The background of the cover is a photograph of a large, classical-style building, likely a university hall, featuring a prominent dome and a portico with four white columns. The image is overlaid with a semi-transparent blue filter. A person is walking on a path in the foreground.

# The University of Delaware Sustainability Plan

**The Sustainability Council**

2022

The Sustainability Council acknowledges President Dennis Assanis, Provost Robin Morgan, Vice President John Long, and the Graduate Student Government for their support and collaboration.

---

## THE 2021/2022 SUSTAINABILITY COUNCIL

Co-Chair – Dr. Chris Williams (also representing CANR)

Co-Chair – Dr. McKay Jenkins (also representing CAS)

Provost's Office – Karen Anuinas

Vice President FREAS – Peter Krawchyk

Asst Director, Grounds Services – Mike Loftus

Facilities Liaison – Sarita Sen

Office of Student Life – Katie Morrison

Intercollegiate Athletics & Recreation Serv. – Jake Schrum

Budget Office – Mandy Minner

Representative for Community Engagement – George Irvine

Osher Lifelong Learning Institute – Gloria Cooke/Jenny Caldwell

Biden School – Dr. Casey Taylor

COE – Dr. Michael Chajes

CEOE – Dr. Lindsay Naylor

LCBE – Dr. Anu Sivaraman

CEHD – Dr. Martha Buell

CHS – Dr. Chris Knight

The Newark Partnership – Leann Moore

Associate Director DE SeaGrant – Dr. Christian Hauser

Graduate Student Representative – Thomas Benson

Graduate Student Representative – Prashant Ramesh

Undergraduate Student Representative – Kristie Arlotta

Undergraduate Student Representative – Maya Feinstein

Alumni Representative - Dr. Thomas Dietz

Graduate Student Fellow – Cara Clase

Undergraduate Intern – Lauren Banks

# Table of Contents

# CONTENTS

p. 01

A Letter from the Co-Chairs

p. 02

About the Sustainability Council

p. 03

Defining "Sustainability"

p. 04

Sustainability at UD: How We Compare

p. 06

A Case for an Office of Sustainability

p. 11

The E.C.O. Wheel

p. 31

References

p. 33

Appendix



# A Letter from the Co-Chairs

**Dear University Community,**

As the increasing impact of climate change continues to threaten our planet and exacerbate inequities, the University of Delaware (UD) must be dedicated to leading the way as a model of environmental response and resilience. The Sustainability Council – a body of UD faculty, staff, students, and alumni committed to sustainable initiatives and actions – is actively leading this charge, advocating for opportunities to make our campus greener and to better position the University as a leader in sustainability.

Along with the Office of the Provost and the Office of the Executive Vice President, the Sustainability Council is focused on improving the sustainability performance of the University. Specifically, the Council is actively creating a University Sustainability Plan, renewing and expanding the University's Climate Action Plan, and enhancing the educational experience of students with sustainability curricula and research.

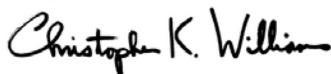
The Council presents the following plan to guide UD on setting and reaching sustainability goals while reducing operational costs and generating revenue. This report describes the present status of sustainability topics at UD and uses additional data and case studies to make recommendations for University leadership.

Our research shows that the University of Delaware is trailing the sustainability efforts of comparator institutions, putting UD at a financial, social, and moral disadvantage as it seeks to attract top-quality students and faculty. It is critical that UD aligns its priorities and actions with the growing environmental concerns of our entire community and that we better engage with the wider Newark, state, and regional communities in sustainability conversations. This report provides ways in which UD can reshape our operation, programs, and infrastructure to meet critical sustainability goals.

As Co-Chairs of the Sustainability Council, we are committed to working with the administration of UD to create a more sustainable campus. Our hope is that this plan will inspire students, staff, faculty, and the community to take part in building a sustainable future. We are confident that this Plan provides clear guidance and achievable goals which will significantly improve the sustainability performance of the University.

Sincerely,

**Dr. Chris Williams**



**Dr. McKay Jenkins**





## About the Sustainability Council

Operating under the Office of the Provost and the Office of the Executive Vice President, the University of Delaware's Sustainability Council has been a vital bridge between the University's faculty, staff, student, and alumni communities and the UD administration, building functional collaborations that steer our University toward new horizons in both research and best institutional practices. The Council also has served as a bridge between UD and its partners in the City of Newark, the State of Delaware, and the nonprofit and corporate sectors.

Since its official launch in April of 2020, the Council has sought to foster interdisciplinary research, teaching, and institutional projects. It has offered support for the integration of sustainability in academic programming including the sponsorship of conference presentations, Green Grant awards for innovative sustainability projects, and support for new academic programs such as the pending Graduate Certificate in Sustainability. Our initiatives provide students and professionals the chance to explore real-world sustainability problems and cutting-edge solutions to improve the University of Delaware.

The Council is collaborating with multiple campus networks to equalize UD's sustainability performance with comparator institutions. Faculty volunteers and student workers assist the Council with survey distribution, data collection, and community outreach efforts that inform our initiatives and priorities. The Council also consults with local experts to explore untapped opportunities to reduce operating costs, generate revenue, and reduce our overall environmental impact.

Some of the projects the Council have begun to incubate are: an anaerobic composting facility for campus dining services, support for the new statewide Master Naturalist Certification Program which now annually trains scores of environmental educators and ecological restoration volunteers, and pushing the University to move aggressively to improve its standing on the Association for the Advancement for Sustainability in Higher Education (AASHE) scorecard. Going forward, the Sustainability Council will focus its efforts on creating a Sustainability Office, assisting administrative leadership with creating tangible sustainability goals, and expanding and renewing the University's 2009 Climate Action Plan.



# Defining "Sustainability"

According to the World Meteorological Organization, 2020 was the second warmest year on record (2020). If carbon dioxide emissions continue to rise, the world will fail to meet the 1.5°C target of the Paris Agreement and will experience socio-economic hardships as a result of extreme weather events and disrupted ecosystems (UN News, 2020). The only way to overcome this threat is by closing loops of waste streams, eliminating unnecessary costs in our economy, and learning more ecologically mindful ways to inhabit our planet.

**What is "sustainability"?** As defined by the UN World Commission on Environment and Development in the Brundtland Commission Report (1987), sustainable development can be defined as that which "meets the needs of the present without compromising the ability of future generations to meet their own needs."

In other words, sustainability recognizes the limitations of the environment. Resources are finite, and some resources are rapidly depleting at alarming rates that threaten the welfare of generations to come. The window for timely action is closing rapidly and thus now is the time for action.

**Sustainability is also a fundamental social justice issue.** In addition to the economic and environmental dimensions of sustainable development, the United Nations added a third dimension that highlights social initiatives such as racial and gender inequality, peaceful conflict resolution, and food accessibility (United Nations, 2015). These inequities must be addressed if we wish to uplift the communities that have been historically subjected to environmental injustice.

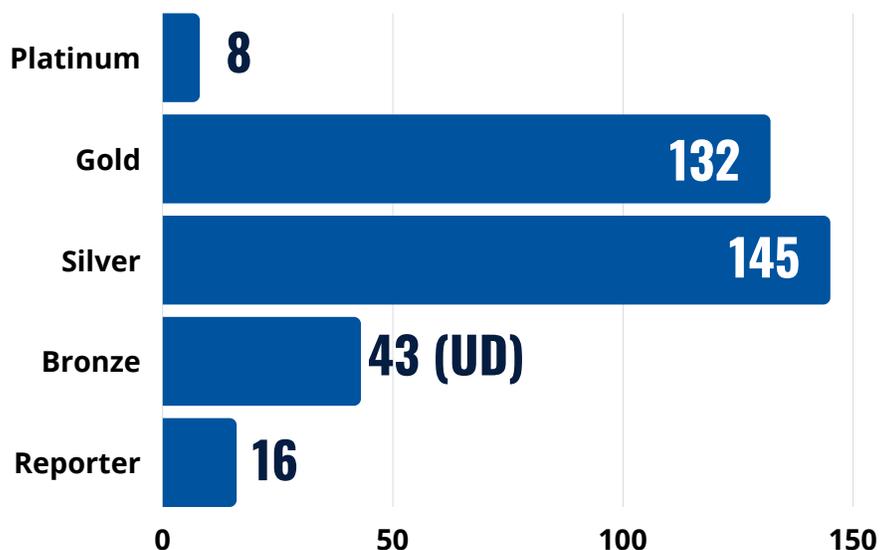
What does this mean for places like the University of Delaware? It means that **academic institutions must lead through example and use their positions in society to demonstrate and provide sustainable practices and solutions.** To fulfill our role as environmental leaders, we must assess our performance in sustainability and identify where and how we can improve. This report will summarize UD's current sustainability efforts and propose tangible actions we can take to create a more sustainable future. The time for action is now.



# Sustainability at UD: How We Compare

University sustainability rankings are prepared by the Association for the Advancement of Sustainability in Higher Education (AASHE), an organization that empowers “higher education faculty, administrators, staff and students to be effective change agents and drivers of sustainability innovation.” (AASHE, 2021) AASHE comprises 900 members across 20 countries, and “offer[s] essential resources and professional development to a diverse, engaged community of sustainability leaders” to ensure that the “world’s future leaders are motivated and equipped to solve sustainability challenges.”

**FIGURE 1. AASHE RANK FREQUENCY**



**Over 80% of the academic institutions ranked by the AASHE system scored "silver" or higher. As of 2020, the University of Delaware has a "Bronze" ranking, putting our sustainability performance considerably behind comparator institutions and American universities in general. (AASHE, 2021)**

There are five possible ratings an institution can earn from the AASHE STARS: Platinum, Gold, Silver, Bronze, and Reporter. There are currently 344 institutions with an AASHE STARS rating. Figure 1 shows the distribution of ratings among all participating institutions (AASHE, 2021).

Unfortunately, as depicted in Figure 1, the University of Delaware performed poorly, only receiving a bronze rating in 2020 (a link to the full report can be found in the References section). **The University of Delaware is in the lower 25th percentile of AASHE-rated institutions, receiving only 70 out of 215 possible points.** All of our comparator peer institutions (with the exception of Stony Brook University who was not ranked) have scored higher than UD, putting us in last place (Figure 2). Furthermore, 80% of public universities in the Association of American Universities (AAU) had a ranking of gold or higher (Figure 2), putting UD even further behind exemplary institutions.

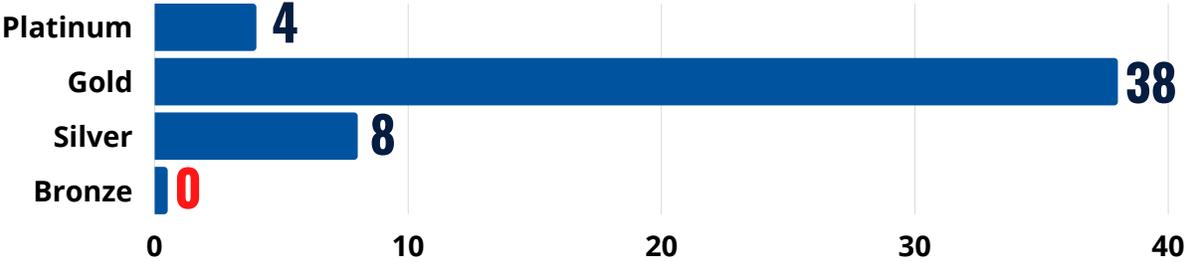
In order to keep pace with – let alone lead – our peer institutions, UD must immediately invest substantial, consistent, and permanent financial, academic, and institutional resources into its sustainability initiatives. This includes, first and foremost, committing to establishing a permanent Office of Sustainability with a full-time Chief Sustainability Officer installed at the level of a vice-president.

**FIGURE 2. 2021 AASHE STARS PERFORMANCE SUMMARY**

**UNIVERSITY OF DELAWARE COMPARATOR RANKINGS**

University of Connecticut	PLATINUM	>	Min. % of Points Needed for Platinum: 85%
Indiana University - Bloomington	GOLD	}	Min. % of Points Needed for Gold: 65%
Iowa State University	GOLD		
Michigan State University	GOLD		
North Carolina State University	GOLD		
Ohio State University	GOLD		
Pennsylvania State University	GOLD		
Texas A&M University	GOLD		
University of Arizona	GOLD		
University of Illinois at Urbana-Champaign	GOLD		
University of Maryland - College Park	GOLD		
University of Massachusetts	GOLD		
University of Michigan	GOLD		
University of Minnesota	GOLD		
University of North Carolina	GOLD		
University of Pittsburgh	GOLD		
University of Utah	GOLD		
University of Virginia	GOLD		
Virginia PolyTechnic Institute	GOLD		
Boston University	SILVER	}	Min. % of Points Needed for Silver: 45%
Case Western University	SILVER		
Georgia Institute of Technology	SILVER		
Purdue University	SILVER		
Rutgers University (*2017)	SILVER		
University of Delaware	BRONZE	>	Min. % of Points Needed for Bronze: 25%
Stony Brook University	REPORTER	>	No Score

**ASSOCIATION OF AMERICAN UNIVERSITIES RANKINGS**



# A CASE FOR AN OFFICE OF SUSTAINABILITY

As the time to counter climate change grows shorter, academic institutions are prioritizing sustainability along with other critically important social and moral issues. The most cost-effective, efficient, and operationally excellent way to meet sustainability goals is through the establishment and full financial and administrative support of a University-wide Office of Sustainability.

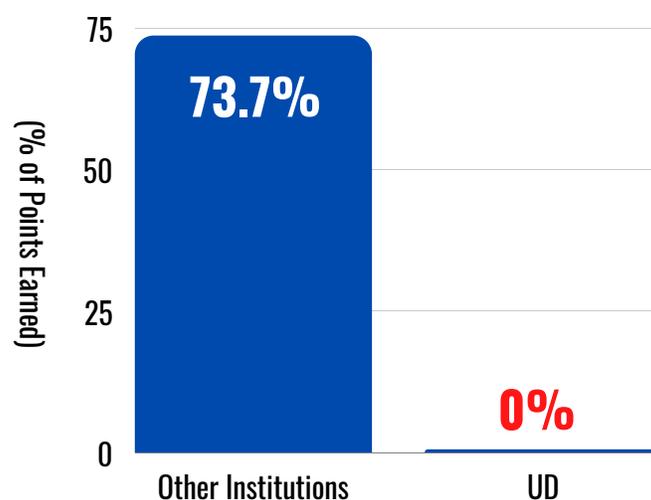
As in other sustainability areas, UD is being outpaced by comparator institutions that already have a Sustainability Office. Across the 25 comparator institutions highlighted in Figure 2, 23 have Sustainability Offices including Stony Brook University which did not receive an AASHE score. This infrastructure has given these Universities a quantifiable advantage in terms of sustainability coordination and planning including recruitment of students and faculty committed to this important area.

Statistics from the AASHE STARS report also reflect UD's need for an office. In the "Coordination and Planning" category of the STARS report, the average percentage of credits earned by an American institution is 73.7% while UD earned 0% (see Figure 3) (AASHE, 2020).

## ATTRACTING THE GREEN GENERATION

Today's students have prioritized sustainability in their enrollment decisions. According to the 2021 College Hopes and Worries Survey distributed by the Princeton Review, 75% of students say that a college's environmental decisions would affect their school choice (see Figure 4 on next page, and see Appendix for more info) (Princeton Review, 2021).

**FIGURE 3. PLANNING & COORDINATING AASHE PERFORMANCE**



**On average, American Institutions earn 73.7% of the credits available in the "Coordination and Planning" category of AASHE STARS. UD earned 0% in our 2020 report. This is largely attributed to the fact we do not have an Office of Sustainability (AASHE, 2020).**

Students are looking closely at us and our sustainability performance and initiatives. We must have a clearly articulated commitment and demonstrate our reduced environmental impact if we wish to remain a competitive choice for potential students. The Office of Sustainability would work closely with the Office of Admissions and the Graduate College to market the University's initiatives and position as an environmentally friendly institution. Further, the Office will work with the Division of Student Life to coordinate ongoing campus activities and resources to support our University's endeavors.

Comparators are effectively utilizing sustainability integration and marketing. One example is the Sustainability Experience Center at Penn State Univers-

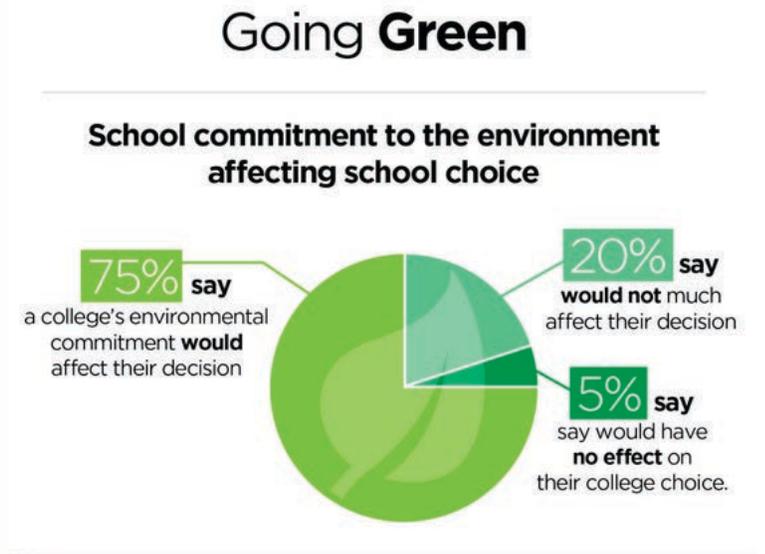
ity's University Park campus. Providing tours to potential students and community members, the Sustainability Experience Center showcases ongoing sustainability projects and shares how sustainability research is being used to create a greener campus (Penn State, 2021). Other comparators have also created virtual sustainability maps and tours that are available to the public. For example, the University of Maryland has a virtual sustainability map layer that determines the location of bottle-filling stations, renewable energy generation sites, green roofs, and sustainability fund projects (University of Maryland, 2021).

With a central, administrative office dedicated to these efforts, we would improve communications with potential students, create a central database that tracks sustainability projects and research, and bring more revenue and green grant funding that will support the projects that pull student interest.

## MAXIMIZING FINANCIAL BENEFITS

Not only are there enrollment and public relations benefits to operating sustainably, but there are also financial benefits that the University of Delaware is failing to capture. One of the main tenets of **sustainability is efficiency, which leads to financial savings** through reduced energy consumption, water usage, and material waste.

## FIGURE 4. SCHOOL COMMITMENT TO ENVIRONMENT EFFECT ON SCHOOL CHOICE



Surveying over 11,000 high schoolers, the Princeton Review's College Hopes and Worries Survey reports that **75% of potential college students say that a college's environmental commitment would affect their school enrollment decision (2021).**

The financial benefits of a sustainable campus are compounding and complex in nature, so it is difficult for any university to truly capture all of the revenue and savings generated from sustainability initiatives and entities. However, looking at case studies of sustainability projects at other universities makes it clear that an Office of Sustainability would be a significant financial asset to UD through ensuring operational efficiency and coordination of all UD-wide sustainability projects and plans.

As an example, the University of Nebraska-Lincoln reported saving \$200,000 in one year just from installing data-driven sensors in their HVAC system to detect breakdowns (EAB, 2019); Boston College generated energy savings of \$650,000 after improving energy performance and operational practices (Lyons Hardcastle, 2013); The University of California-Berkeley established stronger waste initiatives after they realized that recycling saved them \$151.47 per ton of trash (Cockrell, 2012).

In addition to projects that reduce waste and energy consumption, an Office of Sustainability would give UD the specialized staff and capacity to pursue other streams of revenue such as environmental grants or funding through the Unidel Foundation. Entities such as the Department of Transportation and the Environmental Protection Agency provide grants for renewable energy projects, transportation electrification, and sustainability research for academic institutions that, as of now, are not being pursued by the University of Delaware. An Office of Sustainability would navigate, promote, and manage UD's role in pursuing these funding opportunities.

## PROMOTING COLLABORATION & OPERATIONAL EFFICIENCY

Sustainability is not owned by any single administrative or academic unit. Rather, it requires coordination and collaboration across units to assure operational efficiency and success. By having a centralized Office of Sustainability, its staff can assure such collaborations are fostered with the following stakeholders:

- Facilities, Real Estate, and Auxillary Services
- Office of the Executive Vice President
- Office of Research, Scholarship, and Innovation
- Office of the Provost
- Office of Development and Alumni Relations
- Office of Communications and Marketing
- Office of Enrollment Management
- Budget Office
- Office of Institutional Diversity, Equity, and Inclusion
- Office of Student Life
- Athletics and Recreation Services
- Information Technologies
- Academic Colleges and Departments
- Delaware Environmental Institute
- Delaware Energy Institute
- Community Engagement Initiative
- Gerard J. Mangone Climate Change Science and Policy Hub
- Osher Lifelong Learning Institute
- City of Newark and the State of Delaware
- University of Delaware Alumni



# THE PATH TO SUSTAINABILITY

## THE VISION FOR AN OFFICE OF SUSTAINABILITY

The Council understands that the creation and structure of new offices can be complex and resource intensive. However, sustainable projects are generally profitable and cost-reducing investments, and thus such an office is almost guaranteed to be beneficial. We suggest the following steps to make an Office of Sustainability possible:

- Create a Vice President-level office that can oversee and coordinate sustainability initiatives across administrative and academic departments.
- Establish a permanent budget to support the Office of Sustainability and personnel, including a Vice President, Sustainability Manager, Administrative Assistant, and Graduate Fellow.
- Establish a revolving capital investment fund that would use savings from efficiency and cost savings projects to supplement additional sustainability projects.

In 2021, the University of Delaware created a new **Strategic Plan** to chart an exciting and productive course for the coming decades (See Figure 5). Sustainability is a complex area, impacting and aligning with all aspects of the Strategic Plan and the diverse partners including facilities, student life, research, academics, recruitment, communications, and fundraising.

Identifying, assessing, coordinating, implementing marketing, funding, and reporting on the University's sustainability efforts is a complex and heavy task. The Office of Sustainability, with a permanent staff and predictable budget, is critical to this work. The Office will assure UD's position as a committed leader for sustainability and ensure actionable items are completed to make the Strategic Plan a success!

**FIGURE 5. 2021 UNIVERSITY OF DELAWARE STRATEGIC PLAN PILARS**



- Create and support new interdisciplinary undergraduate, honors, graduate, and professional and continuing studies courses, degrees, and certificates in sustainability to prepare them to succeed in the future green economy.
- Assist multi-year strategy to improve recruitment of new students who prioritize sustainability.
- Promote first year experiences that teach students to be engaged and sustainable global citizens.
- Engage and foster a broader community of environmental and social justice.
- Promote our global expertise in environmental and sustainability research and practices.
- Engage more fully with the metrics and other resources of the United Nations Sustainable Development Solutions Network, of which the University is a member.
- Update the campus master plan to incorporate key sustainability objectives and address the University's energy needs in a low carbon future.
- Develop and enhance physical spaces where the University community can interact to cultivate a vibrant, healthy, and engaging community.
- Employ the framework created by the Association for the Advancement of Sustainability in Higher Education (AASHE) and the University of Delaware Sustainability Plan to become a sustainability leader amongst our peer institutions.
- Promote greater building sustainability, including deferred maintenance, to increase energy efficiency and reduce operational expenses
- Partner with the City of Newark and State of Delaware to meet requirements and aspirations to convert to 100% renewable energy, reduce waste and plastics, and promote sustainable landscaping.
- Reduce university food, landscaping, and office waste
- Assist with the University's extended fundraising and engagement campaign to further deepen relationships with donors who support UD's commitment to sustainability.



# The E.C.O. Wheel

In order to move towards a greener future, the University will have to establish core values that will guide our sustainability initiatives. The Sustainability Council proposes the use of the **Environmental Core Objectives (ECO) Wheel** as a guide.

These objectives embody central aspects of sustainability that must be addressed for the University to operate in an environmentally conscious and ethical manner. The eight core objectives are connected to the proposed Office of Sustainability, the central mechanism that oversees, coordinates and enacts the initiatives in each category. These Environmental Core Objectives are: Finances; Water; Landscaping; Justice, Equity, Diversity, and Inclusion (JEDI); Waste; Education; Energy; and Food.





# EDUCATION



## CURRICULA

**WHY** | Climate change and environmental activism has increased student interest in green jobs. Given the exponential growth of the renewable energy sector, the University of Delaware must offer relevant and updated sustainability courses to meet the career demands of the student body.

**THE CURRENT STATE** | UD has academic departments and certification programs that offer sustainability courses and degrees. However, the University has no central database to track these courses, and thus valuable AASHE credits were lost when we reported in 2020.



## SCHOLARSHIP

**WHY** | The University of Delaware conducts innovative transformative research that benefits and gives back to the Newark community and society at large. One way the University faculty staff and students do this is by producing research that leads to innovative solutions to sustainability issues. Thus, community engagement and outreach based on the knowledge that is generated by UD researchers is a way to educate and empower our community.

**THE CURRENT STATE** | The Sustainability Council currently awards Green Grants for sustainability projects such as the Colburn Labs Green Roof and the native meadow planted by Students 4 the Environment and the Grounds Department. Additionally, sustainability research is regularly produced by several entities on campus such as the Energy and Environmental Policy Department, the College of Agriculture and Natural Resources, and the College of Earth, Ocean, and Environment. The University also has research institutions such as the Delaware Environmental Institute and the Water Resources Center that are dedicated to sustainability research. By leveraging the existing research activities and the proposed Office of Sustainability, it should be possible to increase external funding for academic research at UD. In addition, the community is largely unaware of the results of the great work of UD faculty staff and students thereby not benefiting from the work.



**MISSED OPPORTUNITY**  
Due to the lack of formal data collected on sustainability research efforts, UD earned 0 out of 12 AASHE credits for the "Research and Scholarship" category.



## GOALS:

-  **Create interdisciplinary certificate and graduate program in sustainability**
-  **Increase sustainability courses across all colleges**
-  **Promote greater sustainability discussion in first year experience**
-  **Facilitate interdisciplinary research in sustainability**
-  **Expand green grants program to support sustainability research**
-  **Disseminate university sustainability research to surrounding communities and track possible outcomes**



# ENERGY

## RENEWABLE ENERGY

**WHY** | The use of fossil fuels contributes significantly to the greenhouse gas emissions causing global warming. UD is likely to be severely impacted by extreme storms, sea level rise, power outages, and infrastructural damage that would ensue if global warming is not kept below 1.5° C.

**THE CURRENT STATE** | The University of Delaware's energy portfolio is currently restricted by utility contracts and the local grid. Delaware Governor Carney has set goals mandating Delaware utilities derive 40% of their energy from renewable resources by 2035 (State of Delaware, 2021) and reduce GHG emissions by 26% by 2025. Further, many comparator institutions have also set GHG emission reductions of 40-100% by 2030 (Appendix iv). Thus, UD must develop a plan to shift to 40% renewables to match. Being one of the most influential institutions in the state, UD needs to lead by example and collaborate with the State of Delaware and push beyond the 40% benchmark already established.

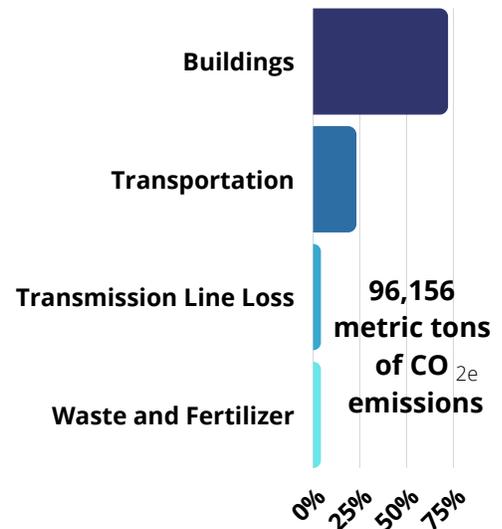


**Between 2007 and 2019, UD reduced their greenhouse gas emissions by 16%. This was due largely to the city shifting its energy grid away from coal.**

## BUILDINGS

**WHY** | The energy efficiency and retrofitting of buildings are key to curbing energy consumption. Lighting, temperature control, metering, and building envelope upgrades (i.e. retrofitting windows, doors, walls, and roofs) can all be optimized to decrease our carbon emissions. Further, buildings must be bird-friendly and compliment environmentally friendly landscaping. In 2021, all federal building must use bird-friendly glass from the ground up to 40 feet.

**THE CURRENT STATE** | Campus buildings contribute to 72% of the total energy consumed by the university. UD currently uses the U.S. Green Building Council's LEED Silver standards to ensure the energy efficiency of newly-built buildings and between 2013-2018 had a Revolving Energy Efficiency Fund to support energy efficiency projects. However, some older buildings on campus are still in need of retrofitting and updates. Further, most buildings have not incorporated bird safe glass; although UD now partners with Newark to reduce nighttime lighting during Fall and Spring migrations. UD needs to further fund raise to establish a new "Blue Hen Sustainability Fund" which would provide a larger and aggressive revolving fund to improve energy efficiency and be environmentally and bird friendly.





## ELECTRIC VEHICLES

**WHY |** As the market and demand for electric vehicles (EVs) continue to grow, UD will inevitably have to provide the proper infrastructure to support electric transportation. EVs provide a more environmentally friendly alternative to diesel and gas-fueled transportation that will help the UD decrease its carbon emissions.

**THE CURRENT STATE |** The University of Delaware has only 16 charging stations of which 9 are available to the public. The University is lacking in EV infrastructure and will not be able to keep up with the inevitable rise in demand for EV charging services as more people purchase electric vehicles. Additionally, academic institutions are starting to electrify their own transportation and busing systems through federal grants from the Department of Energy and the Federal Transit Administration (FTA). The Delaware Authority of Regional Transit (DART) started electrifying their transportation through an FTA "Low or No Emissions" grant in 2017 (Delaware Business Now, 2017). UD is behind local and national efforts to electrify transportation.



4.5/7

**UD earned 4.5 out of 7 AASHE credits for the "Transportation" category. This score puts UD in the 11th percentile amongst other academic institutions.**



## BIKING & PEDESTRIAN TRAVEL

**WHY |** Biking and walking are sustainable forms of transportation that ultimately reduce carbon emissions and can lead to health benefits, decreased traffic congestion, and fewer vehicle-related deaths. Having the proper infrastructure to accommodate biking and on-foot travel is the key to encouraging more people to engage in sustainable travel.

**THE CURRENT STATE |** UD has bike racks at most campus buildings and a relationship with the community-based bike shop called the Newark Bike Project. However, neither UD nor the City of Newark have a bikeshare program. A cooperative committee is actively examining the issue. Additionally, unlike other major universities, UD does not have a bicycle-friendliness rating from the League of American Bicyclists (LAB). LAB ranked Delaware 6th in bicycle friendliness amongst 50 states and gave the City of Newark a Bronze ranking that is expected to increase to Silver by 2022. UD earning a LAB ranking of Silver would give us half a credit in the AASHE STARS Report's "Sustainable Transportation" category.

**23% of the energy consumed by the University of Delaware is used for transportation.**

## GOALS:



**Use 45% renewable energy by 2035 (from 2007 baseline)**



**At least 40% GHG reduction by 2030 (from 2007 baseline)**



**Develop a Sustainability Campus Master Plan**



**Ensure the Sustainability Office determines high sustainability parameters for future UD buildings**



**Grow a new "Blue Hen Sustainability Fund" to provide a revolving fund for UD sustainability projects**



**Create EV transition plan by Spring 2023. Make commitment to purchasing 100% EV's by 2030**



**Promote a bike friendly community (Bikeshare, More Bike Lanes, Obtain LAB Designation, etc.)**



**Revise Climate Action Plan by 2023**



# INVESTMENT & FINANCE



UD earned 0 out of 4 AASHE credits for the "Sustainable Investment and Finance" category.



## INVESTMENT & FUNDRAISING

**WHY** | It is essential that Endowment funding and Alumni fund-raising targets be set to enable the proper infrastructure investments for a sustainable University of Delaware future. The University should be a model for the community in which it is situated.

**THE CURRENT STATE** | As of Summer of 2021, the University of Delaware does not commit any of its annual budget to sustainability initiatives. Instead, most initiatives and projects are either funded at random or by a small budget Green Grants program (a sustainability grant program run by the Sustainability Council). A Blue Hen Sustainability Fund has been recently established and has an aspirational goal of raising millions of dollars from individuals and corporations by 2025 for sustainability infrastructure improvements.



## FOSSIL FUEL DIVESTMENT / SUSTAINABLE INVESTMENT

**WHY** | Comparator institutions are recognizing the long and well-established fact that the burning of fossil fuels is the primary driver of human-caused climate change (See Appendix iii). Maintaining institutional investments in the fossil fuel industry runs counter to every other effort the University is making to reduce the dangers associated with rising global temperatures. Beyond this, maintaining a portfolio with fossil fuels investments also presents the inescapable public impression that a University is fundamentally and unwilling to commit to real solutions to one of the greatest challenges of our time.

**THE CURRENT STATE** | The University of Delaware has not committed to fossil fuel divestment, a choice that has put UD's financial strategy behind comparator institutions. Becoming a sustainability-driven institution will not only entail carbon and waste reduction, but it will also require the university to divest from environmentally harmful ventures and reallocate these resources to green innovation.

### FACT

There are currently 388 active university divestment campaigns across the U.S., including comparator institutions such as Rutgers, University of Maryland, University of Michigan, and the University of California system

## GOALS:



**Identify and invest in a higher number of positive return sustainability projects**



**Proactively fundraise for Office of Sustainability led initiatives**



**Promote sustainability fundraising by creating the Blue Hen Sustainability Fund with a goal of raising millions of dollars for sustainability infrastructure by 2025**



**Establish a committee of investor responsibility by 2022 and publicize the list of investments that make up the endowment**



**100% divestment from fossil fuels in the UD Endowment by 2030**



# FOOD & DINING



## SUSTAINABLE DINING

**WHY** | Providing sustainable and ethically-sourced dining options has a direct impact on the environment and well-being of students. Purchasing and producing locally-grown food not only leads to healthier meals but it also empowers local economies and food markets.

**THE CURRENT STATE** | The University of Delaware makes an effort to purchase food from local businesses such as BakeMark, Herr's Foods, and Hy-Point Dairy. Dining Services partners with the College of Agriculture and Natural Resources (CANR) in hosting several harvesting and gardening events and uses ice cream produced locally from the UDairy Creamery. UD's main food service provider, Aramark, has pledged to purchase 100% of their seafood from companies that meet the Monterey Bay Aquarium Seafood Watch program recommendations. However, there are key opportunities that UD is not utilizing to reduce our meat consumption and greenhouse gas emissions.



**UD earned 0 out of 6 AASHE credits for the "Food and Beverage Purchasing" category.**



## SUSTAINABLE PACKAGING & UTENSILS

**WHY** | Single-use plastics and non-recyclable trash contribute to environmental degradation and endangers animals that accidentally consume or get caught in plastic packaging. The use of sustainable packaging and utensils will abate these issues as well as decrease the carbon emissions that result from producing plastics.

**THE CURRENT STATE** | UD currently offers reusable to-go containers, Sip Smarter dining locations where students can opt-out of using a straw, and have hydration stations where water bottles can be refilled. Residential dining saves water by going tray-less and use napkins made from 100% recyclable materials.

### FACT

As of January 1, 2021, the Delaware General Assembly established a plastic bag ban for retail companies over minimum square footage standards.



## GOALS:

### Collaborate and Negotiate With Aramark to:



**Increase purchase of local foods**



**Increase plant-based food options**



**Increase recovery of food waste at dining halls**



**Reduce single-use plastics by 50% by 2024 and develop a plan to eliminate all single-use plastics by 2026**



# JUSTICE, EQUITY, DIVERSITY, & INCLUSION



## ENVIRONMENTAL JUSTICE

**WHY** | Human and environmental wellbeing have always gone hand in hand. Environmental injustice occurs when there is not “fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies” (EPA, 2017). Understanding this dynamic provides sustainability practitioners with the tools to repair both.

**THE CURRENT STATE** | UD’s Anti-Racism Initiative has begun to address the University community’s complex racial history, and promote right relations with the region’s Indigenous, African-American, and Latinx communities. Joining sustainability initiatives to this effort is imperative to address our community’s parallel environmental challenges. The University of Delaware has a limited offering of environmental justice (EJ) courses. Programs such as Energy and Environmental Policy, Africana Studies, Environmental Humanities, and Geography offer EJ courses, but other sustainability-related programs seem to have fewer options. UD occasionally invites diverse EJ activists to speak at on-campus events, but EJ experts seem to have fewer positions as permanent faculty and professional staff.



## What is Environmental Justice?

According to the EPA, Environmental justice is defined as “the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation and enforcement of environmental laws, regulations, and policies.” (EPA, 2017)



## DIVERSITY IN SUSTAINABILITY

**WHY** | Training, hiring, and retaining a diverse generation of sustainability students, faculty, and staff is vital to leveraging all voices to address our regional and planetary environmental crises.

**THE CURRENT STATE** | UD has historically had a difficult time attracting and retaining a diverse community of students and faculty. Programs like UD NSF ADVANCE and offices like UD Admissions have made steps towards growing a diverse faculty and student community, but there is still progress to be made if we want to create an inclusive and representative environment.

## COMMUNITY ENGAGEMENT & SERVICE

**WHY** | As a land, sea, and space grant university and a recipient of the Community Engagement Classification from the Carnegie Foundation, UD has a moral imperative to leverage its financial, intellectual, and human resources to support the safeguarding and nourishment of our people and places. UD must build trust with surrounding underserved and underrepresented communities.

**THE CURRENT STATE** | UD has a substantial Community Engagement Initiative with a civic action plan. Student organizations and volunteers have engaged in EJ-centered work such as the Stillmeadow Peace Park project in southwest Baltimore (photo to the right). However, the University will have to play a stronger role in actively hosting such projects if they want to truly have a positive impact on surrounding communities. Increasing the University's commitment to community environmental justice projects is highly desirable.



**0.19/5**

The University of Delaware earned 0.19 out of 5 points for the "Community Engagement" category in AASHE STARS.

**75% of UD students indicated that they participated in community service by the time they were seniors.**





## GOALS:



**Offer more environmental justice courses and volunteer opportunities for students**



**Promote more environmental service projects to improve impact and build community trust**



**Create undergraduate environmental justice peer education and outreach programs**



**Support the sustainability training program with Newark High School**



**Improve student and faculty diversity in sustainability and environmental justice programs**



# LANDSCAPING



## NATIVE PLANTS

**WHY** | Native plants are essential to biodiverse ecosystems and provide the proper nectar and nutrition for local wildlife. Non-native plants can cause environmental harm and invasively compete with native species and strip areas of the necessary plants that animals and bugs need to thrive.

**THE CURRENT STATE** | The University of Delaware is currently behind the native planting efforts of comparator institutions. At present, UD only plants non-invasive plants, but does not strive for exclusively native plants. In the "Grounds" category of AASHE STARS, the average institution earns at least 66.7% of the available credits earned via landscaping and biodiversity efforts. UD earned 0%, partially due to their lack of native planting practices.



## Native Plants

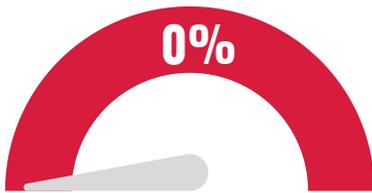
**Native plants are those that naturally occur in a region in which they evolved and thus are seen as an essential part to maintaining the bio-diversity and ecological balance of a habitat.**



## TREE PLANTING

**WHY** | Trees are important to people as access to nature plays a significant role in life satisfaction, and they also improve the physical environment by trapping dust particles and replenishing oxygen. Trees can also reduce air conditioning needs by 30% and save to 20-50% on fuel costs for heating, improve water quality by reducing the impact of raindrops, provide habitat for animals and birds, and add beauty to the environment.

**THE CURRENT STATE** | Newark's Sustainability Plan (2019) recommends increasing the tree canopy to 34% by 2025 and 36% by 2030. Thus, UD and Newark City Council can join forces to enhance their efforts to green the city and campus.



The University of Delaware earned 0% of AASHE STARS credits for Landscaping Management and Biodiversity.



## REDUCING SYNTHETIC HERBICIDES & INSECTICIDES

**WHY** | Chemical pesticides are known to cause harmful health and environmental effects. The toxins in pesticides can be absorbed through inhalation and skin contact, pollute water supplies, kill pollinators, and can contaminate food.

**THE CURRENT STATE** | UD earned 0 AASHE credits for sustainable landscaping practices, partially because of their continued use of synthetic pesticides and insecticides.



## GOALS:

-  **Come into alignment with the state's native planting laws. Remove non-native, invasive plants by 2024. Aspire to have 75% of landscaping as native by 2030.**
-  **Create an updated landscape management plan that prioritizes native plants and organic lawn care by 2023**
-  **Create a GIS database of trees on campus and plant trees to increase carbon capture**
-  **Replace gas-powered maintenance equipment with electric and increase electricity charging infrastructure**



# WASTE

## RECYCLING

**WHY** | Improper disposal of plastics and non-biodegradable materials negatively impacts ecosystems. Recycling promotes public health, reduces pollution, saves resources, and can create jobs. Failure to do so creates negative public attention.

**THE CURRENT STATE** | The University of Delaware had a single-stream recycling rate of 25% in FY2017. This puts us significantly behind the state of Delaware, which had a single-stream recycle rate of 67% in FY2016. UD continues to push recycling initiatives and education by participating in events such as RecycleMania, incorporating over 50 water bottle refill stations across campus, and by hosting student interns at our waste and recycling center. The University was recently awarded DNREC's Universal Recycling Grant, which allowed UD Sustainability to place new recycling bins in dining locations with informational posters.



**Out of 163 colleges and universities, University of Delaware ranked 125th in RecycleMania.**



**The anaerobic digesters in the Caesar-Rodney Dining Hall help prevent storm water pollution by keeping food out of dumpsters.**

## FOOD WASTE

**WHY** | Organic waste produces high levels of methane in landfills that contributes toward greenhouse gas emissions. Composted food waste can significantly reduce these emissions and can be an eco-friendly alternative to chemical fertilizers.

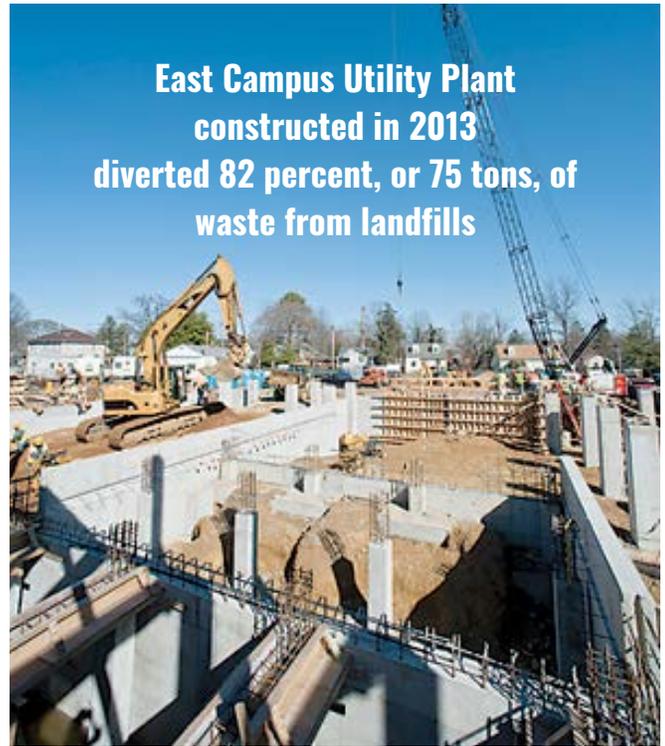
**THE CURRENT STATE** | Unlike many of our comparators, UD does not have a system for composting our food waste. However, the University does have two anaerobic digesters in the Caesar-Rodney Dining Hall. Additionally, in collaboration with Aramark, UD's Food Recovery Network Registered Student Organization is actively collecting hundreds of pounds of leftover food per semester to be given to local food banks.



## CONSTRUCTION WASTE

**WHY** | Construction and demolition waste in landfills have a negative impact on the environment. Construction waste contributes to the methane emissions of these landfills and exacerbates air pollution. Not taking advantage of recycling and repurposing construction waste also leads to a faster depletion of building materials.

**THE CURRENT STATE** | The University of Delaware has standards and procedures for handling construction waste. Contractors periodically re-submit a "Construction and Demolition Waste Management Plan" that follows industry and state standards. This plan specifies which materials are to be examined for possible salvaging, hazardous materials that require a special disposal process, and the materials that should be diverted to the landfill.



### MISSED OPPORTUNITY



Even though the University has construction waste standards, UD earned 0 credits for the "Construction and Demolition Waste Diversion" category of AASHE STARS. This is because we did not have the proper data to pursue the credits.



**UD recycles 9.5lbs of material per student**



## GOALS:

-  **50% reduction of waste to landfills by 2035**
-  **Double food recovery rates by including all dining halls in program**
-  **Catch-up to state single-stream recycling rate of 67% by 2026**
-  **Promote the building of an Anaerobic digester on the College of Agriculture and Natural Resources campus to turn food, animal, and landscaping waste into biofuels and fertilizers**
-  **Provide recycling and waste education for students and waste management staff and invest in signage, dry dumpsters, and recycling bins**
-  **Obtain and track construction waste data to improve AASHE score**
-  **Reduce use of plastic bags**



# WATER



## CONSERVATION

**WHY** | As water shortages and droughts become more common, it is important that the university does its part in conserving water. Using water efficiently guarantees that there will be enough water for drinking, sanitation, hygiene, and irrigation.

**THE CURRENT STATE** | The University of Delaware has low-flow water fixtures across campus. However, the university's water conservation efforts are relatively unimpressive. On the AASHE STARS report, UD earned only 0.82 out of 4 credits in the "Water Use" category. To earn full credit, the university must show at least a 30% reduction in potable water use 1) per weighted campus user, 2) per square foot/metre of floor area, and 3) per acre/hectacre of vegetated ground in the span of 1 or 2 years. UD had a 0% reduction of water use for criteria 1 and 3 while only reducing water use for criteria 2 by 18%.



**The University of Delaware reduced potable water use per campus user and per acre of vegetated land by 0% between 2018 and 2019.**



## Full AASHE Credit

The University of Delaware earned full AASHE STARS credit (2.0/2.0) for the "Rainwater Management" category.



## STORMWATER MANAGEMENT

**WHY** | The proper stormwater management protects ecosystems and public spaces from overflowing and polluted runoff. Unchecked stormwater can lead to excessive erosion and can compromise the quality of local water sources.

**THE CURRENT STATE** | UD has a relatively thorough stormwater management system. Most of our campus drains into a groundwater refresh zone and discharges to surface water with a downstream drinking water purveyor. UD has incorporated bio-swales, rain gardens, and multiple green roofs into our campus and building designs. The university also utilizes permeable artificial turf fields that use underground Stormtech chambers to manage stormwater.



## GOALS:

-  Hire a consultant to create a water conservation plan within the next two years
-  By 2026, reduce potable water use by 30% in all three AASHE measurement criteria
-  Encourage rainwater reuse for landscaping
-  Increase signage to advertise stormwater successes

# REFERENCES

- AASHE. 2020. The University of Delaware 2020 Ranking. Retrieved from <https://reports.aashe.org/institutions/university-of-delaware-de/report/2020-01-31/>
- AASHE. 2021. The Association for the Advancement of Sustainability in Higher Education: Who We Are. Retrieved from <https://www.aashe.org/about-us/who-we-are/>
- Cockrell, C. 2012. Trash costs, sustainability pays, says campus recycling 'King'. Berkeley News. Retrieved from: <https://news.berkeley.edu/2012/02/27/trash-costs-sustainability-pays-says-campus-recycling-king/>
- Delaware Business Now. 2017. DART gets \$1 million grant for 10 battery-electric buses. Delaware Business Now. Retrieved from <https://delawarebusinessnow.com/2017/09/dart-gets-1-million-grant-10-battery-electric-buses/>
- Education Advisory Board. 2019. How this university saved \$200,000 by fixing one facilities issue. EAB. Retrieved from <https://eab.com/insights/daily-briefing/facilities/how-this-university-saved-200000-by-fixing-one-facilities-issue-2/>
- Environmental Protection Agency. 2017. Environmental Justice-Related Terms As Defined Across the PSC Agencies. Environmental Protection Agency. Retrieved from <https://www.epa.gov/sites/default/files/2015-02/documents/team-ej-lexicon.pdf>
- Lyons Hardcastle, J. 2013. Universities' Sustainability Initiatives Save Money, Resources. Environment and Energy Leader. Retrieved from <https://www.environmentalleader.com/2013/07/universities-sustainability-initiatives-save-money-resources/>
- Penn State University. 2021. Sustainability Experience Center. PSU.edu. Retrieved from <https://sustainability.psu.edu/academics/experiential-learning/sustainability-experience-center/>
- Princeton Review. 2021. 2021 College Hopes and Worries Survey Report. Princeton Review. Retrieved from <https://www.princetonreview.com/college-rankings/college-hopes-worries>
- State of Delaware. 2021. Governor Carney Signs Legislation Raising Renewable Portfolio Standard (RPS). Delaware.gov. Retrieved from <https://news.delaware.gov/2021/02/10/governor-carney-signs-legislation-raising-renewable-portfolio-standard-rps/>
- University of Maryland. 2021. UMD Web Map. UMD.edu. Retrieved from <https://maps.umd.edu/map/index.html&x=-76.94300701677248&y=38.992112090580896&zoom=20&basemap=simplified&layers=sustainabilityTour>

United Nations. 1987. Our Common Future [Brundtland Report]. World Commission on Environment and Development. Retrieved from [https://www.are.admin.ch/dam/are/en/dokumente/nachhaltige\\_entwicklung/dokumente/bericht/our\\_common\\_futurebrundtlandreport1987.pdf.download.pdf/our\\_common\\_futurebrundtlandreport1987.pdf](https://www.are.admin.ch/dam/are/en/dokumente/nachhaltige_entwicklung/dokumente/bericht/our_common_futurebrundtlandreport1987.pdf.download.pdf/our_common_futurebrundtlandreport1987.pdf)

United Nations News. 2020. Flagship UN study shows accelerating climate change on land, sea and in the atmosphere. United Nations. Retrieved from <https://news.un.org/en/story/2020/03/1059061>

World Meteorological Organization. 2020. 2020 on track to be one of three warmest years on record. WMO.int. Retrieved from <https://public.wmo.int/en/media/press-release/2020-track-be-one-of-three-warmest-years-record>



**UD Fresh for You is a student-run farm through the College of Agriculture and Natural Resources that provides organically grown produce to the university and community.**

# APPENDIX

## i. UD AASHE STARS PERFORMANCE BREAKDOWN

CATEGORY	POINTS EARNED	POSSIBLE POINTS	% ACQUIRED
Academic	16.94	58	29%
Engagement	19.47	41	47%
Innovation	2.00	14	14%
Operations	24.71	70	35%
Planning	7.37	32	23%
<b>TOTAL</b>	<b>70.49</b>	<b>215</b>	<b>32.8%</b>

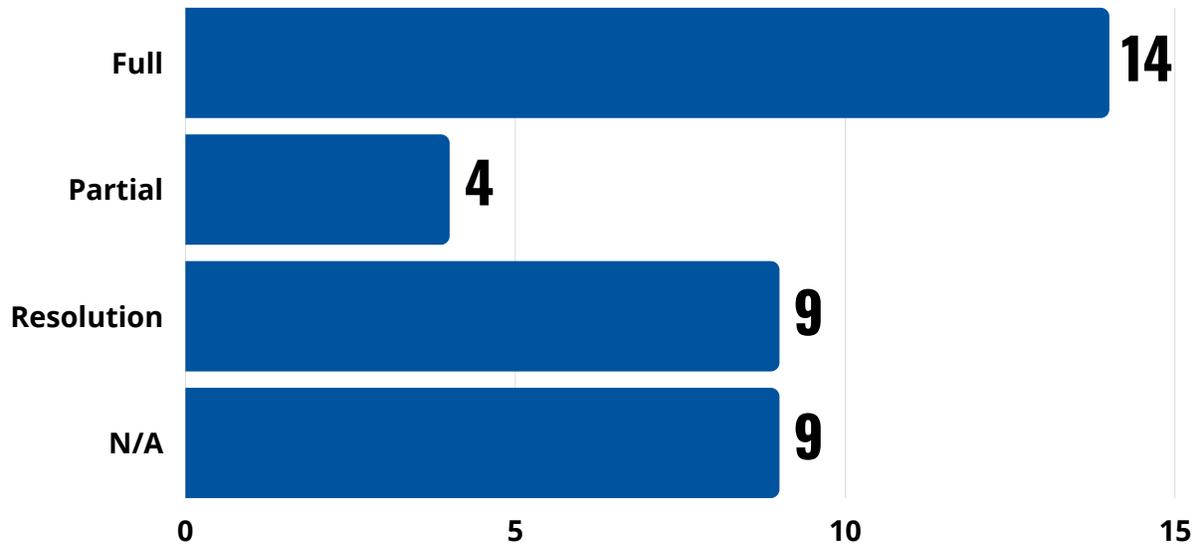
The University of Delaware failed to score at least 50% of any category in the AASHE STARS report. Some of this can be attributed to lacking the necessary data requested by AASHE. For example, UD would have scored considerably more points if some of our academic and engagement activities had formal documentation and data. However, our innovation, operations, and planning scores were low due to lagging behind in sustainable practices that the majority of our comparators have already adopted. As a result, UD only earned 32.8% of the total AASHE points available.

## ii. COLLEGE HOPES & WORRIES SURVEY DETAILS

Below are details about the sample population of the College Hopes and Worries Survey distributed by the Princeton Review.

STUDENTS SURVEYED	PARENTS SURVEYED	COUNTRIES SURVEYED
<b>11,113</b>	<b>2,960</b>	<b>42</b>

### iii. AMERICAN UNIVERSITY COMPARATOR INSTITUTION FOSSIL FUEL DIVESTMENT COMMITMENT BY TYPE



#### iv. GREENHOUSE GAS EMISSION GOALS BY ASSOCIATION OF AMERICAN UNIVERSITY COMPARTOR INSTITUTIONS

UNIVERSITY	AASHE RANKING	GHG EMISSION GOAL
University of California, Berkeley	Platinum	Carbon Neutral by 2025
University of California, Irvine	Platinum	Carbon Neutral by 2025
Indiana University	Gold	45% by 2030
Iowa State University	Gold	45% by 2030
Michigan State University	Gold	65% by 2030
Texas A&M University	Gold	50% by 2030
The Ohio State University	Gold	55% by 2030
The Pennsylvania State University	Gold	45% by 2030
The University of Arizona	Gold	None
The University of North Carolina	Gold	None
The University of Texas at Austin	Gold	None
The University of Utah	Gold	50% by 2030
University at Buffalo	Gold	40% by 2030
University of California, Davis	Gold	Net Zero by 2025
University of California, Los Angeles	Gold	Carbon Neutral by 2025
University of California, San Diego	Gold	Carbon Neutral by 2025
University of California, Santa Barbara	Gold	Carbon Neutral by 2025
University of California, Santa Cruz	Gold	Carbon Neutral by 2025
University of Colorado	Gold	50% by 2030
University of Illinois	Gold	None
University of Maryland	Gold	Net Zero by 2025
University of Michigan	Gold	Carbon Neutral by 2025
University of Minnesota	Gold	50% by 2030
University of Missouri	Gold	Already below 50%
University of Oregon	Gold	None
University of Pittsburgh	Gold	50% by 2030
University of Virginia	Gold	Net Zero by 2030
University of Washington	Gold	45% by 2030
Purdue University	Silver	None
The University of Iowa	Silver	50% by 2030
The University of Kansas	Silver	None
The University of Southern California	Silver	Carbon Neutral by 2025
Georgia Institute of Technology	Silver	None
The University of Wisconsin	Silver	None
University of Florida	Silver	None
Stony Brook University	Reporter	40% by 2030
Rutgers University	No Report	None



**The University of Delaware Sustainability Plan**

The Sustainability Council

© 2022