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KEY PROGRESS & ACHIEVEMENTS

LEADERSHIP & ENGAGEMENT

Draft Climate Action & Sustainability Plan receives over **600** comments

Office of Sustainability employs **13** student interns

over 200
students, faculty,
and staff serve
on 3 Committees
and 10 Working
Groups of the
Sustainability
Leadership
Council

Campus as a Living Lab program launches to foster collaborative research and teaching on JHU Campuses, and will award up to \$216,000 in grants annually

RESEARCH, TEACHING, & SCHOLARSHIP

CLIMATE ACTION

JHU receives **Climate Registered Gold Certification** for GHG
verification

Climate Action &
Sustainability Plan sets
new targets to achieve
net-zero Scope 1 and 2
GHG emissions
by 2040

JHU adopts new High
Performance and Healthy
Buildings Requirements and
pilots on **5** building
projects

BUILT & NATURAL ENVIRONMENTS

RESPONSIBLE CONSUMPTION

35% of waste was diverted from landfill and incinerator



Hopkins Dining expands sustainable partnerships to over **50** local vendors

composting expands across
for new campus
locations — APL,
Peabody, the
Johns Hopkins
Bloomberg
Center, Keswick,
and Mt.
Washington

TRANSPORTATION & MOBILITY

Shuttle ridership increases **9%**, totaling **1,433,057** irides in 2023



180% increase in new electric vehicle charging stations installed across JHU

JHU continues fleet electrification process with order of **5** electric buses

LEADERSHIP & ENGAGEMENT

Critical to the success of sustainability at JHU is a deep commitment to stakeholder engagement, outreach, and education. Over the past year there have been a wide range of opportunities for student, faculty, and staff involvement.

Through growing initiatives, such as the Office of Sustainability's Student Internship Program and Green Labs Program, a new Blue Jay's Green Guide Newsletter, and the expansion of activities during Earth Month, stakeholders across the university have been able to participate and make their voices heard in new and exciting ways.

The Sustainability Leadership Council (SLC) also welcomed a growing cohort of new members and continues to serve as a critical convening and advisory body, bringing together stakeholders from all JHU schools and divisions.

At the forefront of these efforts was a robust engagement process to support the development of JHU's new Climate Action and Sustainability Plan. Students, faculty, staff, and community partners provided input through a series of town halls, academic events, and an open comment period to help shape the final version of the recently released Plan in areas of Research, Teaching, and Scholarship, Climate Action, Built and Natural Environments, Responsible Consumption, and Transportation and Mobility.



Engagement Highlights





EARTH FEST: On April 21st, 2023, the Office of Sustainability brought together student organizations, local businesses, and other partners to learn about a diverse array of sustainability initiatives, celebrating Earth Day and our campus community.





SUSTAINABILITY SYMPOSIUM: The SLC hosted the 4th Annual Sustainability Symposium on April 25th, 2023, connecting 300+ attendees and 60+ speakers over 12 panel discussions on multidisciplinary sustainability topics.





CLIMATE ACTION & SUSTAINABILITY PLAN TOWN HALLS: As part of the Draft Climate Action & Sustainability Plan comment period, the Office of Sustainability hosted two town hall events at Homewood and East Baltimore to present the Plan framework, receive feedback, and foster discussions.

Sustainability Internship Program

Each year, the Office of Sustainability employs student interns to contribute to campus sustainability solutions. Students report to different staff within the Office of Sustainability and collaborate across three cohort areas: communications, engagement, and research and operations.

This year, communications interns, Rachel Huang, Skye Neulight, and Isabelle Nobili, shared sustainability stories from across the university through social media, the Blue Jay's Green Guide Newsletter, and the JHU Sustainability blog. Stories highlight everything from research in plant adaptation to gift wrapping tips to reduce waste.

Engagement interns, Simrin Carlsen, Eden Teodorovici, and Srigouri Oruganty, curated a series of Earth Month activities, culminating in an Earth Fest celebration that brought over 200 attendees. Their work was also instrumental during the Draft Climate Action and Sustainability Plan comment period, hosting tabling events and collaborations to promote student feedback on the university Plan.

In research and operations, intern Kathy Cao conducted benchmarking on peer clean energy goals between JHU's newly developed High-Performance and Healthy Buildings Requirements and the Leadership in Energy and Environmental Design (LEED) rating system to assist with Climate Action and Sustainability Plan implementation.





Green Labs Program

Laboratory research at JHU has contributed to society's most significant discoveries in areas from space exploration to disease prevention. However, labs are extremely resource-intensive, consuming four to five times more energy and water and generating more waste than a typical buildings. The Green Labs Program aims to improve sustainability and efficiency in lab spaces, through strategic initiatives such as a Green Lab Certification, participation in the International Freezer Challenge, departmental presentations and trainings, and a new Green Labs Newsletter spearheaded by intern, Kaitlin Williams.

2023 also marked the most successful year for JHU participation in the International Freezer Challenge, which is a global competition aimed at reducing the energy impact of laboratory freezers through improved maintenance practices, temperature tuning, and inventory management.

56 labs competed in the Freezer Challenge, conserving an estimated **1,202** kWh/day

JHU earned **Institutional Honorable Mention** and
the School of Medicine GIOncology lab named **Top Large Lab** in the academic category

Sustainability Leadership Council

The <u>JHU SLC</u> is a diverse group of faculty, staff, and student leaders who collaborate across three committees and ten working groups – serving as a vital advisory and convening body. The SLC helps strengthen collaboration and communication between sustainability stakeholders to build consensus for university-wide solutions, strategize new institutional best practices, and identify opportunities.

Over the past year, two new working groups were established — a K-12 Education Working Group and a Healthcare Sustainability Working Group — to foster collaboration and advance these emerging priorities. The K-12 Education Working Group aims to integrate sustainability into educational curricula, working with partners in Baltimore City and beyond. The Healthcare Sustainability Working Group was established to address the unique challenges of sustainability in healthcare environments, as well as identifying research, curricular, and clinical opportunities to advance sustainability.

Committee Highlights

RESEARCH AND ACADEMICS

Faculty and students developed recommendations related to teaching, research, and scholarship in the university's Climate Action and Sustainability Plan, strategies to inform a new sustainability research alliance, and the launch of the Campus as a Living Lab program. Additionally, the group oversaw the expansion of SLC's Annual Symposium — convening talks, panel discussions and research posters focused on "Sustainability Research and Practice."

OPERATIONS

The committee contributed significantly to the operational goals of the Climate Action and Sustainability Plan and developed initiatives to integrate sustainability within areas of: green labs, zero waste planning, food and dining, and transportation.

ENVIRONMENTAL JUSTICE

The committee developed recommendations for incorporating environmental justice decision-making into university operations and planning, other SLC initiatives, and community-engaged activities. Members also developed a set of environmental justice guidelines to prompt reflection and action that all JHU community members are encouraged to use.

Related News

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Sustainability Leadership Council spearheaded strategic initiatives in 2023

Sustainability Symposium: Connecting
Hundreds

Community Solar Partnership: Sunsational News

'Freezer Challenge' Helps Hopkins Labs Reduce Energy Consumption EarthFest celebrates green practices on campus and beyond

The Intersection of Sustainability & Wellbeing: Mindful Walks at Homewood

Climate change in Black and White:

Documentary Screening

RESEARCH,
TEACHING,
& SCHOLARSHIP

As global environmental challenges have become increasingly widespread and complex, JHU is committed to being a leading source of sustainability solutions and developing the next generation of climate and sustainability leaders.

Furthering these aspirations, students, faculty, and staff are collaborating across disciplines through the development of several new research and academic initiatives, including the Johns Hopkins Institute for Planetary Health, the Campus as a Living Lab program, Electric Power Innovation for a Carbon-Free Society Center, and many more. Many of these new opportunities explore global issues through a local lens, advancing ideas across policy, research, teaching, and practice.



JHU launches new Johns Hopkins Institute for Planetary Health

In November 2023, the <u>Planetary Health Alliance</u> (PHA), an international consortium focused on the human health impacts of global environmental change, transitioned to JHU and is now based out of the Johns Hopkins Bloomberg Center in Washington, D.C.



Alongside this transition, JHU launched a new Institute for Planetary Health (JHIPH) led by Public Health Professor and PHA founding director, Sam Myers, to convene scholars from all divisions to help understand and

address the human dimensions of the Earth crisis. JHIPH is designed to connect faculty, staff, and students across the university to catalyze faculty-led initiatives in four domains: research, education, policy, and practice — drawing on the immense strength of existing centers and institutes.

The institute plans to develop collaborative working groups, new academic programs, and an interdisciplinary fellows program. It will also organize community-building events, cultivate an environment of purpose-driven innovation, facilitate policy outreach, and community engagement.

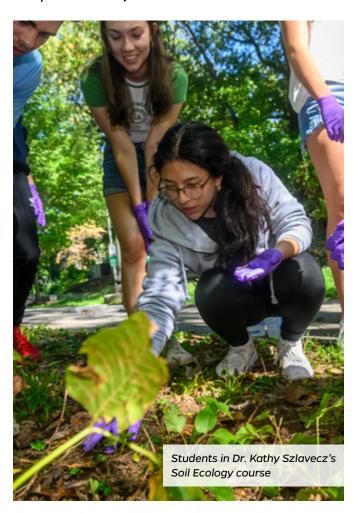
BSPH ranked **#1** in Environmental Health Sciences in U.S. News & World Report

Campus as a Living Lab Program will award up to **\$216,000** in grants annually

Campus as a Living Lab: Teaching & Research for Sustainability Innovation

In February 2024, the SLC and Office of Sustainability officially launched a new <u>Campus</u> as a <u>Living Lab</u> program, focused on leveraging JHU's physical campuses to ideate and test scalable sustainability solutions. Developed by an interdisciplinary SLC working group, the program is intended to bring together researchers, course instructors, staff, and students to advance research and learning, while contributing to themes outlined in JHU's Climate Action and Sustainability Plan.

The Campus as a Living Lab program will facilitate partnerships across academics and operations, administer grants to support sustainability research and teaching, and provide students with opportunities for hands-on sustainability projects. The innovations and findings that emerge are intended to inform sustainability solutions on our campuses and beyond.



New Center focused on Electric Power Innovation for a Carbon-free Society

The Electric Power Innovation for a Carbon-free Society (EPICS) Center, based out of the Ralph O'Connor Sustainable Energy Institute (ROSEI) and funded by the National Science Foundation, is intended to develop innovative computing, economics, engineering, and policy solutions for transitioning towards a 100% renewable energy power grid. The center is led by ROSEI researchers, including Global Director, Professor Ben Hobbs, and US Director, Associate Professor Yury Dvorkin.

The EPICS team is comprised of 26 researchers from nine universities, one government agency, and one nonprofit across the United States, United Kingdom (UK), and Australia. EPICS will establish

a global innovation ecosystem, engaging UK and Australian academics, and global industry and policy stakeholders. The center is spearheading technologies to improve renewable energy, energy storage, and energy distribution changes while preserving efficiency, affordability, and resiliency.



Related News

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New EPICS Center to work at the intersection of science and policy

Baltimore Social-Environmental
Collaborative advances environmental
health justice through partnerships and
research

CHARMED Center collaborated with
Baltimore City community to monitor air
pollution

New Lab Tackles Net-Zero Supply Chains and Industrial Policy

In the Lab: Adaptation to Changing Urban Environments

In the Classroom: Immersive Field
Experience Exploring Earth Evolution

In the Classroom: Soil Ecology

CLIMATE ACTION

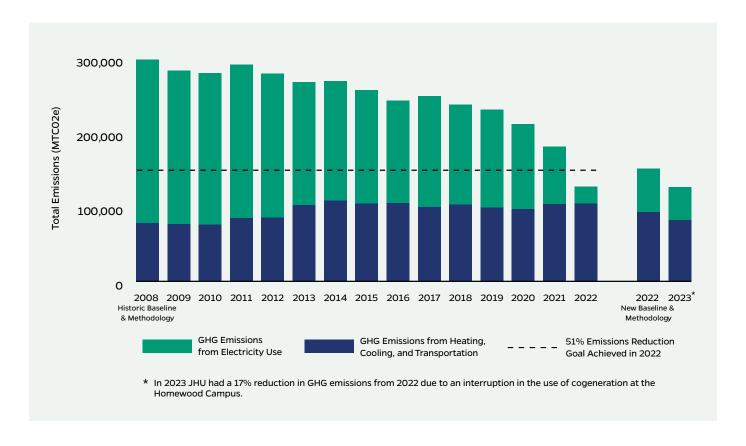
JHU is committed to advancing long-term climate solutions through our strengths as a leading research institution, and through the reduction of our operational carbon footprint. In 2022, JHU reached an important milestone by **reducing greenhouse gas (GHG) emissions 57%**, exceeding the goal set by the 2008 President's Task Force on Climate Change to reduce emissions 51% by 2025.

Since then, important work has taken place to further climate action on our campuses. Last year, a new baseline was established for JHU's GHG emissions, broadening the scope of our decarbonization efforts by including leased buildings in the inventory. JHU also became one of only 19 universities registered as members of The Climate Registry, a global nonprofit dedicated to supporting organizations to reduce their GHG emissions and mitigate their impact on climate change. Now, JHU has received a Climate Registered Gold Certification, a designation for those organizations whose emissions reporting have been validated by a third-party and are reported publicly, in accordance with the Greenhouse Gas Protocol.

As part of the Climate Action and Sustainability Plan, JHU shared a goal to achieve **net-zero scope 1 and 2 emissions by 2040**. Several campuses have already started to plan for achieving this goal, kickstarting implementation, by focusing on energy efficiency or launching decarbonization studies.



GHG Emissions Continue to Decrease Steadily as JHU Sets New Net-Zero Scope 1 and 2 Emissions Goal by 2040



JHU Sets a New, Ambitious Climate Goal

Building on exploratory work done in 2022 to identify climate solutions for JHU campuses, a working group of 15 staff, faculty, and students convened in 2023 to refine a pathway towards net-zero GHG emissions and decide on JHU's next generation of climate goals. The final climate mitigation goal, included in JHU's Climate Action & Sustainability Plan, states that the university will be net-zero scope 1 and 2 GHG emissions by 2040. This goal, which exceeds regional targets set by the State of Maryland, Washington D.C., and the City of Baltimore, sets JHU on an accelerated path to decarbonize its energy infrastructure, buildings, and fleet.

In addition, to focus efforts and maintain short term momentum, two interim goals are set within the plan. The first one focuses on reducing GHG emissions from purchased electricity 100% by 2030, which will ensure that all of JHU's electricity is procured from renewable sources. Additionally, direct scope 1 emissions will be reduced 20% by 2030, to ensure JHU is prioritizing energy efficiency measures and electrification. This will have the additional benefit of reducing operating costs and can also often lead to improvements in the safety and thermal comfort of building occupants, as well as the durability of the building.

76% of purchased electricity sourced from renewable sources

Decarbonization Planning for JHU Campuses

JHU must start planning for decarbonization today, in order to reach the net-zero goals outlined in the university's Climate Action & Sustainability Plan. To do so, several of JHU's campuses have already embarked on initiatives aimed at studying technical options for decarbonization.

At the Applied Physics Lab (APL), a campus decarbonization study was launched in September 2023, with the goal of evaluating the feasibility and cost of different electrification options for all heating, cooling, and hot water systems on the APL main campus. The study will give APL a clear roadmap to follow to decarbonize its energy systems by 2040 and conform with the Maryland Building Energy Performance Standards.



Related News

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JHU achieves TCR Gold Level Climate Registered Gold Certification

Johns Hopkins achieves emissions reduction goal three years ahead of schedule

The Baltimore Social-Environmental Collaborative collaborates with community partners to define and adopt equitable climate mitigation pathways

Johns Hopkins Researchers Join Push for 100% Renewable Energy Power Grids

Rebooting Our Warming Cities: How Data
Modeling Helps Climate Adaptation

Johns Hopkins Research Makes Waves with Better Flood Damage Forecasting

To Reduce Carbon Emissions, Just Add Water: new strategy for converting carbon dioxide into fuels and chemicals BUILT & NATURAL ENVIRONMENTS

Over the past year, JHU has worked to integrate sustainability holistically in policies and campus plans, with the goal of reducing greenhouse gas emissions from both new and existing buildings and exemplifying best practices in environmental and human health.

A key milestone in achieving this vision is the adoption of the High-Performance and Healthy Building (HPHB) Requirements through JHU's Climate Action and Sustainability Plan, a university-wide green building policy to be applied to all building projects, including new buildings, major renovations, and modifications. Design and construction teams throughout JHU have started piloting the policy on a number of construction projects.

Equally important has been the inclusion of sustainability in the development of campus-level plans, specifically the Homewood Campus Master Plan, and the Housing and Dining Implementation Plan. Both large infrastructure plans identify opportunities to improve sustainability on the Homewood campus in areas including energy efficiency, space planning, landscape management, and transportation.



Piloting the High-Performance and Healthy Buildings Requirements

Over the last two years, a working group of 17 staff, faculty, students, and industry partners developed the HPHB Requirements to set new sustainability standards for all buildings projects at JHU, including new construction, major renovations, and modifications.

The requirements cover six priority areas: Energy and Carbon, Climate Resilience, Water, Site, Health and Wellbeing, and Responsible Consumption, and include provisions such as LEED Gold Certification as a minimum for new construction



and major renovation projects, an emphasis on decarbonization, and a greater focus on supporting health and well-being for all occupants.

In 2023, the HPHB Requirements were piloted on five projects still in design phase, representing 1.9 million square feet, successfully incentivizing design teams to integrate sustainability in decision-making at the earliest design phases for each project. The HPHB Requirements were endorsed officially in 2024, and are now applied systematically to all projects.

Integrating Sustainability in Campus Plans

JHU is currently developing two campus plans for the Homewood Campus, a Campus Master Plan addressing all facets of campus life and infrastructure, and a Housing and Dining Implementation Plan focused on those specific facilities. Both plans outline recommendations for the long-term development of JHU's built environment, while meeting the university's academic and campus life needs.

JHU teams are prioritizing the integration of sustainability in those plans, which ensures that future decisions concerning campus infrastructure will be aligned with university goals in areas such as climate action, resource efficiency, and multi-modal transportation.

For example, the new Homewood Campus Master Plan in development will outline strategies to increase the tree canopy and improve accessible greenspace to enhance biodiversity and climate resilience. The Housing and Dining Implementation Plan used energy efficiency as a key criterion when prioritizing building retrofits, which will result in reducing GHG emissions from our buildings, while improving occupant comfort.

Related News

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Johns Hopkins University opens new stateof-the-art higher education facility in the heart of Washington, D.C.

New Bloomberg School of Public Health
Building Targets LEED Gold Rating

Undergraduate Teaching Laboratories
Named in Honor of Florence Bascom

Engineering Team's Sustainable City
Block Design Earns Top-five Spot in ASCE
Competition

Could Your House Make You Sick?: JHU experts weigh in on questions about health and safety indoors

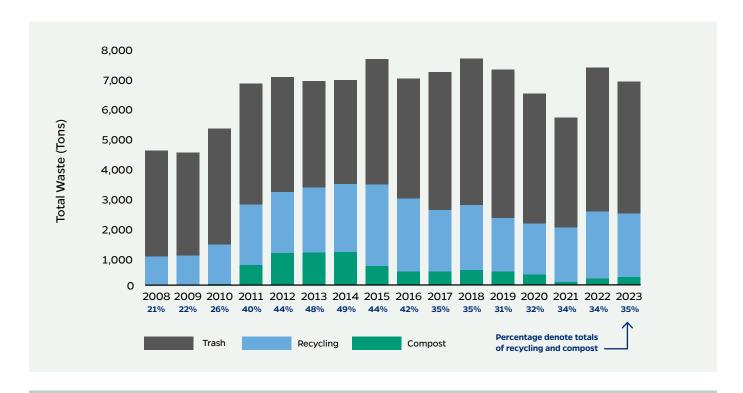
RESPONSIBLE CONSUMPTION

As a large purchaser of products and services, JHU has a strong focus on leveraging our procurement practices for good. This includes university commitments to zero waste, sustainable food systems, and fostering a culture of responsible procurement across our schools and divisions.

Methods for addressing these goals span university operations, policy, and behavior change. Throughout the past year, this has included noteworthy expansions of food waste diversion and composting practices across five new campus locations, as well as new partnerships in dining services that continue to support local farmers and food entrepreneurs. Through these efforts and more, the university is progressing in its goal to reduce the environmental and health impacts of our consumption patterns.



JHU's Total Waste Reduced Significantly in 2023



Overall Diversion Rate* **35%** Construction & Demolition Recycling Rate **96%**

Total Waste Reduction **7%**

Scaling Up Composting

One impactful trend at JHU in 2023 was the significant expansion of composting. Both the APL and Peabody campuses introduced compost collection into their dining operations and cafeterias and are now capturing food waste from back-of-house kitchen preparation, as well as leftover food and compostable packaging material from diners.

Other campuses made significant changes to integrate composting into their operations as well, including the new Johns Hopkins Bloomberg Center in Washington D.C., which has made composting available in all kitchens and public spaces. At the

Keswick and Mt. Washington locations, compost collection resumed after a multi-year pandemicera pause and now includes the collection of paper towels from bathrooms, in addition to food waste in kitchens and cafes.

Collectively, between February and June 2023, these initiatives diverted 8.5 tons of organic material from landfill and incineration, reducing greenhouse gas emissions, producing a valuable soil amendment, and contributing to the reduction of chemical fertilizers that run-off into the Chesapeake Bay.

^{*} The waste diversion rate measures the percentage of material by weight that is diverted from the landfill and incineration through source reduction, reuse, recycling, and composting

Local and Sustainable Food Partnerships

JHU is committed to purchasing local food and developing partnerships with Baltimore businesses that support HopkinsLocal priorities. These partnerships result in improvements to ingredient quality and freshness, while also helping bolster the local economy, creating jobs, and supporting farmers and entrepreneurs. Purchasing locally also minimizes the environmental impact associated with food transportation and supports seasonality in our dining menus.

In 2023, Hopkins Dining sourced ingredients and menu items from over 30 local vendors within a 250-mile foodshed and from 20 hyper-local vendors within 50 miles. In addition, Hopkins Dining sources from 40 minority-, women-, and/or black-owned businesses, 85% of which are also local. These numbers are set to increase substantially with the adoption of JHU's Climate Action and Sustainability Plan, which set a goal to source 40% of Hopkins Dining food locally in the coming years.

Many of Hopkins Dining's partners follow the highest level of sustainability criteria, including regenerative agriculture practices, self-sustaining green energy systems, humane treatment certifications, and MSC or USDA Organic certifications.

APL also welcomed a new food service provider, Eurest, with commitments centered around sustainability and well-being, including low-carbon menu items, food waste reduction, animal welfare, and nutrition. Deploying a "food with a purpose" strategy, this partnership has strengthened APL's dining practices, creating positive impacts for people and the planet. At APL in 2023, 82% of seafood served was sustainably sourced (according to Seafood Watch criteria), 100% of coffee was fair trade certified, and 97% of eggs were certified humane and cage-free.



Graham Browning, Sustainability Manager for Hopkins Dining, hosts a Local Flavors event – a monthly campaign that introduces students to local food partners

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Hopkins Dining Partners with Sustainable Farmers

Ask the Green Guide: Composting on Campus

From Waste to Watts: Engineers suggest process to turn manure into fuel

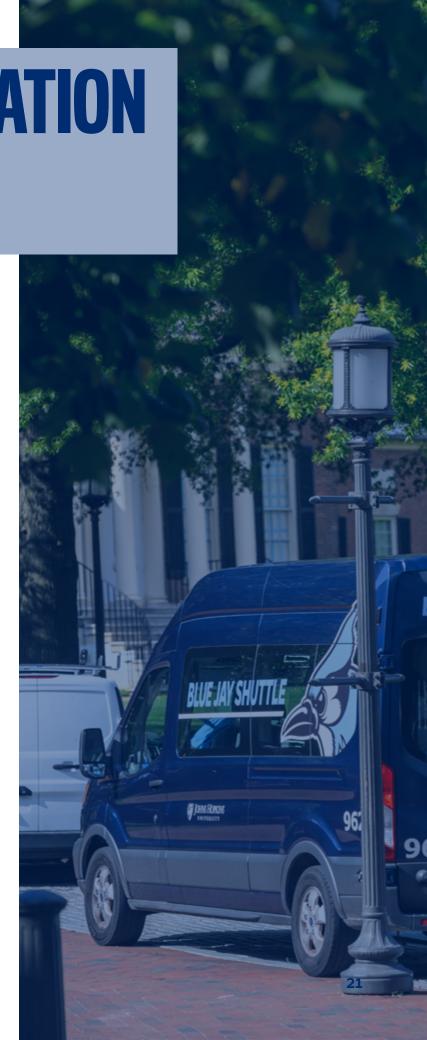
NSF award will help engineers design sustainable plastics

TRANSPORTATION & MOBILITY

JHU's Climate Action and Sustainability Plan sets ambitious goals in areas of transportation and mobility with a focus on reducing greenhouse gas emissions from university fleet and commuting, as well as expanding partnerships regionally to support multi-modal transportation solutions.

In 2023, significant progress was made towards those goals. JHU ordered the first electric buses for its fleet, which will begin servicing the Homewood-Peabody-JHMI route in 2025 and started planning for the hybridization and electrification of Blue Jay Shuttles. To support the electrification of the university's fleet and provide commuters with electric charging infrastructure, more than 20 new chargers were installed at several locations, and a study was initiated to begin planning for electric bus charging infrastructure.

Research in this area also increased significantly as JHU was selected by the U.S. Department of Transportation to create a new center to lead research on climate-focused transportation solutions.



JHU Purchases First Electric Buses for Homewood – Peabody – JHMI route

In 2023, transportation represented 2.5% of JHU's direct greenhouse gas emissions. This represents about 3,200 metric tons of CO2 that JHU is committed to reducing by electrifying its fleet and purchasing renewable power.

A first step in this process will be the electrification of the buses used for the Homewood – Peabody – JHMI route, which is the most frequented route with about 2,500 passengers a day. JHU ordered five new electric buses, which will be delivered and start operating in 2025. In the next few months, the infrastructure needed to store and recharge the buses will also be built, setting the stage for a second purchase in the coming years to electrify the entirety of the bus fleet for this route.

Fleet electrification results in many benefits for the university and neighborhoods in which JHU's vehicles operate. This includes substantially reduced operations and maintenance costs compared to internal combustion engine vehicles, as well as public health improvements in areas of both air quality and noise pollution reduction.

A new public transit subsidy for JHU employees

Starting September 1st, 2023, JHU employees commuting to a JHU campus at least once a week are eligible to receive a <u>public transit subsidy</u> of up to \$150 per month. The new and expanded program is intended to incentivize public transportation ridership, while reducing financial burdens for employees, and reducing land use for vehicle parking.

The subsidy is one of the first key actions implemented by JHU to support sustainable transportation options and encourage employees to shift from using single-occupancy vehicles to alternative modes of transportation. This measure helps reduce greenhouse gas emissions from commuting and has important co-benefits, such as improving local air quality and reducing traffic congestion, while fostering stronger community connections.

This new benefit is part of a long-term strategy defined in the Climate Action and Sustainability Plan, which aims at reducing greenhouse gas emissions and parking demand from single occupancy vehicles, as well as increasing the use of sustainable transportation regionally.

Related News

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Johns Hopkins Selected to Lead New
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Solutions

New Report on Unreliable Mass Transit and American Public Health

Public transit subsidy for employees starting Sept. 1 Greener Skies Ahead: Engineers piloting sustainable jet fuel project

Narrower traffic lanes in cities could help lower risk of traffic-related collisions, according to BSPH report

Gearing Up for Grad School: JHU student bikes 4,000 miles to his first day of classes

