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A Roadmap for Fostering Environmentally Sound, Socially Equitable, and Financially Responsible Practices at Bryant University
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I. Executive Summary

Bryant’s seven-year Sustainability Plan is a testament to the University’s commitment to becoming a more sustainable campus community. It defines sustainability, outlines its scope at Bryant, and identifies measurable goals to guide Bryant’s initiative. Bryant’s Sustainability Plan aims to mitigate adverse impacts, amplify constructive practices while fostering innovation on and off campus.

Along with many institutions of higher education, Bryant recognizes that a range of complex challenges threaten the future prosperity of our local and global communities. Bryant’s Sustainability Plan is intended to generate integrated solutions that respond to complex economic, social, and environmental issues.

The Bryant Sustainability Plan was generated through a collaborative process that engaged many campus stakeholders including the Sustainability Committee from the areas of planning and policy, education and research, and operations. The Plan addresses these overlapping spheres of campus sustainability simultaneously to lay a solid groundwork, build campus consensus, and lead by example. In each of Bryant’s key focus areas Bryant is taking action to promote comprehensive campus sustainability:

The Eight Domains of Sustainability on Campus:

- Academics and Research
- Energy
- Buildings and Land Use
- Health and Wellness
- Transportation
- Waste Reduction and Recycling
- Water
- Community Engagement

Bryant’s Sustainability Plan serves as a strategic roadmap for the university. It provides background on past and current initiatives, reports current metrics, and outlines attainable goals in each of eight domains listed above. Existing accomplishments range from the green IT center to the installation of geothermal, sustainability in the curriculum to innovative partnerships, green cleaning, recycling, and green transportation options on campus. Goals within this Plan include reducing electricity, natural gas, and transportation fuel; increasing waste diversion; and sourcing a higher percentage of local and fair trade food and more.
II. Letter from the Vice President of Business Affairs/Treasurer

Dear Friends,

It is a pleasure to introduce Bryant University’s first Sustainability Plan. The Plan represents the continuing evolution of our institution as a forward-thinking university, one that meets the social, economic and environmental challenges of today. This Sustainability Plan expounds on goals set in the University’s Strategic Vision 2020 with clarity, metrics and ambition.

Bryant’s Sustainability Plan brings forth innovative ways of achieving our goals on campus to eliminate water waste, to maximize energy efficiency, to engage the community and to track and reduce our carbon emissions. Bryant strives for cost-effective solutions, strong partnerships, and campus-wide collaboration to achieve our common goals.

I’m pleased to report that Bryant is moving swiftly to define and pursue campus sustainability objectives. In 2012 we achieved a bronze level distinction in the nationally recognized Sustainability Tracking and Rating System (STARS) for our efforts and commitment to sustainability. In 2013, Bryant achieved the STARS Silver status, a testament to our campus’ commitment to even greater efficiency, engagement and leadership.

Sustainability supports Bryant’s global vision, our commitment to business innovation, the arts and sciences. We recognize that the rise of the green economy has the potential to impact our students and their careers. Sustainability on campus equips our students with the necessary skills and tools they need to compete and participate in this new economy, while providing many new opportunities for community involvement and learning.

This Plan enhances Bryant’s vision to excel in the emerging field of sustainability, while strengthening the University’s impact locally and in the surrounding community. With this Plan as a roadmap, we welcome your ideas and involvement in this campus-wide initiative.

Sincerely,

Barry F. Morrison
Vice President of Business Affairs/Treasurer
III. Defining Sustainability

Achieving sustainability has been deemed one of the most significant challenges and opportunities of the 21st century. Diminishing natural resources, widespread poverty, climate change and economic uncertainty threaten future prosperity. Human ingenuity, organizational responsibility and social entrepreneurship have the potential to resolve local and global problems through innovative business solutions.

The most widely quoted definition of sustainability comes from the Brundtland Commission of the United Nations in 1987. It defined sustainable development as, “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Sustainability is the nexus of ecological balance, economic viability and social justice. Human health and equality are central to sustainability. Without which, society can’t maximize economic prosperity or environmental quality.

Higher education is uniquely poised to pilot and scale sustainable solutions and practices in operations, planning and curriculum. Campuses are hotbeds for innovation, research and entrepreneurship; higher education’s role is critical for forging local and global partnerships, developing strategic solutions and inspiring leadership.

Sustainability on campus can provide a framework and toolset to equip graduates for careers in the ever-changing economy. At Bryant, the framework of sustainability includes academics, energy, buildings and land use, health and wellness, transportation, waste reduction and recycling, water and community engagement.

IV. Sustainability at Bryant

Bryant University in Smithfield, Rhode Island offers a rigorous educational experience that combines the liberal arts with business. The University’s goal is to help students develop the essential skills and critical thinking necessary for every profession. Sustainability is now part of this experience and provides new skill sets.

Academics include undergraduate degrees in a variety of fields through its College of Arts and Sciences and College of Business. A list of courses that incorporate sustainability in their curricula was developed in 2012, with 43 courses from communications to accounting, management, and various science disciplines. Graduate degrees are available in both colleges. The school offers study abroad programs and a wealth of academic internships, some international. Internships count for three credits in a concentration, minor, or business area of study.

More than 90 student clubs and organizations are available at Bryant, allowing for a diverse and enriching student life. Whether students partake in Greek life, join the International Student Organization, meet others with the same academic interests, or want to create a new special interests group, Bryant provides a wealth of opportunities on campus to create a well-rounded student experience.

To pursue sustainability on campus, and to benchmark Bryant’s efforts with those of its peer institutions, Bryant is a member of the Association for the Advancement of Sustainability in Higher
A Campus-Wide Effort

Sustainability is inherently a cross-disciplinary activity. In its broadest sense, sustainability at Bryant includes operations and facilities, student engagement, curriculum, and policy.

Bryant’s Sustainability Committee 2013 is leading the campus sustainability initiative. The Committee is co-chaired by the Assistant Vice President of Facilities Management and Chair of the Science and Technology Department. The Committee is comprised of 25 core members and represents faculty, students, and administrative staff, ranging from academic departments, facility operations, dining services, and student admissions, to the U.S.-China Institute, purchasing, and human resources.

The Sustainability Committee has been and continues to be facilitated by EcoMotion Inc., a company with more than 30 years of experience developing sustainability initiatives for campuses, cities and corporate communities. Based in Cambridge, Massachusetts, EcoMotion’s Campus Services team was instrumental in securing Bryant’s Bronze STARS status in 2012, and spearheaded the effort to achieve Silver STARS status in 2013. Working closely with the Committee, this Sustainability Plan has been shaped and made possible thanks to the valued contributions from members of the Bryant community.

Bryant’s Global Reach

Bryant has a 150-year tradition of innovation and global vision.

Bryant is a school that has been led by visions. Originally, Bryant and Stratton National Business College filled a need for returning Civil War veterans to learn business skills. The Providence campus was one of 40 campuses, “that taught bookkeeping and methods of business communication.”

In 1971, Earl Silas Tupper, a graduate of note, donated the Smithfield campus that allowed the College to grow and expand its mission. In 2004 under President Ronald Machtley’s leadership, Bryant became a
full-fledged university. Today, Bryant offers undergraduate and graduate degrees in accounting, computer information systems, finance, management, nursing and marketing, among other subjects.

In the past decade, Bryant University made a decision to pursue international collaborations. By reaching out around the globe, Bryant honors nations around the world and their cultures. Especially in today’s global economy, overlaid with global environmental concerns, Bryant is dedicated to position its education so that it is timely and relevant and action-oriented.

In 2005 Bryant opened its U.S.-China Institute, “to enhance academic and business programs with Chinese academic institutions and to foster trade between U.S. companies and China.” In 2006, the Confucius Institute opened – organized by Bryant – to promote Chinese culture and language. Leadership in this area again distinguishes Bryant. In 2012, Bryant entered into a joint agreement with the Beijing Institute of Technology at Zhuhai, another indication of the University’s commitment to global sustainability.

Another project speaks to Bryant’s forward-thinking nature. In the planning process at Bryant is a replica of the Forbidden City’s Shu Fang Zhai. Shu Fang Zhai was added to the Forbidden City in 1420 and was renovated in the 18th Century, serving as a venue for elaborate banquets and opera performances. The replica, about 4,200 square feet, will be able to seat 200 people.

In 2009, Professor of Environmental Policy, Gaytha Langlois, prepared Bryant’s first Sustainability Report. ¹ The report documented past initiatives and successful steps for collaboration at Bryant, and presented a roadmap of plans and commitments for additional efforts. The Report documented works with Campus Facilities, Department of Science and Technology, as well as the Center for Sustainable Business Practices. The Center provides avenues for training and certifications for students in several related fields including energy auditing and green building.

The Bryant Environmental Society has also been instrumental in getting students and the entire campus community to take responsible actions. Its website has served as a central resource for the Bryant community involved in sustainable efforts.

Other features that define Bryant’s global reach include the annual Women’s Summit spearheaded by the Kati Machtley. It draws leading women from across the country to convene at Bryant.

Bryant’s U.S.-China Institute, the Chafee Center for International Business, and the Executive Development Center each contribute to Bryant’s sustainability in unique ways.

- The U.S.-China Institute partners with a college of geology in China. Through this partnership and others, Bryant organizes a travel seminar that focuses on climate change through archaeological investigation.

- The Chafee Center has a unique relationship with the state of Rhode Island, empowering local manufacturers, forging international relations and conducting supply chain management analysis.

¹ Gaytha Langlois, Ph.D., Professor of Environmental Policy, Sustainability Report, Bryant University, May 2009.
• The Executive Development Center provides sustainability related courses and certificates to individuals and companies to those professionals who seek certifications as a competitive advantage for themselves and their companies. These courses satisfy the Continuing Education category in the STARS report, earning points and contributing to Bryant achieving the Bronze Level.

According to the Princeton Review, 68% of prospective college students are reviewing a school’s green profile before enrolling. This underscores the value of a robust sustainability program to enrich the student body, attract top talent, and educate all about the opportunities that sustainability affords.

V. The Domains of Sustainability

This Plan addresses breadth of sustainability by categorizing all relevant activity on campus in eight domains. Naturally, they overlap, and not every aspect fits neatly into a single category. Food service, for example, affects student health, and generates significant waste.

We begin with energy; typically the sphere where the savings can be quantified and the returns on investments are greatest. Thanks to advanced technologies – from lighting to ventilation and computing – we continually get more work out of less energy, resulting in dollar and environmental savings.

Universities have also explored financing partnerships, with energy service companies for efficiency gains, and power purchase agreements for renewable power generation. Bryant will explore means to strengthen campus sustainability to be a responsible and energy-efficient institution, taking advantage of advanced technologies, and broadening the living laboratory of student life.

Academics and Research

• Sustainability Certificate
• Sustainability Focused/Related Curriculum
• Undergraduate/Graduate Programs Focusing on Sustainability
• Sustainability Research
Background

Universities are laboratories for education. The greening of Bryant – making it sustainable – is in and of itself an academic opportunity and experience. Facilities are upgraded, and so are curricula and majors.

Opportunities

Just as Henry Bryant was practical in 1863 when he established a college to teach the basic business skills of the day, today Bryant has the potential to be at the forefront in education related to sustainability. Good for students, good for enrollment, good for society.

Goals and Potential Strategies

Goals

• Maintain a sustainability focus option within selected majors
• Infuse sustainability within existing courses
• Recognize active work in sustainability service work on and off campus
• Pilot Sustainability Certificate through the Center for Teaching and Learning to by 2015 (no cost)

Potential Strategies

• Examine best practices at leading institutions
• Convene special meetings of the Sustainability Committee to enhance sustainability
• Seek special grant funding for rounding out the academic offering
• Consider special course on the business impacts of climate change

Academics and Research Metrics

• Number of courses with a direct focus on sustainability: 13 courses
• Number of sustainability related courses: 43 courses
• Undergraduate program focused on sustainability: B.S. Environmental Science
• Graduate program focused on sustainability: M.S. Global Environmental Studies
• Number of research jobs that relate to sustainability: 15 jobs

Responsible party: Academic Affairs, Department of Environmental Science and Technology
Energy

- Building Heating
- Building Cooling
- Building Lighting
- Water Pumping
- Smart Energy Management
- Renewable Energy Generation
- Greenhouse Gas Reduction

Background

Bryant takes energy management seriously and has great opportunities to expand its pioneering works. Rhode Island’s power costs are 35% higher than the national average. By sourcing efficient equipment and focusing on energy efficiency upgrades, for the past five years the University has been able to keep overall consumption flat despite increased demand.

Table 1: Campus Wide Energy Use in BTUs

<table>
<thead>
<tr>
<th>Source</th>
<th>2008</th>
<th>2009</th>
<th>Baseline 2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Gas/Therm BTU Total</td>
<td>74.24</td>
<td>57,013</td>
<td>83.88</td>
<td>63,822</td>
<td>76.1</td>
</tr>
<tr>
<td>Electric/kWh BTU Total</td>
<td>58.27</td>
<td>44,748</td>
<td>59.11</td>
<td>44,975</td>
<td>57.98</td>
</tr>
<tr>
<td>Heating Oil #2/Gal BTU Total</td>
<td>0.38</td>
<td>29</td>
<td>0.32</td>
<td>24</td>
<td>0.31</td>
</tr>
<tr>
<td>Gasoline(Autos)/Gal BTU Total</td>
<td>1.8</td>
<td>2.33</td>
<td>2.2</td>
<td>2.2</td>
<td>1.88</td>
</tr>
<tr>
<td>Diesel (Vehicles)/Gal BTU Total</td>
<td>0.696</td>
<td>0.696</td>
<td>0.696</td>
<td>0.696</td>
<td>0.696</td>
</tr>
<tr>
<td>Total</td>
<td>135.39</td>
<td>101,790</td>
<td>146.34</td>
<td>108,821</td>
<td>137.29</td>
</tr>
<tr>
<td>Sq. Ft. Buildings on Campus</td>
<td>1,302,159</td>
<td>1,314,279</td>
<td>1,353,888</td>
<td>1,353,888</td>
<td>1,353,888</td>
</tr>
</tbody>
</table>

Table 1 and Figure 1 show the relative energy use on the Bryant campus, all normalized to common BTUs. The up and down fluctuation in energy use from year-to-year is primarily due to differences in weather. Heating degree days drive annual natural gas and heating oil use. The Gasoline and Diesel BTU/Sq.Ft. do not apply.
Most electricity use on campus is for HVAC systems. The campus’s extensive computer network requires power supply conditioning to address harmonic distortions. Premium distribution transformers and premium electric motors with variable frequency drives are in use on campus already.

In the 90’s and ahead of the curve at the time, Bryant installed a demonstration solar thermal heating system. In 1994, Bryant installed a thermal energy storage system that produced ice at night and then delivered cool air during peak periods. Bryant installed geothermal heating systems to serve Residence Halls 5 & 6 in the 1990s, and more recently a geothermal heating system to serve the President’s house.

Like many other universities, Bryant is seeking to balance its history and physical plant with its stewardship moving forward. Bryant has a pristine campus and a heightened sense of aesthetics. All renewable energy and efficiency projects need to fit within these campus standards. Four electric vehicle-charging stations are now on campus, another step to sustainability at Bryant.

**Opportunities**

Energy use is a cost that can be controlled. Bryant will continue to find ways to be more energy efficient and to invest in advanced technologies that save money.

Energy efficiency opportunities

- Remodeling and new construction
- Advancing lighting and controls
- Installing superior HVAC systems and higher efficiency boilers
- Advancing computing equipment and management

Renewable Energy opportunities

- Continuing and expanding geothermal usage
- Exploring solar systems on and off campus
Another asset that Bryant has is land for renewable energy production, notably wind, solar, and geothermal production. This will be explored and considered, potentially linking Bryant’s relations with China, now the world’s leading manufacturers and developers of solar and wind systems.

**Goals and Potential Strategies**

**Goals**

- Reduce energy use on campus from a 2010 baseline as measured on per FTE and per square foot basis by 2020
  - a. Reduce electricity use by 10% from baseline square footages and normalized heating degree days
  - b. Reduce natural gas use by 10% from baseline square footages and normalized heating degree days
  - c. Cut heating oil use as tanks are removed; install more efficient boilers
  - d. Reduce transportation fuel use by 10%
- Promote student engagement and energy conservation
- Explore the viability of additional renewable energy on and off campus to cut costs, specifically solar potential (such as solar street lamps) and geothermal

**Potential Strategies**

- Promote energy conservation initiatives to promote behavioral change
- Search for wasted energy on campus continually and adjust “hard-wired” energy saving measures such as occupancy sensors
- Implement selected energy efficiency measures with a payback period of less than ten years. Later, this can be shortened to seven years.
- Continue to purchase green power on spot market
- Manage Bryant’s Revolving Loan Fund to assure dedicated funds and to amplify savings
- Explore public/private partnerships for mutual gain

**Energy Metrics**

- Annual energy cost: $2,407,167 in 2010 baseline year
- Energy costs are ~2% of the entire University budget
- The largest energy expense is for electricity ($1,629,283), followed by natural gas ($707,603)
- Natural gas use in 2010: 76.10 (BTU in Billions)
- Electricity use in 2010: 57.98 (BTU in Billions)
- Gasoline and Diesel (vehicle) use in 2010: 2.90 (BTU in Billions)
- Total solar lamps on campus: 1

*Responsible departments: Facilities Engineering, Operations, Finance*
Buildings and Land Use

- Residence Halls
- Operations and Maintenance
- Indoor Air Quality / Green Cleaning
- Renovation and Retro-Commissioning
- Design and Construction
- Native Landscaping

**Background**

Bryant University is located on a 428-acre campus in Smithfield, Rhode Island, a location in the heart of New England. The campus is 15 miles from Providence, 50 miles to Boston, and about a three-hour drive to New York City. Bryant used to be located in Providence.

Today the campus is made up of 54 buildings. Grassy lawns distinguish the campus, as does a central pond with a fountain. Bryant is noted for its contemporary facilities. The Unistructure contains nearly all academic classrooms, as well as faculty and administrative offices. Most recently the Interfaith Center was built.

There is ample parking, sports facilities, and woods featuring trails for walking and running. Two gyms are located in the Elizabeth and Malcolm Chace Wellness and Athletic Center.

Bryant has approximately 3,000 FTE undergraduate students live on campus; more than 87% live on campus. There are 16 residence halls on campus what is known as “Suite Village.” In general, residence halls account for 50% of campus. There are 1.353 million square feet of campus facilities; residence halls constitute about 692,000 square feet of that. There are five fraternities on campus, and four sororities, but no Greek housing. Residence Hall #1 is all Greek life. Eleven percent of students belong to fraternities and sororities.

**Opportunities**

Bryant has vast opportunities for greater energy efficiency through building retrofits. Most notably in the Unistructure, mechanical systems (which include boilers, chillers, roof top air handling units, air distribution boxes, etc.) and Salmonson Dining Hall are due for renovation and recapitalization in the next couple of years. Other opportunities include conducting a lighting survey throughout campus buildings, exploring LED technology and updating insulation on the Koffler building roof.

Bryant intends to construct a replica of the Shu Fang Zhai palace from the Forbidden City in Beijing, China. This project symbolizes one of Bryant’s key directions, business opportunities and trade given China’s pivotal role in the global sustainability movement.
Goals and Potential Strategies

Goals

• Develop Forbidden City replica palace to symbolize rich opportunities for collaboration
• Develop campus-wide green planning, building design and construction study by 2017
• Increase Bryant’s expenditures on green cleaning products by 10% from 2012 baseline
• Increase use of organic fertilizers purchased from 2013 baseline
• Consider use of biodiesel fuel in grounds equipment
• Increase use if Variable Frequency Driver (VFDs) in HVAC system renovations
• Increase use of Occupancy Sensors
• Consider annual review of outdated HVAC systems
• Increase use of Energy Star equipment
• Consider lighting system overhaul during renovations
• Review LEED certified requirements and consider costs and benefits while planning new construction

Potential Strategies

• Explore opportunities and policies for energy conservation and green building
• Consider green roofs on campus
• Continue to develop and utilize means to measure energy and water consumption on campus
• Explore opportunities with the community including potential benefits of composting waste

Buildings and Land Use Metrics

• Number of buildings: 54
• Conditioned space: 1,358,888 ft²
• Number of acres: 248 acres (140/108 developed/non-developed)
• Number of developable acres: ~80 acres (remaining acreage is wetlands)
• Green Seal and/or Eco Logo certified cleaning products expenditures in 2012: $51,042
• Total expenditures on all cleaning products in 2012: $128,000
• Percentage of expenditures on green cleaning products in 2012: 40%
• Total use of fertilizer in 2013: 21,515 pounds
• Total use of organic fertilizer: 12,000 pounds
• Total use of synthetic fertilizer: 9,515 pounds

Responsible Departments: Facilities, Grounds
Health and Wellness

- *Food and Dining Services*
- *Hiking, Biking and Walking Areas*
- *Stress Management*
- *Employee and Student Wellness*
- *Health Care Services on Campus*

**Background**

Perhaps the Bryant University Health Services department says it best: “We strive to support students in developing a healthy lifestyle that includes eating well, getting enough sleep, exercising, and reducing stress in order to promote success inside and outside of the classroom.”

Additionally, Bryant has been employing non-toxic, or less toxic green cleaning materials to promote environmental health, as well as promoting a healthy and clean internal environment.

**Opportunities**

The health and wellness of students, faculty, and administrators is paramount and multifaceted: At Bryant there are opportunities to promote health and wellness through a focus on “what you eat,” exercising and controlling stress, plus health care for routine exams.

**What You Eat**

A tremendous amount of resources goes into dining services, and some students may at times not focus on their dietary intake. Many institutions also experience tremendous waste in the dining hall. (Note that food waste is addressed in the chapter on Waste Reduction and Recycling.) Meal plan, count, presentation and lack of information at times cause excessive portions and significant waste of food.

Bryant has instituted “Tray-less Tuesdays” to test the correlation between trays and excessive portions and waste. Many institutions have done away with trays completely to reduce excessive portions that end up wasted. The success of this program is being evaluated.

Bryant’s Food Service provider sources almost 11% of the food it serves locally. It also uses an internal system tracking system called Lean Path to encourage the right amount of food production on campus, avoiding costly waste.

There is considerable campus interest in locally grown and sourced fruit and vegetables, as well as organic foods, vegan and gluten-free options. Growing food on campus is another option for nutritional purposes and to demonstrate the living-classroom concept.
Exercise

Bryant supports physical fitness with 22 intercollegiate varsity NCAA Division 1 sports teams – the highest level within the NCAA – the Bulldog spirit, 13 club sports, intramurals, and the Elizabeth and Malcolm Chace Wellness and Athletic Center. Open to all students, the Center was modeled after a private-sector health club, with two gyms, fitness center, aerobics room, and six-lane, 25 meter, competition-sized pool.

Health Services

A physician, nurse practitioners, and a professional health educator provide health education and on-site medical care. The health services program emphasizes prevention of health problems and offers direct health services on campus combined with referrals to hospitals and specialists.

“We strive to support students in developing a healthy lifestyle that includes eating well, getting enough sleep, exercising, and reducing stress in order to promote success inside and outside of the classroom.”

All full time students who are registered for classes at Bryant University have access to health care at Health Services and there is no fee for services offered. Health insurance is required for all Bryant students.

The Department of Health Services provides routine and acute care including treatment of illnesses and injuries, men’s and women’s health care, health testing, nutrition and diet counseling, blood pressure checks, wellness exams, immunizations, educational workshops/programs and health awareness activities.

Bryant H.E.A.L. (Health Education Awareness Leaders) is a peer-to-peer health education awareness program that runs one to two programs per semester such as alcohol and behavioral health awareness and the Bryant University's Healthy Campus Initiative. This program involves 8-10 students as peer health educators.

Goals and Potential Strategies

Goals

- Increase the percentage of locally sourced food expenditures by 10% from 2013 baseline by 2017
- Encourage dining services to shift to sustainable practices, fair trade, etc.
- Promote commitment of students to a health and wellness plan before they leave campus
- Promote exercise on campus through paths, trails, club and intramural sports
- Safely monitor and secure hazardous chemical use on campus

Potential Strategies

- Provide focused wellness counseling services across campus
- Promote physical fitness
• Explore partnerships with agriculture community
• Promote nutritional education and student engagement
• Promote electronic medical records (EMR) that will capture indices such as BMI, the use of smoking and alcohol history to use in relevant programing

**Health and Wellness Metrics**

• Number of classes Health Services presents each semester: 12 classes
• Number of total student sick visits per year: 4,600 student visits
• Number of student Peer Health Educators 2012 - 2013: 8 students
• Number of students who attend yoga, meditation, or other events per year: 80 – 100 students
• Total purchased food grown or raised locally from 2012-2013 food budget: $325,000
• Percentage of locally sourced food (grown and processed within 250 miles of institution) expenditures in FY13: 11%

*Responsible Departments: Health Services, Dining Services, Athletics*

**Transportation**

- *Mass Transportation (RIPTA)*
- *Carpooling*
- *Ridesharing*
- *Telecommuting*
- *ZipCar*

**Background**

Bryant is a residential community with nearly 90% of all students living on campus. Other students live in Smithfield and the surrounding area. The campus community is largely self-contained. As such Transportation is not a major contributor to Bryant’s sustainability footprint.

There are, however, specific areas where transportation affects sustainability:

• Student, faculty, and administrator commuting
• Intercollegiate sports activities using Bryant’s buses
• Admissions and development office travel
• On-campus maintenance
• The No Idling Policy enacted in 2012

In the past two years, Bryant has made significant progress to increase the sustainability of its transportation footprint. It has worked out an arrangement with RIPTA – the Rhode Island Public
Transportation Authority—for busing students to downtown Smithfield and downtown Providence. Bryant has also welcomed ZipCar to campus and is exploring Zimride to promote student ride sharing on weekends and vacations. Just recently, four electric vehicle chargers were installed on campus.

**Opportunities**

At this time, Bryant has opportunities to further increase the sustainability of its transportation, and mobility. This Plan outlines areas for further sustainable transportation initiatives.

- Installing additional electric car stations on campus
- Promoting increased use of public transportation or of rental car use
- Reviewing advanced technologies such as electric/hybrid options as vehicles need to be replaced

**Goals and Potential Strategies**

**Goals**

- Increase number of students that carpool/vanpool to 5% from 2012 baseline by 2015
- Increase use of public transportation (RIPTA)
- Consider diversifying campus fleet to include alternatively-fueled vehicles for on-campus use

**Potential Strategies**

- Explore alternative vehicles and fuels for on-campus use
- Continue to promote mass transit
- Consider on-campus food and convenience store to reduce trips
- Consider bringing food trucks to campus
- Consider purchasing alternatively-fueled vehicles for on-campus use

**Transportation Metrics**

- Number of parking spots in 2012: 2,700
- Number of staff that walk or ride bicycles in 2012: 6 (1%)
- Number of staff that carpool/vanpool in 2012: 4 (.05%)
- Number of staff that utilize buses/shuttles in 2012: 4 (.05%)
- Number of staff that utilize motorcycles/scooters in 2012: 6 (1%)
- Number of campus fleet vehicles in 2012: 60
- Number of students that use public transportation (RIPTA) in 2012: 2,500 - 3,000 riders per month
- Number of students that walk or ride bicycles in 2012: 252 (7%)
- Number of students that carpool/vanpool in 2012: 72 (2%)
- Number of students that utilize motorcycles/scooters in 2012: 36 (1%)
- Anti-idling ordinance for all facility vehicles established in 2012

**Responsible Department:** Facilities, Public Safety, and Athletics
Waste Reduction and Recycling

- Dining Services
- Campus-Wide Diversion Rate
- Salvation Army Drop-Off Stations on Campus
- Electronic/Hazardous Waste
- Move-In/Move-Out

**Background**

Waste reduction and recycling are key tenets in Bryant’s sustainability planning and implementation effort. This ranges from reducing and diverting dining waste to increasing awareness of recycling opportunities and responsible discarding. An existing waste diversion method has been established through a relationship with Newport Biodiesel, who picks up Bryant’s used vegetable oil and turns it into clean burning fuel to ASTM standards.

**Opportunities**

There are opportunities across campus for improving waste reduction and recycling.

- Raising Awareness and increasing coordination of the existing programs
- Promoting new habits are among the key areas for strengthening Bryant’s track record.
- Partnering with student groups on campaigns including Recylemania, Green Game Day Recycling Challenge and America Recycles Day.

**Goals and Potential Strategies**

**Goals**

- Increase use of recycled office paper (30 - 49% recycled content) by 10% from 2012 baseline
- Pilot Green office (recycling, awareness and conservation) program in at least one department
- Increase recycling diversion rate by 10% FY13 baseline by 2020
- Rank in top 100 for the RecycleMania Grand Champion Competition Division by 2015
- Explore means to divert food waste stream going down sink disposals and into sewer
- Reduce plastics and expanded polystyrene in cafeteria and dining halls
- Obtain baseline for food waste
- Increase use of Forest Stewardship Council (FSC) paper use by 5% from 2013 baseline by 2015

**Potential Strategies**

- Install additional water-filling stations at convenient locations
- Promote reusable water bottles for students, faculty, and administrators
- Promote reusable coffee mugs for students, faculty, and administrators
• Food service to give discount to customers with their own coffee mugs
• Convene seminar on future paperless departments
• Promote double-sided printing, print reduction, scanning, use of cloud, etc.
• Analyze results of Tray-less Tuesdays, surveys
• Explore best practices to limit food waste on campus
• Prepare an enhanced Campus Recycling Plan that addresses key issues and metrics
• Examine winning strategies for Recycle-Mania competition

**Waste Reduction and Recycling Metrics**

• Amount of waste diverted in FY13: 185.45 tons
• Amount of waste sent to dump/incinerator in FY13: 877 tons
• Number of campus offices or departments that are paperless: 0 offices or departments
• RecycleMania Grand Champion Competition Division 2013 rank: 169
• Recycling diversion rate in FY13: 18% (185/1,062.45 tons)
• Total expenditures of office paper in 2012: $45,500
• Total expenditures of recycled office paper (30-49% recycled content) in 2012: $7,200
• Total pounds of paper purchased in FY13: 34,800 pounds
• Total pounds of Forest Stewardship Council (FSC) paper purchased in FY13: 6,960 pounds
• Recycling breakdown from FY13:
  o Commingled: 29.5 tons
  o Cardboard: 73.45 tons
  o Mixed paper: 75.04 tons
  o Metal: 7.46 tons
    ▪ Total: 185.45 tons

*Responsible Departments: Facilities, Dining Services*

**Water**

• **Water/Energy Nexus**
• **Indoor Water Usage Reductions**
• **Outdoor Irrigation Reduction**
• **Pool Management**

**Background**

Bryant University’s water use forecast for 2013 is 67 million gallons of water, water that comes to the campus from the Scituate Reservoir, the main water source for Providence and the surrounding cities. A recent fixture audit on campus found 20, 7-gallon per flush toilets while the industry standard is 1.6
gallons per flush. While much has been done there are additional opportunities to save water, cut costs, while concurrently reducing Bryant’s carbon footprint.

**Table 2: Campus Wide Water Use (Gallons)**

<table>
<thead>
<tr>
<th>Line Size</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 Inch – domestic &amp; irrigation</td>
<td>25,082,533</td>
<td>24,907,400</td>
<td>25,460,500</td>
<td>25,401,000</td>
<td>25,412,000</td>
</tr>
<tr>
<td>4 Inch – irrigation</td>
<td>6,271,000</td>
<td>3,793,500</td>
<td>6,174,700</td>
<td>4,777,500</td>
<td>6,083,300</td>
</tr>
<tr>
<td>10 Inch – domestic &amp; irrigation</td>
<td>41,602,500</td>
<td>33,830,000</td>
<td>34,785,000</td>
<td>35,410,000</td>
<td>37,450,000</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>72,956,033</strong></td>
<td><strong>62,530,900</strong></td>
<td><strong>66,420,200</strong></td>
<td><strong>65,588,500</strong></td>
<td><strong>68,945,300</strong></td>
</tr>
</tbody>
</table>

**Table 3: Campus Wide Water Use (Dollars)**

<table>
<thead>
<tr>
<th>Year</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>$268,053.37</td>
</tr>
<tr>
<td>2009</td>
<td>$240,634.08</td>
</tr>
<tr>
<td>2010</td>
<td>$278,994.88</td>
</tr>
<tr>
<td>2011</td>
<td>$308,031.26</td>
</tr>
<tr>
<td>2012</td>
<td>$323,781.34</td>
</tr>
</tbody>
</table>

**Figure 2: Campus Wide Water Use (Calendar Year)**

**Opportunities**

There are opportunities to reduce water consumption throughout the system, from delivery to use.

- Reporting leaks and identifying opportunities for infrastructure upgrades
- Exploring opportunities for native and lower water use planting
• Considering efficient appliances – kitchen equipment, toilets, showerheads, faucet aerators, dishwashers, and clothes washers
• Promoting student conservation and awareness

**Goals and Potential Strategies**

**Goals**

• Reduce campus-wide water use by 10% from 2012 levels by 2020 per FTE
• Upgrade water system’s efficiency and reliability
• Engage the campus community in conserving water through a sustainability campaign

**Potential Strategies**

• Consider rainwater capture through cisterns and bio-swales
• Assure best practices in water delivery infrastructure
• Identify leaks in the system
• Conduct a water appliance review
• Consider installing water sub-meters

**Water Metrics**

• Water usage in 2012: 65 million gallons
• Student water usage in 2012: 19,162 gallons per student (based on 3,598 students)
• Cost of water on campus in 2012: $323,781
• Per student cost of water in 2012: $90 per student (based on 3,598 students)
• Number of stormwater retention basins on campus: 5 basins
  o Newest parking lot has a swale to collect and filter stormwater runoff
  o Storm water runoff from roofs (60% of all building rooftops) collected in reflecting pond
• Weather informed irrigation:
  o Irrigation systems on campus are typically zone controlled by time clocks and rain

*Responsible Departments: Dining Services, Athletic Department, Residence Halls, Finance*
Community Engagement

- Alumni Initiatives
- Continuing Education
- Community Services
- Events and Outside Programs
- Student and Faculty Outreach Campaign
- Diversity and Affordability

Background

Campus sustainability programs and initiatives are interconnected because the challenges of sustainability have a global context. Human health is inextricably linked to global health. Everything from energy to exercise, water and materials is related and relevant. Linking Bryant and the surrounding community to the University’s sustainability efforts is key to fulfilling this plan.

Opportunities

- Increasing diversity and inclusiveness to enrich the campus experience
- Linking student education with real-world business scenarios in the private and public sectors
- Broadening support for Bryant in the Smithfield community and throughout Rhode Island

Goals and Potential Strategies

Goals

- Increase number of students who work in the community by 10% from 2012 baseline by 2020
- Increase number of student community service hours by 10% from 2012 baseline by 2020
- Continue to host the world-class Women’s Summit

Potential Strategies

- Reach out to community with calendar of events
- Develop student sustainability leaders program to reach out into community
- Solicit businesses for Bryant work-study arrangements, internships
- Find means to welcome new area residents to Bryant

Community Engagement Metrics

- Number of students who work in the community in 2012: 336 students
- Number of hours worked in the community in 2012: 1,476 hours

Responsible Departments: Office of Student Engagement
VI. Taking Action

Creating a Culture of Sustainability

There are a number of priorities presented in this section, among them is creating awareness of the urgency and importance of sustainability on campuses, beginning to link sustainability and climate action planning, codifying goals and objectives, and institutionalizing a program young in its development.

This can be done in a number of ways:

- Continue to guide and convene the Sustainability Committee of key department heads to drive on campus sustainability initiative, including community engagement
- Establish Sustainability Teams composed of faculty, staff, and students to augment effort of the Committee and to engage wider set of community stakeholders
- Create a brand and logo for sustainability at Bryant so that it is known across campus
- Create an Office of Sustainability on campus with internships and faculty advisors
- Reinforce the Committee and Teams with staff or consultants for consistency and action, help to revise goals
- Continue to maintain STARS rating and strive for higher STARS ratings
- Develop guidelines and utilize green revolving fund to continue to provide dedicated funding for efficiency upgrades on campus
- Routinely report on progress with key metrics for each domain of sustainability
- Continue to embellish the website, Facebook, and other social media
- Create a calendar of events such that sustainability at Bryant is front and center
- Partner with offices, groups, and departments across campus

The Link with Climate Protection

The Bryant University 2013 Sustainability Plan begins a comprehensive process on campus, making buildings more efficient, students healthier, engaging the community with mass transit, etc.

Each of the eight domains of sustainability presents metrics and goals to reduce impacts and to enhance the quality of life on campus.

*The Climate Action Planning element of the Sustainability Plan plans an initial 10% emissions reduction per square foot per FTE by 2020, cutting Bryant’s 2010 baseline emissions from 9,947 metric tonnes to approximately 8,950 MT.*

This section of the Plan presents a new view of sustainability practices, through the lens of climate protection. When energy efficiency is implemented on campus, it will concurrently cut the carbon footprint. The same is true for water efficiency measures, and transportation steps.
No additional requirements are presented in this section of the Plan. Specifically, no additional funds are required. Quantifiable climate protection in this case is the result of planned actions in the eight domains of campus sustainability. Note also that the projected reduction is based on zero growth of square footage and full-time enrollment. If there is growth, projections will be adjusted accordingly.

The Carbon Footprint

Baseline Values

This Plan presents the first steps in climate protection, measuring baseline values from which to measure progress. The Bryant baseline of greenhouse gases (expressed as CO2e, or carbon dioxide equivalent) was initially quantified for the year 2005 covering both “Scope 1 and 2” emissions.

- Scope 1 are direct emissions such as the combustion of campus-based fossil fuels for heating, cooking, and domestic hot water as well as both gasoline and diesel for the University fleet.
- Scope 2 is off-campus combustion of fossil fuels to provide electricity consumed on campus.

Since 2005, Bryant University staff has tracked data sets to allow for annual and milestone updating of the emissions inventory. The 2010 values were computed to show progress for the recent STARS Carbon Emissions reduction element.

Given the accuracy of the 2010 data, the University has established 2010 as its carbon emissions baseline with respect to measurement of reductions for its sustainability goals.

Table 4: 2010 Carbon Emissions by Source

<table>
<thead>
<tr>
<th>Source</th>
<th>MTCO2e</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>5,660</td>
</tr>
<tr>
<td>Natural Gas</td>
<td>4,047</td>
</tr>
<tr>
<td>Heating Oil #2</td>
<td>23</td>
</tr>
<tr>
<td>Gasoline (autos)</td>
<td>166</td>
</tr>
<tr>
<td>Diesel (vehicles)</td>
<td>52</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>9,948</strong></td>
</tr>
</tbody>
</table>
Analysis

Bryant’s analysis of its footprint reveals three things:

• First, emissions have been falling from 12,304 metric tonnes of CO2e in 2005 to 9,948 metric tonnes of CO2e in 2010 due in part to efficiency measures on campus and the impact of increasingly cleaner sources for New England electricity from 2005 through 2010.

• Second, that the breakdown of emissions, showing the relative proportions of sources of greenhouse gases within Scope 1 and 2, reveals that electricity is responsible for 57% of the campus’s carbon footprint, followed by natural gas at 41%. Fleet fuel and a small percentage of heating oil round out the sources.

• Third, data shows that despite growth in the campus population and in total campus building square footages, the University has been able to realize an overall reduction in total emissions of 19.15% from 2005 through 2010.

Future Emissions Actions

As more sophisticated greenhouse gas inventories are prepared, their results will be used to update the Climate Action Planning element of the Sustainability Plan.
More detail and inclusion for Scope 2 emissions will become possible when the staff is able to fully track refrigerants, chemicals, and fertilizers, or future on-campus power generation plants and alternative fueled vehicles.

Embarking on an analysis and inventory of typically optional Scope 3 emissions\(^2\) will add greater sophistication to the campus footprint, and will allow for greater accountability and measurement of initiatives and actions taking place as a result of the Sustainability Plan.

**Action Platform**

Bryant has many options of how to present and quantify its emissions now and into the future. As with any project, staying current, leveraging value, and aggregating processes with other like-minded institutions is typically best practice.

Bryant has a strong relationship with AASHE and the STARS program. Bryant will be able to leverage comparisons, technical assistance, and turn-key emissions reduction programs from program administrators and other campuses and AASHE members.

**Figure 4: Bryant University Carbon Emissions Trend and Goal**

![Graph showing carbon emissions trend and goal]

**Projections to 2020**

The carbon footprint data, coupled with the goals presented in this Plan, allow for a projection of savings by 2020 and thus the forecasted carbon footprint for the campus. In particular, the 997 metric tonnes of CO2e savings come from the following savings identified in each domain:

- 10% reduction in electricity use on campus, as measured on a square-foot basis per FTE

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\(^2\) Scope 3 emissions are indirect emissions created from sources related to the University but not necessarily emitted on campus or fully controlled by the University. These include emissions from student and staff travel to and from campus, emissions from waste (solid and liquid) generated on campus but disposed of elsewhere, the emissions associated with the energy required to provide water to the campus, and power transmission and distribution losses from power plants to end use.
• 10% reduction in use of natural gas for heating on campus, as measured on a square-foot basis per FTE

• 10% reduction in energy used for transportation for on campus vehicles, as measured by gallons of gasoline purchased

Together, these reductions will result in a carbon footprint of 8,950 metric tonnes of CO2e in 2020, 10% reduction from the 2010 baseline levels assuming a stable student population and square footage of space. The table below adds specificity to these values. Note again that greater levels of renewables in utility generation have caused the corresponding CO2e values to drop disproportionately. There were utility emissions coefficient changes in 2009 that reflected a cleaner electricity grid and that dropped Bryant’s carbon footprint for 2010.

Table 5: Bryant University Carbon Emissions Summary

<table>
<thead>
<tr>
<th></th>
<th>2005 Data</th>
<th>2010 Baseline Data</th>
<th>2020 Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Unit CO2e</td>
<td>Unit CO2e</td>
<td>Unit CO2e</td>
</tr>
<tr>
<td>Electricity kWh</td>
<td>16,680,380</td>
<td>7,797</td>
<td>5,660</td>
</tr>
<tr>
<td>Natural Gas Therms</td>
<td>803,350</td>
<td>4,272</td>
<td>4,047</td>
</tr>
<tr>
<td>#2 Heating Oil</td>
<td>2,431</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>Gasoline Gallons</td>
<td>17,494</td>
<td>158</td>
<td>166</td>
</tr>
<tr>
<td>Diesel Gallons</td>
<td>5,000</td>
<td>52</td>
<td>4,500</td>
</tr>
<tr>
<td>Total Scope 1 and 2 Emissions</td>
<td>12,304</td>
<td>9,948</td>
<td>8,950</td>
</tr>
</tbody>
</table>

Budget Strategies

There is a range of costs for sustainability measures. Some are very high, some are very low. Most measures have multiple benefits, clouding the waters of cost effectiveness. For instance, eating healthier food increase wellness and may enhance relations with local farmers and vendors. Improving lighting on campus can both increase visibility and safety. All costs and benefits will be considered by Bryant as it invests in sustainable practices.

Bryant’s focus will be on the most cost-effective measures.

McKinsey and Company, one of the nation’s leading management consulting firms, has studied the macroeconomic costs of climate protection measures. Just how feasible is it to reduce greenhouse gas emissions by significant factors? And what is the relative cost of mitigation measures? Its “supply curve” of measures shows that nearly half have net zero cost to society. These are measures that make sense to do right away, despite their environmental benefits.
The least-cost sustainability measures usually exploit advanced technology which through efficiency drives down use and increase utility. Many measures presented in this Plan will a) generate multiple benefits and b) can be justified based on energy, water, and food-saving economics. In each case, the University will analyze costs and benefits to determine appropriate investment strategies.

This first edition Bryant University Sustainability Plan does not attempt to quantify the specific costs, nor the benefits, of the litany of measures presented. To reach the goals presented for each sphere, using the strategies listed, will take time. Future editions of this Plan will highlight cost benefit of any approved initiatives.

**Measurement and Reporting**

This first Sustainability Plan presents a survey of issues related to environmental stewardship, and a set of goals and strategies through 2020. For each domain of sustainability, the Plan presents specific numeric targets.

- Quarterly progress reports will present initiatives and issues
- Annual progress reports will summarize progress in numeric and graphic forms
  - Recycle Mania and other organizations provide annual ranks for each institution that will be included in the annual report
- Staff will prepare and distribute press releases for milestones of interest

**Conclusion**

Bryant University is pleased to have produced this, the first Bryant University Sustainability Plan. It is a useful first cut at a roadmap to making the campus greener, and to lessening its footprint.

The Plan will invariably evolve. Based on feedback and results, the next edition will likely be ever-more sensitive to the Bulldog Spirit, and will be ever-more aligned with Bryant’s 150-year old quest for innovation and global vision.

Bryant has the tools to be one of the many leaders in the field of sustainability. Far from being a passive voice, Bryant has the posture to be a prominent voice, advocating new ways, and forging new disciplines to address the environmental challenges ahead.