

# UNIVERSITY OF MARYLAND, BALTIMORE SUSTAINABILITY



## *Fiscal Year 2022 Report*

# TABLE OF CONTENTS

- Sustainability at UMB..... 1**
  - Establishing the Office
  - Sustainability Strategic Planning
  - Reforming Working Groups
  - Sustainability Dimensions
- Commitment to Climate..... 3**
- FY 2022 Milestones..... 4**
- Major Achievements..... 5**
  - Release of Sustainability Strategic Plan
  - Launch of Campus Sustainability Map
  - Second Nature Award for Pro Bono Consulting
  - Updated Greenhouse Gas Inventory in SIMAP
  - Chesapeake Bay Trust Urban Tree Grant
- Programming..... 9**
  - PAL Programming
  - Earth Month Programming
- Communications..... 11**
  - Social Media Revamp
  - Website Launch
  - Newsletter Launch
  - New Stories
- Strategic Plan Progress..... 15**
  - Self-Service Waste
  - LED Lighting Upgrades
- New Legislation..... 18**
- Sustainability Work for FY 2023..... 19**
- Acknowledgements..... 20**
- Definitions..... 21**

# SUSTAINABILITY AT UMB

## Establishing the Office

University of Maryland, Baltimore (UMB) leaders understand the importance of reducing our impact on the environment in a holistic way. Sustainability at UMB has come a long way – from the creation of the first Sustainability Committee on campus in 2008 established by former President David Ramsay, to the creation of UMB’s Office of Sustainability established by President Bruce Jarrell in 2021.



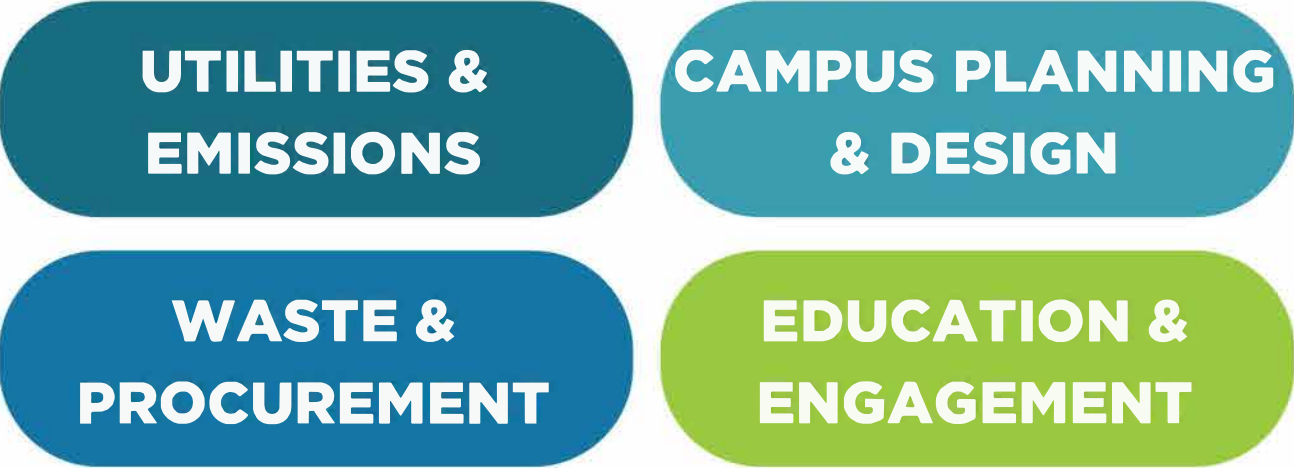
## Sustainability Strategic Planning

After forming, the sustainability team worked to expand on the draft sustainability strategic plan developed by UMB students, faculty, and staff with feedback from groups across the University. The plan outlines goals and strategies for the next five years to guide sustainability initiatives at UMB. The plan breaks down campus sustainability into four overarching dimensions: utilities and emissions, waste and procurement, campus planning and design, engagement and education.

## Reforming Working Groups

The original Sustainability Committee was restructured into Sustainability Working Groups to align with the new Sustainability Strategic Plan’s four dimensions. The four new working groups and the Office of Sustainability work to bring stakeholders together to collaborate on initiatives such as energy reduction, waste minimization, resilience planning, community building, and education and outreach.

## Sustainability Dimensions



## Sustainability Working Groups

- REDUCTION**
- EDUCATION & ENGAGEMENT**
- RESILIENCE**
- GREEN LABS**

# A COMMITMENT TO CLIMATE

## Second Nature Climate Commitment

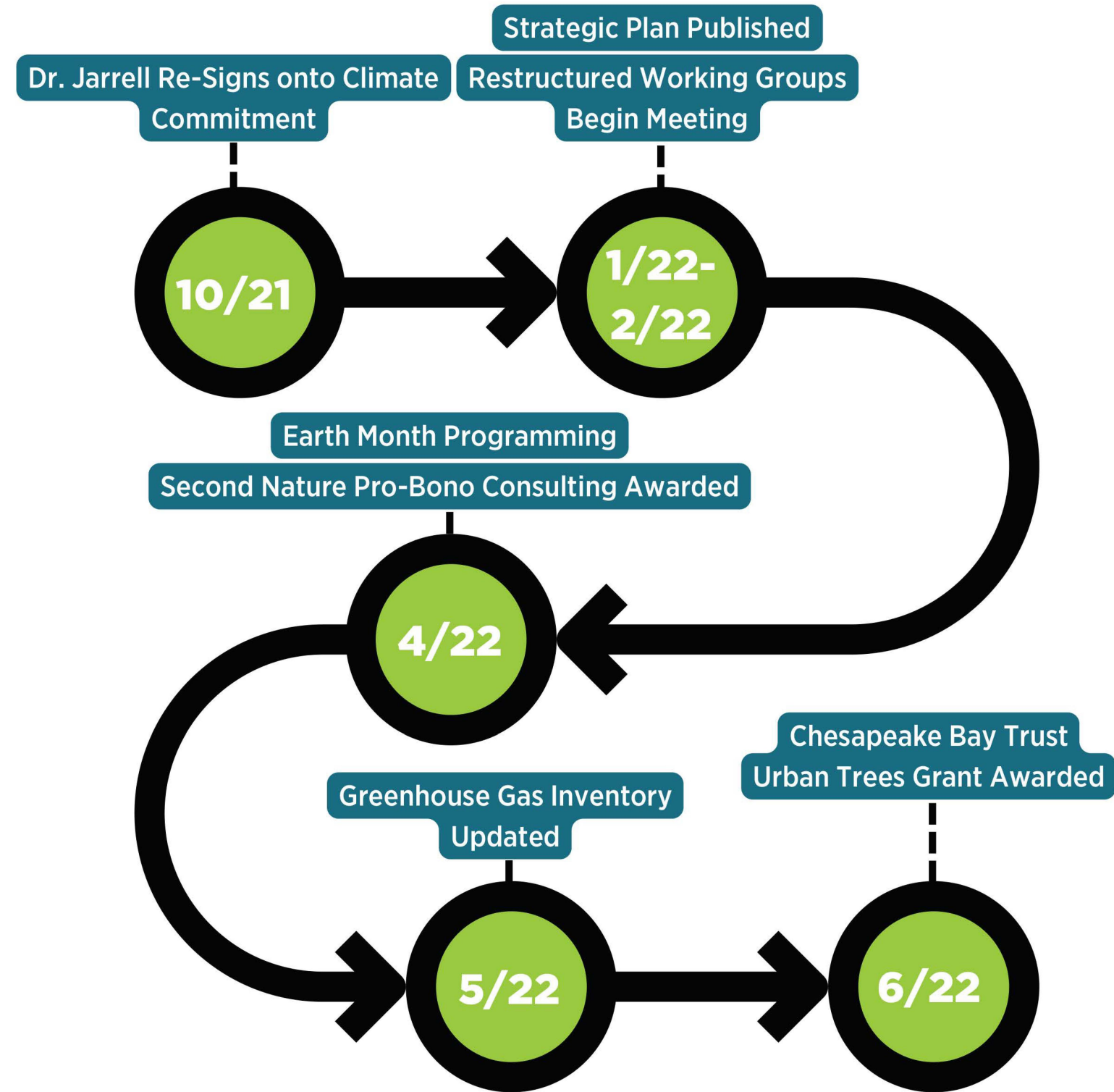
Since committing to reach carbon neutrality by 2050, the University of Maryland, Baltimore has been finding ways to reduce its energy consumption on campus. Carbon neutrality is an effort to decrease greenhouse gases such as carbon dioxide (CO2) in the atmosphere.

Greenhouse gases are the result of human activities such as deforestation, land use change, and fossil fuel burning.



In October 2021, President Jarrell re-signed onto the Second Nature Climate Commitment to show the University's dedication to carbon neutrality and building a resilient campus. After UMB's recommitment, the newly established Office of Sustainability began collecting data that has been historically captured by the University's energy manager, as well as other data points that contribute to the University's greenhouse gas emissions.

# FY 2022 MILESTONES



# MAJOR ACHIEVEMENTS

## Release of Sustainability Strategic Plan


The Office of Sustainability released the UMB 2022-2026 Sustainability Strategic Plan in January 2022 and presented the plan to Dr. Jarrell the following month. The plan was initially drafted by members of the former Sustainability Committee and restructured to align with the four campus sustainability dimensions: utilities and emissions, waste and procurement, campus planning and design, engagement and education.

Before finalizing the plan, the Office of Sustainability shared the Sustainability Strategic Plan with various stakeholders for feedback. The plan is a living document and can be found on the [Office of Sustainability's Strategic Plan website](#).

**Sustainability Team Ready to Make an Impact**  
March 15, 2022 | By Lou Cortina

The [University of Maryland, Baltimore's](#) (UMB) Office of Sustainability is up and running, getting its word out, and beginning to make an impact. Over the past eight months, the office has put together a three-person team, formed four advisory working groups, launched a monthly newsletter, and finalized UMB's 2022-2026 Sustainability Strategic Plan.

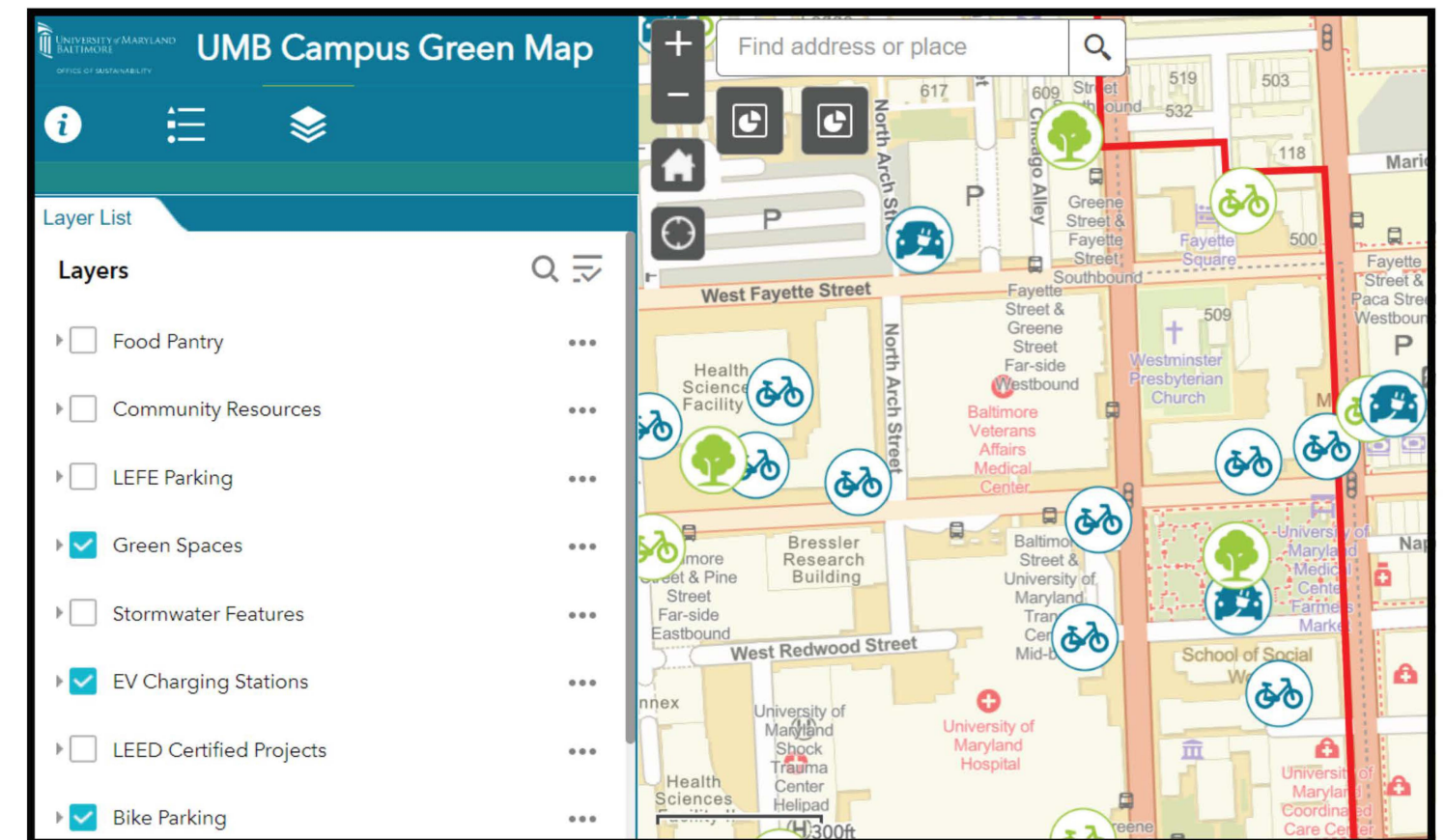
The strategic plan, which was developed by UMB students, faculty, and staff with feedback from groups across the University, expanded on a draft produced by the former UMB Sustainability Committee. It outlines overarching sustainability goals and strategies for the next five years and will guide sustainability initiatives at UMB, especially as legislative requirements evolve based on changes in Maryland law.



In October and December 2021, the strategic plan was shared with various UMB stakeholders and groups as well as Baltimore's Office of Sustainability to gain feedback, then was presented to President **Bruce E. Jarrell, MD, FACS**, in February. The plan has four focus areas — Utilities and Emissions; Campus Planning and Design; Waste and Procurement; and Education and Engagement — that include goals, sub-goals, metrics targets, challenges, and

[Read the UMB News story here](#)

## Launch of Campus Sustainability Map



[Access the map here](#)

UMB's Campus Green Map was launched in April 2022 to celebrate Earth Day. The application uses geographic information systems (GIS) to map out sustainability features on campus such as:

- BIKE PARKING**
- EV CHARGING STATIONS**
- GREEN SPACES**
- LEED-CERTIFIED BUILDINGS**

The map is interactive for those who visit it—layers can be turned on and off, and more information is displayed on a pop-up when a symbol is selected. The map is evolving, and new green features will continue to be added and updated. The use of GIS has allowed the Office of Sustainability to create additional interactive maps, such as a Bike to Work Week map.

## Award for Pro Bono Renewable Energy Consulting

### Six (6) Colleges and Universities Awarded Pro Bono Consulting to Support Their Campus Climate Efforts

Boston, Massachusetts (April 6, 2022) - Today, Second Nature - an NGO focused on accelerating climate action in, and through, higher education - announced that six (6) higher education institutions were awarded pro bono consulting services to aid their campus climate projects.

The Round II winning colleges and universities are:

- **Climate Action Planning**
  - Dallas College (Dallas, Texas)
  - University of North Carolina Asheville (Asheville, North Carolina)
  - University of Wisconsin, Oshkosh (Oshkosh, Wisconsin)
- **Shifting to Renewable Power**
  - Northern Arizona University (Flagstaff, Arizona)
  - University of California, Riverside (Riverside, California)
  - University of Maryland, Baltimore (Baltimore, Maryland)

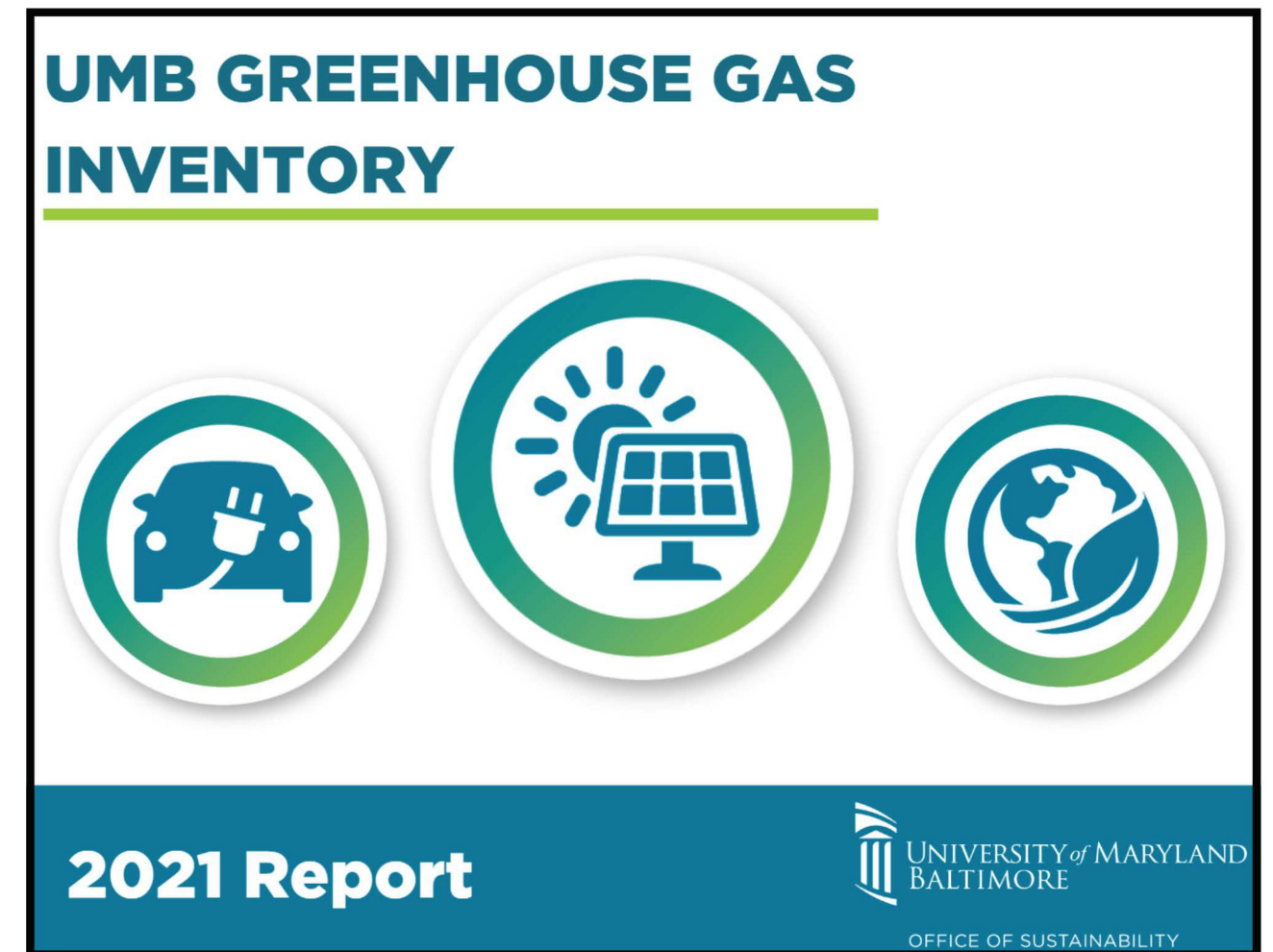
UMB was one of six schools awarded pro bono consulting from Second Nature with Customer First Renewables, which provided technical and advisory support that focuses on shifting to renewable energy. The pro bono consulting began in March, and a final presentation of Customer First Renewables' findings and suggestions was made to senior leadership in May.



## Updated Greenhouse Gas Inventory in SIMAP

The Office of Sustainability began collecting data from different campus stakeholders for UMB's scopes 1, 2, and 3 greenhouse gas (GHG) emissions in fall 2021. In May 2022, UMB's greenhouse gas inventory was submitted to Second Nature via its reporting platform, Sustainability Indicator Management & Analysis Platform (SIMAP). SIMAP also acts as the University's carbon calculator, where campus data is converted into a carbon dioxide equivalent, also known as the campus's carbon footprint.

Access the report by clicking on the image below



[You can also access the Second Nature Public Reporting Platform by visiting SIMAP.](#)

# PROGRAMMING

## PAL Program

In January 2022, the Office of Sustainability developed an education program at UMB's Community Engagement Center through the existing Police Athletic/Activities League (PAL) program for local students in grades 3-8.

Activities included a recycling sorting game, creating collages with scrap paper and magazines, repurposing T-shirts into no-sew reusable bags, repurposing water bottles into planters, and succulent planting.



[Read the UMB News story here](#)

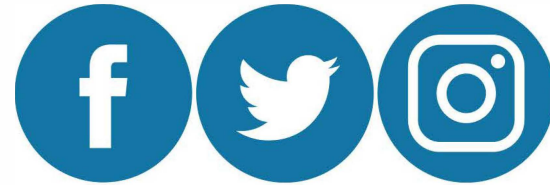
## April 2022: Earth Month by the Numbers

<b>SPECIALTY RECYCLING COLLECTION</b>	<b>49 LB ELECTRONICS RECYCLED</b>
<b>19.4 LB ALKALINE BATTERIES RECYCLED</b>	<b>150 GAL PLASTIC BAGS/FILM RECYCLED</b>
<b>4 LB INK/TONER CARTRIDGES RECYCLED</b>	<b>26 30-DAY NATURE CHALLENGE PARTICIPANTS</b>
<b>21 BUDGET-FRIENDLY EATING REGISTRANTS</b>	<b>EARTH MONTH PROGRAMMING</b>
<b>75 TAKE A PAWS VISITS</b>	<b>10 PERSONAL SUSTAINABILITY REGISTRANTS</b>
<b>7 BARRE CIRCLE CLEAN-UP STUDENT VOLUNTEERS</b>	<b>9 NATURE RX PARTICIPANTS</b>
<b>59 GREEN MAP VIEWS</b>	

# COMMUNICATIONS

## Social Media Revamp

The former UMB GO Green social media pages were relaunched with a new handle, @SustainableUMB, in November 2021. Social media campaigns began in January 2022, starting with a Veganuary campaign for the new year.



Follow the Office of Sustainability on:

- [Facebook](#)
- [Twitter](#)
- [Instagram](#)

## Social Media Campaigns in FY 2022

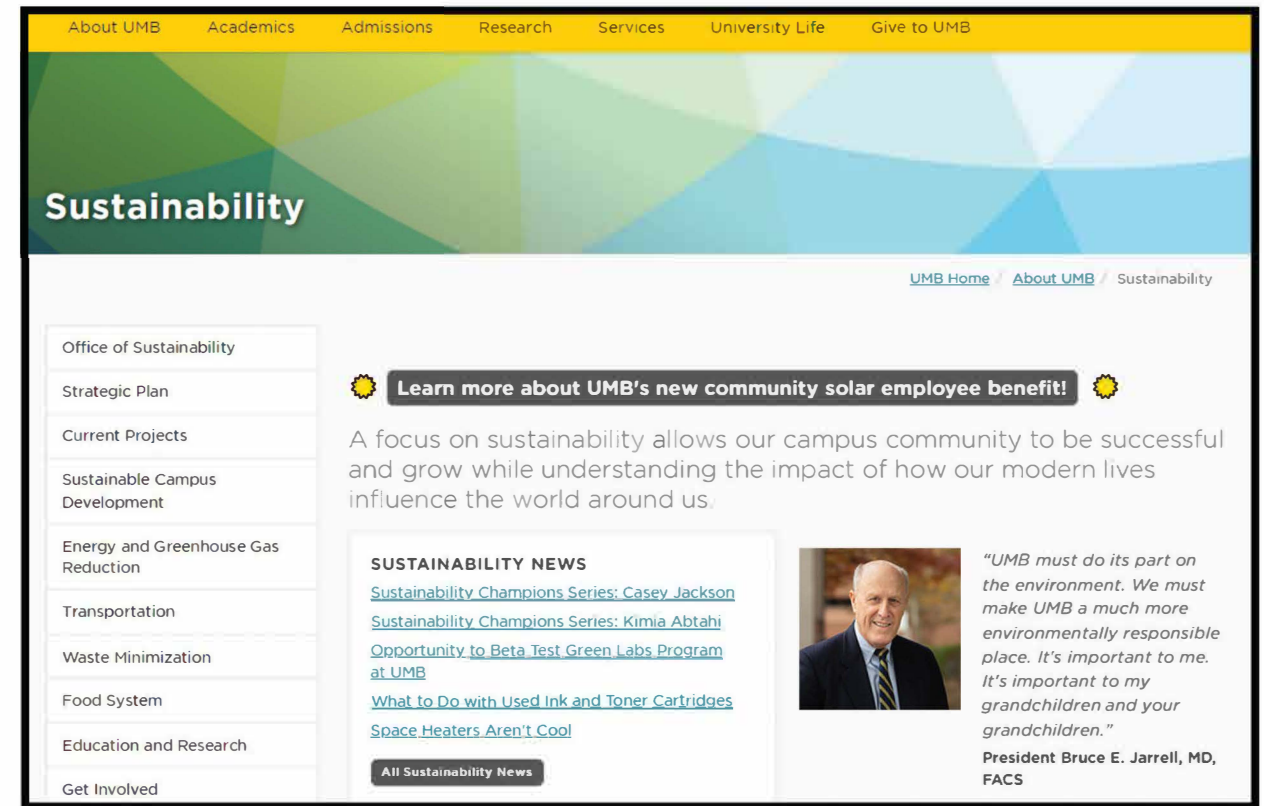
**65** POSTS

**5** CAMPAIGNS



## Website Launch

Sustainability's look was created by the UMB Office of Communications and Public Affairs, and the Sustainability website was launched in December 2021. This site replaces the former UMB Go Green pages, while honoring the history of the University's past campus sustainability efforts.



The new site is built out into 10 main pages

[Office of Sustainability](#)

[Transportation](#)

[Strategic Plan](#)

[Waste Minimization](#)

[Current Projects](#)

[Food System](#)

[Sustainable Campus Development](#)

[Education and Research](#)

[Energy and Greenhouse Gas Reduction](#)

[Get Involved](#)

## Newsletter Launch

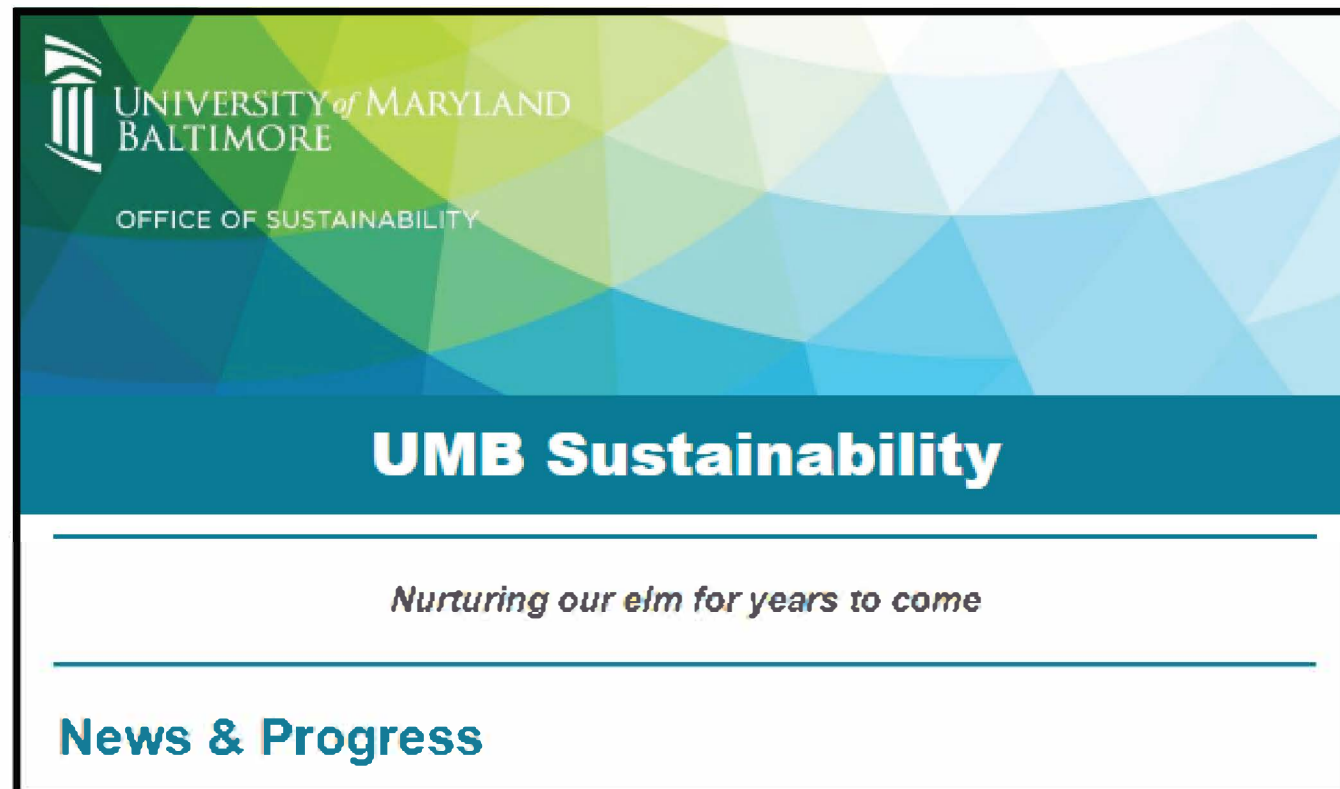
The monthly UMB Sustainability Newsletter was launched in March 2021, using elements of the Office of Sustainability's new look. Sustainability-related campus projects, programming, tips, features on students, faculty, and staff, and other news are distributed to subscribers at the beginning of each month. The Office of Sustainability continues to track its engagement from new sign-ups and open rates. At the end of June 2021, the newsletter had over 100 subscribers and an average open rate of 50 percent from March through June.

100+

**SUBSCRIBERS**

50%

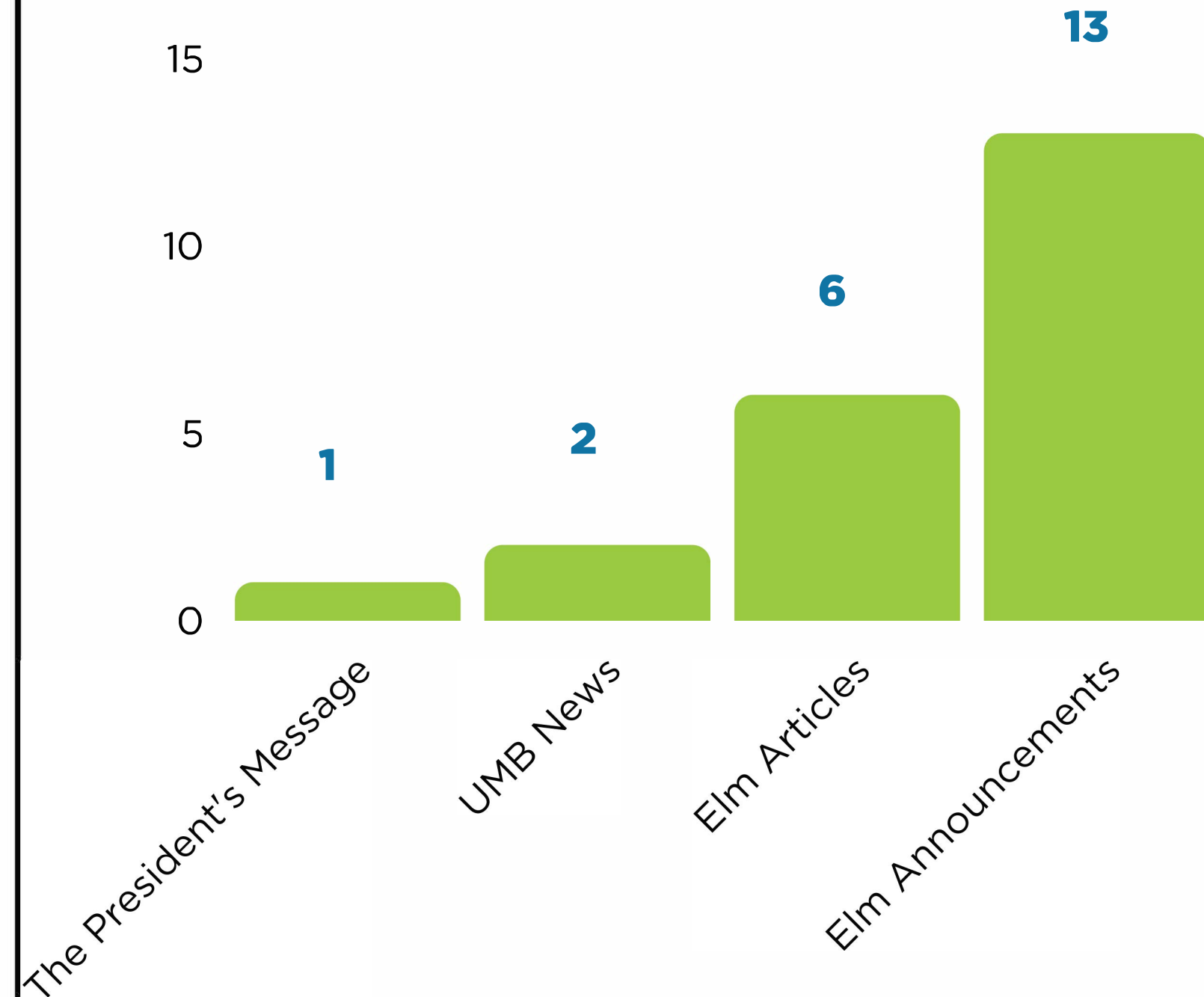
**OPEN RATE**



[Sign up for the newsletter here](#)

## SUSTAINABILITY NEWS

The office was featured in *The President's Message* in April 2021, along with two University news articles. In addition to being featured by UMB, the Office of Sustainability created six Elm articles and thirteen Elm announcements to engage the campus community. A "Sustainability" tag was created for Elm stories and a corresponding Sustainability section was created in The Elm Weekly.





# STRATEGIC PLAN PROGRESS

## Self-Service Waste

In fall 2021, UMB's Sustainability team sent out a waste survey to students through the University Student Government Association to understand recycling behavior. The survey provided over 100 responses. When asked "Why don't you recycle?" the top three responses included:

**A lack of bins**

**Uncertainty of what was recyclable**

**Poorly labeled bins or inconvenient locations**

A self-service waste model, coupled with updated signage, increases accurate sorting of waste and decreases unnecessary waste from being sent to the incinerator.

## School of Nursing Case Study

The School of Nursing (SON) implemented a triple-bin system to collect waste in co-located bins, while removing individual desk-side bins. By championing this method of waste collection, SON was able to divert hundreds of thousands of plastic liners from being incinerated.

**445,005**  
liners diverted annually

## Self-Service Waste Rollout

After presenting the data to senior leadership on the benefits of a self-service waste model, President Jarrell approved the campus-wide rollout for this project. The rollout will feature a triple-bin system to collect UMB's dual-stream recycling and trash. Standardized bin types, placements of bins and liners, and signage were created for consistent messaging across campus. This implementation is a collaboration between the Office of Sustainability and the Department of Environmental Services. The updated signage was produced with feedback from various campus stakeholders, including Environmental Services, the Reduction Working Group, and various students, faculty, and staff. The office began conducting bin inventories (also known as "bininventories") to assess the current waste infrastructure on campus. With the new rollout of a self-service model, the Office of Sustainability and Department of Environmental Services plan to use a hybrid approach to combine some existing bins with new triple-bin stations.



**You can find more information on the self-service rollout by visiting:**

[Sustainability's Current Projects: Self-Service Waste Rollout page](#)

[Environmental Services' Self-Service Waste page](#)

# STRATEGIC PLAN PROGRESS

## LED Lighting Upgrades

In fall 2021, UMB's Sustainability team began replacing outdated fluorescent lighting with light emitting diode (LED) lighting. The conversion to LED lighting is estimated to save 5.3 million kilowatt hours (kWh) per year—the equivalent of:



**REMOVING**  
**817** GAS-POWERED VEHICLES  
**FROM THE ROADS A YEAR**

## Improved Outdoor Visibility



[Read more about the streetlight improvements in this Elm article](#)

In addition to interior lighting upgrades, UMB restarted a project that had halted during the COVID-19 pandemic to replace streetlights with LED bulbs. The project was revisited in winter 2022 and completed by spring 2022.

Converting to LED bulbs is estimated to save 40 to 75 percent energy compared to the former high-pressure sodium (HPS) fixtures. The University worked with Baltimore City to make this project possible, as the lights were within the city's right-of-way.

# NEW LEGISLATION

## Climate Solutions Now (SB528)

There were over a dozen environmental bills that were introduced in the 2022 Maryland General Assembly Legislative Session that UMB's Office of Sustainability was asked to provide comment on.

The Climate Solutions Now Act of 2022 passed into law on April 8. The new law requires state agencies and private businesses to reduce their environmental impact through a range of tactics.

- GHG reduction of 60 percent off 2006 baseline for Maryland by 2031
- Net zero statewide GHG emissions by 2045
- Zero emission vehicle targets and requirements for state vehicles
- Reporting energy data to Energy Star portfolio manager
- 20 percent reduction of direct GHG emissions by 2030 for state-owned and privately-owned buildings
- Net zero direct GHG emissions for both state and private buildings by 2040
- 75 percent renewable purchased electricity by 2030 for state agencies

The new legislation impacts UMB's climate neutrality goal, accelerating the climate neutrality date from 2050 to 2045.



## **FUTURE WORK**

### **What's to come for FY 2023**

UMB's Office of Sustainability is continuing to build momentum. You may have noticed campus sustainability-related initiatives that were not on this report, perhaps posted up on the digital displays around campus (also known as e-boards), Elm articles, the sustainability website, the sustainability newsletter, and through social media. We look forward to updating you on our next annual report for Fiscal Year 2023, with these projects already in the works:

**SARATOGA BUILDING ENERGY  
REDUCTION PILOT**

**WESOLAR COMMUNITY  
SOLAR BENEFIT**

**ON-SITE SOLAR  
FEASIBILITY STUDY**

**INTEGRATING SUSTAINABILITY  
INTO ONBOARDING AND  
ORIENTATIONS**

**BIKE-FRIENDLY  
UNIVERSITY DESIGNATION**

**RESILIENCE ASSESSMENT**

**TREE CAMPUS HIGHER  
EDUCATION DESIGNATION**

**GREEN LABS PROGRAM LAUNCH**

**Thank you to our many campus  
partners for making our first year  
as an office such a success!**

**Design and Construction**

**Environmental Health and Safety**

**Environmental Services**

**Office of Emergency Management**

**Operations and Maintenance**

**Parking and Transportation Services**

**Real Estate, Planning, and Space Management**

**Strategic Sourcing and Acquisition Services**

**Sustainability Working Group Members**

**URecFit and Wellness**

**University Student Government Association**

**... and many more!**

# DEFINITIONS

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## **Carbon Dioxide Equivalent (CO<sub>2</sub>e/CDE)**

Also written as CO<sub>2</sub>e or CDE. This considers all greenhouse gases' impacts on the climate in the context of its global warming potential.

## **Carbon Neutrality**

An effort to decrease greenhouse gases such as carbon dioxide (CO<sub>2</sub>) in the atmosphere. Greenhouse gases are the result of human activities such as deforestation, land use change, and fossil fuel burning.

## **Co-Located Bins**

Waste bins that are placed in a centralized locations or common spaces to create a station of bins. Co-located bins collect a different waste stream per bin.

## **Dual-Stream Recycling**

Recycling that has two waste streams. At UMB's campus, the University's recycling stream is separated by mixed paper and cardboard and mixed plastics, glass, and metal. This is different from single-stream recycling, where all recyclable materials go into one container.

## **Geographic Information System (GIS)**

A system that creates, manages, analyzes, and maps all types of data. GIS connects data to a map, integrating locational data (where things are) with all types of descriptive information (what things are like there). GIS helps users understand patterns, relationships, and geographic context.

## **Global Warming Potential (GWP)**

A measure of how much energy the emissions of 1 ton of gas will absorb over a period of time. Gases with a higher GWP absorb more energy, per pound emitted, than gases with a lower GWP, and thus contribute more to the warming of Earth.

## **Greenhouse Gases**

Gases that trap heat in the atmosphere. These include: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and fluorinated gases (such as hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and other synthetic gases). Each gas has a different magnitude of potency known as global warming potential

## **Leadership in Energy and Environmental Design- (LEED) Certified**

### **Buildings**

LEED is the most widely used green building rating system in the world. LEED provides a framework for healthy, efficient, and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement and leadership.

## **Net Zero Emissions**

Achieving an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the atmosphere.

## **Renewable Energy**

Energy collected from resources that are naturally replenished on a human timescale. Types of renewable energy include: solar, wind, hydropower, geothermal.

## **Scope 1 Emissions**

Direct greenhouse gas emissions that occur from sources that are controlled or owned by an organization.

## **Scope 2 Emissions**

Indirect greenhouse gas emissions that are associated with the purchase of electricity, steam, heat, or cooling. Although scope 2 emissions physically occur at the facility where they are generated, they are accounted for in an organization's GHG inventory because they are a result of the organization's energy use.

## **Triple-Bin System**

A waste station with three separate containers to capture different waste streams.

## **Waste Stream**

Different categories of solid waste to be disposed of. Waste streams on campus include: mixed plastics, glass, and metal recycling, paper and cardboard recycling, regular trash, biohazardous waste, broken glass, etc.