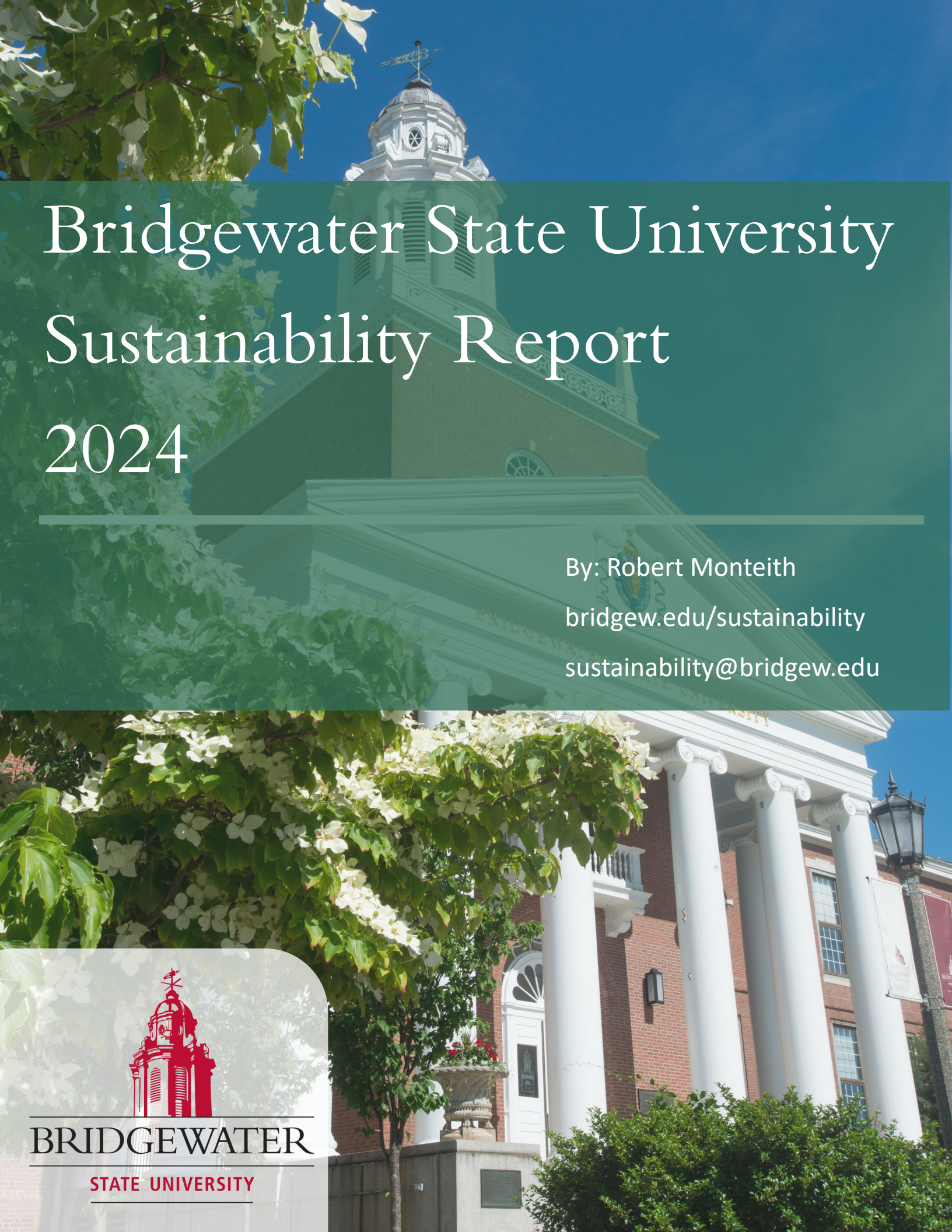

Bridgewater State University Sustainability Report 2024

By: Robert Monteith

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BRIDGEWATER STATE UNIVERSITY

“Only when the last tree has been cut down, the last fish has been caught, and the last stream poisoned, will we realize we cannot eat money.”

~Cree Proverb

Executive Letter

April 25, 2025

Bridgewater State University (BSU) is proud to present our inaugural Sustainability Report, which represents a foundational step in our ongoing journey to promote environmental stewardship, social responsibility, and long term resilience. This report is a reflection of our collective values and our commitment to making sustainability a central pillar of BSU s mission, planning, and operations.

At BSU, we recognize that institutions of higher education have both the responsibility and the opportunity to lead by example. As BSU is uniquely positioned to prepare the next generation of leaders to address the pressing environmental and social changes of our time, we have aligned our efforts with the United Nations Sustainable Development Goals (SDGs) and the Sustainability Tracking, Assessment, and Rating Systems (STARS) framework developed by the Association for the Advancement of Sustainability in Higher Education (AASHE). These tools guide our work, inform our metrics, and support transparency and accountability in our progress.

This report reflects a sampling of the work BSU has undertaken, led by BSU s standing committee on Sustainability Innovations Strategy. The projects we are committed to are collaborations between students, faculty, staff, and administrators and reflect strategic goal setting and implementation. The work integrates the Massachusetts Governor s Executive Order 596, requiring all state agencies to reach net zero greenhouse gas emissions by 2050. BSU has already met our 2030 targets and is unrelenting in meeting the 2040 and 2050 targets through a robust decarbonization plan.

Highlights in this report include:

- Activation of multiple solar installations, both rooftop and canopy mounted, totaling over 2 MW of renewable energy generation capacity
- Continued investment in fleet electrification, already exceeding the Commonwealth s 2025 and 2030 targets
- Upgrades in energy and water efficiency, including LED retrofits, efficient motor replacements, and the installation of tankless water heaters
- Strengthening of academic and co curricular programs, including Student Arts and Research Symposium (StARS) and Interdisciplinary Sustainability Research (ISR) Grants, which engage students in real world problem solving
- Building robust partnerships through Dining Service, local procurement, and waste reduction initiatives
- Expansion of public and alternative transportation options, including Bear Bikes, EV charging stations, MBTA partnerships, and BSU/BAT Transit services

This report also looks to the future, outlining innovative projects such as the BRISTACO Path to Sustainability and the Swenson Lot Solar Canopy, which will continue to advance our campus toward a low carbon, more resilient future.

Our work is grounded in the belief that sustainability is not a destination, but a dynamic and evolving process. We remain committed to continuous improvement, community engagement, and institutional accountability. Through the dedication of our faculty, librarians, staff, students, and partners, Bridgewater State University will continue to lead with integrity, collaboration, and purpose.

With my gratitude to the BSU Sustainability Innovations Strategy Committee, I share with you this report and invite you to review it as evidence of our deep commitment to sustainability.

Regards,

Frederick W. Clark, Jr.

President

Introduction

Bridgewater State University (BSU) is proud to present our inaugural Sustainability Report, which highlights our ongoing commitment to environmental stewardship, social responsibility, and economic sustainability. This report reflects the collective efforts of our campus community as we align our initiatives with global, state, and institutional sustainability frameworks. At BSU, we recognize the vital role that higher education plays in advancing sustainable practices and creating solutions for the challenges of our time.

Our sustainability journey is guided by the United Nations Sustainable Development Goals (SDGs), which provide a universal blueprint for addressing the world's most pressing challenges, from climate action to quality education and social equity. In support of the SDGs, we are dedicated to promoting sustainable practices in every aspect of university life, ensuring that our actions today will contribute to a better tomorrow for our students, faculty, staff, and the broader community.

BSU is also committed to the objectives set forth by the Sustainability Tracking, Assessment & Rating System (STARS), developed by the Association for the Advancement of Sustainability in Higher Education (AASHE). Through STARS, we assess and publicly share our progress in key sustainability categories, including energy, water, waste management, transportation, and diversity and inclusion. Our efforts to achieve a STARS rating are central to our mission of integrating sustainability across all areas of the university.

Moreover, as a proud institution located in Massachusetts, BSU is aligned with the state's ambitious climate goals. Massachusetts has set a path to achieve net-zero greenhouse gas emissions by 2050, with interim goals to reduce emissions by 25% by 2020 and 50% by 2030. As part of this effort, we are actively working to reduce our campus carbon footprint, enhance energy efficiency, and contribute to the state's broader environmental and climate resilience objectives.

This report highlights our progress, challenges, and next steps as we work to fulfill these critical commitments. Through our collective efforts, we are taking meaningful action to advance sustainability at Bridgewater State University while preparing our students to be the leaders and innovators needed to tackle global environmental and social challenges. We are excited to share our achievements thus far and look forward to continuing this journey in the years to come.

SUSTAINABILITY AT BRIDGEWATER STATE UNIVERSITY

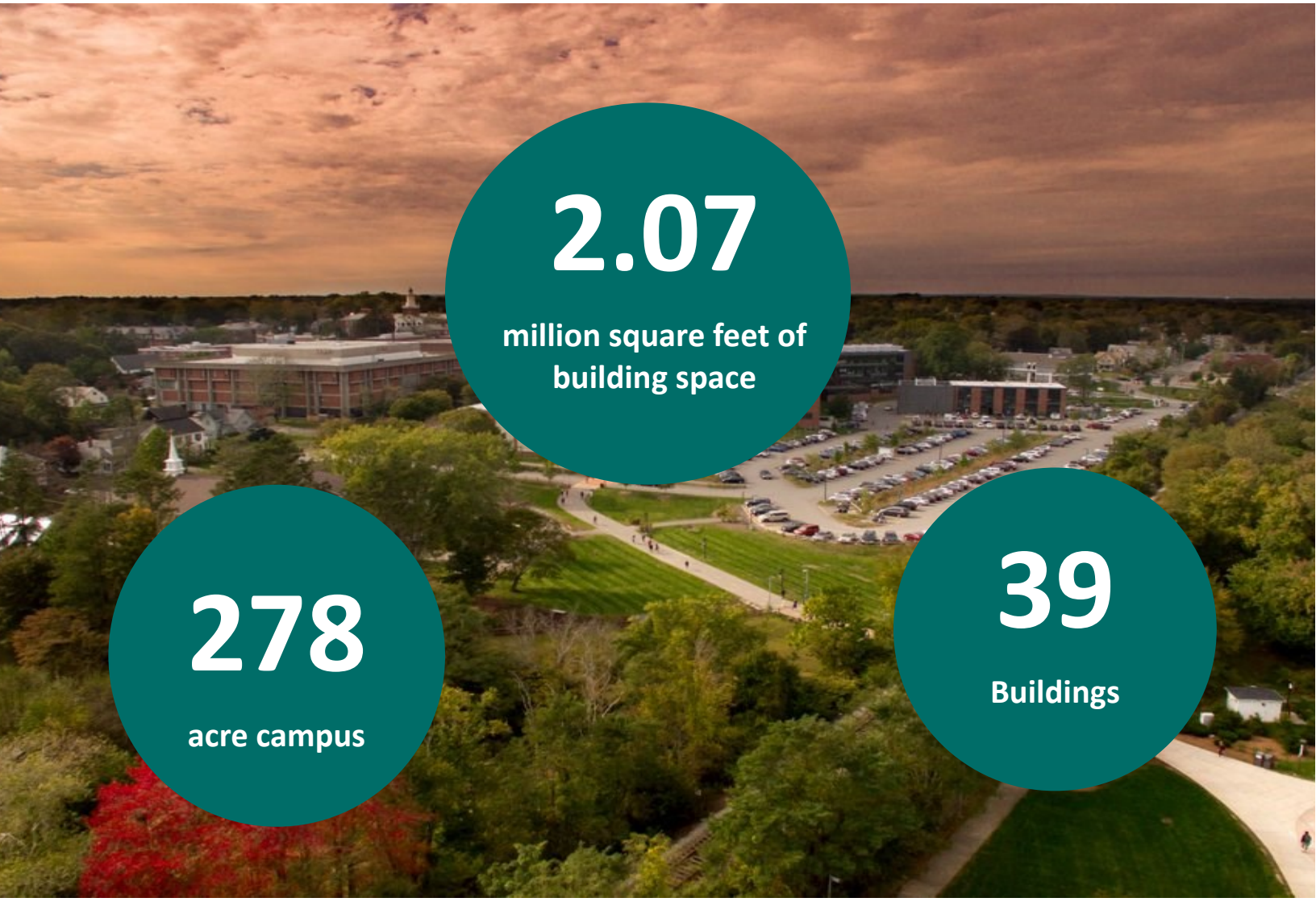
This inaugural report marks an important step in documenting and reflecting on the university's efforts to advance sustainability across campus and within the broader community. This report covers the 2024 Fiscal Year (July 1, 2023 June 30, 2024).

As a public Master's University located in Bridgewater, Massachusetts within Climate Zone 5A BSU serves a diverse and dynamic population. The university supports approximately 7,786 full time equivalent (FTE) students, with a student to faculty ratio of 17:1. BSU employs 458 FTE faculty and 704 full time staff and administrators. Roughly 42% of students (about 3,300) live in on campus housing. The university's physical footprint spans 2.07 million square feet of gross floor area across its facilities.

This report provides a comprehensive snapshot of sustainability at BSU, incorporating both quantitative and qualitative data. It presents operational metrics such as energy use, waste management, and sustainability related course offerings alongside narratives that capture academic initiatives, student engagement, and community involvement.

The goal of this report is to offer insight into the question: What does sustainability mean at Bridgewater State University, and how do we, as a community, apply it to our actions? By answering this, the report aims to illuminate the nature and impact of BSU's sustainability activities and to guide the university in making informed, forward thinking decisions. As we move ahead, this foundational document will serve as a benchmark for growth, reflection, and continued commitment to a more sustainable future.

BSU at a Glance



The report offers snapshots of sustainability at Bridgewater State University: quantitative data in operations and the number of sustainability-related courses, and qualitative notes on academic and campus activities.

The hope of this report is to provide an understanding of the nature and impact of sustainability activities throughout the BSU community, which will assist the university in its sustainability decisions going forward.

Overall, this report is intended to provide insight into the question: what does sustainability mean at BSU, and how do we, the BSU community, apply it to our actions?

ACADEMICS

At Bridgewater State University, we have always subscribed to the learn by doing methodology, and sustainability is no exception to that. Our combination of course offerings and research provide insights into how to best address current climate and sustainability issues.

Students are able to choose between a selection of 68 undergraduate and 11 graduate courses related to sustainability. This knowledge is then applied in class projects and research such as the work in the Adrian Tinsley Program (ATP) where undergraduates get to perform real research with a faculty mentor. By integrating sustainability throughout its academic programs, BSU seeks to create graduates who leave campus with an understanding of, and the abilities to develop sustainable solutions to, the world's problems.

COURSES

Sustainability Innovation and Leadership, Environmental Economics, Sustainable Cities, Environmental Biology, and Environmental Ethics - these courses exemplify how facets of sustainability are pervasive throughout the BSU curriculum. A sampling of courses related to sustainability offered during the 2023-2024 academic year can be found on page six of this report, with course descriptions abstracted from the 2023-2024 BSU Undergraduate and Graduate Catalogs.

In 2023-24, BSU offered:

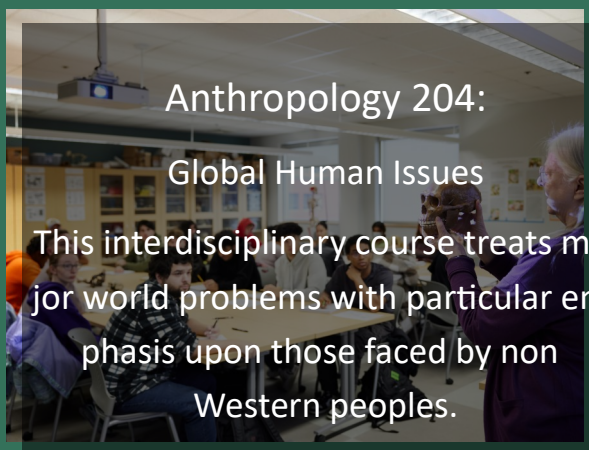
68 Undergraduate courses related to sustainability

11 Graduate courses related to sustainability

And continues to add new sustainability themed courses and research opportunities.

COURSE SAMPLING

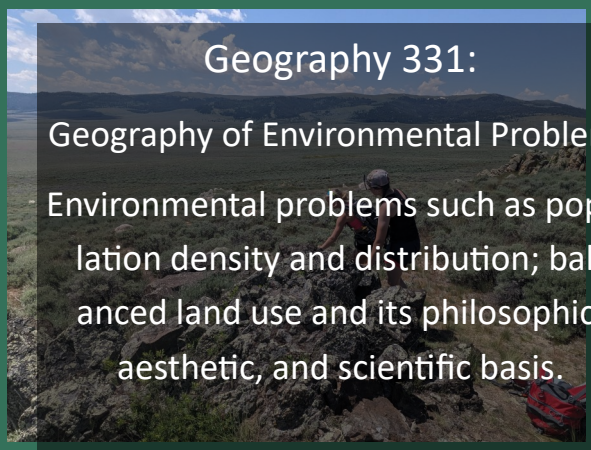
Undergraduate



Anthropology 204:

Global Human Issues

This interdisciplinary course treats major world problems with particular emphasis upon those faced by non Western peoples.



Geography 331:

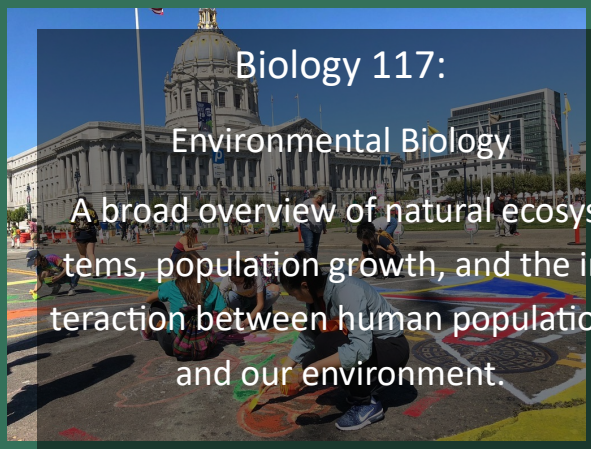
Geography of Environmental Problems

Environmental problems such as population density and distribution; balanced land use and its philosophic, aesthetic, and scientific basis.

Sustainability 101:

Sustainability Innovation & Leadership

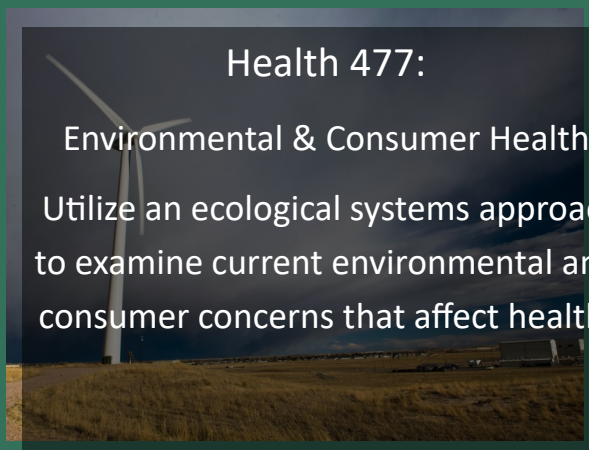
This course introduces students to foundational theory, history, ethics and policy making tied to social, environmental and economic sustainability.



Biology 117:

Environmental Biology

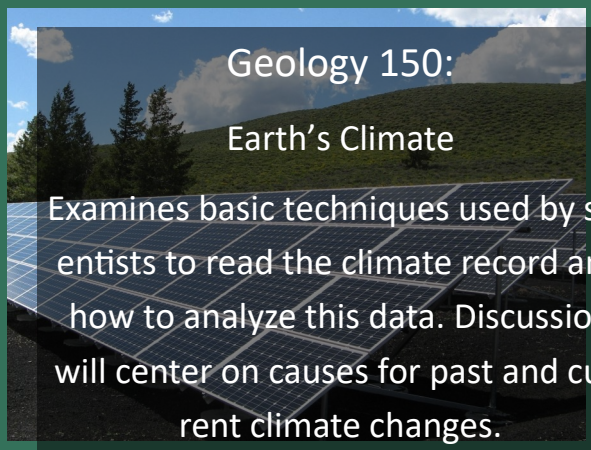
A broad overview of natural ecosystems, population growth, and the interaction between human populations and our environment.



Health 477:

Environmental & Consumer Health

Utilize an ecological systems approach to examine current environmental and consumer concerns that affect health.

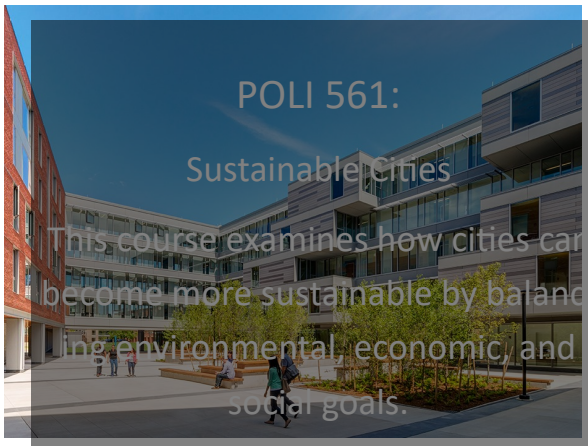


Geology 150:

Earth's Climate

Examines basic techniques used by scientists to read the climate record and how to analyze this data. Discussion will center on causes for past and current climate changes.

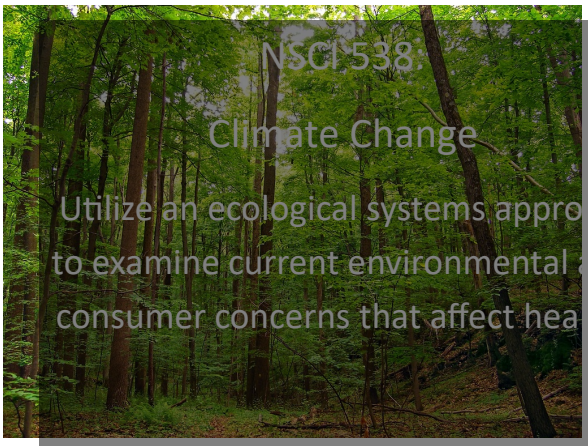
Graduate



POLI 561:

Sustainable Cities

This course examines how cities can become more sustainable by balancing environmental, economic, and social goals.



NSCI 538:

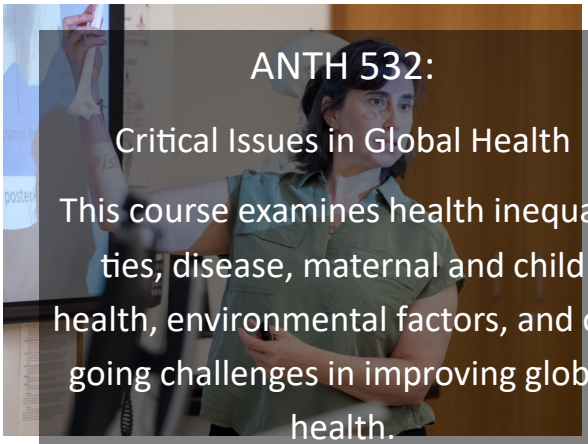
Climate Change

Utilize an ecological systems approach to examine current environmental and consumer concerns that affect health.

BIO 540:

Techniques in Ecology and Environmental Sciences

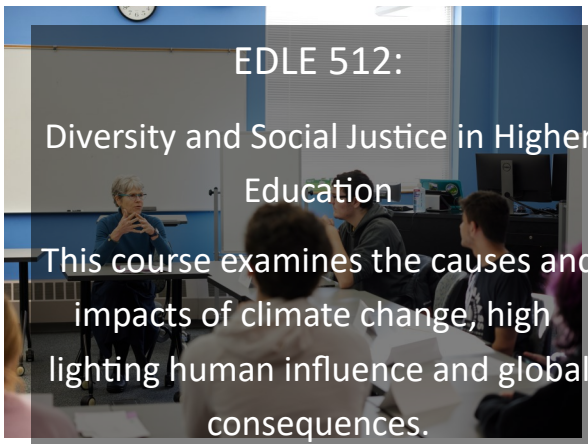
Students gain hands on experience with methods used by agencies to monitor eco systems, water quality, vegetation, and wildlife.



ANTH 532:

Critical Issues in Global Health

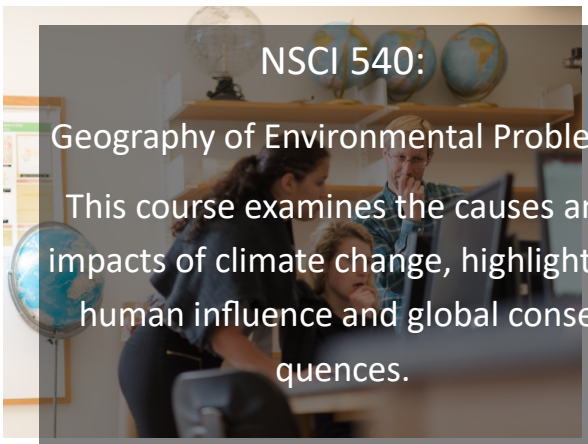
This course examines health inequalities, disease, maternal and child health, environmental factors, and ongoing challenges in improving global health.



EDLE 512:

Diversity and Social Justice in Higher Education

This course examines the causes and impacts of climate change, highlighting human influence and global consequences.



NSCI 540:

Geography of Environmental Problems

This course examines the causes and impacts of climate change, highlighting human influence and global consequences.

Lectures, Seminars, Events, & Research

Sustainability in Public Transportation

By Michael Falasca

Determining the current problems within the public transportation system and focusing on cities and low income communities. Discussing the comparison and financial benefits of taking public transport over using personal vehicles along with how this can improve our climate resilience. Talks about economic sustainability between car insurance, gas, and monthly expenses with personal vehicles and how much is saved by taking public transport by monthly spending costs. Goes into detail about current public transit we already have specifically in larger cities such as the greater Boston area. Also providing solutions and examples of how to improve issues with public transit such as safety, distaste, frequency, and accessibility to the public.

Climate Action

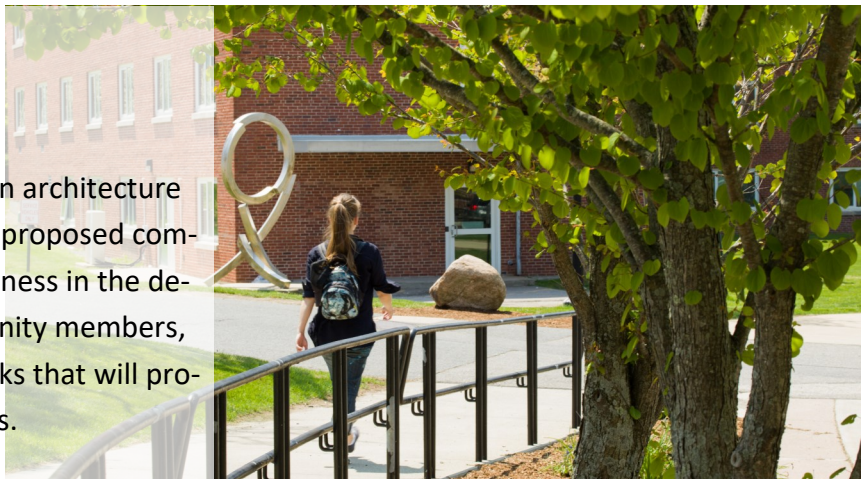
By Colin Morrison

Climate Change is happening all over the world. Many know this to be true. What many do not know to be true is that without Climate Action, this problem will escalate rapidly. My name is Colin Morrison, and my presentation goes into heavy detail on the importance of Climate Action and the role each one of can have on protecting our planet.

Sustainable Architecture and Design

By Sara Gifford

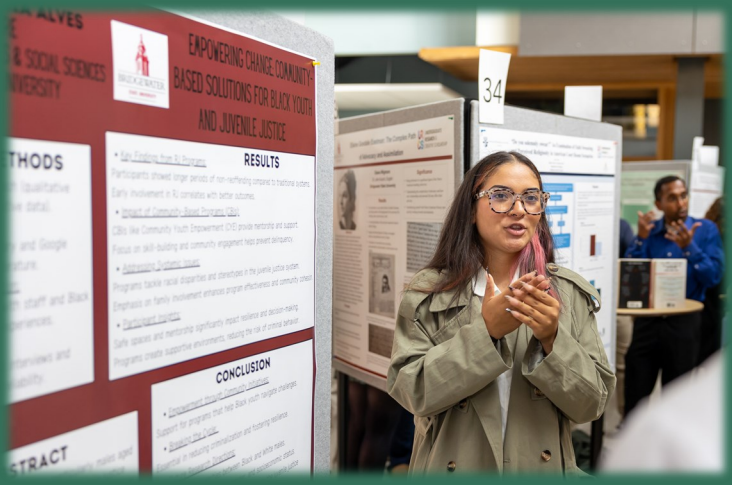
This project highlights the necessity of sustainability in architecture and design. "Sustainable Architecture and Design" is a proposed community action project to inspire climate change awareness in the design field. Through the use of local artists and community members, we hope to engage the audience with beautiful artworks that will promote awareness of climate change issues.



Adrian Tinsley Program (ATP)

for Undergraduate Research & Creative Scholarship

Adrian Tinsley Program (ATP) Summer Grants fund faculty mentored undergraduate research and creative projects con ducted over ten weeks of the summer (June to early August). Students can work on individual projects or collaborate in small groups of 2 4. Every ATP student earns a $4,500 stipend. Faculty earn $2,000 per individual student they mentor, or $3,000 $5,000 for mentoring a small group. ATP students also receive funding for supplies to complete their projects.



Sustainability Practices at Dining Hall Sontheim and BSU

By Allison Morin, Jack Parry, Mac ronan , Kayla Suazo

BSU discusses sustainability practices at the Crimson din ing hall, as well as HHN student discuss sustainability practices at Dining Hall Sontheim

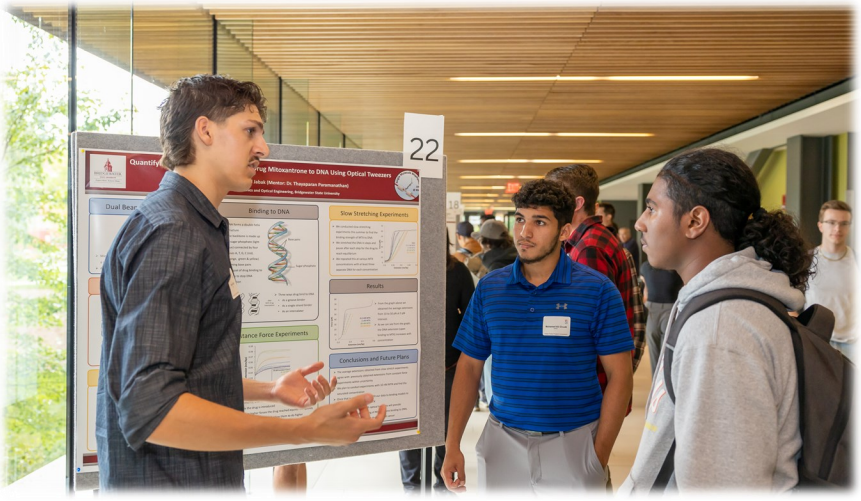
Why We Recycle

By Sara Sullivan

My presentation discusses my project of why we recycle and how it affects our community. It lists how it connects to the UN SDG and how we can solve the plastic waste is- sue.

Student Arts & Research Symposium (StARS)

Bridgewater State University actively fosters student engagement in sustainability through academic research, creative expression, and cross-disciplinary collaboration. A key event, the Student Arts & Research Symposium (StARS), provides a platform for students to showcase innovative solutions to environmental challenges and contribute to sustainability-focused research.



StARS is one of BSU's signature academic events, welcoming participation from all students—graduate, undergraduate, and continuing studies. The symposium provides a space for students to showcase their research, scholarship, and creative work in a variety of formats, including:

- Poster presentations
- Lightning talks (5-minute presentations)
- Exhibitions of artwork and artifacts

Sustainability-related research is a growing focus of the symposium, encouraging students to apply their academic skills toward solving real-world environmental challenges.

For 16 years, the New England Symposium on Sustainability and the Environment—hosted by Dr. Edward Brush of the Chemistry Department—served as a regional platform for students, faculty, and researchers to discuss environmental issues. In 2020, the symposium was formally integrated into StARS, strengthening sustainability as a core component of BSU's premier research showcase. This transition, facilitated through collaboration between the Center for Sustainability, CASE (College of Science & Mathematics), and the Office of Undergraduate Research, allowed for a broader audience and a more interdisciplinary approach to sustainability research.

Since this integration, sustainability-focused projects at StARS have continued to flourish, incorporating research from across disciplines, including environmental science, social sciences, public policy, and creative arts. Sustainability topics have ranged from climate resilience and renewable energy to environmental justice and waste reduction strategies, reflecting BSU's commitment to interdisciplinary collaboration and real-world problem-solving.

By embedding sustainability research within StARS, BSU provides students with the opportunity to engage deeply with environmental challenges, develop interdisciplinary solutions, and contribute meaningfully to the broader sustainability movement. These efforts align with BSU's mission to foster knowledge, innovation, and action in pursuit of a more sustainable future.

Student-Faculty Research Showcase

Undergraduate research plays a central role in the BSU Sustainability Program, recognized as a high-impact practice that empowers students to engage deeply with real-world challenges. In the past, the program supported student participation in the Adrian Tinsley Program (ATP) and summer internships focused on sustainability topics.

In Spring 2021, the program expanded its commitment by launching the Interdisciplinary Sustainability Research (ISR) Grant. This initiative funds student-led research projects that bring together interdisciplinary teams of students and faculty to explore sustainability solutions during the spring semester or summer term.

The ISR Grant encourages students to think creatively and collaboratively as they respond to challenges posed by faculty mentors. By engaging in hands-on, problem-based research, students gain valuable experience while contributing meaningful ideas and innovations to advance sustainability at BSU and beyond.

Degrees

Sustainability Innovation and Outreach Minor

Students minoring in Sustainability Innovation and Out reach will understand the foundations of sustainability practices, theory, history and policy. Using the perspective from two or more disciplines, students will make connections between the disciplinary domains that per tain to sustainability and integrate conflicting disciplinary insights and viewpoints. In addition, they will develop a basic understanding of systems approaches and application, learning about key leaders and organizations influ encing sustainability; develop a working knowledge of sustainability assessment, decision making tools, and training methods; and develop professional and academic writing skills to support sustainability careers. Finally, they will develop and complete a research/service pro ject with a sustainability theme that proposes a holistic solution.

Organizations

The Center for the Advancement of STEM Education

The Center for the Advancement of STEM (Science, Technology, Engineering and Mathematics) Education leverages the physical and intellectual resources of BSU to build and support a diverse community of educators and students that promotes STEM interest and literacy both regionally and internationally.

CASE Programs:

The Watershed Access Lab provides science education outreach programs and preK 12 teacher professional development focused on land use, water quality assessment, global water issues, conservation, and environmental education. A total of 1,584 K 12 students, 62 teachers, 8 BSU students, and 2 BSU faculty and staff participated in Watershed Access Lab programming.

Greenlight for Girls: Greenlight for Girls Day engaged 109 middle school girls in hands on activities led by 9 undergraduate students, 7 faculty/staff, and 6 community members. This event was run in partnership with Associate Professor Sarah Thomas, College of Education and Health Sciences and Greenlight for Girls, an international non profit STEM organization that aims to inspire girls of all ages and backgrounds to pursue STEM studies.

Green Energy: As part of an National Science Foundation grant awarded to Associate Professor Sarah Soltau in the Department of Chemistry, 27 high school students participated in hands-on activities focused on green chemistry, energy, and climate change as well as STEM careers. Two high school teachers, 2 BSU faculty/staff and 7 BSU undergraduate students were also involved in this program.

Project Invention Convention: CASE partnered with the College of Education as they led Project Invention Convention. Students were asked to develop inventions focused on the United Nations Sustainability Goals. Thirteen teams of students in grades 5-8 designed inventions. A total of 81 students, 9 teachers, and 12 BSU faculty/staff participated.

Our Sister School Partnership: CASE has an established partnership with Our Sisters School, a tuition-free independent school for grade 5-8 girls from low-income families in the New Bedford area. As a follow-up project to the "Engineering a Better Future" program developed with a grant from the American Association of University Women in 2021, CASE and Geography professor Robert Hellstrom led a hands-on program focused on building structures that can withstand hurricane-strength wind. The program involved 19 fifth-grade students, their teacher, 1 BSU faculty member, and 1 BSU student.

Environmental Action Team (EAT)

E.A.T., a student club, has worked closely with the Sustainability Program since 2018 and continues to be an active team to promote sustainability on campus. Dr. Robert Hellström served as the faculty advisor for this student club in Fall 2023 and Spring 2024. Advisors attend E.A.T.'s weekly meetings regularly to support their activities and initiatives. E.A.T hosted or co-hosted various events including campus cleanups and Earth Day Fair. The close relationship between the Sustainability Program and E.A.T. encouraged students' participation in the events hosted/co-hosted by the two organizations and created more opportunities with efficient resource utilization. It is important to note that E.A.T. works independently of the Sustainability Program and the club's faculty advisor is not necessarily one of the co-coordinators of the program. Sustainability co-coordinators will continue collaborating with the club on ideas and opportunities.

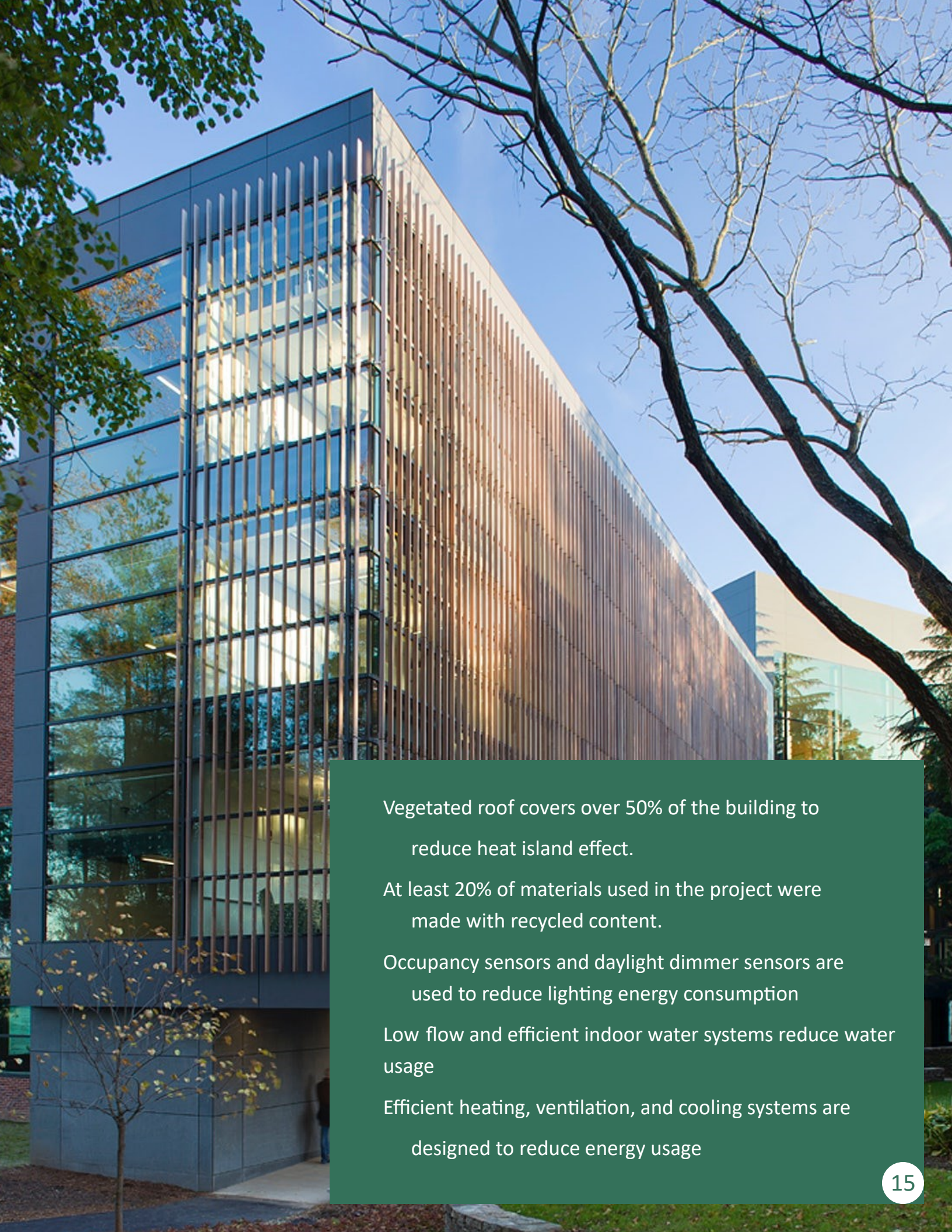
Club Accomplishments:

- Helped out on the campus Permaculture Gardens
- Organized a campus wide Climate Strike
- Held numerous tabling events to bring awareness about sustainability to the BSU community
- Hosted multiple events on campus including:
  - Campus clean ups
  - Sustainable clothing drive
  - Earth Day Fair
  - Sustainability Conference
- Held an event to educate students about the im portance of voting for political candidates who want to protect the environment

Campus Operations

Dana Mohler Faria Science and Mathematics Center

A 211,300 square foot building was completed in 2012, Dana Mohler Faria Science and Mathematics Center is a state of the art LEED silver certified building. It houses innovation spaces including classrooms, research laboratories, and the BSU Think Tank; the university's makerspace hub. The $98.7 million dollar renovation and expansion boasts energy saving light fixtures, solar thermal panels, and a green roof among other innovations.



Vegetated roof covers over 50% of the building to reduce heat island effect.

At least 20% of materials used in the project were made with recycled content.

Occupancy sensors and daylight dimmer sensors are used to reduce lighting energy consumption

Low flow and efficient indoor water systems reduce water usage

Efficient heating, ventilation, and cooling systems are designed to reduce energy usage

Getting to Net Zero

Bridgewater State University (BSU), as a Massachusetts State Owned University, is tasked to comply with Massachusetts Executive Order 594, "Leading By Example: Decarbonizing and Minimizing Environmental Impacts of State Government". This Executive order establishes carbon emission reduction goals for all state owned facilities, to be met by "substantially reducing or eliminating emissions from onsite combustion of fossil fuels in buildings and vehicles". (Scope 1 emissions). The Massachusetts Division of Capital Asset Management & Maintenance (DCAMM) Energy & Sustainability program engaged STV Incorporated and TRC Companies through the House Doctor program to develop a plan for Bridgewater State University to meet the Scope 1 carbon emission reduction goals of EO 594.

Recommendations

The following recommendations will allow BSU to achieve the carbon emission reduction goals of EO 594:

Space Heating Systems: Install heat pump heating in all buildings. In general, utilize Ground Source Heat Pump Systems in larger buildings and Air Source Heat Pump Systems in smaller buildings.

- Convert existing hydronic heating systems to Low Temperature Hot Water.
- Plan for some ground source bore-fields to be shared by multiple buildings where needed to support for buildings where there is not available space immediately adjacent to the building.
- Install cascaded heat pump systems if high temperature hot water is required for programmatic needs.
- Include building envelope updates and all feasible efficiency improvements in all renovation projects to minimize required heating needs.

Domestic Hot Water: Convert domestic hot water heating from a natural gas heat source to either electric resistive or heat pump heating.

Cooking / Dining Services: Convert all gas-fired equipment to electric equipment, including stoves, griddles, fryers, ovens, and any dishwashing booster heating.

Laundry: Convert natural gas dryers to electric equipment.

Vehicles: Replace fossil fueled vehicles with low or zero emission vehicles when vehicles require

replacement during their normal life cycle. Install vehicle charging equipment for fleet and student charging needs.

Resiliency: Minimize fossil fuel consumption for emergency generation as much as possible by

incorporating lower carbon fuels, energy storage, and possibly a microgrid to incorporate existing solar PV generation into an overall resiliency strategy.

Schedule and Phasing

Phase 1 – 2025 Goal: Phase 1 includes projects already in progress, plus projects that can be implemented with a short lead time for relatively low capital funding. It will not achieve the 2025 target due to insufficient time available to plan, fund, and complete projects, but it represents good progress in the direction of decarbonization.

This includes Burnell Hall (in progress) and the expected decommissioning of Burrill Office Complex, plus the various "House" campus offices – Barry House, Clifford House, Dr. Edward Minnock Institute for Global Engagement, Jones Alumni House, and the MSCA Building.

Phase 2 – 2030 Goal: Phase 2 can achieve the 2030 decarbonization target by converting many buildings on West Campus to heat pump systems. This includes Maxwell Library, Rondileau Campus Center, Art Center, Boyden Hall, Hunt Hall, Tillinghast Hall, Harrington Hall, Scott Hall, and Woodward Hall.

Phase 3 – 2040 Goal: Phase 3 can achieve the 2040 goal by converting all of the buildings on East Campus to ground source heat pump systems. This includes Tinsley Center, Hart Hall, Moakley Center, and the Operations Center, plus the east campus residence buildings – Crimson Hall, DiNardo Hall, Miles Hall, Stonehouse Hall, Shea and Durgin Halls, Great Hills Student Apartments, and the East Campus Commons.

Phase 4 – 2050 Goal: Phase 4 can achieve the final 2050 goal by converting the rest of the buildings on West Campus to ground source heat pump systems. This includes Pope Hall, Kelly Gymnasium, the Greenhouse, the Mohler-Faria Science and Mathematics Center, and the Welcome Center

Budget

The following order of magnitude budgets are suggested to inform funding and capital planning processes. (Estimated in 2023 dollars with out escalation.)

It is recommended that the Initial Construction Phase Funding Request include Phase 1 and Phase 2 plus apportioned soft costs; a combined funding need of $120,000,000. This funding level supports a multiyear design schedule and construction phasing resulting in a project that will meet the 2030 decarbonization goals of Executive Order 594.

Project Phase	Budget Range
Phase 1	$520,000 $1,000,000
Phase 2	$49,000,000 $95,000,000
Phase 3	$83,000,000 $151,000,000
Phase 4	$40,000,000 $66,000,000
Total Construction Allocation	$172,520,000 $313,000,000
Soft Cost Allocation (25%)	$43,130,000 $78,250,000
Total Funding Needs	$215,650,000 $391,250,000

Clean Energy and Efficient Buildings

Each year, BSU upgrades older campus buildings to improve energy efficiency and reduce costs. Recent projects include:

LED Lighting: LED lights were installed in classrooms and common areas like the Bear's Den, Hart Hall Connect or, and Shea Durgin. These upgrades cut energy use and lower maintenance needs.
Efficient Motors: Outdated motors were replaced with energy efficient direct drive units in HVAC systems, in cluding all 19 exhaust fans in Stonehouse and the DMF exhaust fan. Over a dozen motors were upgraded this year as part of routine maintenance.
Low Flow Fixtures: Water saving faucets and shower heads were added across campus, including full replacements in Great Hill Apartments. These reduce both water use and the energy needed to heat it.
Tankless Water Heaters: Traditional water heaters were swapped for energy efficient Navien tankless models in several buildings. More upgrades are planned for this summer at Great Hill Apartments and Crimson Hall.

These efforts support BSU's ongoing commitment to sustainability and resource conservation.

Executive Order No. 484: Leading by example clean energy and efficient buildings

State agencies shall prioritize practices and programs that address resource use at state facilities, including a reduction in energy consumption derived from fossil fuels and emissions associated with such consumption.

Furthermore, the Executive Offices of Energy and Environmental Affairs (EOEEA) and Administration and Finance (A&F) to establish and direct a Leading by Example Program (the Program), the purpose of which shall be to oversee and coordinate efforts at state agencies, including all UMass campuses and all state and community colleges, to reduce their environmental impact. Such efforts shall include, but not be limited to, the provisions of this Order to promote energy conservation and clean energy practices, as well as waste reduction and recycling, environmentally preferable procurement, toxics use reduction, water conservation, sustainable transportation, open space and natural resource protection, and improved compliance practices.

Solar Power at Bridgewater State University

As part of its commitment to clean energy and carbon reduction, Bridgewater State University (BSU) has significantly expanded its use of solar power across campus. Solar photovoltaic (PV) systems generate electricity by converting sunlight into direct current (DC) electricity using semiconductor materials. These systems reduce dependence on fossil fuels, lower greenhouse gas emissions, and support long term energy resilience and cost savings.

BSU's solar energy portfolio includes both rooftop and canopy mounted systems, strategically located to maximize solar potential while integrating seamlessly with campus operations. Since 2022, the university has activated several solar installations, with a combined generation capacity that continues to grow:

Operational Solar Projects

Dana Mohler Faria Science & Mathematics Center

Location: 24 Park Ave

System Size: 137.7 kW DC

Permission to Operate: August 1, 2022

Weygand Hall

Location: 351 Great Hill Drive

System Size: 110.2 kW DC

Permission to Operate: January 3, 2023

Operations Building

Location: 200 Great Hill Drive

System Size: 136.0 kW DC

Permission to Operate: August 10, 2022

Tower Lot Solar Canopy

System Size: 1,265.4 kW DC

Mount Type: Canopy mounted

Operational Date: March 27, 2024

Miles and DiNardo Halls

Location: 75 & 115A Burrill Ave

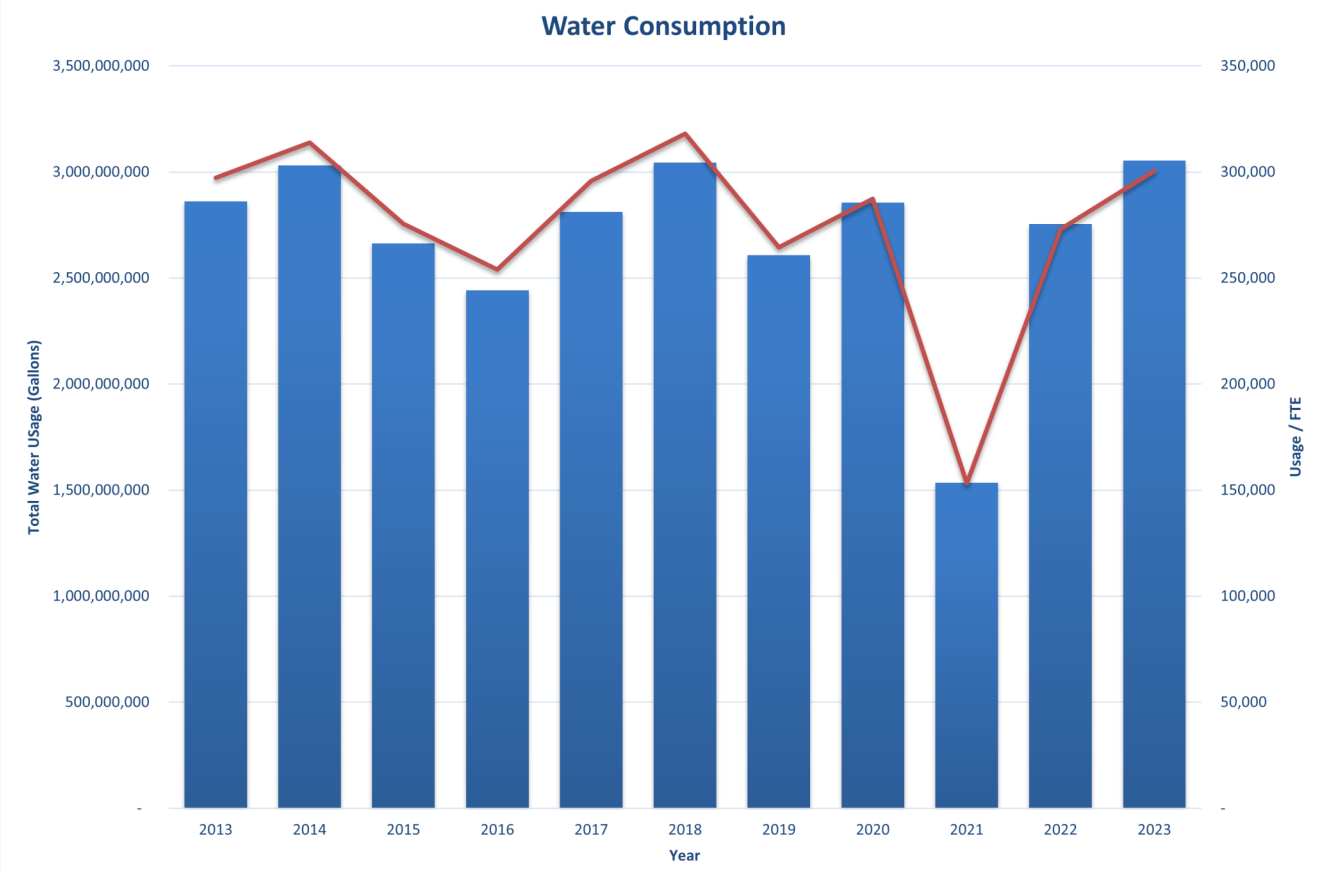
System Size: 145.9 kW DC

Permission to Operate: January 3, 2023

These systems not only generate clean, renewable electricity for campus operations but also serve as a visible demonstration of BSU's commitment to sustainability and innovation. As the university continues to invest in solar infrastructure, it moves closer to achieving its long term goals of reducing carbon emissions and transitioning to a more sustainable energy future.

Water

Water is essential to life — without it, human beings cannot survive. Yet much of the water we use on campus is not for drinking or direct consumption. It's used to shower, wash dishes, and heat our buildings. These everyday uses, while necessary, add up — and so does their environmental impact. Water is a limited resource, and every gallon requires energy and materials to extract, purify, deliver, and treat again after use. That's why how we use water — and how we think about it — matters deeply.



In the 2023 2024 academic year, Bridgewater State University used a total of 3,054,296,104 gallons of water, which equates to 300,477 gallons per Full Time Equivalent (FTE). This represents a 10% increase in per FTE usage compared to the previous year, but still reflects a 4% decrease from 2014 levels per FTE. These figures are an important first step in tracking usage trends and identifying areas for improvement.

To meaningfully reduce water use, BSU must implement concrete strategies that combine technological innovations (like low flow fixtures and more efficient systems) with behavioral changes driven by awareness and education. It's not just about lowering the total gallons used it's about building a campus culture that sees water as a valuable, shared resource.

Understanding how, when, and why we use water will allow the university to set realistic and impactful goals for conservation ones that protect both our environmental future and the immediate needs of the BSU community.

Energy Consumption

We use energy for everything lights, heating, cooling, hot water, computers. How we choose to con sume energy is one half of the matter. The other half is where our energy comes from.

The BSU campus uses energy in three main energy forms: natural gas, oil, electricity.

Natural gas is used for thermal energy (heating), and is reported in therms.

Oil is used for thermal energy (heating), transportation, and electricity generation; it is reported in gallons.

Electrical energy is used for everything else, including lighting and air conditioning systems. Electricity is reported in kilowatt hours (kWh).

Total natural gas consumption for FY23 was 1,237,455 therms, while gas consumption per FTE per HDD was 45.14. This is a increase of 4% in gas consumption per FTE per HDD from last year, and a decrease of 3% in gas consumption per FTE per HDD from FY14.

Total electricity use was 18,391,344 kilowatt hours (kWh), while electricity use per FTE was 1,821.04 kWh. This is a decrease of 9% in electricity use per FTE from last year, and a decrease of 17% per FTE from FY14.

We have done much better in the energy arena than in the water arena, decreasing both natural gas consumption per FTE and electricity consumption per FTE by a significant amount. Similar observations may be made as with our water goals, however: knowing what we know now, we recog nize that we need to better understand resource consumption especially in light of increasing population demands, provide concrete plans for achieving them, and articulate to the rest of the com munity what the goals are and how we the ones who are using the energy can help reach those goals.

NATURAL GAS

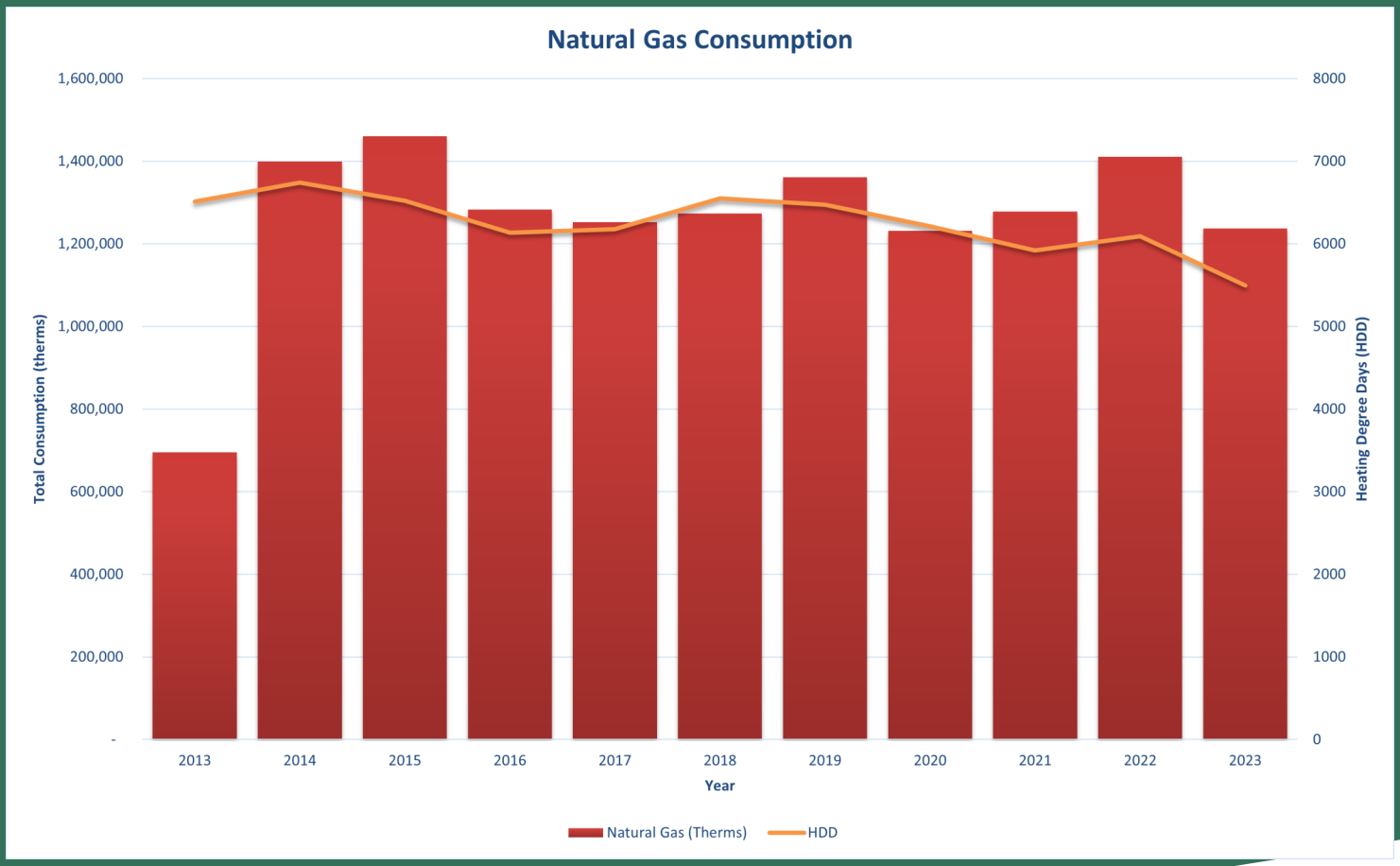
Understanding Natural Gas Units:

Each British Thermal Unit (BTU) is the amount of energy needed to increase the temperature of 1 pound of water by 1° Fahrenheit at sea level. British Thermal Units are used to measure heat (thermal) energy.

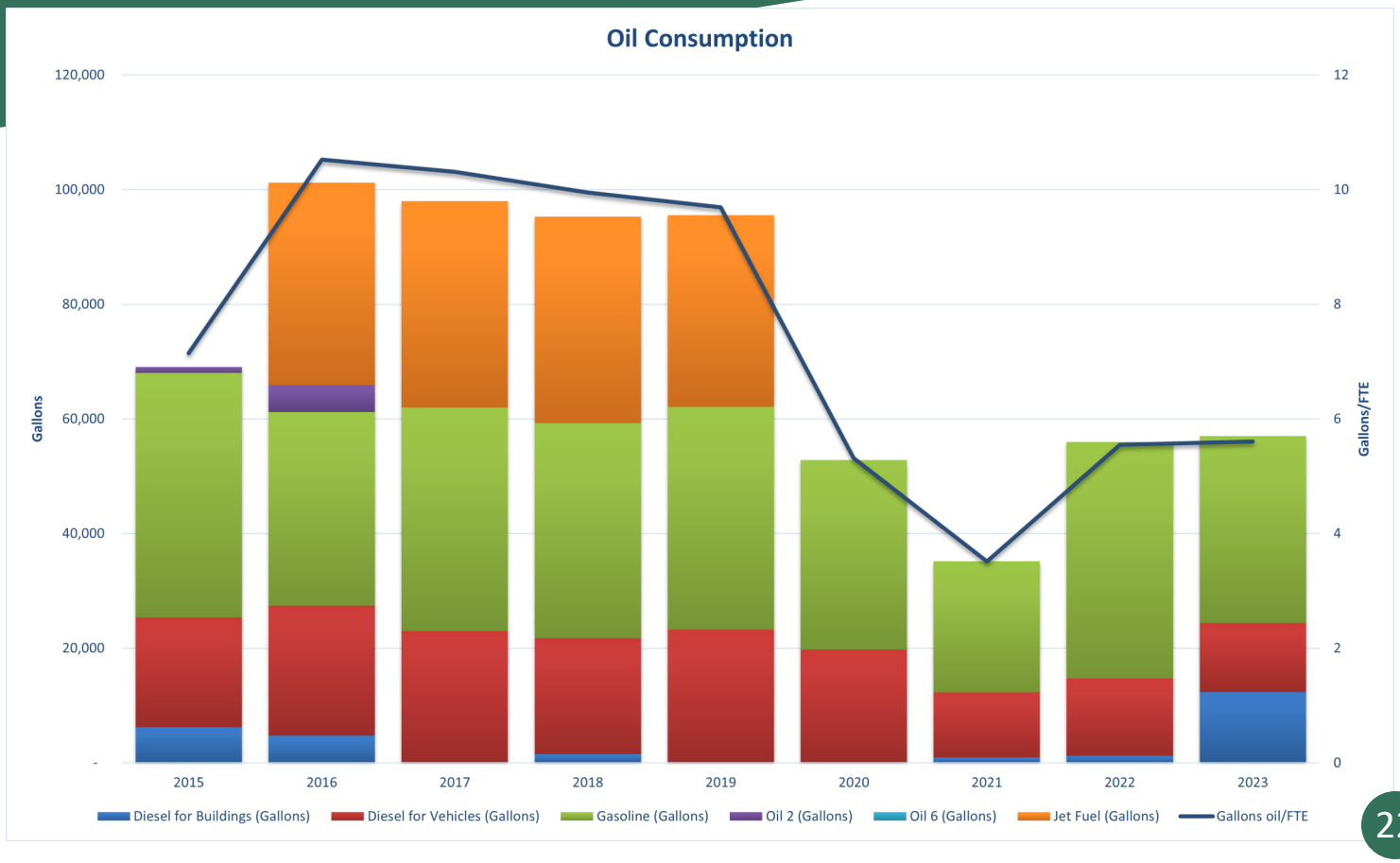
100,000 British Thermal Units (BTU) is one therm.

A Heating Degree Day (HDD) is the number of degrees below 65°F that each day's average temperature is. For example, if the average temperature for the day were 62°F, that is 3 degrees below 65° F, so the HDD number would be 3. Whether a building is heated depends on many factors, so 65°F was selected as a reasonable reference point in order to create a standard. Heating Degree Days are totaled for the entire year to quantify how much heat was needed during that year. The total number of therms is divided by the number of Heating Degree Days in a year to allow for comparison across years.

NATURAL

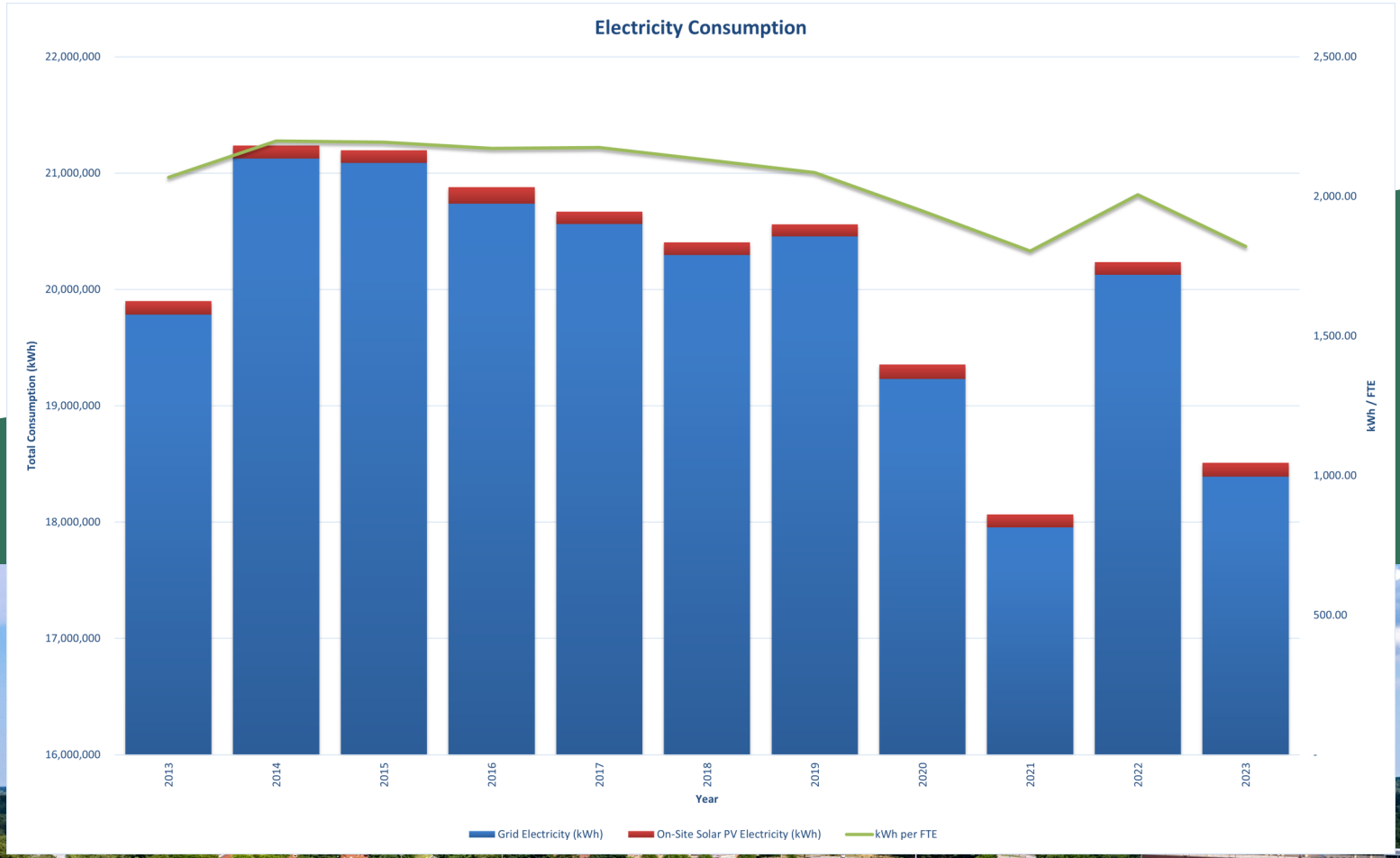

Natural Gas Consumption
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
8000
7000
6000
5000
4000
3000
2000
1000
0
Total Consumption (therms)
Heating Degree Days (HDD)
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Year
Natural Gas (Therms)
HDD

Oil


Oil Consumption
120,000
100,000
80,000
60,000
40,000
20,000
-
12
10
8
6
4
2
0
Gallons
Gallons/FTE
2015
2016
2017
2018
2019
2020
2021
2022
2023
Diesel for Buildings (Gallons)
Diesel for Vehicles (Gallons)
Gasoline (Gallons)
Oil 2 (Gallons)
Oil 6 (Gallons)
Jet Fuel (Gallons)
Gallons oil/FTE

Electricity

On high temperature days when demand for electric energy peaks, utility providers are sometimes forced to use less efficient and more polluting electricity-generating facilities to maintain supply capacity and avoid power outages. On those days, BSU reduces its power use by shutting off some non-essential equipment and cycling air conditioning on and off across campus during peak usage hours (generally 2-5 pm) as part of ISO New England's Demand Response program. Through these actions, BSU is able to significantly decrease its electricity consumption on peak power days in an effort to support the integrity of the New England electrical grid, limit the use of less clean electric production, and reduce peak demand charges.

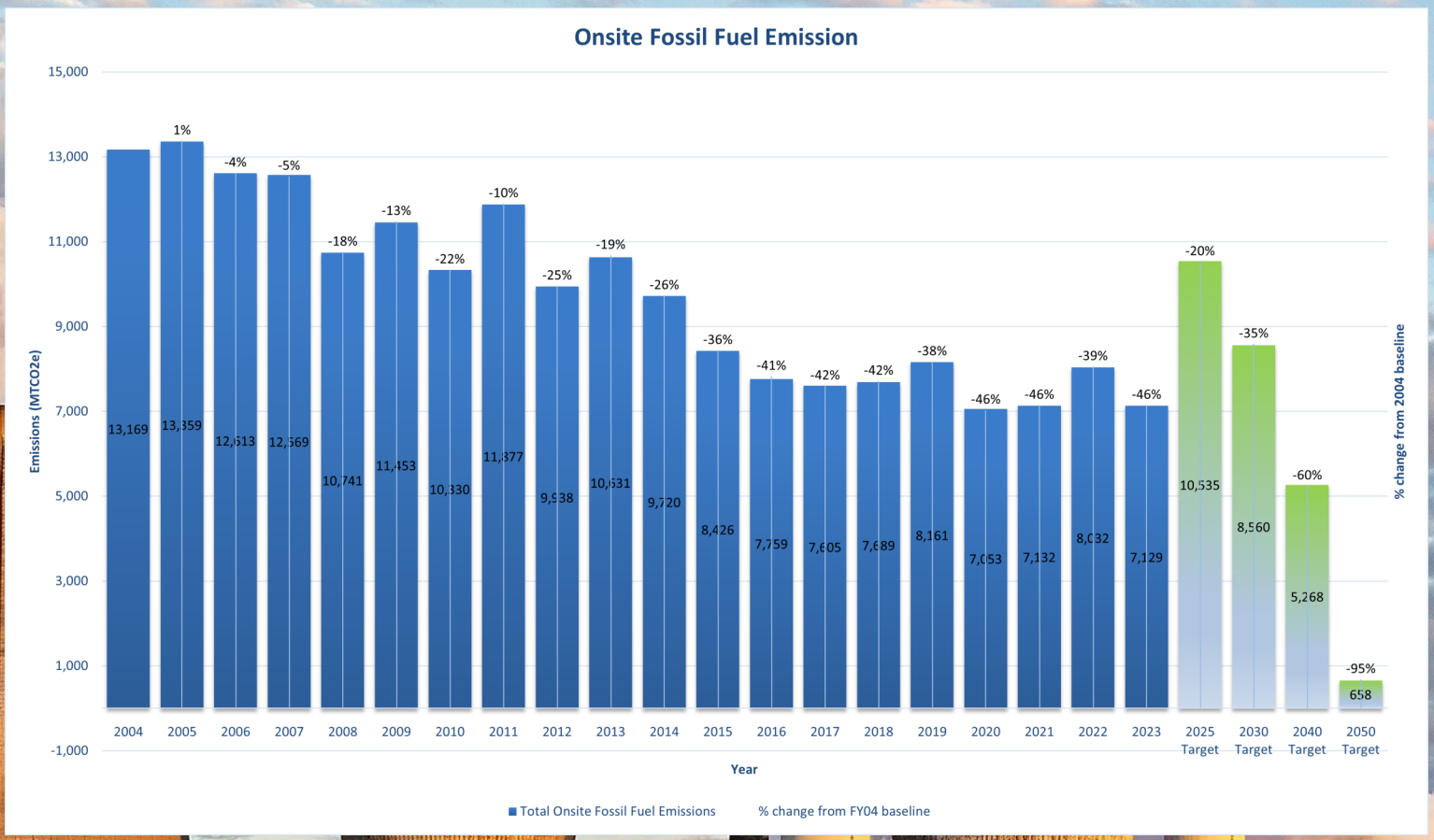


Greenhouse Gases

What is a greenhouse gas?

Greenhouse gases (GHGs) are a group of atmospheric gases—including carbon dioxide (CO_2), nitrous oxide (N_2O), methane (CH_4), water vapor, and fluorinated gases—that trap heat in the Earth's atmosphere. These gases allow incoming solar radiation (shortwave radiation) to pass through the atmosphere, but when that energy is re-radiated from the Earth as heat (longwave radiation), greenhouse gases absorb and re-emit it, preventing it from escaping back into space. This process, known as the greenhouse effect, is similar to how a greenhouse retains heat using glass panels.

Importantly, greenhouse gases are essential to sustaining life on Earth. Without them, the planet's average temperature would hover around 0°F, making it inhospitable to most forms of life.



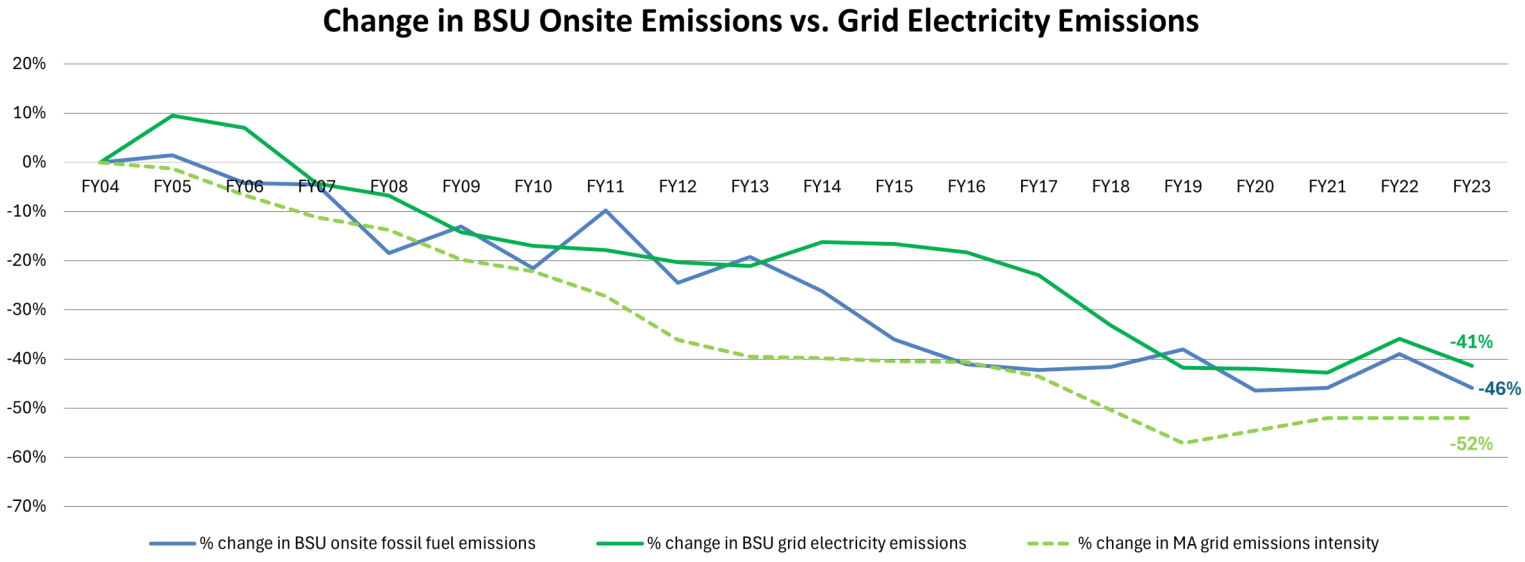
Note: Greenhouse gas emissions are measured in terms of carbon dioxide equivalents. This is because different gases differ in their lifespans and in the magnitude of their effects on the atmosphere. In order to allow for comparison, all greenhouse gas emissions are converted to the same unit, which is the equivalent (effect) of a metric ton of carbon dioxide.

What's the problem?

The issue arises from human activity. Since the Industrial Revolution, the burning of fossil fuels, deforestation, large scale agriculture, and transportation have significantly increased the concentration of greenhouse gases in the at mosphere. This enhanced greenhouse effect is driving global warming a steady rise in average global tempera- tures which in turn is fueling broader climate change.

The effects of a warming planet are far reaching. Climate change disrupts weather patterns, contributes to sea level rise, expands deserts, acidifies oceans, and increases the frequency and intensity of extreme weather events such as hurricanes and wildfires. Some areas, especially polar regions, are experiencing warming at accelerated rates, lead ing to the rapid loss of ice and permafrost.

If global emissions continue at current levels, vast areas of the planet may become uninhabitable within decades, with serious consequences for biodiversity, public health, agriculture, and infrastructure. This makes the reduction of greenhouse gas emissions a critical component of any long term sustainability strategy.



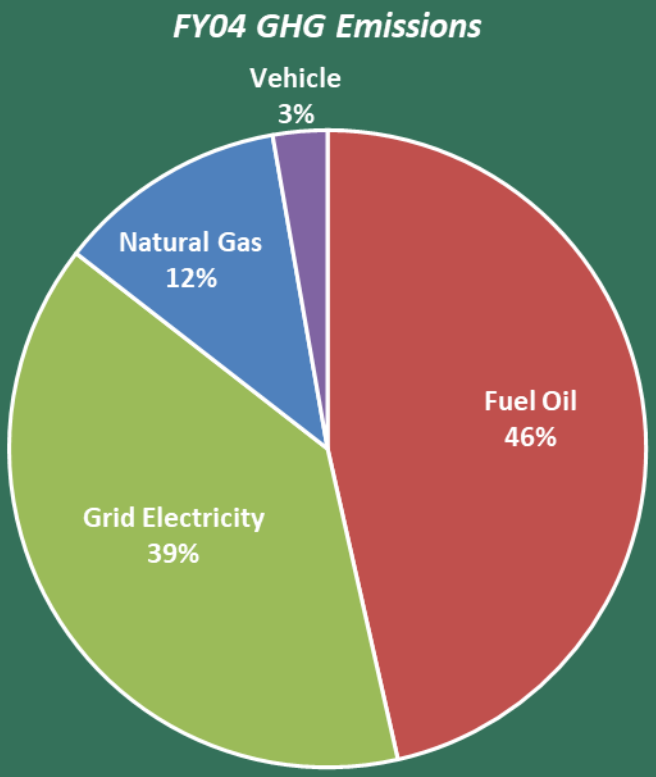
Executive Order 594, *Decarbonizing and Minimizing Environmental Impacts of State Government*, focuses on **reducing onsite fossil fuel (Scope 1) emissions** because state entities often have more direct influence on the sources that con tribute those emissions (e.g., heating systems and vehicles) as compared to the regional electricity grid, which is getting cleaner as more renewables come online and dirtier generation units are retired. BSU has already exceeded the 2030 Target set by the Commonwealth.

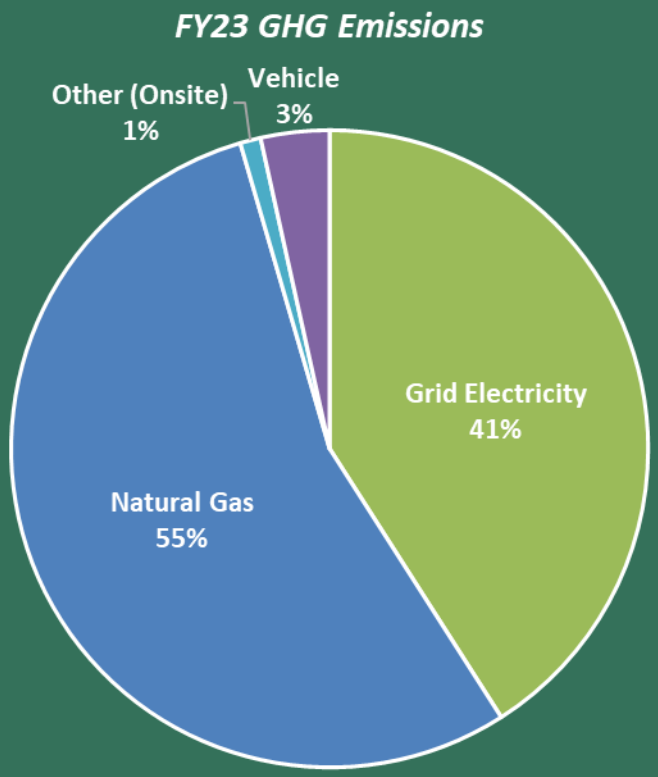
•The share of GHG emissions from natural gas has increased (12% to 55%) due to conversion of central steam plant from #6 oil to natural gas in 2013

•The share of emissions from vehicle fuels has remained relatively constant

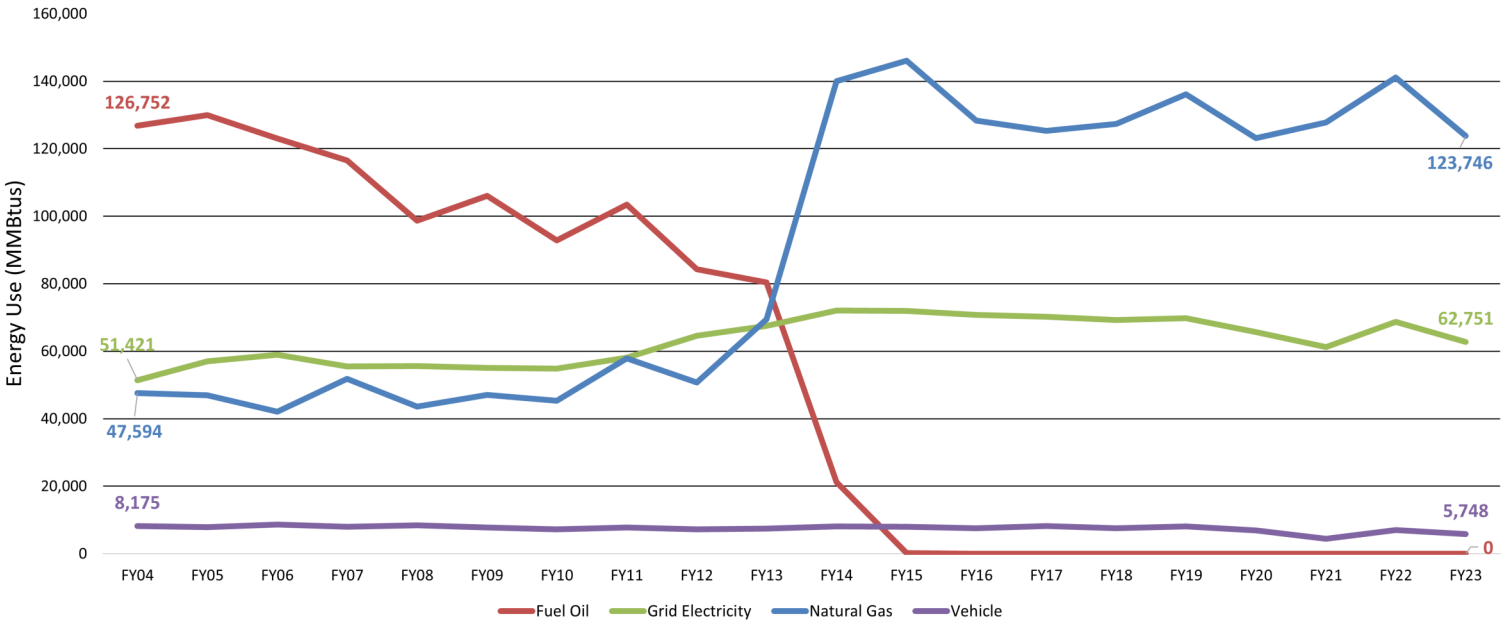
•Fuel oil no longer used in BSU portfolio

•Other (Onsite) includes fuel used for emergency generation and uses not directly related to standard operations

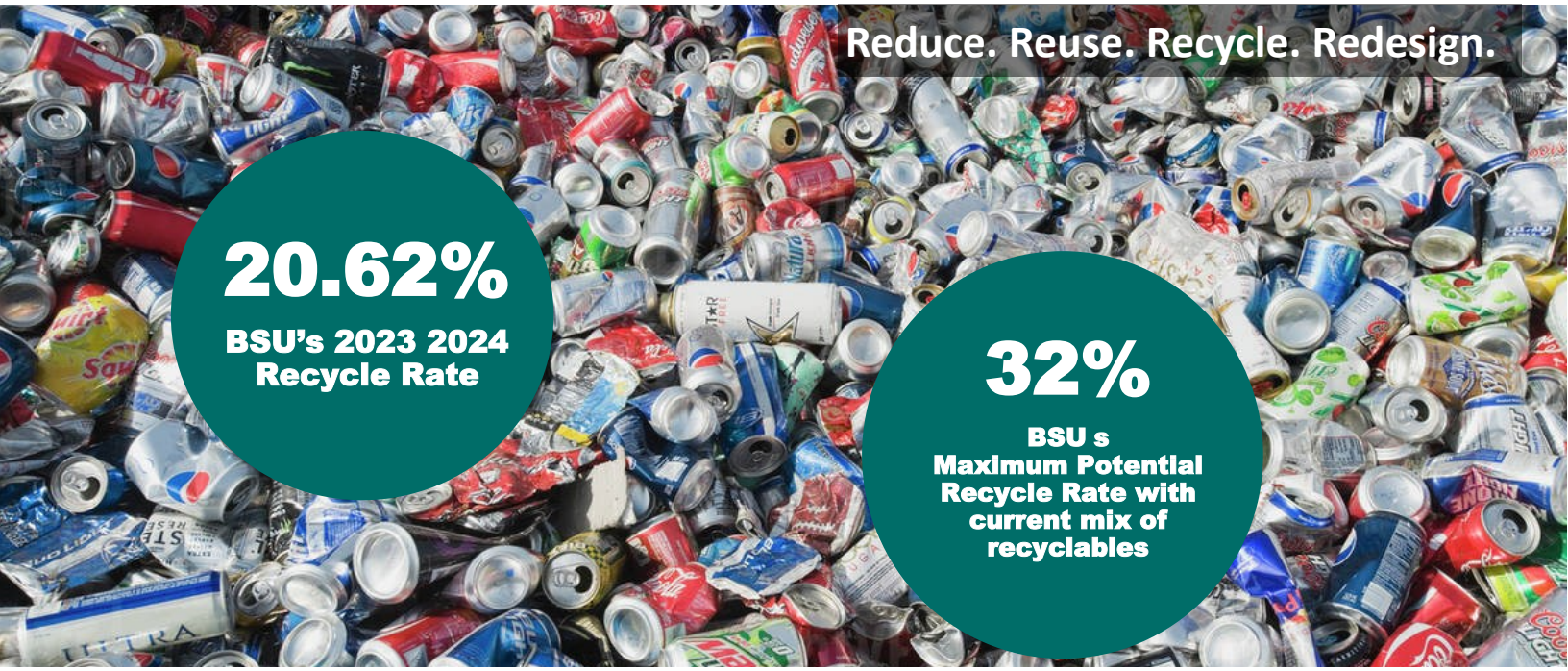




BSU Energy Consumption by Fuel Type (FY04 – FY23)

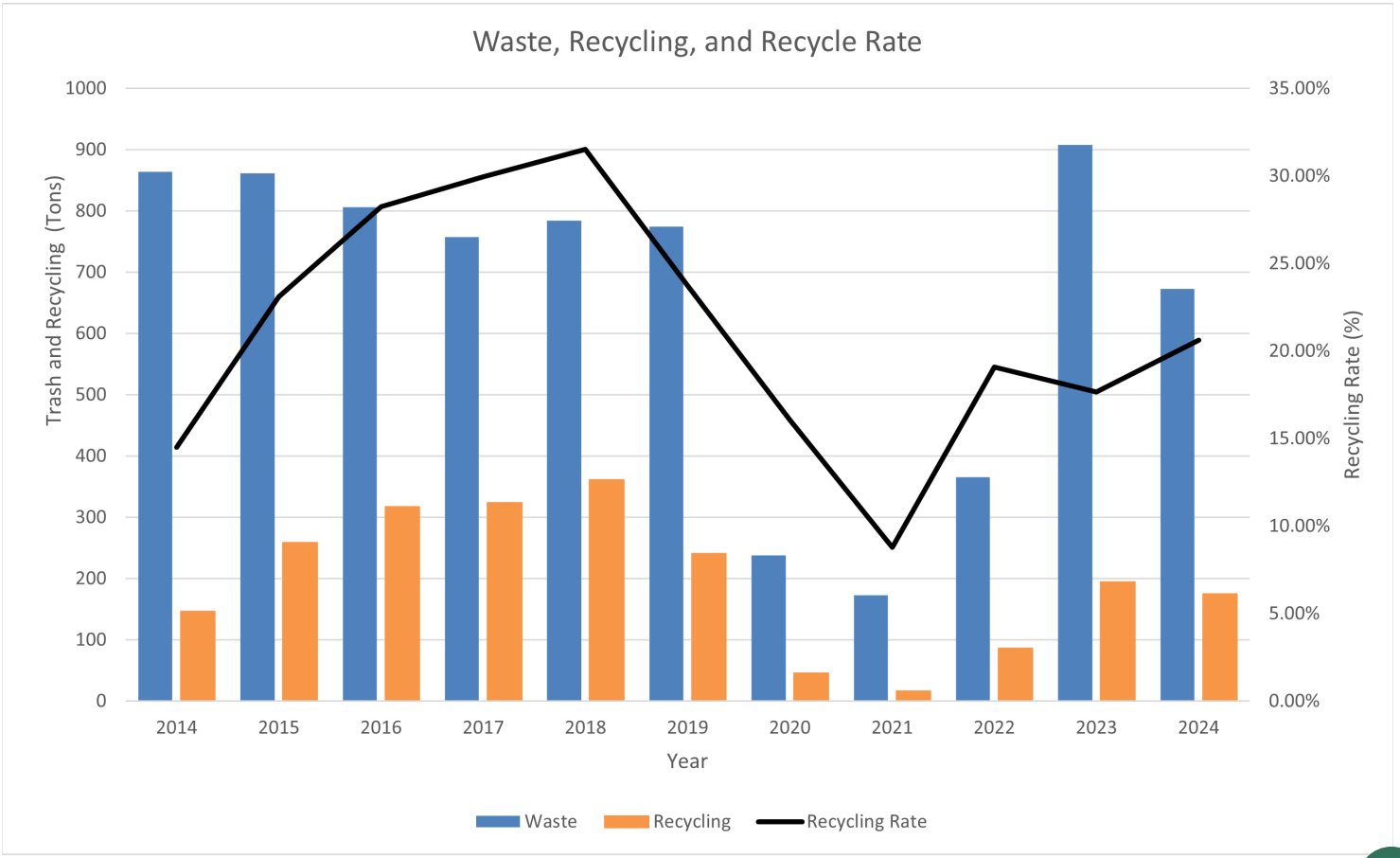


Waste



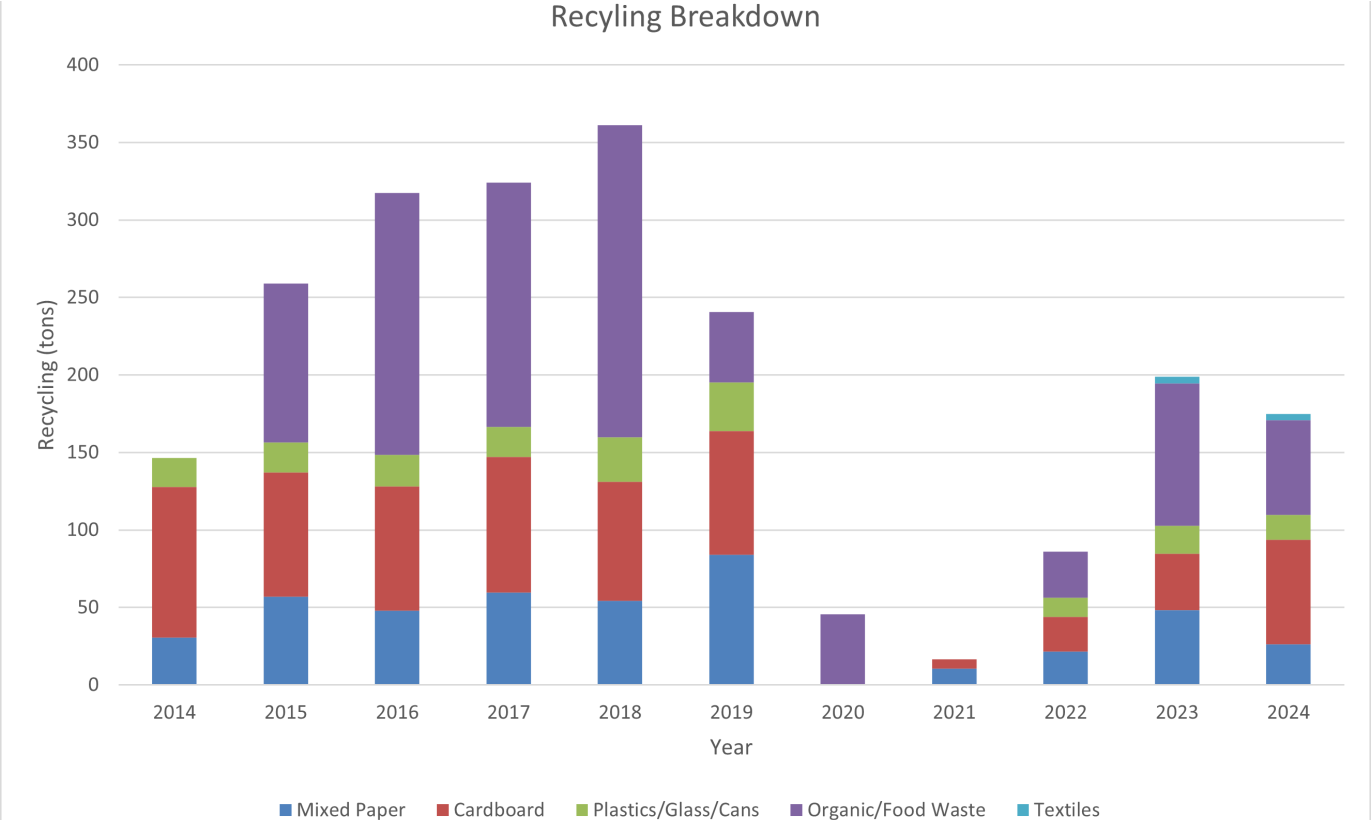
What is Waste?

Well, it's an interesting question. Half of it has to do with what materials we use to make things and what things we make and use. The other half has to do with how we dispose of things after using them. Waste can be broken into three questions: what is it, where is it from, and where is it going?



Recycling

In February 2014, BSU set the goal to achieve a recycling rate of 44.5%, 10% above the national average of 34.5% reported by the EPA. This year, total waste including recycling was 673 metric tons, an decrease of 25.9% from last year. The recycling rate was 20.62%, an increase of 2.96% from last year, an increase of 6.11% from the benchmark year of FY14. This rate does not include surplus furniture and equipment re-purposed on campus or by the local community. As with other operations areas, reduction in waste and improvement in recycling rates going forward requires realistic goals, concrete action plans, and communication with the community. Careful decisions need to be made regarding not only disposal of used materials but also material sourcing and daily materials consumption.



WEPA Recycling and Sustainability

Bridgewater State University promotes sustainable printing practices through its partnership with WEPA, a cloud-based printing service that supports environmental responsibility. WEPA is integrated with PrintReleaf, a reforestation program that plants one tree for every 8,333 pages printed.

Since joining the program in May 2017, WEPA users across participating institutions have collectively offset the equivalent of 224 million pages by planting over 26,800 trees. During the 2023–2024 academic year, BSU printed 634,326 pages, resulting in the planting of 76 new trees in reforestation sites across the United States, as selected by the university.

To further support responsible printing, BSU's IT Department has placed recycling bins beside every WEPA kiosk, making it easy for students and staff to recycle used paper and reduce waste on campus.

224,059,916
Standard Sheets Offset

26,888
Standard Trees Reforested

Procurement

As part of our commitment to environmental stewardship and alignment with the Association for the Advancement of Sustainability in Higher Education (AASHE) Sustainability Tracking, Assessment & Rating System (STARS) framework, we have standardized copier paper used across campus to an environmentally friendly, at least 30% post-consumer recycled content.

Dining Services

At Bridgewater State University, Dining Services plays a vital role in advancing campus sustainability. From sourcing to waste reduction, the team at Bridgewater Dining is committed to reducing environmental impact and supporting the health and well-being of the BSU community.

One of the most visible efforts is trayless dining at East Campus Commons, which helps reduce food waste and water usage. Dining Services also engages in pre- and post-consumer food waste composting, ensuring that organic waste is diverted from landfills and reused as valuable compost. Additional waste reduction strategies include recyclable single-use containers and recycling bins at both The Bear's Den and Crimson dining locations, as well as the use of compostable napkins made from over 40% post-consumer content.

To further minimize single-use waste, napkin and utensil dispensers are designed to encourage mindful consumption and limit unnecessary usage.

Dining Services also works to support the BSU community through its partnership with the BSU Food Pantry, helping to provide non-perishable items and groceries to those in need.

In terms of sourcing, Bridgewater Dining emphasizes local and sustainable food systems. Every Friday at East Campus Commons, students can enjoy responsibly sourced seafood from Red's Best™, which partners with small, independent New England fishermen to support sustainable fishing practices. Dining Services also partners with local farms such as Wilson Farms (Lexington, MA), Joe Czajkowski Farm (Hadley, MA), and Steere Orchards (Greenville, RI) to provide fresh, locally grown ingredients.

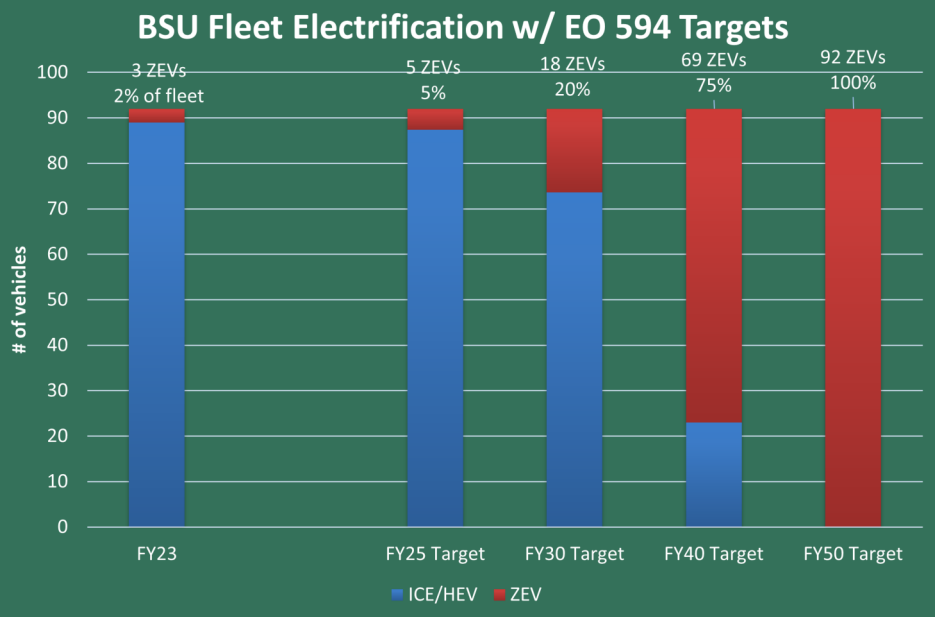
The Bear's Den even features The Local List Snacking Station, highlighting regional snacks and reinforcing a commitment to local food systems.

Together, these practices demonstrate how Bridgewater Dining is helping to build a more sustainable, equitable, and environmentally conscious food culture at BSU.

Transportation

Transportation is a central element of sustainability at Bridgewater State University, both in terms of environmental impact and community well being. Private transportation remains one of the leading contributors to air pollution, greenhouse gas emissions, and traffic congestion. In response, BSU has developed a variety of shared transportation and low emissions alternatives to support a healthier, more sustainable campus.

These efforts align with United Nations Sustainable Development Goals (SDGs) particularly SDG 11: Sustainable Cities and Communities, SDG 13: Climate Action, and SDG 3: Good Health and Well being and contribute directly to the university's performance in the STARS (Sustainability Tracking, Assessment & Rating System) framework through the Association for the Advancement of Sustainability in Higher Education (AASHE). In addition, BSU's transportation strategies support the Massachusetts Clean Energy and Climate Plan for 2025 and 2030, as well as the 2021 Climate Act, which encourage emission reductions and promote low carbon transit alternatives across the Commonwealth.



Bear Bike Rental

A bicycle is the most efficient human-powered vehicle on earth. You can walk and you can run, but a bike will outstrip you in seconds, and take less energy to do so. Bikers can average 25 miles per hour (mph) on the 2,200 mile-long Tour de France, over 80 mph on pavement in special speed bikes, and over 160 mph drafting behind special pace vehicles. It doesn't matter, though, how fast you go: they don't emit a thing.

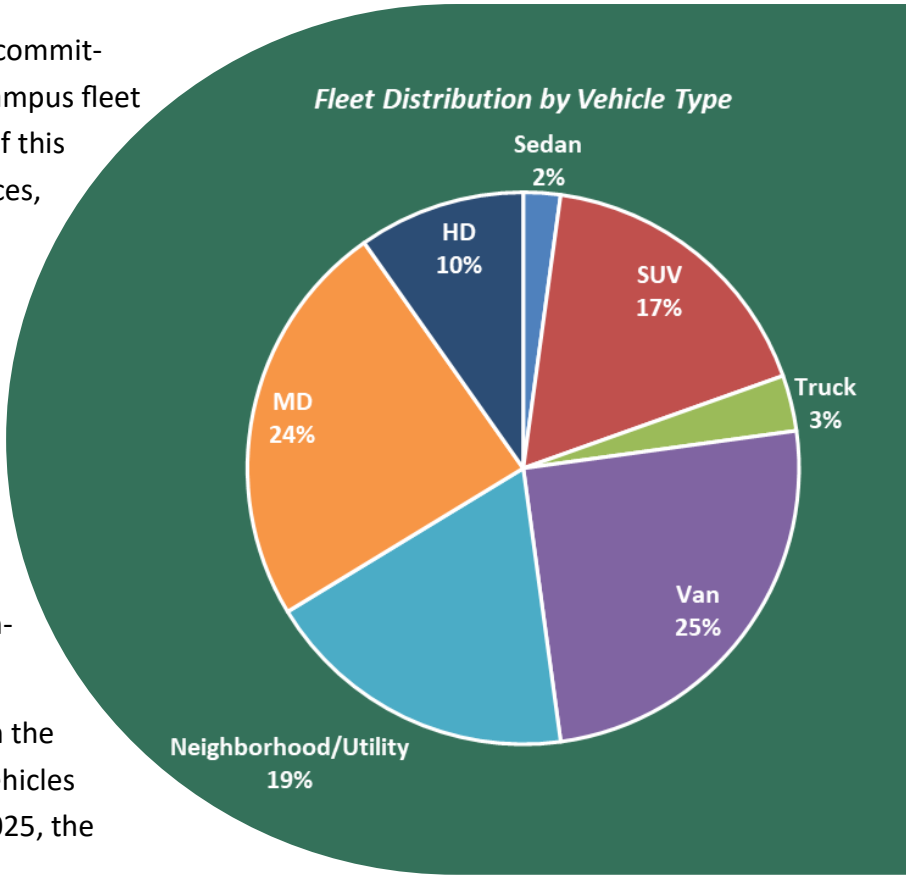
Since 2017, BSU students, staff, and faculty have taken advantage of Bear Bikes, a bike share program run through the BSU Athletics Department. The feasibility of a bike share program on campus was completed as an undergraduate research project. Bear Bikes gives students, faculty, and staff access to bicycles from the Thornburg Fitness Center on campus, and is an easy, healthy, and sustainable way to travel to or from the BSU campus. Bears Bike's can be rented for periods of 2 days, 1 week, or 1 month.

1 Location on campus

10 Gear bikes

BSU Fleet Electrification

Bridgewater State University (BSU) is advancing its commitment to sustainability by actively transitioning its campus fleet to cleaner, more energy-efficient vehicles. As part of this effort, BSU's Facilities Management and Fleet Services, in collaboration with the Operations Division, have spearheaded a number of significant initiatives.



In support of this transition, the university secured a $100,000 grant from the Massachusetts Department of Energy Resources to fund its Fleet Electrification Infrastructure Project, which wrapped up at the beginning of Fiscal Year 2025. This funding has directly supported the expansion of electric vehicle (EV) infrastructure across campus, an essential foundation for fleet electrification.

Currently, the BSU fleet consists of 92 vehicles, with the largest segments being medium- and heavy-duty vehicles (34%) and passenger and cargo vans (25%). As of 2025, the fleet includes:

13 Electric Utility Vehicles

2 Registered Electric Low-Speed Vehicles

3 Plug-in Hybrid Electric Vehicles (PHEVs)

1 Police Hybrid Vehicle

To power this growing electric fleet, dual-port ChargePoint EV charging stations have been installed at key locations such as Weygand Hall, the Dana Mohler-Faria Science and Mathematics Center, and the Tinsley Center. Additional charging stations are planned for Swenson Field to meet rising demand and future fleet needs.

These efforts have already exceeded the Massachusetts Executive Order 594 (EO 594) targets, which mandate increasing the percentage of zero-emission vehicles (ZEVs) in state fleets. BSU has not only met the 2025 ZEV goals but is also on track to meet the 2030 targets by the end of this year, demonstrating leadership in statewide sustainability compliance.

Beyond infrastructure and vehicle acquisition, BSU has also focused on community engagement, hosting EV test drives, showcases, and educational sessions to raise awareness and promote the benefits of electric transportation within the campus community.

Together, these initiatives reflect BSU's dedication to reducing greenhouse gas emissions, modernizing campus operations, and embracing sustainable energy solutions that align with both institutional goals and broader state climate legislation.

Electric Vehicle (EV) Charging Stations

Unlike traditional vehicles, electric vehicles (EVs) produce no direct emissions a significant sustainability ad vantage. As part of its commitment to low emission transportation, Bridgewater State University has expanded its electric vehicle infrastructure to support both the campus community and its own fleet operations.

As of 2024, **BSU has 22 EV charging ports** located across campus:

West Lot: 4 stations (8 ports)
Tinsley Lot: 1 station (2 ports)
Weygand Lot: 3 stations (6 ports)
Operations Center: 6 stations (6 ports designated for BSU fleet vehicles only)

In **2024**, BSU's charging stations utilized a total of **35,058.879 kWh** of electricity. This energy use is estimated to off-set approximately **22,897 miles** that would have otherwise been driven by an average gasoline powered passenger vehicle reducing emissions and supporting cleaner air for the region.

While EVs still have environmental impacts through manufacturing and the electricity used to charge them, they are a meaningful step forward in decarbonizing transportation especially as BSU and the Commonwealth of Massachu setts continue to shift toward **renewable and low emission energy sources**.

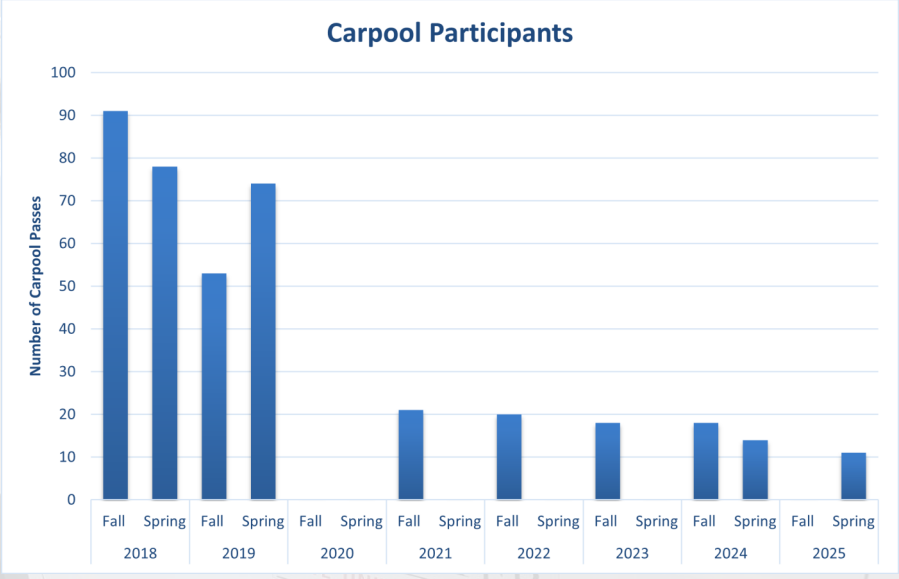
Carpooling and Ride-Sharing

Carpooling is another key strategy for reducing the number of single-occupancy vehicles traveling to campus. BSU offers **free designated parking** in the **West Lot and Moakley Lot** for commuter students who carpool with at least one other person.

Carpool participation over recent semesters has been modest but consistent:

Fall 2021: 21 passes
Fall 2022: 20 passes
Fall 2023: 18 passes
Spring 2024: 14 passes
Fall 2024: 18 passes
Spring 2025: 11 passes

BSU will continue to explore ways to expand participation and promote the benefits of carpooling across the campus.



Public Transportation and Sustainable Mobility

Public transportation plays a crucial role in reducing greenhouse gas emissions, alleviating traffic congestion, and promoting equitable access to education and employment. By investing in and promoting public transit, Bridgewater State University (BSU) supports more sustainable commuting practices while connecting the campus to the broader regional transportation network.

MBTA Commuter Rail

BSU offers students access to discounted semester passes for the MBTA Commuter Rail, making it easier and more affordable to travel between campus and surrounding communities. This option reduces the need for single-occupancy vehicle use, cutting down on carbon emissions and traffic in the region.

BSU Transit & BAT Route 28

BSU Transit provides free and continuous transportation across campus, reducing the reliance on personal vehicles for getting around. In partnership with the Brockton Area Transit (BAT), BSU operates Route 28 a vital link to the city of Brockton with five daily round trips. This connection enhances mobility for students, faculty, and staff, while reinforcing the university's commitment to accessible, low emissions transit.

Through these services, BSU actively supports public transportation as a sustainable alternative, helping to lower the university's overall transportation related carbon footprint while fostering a more connected and inclusive community.

Future Projects

BRISTACO Path to Sustainability

Looking ahead, Bridgewater State University is excited to launch the BRISTACO Path to Sustainability — an innovative, interactive experience designed to extend sustainability education beyond the classroom. This campus pathway will feature a series of themed learning stations focused on climate resilience, ecological responsibility, and sustainable innovation.

Participants will follow the path on a guided scavenger hunt, with opportunities to win prizes made from recycled plastic bottles provided through the BSU Think Tank. The experience will culminate at a digital kiosk showcasing student-led projects that explore sustainability through science, art, and creative design.

The BRISTACO Path reflects BSU's commitment to fostering environmental awareness and action while engaging the community in the university's broader mission toward carbon neutrality and ecological stewardship.

Swenson Lot Solar Canopy

As part of its ongoing investment in renewable energy infrastructure, BSU will soon expand its solar portfolio with the Swenson Lot Solar Canopy. Scheduled to be operational by Summer/Fall 2025, this canopy-mounted solar array will add 371.52 kW DC of clean energy capacity to the campus. In addition to reducing the university's reliance on fossil fuels, the project will offer shaded parking and serve as a visible symbol of BSU's leadership in sustainable campus development.

Acknowledgements

The creation of Bridgewater State University's First Annual Sustainability Report would not have been possible without the dedication and collaboration of our students, staff, and faculty. We extend our sincere gratitude to all those who contributed data, insights, and expertise to this report.

Special thanks go to the Sustainability Innovations Strategy Committee, whose leadership and commitment have been instrumental in advancing sustainability initiatives at BSU. We also thank the faculty members who integrated sustainability into their research and coursework, the staff who provided critical operational data, and the students whose passion and engagement continue to drive sustainability efforts on campus.

We deeply appreciate the ongoing work of departments, offices, and individuals across campus who are committed to sustainability. Your contributions not only made this report possible but also help shape a more sustainable future for the BSU community.

Thank you for making sustainability an integral part of Bridgewater State University.

Bridgewater State University

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