



Temple University

# Sustainability Annual Report

2021-2022

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# A Letter from the Senior Vice President

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## *Climate Change Challenges and the Future of Work*

The events of the past two years have underscored both the resilience of our students, faculty and staff and fragility of industry, economy and the environment. In facing a worldwide pandemic, it has revealed vulnerabilities and with it, provided Owls with opportunities to reinvent operational systems, social services and a multitude of established best practices. It made even more evident that innovation, transformation and collaboration has never been more urgent and our role as a world-class institution of higher education is to prepare students and employees for a future of work that will require resilience in the face of future disruptions from climate change.

Sustainability and climate action represents an opportunity for us to define our next chapter. Our 2021-2022 Sustainability Annual Report highlights key accomplishment toward our vision of a world where people and the planet thrive. Not only does this report update progress towards goals outlined in the Temple Climate Action Plan, but it includes special sections that highlight individuals and teams committed to identifying opportunities that contribute to a carbon neutral future.

Our focus on climate action is embedded in our culture and our students' expectations; values that are summarized in the **2022 Transportation and Sustainability Culture Survey**. An evaluation of sustainability culture marks a newly achieved Climate Action Plan goal and provides data on how to strengthen a culture of climate action that will aid in employee retention, attracting new talent and set Temple apart from other four-year institutions.

Temple's combined efforts make it possible for current Owls to continue to enjoy rewarding careers; strengthen the fabric with the North Philadelphia community; and collaborate across business divisions, schools, and colleges to meet goals focused on environmental stewardship (E), social progress (S) and governance (G).

Temple's unwavering focus on reducing carbon emissions (E), and our commitment to community lead strategic development (G), puts us in the company of the world's best organizations. Additionally, our sustaining supporting of **cutting-edge climate research**, and an investment in academic programs focused on contemporary challenges like climate change, will ultimately benefit local, regional and global communities (S). Temple believes the biggest impact we can make to a just climate future is providing opportunity to past, current and future Temple Owls.

While we're proud of all we accomplished last year, we recognize there's much more we need to do. I encourage you to read the report to learn more about our contributions and I invite you to connect with us to discover what we can do together.

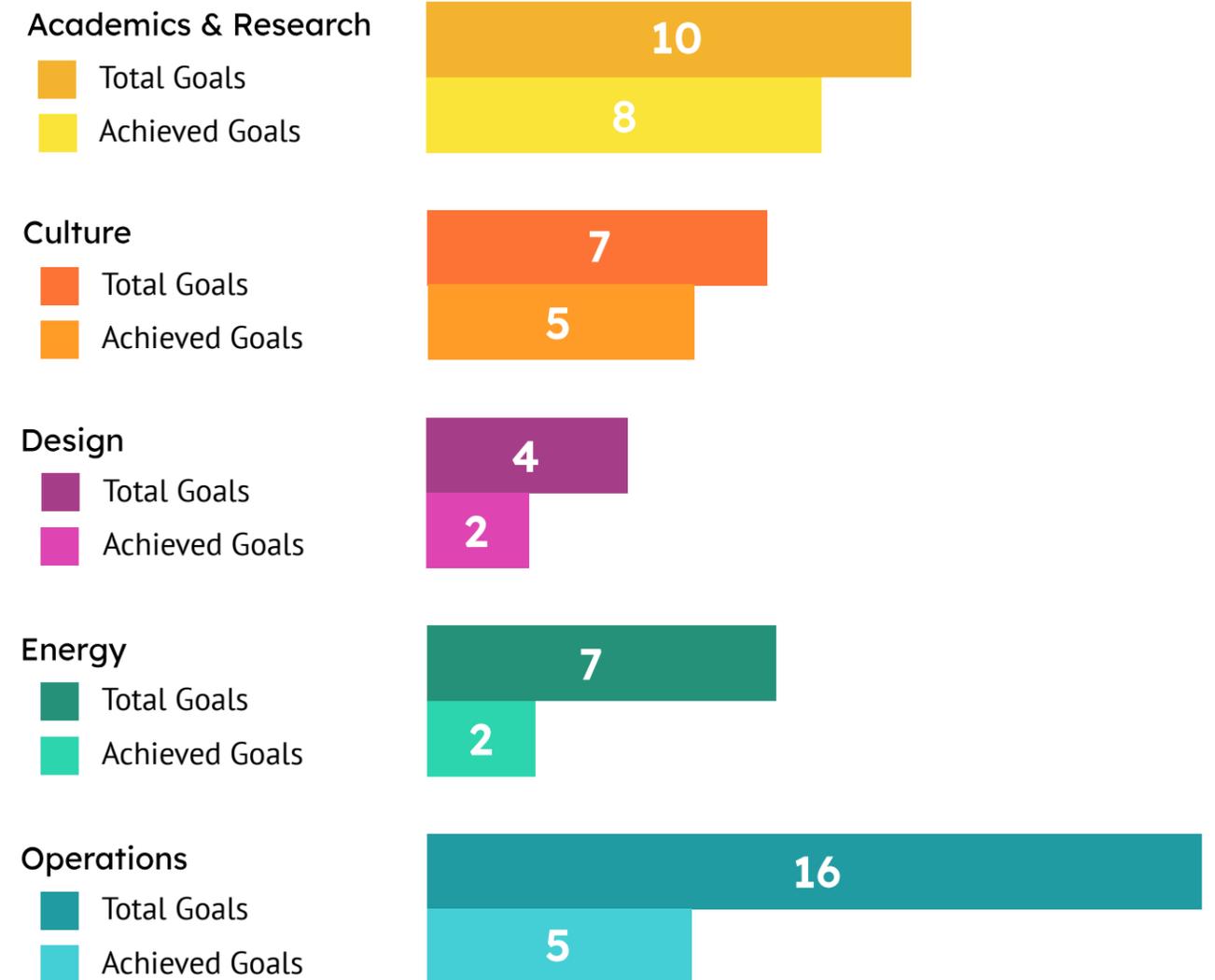


Sincerely,  
**Ken Kaiser**  
*Senior Vice President & Chief Operating Officer*

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Temple's climate commitment began in 2008 when it pledged carbon neutrality by 2050.

Temple established a baseline year of 2006 and began reporting on progress towards carbon neutrality annually. Temple reports all Scope 1 and 2 emissions defined in the Greenhouse Gas Protocol. Temple also reports Scope 3 emissions from commuting, university-financed travel, waste disposal, and transmission and distribution losses.

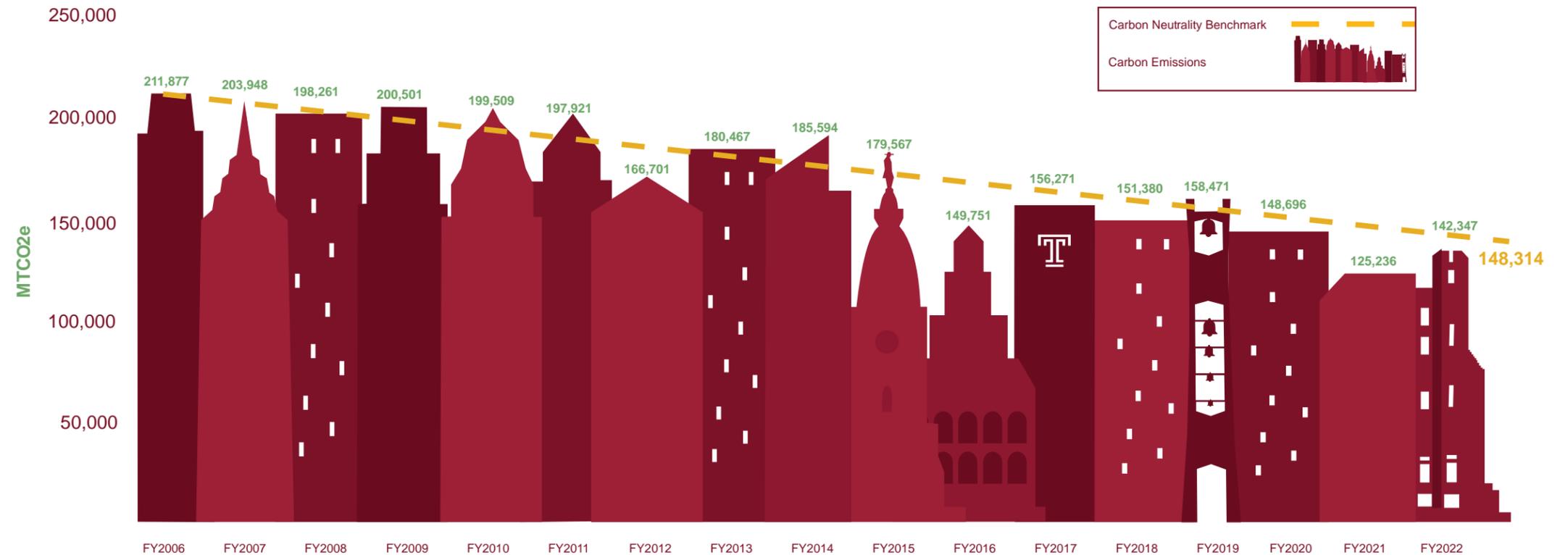
The University's primary emissions sources are purchased electricity (38%), stationary fuel combustion (37%), and student, faculty, and staff commuting (19%).

Since 2006, Temple has reduced gross emissions by 36% even while increasing the physical space of the University by more than 33%. Strategies for reducing emissions include efficient operations, investing in new carbon reducing technology, sourcing renewable energy, and shifting the culture of Temple students, faculty, and staff to become climate leaders.

Temple is on track to meet the goal of carbon neutrality by 2050. Our continued success would not be possible without the support of a multitude of campus partners.

# Road to Carbon Neutrality

## Greenhouse Gas Emissions



## Climate Action Milestones

- April 2008- Signed the American Colleges and Universities' Presidential Climate Commitment (ACUPCC)
- July 2008- Implemented two tangible actions
- May 2009- Completion of baseline Greenhouse Gas Inventory
- April 2010- Held public forums to review and comment on Climate Action Plan
- May 2010- Published 2010 Climate Action Plan
- November 2015- White House's American Campuses Act of Climate Pledge signed
- April 2016- Signed the Climate Leadership Statement
- April 2019- Published the 2019 Climate Action Plan
- October 2019- Temple University joins the Climate Collaborative of Greater Philadelphia

# Academics & Research

Temple University Office of Sustainability seeks to prepare future practitioners, entrepreneurs, researchers, and scholars to take the lead in generating innovative climate solutions.

Temple University Office of Sustainability identifies, validates, and amplifies cutting-edge climate change and sustainability research performed by Temple faculty across all disciplines. The Office of Sustainability is an asset in maintaining Temple's status as a globally competitive, R1 research institution. The Carnegie Classification of Higher Education institutions defines R1 institutions as institutions with high research activity levels. The Office of Sustainability achieves this by funding student research, as well as developing, promoting, and curating Temple University Libraries TUScholarShare Climate Change and Sustainability Collection of Temple research publications.



## Curricular

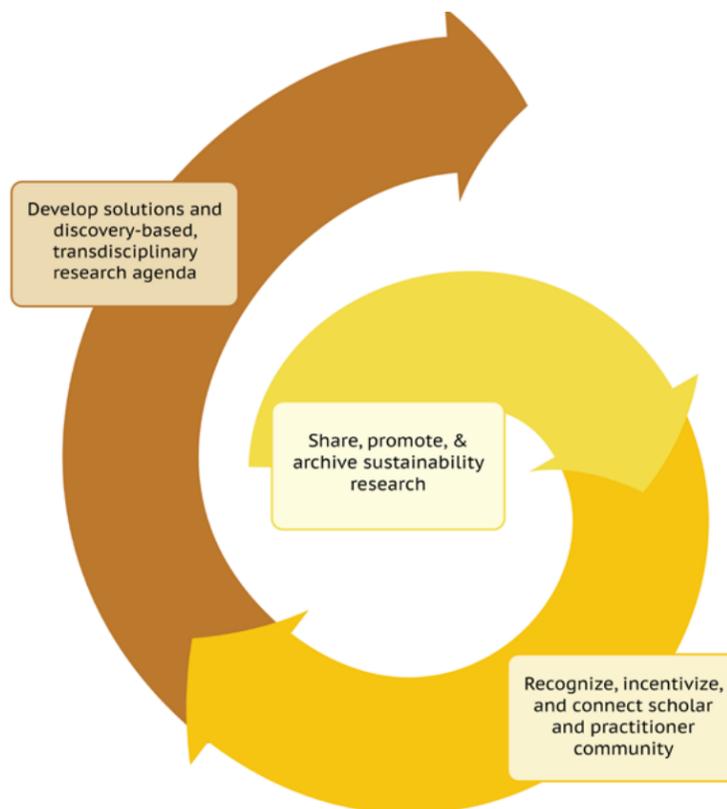
Curricular goals and initiatives support the integration of sustainability into curriculum across Temple's 17 Schools and Colleges.

## Featured Goal

**Create an online repository for existing and future sustainability exercises and course material to assist faculty in integrating sustainability into their courses by June 2020.**

In 2022, the Office of Sustainability, together with Temple University Libraries, established the Climate Change, Sustainability and Environmental Justice Collection for TUScholarShare.

The Climate Change, Sustainability and Environmental Justice Collection seeks to create a culture to support sustainability research by recognizing, incentivizing and connecting the faculty and student community. The Collection is that foundation that will enable Temple University to achieve a holistic and strategic vision for climate research. This vision is rooted in a guiding principle of the 2019 Climate Action Plan.

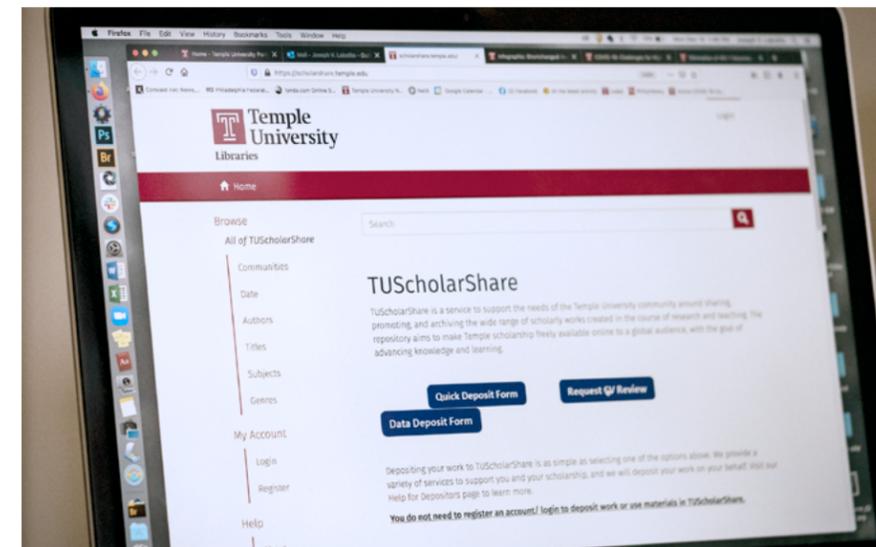


## Climate Change, Sustainability and Environmental Justice Collection

### TUScholarShare

TUScholarShare is a service to support the needs of the Temple University community around sharing, promoting, and archiving the wide range of scholarly works created in the course of research and teaching. The repository aims to make Temple scholarship freely available online to a global audience, with the goal of advancing knowledge and learning.

In 2022, the Office of Sustainability, together with the Temple University Libraries, established the Climate Change, Sustainability and Environmental Justice Collection for TUScholarShare in accordance with the research goals outlined in the 2019 Climate Action Plan. The collection is a repository for articles, teaching and learning materials, data sets, research, books, and working papers related to climate change, sustainability, and environmental justice that have been authored by researchers, staff, and students at Temple University.



### The Online Repository contains:

- Articles
- Teaching/Learning materials
- Data sets
- Research
- Books
- Working papers

It features practitioners' documents, namely, case studies and tools authored by sustainability officers and other institutional stakeholders as well as faculty, graduate, and undergraduate research. It is home to all the research publications funded by GRASP, the Office of Sustainability's Graduate Research Award for Sustainability Program.

# Goal Progress

Restructure the Undergraduate Certificate in Sustainability and the Interdisciplinary Undergraduate Certificate in Sustainability Committee (University College) by June 2019.	 <b>ACHIEVED:</b> The restructured Undergraduate Certificate in Sustainability was approved in Spring 2021.
Increase the number of undergraduate/graduate sustainability courses by ten (10) courses from an October 2017 baseline by June 2022.	<b>IN PROGRESS:</b> In the 2021-2022 academic year the number of undergraduate/graduate sustainability courses decreased by fifty-two from a 2016-2017 baseline.
Increase the number of undergraduate/graduate courses that include sustainability by twenty (20) courses from an October 2017 baseline by June 2022.	<b>IN PROGRESS:</b> In the 2020-2021 academic year the number of undergraduate/graduate sustainability courses decreased by thirty-three from a 2016-2017 baseline.
Increase the number of departments with sustainability course offerings by two (2) departments from an October 2017 baseline by June 2022.	 <b>ACHIEVED:</b> In the 2020-2021 academic year the number of departments with sustainability course offerings was seventy-four. This is an increase of six departments from the 2016-2017 academic year baseline.
Partner with the Center for the Advancement of Teaching (CAT) to create professional development opportunities for faculty that promote interdisciplinary, inter-college sustainability courses and teaching methods for undergraduate and graduate degree programs, to be offered by spring 2020.	 <b>ACHIEVED:</b> In Fall 2020 a Faculty Learning Community on Green Pedagogy was offered through CAT. Additional offering is planned for spring 2023.
Coordinate with the University College Office of Digital Education (ODE) to create an online format for sustainability courses by June 2020.	 <b>ACHIEVED:</b> The shift to virtual learning resulted in the creation of an online format for sustainability courses.
Create an online repository for existing and future sustainability exercises and course material to assist faculty in integrating sustainability into their courses by June 2020.	 <b>ACHIEVED:</b> The Office of Sustainability collaborated with Temple University Libraries to create a Climate Change, Sustainability, and Environmental Justice collection on TUScholarShare.



## Co-Curricular

The Office of Sustainability seeks to provide students with unique opportunities for experiential learning and applied practice through research and co-curricular activities. Faculty and staff ensure co-curricular activities are situated in a context of sustainability and offer opportunities to apply classroom learning to real-world problems and actual research.

The university campuses serve as a vibrant learning-laboratory (campus as living laboratory) for sustainability education and research and will offer co-curricular programs that build essential core competencies for sustainability leadership.



## Featured Goal

**Develop a strategy for co-curricular sustainability education that integrates academic courses and non-credit learning experiences that are connected to or mirror the academic curriculum. The strategy is to include a process for collecting data regarding co-curricular sustainability education and an assessment tool by June 2020.**

In 2021-2022 Academic Year, the Office of Sustainability collaborated with faculty from across the university to provide students with unique opportunities for experiential learning and applied practice via project-based learning initiatives related to the University's Climate Action Plan goals.





## Changemaker Challenge: Student Scholars Lead on Social Impact

### *Fox School of Business' Innovation and Entrepreneurship Institute*

The Innovation and Entrepreneurship Institute (IEI) at the Fox School of Business promotes a bold entrepreneurial and daring innovative spirit across Temple University's 17 schools and colleges. Each year, IEI hosts a Changemaker Challenge as part of its Social Entrepreneurship Program. Fox faculty and other university stakeholders offer mentoring, resources, and seed funding to ideas and ventures in the social impact space with an aim to create positive change in the world.

The Changemaker Challenge culminates at the Social Impact Summit, a live pitch competition and a convening of Triple Bottom experts as both judges and keynote speakers. The 5<sup>th</sup> annual Summit welcomed Dr. Kimberly McGlenn, Founder and CEO of Grant Blvd Creator, to share insights on her pioneering work "Beyond Triple Bottom Line: Profits with A Purpose."

The conversation was led by Shay Marie Strawser, FOX '22, Sustainability Intern at Grant Blvd, and the Q&A was moderated by Ebo Nunoo, FOX '22, two undergraduates business students completing their minor in Corporate Social Responsibility. Visit the [Temple Bulletin](#) to learn more about Fox School of Business' Corporate Social Responsibility minor.



## Building a Culture of Zero-Waste Hospitality

### *School of Sport, Tourism and Hospitality Management Teaching Innovation*

The Office of Sustainability collaborated with STHM faculty member, Christine Cleaver, to integrate a project-based learning initiative for a higher-level event management course, resulting in a co-produced workshop hosted as part of the Office's Stories of Sustainability series.

Not only was this an opportunity to highlight the sustainable operations expertise of instructors, but also teaching innovation and culture setting within STHM by incorporating sustainability principles into experiential learning and by engaging community stakeholders like the Resource Exchange, a hyperlocal creative reuse supplier.

This informative session delivered practical tips and tricks. It also gave current students, and SMTH's student professional organization, the Event Planning Association, along with other sustainability stakeholders, a chance to reflect on their studies and the impact they can have on the Temple community.

## Goal Progress

Develop a strategy for co-curricular sustainability education that integrates academic courses and non-credit learning experiences that are connected to or mirror the academic curriculum. The strategy is to include a process for collecting data regarding co-curricular sustainability education and an assessment tool by June 2020.

**ACHIEVED:** The Office of Sustainability (OoS) led or supported 8 project based learning opportunities in FY 22. The Office of Sustainability evaluates co-curricular engagement strategy and learning objectives for their capacity to provide essential core competencies for sustainability leadership. OoS will work with campus academic partners to expand the impact and diversity of experiential learning and applied practice within courses across all departments and colleges.



# Research

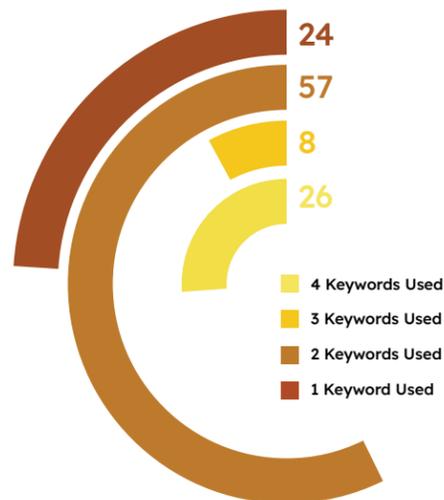
Research goals and initiatives strive to create a culture to support sustainability research by recognizing, incentivizing, and connecting the faculty and student community.

## Featured Goal

Identify, validate, and amplify current sustainability research using the Electronic Research Administration (eRA) database to document sustainability research.

Between FY 2018–FY 2020, 8% of Temple University’s faculty and staff researchers were engaged in sustainability research. The award is classified as sustainability research if it contains one or more of these keywords.

Environment Clean Air  
 Pollutants Green Energy  
 Wildlife Sustainable climate  
 Toxic Conservation Water  
 Clean Water Biodiversity Ecology  
 Ecosystem



Keywords, or search terms, are words that represent the main concepts of a research topic and typically, the words used in everyday life to describe the topic.

Out of the 115 awards, 24 publications had 1 keyword, 57 had 2 keywords, 8 had 3 keywords, and 26 had 4 keywords.

## Funding Student Sustainability Research

### GRASP Awardee Michelle Lee Delgado

The Graduate Research Award for Sustainability (GRASP) provides funding to a graduate student research project focused on sustainability. The 2021-22 GRASP recipient is Michelle Lee Delgado, a student in the Masters of Landscape Architecture (MLArch) Program in Tyler School of Art and Architecture. Her collaborative and practical research in support of resiliency efforts in the Harrowgate and Kensington neighborhoods leveraged her study and advocacy skills to better understand a complex issue of urban sustainability and deliver a solution with hyper-local community impact, embodying the mission of this grant.

More information about Delgado’s project “Harrowgate Park: Nature-based Solutions to Curb Illegal Dumping” can be found in the Climate Change, Sustainability and Environmental Justice Collection for TUScholarShare.



## Goal Progress

Secure designation of the 187-acre Ambler Campus/Arboretum as a research field station providing facilities and a diverse ecosystem that support both basic and applied research in sustainability disciplines by June 2019.



**ACHIEVED:** Ambler Campus received field station designation in 2020.

Identify, validate and amplify current sustainability research using the Electronic Research Administration (eRA) database to document sustainability research.

**ACHIEVED:** The Office of the Vice President for Research provided a list of sustainability research. This is an important tool to assist Temple Sustainability in promoting faculty research.

# STORIES OF SUSTAINABILITY

Accomplishing the goals outlined in the Climate Action Plan requires us to build a coalition of climate leaders from every corner of campus. Stories of Sustainability is a speaker series dedicated to telling Temple's stories of sustainability –our students, our staff, and our faculty's tales of climate action.

Each session highlights the innovation of our champions of research and operations, superstar students, community partners, and change-makers. With *Stories of Sustainability*, we hope to give a platform to share best practices and discuss the latest topics in sustainability to fuel climate action on campus.

## CIRCULAR PHILADELPHIA

*Circular Philadelphia with Director of Policy and Engagement, Nic Esposito, and Director of Program and Operations, Samantha Wittchen*

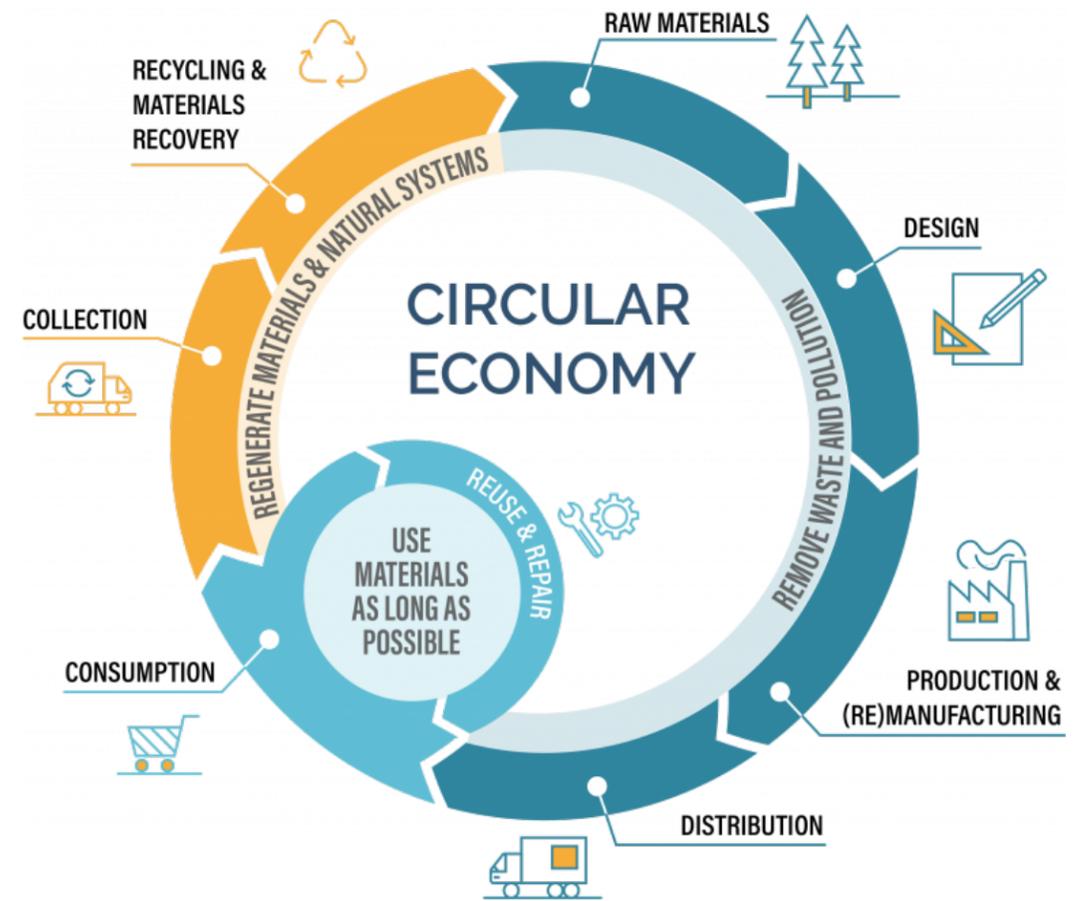
Circular Philadelphia is a new sustainability advocacy organization working to build a thriving circular economy in the greater Philadelphia region. This movement focuses on reusing, recycling, and refurbishing products for as long as possible. Circular Philadelphia brings together different entities and professionals to instigate a transformative shift away from a linear model of production and waste management. This includes materials management and sustainability professionals, businesses, manufacturers, institutions, local government, and individuals.

Temple Sustainability is a founding member and key Philadelphia stakeholder in this growing global circular economy movement. At our Earth Month Stories of Sustainability event, we invited Circular Philadelphia Director of Policy and Engagement, Nic Esposito, and Director of Program and Operations, Samantha Wittchen to tell us the story of how exactly the recycling crisis came to be –the “take-make-waste” model of waste –and what sustainable solutions lie ahead.

These expert leaders engaged students, taught about the history of trash, consumption, and the American economy. They then invited exploration of how materials can be used in a continuous loop to regenerate natural systems via Circular's key strategies of:

- market transformation
- smart policy advocacy
- collaboration
- outreach

The Office of Sustainability's membership and ongoing dialogue gives the Temple Community a sense of what went wrong with waste management and how we can help fix it in Philly and on campus.

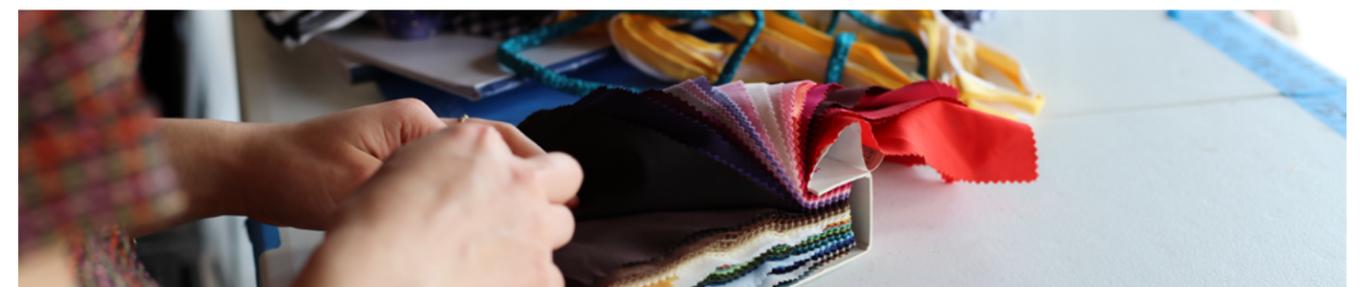


Circular Philadelphia recognizes that any major change toward circularity must be driven by enterprise as well as right market conditions, technical support, robust infrastructure and a network to scale production. To realize a sustainable, circular materials management enterprise, Circular Philadelphia has zeroed in on three markets: food systems, the built environment, and textiles.

In the Spring semester, Circular Philadelphia and the Office of Sustainability engaged student professional organization, Fashion in Business, to zero in on textile market transformation in the Philadelphia region. Appealing to future industry leaders and innovators, sustainability advocates and experts stoked curiosity and provided critical context for the Slow Fashion movement.

Students begin to understand the critical role of universities in growing new leaders and students' power as a sought-after consumer population. We can then deepen students' consumer education and engagement by increasing awareness of the following circular economy practices: mending and repair, rental, swapping and secondhand sales, and consumption habit change by buying less, used, and higher quality products at true cost.

We can reuse materials as long as possible, apply equitable technological solutions that design out waste, promote resiliency and regenerate natural systems. And the Office of Sustainability already does this via Give and Go Green and Temple Thrift. We have identified sources of waste, are diverting these extremely problematic textiles from the landfill, extending their life, offering them back into the same community at an accessible price point to raise funds for students in need.



## TREES & CLIMATE

This Earth Month, the Office of Sustainability recognized the importance of trees and woody plants in addressing the climate crisis by hosting a forum all about Temple trees and sustainable landscaping practices with experts and advocates from operations, instruction and academics, and even students. This comprehensive panel and discussion tackled exactly how Temple is capturing carbon with its canopy (and measuring it), Ambler's recovery from a climate-induced disaster, and how the institution can protect and strengthen its trees for resiliency, wellness, and health on campus.



*Kathleen Salisbury, Director, Ambler Arboretum*

With a decades long career that has touched upon nearly every aspect of the green industry including experience in horticulture, public gardens, education and event planning, Kathleen “Kathy” Salisbury is the Director of the Ambler. As such she creates connections between people and plants, building an understanding that access to nature is essential and must be protected for everyone. Kathy is also an adjunct professor in Tyler School of Art and Architecture's Department of Landscape Architecture and Horticulture.



*Kelley Simon, EcoRep, GIS and Tree Inventory*

Kelley Simon, Geography and Urban Studies Major, was the student lead on the Tree Inventory on Main Campus, completed over the span of FY22. Kelley leveraged knowledge and expertise gained through his Geographic Information Systems (GIS) coursework, first using ARCGIS survey 123 mobile data collection app to photograph, identify and measure each tree on campus and then the I-tree Eco app, which estimates ecosystem benefits based on measurements and local pollution and weather patterns.



*Glenn Eck, Director of Grounds, Temple University*

Glenn Eck is a landscape architecture practitioner, expert and industry leader who has served as the Director of Grounds for Temple University for over a decade. Glenn has a robust understanding of the challenges of sustainable urban land management at Temple University. He has taken the lead in executing Verdant Temple, the University's master landscaping plan. During our Stories discussion, Glenn laid out the priorities of his program, articulating his advocacy to green operations. Glenn has deftly employed industry best practices and minimized the University's negative ecological impact. He often delicately balances competing priorities, particularly in managing the aesthetics of Main Campus.

For this exploration of trees and climate, Kathy told the story of Ambler's recovery from Hurricane Ida – understanding the impact's power to increase urgency for Temple and other stakeholders reform land management towards more sustainable, resilient design. By better understanding the ecological services of trees and woody plants, we can apply the institution's research, teaching and learning to apply technological and social solutions to protect our campuses from the dangers of climate change we know are coming.

The data from this comprehensive tree inventory, collected by Kelley Simon, Patrick Rieker, Tyler School of Art and Architecture, '24, and Kristen Rice, Klein School of Media and Communications, '22, told the spatial story of the trees' ecological impacts. Specifically, the data was used for developing a web app to explore all campus trees and learn about their environmental benefits, viewing trees by their family, genus, or individual species, and comparing overall ecosystem benefits through heat map visualization, comparing between 2009/2013 data and full 2021 inventory.

Measurement and identification of main campus' trees have estimated the following environmental benefits:

- Overall replacement value of **\$2.26 million**
- Total carbon storage of **1.04 million pounds (\$89,513/yr)**
- Sequestration of **34,486 pounds** of CO2 annually (**\$2,940/yr**)
- **32,623 cubic feet** of runoff water avoided (**\$2,180/yr**)
- **812 pounds** pollution removed annually (**\$12,898/yr**)

Kelley also supplied important context for the social and political implications of Temple's tree cover. Temple plays an important role in North Philadelphia, which has a lower tree canopy than many other parts of the city, as well as being a priority area in Philly's heat vulnerability index. Better understanding what Temple's tree inventory looks like today, what its environmental and ecological benefits are, helps understand how the tree canopy can be improved not only for Temple but also for the greater community in reducing health risk associated with Urban Heat Island effects.



# Culture

Temple strives to integrate sustainability principles in all aspects of campus life. The Office collaborates with campus partners to improve literacy on critical sustainability and environmental justice issues. Innovative outreach campaigns, engaging events, and leadership development programs foster dialogue, forge connections, and deepen understanding of the climate crisis in the individual, institutional, and public spheres.

A cultural lens provides a holistic perspective on sustainability, invites diverse voices and centers equity and inclusion. Education and advocacy initiatives grow a coalition of stakeholders committed to principled climate policy and action. Culture goals look to identify and provide resources and support to the Temple community to build their capacity to embody, promote and lead sustainable change on campus.



## Green Grant: Engineers Without Borders

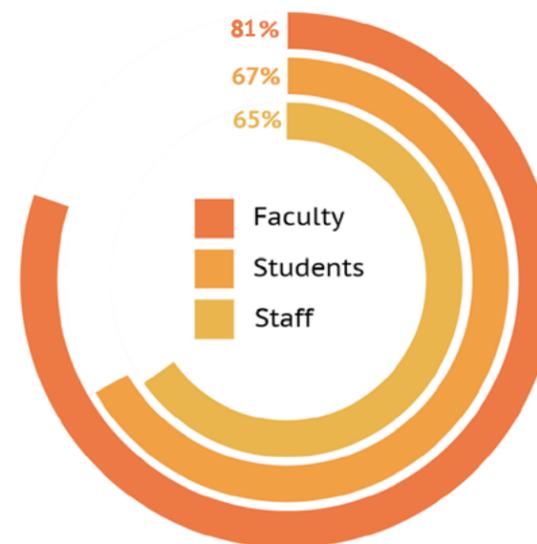
### *Student organization rethinks plastic waste on campus*

Engineers Without Borders was awarded the Green Grant for their project that creatively up-cycles plastic waste from campus grounds. The student organization, led by their officers, Juliana Alderfer, George Snedden, Jacob Forbes and Diana Tiburcio are working together to employ mechanical, environmental and civil engineering design and technology principles to conduct research and development to reimagine waste in a multi-step process. After researching the properties of various types of plastic, they are collecting, auditing, and cleaning outdoor waste from campus grounds receptacles, shredding it using College of Engineering equipment and using the aggregate to fabricate new plastic widgets with the 3D printer and extruder.

This interdisciplinary team is leveraging campus student leadership and local partners to practice community engaged learning and teaching. Each step along the way, they are utilizing this process in a publicly visible and interactive way to illustrate how exactly plastic refuse can be a commodity and showcase important innovation to inspire and reimagine waste on campus.

# Featured Goal

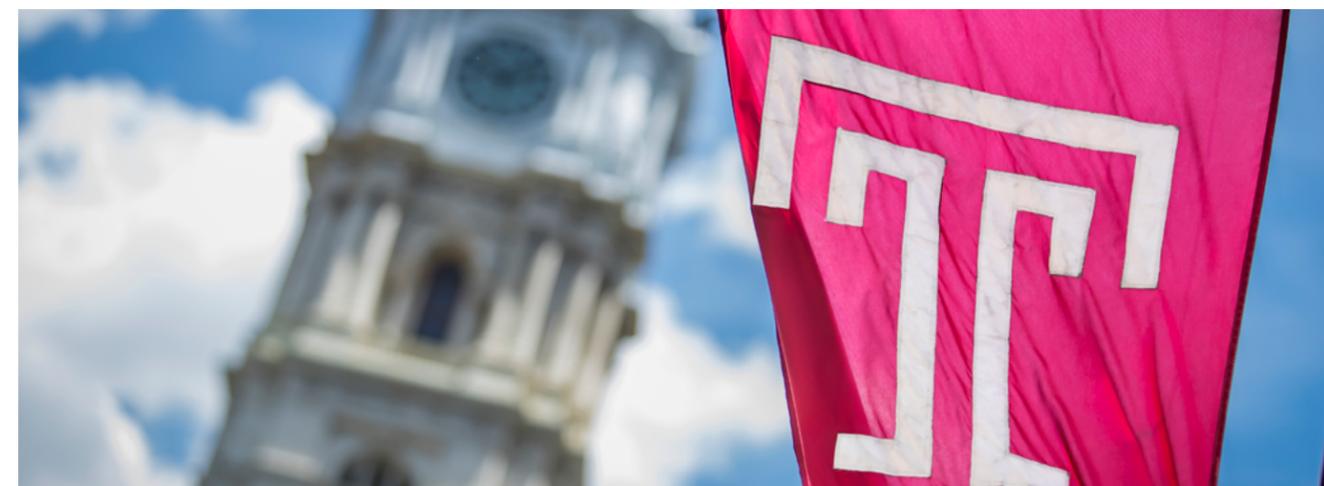
## Conduct an assessment on sustainability culture by 2021



Temple University Office of Sustainability added a series of questions about campus perceptions of climate change to the Transportation Survey, administered once every three years. The assessment evaluated Temple University's commitment to sustainability practices, individual's attitudes of their carbon footprint, and the effectiveness of current and future sustainability practices on the campus.

87% of students, faculty, and staff strongly agree or somewhat agree that Temple has a responsibility as a leader in sustainability, climate action, and environmental justice.

**81% of faculty, 67% of students, and 65% of staff believe climate change is either very important or extremely important to them.**



## Responding to Student Political Interests

### *Making connections between legislative policy and climate action*

In the 2022 Transportation and Sustainability Culture Survey, 79% of students responded that they take political candidates' stance on environmental preservation and sustainability into consideration when voting.

The Office of Sustainability recognizes the crucial role political advocacy plays in cultivating a culture of sustainability on campus. To support ongoing, effective civic engagement on critical environmental issues, the Office continues to publish regular local, state, and federal policy updates. Using the expertise of student scholars and activists, these newsletters breakdown some of the latest climate and environmental legislation and debate, offering meaningful analysis and action steps individuals can take to voice their concerns or support.



## Green Living Certification Cohort

### Sustainable Behavior Change On and Off Campus

In the fall of 2021, the Office of Sustainability hosted its inaugural Green Living cohort with University Housing and Residential Life. The Green Living Certification program connects how we live and what we buy with climate action through an eight-week interactive challenge of sustainable living in seven different focus areas: energy, food and water, purchasing, zero waste, involvement, transportation and innovation. Over twenty students signed up to work their way through an exhaustive checklist of sustainable actions and become Green Living Certified.

Each week, participants met together with fellow eco-minded peers, learned about a different focus area, and received coaching and resources from the Office of Sustainability's Green Living EcoLeads to ensure enduring behavior change. Green Living cohort members thought critically about their impact, celebrated their successes and shared best practices and inspiration to decarbonize their lives and build a sustainable community. All participating students left the program with new friends and a toolkit to transform both their behavior and their living space to maximize personal growth and minimize ecological impact.



## Confronting EcoAnxiety and Climate Grief with Strategies for Wellness

### Student leaders participate in Climate Cafes

Climate Cafés are unique therapeutic models for individuals experiencing climate grief or eco-anxiety, creating informal, open, respectful, and a confidential space to safely share emotional responses and reactions to the climate emergency. Climate Cafés prioritize an exploration of thoughts, feelings and experiences rather than planning action. Instead, participants support each other with a haven from usual busyness and activity via a reflective practice that helps relieve the burden of anxiety and grief.

In the Spring of 2022, the Office of Sustainability welcomed a local expert practitioner to facilitate a two-part series of Climate Cafés or Temple Sustainability student leaders. About a dozen diverse students of all different majors came together to share intimate feelings of grief, anxiety, guilt and helplessness. The Climate Cafés enabled deep connection and dialogue amongst like-minded peers with similar struggles. Furthermore, they helped develop coping skills and strategies to promote and protect student wellness and engender resiliency. To learn more about Climate Cafes, visit this resource from the Climate Psychology Alliance.

## Goal Progress

Create a student educator program to build student awareness on campuses by 2020.



**ACHIEVED:** Temple University's EcoReps program was launched in Fall 2020.

Increase student sustainability engagement through the development of a student green fund by 2019.



**ACHIEVED:** The Green Grant was first awarded in 2019.

Create sustainability certificate program through Temple's Continuing Education program by 2023.

**IN PROGRESS:** The Office of Sustainability began to author a case study to summarize best institutional practices and existing programs. This information will inform recommendations for the structure of the Sustainability Certificate.

Conduct an assessment on sustainability culture by 2021.



**ACHIEVED:** The Transportation and Sustainability survey was issued to students, faculty, and staff in Spring 2022. The survey included questions relating to sustainability culture.

Work with Residential Life to incorporate the responsibility of sustainability engagement with students in the residence halls into an existing staff member's essential duties by 2020.

**IN PROGRESS:** Residential Life has committed paid staff capacity to executing collaborative Sustainability programs such as Green Living and Give+Go Green. UHRL Leadership has initiated a strategic plan to integrate sustainability curricula and sustainable operations campaigns into academic initiatives and student engagement activities led by both student and professional staff.

Establish a housing and dining services/academic working group to identify opportunities for collaboration and cooperative programs by 2020.



**ACHIEVED:** In response to student input, the Office of Sustainability partnered with Aramark to develop a post-consumer food waste capture program.

Begin to address food insecurity at Temple by 2019.



**ON GOING:** Due to the corona virus pandemic we were unable to hold Temple Thrift, of which the proceeds are donated to the Cherry Pantry. However, the Office of Sustainability and Business Services made a monetary donation from revenue made from the recycled graduation gown program.

# Education Abroad and Overseas Campuses

Temple University's Education Abroad and Overseas Campuses serves as the central unit responsible for promoting and facilitating education abroad at Temple University. It is also a department dedicated to identifying climate change solutions and advancing other United Nations Sustainable Development Goals through the critical evaluation of their operations and commitment to providing students with the knowledge, tools, and resources needed to develop as global citizens and ensure a just climate future for all.

Over the 2021-2022 academic year, Education Abroad and the Office of Sustainability collaborated to identify ways to incorporate sustainable practices into every aspect of the department's work. The sections that follow highlight Temple University's Education Abroad and Overseas Campuses commitment to climate activism through action.

Temple will not meet its carbon neutrality commitments without the support and dedication of every department on campus. The Office of Sustainability is proud to highlight the contributions of the Education Abroad and Overseas Campuses staff.

## Communicating and Committing to Climate Action

### Global Green Website Launches on Earth Month 2022

Temple University's Education Abroad and Overseas Campuses (EAO) launched the Temple Global Green Initiative in April 2022. The public-facing resource is the culmination of years of research and strategy development. The webpage provides information about Education Abroad's climate commitments and initiatives. It also acts as a resource for students interested in enrolling in sustainability courses while studying abroad, learning about the global impact of climate change, and providing suggestions about what students can do to mitigate their impact while studying abroad.



Temple's EAO staff know that international education is essential to fostering global citizenship, intercultural understanding and humility, equity and social justice, and collective solutions to shared challenges like climate change. The Global Green initiative exemplifies targeted and strategic climate activism at Temple.

The Forum on Education Abroad has announced Temple University Education Abroad and Overseas Campuses as a 2022 finalist for its award for Advancing the United Nation's Sustainable Development Goals through Education Abroad. The winner of the 2022 Award will be announced during The Forum's 19th Annual Conference, which will take place in Seattle, Washington on March 22-24, 2023.



## Climate Action Through Storytelling

### International Education Week features Temple Student and Faculty Climate Activists

As part of Education Abroad and Overseas Campuses' climate action commitment, they pledged to integrate opportunities to discuss climate change and provide solutions to a growing community of climate-concerned citizens into existing programming forums. Temple's International Education Week (IEW), held November 15 – 19, 2021, included two sessions dedicated to the themes of sustainability and climate action.

The first session, titled *Study Abroad & Sustainable Living*, featured students that were either currently studying abroad or had recently studied abroad. Students discussed differences between climate activism in their host city and Philadelphia and how they incorporated sustainability into their day-to-day study abroad experiences. The second session, titled *Hope in the Midst of Climate Crisis*, featured Temple faculty that focus on climate change in their research and teaching. The exchange provided information and inspiration to a diverse audience. These two sessions were the most popular and well attended events of the week. Recordings of the sessions are available on Education Abroad and Overseas Campuses' (EAO) YouTube channel, [TempleUAbroad](#), with closed captioning. The Spring 2022 edition of Owltopia magazine featured takeaways from the student panel.

One student presenter, then sophomore Miquela Berge, wrote a blog about her experience with sustainability practices in Germany, and student interest in the topic has grown. Education Abroad now has an entire category on the [blog](#) dedicated to sustainability topics.

## Leading Climate Action in North Philadelphia and Beyond

### *Education Abroad facilitates engagement and information sharing opportunities*

Higher education is uniquely positioned to drive significant momentum through the exchange of ideas and information. Climate change will never be addressed by a single individual; it requires that multiple voices come together to develop solutions and provide opportunities to engage in climate action both globally and locally.

#### *Global Green Grants*

As part of Education Abroad's commitment to climate action, the Global Green Grant was launched in Fall 2022. The grant was developed to encourage and support students to engage in climate action abroad. Applications opened in Spring 2022 for the 2022-2023 academic year. To learn more or apply to the Global Green Grant program, visit the [application page](#).



#### *Learn to Compost Event*

Additionally, based on feedback from students, Education Abroad teamed up with the Office of Sustainability to host a "Learn to Compost" event during Earth Month in April 2022. The event, hosted at Temple Community Garden, taught Temple community members how to compost at home and on Temple's campus. It was a great opportunity to continue the conversation stateside and provide students with the resources they need to continue to reduce their carbon footprint when they return to Temple's North Philadelphia campus.

#### *Presentations in the Field of International Education*

Staff members of Temple's EAOE office and sustainability committee, Associate Director Suzanne Willever and Institutional Relations Manager Sarah Short, helped to develop and co-present with peers in the field on various climate and environmental justice topics. Dr. Willever co-presented as part of the Climate Action Network on International Education (CANIE)'s Climate Justice Working Group. The session, entitled *Climate Change and International Education: Are Carbon Offsets the Answer?*, provided an overview of offsetting terminology, some of the potential pitfalls of offsetting, and ideas for implementing local projects with more of a social impact. Ms. Short collaborated and co-presented with peers from Penn State during the NAFSA annual Region II conference in Flagstaff, Arizona in October 2022; while Dr. Willever co-presented at the Region VIII annual conference in Pittsburgh, PA in November 2022. At these NAFSA sessions, entitled *Sustainability and Education Abroad: Sharing Ideas—Taking Action!*, the presenters shared examples of strategies and actions taken and guided participants in brainstorming and sharing ideas to implement the UN SDGs at their home institutions.



## Supporting Sustainability Initiatives through Volunteering

### *Education Abroad Staff Retreat Assists with Give + Go Green*

As part of an all-staff retreat in May 2022, Education Abroad staff volunteered for Give + Go Green, an annual residence hall clean-out event organized by the Office of Sustainability. At Give + Go Green, students donate unwanted food and clothing, saving thousands of items from going in the trash. Students simply place their items in collection boxes placed in residence hall lobbies. After volunteers help to sort through the items, the Office of Sustainability delivers packaged food items directly to the Cherry Pantry, an essential food source on campus for students experiencing food insecurity. The Office of Sustainability stores the sorted clothing items that remain in good condition and then sells them at Temple Thrift in the fall, donating all proceeds to the Cherry Pantry.

Education Abroad staff spent a morning of service sorting and cataloging donated items, and then the Office of Sustainability provided information about fast fashion, the growing issue of textile waste, and what individuals interested in sustainability should consider when purchasing or donating clothing. It was a purposeful team-building exercise and an excellent opportunity to involve the entire staff in the office's sustainability initiatives.

For individuals or departments interested in volunteering during Give + Go Green, please reach out via email or visit [sustainability.temple.edu](mailto:sustainability@temple.edu).

# Design

More than 70% of Temple's greenhouse gas emissions are a result of the operations of its built environment. Since 2006, Temple has added more than 3,000,000 square feet of new building space but has reduced greenhouse gas emissions in part through energy-efficient design. To achieve Temple's carbon neutrality goal by 2050, we must continue to improve the efficient use of Temple's existing buildings and incorporate innovative design and technology strategies.

## Featured Goal

Complete the full implementation of the Verdant Temple Landscape Master plan by 2030.

### Plan Recommendation

Increase the number of trees on campus by 175 trees (14%)

### Progress Towards Plan Recommendation

In 2022 Temple has exceeded the tree planting goal outlined in the Verdant Temple Master Plan.



## Transformational Project Prioritizes Accessibility, Sustainability and Climate Resilience

### Liacouras Walk South Renovation Project

The renovation of Liacouras Walk South is one of Temple University's most transformational projects to date, revitalizing an inaccessible and underutilized plaza into a gathering space for students, faculty, staff and the surrounding community.

This project is the continuation of the Verdant Temple Master Plan implementation for the area known as Liacouras Walk South, located between Montgomery Avenue and Cecil B. Moore Avenue. The renovations included the replacement of existing dated and damaged pavement as well as site re-grading to improve general flow and ADA access. The large underutilized outdoor space was re-imagined by making it far more active and attractive through the installation of a central water feature and plaza as well as an adjacent campus green for open gathering and outdoor learning. New landscape planting, site furniture, and lighting were also installed. Since completion in the spring of 2022, the once underutilized plaza is now a gathering place for students, faculty, staff, and community members.

Sustainability, accessibility and climate resilience were considered throughout the design and construction of the project. The existing, edible garden and portions of the native vegetation were relocated to the student run, Temple Community Garden. Native and non-invasive plants were planted to provide both aesthetic beauty and increased biodiversity for the campus. Existing hard-scape materials removed from the site were recycled to the extent permissible. Long lasting, durable and sustainable materials were chosen for use in hard-scape and site furnishing throughout the site. The renovation prioritized increased accessibility for all community members. Prior to the renovation, Liacouras Walk was broken up by stairs and varying elevations. The renovation regraded the plaza to improve traffic flow and accessibility to adjacent building. When considering climate resilience, the design included extensive green storm-water infrastructure strategies to manage increased precipitation brought on by climate change. As part of the renovation, over 24,000 square feet of impervious area is now managed by five storm-water management practices (SMPs). These SMPs detain, infiltrate and control storm-water runoff quality, rate and quantity into the City of Philadelphia's sewer system. The central water feature recycles water for reuse, cutting down on potable water.



# Goal Progress

<p>Incorporate green building standards for renovation, new construction, and landscape projects into the university's adopted green building policy by 2019.</p>	<p><b>ACHIEVED:</b> Many Green Building Standards are being incorporated into Temple Design Standards. New construction and major renovation projects set LEED Silver minimum as the goal.</p>
<p>Develop Temple standards for new and existing building design and campus infrastructure that incorporate sustainability and climate resilience by 2020.</p>	<p><b>ACHIEVED:</b> All new major capital construction projects and renovations will be designed to meet or exceed LEED silver. All campus infrastructure and systems will be designed to ASHRAE 90.1-2019.</p>
<p>Develop and adopt technical specifications for all projects that incorporate its sustainable design framework by 2021.</p>	<p><b>IN PROGRESS:</b> Technical specifications for plumbing, mechanical, and electrical systems have been developed and will be published on Temple University's website by the end of calendar year 2022.</p>
<p>Complete the full implementation of the Verdant Temple Landscape Master Plan by 2030.</p>	<p><b>IN PROGRESS:</b> Temple University has completed many iconic projects including the transformation of significant portions of Polett and Liacouras Walk. Both projects integrated sustainable storm water management.</p>

## Keeping Climate in Mind When Selecting Building Material

### Carbon Neutral Flooring

Building materials contribute a substantial amount of annual global greenhouse gas emissions. Materials made solely from raw material have the most significant emissions impact resulting from mining, processing, manufacturing, transportation, and installation. Companies can reduce or eliminate the carbon intensity of building materials with the following methods: using recycled content, manufacturing materials locally, prioritizing energy efficiency and renewable energy during the manufacturing process, and shipping materials via low carbon transportation.

To reduce or eliminate emissions for building materials, consumers must demand low-carbon building materials and industry must respond by offering durable and cost competitive products. Temple University actively seeks out companies that offer products that are beautiful, durable, cost competitive and, environmentally friendly.

During the 2021 calendar year, carbon neutral flooring was installed in several buildings including, Carnell Hall, Speakman Hall, Gladfelter Hall, Mazur Hall and the School of Pharmacy. The manufacturer of the carbon neutral flooring employs a combination of strategies to mitigate the carbon impact of their products—including the use of recycled materials, dematerialization, improved manufacturing efficiencies and carbon offset investments. Temple's Interior Design team is committed to sourcing and testing sustainable materials and furnishings in renovation and construction projects.



# EcoReps

Temple recognizes the important role that students play in building a sustainable campus from the ground up. Eco Reps is a peer education program which trains and develops leaders to embody, promote and lead sustainable change and climate action on campus. The Eco Reps program is for all students who are passionate about sustainability. Eco Reps help Temple achieve carbon neutrality via Office of Sustainability programming, outreach, service, communication, leadership and service opportunities.

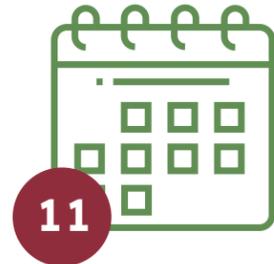
Students who participate in the program gain career competencies and transferable professional skills, preparing them for their time after Temple. Eco Reps are part of the greater sustainability team; without them, Temple could not achieve goals outlined in the Climate Action Plan.



Total number of new EcoReps



Total number of unique majors



Total number of EcoRep Excursions

## SustainabiliTEA

SustainabiliTEA is a programming series of informal open-house style events where students can meet both the Temple Sustainability Team and fellow EcoReps. Participants chat-over sustainably sourced tea-about the latest in sustainability news, policy and climate justice in Philly and all over, learning from each other and growing fellowship within the TU climate action coalition. Facilitated by the Sustainability Manager, SustainabiliTEAs are a chance to learn more about climate initiatives on campus and how individuals can get involved. Sometimes they feature a theme or a special guest, but every member of the Temple Community is welcome to attend—including our seasoned climate action vets and folks who are brand new, looking to become more involved.



## Students Start the Conversation with Temple Sustainability Blog

Eco Leads and Eco Advocates regularly author blogs to recap sustainability events, brief the Temple community on the latest in contemporary sustainability issues and climate action, tell the stories of their student organization initiatives and campaigns, and reflect on internships and other educational and professional experiences.

In the 2021-2022 school year, eight different EcoReps authored eleven sustainability blogs on diverse topics: low carbon eating, food insecurity, slow fashion in Philly, summer internships, transit equity and policy, energy technology and innovation, and community engagement and environmental justice.

## Temple EcoReps Lend a Voice to City-Wide Food Waste Campaign

Temple's Office of Sustainability was asked to participate in the launch of the City of Philadelphia's Office of Sustainability's Eat Away at Food Waste educational campaign. The campaign spotlights student perspectives on food waste management at home and work, and why it matters. On April 22, 2022, EcoReps Mason Dofflemeyer, Riya Shah, and Dayja Burton were all featured at the launch of Eat Away at Food Waste at the Office of Sustainability's official Earth Day Celebration at Cherry St. Pier. Temple University EcoReps are important institutional partners in achieving the campaign's goals of highlighting the problem of food waste, sharing tools and resources to prevent it, and better understanding when and why food waste happens in our homes.



## EcoRep Excursions



### Experiential and Service Learning

EcoRep Excursions were a new Sustainability programming offering starting in the Fall of 2021. These student-led trips allowed opportunity for EcoReps at all levels of involvement to gain familiarity riding public transit to and from local sustainable businesses and other hot-spots from around the Philadelphia green scene. The Excursions built upon existing curricular and co-curricular service and experiential learning initiatives to expose student leaders to local innovators in the food, textile, and low-waste and creative reuse spaces. Students explored new parts of the city and gained a behind-the-sustainability-scene look and, in some cases, performed direct service and volunteering on-site!



### Bike Temple

EcoRep Excursions also included student-led group bicycle rides. Open to student riders of all skill levels, these social rides take students to some exciting destination all over the city. It also provides a safe space for learning the basics of riding in an urban environment, like getting to know the nearest bike lanes, basic hand signals and rules of the road. This year, the Transportation EcoLeads led six different bike rides: down the iconic MLK drive, to thrift in some of the city's trendiest neighborhoods like Fishtown and Queen Village, and even one ride all the way down south to Lincoln Financial Field for a home football game!

## Engagement by the #s

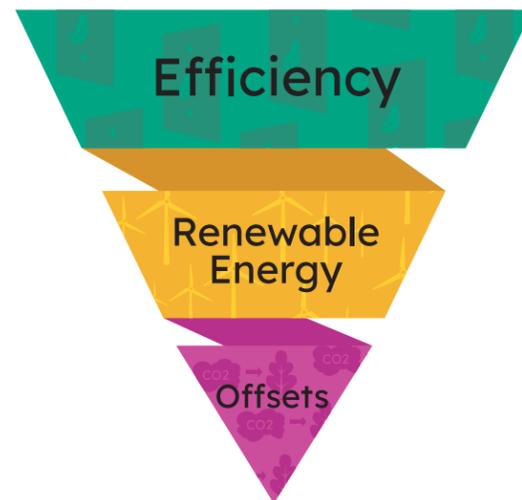


# Energy

The need for a new approach to energy use and sources is inherent in Temple's climate commitment. Temple is committed to implementing a balanced three-pronged approach to reducing greenhouse gas emissions. The approach focuses first on efficient systems, second on sourcing less carbon intensive forms of energy and, as a last resort, purchasing carbon offsets. This strategy has been successful and has helped Temple to achieve progress towards carbon neutrality year after year.

## Temple's approach to eliminating carbon emissions from energy sources.

- 1. Efficiency:** using equipment or technology that requires less energy to perform the same function.
- 2. Renewable Energy:** energy from a source that is not depleted when used, such as wind or solar.
- 3. Offsets:** are a form of trade. When you buy an offset, you fund projects that reduce greenhouse gas emissions.



## Leveraging Incentives to Fund Energy Efficiency Projects

### Growing Temple's Green Revolving Fund

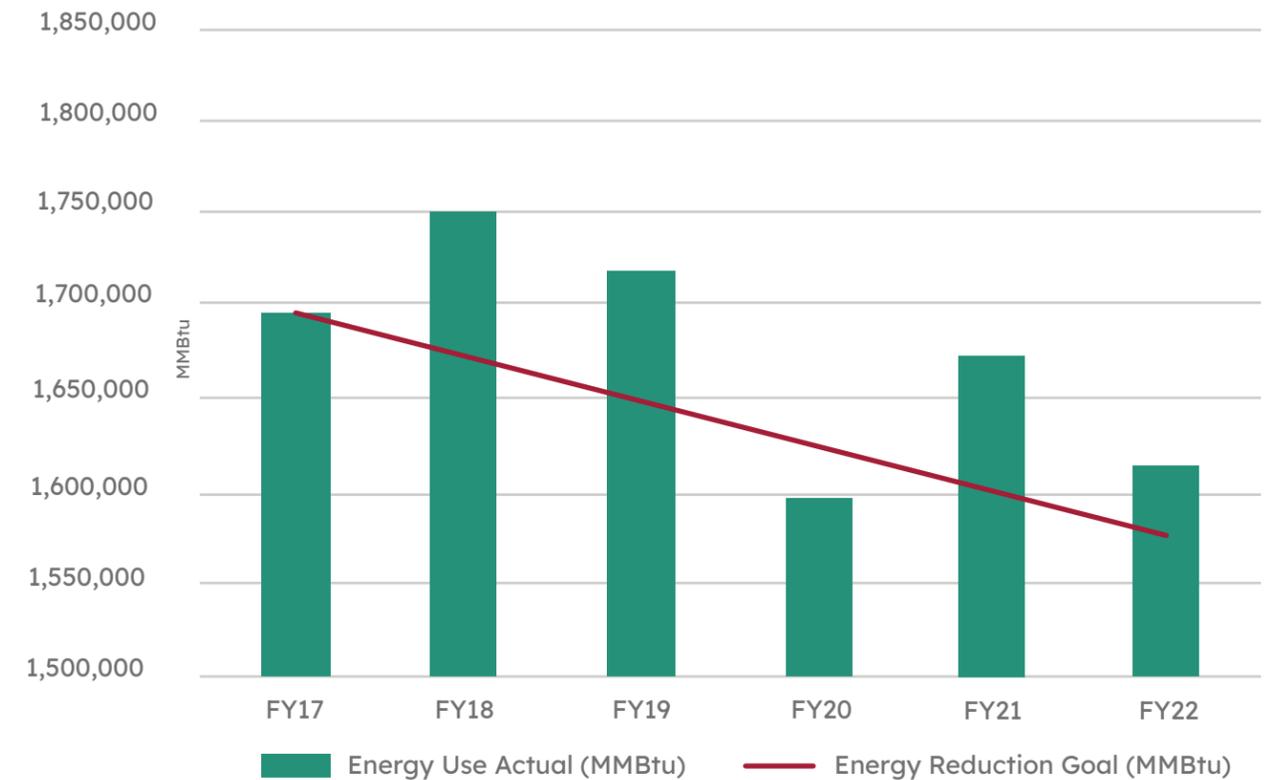
In 2008, Pennsylvania Governor Rendell signed HB 2200 into law as Act 129. Part of the legislation includes the creation of the energy efficiency and conservation program (EE&C Program). The EE&C program requires each electric distribution company, in Temple's case PECO, to adopt a plan to reduce energy demand and consumption. One strategy of PECO's EE&C program is to provide customers with incentives to reduce consumption through investments in energy-efficient systems.

Temple Energy and Utilities Department worked with internal partners to establish a protocol for depositing energy efficiency incentives issued by PECO into the Green Revolving Fund. Continued investment into the Green Revolving Fund will allow Temple to fund energy efficiency projects that will yield both financial savings and carbon reductions.

## Featured Goal

**Featured Goal: Reduce energy use in existing building stock by 18% from a FY2017 baseline by 2030.**

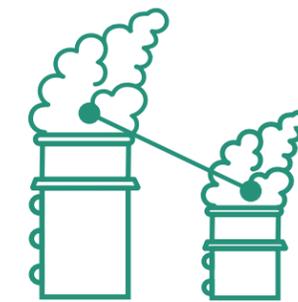
Since FY17, energy use in existing buildings has decreased by 5%.



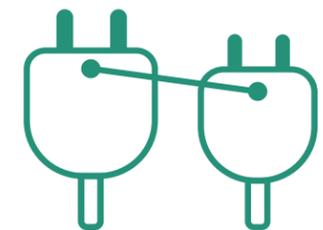
## Energy by the #s



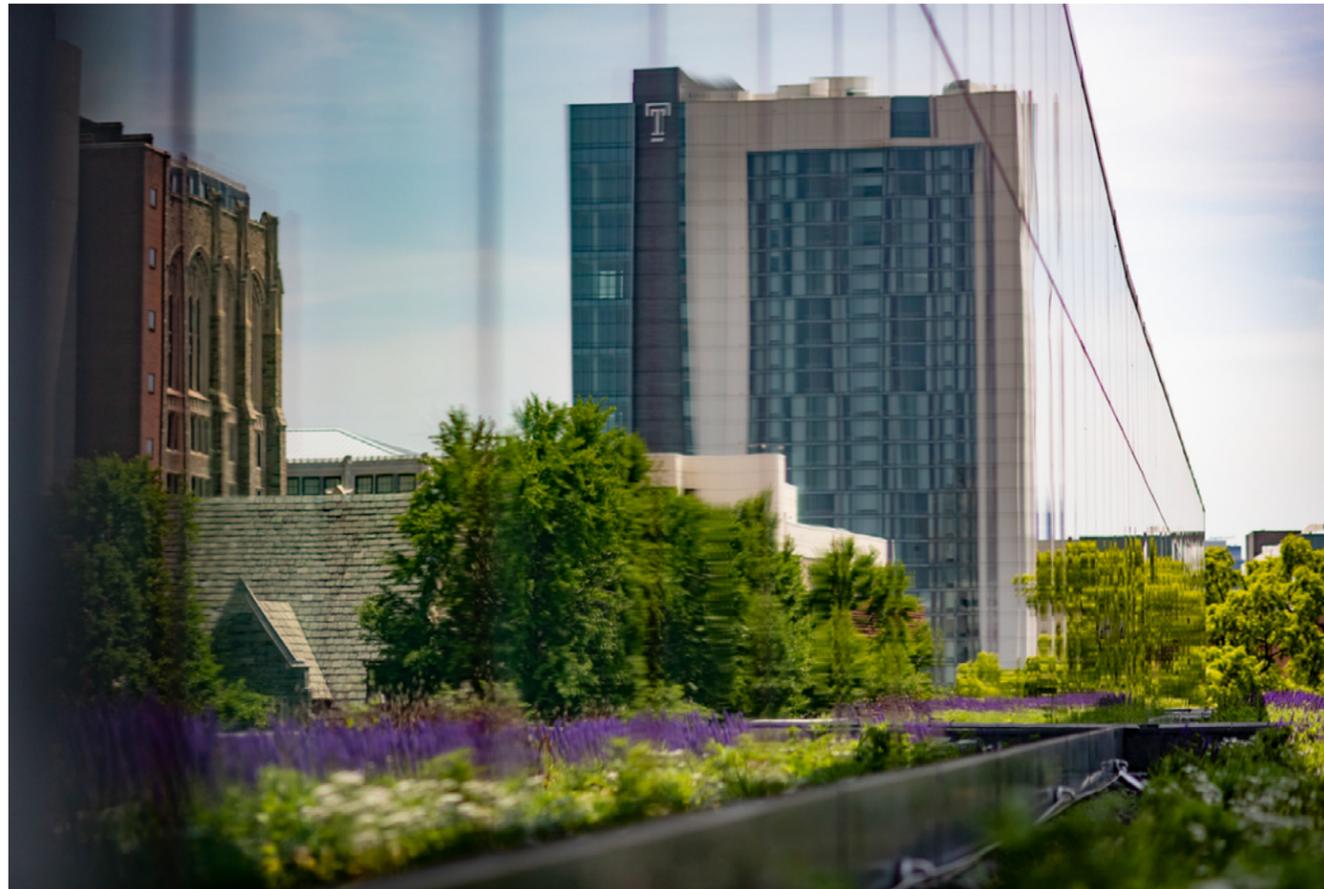
Building Square Footage Increased by 36% since 2006



Total Net GHG Emissions From Energy Sources Decreased by 36% since 2006



Total Energy Use in Buildings Per Square Foot Decreased by 18% since 2006



## Discovering Energy Efficiency Opportunities

### Building Energy Performance Program

The Building Energy Performance Program was created through the City of Philadelphia's Building Energy Performance Policy. The policy applies to non-residential buildings located in Philadelphia County with 50,000 or more square feet of indoor floor space.

The program aims to achieve energy efficiency and reduce unnecessary water use in the largest non-residential buildings in Philadelphia through what is sometimes referred to as a building tune-up. A building tune-up requires a review of energy systems and controls to identify opportunities to "tweak" the systems to improve operational efficiency. **The City of Philadelphia** states that "on average, the tweaks result in 10-155% annual energy savings for a building and also provide a more comfortable environment for building users".

During the 2021-2022 academic year, a holistic audit of energy and water systems was performed at 10 Temple-owned buildings. Audits identified opportunities to increase efficiency at all buildings that were audited. The total energy savings impact will be reported in future Sustainability Annual Reports.

## Goal Progress

Reduce energy use in existing building stock by 18% in a typical climatic year by 2030.

**IN PROGRESS:** Temple has increased energy use in existing building stock by 5% since a FY 2017 baseline.

Continue to invest in energy efficiency projects, starting in 2020 through the allocation of initial seed funds. Completion of additional projects will be contingent on verified savings.

**IN PROGRESS:** Energy efficiency projects have been identified and will be funded by the Green Revolving Fund.

Create a Green Revolving Fund in 2018 to direct the actual energy cost savings into additional energy projects.

**IN PROGRESS:** The Green Revolving Fund has been created and rebates from energy efficiency projects have been deposited to the fund. Once projects have been completed and energy savings have been verified, utility savings will be deposited to the Green Revolving Fund.

Adopt mechanical, electrical, and architectural standards for renovation and new building projects which limit dependency on fossil fuels and promote established sustainable practices by 2020.



**ACHIEVED:** Temple follows ASHRAE 90.1 - 2019 and LEED Silver guidelines. Both ASHRAE and LEED promote established sustainable practices which limit dependency on fossil fuels.

Create requirements for the designers of projects of a certain size to collaborate with the energy team to incorporate energy implications in design decisions by the end of 2018.



**ACHIEVED:** All major construction and renovation projects require input and approval from the energy team.

Sign another Power Purchase Agreement (PPA) by end of 2021.

**IN PROGRESS:** Temple University released a Request for Proposals from renewable energy developers in 2019. This project has been temporarily put on hold due to market uncertainty resulting from the COVID-19 pandemic.

Sign another Power Purchase Agreement (PPA) by end of 2021. Develop at least 100+ kW of renewable energy systems at Temple's facilities by 2022.

**IN PROGRESS:** Temple University is investigating opportunities to develop small scale renewable energy systems on campus.



# Temple Sustainability and the Urban Mission

As an urban institution that is deeply engaged in the community, Temple University's commitment to sustainability can have a profound impact on the health and quality of life of a large and diverse population within Temple and its surrounding community.

The university is committed to demonstrating the value of those principles through its own example and through the activities it sponsors in the community. Temple aims to serve as a model for similar urban institutions and to uphold its national reputation for excellence and commitment to principled policy and action.



## Stewardship Education and Action

It is Temple's priority that students feel integrated into the rich fabric of the diverse North Philadelphia community and make a positive contribution to it as responsible stewards and good neighbors. This year, Temple Sustainability staff designed and led an hour-long workshop on stewardship in urban environments. This event featured a primer on our Good Neighbor Policy, an introduction to waste justice and asset-based community development strategies, and essential tools and resources for hosting a successful block cleanup from Temple Sustainability and the City of Philadelphia.



Featured Climate Justice teach-in facilitator, Amani Brown, CLA '20, representing community organizations and housing and energy advocates at an action in support of new PA state climate legislation. Photo by POWER Interfaith

## Climate Justice Teach-in: How to be An Activist

This teach-in was hosted by the Office of Sustainability as part of the Worldwide Climate Justice Teach-in celebrated across the globe through learning and advocacy events facilitated by sustainability scholars and other professionals. This workshop invited a broad coalition of sustainability stakeholders to learn about how to act on climate justice and inspire advocates with creative solutions of collective action.

During this session, Sustainability Manager, Caroline Burkholder, and featured Temple Sustainability alumni and local political organizer with Pennsylvania Interfaith Power and Light, Amani Reid, CLA '22, discussed how to design and execute a successful campaign for environmental action on and off campus. Highlighting the role of the university and other key players in the local scene, attendees learned best practices for organizing and amplification and gained insight into their levers of power and workshopped ideas for action steps.

## Clean, Green, and Love Your Park

The Office of Sustainability hosts several stewardship events each academic year to give students opportunities to foster relationships, model sustainable leadership and make our neighborhoods, public spaces, natural lands cleaner, healthier and happier places.

The Office of Sustainability coordinates groups of students to participate in Love Your Park every November. Love Your Park, a collaboration between Fairmount Park Conservancy, Philadelphia Parks & Recreation, and Philadelphia's Park Friends Network, works to support communities in activating Philadelphia's parks and other natural areas. In November 2021, Temple student leaders cleaned, greened, and celebrated iconic Philly parks by collecting leaves for compost, planting trees and flower bulbs, and cleaning up after a very busy summer.





## Transit Equity Day

For the past four years on February 4, a network of transit rider unions, community organizations, environmental groups and labor unions have organized Transit Equity Day—a national day of action to commemorate the birthday of Rosa Parks by declaring that public transit is a civil right and that high-quality and accessible public transportation is a key strategy for a just transition from the fossil fuel economy to clean, renewable energy.

Temple Sustainability's EcoReps participated in Transit Equity Day celebrations by passing out thank you cards to SEPTA operators and drivers on their local routes including the Broad Street Line and the Route 3, 23, and 16 Buses. The notes of appreciation sought to celebrate and praise the SEPTA operators, drivers, and front-line workers who risked their lives every day to keep the Philadelphia transit system moving through the COVID-19 pandemic. This effort also recognizes the efforts of Philadelphia transit heroes like Caroline LeCount and Octavius Catto and the sacrifices they made to allow every rider to travel freely, safely, and with dignity.

## Service Learning in Urban Public Spaces

Additionally, as part of the 2021 GRASP award winner Michelle Lee Delgado's project on community-led deterrents to curb illegal dumping, students visited Harrowgate Park for a special teach-in and volunteer day to execute her vision for a sustainable landscaping plan to address community challenges and facilitate local stewardship of public land.

As part of Temple's Service Immersion Program, the local environmental justice cohort visited the Norris Square neighborhood in Kensington to meet community environmental leaders and learn about Puerto Rican culture and diasporic sustainability practice. They engaged in service learning – volunteering at the community teaching garden, Las Parcelas, and understanding the important role that the cultivation of the gardens plays in local community building and cultural preservation efforts.



Opinion

## Big idea: Get Philly colleges to band together on Climate Action Plans | Opinion

Since each university's climate action plan focuses on an individual campus, the city is missing opportunities to effectively leverage these investments as a collective.

*Dr. Christina Rosan published this op-ed about opportunities for collaboration amongst Philly universities in the Philadelphia Inquirer in Fall of 2021.*



## Climate Collaborative of Greater Philadelphia: Stakeholder Engagement Bootcamp

The Climate Collaborative of Greater Philadelphia is an effort to dramatically accelerate climate action in our region. The Collaborative is a network of regional institutions coming together to share best practices, grow the impact of individual actions, and collectively cut carbon pollution faster and more dramatically than any one entity could do on their own.

In Spring of 2022, the Climate Collaborative hosted a two-day virtual boot camp focused on stakeholder engagement exploring the many ways companies and organizations are involving their people – from employees, customers, clients and even the broader community – in sustainability efforts and how those groups are being communicated with. This event was a partnership with Philadelphia Higher Education Network for Neighborhood Development (PHENND), a network of over 25 colleges and universities that strengthens service-learning, civic engagement, and community partnership in Philadelphia, connecting academics with community involvement.

Caroline Burkholder, Temple University Sustainability Manager and Christina Rosan, Associate Professor in Geography and Urban Studies at Temple University hosted a workshop entitled, "What Does A Just Collaborative Region in Philadelphia Look Like?" This conversation explored how to effectively leverage universities and anchor institutions to build a collaborative region for climate action. Drawing from their own research and practice at Temple, Christina and Caroline highlighted the role of universities, other anchor institutions, non-profits, and corporations in identifying, accelerating, prioritizing, and scaling community focused climate solutions that promote racial justice and equity to instigate important dialogue and facilitate visioning amongst key stakeholders in Philly.



# Operations

Temple has a strong history of integrating sustainability and resilience into its campus operations. To fully meet Temple's climate commitment, the university needs to continue to innovate campus operations while incorporating sustainability into decision making processes.

In order to advance sustainable and resilient operations, Temple must not only develop sustainable best practices and operational policies, but individuals from the Temple community must have the opportunity to easily support and participate in the development of a more sustainable campus environment.

Operations goals play an important role in achieving a sustainable campus environment for students, faculty, staff and the community. They are organized into six subcategories .



Dining

Air Quality

Waste Minimization & Recycling

Grounds

Sustainable IT

Transportation



## Dining

Dining goals and initiatives strive to integrate sustainable sourcing and waste minimization strategies into dining services.

### Featured Goal

Temple University will require its dining services provider to submit annual procurement reporting consistent with the STARS assessment program.

During the 2021-2022 academic year, Aramark's total annual food and beverage expenditures included:



13% on plant based foods

2% on products that are sustainably/ethically produced



### Students Lead Organic Diversion Campaign

#### Weigh the Waste 2022

As part of the annual national Campus Race to Zero Waste competition, the Temple Office of Sustainability teamed up with Campus Dining to host a two-week-long educational campaign about food waste in Morgan Dining Hall. Over twenty student volunteers worked with Dining staff to demonstrate diners' collective impact on organic waste and its diversion on campus. EcoReps staged a behavioral intervention where they redirected individuals with leftover food from dumping the waste into the standard trashcan to the organic waste bucket. The organic waste bucket is always present at the dish return, but its function is not always understood by student diners. The waste was then collected, weighed, and put in the anaerobic biodigester.

The two weeks inspired learning opportunities and insights around waste literacy on Temple's campus. The volunteers periodically weighed the waste and shared the data right there in the dining hall, providing real-time feedback and effectively inciting friendly competition and incentivizing continued and sustained behavior change. The highly visible and interactive program raised awareness of the diversion program and taught new habits, gesturing towards a larger movement to tackle Temple's food waste through critical engagement with people's consumption habits.

## Goal Progress

Temple University will require its dining services provider to submit annual procurement reporting consistent with the STARS assessment program by 2018.



**ACHIEVED:** Aramark, Temple University's dining service provider, has submitted annual procurement reporting consistent with STARS assessment program for FY 2019, FY 2020, FY 2021, and FY2022.

Temple University's dining services will ensure that a minimum of 20% of its procurement spend is used on food that meets STARS definition of locally sourced by 2020.

**IN PROGRESS:** Less than 2% of dining services procurement spend was used on food that meets STARS definition of locally sourced.

Temple University will reach a 50% food waste diversion target by 2022 in its four largest dining facilities (J&H, Morgan Hall Food Court, Morgan Hall Dining Center, and Student Center).

**IN PROGRESS:** Aramark generates food waste from production, service, and storage. In FY 2022, Aramark diverted 64% of food waste from J&H and 74% of food waste from Morgan Dining.



# Air Quality

Indoor Air Quality goals and initiatives strive to improve the indoor air quality of Temple's buildings.

Temple University will ensure that 100% of its paint, adhesives and sealers are third party verified as VOC free by 2019.

**IN PROGRESS:** Temple University paint standard specifies that all paint is third party verified as VOC free.



## Developing Circular Systems at Temple

### Give + Go Green and Temple Thrift

For Temple to meet our waste minimization and recycling goals, we must move away from a linear system of 'take-make-consume-throw away' and develop circular systems that retain the highest utility and value of products and materials for as long as possible. We have accomplished this by developing a circular system at Temple anchored by two legacy programs, Give + Go Green and Temple Thrift.

Give + Go Green is an annual event where students donate food and clothing that they do not wish to take with them when they move out of the residence halls in May. Each year, collection boxes are placed in the lobbies of residence halls so that students can easily donate items they would otherwise throw in the trash.

The Office of Sustainability recruits volunteers every May to help sort the donated items. In May 2022, student and staff volunteers sorted through a combined total of 10,465 lbs of donations. More than 2,800 lbs of the donations were non-perishable food items. These were boxed and donated directly to the Cherry Pantry. The remaining donations, textiles, and clothing were sorted and boxed for sale at Temple Thrift; held every fall. The proceeds from Temple Thrift sales go directly to The Cherry Pantry.

Give + Go Green and Temple Thrift provide the Temple Community of an example of the circular economy in practice. It is yet another way that Temple University exposes students to project-based learning that will better prepare them for the future of work.



# Waste Minimization & Recycling

Waste Minimization & Recycling goals and initiatives strive to create zero-waste operations that embrace the four R's: Rethink, Reduce, Reuse, and Recycle.

## Featured Goal

Achieve a 50% diversion rate by 2020:



Increase core recycling to 30% by 2020:



## Goal Progress

Develop a comprehensive Materials Management plan and implementation schedule to achieve City of Philadelphia's Zero Waste partner status by 2020.

**IN PROGRESS:** A draft Materials Management Plan was completed and will be submitted as part of Temple University's Zero Waste Partnership application.

Achieve a 50% diversion rate by 2020.

**IN PROGRESS:** In FY 2022, Temple achieved a diversion rate of 46%.

Increase the core recycling rate to 30% by 2020.



**ACHIEVED:** In FY 2022, Temple's core recycling rate was 38%.

Dedicate a staff person in university housing to achieve compliance with the University's waste minimization and recycling initiatives by Fall 2019.



**ACHIEVED:** The Office of Sustainability has been working with dedicated staff in university housing to achieve compliance with the university's waste minimization and recycling initiatives.



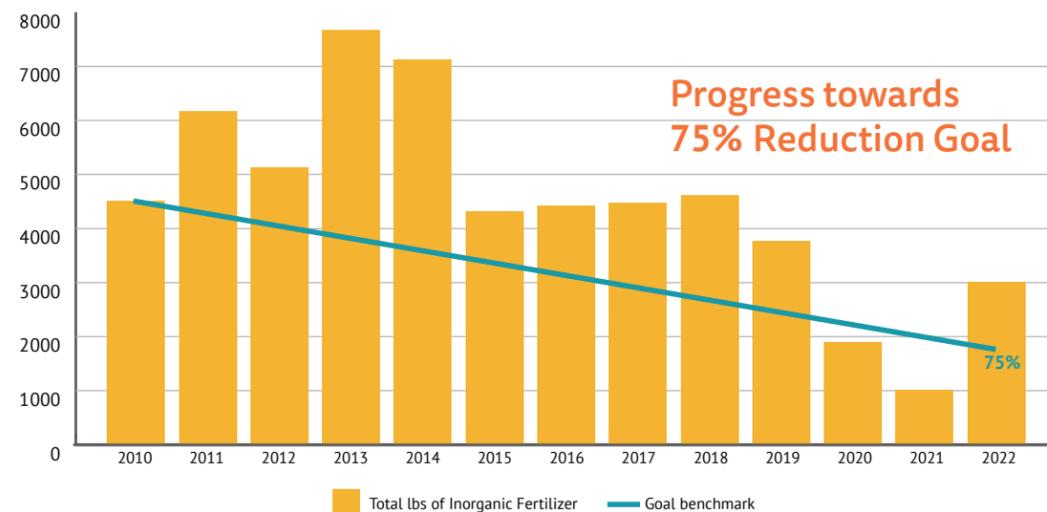
# Grounds

Grounds goals and initiatives build upon Temple University's sustainable landscape management best practices.

## Featured Goal

Reduce the use of inorganic fertilizers and chemical pesticides, fungicides, and herbicides by 75% by 2025 from the 2010 baseline.

During the 2021-2022 academic year, inorganic fertilizers and chemical pesticides, fungicides and herbicides were reduced by 33%.



## Goal Progress

Develop and implement a plan for sustainable landscape management that builds on recommendations in the Verdant Temple Landscape Master Plan and incorporates plantings, soil management, water conservation, and integrated pest management by 2022.



**ACHIEVED** : The Office of Sustainability finalized a sustainable landscape management document. Temple University's Sustainable Landscape Practices published on the Office of Sustainability's website.

Reduce the amount of water required for landscape management by 25% by 2025 from the 2006 baseline.

**IN PROGRESS**: Irrigation meters were installed to provide more accurate data regarding water use on campus. Temple will use this data to baseline and reevaluate our water use goal.

Reduce the use of inorganic fertilizers and chemical pesticides, fungicides and herbicides by 75% by 2025 from the 2010 baseline.

**IN PROGRESS**: In FY2022, Temple University reduced inorganic fertilizers and chemical pesticides, fungicides and herbicides by 33% from the 2010 baseline.



## Responsible Waste Management After a Climate Disaster

### Ambler Campus Landscape Recycling

The tornado that touched down on Ambler Campus in September of 2021 resulted in the destruction of the built and natural environment. It is estimated that more than 175 trees were removed from the Arboretum. Not only did this have a profound impact on Ambler Campus, but removal of trees in combination tree branches and other vegetative destruction from the tornado, resulted in more than 9,000 cubic yards of vegetative waste.

Temple Grounds and Facilities Management employees managed the collection and responsible disposal of vegetative waste. The undertaking was significant; based on estimated weights, more than 400 tons of material was recycled or repurposed. To put that in perspective, during a typical year, Temple responsibly disposes of less than a ton of material from Main, Health Science and Ambler Campuses.

## Using Data to Establish Future Goals

### Landscape Irrigation Flow Meters

During the summer of 2021, the Office of Sustainability worked with Temple Grounds Department to install 15 irrigation flow meters that allow us to monitor the volume of water used for irrigation on Main Campus. By the end of the watering season in the Fall of 2021, Temple Grounds successfully collected the first of four years of irrigation water use data needed to establish future landscaping water minimization goals.

Best practice states that a minimum of four years of data is needed to establish an irrigation water use baseline. Once a baseline is established, Temple Grounds Department will evaluate the feasibility of achieving a 25% reduction of potable water use to irrigate landscaping on Main Campus.



# Sustainable IT

Sustainable IT goals and initiatives focus on reducing the environmental impacts associated with the operations of IT equipment and services.

## Bridging the Digital Divide

*ITS Leads on Triple-bottom Technology*



*Philly Community Wireless uses mesh networks, in which a collection of nodes act as a single network and antennas pass signals across rooftops, then down to routers, enabling people to connect to the internet for free.*

Temple University has long been committed to excellence in digital waste practices. The nationally recognized Computer Recycling Center has been an informative model of the circular economy and demonstrates how diversion, when paired with skillful refurbishment, extends the life cycle of computers and other devices through resale at accessible, affordable prices, or even donating to individuals in need.

The digital divide, or the extreme inequity in access to modern information and communications technology, is an urgent social problem which limits sustainable economic and workforce development and exacerbates existing income inequality. This is a phenomenon particularly evident in the eight

zip codes that immediately surround Temple's campus. The University has expanded its investment from limiting the ecological impact to other more strategic, collaborative and equity-focused solutions, best evidenced in the opening of the Digital Equity Center in May of 2022.

Temple Information Technology Services working in partnership with the Lenfest Center for Community Workforce Partnerships and Dell founded the Center to provide North Philadelphia residents with access to technology, help desk support, and provide free education in the areas of digital navigation and digital literacy. In this year alone, the center has distributed more than 200 computers and laptops to community members, and it hopes that number grows to more than 600 by the end of 2022. University vendor Dell Technologies and their environmental, social and governance team are key partners in this initiative. Continued collaborative work with Dell aligns with other strategic sustainable operations goals related to corporate responsibility and university purchasing policies.

## Goal Progress

ITS team will develop a comprehensive strategic plan for sustainable IT at the university by the end of 2019 and begin to implement its recommendations by 2020. The plan will look at procurement, operations, and engagement.



**ACHIEVED:** The steering committee made up of individuals in IT and the Office of Sustainability identified priority initiatives and has determined an implementation strategy.



# Transportation

Transportation goals and initiatives promote sustainable transportation and transitioning Temple's fleet towards less carbon intensive vehicles.

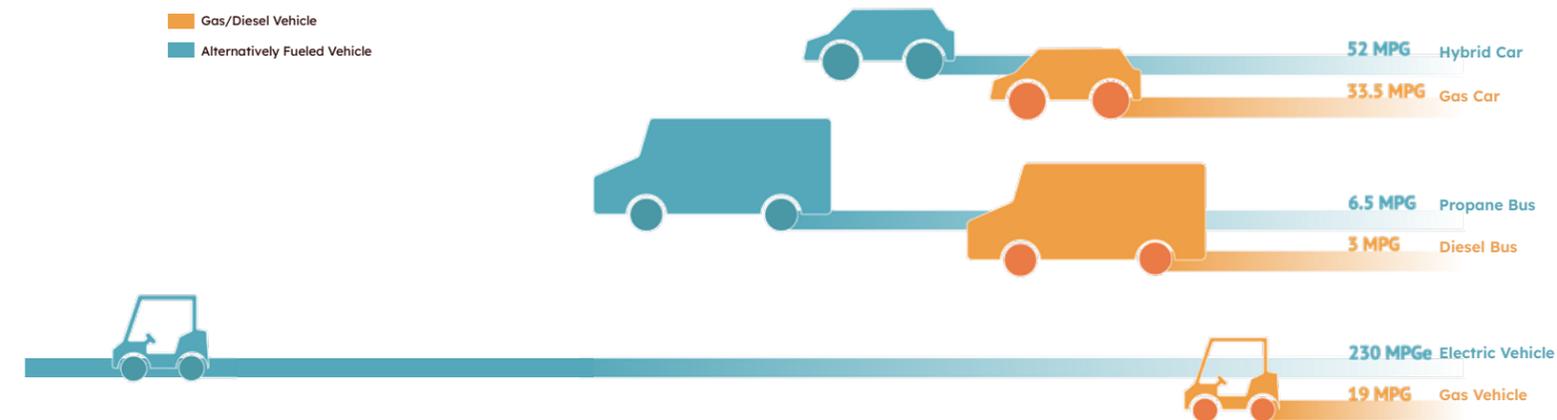
## Featured Goal

Increase the percentage of the university's fleet that is alternatively fueled to 50% by 2030.



Purchasing and leasing low-emission or no-emission alternatively fueled vehicles will enable Temple to reach its carbon neutrality goals.

As the infographic below shows, alternatively fueled vehicles are more efficient on a mile per gallon equivalent basis compared to a gas or diesel vehicle. Alternatively fueled vehicles result in reduced fuel costs and improved air quality.



*\*Mile per gallon equivalent based on average manufacture electric vehicle information*



## Technical and Advocacy Training Program Grows Impact

### Walk Audit Certification

Temple Office of Sustainability continued its partnership with local legacy environmental non-profit Clean Air Council and their pedestrian advocacy organization, Feet First Philly, for a second year, growing its impact and relevancy in local community development and planning policy and initiatives. The original two-part service-learning and certification curriculum gives Temple students experiential learning opportunities in planning equitable, healthy, and climate resilient communities – connecting themes of asset-based community development, community organizing, engaged urban stewardship, and walking as a model for sustainable behavior change.

#### Fall 2021 Cohort Engagement

In the Fall 2021 semester, students were tasked with performing an audit of an active corridor of commercial and off and on-campus housing development. It is also on the High Injury Network, a City of Philadelphia Vision Zero designation of roadways with significant instances of traffic violence and demand corrective action. This stretch of Cecil B. Moore Avenue is the same as a major redevelopment project led by the Delaware Valley Regional Students. Students were able to present their findings and recommendations to current City and regional urban planners, representing the student perspective on prescribed safety improvements and other design and placemaking elements, both on and off campus. This serves as an example of invaluable experiential learning and civic education with relevancy in sustainable institutional transportation and planning policy.

#### Spring 2022 Cohort Engagement

In the Fall 2021 semester, students were tasked with performing an audit of an active corridor of commercial and off and on-campus housing development. It is also on the High Injury Network, a City of Philadelphia Vision Zero designation of roadways with significant instances of traffic violence and demand corrective action. This stretch of Cecil B. Moore Avenue is the same as a major redevelopment project led by the Delaware Valley Regional Students. Students were able to present their findings and recommendations to current City and regional urban planners, representing the student perspective on prescribed safety improvements and other design and placemaking elements, both on and off campus. This serves as an example of invaluable experiential learning and civic education with relevancy in sustainable institutional transportation and planning policy.

## Goal Progress

Increase the number of commuters who utilize a sustainable form of transportation to the campus to 75% by 2025.

**IN PROGRESS:** According to the results of the 2022 Transportation survey, 67% of Temple students, faculty, and staff utilize a sustainable form of transportation when traveling to campus

Reduce fleet-based emissions from 2006 baseline by 20% by 2030.

**IN PROGRESS:** In FY 2022, fleet-based emissions from Temple's vehicles have increased by 14% since a 2006 baseline.

Reduce the number of single occupancy vehicles on campus by 10% by 2025.

**IN PROGRESS:** In FY 2022, single occupancy vehicle parking was reduced by 7% from a FY 2019 baseline.

Increase the percentage of the university's fleet that is alternatively fueled to 50% by 2030.

**IN PROGRESS:** In FY 2022, 20% of Temple's fleet was alternatively fueled.



# Ambler Campus

## Turning a Natural Disaster into an Opportunity at Temple University Ambler Campus

Vicky McGarvey, EDD | Vice Provost for University College and Director at Temple University Ambler Campus  
From *CommonHealth*, a Journal of the College of Public Health at Temple University, Introduction to Vol. 3 No. 2 (June 2022)

As a top-tier research university, the core of Temple's mission and values are the creation and dissemination of knowledge. The Ambler campus is an arboretum, a field station, and a hub of experiential learning that allows students to participate in research studies, environmental restoration, and design-build projects. It also features gardens, walking trails, and other natural areas. The campus contributes to Temple's initiatives in health, wellness, research, and sustainability.



*Kathy Salisbury, Amy Freestone and Vicki Lewis McGarvey, author of this report is pictured here third from the left, discuss the damage to the Ambler Campus with President Jason Wingard and members of his cabinet.*

On September 1, 2021, the Ambler campus was struck by a devastating EF2 tornado. What could have been seen only as a tragic event has elevated the Ambler campus' importance as a site for research and planning for our collective futures in a way that no one could have imagined. Prior to the tornado, the Field Station staff and students had made significant progress in documenting the contents and conditions of the Temple Forest Observatory, which is a part of the Smithsonian Institution's Forest Global Earth Observatory (ForestGEO). It is uncommon for an old-growth forest in this region of the country to experience a tornado strike. It is even more rare for it to have occurred in an area that has been so well documented.



*This felled tree represents a glimpse into the profound damage to the tree canopy as a result of the tornado, which totaled 9203.9 cubic yards of material of wood chips, or removed vegetative debris (4,992.7 cubic yards), and original debris hauled out after temporary storage (4,211.2 cubic yards).*

For these reasons, the decision was made to withhold human intervention in this area. As a result, the forest is now an invaluable space for studying natural recovery and regeneration. Our students have the opportunity to learn and practice research methods while contributing to knowledge with real-world implications.

Just across the street, the campus hosts the cultivated gardens and other maintained areas that make up the Ambler Arboretum of Temple University. More than 500 trees were lost from its collection when the tornado hit. Within these areas, we have the chance to plan and replant for a future climate that is already different than when the lost trees were planted 60 to 100 years ago. Students in the horticulture and landscape architecture programs have been able to take their knowledge out of the classroom and be a part of the campus restoration. Well over 100 new trees have been planted during these recovery efforts thanks to the dedication of our students, staff, and an army of volunteers.

While the Field Station and the Ambler Arboretum focus on applied research and planning for today and future generations, Temple Ambler is also reimagining the use of its building infrastructure. The campus is working closely with the Tyler School of Art and Architecture, the College of Science and Technology, College of Engineering, Criminal Justice Training Programs, and other university units to develop the Ambler Research + Collaboration Building, a shared space for design-build projects, research, and other cross-disciplinary projects. These facilities and environments are invaluable for training our students to be the next generation of scientists, engineers, horticulturalists, and designers of a sustainable built environment.



*As a part of Earth Month, EcoReps traveled to Ambler for an educational tour of the Arboretum and to perform direct service. Participating students lent a hand to help with recovery from the tornado by planting new trees as well as more routine weeding and invasive species removal.*

Temple Ambler contributed to its community and served as an experiential learning laboratory since its founding as the Pennsylvania School of Horticulture for Women (PSHW) in 1911. Tracing back to its roots as the PSHW where women were trained in agricultural techniques to support food shortages during World War I, Temple Ambler continues to host courses in sustainable food systems. The food crops course offered through the Tyler School of Art and Architecture grows more than 600 pounds of fresh vegetables that are donated to a local food pantry each year. Community members turn to the campus for programs and advice regarding their own gardens and trees.

There is no question that the tornado brought loss to the Ambler Campus. At the same time, it has provided new opportunities to learn and grow from the experience. As we find ourselves saying around campus, we are making lemonade from the lemons that the tornado served us. The tornado has brought attention from the local and national media to this rare opportunity to train students and contribute to knowledge about ecology and climate change.

As evidenced in another Common Health publication, *“Extreme Weather Preparedness for Institutions of Higher Education: Impacts and Lessons Learned to Inform Campus Health”* by Stollow et al, the tornado also provided an opportunity to contribute to the body of knowledge about disaster preparedness and response. Our community reported being unprepared for the tornado; this work has helped us to learn about the gaps in our response. As climate change continues to generate more extreme weather patterns and events, I hope that the knowledge gained from this study will help us to improve our own preparation for future natural disasters and that our experience can benefit others.

*To read this publication in full visit the [TU CommonHealth Website](#)*

**For FY22, we are reporting 3102.29 tons of organic waste from Ambler alone, compared to 0.36 tons total organic waste, for all Temple campuses, the previous fiscal year.**

**The Ambler Field Station and collaborating faculty, led by Dr. Amy Freestone, and Dr. Brent Sewall, are in the process of consolidating tree data from before and after the storm for both the developed and undeveloped portions of campus. This data will be reported in upcoming publications on the impacts of the tornado.**



## Temple University Greenhouse Gas Inventory Greenhouse Gas Emissions Summary FY 2006-2022

Prepared by the Office of Sustainability

Emissions Source		FY06	FY07	FY08	FY09	Fy10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22
Scope 1 Emissions (MT CO <sub>2</sub> E)	Stationary (oil, natural gas, propane)	57,183	55,541	47,012	62,000	57,005	52,457	47,684	55,570	54,984	57,777	52,532	49,305	55,623	54,761	51,759	55,073	52,506
	Mobile (university fleet)	624	644	618	885	847	895	856	923	888	845	835	838	988	877	706	622	715
	Refrigerants & Chemicals	1,764	1,702	1,682	2,301	2,295	2,288	2,284	2,283	2,283	2,294	114	150	123	763	432	1,205	100
	Fertilizer	8.58	6.65	7.48	3.75	2.21	3.88	2.73	3.62	2.95	2.14	1.86	1.94	1.99	1.55	2.83	1.72	2.57
Scope 2 Emissions (MT CO <sub>2</sub> E)	<b>Total Gross Emissions Scope 1</b>	<b>59,579</b>	<b>57,894</b>	<b>49,320</b>	<b>65,189</b>	<b>60,148</b>	<b>55,644</b>	<b>50,827</b>	<b>58,780</b>	<b>58,158</b>	<b>60,918</b>	<b>53,483</b>	<b>50,295</b>	<b>56,737</b>	<b>56,402</b>	<b>52,900</b>	<b>56,901</b>	<b>53,323</b>
	Purchased Electricity	103,424	97,913	101,461	90,265	98,216	98,173	84,661	82,839	89,383	83,102	53,535	61,079	53,501	49,377	57,639	58,978	54,102
	Purchased Steam	278	318	330	360	353	349	294	435	366	1,029	1,126	1,074	699	694	724	628	1,021
Scope 3 Emissions (MT CO <sub>2</sub> E)	<b>Total Gross Emissions Scope 2</b>	<b>103,702</b>	<b>98,231</b>	<b>101,791</b>	<b>90,625</b>	<b>98,568</b>	<b>98,523</b>	<b>84,955</b>	<b>83,274</b>	<b>89,749</b>	<b>84,131</b>	<b>54,661</b>	<b>62,153</b>	<b>54,200</b>	<b>50,070</b>	<b>58,363</b>	<b>59,607</b>	<b>55,123</b>
	Faculty Commuting	2,159	2,097	2,104	2,220	2,274	2,259	2,257	2,158	2,239	2,297	3,703	2,693	2,693	5,871	2,064	744	8,041
	Staff Commuting	3,743	3,738	3,698	3,721	3,559	3,407	3,402	5,028	4,816	5,863	7,980	6,833	7,330	12,052	8,902	2,381	6,939
	Student Commuting	11,354	11,317	11,554	12,068	12,799	13,111	12,701	11,992	12,733	12,752	16,775	17,485	17,685	22,863	17,162	2,071	11,751
	University Financed Travel	5,580	6,029	5,884	6,017	6,697	7,436	386	7,661	8,507	6,335	6,556	9,582	9,240	7,877	6,251	231	3,890
	Solid Waste	15,411	14,682	13,675	11,770	12,408	11,485	3,636	3,222	4,321	2,918	3,018	3,658	0.81	0.64	0.55	0.24	0
	Transmission & Distribution Losses	10,353	9,912	10,252	8,927	3,070	6,068	8,548	8,364	5,091	4,366	3,589	3,586	3,494	3,335	3,054	3,301	3,279
	<b>Total Gross Emissions Scope 3</b>	<b>48,599</b>	<b>47,829</b>	<b>47,165</b>	<b>44,702</b>	<b>40,808</b>	<b>43,764</b>	<b>30,930</b>	<b>38,425</b>	<b>37,707</b>	<b>34,531</b>	<b>41,621</b>	<b>43,837</b>	<b>40,442</b>	<b>51,998</b>	<b>37,433</b>	<b>8,728</b>	<b>33,900</b>
<b>Total Gross Emissions</b>		<b>211,881</b>	<b>203,953</b>	<b>199,277</b>	<b>200,517</b>	<b>199,524</b>	<b>197,931</b>	<b>166,713</b>	<b>180,479</b>	<b>185,613</b>	<b>179,580</b>	<b>149,764</b>	<b>156,285</b>	<b>151,380</b>	<b>158,471</b>	<b>148,696</b>	<b>125,236</b>	<b>142,347</b>
Scope 1-3 Gross Emissions (MT CO <sub>2</sub> E)	Gross Square Footage (GSF) 1	8,266,175	8,217,765	8,217,765	9,171,147	9,353,107	9,353,107	9,245,532	9,644,403	10,821,557	10,495,580	10,466,730	10,093,702	10,696,566	10,934,911	11,190,980	11,223,027	11,246,433
	Full-Time Equivalent Students (FTE)	27,055	27,560	28,535	29,901	31,363	32,251	31,939	31,811	33,563	33,955	34,450	35,750	36,397	36,423	35,641	34,069	32,761
	Total Gross Emission Intensity/1000 GSF	25.63	24.66	23.97	21.86	21.33	21.16	18.03	18.71	17.15	17.11	14.31	15.48	14.15	14.49	13.29	11.16	12.66
	Total Gross Emission Intensity/FTE	7.83	7.40	6.95	6.71	6.36	6.14	5.22	5.67	5.53	5.29	4.35	4.37	4.16	4.35	4.17	3.68	4.35
	Offsets (On-site Compost)	-3.4	-5.5	-16.0	-15.1	-15.5	-10.1	-11.9	-11.9	-19.4	-13.5	-13.5	-13.5	-	-	-	-	-
Scope 1-3 Net Emissions (MT CO <sub>2</sub> E)	<b>Total Net Emissions</b>	<b>211,877</b>	<b>203,948</b>	<b>198,261</b>	<b>200,501</b>	<b>199,509</b>	<b>197,921</b>	<b>166,701</b>	<b>180,467</b>	<b>185,594</b>	<b>179,567</b>	<b>149,751</b>	<b>156,271</b>	<b>151,380</b>	<b>158,471</b>	<b>148,696</b>	<b>125,236</b>	<b>142,347</b>
	Total Net Emission Intensity/1000 GSF	25.63	24.66	23.97	21.86	21.33	21.16	18.03	18.71	17.15	17.11	14.31	15.48	14.15	14.49	13.29	11.16	12.66
	Total Net Emission Intensity/FTE	7.83	7.40	6.95	6.71	6.36	6.14	5.22	5.27	5.53	5.29	4.35	4.37	4.16	4.35	4.17	3.68	4.35

## Academics & Research Progress to Goals

### Curricular



#### Sustainability Focused Courses

Increase the number of undergraduate/graduate sustainability courses by ten (10) courses from an October 2017 baseline by June 2022.

*The Office of Sustainability will provide a complete list of courses upon request.*



#### Sustainability Inclusive Courses

Increase the number of undergraduate/graduate courses that include sustainability by twenty (20) courses from an October 2017 baseline by June 2022.

*The Office of Sustainability will provide a complete list of courses upon request.*



#### Departments Offering Sustainability Courses

Increase the number of departments with sustainability course offerings by two (2) departments from an October 2017 baseline by June 2022.

#### 2021-2022 Departments:

Adult & Organizational Development  
Advertising  
Africology/African American Studies  
American Studies  
Anthropology  
Architecture  
Art History  
Asian Studies  
Biology  
Botany  
Business Administration  
Chemistry  
City and Regional Planning  
Civil Engineering  
Communication Management  
Communication Sciences & Disorders  
Communication & Social Influence  
Community Development  
Construction Management Technology  
Counseling Psychology

Criminal Justice  
Dance  
Dental Public Health Sciences  
Disability Studies  
Economics  
Education  
Education Administration  
Earth & Environmental Science  
Economics  
Engineering  
English  
Environmental Engineering  
Environmental Health  
Environmental Science  
Environmental Studies  
Epidemiology & Biostatistics  
Finance  
Gender, Sexuality & Women's Studies  
Geography & Urban Studies

Graphic & Interactive Design  
Health Policy & Management  
Health Related Professions  
Higher Education  
History  
Horticulture  
Human Resource Management  
Intellectual Heritage  
Jewish Studies  
Journalism  
Juris Doctor  
Landscape Architecture  
Law Undergraduate  
Legal Studies  
LGBT Studies  
Marketing  
Mechanical Engineering  
Media Studies & Production  
Nursing  
Personal Care Home Administrator

Training  
Philosophy  
Physics  
Psychology  
Public Relations  
Religion  
Social & Behavioral Sciences  
Social Work  
Sociology  
Spanish  
Special Education  
Sport, Tourism & Hospitality Management  
Strategic Management  
Tourism Hospitality Management  
University College  
University Seminar  
Urban Bioethics  
Urban Education

### Co-Curricular



#### Sustainability Co-Curricula

Develop a strategy for co-curricular sustainability education that integrates academic courses and non-credit learning experiences that are connected to or mirror the academic curriculum. The strategy is to include a process for collecting data regarding co-curricular sustainability education and an assessment tool by June 2020.

*The Office of Sustainability will provide a summary of the project descriptions and their learning objectives upon request.*

#### Project-Based Learning Collaborations:

ARCH 4011 | Research Methods for Facilities Management  
CART 4012 | Arts, Communities, & Climate Justice  
ENGR 4175 | Civil Engineering Senior Design Studio

ENST 4198 | Environmental Studies Senior Seminar Fall '21  
ENST 4198 | Environmental Studies Senior Seminar Spring '22  
GUS 3057 | Sustainable Cities

SGM 3511 | Doing Well By Doing Good  
STHM 3425 | Event and Entertainment Operations  
UC 3101 | Sustainability in Action

#### Academic Programs

Civil Engineering (Environmental Engineering) | BSCE  
Community Arts Practices | Cert.  
Entrepreneurship and Innovation Management | BBA, Minor, Cert.

Environmental Studies | BA, Minor  
Event and Entertainment Management | BS; Minor, Cert.  
Facilities Management | BS

Geography and Urban Studies | BA, Minor  
Sustainability | Cert.

#### Schools, Colleges, & Divisions

College of Engineering  
College of Liberal Arts  
Fox School of Business  
School of Sport, Tourism, and Hospitality Management

Tyler School of Art and Architecture  
University College

## Research



### Sustainability Research

Identify, validate and amplify current sustainability research using the Electronic Research Administration (eRA) database to document sustainability research.

Sustainable Keywords in Research Awards by College	4 Keywords	3 Keywords	2 Keywords	1 Keyword	Total
College of Science and Technology	26	6	17	24	73
College of Engineering	-	1	18	-	19
College of Liberal Arts	-	-	8	-	8
College of Public Health	-	-	6	-	6
Fox School of Business	-	1	2	-	3
Offices of the President and Provost	-	-	2	-	2
Lewis Katz School of Medicine	-	-	2	-	2
Klein College of Media and Communication	-	-	1	-	1
Tyler School of Art and Architecture	-	-	1	-	1
<b>Total</b>	<b>26</b>	<b>8</b>	<b>57</b>	<b>24</b>	<b>115</b>

## Culture

### Progress to Goals



### Office of Sustainability Green Grant

Increase student sustainability engagement through the development of a student green fund by 2019.

Academic Year	Green Grant Recipient	Outcomes	Award Amount
2018-2019	Temple Student Government	Started and off-campus compost collection service	\$1,500.00
2019-2020	Net Impact	Received funds to set up research and development space for their start-up, Buchas Leather	\$1,000.00
	Thrift and Flop	Received funds to purchase materials for Thrift & Flop workshops focused on reuse	\$350.00
	Temple Student Government	Received funds for seeds to plant a pollinator and edible garden.	\$215.00
2020-2021	Adventure Bound	Received funds for Leave No Trace (LNT) certification and equipment to support LNT and sustainable camping.	\$1,215.00
2021-2022	Engineers Without Borders	Received funds to audit and clean plastic waste and for parts and equipment to grind and extrude plastic filament for 3-D printer	\$280.59



### Sustainability Culture Survey Goal

A sustainability culture survey was conducted in Spring 2022. The full 2022 Transportation and Sustainability Culture Survey report can be found on the [Office of Sustainability Website](#)



### Temple University Cherry Pantry Donations

Begin to address food insecurity at Temple by 2019.

### Monetary Donation generated from Thrift Sales

Academic Year	Temple Thrift Sales Monetary Donations	Give & Go Green Food Donations (lbs)	Other Monetary Donations
2019-2020	\$5,143	1,946	N/A
2020-2021	Canceled Due to COVID-19	1,200	\$690
2021-2022	\$3,036	2,811	\$700

## EcoReps

### Progress to Goals



#### Create a Student Educator Program to Build Student awareness on campus by 2020.

Eco Reps is a peer education program for all students passionate about sustainability. Temple University's EcoReps program was launched in Fall 2020 and continued through the 21-22 academic year. It includes a diverse student population as evidenced by the number of unique majors amongst the new EcoRep cohort. The 2020-2021 EcoRep cohort were active participants in Temple's climate action movement and coalition building activities as evidenced by the total number of student organizations engaged by the Office of Sustainability. This diverse group of students gain career competencies and transferable professional skills.

*A complete list of EcoReps is available upon request.*

#### Unique Majors of Eco Reps:

- |  |  |   |   |
|--|--|---|---|
| <ul style="list-style-type: none"> <li>Adult and Organizational Development</li> <li>Advertising</li> <li>Biology</li> <li>Business Administration</li> <li>Cellular &amp; Molecular Neuroscience</li> <li>Communication Studies</li> <li>Community Development</li> <li>Computer Science</li> </ul> | <ul style="list-style-type: none"> <li>Criminal Justice</li> <li>Economics</li> <li>Education</li> <li>Electrical Engineering</li> <li>Entrepreneurship</li> <li>Event &amp; Entertainment Management</li> <li>Environmental Engineering</li> <li>Environmental Science</li> </ul> | <ul style="list-style-type: none"> <li>Environmental Studies</li> <li>Geography &amp; Urban Studies</li> <li>Geoscience</li> <li>Global Studies</li> <li>Health Professions</li> <li>Human Development &amp; Community Engagement</li> <li>Marketing</li> </ul> | <ul style="list-style-type: none"> <li>Media Studies &amp; Production</li> <li>Political Science</li> <li>Psychology</li> <li>Public Health</li> <li>Public Relations</li> <li>Secondary Education</li> </ul> |
|--|--|---|---|

#### Student Organizations Engaged:

- |  |  |   |   |
|--|--|---|---|
| <ul style="list-style-type: none"> <li>Adventure Bound</li> <li>American Marketing Association (AMA)</li> <li>Association of Interdisciplinary Sciences</li> <li>Audubon</li> <li>Defend Our Future</li> <li>Engineering Without Borders</li> <li>ESA - SEEDS</li> </ul> | <ul style="list-style-type: none"> <li>Event Planning Association</li> <li>Fashion in Business</li> <li>Health Link Society</li> <li>Net Impact</li> <li>One Health</li> <li>PennPIRG</li> <li>Sharing Excess</li> </ul> | <ul style="list-style-type: none"> <li>Society for Ecological Restoration</li> <li>Tau Sigma Delta National Honor Society</li> <li>Temple ADM (Alpha Delta Mu)</li> <li>Temple Community Development Club</li> <li>Temple Community Garden</li> <li>Temple Environmental Law Society</li> </ul> | <ul style="list-style-type: none"> <li>Temple Student Government Sustainability Taskforce</li> <li>Thrift and Flop</li> <li>TU Clean Up Club</li> <li>UNICEF</li> </ul> |
|--|--|---|---|



#### Engagement by the #s

Robust and effective programming and campus outreach and engagement strategies, including educational events, workshops, direct service, and communication campaigns, are essential to achieving Temple's Climate Action Plan goals. Collaboration with university partners and external stakeholders enables us to incorporate sustainability and environmental justice principles in a greater share of university programs, activities and services. We evaluate our engagement impact by programs' capacity to increase visibility of Temple's climate commitment, improve literacy on critical sustainability and environmental justice issues, and build the capacity of the students, staff, and faculty to support the university's climate commitment

*A complete list of events and volunteer and community engagement activities are available upon request..*

#### Internal Collaborators:

- |   |  |   |  |
|---|--|---|--|
| <ul style="list-style-type: none"> <li>Adventure Bound</li> <li>Ambler Arboretum</li> <li>Aramark</li> <li>Campus Safety</li> <li>Dean of Students</li> <li>Education Abroad and Overseas Campuses</li> <li>Event Planning Association</li> </ul> | <ul style="list-style-type: none"> <li>Geography and Urban Studies</li> <li>Grounds Operations</li> <li>Health-Link Society</li> <li>Innovation &amp; Entrepreneurship Institute</li> <li>Office of Community Affairs</li> <li>One Health</li> <li>Sharing Excess</li> </ul> | <ul style="list-style-type: none"> <li>School of Tourism and Hospitality Management</li> <li>Student Activities</li> <li>Tau Sigma Delta National Honor Society</li> <li>Temple Community Development Club</li> <li>Temple Community Garden</li> <li>Temple Student Government</li> </ul> | <ul style="list-style-type: none"> <li>Temple University Libraries</li> <li>Tyler - Community Arts Practices</li> <li>University Housing and Residential Life</li> </ul> |
|---|--|---|--|

#### External Collaborators:

- |  |  |  |   |
|--|--|--|---|
| <ul style="list-style-type: none"> <li>5th Square</li> <li>Bicycle Coalition of Greater Philadelphia</li> <li>Circular Philadelphia</li> <li>Clean Air Council</li> <li>DVRPC</li> <li>FABSCRAP</li> <li>Fairmount Park Conservancy</li> </ul> | <ul style="list-style-type: none"> <li>Friends of Harrogate</li> <li>Good Buy Supply</li> <li>Indego</li> <li>Kayuh</li> <li>Kensington Community Food Co-op</li> <li>OTIS</li> <li>PA Interfaith Power and Light</li> </ul> | <ul style="list-style-type: none"> <li>Philadelphia Higher Education Network for Neighborhood Development</li> <li>Philadelphia Parks &amp; Recreation</li> <li>Philadelphia's Parks Friends Network</li> <li>Ramboll</li> <li>Resource Exchange</li> <li>SEPTA</li> </ul> | <ul style="list-style-type: none"> <li>The Rounds</li> <li>Tookany/Tacony-Frankford Watershed Partnership</li> <li>Transit Forward Philly</li> <li>Ya Fav Trashman</li> </ul> |
|--|--|--|---|

## Design

### Progress to Goals



#### Verdant Temple Landscape Master Plan

Complete the full implementation of the Verdant Temple Landscape Master Plan by 2030. In 2022 Temple University exceeded the tree planting goal outlined in the Verdant Temple Landscape Master Plan.

To view a complete tree map of Temple University Main Campus visit the [Sustainable Campus](#) page on the Office of Sustainability website.

## Energy

### Progress to Goals



#### Building Stock

Reduce energy use in existing building stock by 18% in a typical climatic year by 2030.

Energy Type	FY 17	FY 18	FY 19	FY 20	FY 21	FY 22
Natural Gas (MMBtu)	919,104	1,027,252	1,025,445	974,442	1,037,007	988,268
Purchased Steam (MMBtu)	14,729	9,577	9,509	10,257	8,610	14,000
#2 Oil (MMBtu)	1,119	8,100	1,055	910	13,839	860
#6 Oil (MMBtu)	5,778	6,718	3,958	0	0	0
Electricity (MMBtu)	752,390	698,685	678,602	611,041	614,376	612,699
Energy Use Actual (MMBtu)	1,693,120	1,750,332	1,718,569	1,596,650	1,673,832	1,615,827
% Change from FY17	-	3%	1%	-6%	-1%	-5%

## Operations

### Progress to Goals



#### Waste Minimization

Achieve a 50% diversion rate by 2020 & Increase core recycling to 30% by 2020.

Fiscal Year	2019	2020	2021	2022
<b>Basic Materials</b>	<b>Tons</b>	<b>Tons</b>	<b>Tons</b>	<b>Tons</b>
Mixed Office Paper	469.42	260.13	134.35	120.63
Corrugated Cardboard	85.26	66.15	35.57	65.88
Single Stream Recycling	1,587.16	1,042.92	265.31	1,328.93
Municipal Solid Waste (MSW)	3,933.83	2,757.69	720.80	2,422.94
<b>Subtotal - Basic Materials (Recycling)</b>	<b>2,141.84</b>	<b>1,369.20</b>	<b>435.22</b>	<b>1,515.44</b>
<b>Subtotal - Basic Materials (Trash)</b>	<b>3,933.83</b>	<b>2,757.69</b>	<b>720.80</b>	<b>2,422.94</b>
<b>Secondary Materials</b>				
Biodeigesters	80.15	45.36	17.54	23.44
Fryer Oil	23.61	4.20	3.92	3.92
Vegetation Compost	9.18	2.84	0.36	414.18
Construction & Demolition (Recycling)	135.06	176.08	33.73	14.53
Construction & Demolition (Trash)	40.01	97.10	32.11	13.93
<b>Subtotal - Secondary Materials (Recycling)</b>	<b>112.94</b>	<b>52.39</b>	<b>21.81</b>	<b>441.54</b>
<b>Subtotal - Secondary Materials (Trash)</b>	<b>40.01</b>	<b>97.10</b>	<b>32</b>	<b>14</b>
<b>Special Materials</b>				
Computer Equipment - Reused/Recycled	4.66	2.93	51.55	51.55
Universal & Chemical Waste (Recycled)	0.00	9.26	31.80	31.80
Incinerated Chemical Waste	68.56	55.44	23.52	0.00
Scrap Metals	118.49	56.75	63.00	63.00
Surplus Sales	0.00	92.50	0.00	0.00
Residential Give & Go Green	-	0.97	1.21	1.21
<b>Subtotal - Special Materials (Recycling)</b>	<b>123.15</b>	<b>162.41</b>	<b>147.56</b>	<b>147.56</b>
<b>Subtotal - Special Materials (Waste)</b>	<b>68.56</b>	<b>55.44</b>	<b>23.52</b>	<b>0.00</b>
<b>RECYCLING Campus Totals</b>	<b>2,377.93</b>	<b>1,584.00</b>	<b>605</b>	<b>2105</b>
<b>WASTE Campus Totals</b>	<b>3,911.25</b>	<b>2,910.23</b>	<b>752.91</b>	<b>2,436.87</b>
<b>Total Recycling %</b>	<b>38%</b>	<b>35%</b>	<b>45%</b>	<b>46%</b>
<b>Core Recycling %</b>	<b>36%</b>	<b>33%</b>	<b>38%</b>	<b>38%</b>
<b>Total Municipal Solid Waste and Recycling Reduction</b>	<b>7%</b>	<b>-27%</b>	<b>-80%</b>	<b>-31%</b>

# Appendix



## Grounds

Reduce the use of inorganic fertilizers and chemical pesticides, fungicides and herbicides by 75% by 2025 from the 2010 baseline.

Fiscal Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Total lbs Inorganic Fertilizer	4410.0	6175.7	5123.1	7662.5	7125.0	4325.0	4425.0	4475.0	4625.0	3775.0	1905.8	1006.8	3007.8
% Reduction	-	-37%	-14%	-70%	-58%	4%	2%	1%	-3%	16%	58%	78%	33%



## Dining

Temple University will require its dining services provider to submit annual procurement reporting consistent with the STARS assessment program by 2018.

### Sustainably or Ethically Produced Food & Beverage:

Purchases met one of the following sustainability standards:

- Rainforest Alliance Certified (SAN Standard for Sustainable Agriculture)
- USDA Transitional Organic
- Fair Trade Certified (Fair Trade USA)
- MSC Certified Fisheries
- American Humane Certified (Cage Free & Enriched Colony Eggs)

Total Spent: \$131,392

### Plant-Based Food & Beverage:

Purchases includes food meeting one or more of the following categories:

- Fruits
- Vegetables
- Whole Grains
- Beans
- Other Legumes
- Soy Foods
- Nuts & Seeds
- Plant Oils
- Herbs & Spices
- Vegetarian/Vegan Alternatives

Total Spent: \$953,073

# Appendix

## Transportation



Reduce fleet-based emissions from 2006 baseline by 20% by 2030.

Fiscal Year	Fleet Based Emissions (MTCDE)	% Increase
2006	624.88	-
2007	644.97	3%
2008	621.33	-1%
2009	886.39	42%
2010	849.40	36%
2011	898.15	44%
2012	859.80	38%
2013	930.22	49%
2014	895.34	43%
2015	851.67	36%
2016	841.20	35%
2017	843.64	35%
2018	1041.21	67%
2019	875.04	40%
2020	649.55	4%
2021	635.71	2%
2022	714.94	14%



Increase the number of commuters who utilize a sustainable form of transportation to the campus to 75% by 2025.

Transportation	2016	2019	2022
Bas	7%	8%	6%
Car	28%	23%	31%
Taxi/Rideshare	1%	2%	1%
Subway	17%	18%	16%
Regional Rail	14%	14%	12%
Bicycle	5%	5%	3%
Walk	25%	25%	29%
Carpool	3%	1%	2%



Increase percentage of the university's fleet that is alternatively fueled to 50% by 2030.

Fuel Source	2020	2021	2022
Gas	130	135	135
Diesel	42	41	33
CNG	11	11	10
Electric	32	27	20
Propane	8	8	8
Hybrid	0	4	3
Total Vehicles	223	226	207
Total Alt. Vehicles	51	50	41
% Alt. Vehicles	23%	22%	20%



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