House project to manage its stormwater runoff.



Greening Campus Operations

Transportation

With approximately one-fifth of Temple University's greenhouse gas emissions attributed to transportation, the way we move about has a great impact on the environment. According to the 2016 Temple Transportation Survey, an estimated 33% of all students, faculty and staff commuters drive alone. Increasing initiatives aimed at reducing our dependency on single occupancy vehicles is a critical step in reducing transportation related emissions.

Bike Temple is a university-wide program that promotes bicycle use by Temple students, faculty and staff. The program's goal is to enable more people to safely travel by bike and build a bike culture at Temple. Bike Temple programming for FY2017 included: Urban Riding Basics classes which promote safe biking in an urban environment, and Fix-a-Flat courses which covers basic bike maintenance; offering of monthly social rides; hosting of events, such as Bike to Breakfast; participation in the Greater Philadelphia Bicycling Coalition summer commuter bike challenge; and, continued operation of the bike surplus program, Secondhand Cycles, which resells bicycles that have been collected by Campus Safety and the Grounds Department to Temple University students. Bike Temple also developed LGBTQIA specific programing for cyclists.

As part of its campus bike amenities, the university continued to host two Indego bike share stations at Main Campus where students receive a 20% discount, and installed three covered bike shelters.

In fall 2016, Temple began its on-demand evening shuttle service, Flight. The service is available to students, faculty and staff and rides can be requested by using the TapRide app from a smartphone.

The university offers the Wage Works program which permits full-time employees to purchase public transit with pre-tax dollars. Over 12% of Temple's eligible population participated in FY 2017. The university also continued its partnerships with SEPTA to offer the University Pass to full-time students and with car share programs, such as ZipCar and Enterprise Car Share.

Waste Minimization & Recycling

Temple's Climate Action Plan addresses the role of waste minimization and recycling as part of its comprehensive efforts to reduce the university's carbon footprint. The plan established a goal of increasing the recycling rate to 40% and reducing the amount of greenhouse gas emissions derived from land-filled solid waste by 10% (1,368 MTCO2E) by 2015 relative to its 2006 baseline levels. Since 2006, Temple has

increased its recycling (diversion) rate to 44% and reduced greenhouse gases from solid waste by 6,500 MTCO2E. Highlights of FY2017 waste minimization efforts are described below.

Temple Surplus launched in fall 2016 as a program that gives new life to the university's retired assets and property. When an item is no longer actively used by a university department, school or college, Temple Surplus makes it available for re-use via an online store. This helps to reduce Temple's waste stream and maximize the value of tuition dollars by limiting new purchases and generating revenue from retired equipment. Temple Surplus serves as a clearinghouse of all types of equipment with the aim to repurpose material within the university by creating a convenient reuse platform. If it is not needed for internal purposes, the items are made available to the public via auctions and donations.

Temple was awarded the Coca-Cola Bin Grant through Keep America Beautiful which enabled the distribution of new recycling bins at all residential halls on the south side of Main Campus. Temple also continued its Give + Go



Green initiative which collected donated clothing and household items during student move-out. In fall 2016, collected materials were made available for purchase through a campus thrift sale. In an effort to reduce paper waste in restrooms, high efficiency hand dryers were installed in the student center as part of a pilot project championed by Temple Student Government.

Other initiatives aimed at reducing waste included: the installation of additional water bottle refilling stations to reduce the number of single use bottles; the installation of a composting container at the 1940 Residential Hall community garden; the switchover and installation of new interior recycling containers at select buildings around campus; an inventory of loading docks and procedures for the handling of waste streams; the development of new recycling and waste reporting procedures; training of housekeeping staff on the handling of different waste streams; the incorporation of compost and recycling language into the new dining services contract; continued participation in the annual RecycleMania Tournament; and, the continuation of the Temple Office Supply Swap (TOSS) with outreach efforts aimed at increasing program awareness and inventory.





For more information, contact

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