



BLACK HILLS  
STATE UNIVERSITY

# SUSTAINABILITY MASTER PLAN

NOVEMBER 2017  
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**The core planning team included:**

Randy Culver, Associate Vice President of Facilities & Sustainability  
Katie Greer, Assistant Director, Facilities Services  
Kathy Johnson, Vice President for Finance and Administration  
Petrika Peters, Sustainability Coordinator

**Additional input and advising was offered by:**

Jhett Albers, Director of Athletics  
Dan Asunskis, Associate Professor, Chemistry  
Chris Crawford, Provost and Vice President for Academic Affairs  
Rebecca Cornell, Student Success Advisor  
Nikki Dragone, Assistant Professor, English  
Lois Flagstad, Vice President for Enrollment and Student Affairs  
John Ginther, Assistant Director, Residence Life  
Eric Hanson, Grounds Crew Leader  
Stephanie Harmon, Program Assistant I, Student Life  
Jeanette Hettick, Recruitment/Retention Specialist  
Rob Houdek, Director, Business Services & Controller  
Susan Hupp, Director, Student Support Services  
Tracy Hunt, Counselor  
Mike Isaacson, Assistant to Student Life, Title IX Coordinator  
Cory Johnson, Building Maintenance Specialist (Electrician)  
Marc Jolley, Building Maintenance Specialist  
Jane Klug, Dean of Students  
Urla Marcus, Director, Center for American Indian Studies  
Sandra Marker, Associate Professor, Sociology  
Steve Meeker, Vice President for University Advancement

Colleen Mischke, Senior Women's Administrator  
Katie Nelson, Program Assistant I, Student Financial Services  
Nick Oaks, Director of Human Resources  
Mike Overby, Assistant Director, Facilities Services  
Phil Peshek, Director, Public Safety  
Tahiry Razafimanjato, Student waste collection crew leader  
Ron Showman, Director of Dining Services  
Priscilla Romkema, Dean, College of Business and Natural Sciences  
Jimmy Roberts, Grounds Crew Leader  
Ben Sayler, Director and Professor, Sanford Science Education Center  
Rosie Sprague, Assistant Director, Center for American Indian Studies  
Mark Urban, Counselor  
Erica Whitiker, Program Coordinator, Student Engagement  
Warren Wilson, Chief Information Technology Officer  
Administrative Team  
Sustainability Committee  
Campus Tree Advisory Committee  
Marketing and Communications Department  
Library staff

**The Verdis Group team included:**

Sally Hopley, Associate  
Craig Moody, Principal  
Kim Morrow, Senior Associate  
David Rice, Intern  
Grace Thomas, Analyst  
Kevin Fitzgerald, Creative Director, Carson+Co Global  
Jake Headid, Graphic Designer, Carson+Co Global

# LETTER FROM THE VICE PRESIDENT

Sustainability is part of who we are at Black Hills State University. We live, work, and educate in the Black Hills of South Dakota—an area that has been sacred to our Native American brothers and sisters for centuries. Rich in ecological resources as well as in recreational opportunities, our natural surroundings infuse our community with heritage, culture and values.

At the center of BHSU’s list of values is **“Authenticity: Leading with integrity and sustainable best practices; honoring our heritage, celebrating our diversity, serving our community, and thriving in the Spirit of the Black Hills.”** At BHSU, we bring the world into the classroom and the classroom into the world—an educational mindset that allows us to incorporate many facets of sustainability into student learning. We take pride in the importance of protecting our environment, and we encourage our students to engage in sustainability issues, using their intellectual capital to solve problems here and abroad.

In 2007, Black Hills State University became the first South Dakota university honored as a charter signatory of the American College and University Presidents’ Climate Commitment, pledging to become carbon neutral by 2050. Since signing that commitment, BHSU has made advances in recycling, education, energy efficiency, and community outreach. The effort and collaboration of many people produced recent successes in our sustainable growth, including graduating our first class of Masters of Science in Sustainability students, achieving Tree Campus USA designation, and creating the Black Hills Food Hub. Even with these advancements, we still acknowledge the progress needed to achieve true economic, social, and environmental sustainability.

This year marks ten years since our original carbon neutrality commitment. As we move towards that commitment, we decided to take a step back to look at where we came from, where we are now, and where we want to go in the future. This Sustainability Master Plan provides BHSU with a comprehensive look at our sustainability program going beyond our carbon commitment to cover topics important to the social and economic sustainability of our campus and our students’ futures.

We cannot achieve our goals without the support of the entire campus community. Everyone has a role to play in working toward a campus that is meeting the social, economic, and environmental needs of its community, is resistant to climate change, and is a good steward of the area we are responsible to protect. Please join us in the adventure outlined in our Sustainability Master Plan and help guide our future.

Sincerely,



Kathy Johnson  
Vice President for Finance & Administration

# INTRODUCTION

Upon setting foot on the Black Hills State University campus, a visitor immediately feels a special kind of spirit. Nestled at the foot of South Dakota's Black Hills, the campus is set in a remarkable environment. The views are spectacular, the pine trees are fragrant, the air is clear, and nature beckons.

Talking with BHSU staff, faculty and students reveals that the university's relationship to its natural surroundings is widely celebrated and appreciated. The history of the Lakota people's sacred connection to this land is understood by native and non-native people alike. Hiking, biking, camping and fishing adventures are seemingly enjoyed by all who live in Spearfish. Those who live and work here display a natural appre-

ciation for nature and a desire to live in harmony with it. This "Spirit of the Black Hills" provides the foundation for BHSU's strong commitment to sustainability.

In recent years, BHSU has taken significant strides toward becoming a more sustainable university. The university has outpaced many of its peers in its commitment to sustainable activities and outcomes, in areas from water conservation to community gardening to renewable energy. In this way, BHSU is leading in an area of increasing importance: a recent study showed that 64% of prospective college students felt that having information about a school's commitment to the environment would influence their decision to apply to or attend the college.<sup>1</sup>

## A PLAN TO TAKE BHSU'S SUSTAINABILITY PROGRESS TO THE NEXT LEVEL

This Sustainability Master Plan represents BHSU's desire to take their sustainability commitment to the next level. This plan sets important new goals for the university to meet by 2030. Achieving these goals will allow BHSU to solidify and celebrate its role as the leading university for sustainability in the region.

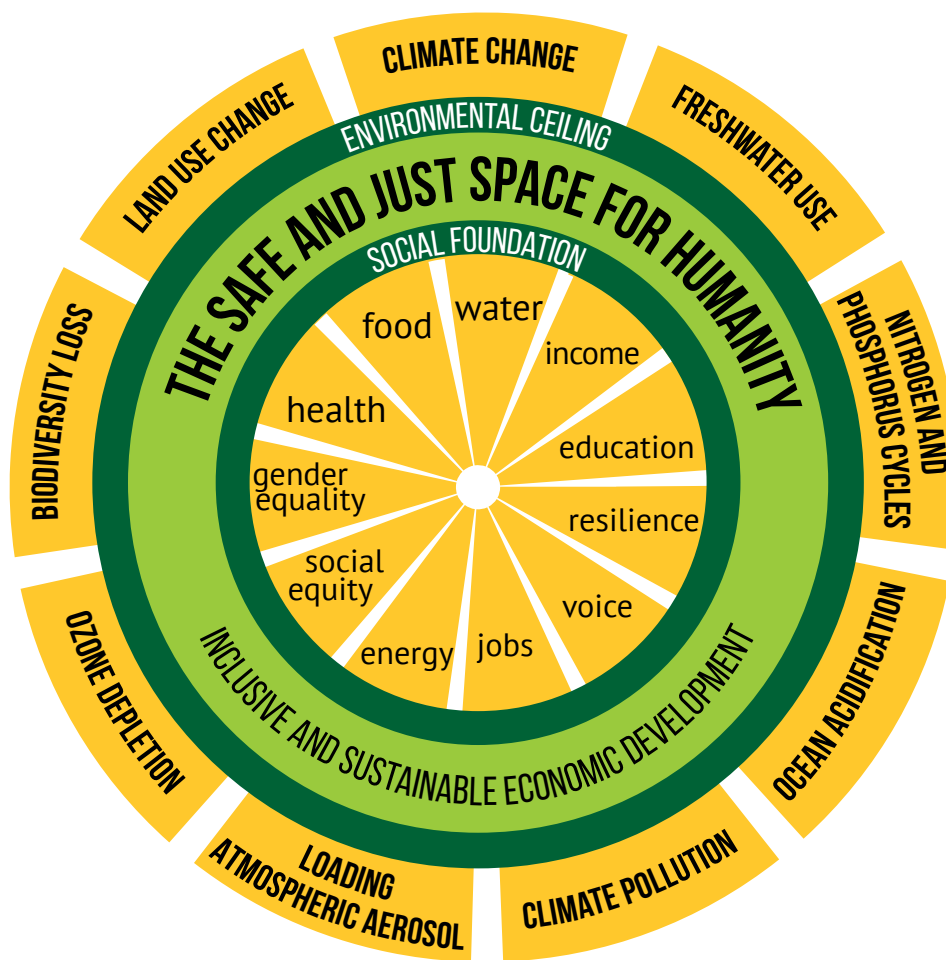
The plan is the culmination of a rigorous process of review, exploration, and study of BHSU resources combined with the latest industry best practices for sustainability tracking and goal-setting. The plan incorporates previous BHSU sustainability efforts to formulate a comprehensive guide for the university for years to come.

An understanding of the holistic and interdependent nature of sustainability is the foundation of this plan. "Sustainability means meeting the social, environmental, and financial/economic needs of the present without compromising the ability of future generations to meet their own needs."<sup>2</sup> Sustainability does

not pertain just to environmental actions or benefits, though those certainly have a central role. Rather, a holistic view of sustainability understands that natural and human systems need to be healthy in order for each to thrive. Economist Kate Raworth has designed a schema that shows that the optimal space for humanity to live and thrive is the space between a just social foundation and a healthy environment (see next page).

This is a space where natural resources are used within the limits of their availability, where human bodies are healthy and interactive with their natural surroundings, where natural habitats are conserved and free from pollutants, where employees are treated fairly and where, as in natural ecosystems, diversity makes a system stronger.

1. [Princeton Review 2017 College Hopes & Worries Survey Report](#), Princeton Review, 2017.
2. [Our Common Future](#), World Commission on Environment and Development, Oxford University Press, 1987.



“Humanity’s 21st century challenge is to meet the needs of all within the means of the planet. In other words, to ensure that no one falls short on life’s essential needs (from food and housing to healthcare and political voice), while ensuring that collectively we do not overshoot our pressure on earth’s life-supporting systems, on which we fundamentally depend.”

–Kate Raworth

Importantly, this plan includes a chapter on Climate Resiliency. As our climate continues to change, it is critical for institutions to undertake a process to evaluate their climate risks and vulnerabilities, and to work with city and county partners to implement resiliency plans that will allow them to thrive well into the future. The Climate Resiliency chapter outlines in detail what such a process would include. Note that there is not a set goal associated with Climate Resiliency as with the other key indicators; this is because the resiliency planning process itself will identify thresholds of resilience and timelines for when those thresholds will be met.

# EXECUTIVE SUMMARY

Black Hills State University has an impressive history of sustainable progress and a desire to align that commitment to the mission of the university. Students, staff and faculty alike express appreciation for BHSU's unique natural environment and voice support for sustainability initiatives. Given the growing interest in sustainability among prospective students, it is an opportune time for BHSU to make meaningful strides in this area.

## STRENGTHS AND SUCCESSSES

Since 2005 when BHSU began recycling efforts, the campus has made impressive strides toward becoming a more sustainable university. Its commitment to sustainability is remarkable considering its size and location, allowing BHSU to be an unparalleled leader in South Dakota and in the region.

Some particular strengths and successes to note at BHSU are the following:

- **Commitment from Leadership** – President Jackson and senior administrators regularly express their vision for BHSU to lead on sustainability. Furthermore, their words are supported by action.
- **Sustainability Coordinator** – BHSU has had dedicated staff working on sustainability since 2013.
- **STARS Silver Rating** – BHSU has earned a Silver rating from the Advancement of Sustainability in Higher Education STARS (Sustainability Tracking, Assessment and Rating System) program during the last two reporting cycles.
- **Carbon Commitment** – In 2007, BHSU signed the President's Climate Leadership Commitment and pledged to become carbon neutral by 2050. The Carbon Commitment is focused on reducing greenhouse gas emissions and achieving carbon neutrality as soon as possible. Carbon neutrality refers to achieving net zero greenhouse gas emissions by balancing the emissions created with an equivalent amount sequestered or offset.
- **Recycling** - In 2016, the university placed several new recycling stations in prominent locations across campus and started a “trash buddy” container system to encourage increased recycling and decreased waste disposal. In the Sustainability Engagement Survey conducted in March 2017, nearly 75% of respondents mentioned the expansion of the recycling program and how it has increased recycling accessibility as a recent success in BHSU's sustainability efforts.
- **LEED building standards** – Policies are in place that specify all new buildings and significant renovations will be built to US Green Building Council's LEED (Leadership in Energy and Environmental Design) standards—the most renowned green building standards in the world. The Student Union is a certified LEED Gold building—featuring a green roof, locally sourced and recycled materials, and water-efficient design. The Life Science Lab and BHSU-Rapid City campus are both certified LEED Silver. Bordeaux Residence Hall is currently under certification review and was built to LEED Silver specifications.
- **Community Food Initiatives** - The award-winning Black Hills Food Hub, launched in 2016, acts as a local food distribution company in the region. The Food Hub currently delivers fresh produce to regional cafeterias as far as Rapid City and Mt. Rushmore. Spearfish Local is a local food project initiated by BHSU that connects producers, distributors, purchasers, and consumers.
- **Composting** –Nearly 700 pounds of leftover food waste from the cafeteria is sent each week to the Rapid City Materials Recovery Facility, where it is transformed into rich compost.
- **Campus Garden** – The 7,000-square foot campus garden was established in 2008 and provides plots for students, staff, faculty or community members to cultivate. Volunteers plant, grow, harvest, and enjoy the food produced in the garden.
- **Lighting** – All outdoor lighting has been switched to LED, which reduces electricity use. BHSU utilizes Dark Sky Friendly lighting to reduce light pollution.
- **Tree Campus USA** – BHSU was named a Tree Campus USA on Arbor Day 2017. The university is implementing a plan to plant 2,000 trees by 2020.
- **Renewable Energy** – BHSU's wind turbine at the Student Union produces about 2,200 kilowatt-hours per year and feeds directly into the Student Union. Plans are underway to install several solar arrays on campus that is projected to meet 17% of the university's electricity needs by 2018.
- **Green Restaurant Certification** – The Hive and Buzz Shack are certified Green Restaurants, meeting a rigorous standard from the Green Restaurant Association for nutritious food choices, efficient energy and water use, waste reduction, green cleaning, and the purchase of eco-friendly products.



## PROCESS

In January 2017, Verdis Group began a sustainability master planning process for Black Hills State University.

The process included the following steps:

1. A Planning Team was established which consisted of key personnel from BHSU and Verdis Group (see Acknowledgements).
2. Verdis Group reviewed numerous resources provided by BHSU documenting their previous sustainability efforts, including:
  - a. BHSU Campus Master Plan (2009)
  - b. BHSU Utility Master Plan (2009)
  - c. Spearfish Area Master Transportation Plan (2011)
  - d. Association for the Advancement of Sustainability in Higher Education Sustainability Tracking, Assessment and Rating System (STARS) Report (2014)
  - e. Green Restaurant Association Certification (2014)
  - f. BHSU Climate Action Plan (2015)
  - g. BHSU Recycling Proposal (2016)
  - h. BHSU Tree Inventory Presentation (2016)
  - i. Resilience Commitment Assessment Report, Second Nature (2016)
  - j. Spearfish Community Strategic Plan (2016)
  - k. BHSU Strategic Plan (2017)
  - l. Association for the Advancement of Sustainability in Higher Education Sustainability Tracking, Assessment and Rating System (STARS) Report (2017)
3. Verdis Group completed a peer review to assess the sustainability progress of ten of BHSU's peer institutions.
4. The Planning Team identified key indicators to be used to track BHSU's sustainability progress.
5. An online Sustainability Survey was conducted over three weeks in March 2017. The survey was taken by 243 people on campus and assessed awareness and practice of sustainable behaviors on campus and opinions about past and future initiatives.
6. Verdis Group conducted the first site visit in April 2017. This visit included 22 meetings with key BHSU constituencies, including staff, faculty and students, and a full tour of the campus and its sustainable initiatives. A community session was held in the Student Union during which Verdis Group presented the sustainability planning process and gathered input from staff and students. As the final session of the visit Verdis Group facilitated a Visioning and Goals Workshop, in which staff and faculty identified goals for BHSU's sustainability progress. Approximately 200 members of the BHSU community participated in this week-long process.
7. Goals were refined and finalized. Benchmarks from which to measure progress were set for each key indicator.
8. Verdis Group conducted the second site visit in May 2017. During this visit, they met with 30 Subject Matter Experts (key BHSU personnel who have expertise in each of the key indicators) on campus to discuss and develop strategies for meeting each of the goals.
9. With further research, analysis and dialog with BHSU Subject Matter Experts, Verdis Group developed a comprehensive set of strategies BHSU should follow to meet their goals. This list was vetted and approved by the Subject Matter Experts and by the Planning Team.
10. Verdis Group developed and wrote the Sustainability Master Plan.
11. Verdis Group conducted the third and final site visit in November 2017. During this visit, the BHSU Sustainability Master Plan was presented to the Planning Team.

Sustainability means meeting the social, environmental, and financial/economic needs of the present without compromising the ability of future generations to meet their own needs.

## PLAN STRUCTURE AND METHODOLOGY

Many of the goals in this plan are structured on the AASHE ([Association for the Advancement of Sustainability in Higher Education](#)) STARS ([Sustainability Tracking, Assessment and Rating System](#)) program. AASHE is the preeminent organization working on sustainability in higher education, and the STARS program is a self-reporting mechanism for universities that allows them to track their sustainability progress. Currently, 420 institutions participate in the STARS system. BHSU completed its first STARS report in 2014, its second in 2017, and plans to report every three years. The STARS reporting format provides a clear rubric and point system for awarding and tracking points in a wide range of categories. Since BHSU is already committed to this highly respected and thorough sustainability reporting process, the sustainability goals in this plan were structured to align with it. Some of the goals, however, are not included in STARS – like Food and Wellbeing. For these topics, custom goals were

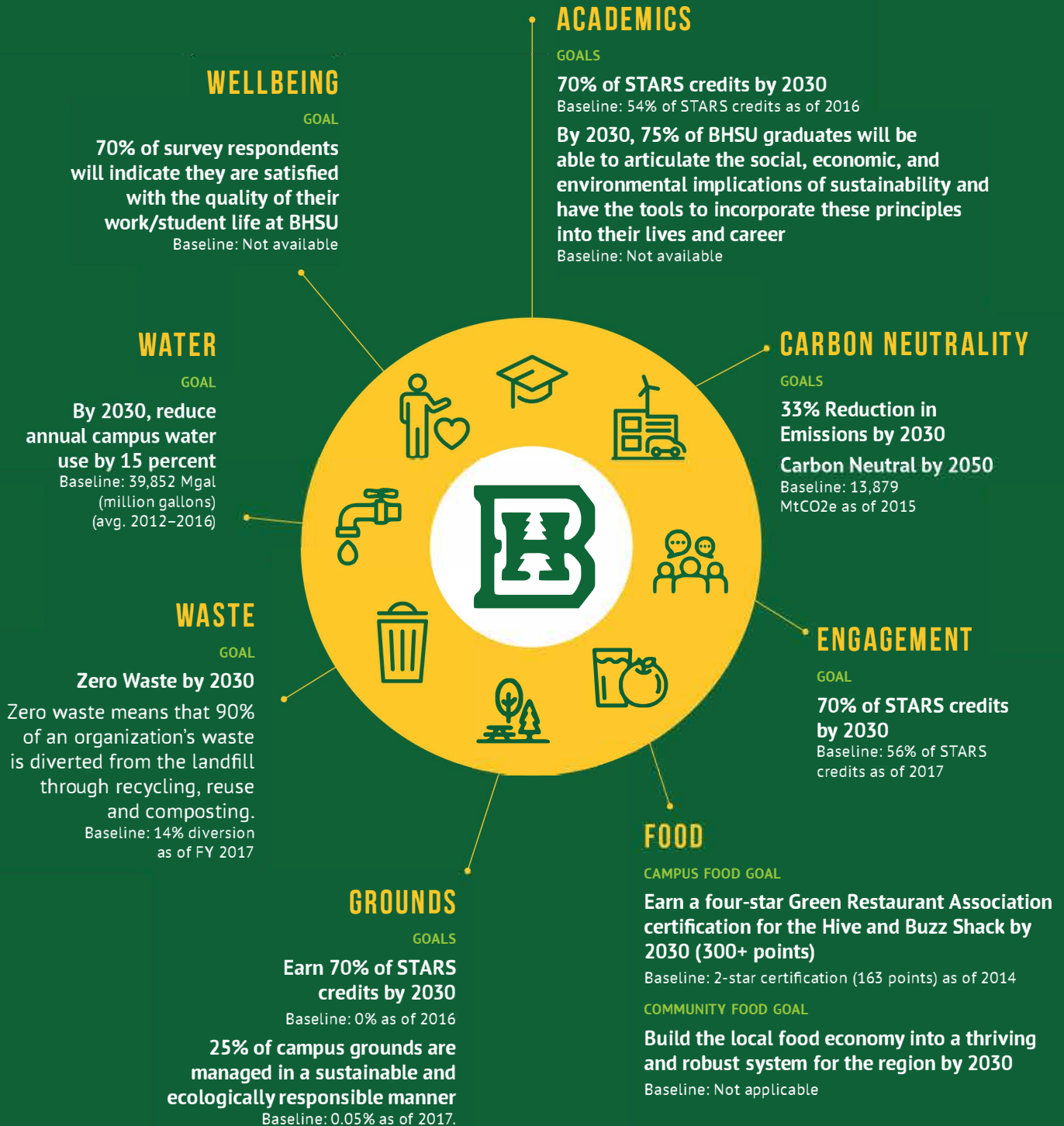
created to meet BHSU's needs. Other categories, like Carbon Footprint, Academics and Grounds, do appear in STARS but in a rubric that BHSU staff felt was not rigorous or comprehensive enough to allow BHSU to make the progress it desires. In those cases, secondary goals have been created that are customized for BHSU.

Each chapter for the nine goals of this plan includes a short list of Priority Strategies, followed by a longer list of Recommended Strategies. The Priority Strategy list contains those strategies that should be implemented first, either because they will make the most impact or because BHSU has already laid the groundwork to implement them.

Many strategies apply to more than one key indicator. They are denoted as “crossover strategies” with icons that correspond to all the indicators affected by the strategy.

# GOALS

The following eight goals lay out the scope of BHSU’s desired progress on sustainability initiatives over the next thirteen years. The goal areas, or key indicators, were chosen by BHSU staff after careful consideration of the areas in which progress was desired and the ability to measure progress in each of those areas. In each case, a goal was chosen as a result of community-wide input and staff refinement. Each goal is meant to be challenging, yet achievable. A baseline is indicated in every case for which one exists so that progress can be measured accordingly.



## KEY FINDINGS

Following are the key findings from Verdis Group that emerged from the sustainability master planning process.

**“Anything is Possible” Attitude** – BHSU staff and faculty unfailingly displayed a positive, curious and constructive attitude toward making changes that would make BHSU a more sustainable university. They absolutely reflect the tag line of the university. It is a rare strength to find such openness to change in an organization, and one that the university can build on to solidify its leadership reputation in the field.

**Commitment to the Community** – BHSU displays a strong commitment to working with and for its partners in Spearfish and the region. Its work with the Food Hub is a terrific example of what can be accomplished through town-gown relationships. Two initiatives suggested in this plan will invite further partnerships with the city and county: assessing the feasibility of becoming a recycling processor ([see Waste chapter](#)); and creating a Climate Resiliency Plan ([see Building Climate Resiliency chapter](#)). BHSU can build on its strong record of success to take its sustainability efforts to a new level.

**Telling Your Story** – As this plan shows, BHSU has made many innovative and impressive accomplishments in sustainability. Leadership has expressed their vision for BHSU to lead in this area. However, at present, BHSU’s commitment to sustainability is not featured in marketing and recruitment materials. Going forward, it will be important for the marketing, recruitment and fundraising offices to regularly champion sustainability as a core strength of the university.

**Attention to Diversity** – There is a clear need to improve BHSU’s recruitment, financial support, and advising of students, staff and faculty from under-represented groups. The diversity of BHSU’s student body is increasing, yet financial and academic support for those students is not increasing proportionately. Cross-cultural competence is low, and anti-bias trainings and incident response teams are non-existent. Implementing the strategies recommended in the Diversity section of this plan will significantly strengthen BHSU’s efforts to make all people on campus feel valued and supported. BHSU leaders at all levels need to understand that the greater diversity a university embraces and supports, the more its intellectual, social and occupational life will thrive.

## TOP STRATEGIES

The following are the highest-impact strategies that BHSU should implement to progress toward its sustainability goals.

### 1. Create a Climate Resiliency Plan.

As our climate continues to change, it is critical for institutions to undertake a process to evaluate their climate risks and vulnerabilities, and to work with city and county partners to implement resiliency plans that will allow them to thrive well into the future. The Building Climate Resiliency chapter outlines in detail what such a process would include.

### 2. Integrate Sustainability Further into the Curriculum.



Currently, only 9% of courses offered are sustainability course offerings. The goal is to get to 20%. A Faculty Sustainability Committee will identify and then follow a process to integrate sustainability as a cross-cutting theme at BHSU. The process may include finding examples of sustainability connections to all subject areas, finding sustainability connections already occurring in their programs, and planning new ways to integrate sustainability into the curriculum. Each program will be encouraged to develop learning outcomes related to sustainability.

### 3. Assess the Feasibility of Becoming a Recycling Processor.



BHSU has set an ambitious goal to achieve zero waste by 2030. This goal will propel the university to create market-changing institutions for the region. Currently, the closest affordable recycling and composting facility is located in Rapid City. Hauling services between Spearfish and Rapid City are insufficient, which means that transporting recycling and composting to Rapid City is not ideal. To reach its goal of zero waste, BHSU will need to become a service provider for both recycling and composting. This means that the university will need to sort its own recycling and start its own commercial composting operation. Strategies included in the Waste chapter suggest that BHSU conduct a market analysis of the regional recycling market and, if favorable results are found, to move forward with creating a business plan for a regional recycling hub. The final step is to implement the plan.

#### 4. Start an Active Transportation Program.



A comprehensive active transportation program would include educating staff and students on walking/ biking routes to campus, offering day rate and flexible parking so active commuters can drive when necessary, promoting the availability of on-campus showers, and include an emergency ride home program for active commuters. This program should incentivize active transportation through education, positive recognition, and financial incentives. The recent commuter survey also showed that 60% of respondents would be encouraged to start or increase the use of alternate modes of transportation (carpooling, biking, walking) by incentives from campus and local bike shops. Twenty-seven percent noted that they would be encouraged to start or increase use of alternate modes of transportation if more or better bicycle and pedestrian infrastructure was in place. The Active Transportation Program can be a component of the new campus Wellness Program recommended in the Wellbeing section.

#### 5. Create & Implement a Landscape Management Plan.



Currently, the 70 acres of the BHSU campus that is considered “greenspace” (without buildings or parking lots) is not managed in a consistently environmentally-friendly manner. BHSU should create and implement a Landscape Management Plan based on Integrated Pest Management (IPM) standards for 100% of grounds, and organic land care standards for 25% of campus greenspace (17 acres). The American Association for Sustainability in Higher Education (AASHE) offers multiple resources on IPM and organic lawn care standards that BHSU can access when creating the Landscape Management Plan.

#### 6. Improve Waste and Recycling Tracking.



Good efforts for tracking waste and recycling have begun, but they need to be improved. BHSU should work with the waste hauler to obtain weight amounts of each pick-up. The weight information will help BHSU ascertain if they are able to reduce the number or frequency of pick-ups, potentially allowing for financial savings. BHSU currently tracks actual weights of common recyclable materials, electronics, and motor oil. But there is a need to improve the consistency of the data. Improving the existing tracking methods and adding a reliable tracking system for waste materials will improve their tracking accuracy. As the saying goes, “you can’t manage what you don’t measure.” Having improved and consistent data will allow BHSU to identify opportunities to improve its waste diversion and meet its goals.

#### 7. Create and Implement a Business Plan for the Food Hub.



Funding for the Black Hills Food Hub began with a grant which expired in October 2017. BHSU should create a business plan as soon as possible for the operation that will map out a path for it to be financially self-sustainable by 2028. This plan could be created by a student in the Business School who could earn academic credit for doing so. BHSU will need to regularly monitor income and expenses and make adjustments accordingly in order to achieve sustainable growth.

#### 8. Implement a New Irrigation System.



A new weather station irrigation system has recently been procured by the Facilities department. This system senses rainfall and controls the amount of water used for irrigation accordingly. It also allows for manual control when necessary. Implementing this system will allow for irrigation based on rainfall totals and should result in notable water conservation.

# A DAY IN THE LIFE OF A BHSU STUDENT IN 2030: AISHA'S STORY

Much can change in thirteen years, and with students at the center of BHSU's mission, it is worthwhile to consider how students' lives might change by the time BHSU achieves its 2030 sustainability goals. Here is a description of a fictional BHSU student of the future, Aisha.

**6:45AM** Aisha awakes in the Yellow Jacket Apartments.

**6:51** Steps into the water-wise shower. Brushes teeth at the water-wise sink.

**7:12** On her wristwatch, Aisha checks her building's energy and water usage from the previous day to see how they are doing in the annual Consumption Competition with other student housing buildings. Good news: the Yellow Jackets are winning the competition.

**7:25** Walks across campus to meet a friend for breakfast at The Hive. Takes a deep breath at the beauty of the campus now that one more parking lot has been converted to greenspace. A fleet of self-driving electric rent-by-the-hour cars in Spearfish has made owning a car unnecessary for many BHSU students. With this enterprise, plus the encouragement the university gives to get to campus by biking, walking and ride sharing, parking lots are becoming obsolete.



**7:40** Enjoys a delicious, locally-sourced breakfast with a friend. A banner hangs in the dining hall congratulating The Hive for earning all four stars on the Green Restaurant Association rating system.

**8:25** Walks across campus to get to her morning class. Aisha's footsteps fall on pervious sidewalks that, coupled with improved bioswales and increased biodiversity on campus, aided in reducing runoff from Spearfish Creek and prevented flooding during a recent heavy rain event.

**8:30** Attends the class "Resource Management and Zero Waste for Communities" at the campus Recycling Center. Over the last ten years, this course has been offered annually and student projects have substantially contributed to BHSU's attainment of its goal of zero waste. This year, students are studying best practices from BHSU's experience, and writing business plans to help other organizations in the region become zero waste.

**11:01** After class, she walks by the Community Orchard and grabs a fresh apple for a snack.

**11:11** Pops into the Student Support Office to touch base with her mentor. As a woman of color, she has found it extremely helpful to have a home base on campus where she can get support for all the challenges that come up in college. Over the last year, her mentor has helped her with financial aid, tutoring for her Organic Chemistry class, and advising when she struggled with some unconscious racism. Since the university began offering regular anti-bias trainings, literacy and sensitivity around race issues has grown in the campus community.

**12:13PM** It's lunch time. Aisha gets a bike from a free bike share station and hops on it for the short ride downtown where she picks up lunch. The restaurant has a Spearfish Local four-star rating on a decal in the window. Since she worked on this program for a civic engagement class project, she knows that means they are sourcing a majority of their food from local farmers and ranchers.

**1:26** Makes it back to campus in time to catch the afternoon Nature Meditation group, part of the campus Wellness Program. She sits on the grass with a group of students, faculty and staff who gather to find stillness and balance in the middle of their busy days. They all feel happier and more energized afterward.



**1:55** While walking to her next class, Aisha notices the wetlands wastewater treatment area. She learned in a recent class that wastewater could be filtered through natural landscapes and without chemicals, and was glad to be able to study the treatment site hands-on for the final class project.

**2:00** Attends a class on Community-Based Environmental Management. This will count toward her minor in Sustainability. The professor's background growing up in Haiti gives the subject matter a personal and vivid feel.

**3:32** Goes to a presentation from a BHSU alum who explains how his sustainability training at BHSU allowed him to transform a South Dakota farming operation into a completely sustainable one. The farm has become more profitable than ever before and has recently been profiled in a regional business publication.

**4:25** Walks to the library to help plan the upcoming Sustainability Month celebration with the Sustainability Committee. Because of campus efforts in energy efficiency, active transportation and expanded renewable energy generation, BHSU has reduced emissions by 33% since 2017. They are on their way to becoming the first Carbon Neutral university in South Dakota.

**5:36** A busy day is coming to a close. It's time for some rest and relaxation. Aisha heads to the Wellness Center to practice on the climbing wall for a bit. Afterward, she takes part in a yoga class. Her recent fitness assessment showed that she could improve her balance and flexibility, and yoga is definitely helping. It also helps her manage her stress from her coursework.

**7:22** Goes back home to the apartment. Automatic motion sensors turn on the lights she needs and adjusts the temperature.

**7:30** Makes a salad for dinner with vegetables she grew and harvested in the Community Garden.

**8:12** Aisha studies until she's too sleepy to go on. She knows she'll be the first in her family to earn a college degree. She can't wait to pursue her dream of running a successful sustainable business.

**10:36** Lights out.



# SUSTAINABILITY ENGAGEMENT SURVEY RESULTS

## OVERVIEW

In March 2017, a sustainability engagement survey was administered to students, faculty and staff of Black Hills State University (BHSU). The key objectives of this survey included:

- Engaging students, faculty and staff in BHSU's sustainability efforts
- Obtaining input that will help inform the development of BHSU's future sustainability goals
- Obtaining data that establishes a Sustainability Engagement Score (SES) baseline, which can then to be used to measure future progress on sustainability engagement.



Two hundred and forty-three (243) individuals completed the survey, which represents a 6.2% response rate. The data from this survey has been analyzed to establish a Sustainability Engagement Score (SES) of 63. The SES was calculated based on results connected to the following dimensions:

- **Awareness of Efforts** at BHSU to be more sustainable
- **Knowledge** about ways to conserve energy & natural resources at BHSU
- **Behavioral Frequency** of self-reported behaviors for key sustainable actions at BHSU
- **Perceived Norm** or perceptions of how others at BHSU engage in sustainable behaviors
- **Familiarity with Sustainability**, specifically the concept of sustainability

## DIMENSIONS OF SUSTAINABILITY ENGAGEMENT

<b>Awareness of Efforts</b> (extremely/very familiar)	<b>59</b>
<b>Knowledge</b> (extremely/very knowledgeable)	<b>58</b>
<b>Behavioral Frequency</b> (always/most of the time)	<b>66</b>
<b>Perceived Norm</b> (always/most of the time)	<b>44</b>
<b>Awareness of Sustainability</b> (extremely/very familiar)	<b>88</b>

## SUSTAINABILITY ENGAGEMENT SCORE **63**

Sustainability refers to using resources wisely so as to provide for the future while meeting the needs of the present.

## SUSTAINABILITY MISSION ALIGNMENT AND IMPORTANCE

SURVEY QUESTION	RESPONSES
<b>Mission Alignment:</b> To what extent do you agree with the statement: “Sustainability aligns with BHSU’s mission, vision, and values.”	<b>83%</b> strongly agree or agree
<b>Importance:</b> To what extent is sustainability at BHSU unimportant or important to you?	<b>82%</b> very important or important

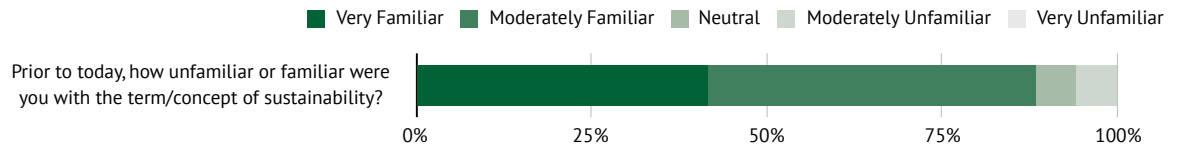
## PRIMARY FOCUS

In order of importance, the top reasons why sustainability at BHSU matters to survey participants:

1. **Environment** - It lessens the university’s environmental impact, conserves resources, and reduces GHG emissions.
2. **Responsibility** - It is the right thing to do.
3. **Health & Wellness** - It protects public health and promotes wellness.

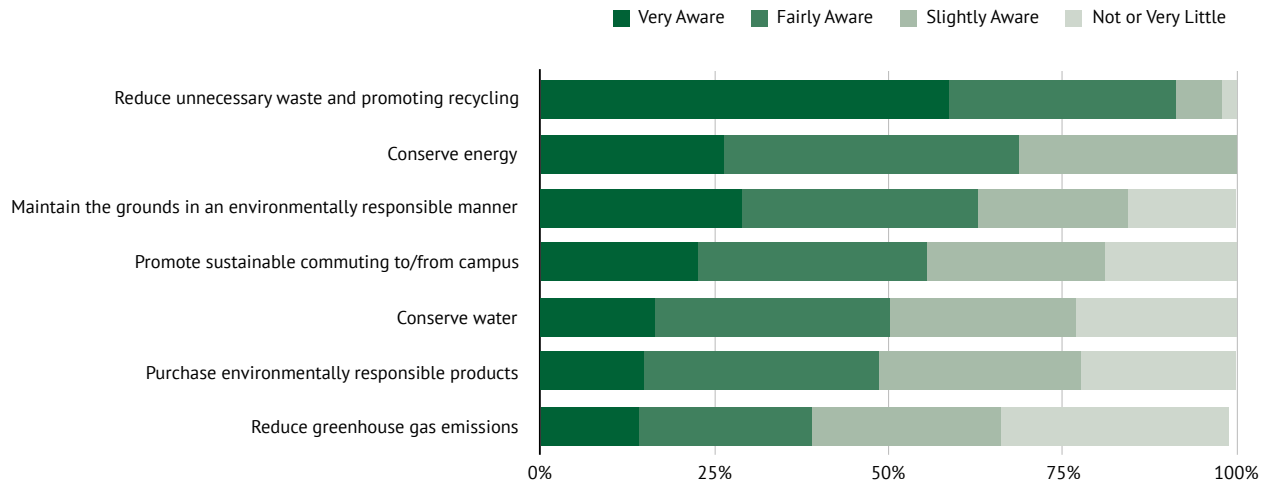
## FAMILIARITY WITH SUSTAINABILITY

The following six questions were asked to assess the level of sustainability engagement on campus. The answers to these questions factored into the Sustainability Engagement Score shown on page 17.



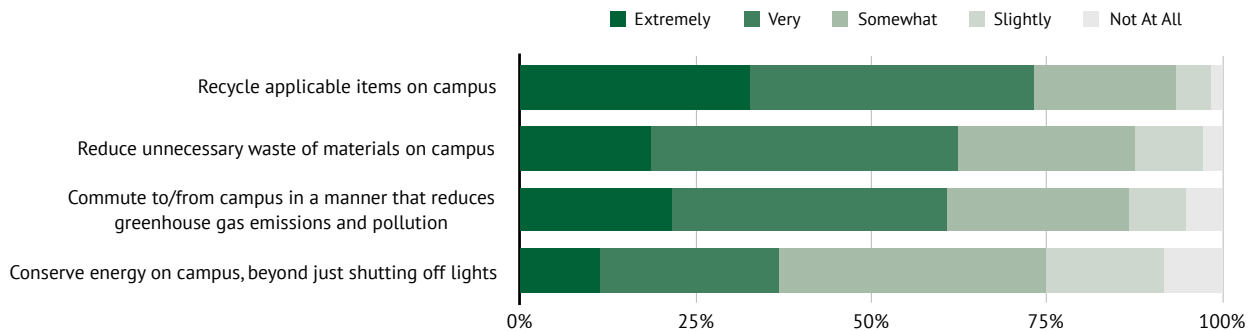
## AWARENESS OF SUSTAINABILITY EFFORTS

How aware are you of BHSU's efforts to...?



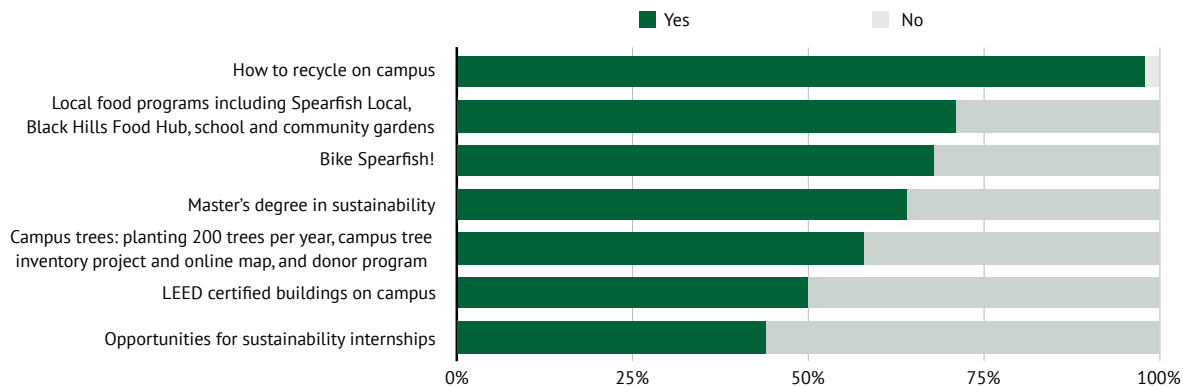
## KNOWLEDGE OF SPECIFIC SUSTAINABILITY PRACTICES

How knowledgeable do you consider yourself about the ways you can personally...?



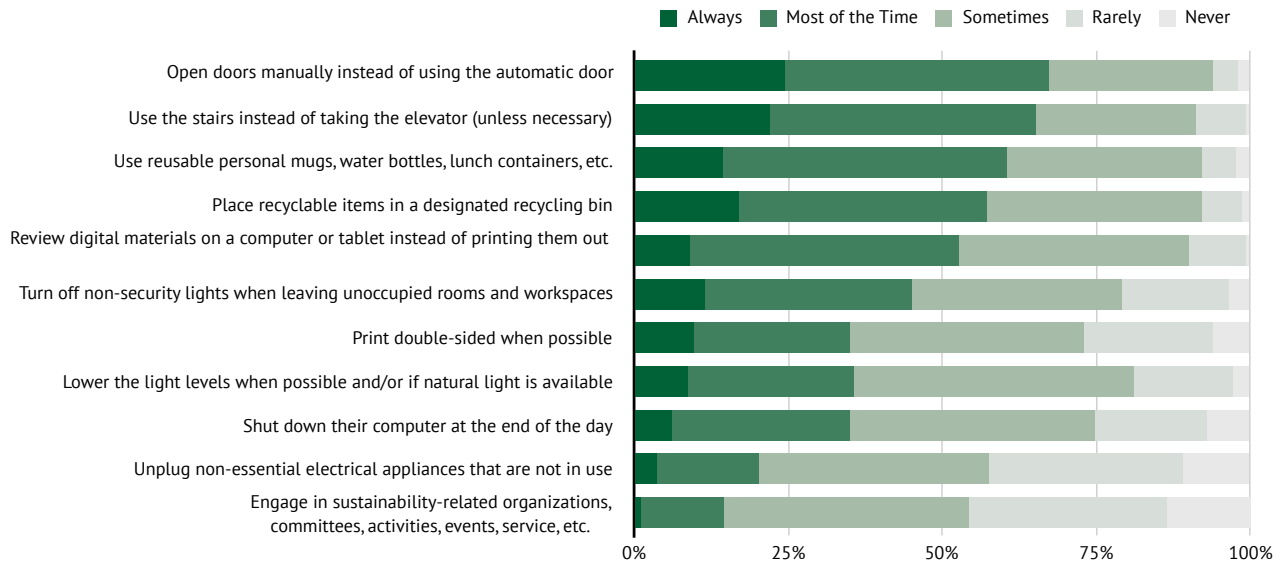
## PAST INITIATIVES

Have you seen or are you aware of the following at BHSU?



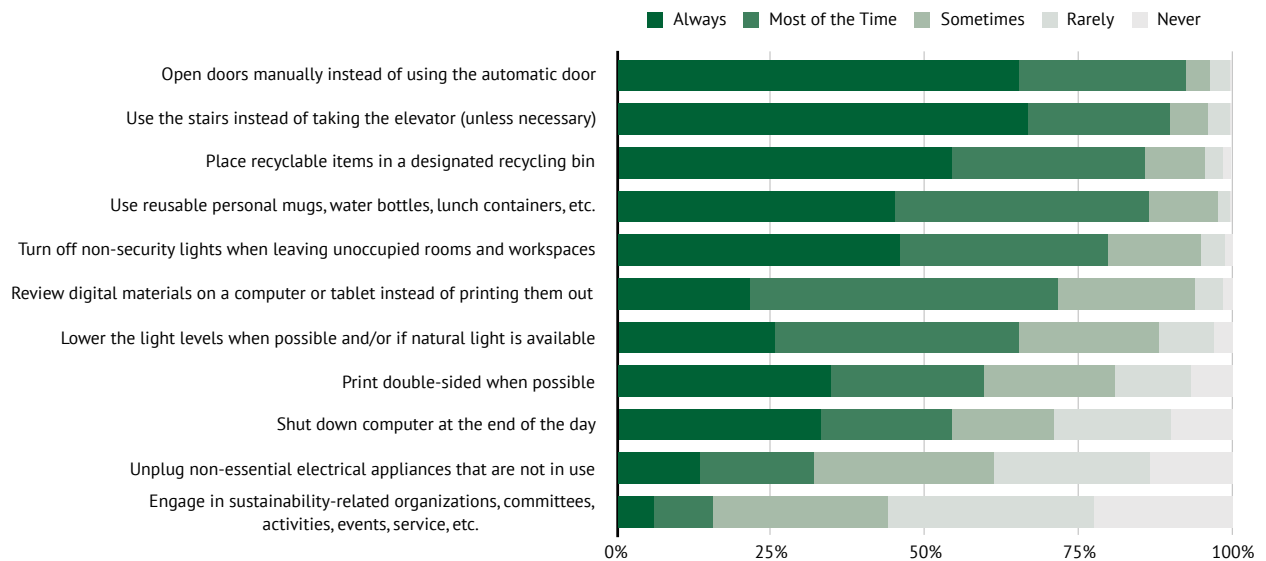
## BEHAVIOR (SELF-REPORTED)

How often do you personally participate in the following actions at BHSU?



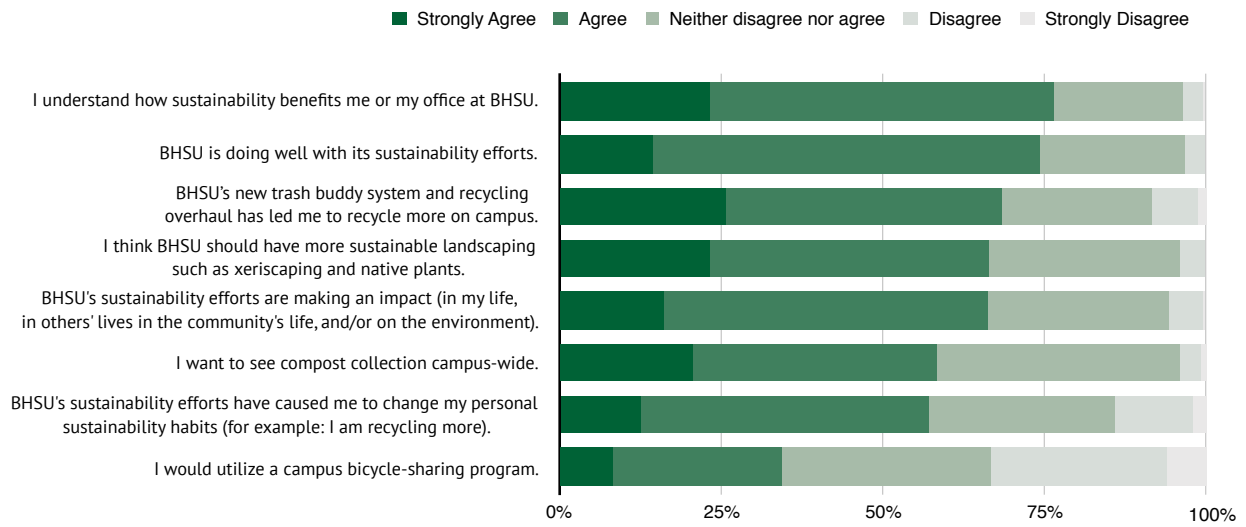
## BEHAVIOR (PERCEPTION OF PEERS)

How often do your peers generally participate in the following actions at BHSU?



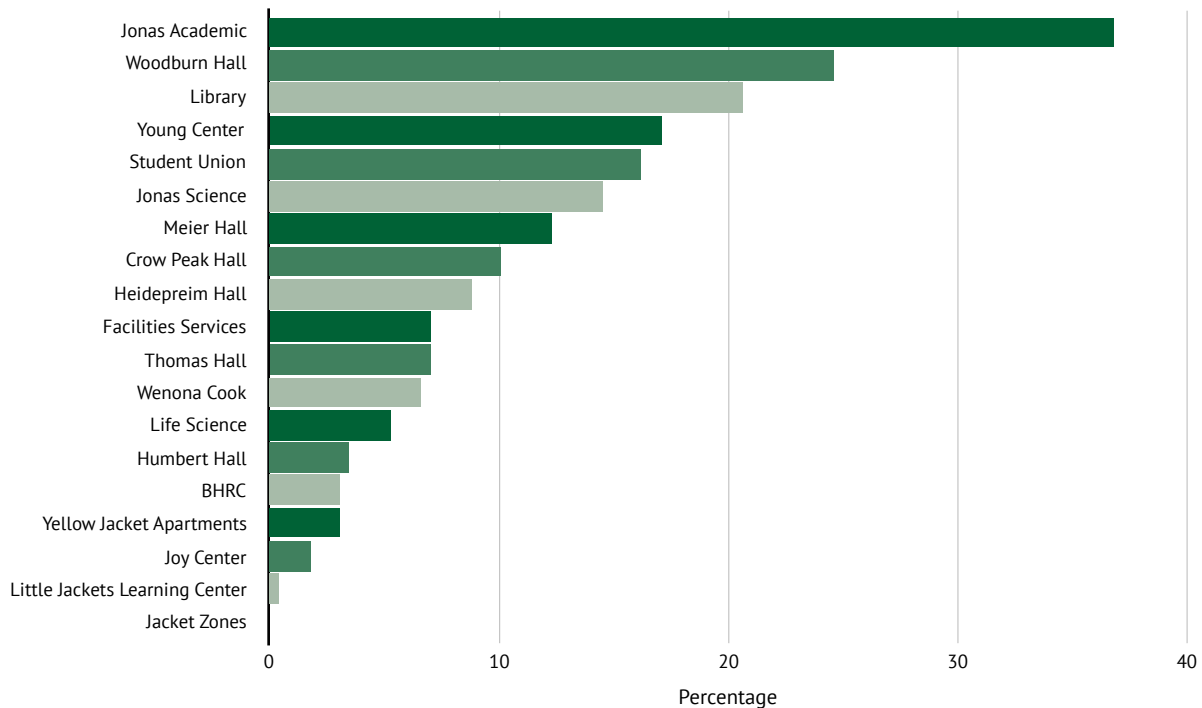
## AGREE-DISAGREE

To what extent do you disagree or agree with the following statements?



## BUILDING USE

In which building do you spend the most time?



## FUTURE FOCUS

---

In order of importance, respondents ranked the following as the top categories where BHSU should concentrate future sustainability efforts:

1. **ENERGY** - Reducing campus energy consumption and switching to cleaner and renewable sources of energy
2. **GROUNDS** - Maintaining beautiful and welcoming campus while minimizing the use of toxic chemicals, protecting wildlife and habitat, conserving resources
3. **WASTE** - Moving toward zero waste by reducing, reusing, recycling and composting

## QUALITATIVE COMMENTS: SUCCESSES

---

The survey asked participants for specific sustainability strengths and recent successes with explanations if possible. The top three strengths shared were:

1. **Recycling.** Almost 75% of respondents mentioned the growth of the recycling program and how it has increased accessibility.
2. **Engagement.** Resources on campus such as the Master's program, a Sustainability Coordinator, and passion of those in the sustainability department were highlighted.
3. **Green construction.** Respondents commented LEED certification, LED lighting, renewable energy installations, and other sustainable infrastructure improvements.

### Sample Responses:

- *The recycling program, though not perfect, is a strength. It has certainly facilitated recycling by students, faculty and staff.*
- *I really like that there are recycling bins right next to the trash bins, and that you can recycle paper here.*
- *BHSU is aware of the problems that are facing the world, especially environmentally. I believe that this is the first step in helping address the problem, specifically followed by educating it's students with courses and programs.*
- *Having sustainability in the vision statement puts this issue in the forefront. Also, the new recycling program provides a daily reminder of individual responsibility and collaboration.*
- *The composting of the food in the SU is one of the most prominent projects on campus. I normally eat all of my food, but when I don't eat it all I know its going to compost to help sustainability.*

## QUALITATIVE COMMENTS: OPPORTUNITIES

---

The survey asked participants for specific opportunities and strategies to improve sustainability at BHSU with explanations if possible. The top three opportunities shared were:

1. **Education and Outreach.** About one-third of respondents mentioned increasing awareness in the BHSU community about sustainability initiatives and environmentally friendly behaviors. Specifically, more education surrounding the new recycling bins was mentioned frequently.
2. **Grounds.** Respondents expressed concerns about excessive irrigation on campus lawns and an interest in xeriscaping.
3. **Food Waste/Composting.** Individuals expressed a desire for increased composting facilities on campus, specifically in dining halls.

**Sample Responses:**

- *We need to start purchasing supplies that are better for the environment in all of the departments. Supporting organizations that support the environment and their workers.*
- *I would like to see more native/drought resistant plants be used in landscaping here on campus. By incorporating more of these types of plants we can reduce the amount of water needed for upkeep.*
- *I think we should look into more “green” ways to clean and chemicals we are using within the buildings. Air fresheners, chemical cleaners, paper-towels, etc.. There are many healthier options that save money are much more environmentally friendly and much less wasteful.*
- *Possibly advertising and suggesting ways students could be helping the environment would be helpful. Promoting being good to our earth and making it relate to students in ways we could participate.*
- *I definitely think that BHSU should work more towards composting. I also think their should be more focus on educating people about what BHSU does to be a more sustainable campus. In turn, I think staff and students will be more likely to care about and engage in the efforts of bettering our campus.*
- *If you are not already looking at it, ways to recycle or reuse all the stuff that is left when the students move out. Let them know that if they are getting rid of dorm room stuff that other can use keep it for the next students to use. Thrift Store type idea.*

## QUALITATIVE COMMENTS: FINAL COMMENTS

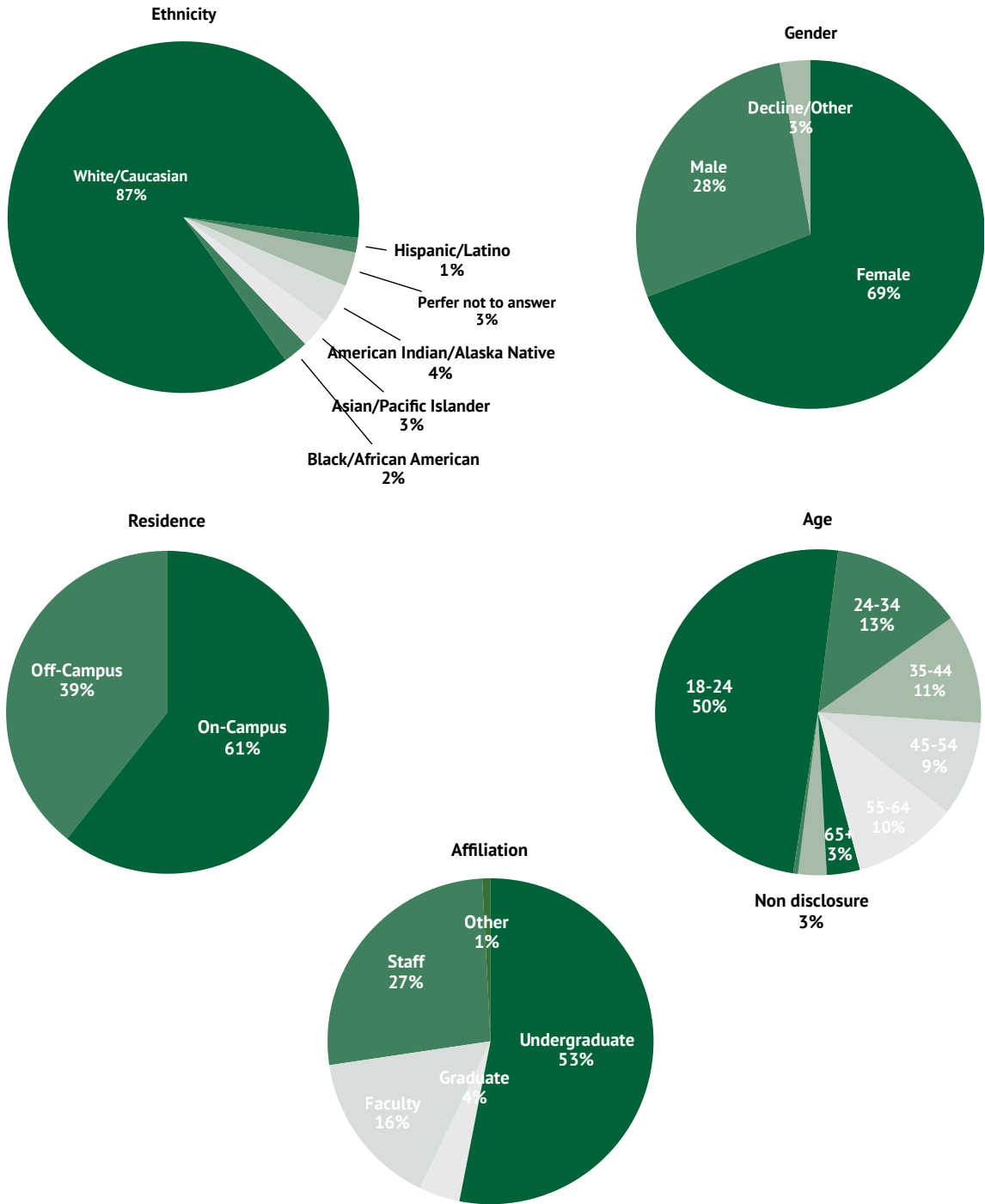
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The survey asked for any final comments regarding the survey or sustainability at BHSU.

Selected responses:

- *I would like to do more to help make our campus better, I just need to know what to do. If you provide the information, students will probably provide the action.*
- *I think that overall, BHSU does a good job at trying to make the school more “Green”, but I think students need to have more opportunities to be involved. People like being a part of something, and feeling like they are part of the change. So maybe if there were more clubs or activities, people would be more open to being educated about sustainability and in turn, practice a more sustainable lifestyle.*
- *I love BHSU and I think we all care about the betterment of our staff, students, and campus. I look forward to learning more about how to live my day to day life with less waste and tone more knowledgeable about how my actions can affect our planet.*
- *I think it is great the school is trying to be more eco friendly, I do not feel as though it is very much at the current time. Students here need to be much more educated about what it all means, why we need to care about it and what we can do to help.*

## DEMOGRAPHICS OF SURVEY RESPONDENTS





# SUSTAINABILITY GOALS AND STRATEGIES

The following eight chapters lay out in detail the goals BHSU aspires to achieve, and the strategies by which they can attain them. The material ranges from technically specific to visionary; from environmental to social; from local to global. These strategies take as their starting point the significant progress that BHSU has already made in recent years and encapsulate where the university currently stands as well as where it can go. Altogether, the successful implementation of this set of strategies will make BHSU into the leading sustainability university it promises to be.



# ACADEMICS

## GOALS

**70% of STARS credits by 2030**

Baseline: 54% of STARS credits

**By 2030, 75% of BHSU graduates will be able to articulate the social, economic, and environmental implications of sustainability and have the tools to incorporate these principles into their lives and careers**

Baseline: Not available

**THE ACADEMIC ACTIVITY OF BHSU** is the engine that drives its mission. As such, integrating sustainability more fully into the BHSU curriculum is an opportunity to make a significant impact across the campus. Multi-faceted and rewarding learning opportunities abound, from immersive experiences abroad to interdisciplinary classroom experiences on campus—and everything in between.

The two-part goal for Academics reflects the desire on the part of the BHSU faculty to not only meet STARS academic standards, but to exceed them by ensuring that sustainability is integrated in a comprehensive way throughout each student's educational journey.

In addition to the highest priorities strategies below, there is interest on the part of the Deans to create more immersive learning experiences that incorporate sustainability. There is a plethora of topics that can be explored through hands-on learning in the field, and BHSU is fortunate to have many opportunities for doing so right on its campus. Organic farming, water quality testing, bee-keeping, climate resiliency planning, solar cell research and artistic creations are just a few examples of what is possible. Sustainability learning can also be incorporated into service learning opportunities in the community and into study abroad experiences.





# PRIORITY STRATEGIES

**1**

## **Create a Faculty Sustainability Committee**

A Faculty Sustainability Committee, under the leadership of the Deans and including representatives from each school, will be created. This committee will collaborate across schools and programs to ensure that sustainability is integrated as a cross-cutting theme throughout the BHSU curriculum.

**2**

## **Integrate Sustainability into the Curriculum**

The Faculty Sustainability Committee will identify and then follow a process to integrate sustainability as cross-cutting theme at BHSU. The process may include finding examples of sustainability connections to all subject areas, finding sustainability connections already occurring in their programs, and planning new ways to integrate sustainability into the curriculum. Each program will be encouraged to develop learning outcomes related to sustainability.

**3**

## **Offer More Sustainability Courses**

The number of courses that treat sustainability directly, or which include sustainability, will be increased to at least 20% of all courses offered at BHSU. Currently, that percentage 8.1%

**4**

## **Offer a Minor or Emphasis in Sustainability**

BHSU will develop a minor in sustainability that will be available to all students. A minor will not conflict with the policies of the South Dakota Board of Regents, will allow BHSU to earn three STARS points, and will give BHSU the opportunity to solidify its reputation as a leader in sustainability in the state and the region.

**5**

## **Administer a Sustainability Assessment**

The second Academics goal—that BHSU students will achieve sustainability literacy—will be assessed through a series of questions on an exit exam which every student is required to take before graduation. The Faculty Sustainability Committee will develop the questions, which will be carefully geared towards assessing students' overall understanding of the ways in which sustainability issues intersect with their BHSU education.

**6**

## **Align with Higher Learning Commission Standards**

The Faculty Sustainability Committee will work with campus assessment staff to ensure that the newly-adopted cross-cutting sustainability themes are in accord with Higher Learning Commission standards in order to ensure their efficacy.



# RECOMMENDED STRATEGIES

STARS Credit	STARS Category	Current Points	Possible Points
<b>AC 1</b>	<b>Academic Courses</b>	<b>9.63</b>	<b>14</b>
	<ul style="list-style-type: none"> <li>• Increase the number of courses offered that are sustainability courses or that include sustainability from 58 to 143 (20% of all courses offered)</li> <li>• Offer a 4-class Certificate in Sustainability</li> <li>• Gain approval from the South Dakota Board of Regents to employ the SUST prefix in the undergraduate course catalog</li> </ul>		
<b>AC 2</b>	<b>Learning Outcomes</b>	<b>0.62</b>	<b>8</b>
	<ul style="list-style-type: none"> <li>• Integrate sustainability as a cross-cutting theme across the curriculum at the university</li> <li>• Create a Sustainability Team with representatives from each school. They will work to identify examples of sustainability connections in their program, to find examples of sustainability connections already occurring in their program, and to plan new ways to integrate sustainability into the curriculum</li> <li>• Encourage programs to develop learning outcomes related to sustainability</li> <li>• Increase the number of courses that include sustainability as a learning outcome or include multiple sustainability learning outcomes</li> </ul>		
<b>AC 3</b>	<b>Undergraduate Program</b>	<b>0</b>	<b>3</b>
	<ul style="list-style-type: none"> <li>• Offer a minor or emphasis in sustainability</li> </ul>		
<b>AC 5</b>	<b>Immersive Experience</b>	<b>2</b>	<b>2</b>
	<ul style="list-style-type: none"> <li>• Offer a selection of immersive, sustainability-focused educational study programs, one week or more in length, taking place off-campus, overseas, or on campus</li> <li>• Complete the planned solar array on campus that will not only provide green power to campus, but will be accessible and provide educational opportunities to students and the greater community on renewable energy technology.</li> </ul>		
<b>AC 6</b>	<b>Sustainability Literacy Assessment</b>	<b>0</b>	<b>4</b>
	<ul style="list-style-type: none"> <li>• Conduct an assessment of the sustainability literacy of the BHSU community every two years</li> <li>• Include a sustainability assessment in each student's exit exam</li> <li>• Work with campus assessment staff to ensure that sustainability themes are in accord with Higher Learning Commission standards</li> </ul>		
<b>AC 7</b>	<b>Incentives for Developing Courses</b>	<b>0</b>	<b>2</b>
	<ul style="list-style-type: none"> <li>• Offer an ongoing program that offers incentives for faculty in multiple disciplines or departments to develop new sustainability courses and/or incorporate sustainability into existing courses or departments</li> <li>• Incentives may include release time, funding for professional development, and trainings</li> <li>• Identify funding from national sources for faculty incentives to attend training sessions on incorporating sustainability into their curricula</li> </ul>		
<b>AC 9</b>	<b>Research and Scholarship</b>	<b>10</b>	<b>12</b>
	<ul style="list-style-type: none"> <li>• Conduct an inventory to identify sustainability research activities and initiatives</li> </ul>		
<b>AC 10</b>	<b>Support for Research</b>	<b>2</b>	<b>4</b>
	<ul style="list-style-type: none"> <li>• Create programs to encourage and/or support sustainability research</li> <li>• Include sustainability prominently in new student orientation</li> </ul>		



# CARBON NEUTRALITY

## GOALS

**33% Reduction in Emissions by 2030**

**Carbon Neutral by 2050**

Baseline: 13,879 MtCO<sub>2</sub>e (as of 2015)

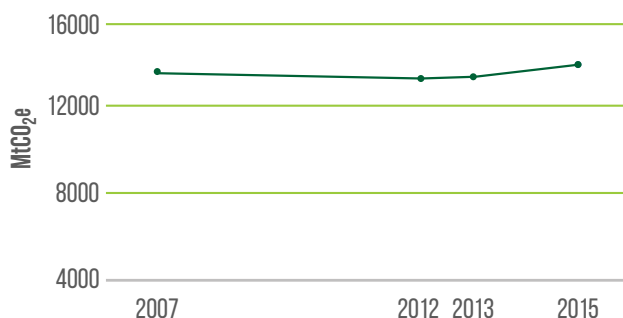
**A DECADE AGO**, BHSU saw the need to take leadership on climate action when it signed the Presidents' Climate Leadership Carbon Neutral Commitment,<sup>3</sup> joining scores of other higher education institutions in pledging to take leadership in addressing climate change by pledging to become carbon neutral by 2050. Carbon neutrality refers to achieving net zero greenhouse gas emissions by balancing the emissions released with an equivalent amount sequestered or offset. Greenhouse gas offsets are financially quantified "shares" in emissions reductions which can be purchased in order to offset the emissions produced by an organization. The strategy for carbon neutrality is to reduce as many emissions as possible, and then purchase offsets for the remaining emissions. Carbon sinks may also be used in some cases.

Greenhouse gas (GHG) inventories measure emissions in metric tons of carbon dioxide equivalent (MtCO<sub>2</sub>e). This measurement accounts for the seven greenhouse gases in the earth's atmosphere (carbon dioxide (CO<sub>2</sub>), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, nitrogen trifluoride) in terms of the global warming potential of CO<sub>2</sub>, for the sake of simplified measurement. To achieve carbon neutrality, a comprehensive view of greenhouse gas emissions across campus operations is taken, including emissions from:

- **Scope 1:** Natural gas and campus fleet fuel
- **Scope 2:** Purchased electricity
- **Scope 3:** Commuting, air travel, waste production, paper purchasing, university travel

Energy use and commuting are the largest contributors to BHSU's emissions production. Emissions reductions towards carbon neutrality will require significant strategies reductions in these categories. Since the 2007 commitment, BHSU has committed to emissions reductions by installing a wind turbine on

## BHSU GREENHOUSE GAS EMISSIONS OVER TIME



campus, building to LEED standards, upgrading all outdoor light to LED, and improving the bike parking and support. Emissions are also impacted by weather. Increasing weather extremes require more energy to keep buildings comfortable. As BHSU incorporates more renewable energy, emissions should still decrease regardless of weather.

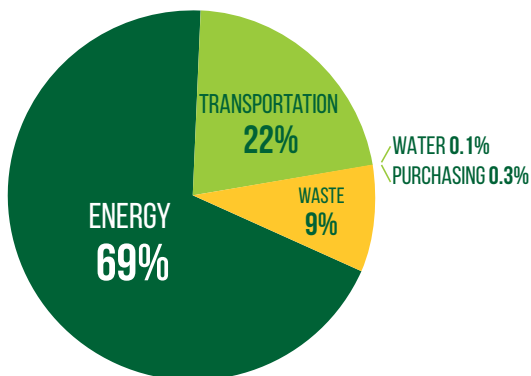
BHSU has also focused on emissions reductions by investing in energy efficiency. Policies are in place that specify all new buildings, as well as significant renovations, will be built to US Green Building Council's LEED (Leadership in Energy and Environmental Design) standards—the most renowned green building standards in the world. In addition, BHSU has partnered with energy service companies to identify and realize energy savings in BHSU buildings at zero cost to the university. Another energy performance contract is currently underway to find more energy savings for BHSU.

BHSU is also working to increase its use of renewable energy as a way to reduce GHG emissions. Plans are underway to install a significant solar array on campus by 2018 that is projected to meet 17% of the university's electricity needs.

The highest priority strategies below impact energy and transportation because these categories drive the majority of BHSU's emissions. The strategies are meant to provide guidance and processes for BHSU to find and implement emissions savings practices and changes.

3. [The President's Climate Leadership Commitments](#), Second Nature.  
 4. [Black Hills State Emissions Report](#), Second Nature.org.

## BHSU MtCO<sub>2</sub>e EMISSIONS<sup>4</sup> BY CATEGORY, 2015





# PRIORITY STRATEGIES

1

## Start an Active Transportation Program

Implement a program to promote and incentivize carpooling, biking, and walking to campus. BHSU has made great efforts in recent years to make the campus more pedestrian and bike friendly. Most car traffic is on the perimeter of campus, and bike parking is plentiful. An active transportation program would take these efforts to the next level. A recent commuter study suggests that the percentage of staff and students commuting to campus via active transportation (bike, bus, walk, or carpool), may be as high as 30 percent. More can be done to support these active commuters and encourage others to follow their lead.



A comprehensive active transportation program would include educating staff and students on walking/biking routes to campus, offering day rate and flexible parking so walkers and bikers can drive when necessary, promoting the availability of on-campus showers, and include an emergency ride home program for active commuters. This program should incentivize active transportation through education, positive recognition, and financial incentives. The recent commuter survey also showed that 60 percent of respondents would be encouraged to start or increase the use of alternate modes of transportation (carpooling, biking, walking) by incentives from campus and local bike shops. 27% noted that they would be encouraged to start or increase of alternate modes of transportation if more or better bicycle and pedestrian infrastructure was in place.

The Active Transportation Program can be a component of the new campus Wellness Program recommended in the Wellbeing section. BHSU does not currently have parking space limitations, but being proactive about reducing parking stress through increasing active commuting will reduce emissions from transportation and allow room for a growth in student population without having to build additional parking.



2

## Complete the 1 MW Solar Array by 2020

The solar energy produced from the new array will equate to approximately 17% of BHSU's annual electricity use, resulting in a significant reduction of emissions associated with energy generation. The installation should be accompanied by educational signage and serve as a field service learning location.



3

## Create Energy, Water, and Waste-Saving Policies for Construction and Renovation

The current policy only applies to new buildings and renovations that entail over 50% of building space. New policies are needed that mandate energy and water efficiency measures for all construction and renovation projects. These guidelines should also include recycling policies for all construction projects to ensure as many materials as possible are recycled or reused.

4

## Create an Energy Management Team

This team will consist of key Facilities personnel and will be tasked with analyzing energy data on a monthly or quarterly basis. They will be able to quickly identify and rectify any unusual spikes in energy usage, and make progress on meeting the goals for long-term reductions. BHSU currently has most energy data available in 15-minute increments, which should help to quickly identify issues. For this group to be successful, it is critical that the meetings are held on a consistent basis and with key personnel. These meetings could also be used as a real-life learning tool for students.







# RECOMMENDED STRATEGIES

## Emissions

Work with the WAPA (Western Area Power Administration) to obtain an emissions per watt conversion number OR confirm the net generation mix of the campus' electricity use and enter it into the Campus Carbon Calculator. This figure can also be calculated using the Climate Registry's [Electricity Power Sector Protocol](#). The Climate Registry is a North American non-profit that creates GHG reporting programs and follows the [Greenhouse Gas Protocol](#).

Increase the accuracy of the greenhouse gas report by surveying mileage and frequency of commutes by students, faculty, and staff for the carbon footprint report. This is an opportunity for a yearly student initiative through the Sustainability Office.

Once all emissions strategies have been achieved, purchase carbon offsets to bring BHSU net emissions to zero.

## Energy

Review summer building use and opportunities to shut down buildings over the summer.

Research the possibility of effectively shutting down campus between December 25th and January 2nd.

Complete an upgrade of the building automation system by 2019.

Install a renewable energy generator for fuel.

Install new controls and boilers for the Donald Young Center Pool HVAC Control.

Install additional renewable energy on campus.

Continue to increase campus energy efficiency by following through with previous and future energy audit recommendations, especially areas where electricity or heating demands can be significantly reduced.

Change the thermostat controls so that building occupants are only able change the temperature a few degrees above or below the set point.

Pilot a renovation or new construction according to the Living Building Challenge guidelines.

## Engagement

Implement an energy conservation education program for staff, faculty, and students.

Implement a behavior change program that incentives energy, water, and waste saving behaviors for offices, residence halls, and classrooms.

## Transportation

Analyze the opportunity to have "work at home" days for specific buildings or departments. If possible, implement a pilot program for telecommuting.

Look into the possibility of switching the lawn care equipment fuel to biodiesel; pilot biodiesel use in lawn care equipment.



Reduce emissions from transportation between the Spearfish campus and the BHSU-Rapid City campus by implementing two electric or hybrid campus fleet cars by 2018.

Implement a campus-wide "no idling" policy.



Expand the number of electric or hybrid cars in the campus fleet.

Implement a pilot program for electric busses as feasible.

As appropriate, work with the City of Spearfish to increase pedestrian and bike safety in the area surrounding campus.



Analyze the recent transportation survey to determine the mode split of staff and students coming to campus.

# RECOMMENDED STRATEGIES (CONTINUED)



## Waste

***While reducing waste is important to BHSU's overall sustainability goals, it is a small part of the emissions inventory. Reducing waste will still help BHSU decrease their emissions. Please see the Waste goal section for waste reduction strategies.***

Grow recycling program by continuing to increase the amount of recycling bins across campus and find outlets to recycle new materials such as cell phones and plastic bags.

Continue to look for locations in Spearfish to compost post-consumer food waste from the campus dining hall to reduce the gas used to transport the material. These trips are combined with other weekly errands in Rapid City (delivering mail to BHSU-RC and dropping off glass and plastic recycling) however, a smaller vehicle could be used for Rapid City trips if the food waste was not included. This may involve finding an entity willing to take the dehydrated food waste processed by the Somat machine or purchasing equipment and forming a staff and student campus team to compost the material.

Implement a campus-wide electronic workflow policy, specifying guidelines for staff and faculty to send and use materials electronically instead of using paper copies.

## Water

***While reducing water use is important to BHSU's overall sustainability goals, it is a small part of the emissions inventory. Reducing water will still help BHSU decrease their emissions. Please see the Water goal section for water reduction strategies.***

Add water metering to the hose bibs used for lawn watering at the Residence Halls.

Install rainwater catchment systems, pilot the use on-site water sources for building use.



# ENGAGEMENT

## GOAL

**70% of STARS credits by 2030**

Baseline: 56% of STARS credits as of 2017



**ESSENTIAL TO ANY SUSTAINABILITY UNDERTAKING** is the degree to which sustainable practices are embraced, discussed, practiced and propagated amongst the community. Sustainability measures that focus only on behind-the-scenes conservation will not be as successful as those that engage the community in the vision of sustainability and help each person see how his or her individual actions connect to that vision.

BHSU is well on its way to creating a comprehensive sustainability engagement program. The Eco-Rep peer education program, the partnerships with the community in local food efforts like Spearfish Local, the sustainability outreach efforts like the Bike Spearfish! program, and others are all excellent examples of the work BHSU is already doing to engage the community in sustainability.

The 2017 Sustainability Engagement Survey showed that 59% of respondents at BHSU engage in sustainability-related organizations, committees, activities, events and service at least some of the time. This is a strong indication of participation that also shows there is room to grow to engage a higher percentage of the campus community.

For BHSU to meet its 2030 Engagement goals, it will need to focus on two areas in particular: expanding the Eco-Rep program to serve all students, and increasing the number of Community Service hours related to sustainability. Expanding programs in these two areas will garner needed STARS points and round out BHSU's current efforts.



# PRIORITY STRATEGIES

1

## **Cultivate a Robust Eco-Rep Program to Serve All Students**

BHSU's Eco-Rep program is an excellent way for students who live in on-campus residence halls to educate one another on sustainability practices. However, this reaches only a small percentage of BHSU students. The program should be expanded so that it serves the entire student body. Eco-Reps could be associated with particular buildings or with sustainability initiatives. These students would engage and educate other students, including those who live off-campus and even those enrolled online.

2

## **Create a Sustainability Ambassadors Program for Faculty and Staff**

Peer education programs have proven highly effective in achieving sustainability success in organizations. In such a program, certain individuals elect to become "Sustainability Ambassadors" who then provide information, resources and training to the colleagues with whom they work.

3

## **Offer Professional Development and Training Opportunities**

Professional development training opportunities in sustainability should be offered to all staff at least once per year. These could be offered by the Office of Sustainability and could work in conjunction with a Sustainability Ambassadors program.

4

## **Increase Community Service Hours**

BHSU students are currently involved in a great deal of community service hours, yet it is unknown how many of those hours currently incorporate sustainability in some way. An assessment of the number of service learning hours, including those that involve a sustainability topic, currently offered at the university is needed. Following this assessment, more community service opportunities that incorporate sustainability can be offered.

5

## **Effectively Tell the Story of Sustainability at BHSU**

Regularly report on student activities, faculty research, immersive learning experiences and campus initiatives related to sustainability.

# RECOMMENDED STRATEGIES



STARS Credit	STARS Category	Current Points	Possible Points
EN 1	<b>Student Educators Program</b>	0.98	4
	<ul style="list-style-type: none"> <li>• Devise a vehicle for a peer-to-peer sustainability outreach and education program for students who live off-campus, including those enrolled online</li> <li>• Continue the Eco-Rep program with a student representative from each residence hall. Eco-Rep (short for Ecological Representative) is a peer-to-peer sustainability educator program. Eco-Rep programs focus on teaching sustainable living practices using peer education techniques. Student Eco-Reps help to raise awareness about ecological issues, encourage environmentally responsible behavior in their hall mates and peers, and plan related events and activities</li> </ul>		
EN 2	<b>Learning Outcomes</b>	1.54	2
	<ul style="list-style-type: none"> <li>• Include sustainability prominently in its student orientation activities and programming</li> </ul>		
EN 4	<b>Outreach Materials and Publications</b>	2	2
	<ul style="list-style-type: none"> <li>• Effectively tell the story of sustainability at BHSU. Regularly report in marketing materials on student activities, faculty research, immersive learning experiences and campus initiatives related to sustainability</li> </ul>		
EN 6	<b>Assessing Sustainability Culture</b>	0.51	1
	<ul style="list-style-type: none"> <li>• Conduct an assessment of campus sustainability culture. The cultural assessment focuses on sustainability values, behaviors and beliefs, and may also address awareness of campus sustainability initiatives</li> </ul>		
EN 7	<b>Employee Educators Program</b>	0	3
	<ul style="list-style-type: none"> <li>• Create an employee educators (or sustainability ambassadors) program for faculty and staff, in which they provide sustainability outreach and education to their peers</li> </ul>		
EN 9	<b>Staff Professional Development</b>	0	2
	<ul style="list-style-type: none"> <li>• Offer professional development and training opportunities in sustainability to all staff at least once per year</li> </ul>		
EN 12	<b>Continuing Educations</b>	2.37	5
	<ul style="list-style-type: none"> <li>• Conduct an inventory to identify continuing education courses that address sustainability</li> <li>• Offer a 4-course Certificate in Sustainability</li> </ul>		
EN 13	<b>Community Service</b>	0.59	5
	<ul style="list-style-type: none"> <li>• Assess the number of service learning hours currently offered at the university, and incorporate these into Community Service tracking</li> </ul>		



# FOOD

## CAMPUS FOOD GOAL

Earn a four-star Green Restaurant Association certification for the Hive and Buzz Shack by 2030 (300+ points)

Baseline: 2-star certification (163 points) as of 2014

## COMMUNITY FOOD GOAL

Build the local food economy into a thriving and robust system for the region by 2030

Baseline: Not applicable<sup>5</sup>

Food is a complex category that often encompasses many different aspects of sustainability. While food selection can have a direct impact on wellness and the environment, the growing, transporting, processing, and serving of food also has economic and social justice impacts. For example, air shipped, processed, and out of seasons food all have significantly larger emissions impacts than seasonal and local foods. Purchasing locally benefits the local economy by keeping funds in the community, which in turn is more likely to be spent again in the community.<sup>6</sup> Two separate food goals, one for the campus and one for the community, reflect the inherently diverse issues around food and its effect on our health, the environment, society, and the economy.

## CAMPUS FOOD

During the school year, BHSU serves over one thousand meals a day. The dining operations have a significant impact on the environment. From food choices to container options, the cafeteria impacts wellness, energy, water use, emissions, and waste. To date, BHSU has made significant progress in making campus food operations more sustainable, from bulk condiments to an expanded salad bar. The campus food goal creates a path to continue that work and ultimately achieve a 4-star rating from the Green Restaurant Association.

The Green Restaurant Association (GRA) is an international nonprofit that certifies restaurants and food service areas for sustainable operations. The GRA criteria comprises several categories to fully address all areas of a dining operation:

- Water efficiency
- Waste reduction and recycling
- Sustainable goods and building materials
- Sustainable food
- Energy
- Reusables and environmentally preferred disposables
- Chemical and pollution reduction

A four-star rating is the highest certification from the GRA. The GRA reviews the standards on an annual basis and changes them as needed to keep them progressive and challenging while remaining attainable. In 2014, BHSU completed their first GRA assessment and achieved a 2-star rating for both the Buzz Shack and the Hive dining areas. BHSU is currently working on an updated GRA assessment, which will be complete in early 2018.

5. Given the nature of this goal, a baseline has not been established. However, in recent years BHSU has made significant contributions to the growth of the local food economy with the Spearfish Local program.

6. [The Money Trail: Measuring Your Impact on the Local Economy Using LM3](#). New Economics Foundation and The Countryside Agency, December 2002.

7. [BHSU Hive point totals](#). Green Restaurant Association, 2014.



### HIVE AND BUZZ SHACK'S 2014 POINTS BY CATEGORY<sup>7</sup>

	THE HIVE	THE BUZZ SHACK
Energy	44.8	44.8
Food	23.5	23.5
Water	10.0	10.0
Waste	60.8	60.8
Disposable	10.7	10.2
Chemical & Pollution	13.9	13.9
<b>TOTAL</b>	<b>163.7</b>	<b>163.2</b>





## CAMPUS FOOD PRIORITY STRATEGIES

1

### Complete the 2017 Green Restaurant Association Reporting Process and Update the Food Goal Strategy List

BHSU is currently in the midst of completing an updated GRA report for 2017. Once this report is complete, BHSU will have a clearer understanding of the current sustainability efforts of dining operations. We recommend that the priority strategy list here, and especially the expanded Campus Food Goal Strategies list in Appendix 2, be revised based upon the updated report once it is complete.

2

### Incorporate “Less Meat Mondays”

Animal agriculture is responsible for 18% of all greenhouse gas emissions, more than the combined exhaust from all transportation.<sup>8</sup> The more we can all reduce our consumption of meat, the more we will protect the climate. While “Meatless Mondays” are gaining in popularity, “Less Meat Mondays” are a progressive step forward that may be more appealing to the BHSU community. On “Less Meat Mondays,” the cafeteria would offer diners more vegetarian options and fewer meat options. This shift will reduce the carbon footprint of all the meals served on those days, and would be an important educational experience for students if accompanied by signage in the cafeteria.

3

### Incorporate More Local Foods

BHSU currently sources local eggs and bread for the Hive cafeteria as price and budget allow. In coming years, the university should increase the amount of local foods it serves on campus. Fortunately, the BHSU-contracted food supplier, Sysco, is continually adding more local food options from which to order. At the same time, the dining hall manager should continue to consult the choices available from the Black Hills Food Hub and to purchase from them as often as feasible.

Because of its extensive nature, Recommended Strategies for Campus Food are located in [Appendix 2](#)

8. [Livestock’s Long Shadow: Environmental Issues and Options](#), Food and Agriculture Organization of the United Nations. Rome 2006.

## COMMUNITY FOOD

The local food economy is an important facet of sustainability and resiliency in the region. Local food production and sales contribute to the economy, while also supporting healthier diets for its residents. The Community Food goal is a reflection of the great work BHSU has already done to support a local food hub, and a confirmation of the desire to continue to support this important effort.

The Black Hills Food Hub officially launched in 2016 with the first sale and delivery. It acts as a local food distribution company in the region and is directly tied to BHSU’s other project, Spearfish Local. The Food Hub currently delivers fresh produce to cafeterias in between Spearfish Rapid City and Mt. Rushmore. While other markets may be considered in the future, cafeterias are key due to their diverse clientele and are typically market inaccessible to local farms.

Spearfish Local is a local food project initiated by BHSU that connects producers, distributors, purchases, and consumers. Participating businesses include restaurants, nurseries, caterers, bars and wineries, and are identified via the Spearfish Local badge. They are also listed on the Spearfish local website.

## COMMUNITY FOOD PRIORITY STRATEGIES

1

### Create and Implement a Business Plan for the Food Hub



The funding for the Food Hub began with a grant which expired in October 2017. BHSU should create a business plan as soon as possible for the operation that will map out a path for it to be financially self-sustainable by 2028. A fee structure will need to be implemented, and expenses and income need to be identified and projected. This plan could be created by a student in the Business School who could earn academic credit for doing so.

2



### Create a Strategic Plan for Spearfish Local

The Spearfish Local program will benefit from bringing the community partners together to identify goals, priorities and direction for the next five years. This could take the form of a half-day strategic planning retreat. A student from the Business School could write the plan and earn academic credit.

3

### Double the Amount of Businesses Participating in Spearfish Local to 48

Through increased marketing efforts and personal outreach, BHSU should increase the number of Spearfish Local participants from the current 24, to 48 by the year 2030.

4

### Develop a Tiered Rating System for Spearfish Local Participants

The current iteration of Spearfish Local does not distinguish between a business that purchases only one food product locally and one that purchases twenty. A tiered rating system would make distinctions based on the level of participation. The rating system will raise recognition and awareness for businesses with high levels of participation, hopefully inspiring other businesses to follow suit.

5

### Increase the Amount of Local Food Purchased by Spearfish Local Participants

Once the tiered rating system is in place, the Sustainability Office and local partners would work with Spearfish Local participants to increase their level of participation by purchasing more local foods to serve to customers. The goal is that by 2030, five restaurants or cafeterias will have achieved the highest tier.

6

### Increase Consumer Access Points to Local Food

BHSU can provide more opportunities for its community members to purchase local food including supporting the farmers market, hosting a Community-Supported Agriculture drop-off site, or organizing other events that would allow students, staff and faculty to purchase local foods.

7

### Lead the Food Hub to be Financially Self-Sustainable by 2028

To ensure its success and longevity in the area, ultimately the Food Hub will need to be financially self-supporting. BHSU should follow the strategies laid out in the aforementioned business plan to guide the Food Hub to this goal.

## COMMUNITY FOOD

## RECOMMENDED STRATEGIES

- Continue Spearfish Local, a BHSU initiative that brings together local producers, distributors, purchasers, and consumers of local food and other locally-sourced products to grow support of the local economy and to work together to achieve greater things than we could as separate organizations. Apply to at least one grant per year to pay for student internships or other opportunities for this program.
- Work with other local entities, such as SD Center for Enterprise Opportunity, to encourage more businesses to purchase local food.
- Implement a charge for utilizing the food hub that is split between the buyer and the seller to replace the grant funds.
- Explore the potential for a farmer's market on campus.
- Be a resource for local and regional CSA's, farmer's markets, producers and consumers of local food
- Increase the production, size and/or scope of the campus community garden.
- Fully develop the size and/or scope of the Food Forest.
- Develop marketing plans for Spearfish Local to grow the program and support program participants (potential graduate student project).
- Develop marketing plans for the Food Hub to grow the program and support program participants (potential graduate student project).



# GROUNDS

## GOALS

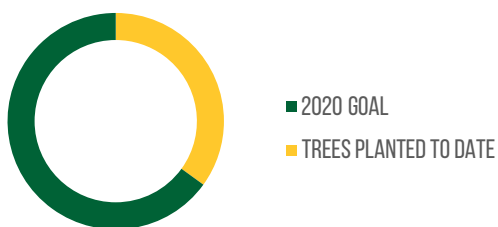
**Earn 70% of STARS credits by 2030**  
Baseline: 0% as of 2016

**25% of campus grounds are managed in a sustainable and ecologically responsible manner**  
Baseline: 0.05% as of 2017

**OF ALL THE DIMENSIONS** of sustainability considered in this plan, the grounds category is the only one that deals directly with natural ecological systems. A university’s approach to irrigation, pest management, fertilizers, runoff, and plant species substantially impacts its ecological environment<sup>9</sup>. A successful approach will lead to a thriving ecosystem in the midst of a thriving educational environment, while still maintaining an attractive, polished look to the campus.

In 2017, BHSU achieved recognition as a Tree Campus USA, which recognizes the efforts of a campus to nurture and manage the tree environment. As part of this commitment, a tree care plan was developed. The university agreed to a financial commitment equivalent to \$3 per full-time enrolled student to support the tree care plan. Trees are important for the environmental and social benefits they provide, including emissions reduction, energy saving shade, food, and the creation of enjoyable areas for students and staff. South Dakota has recently suffered from wildfires, severe snow storms, and the pine beetle, all of which have caused a significant number of trees to die. So, in addition to the Tree Campus USA certification, in 2015 BHSU committed to planting 1,000 trees on campus by 2020 to bring the total number of trees on campus to 2,000. Between 2014 and 2016, 538 trees had been planted—an impressive accomplishment.

## BHSU TREE PLANTING PROGRESS 2015–2020



Achieving the Grounds goals will allow BHSU to continue to substantively move forward on caring for its grounds in a sustainable manner. The first goal refers to the available STARS credits for completing a biodiversity assessment and creating a landscape management plan. These credits both refer to creating a plan or an assessment. The second goal incorporates BHSU’s sustainability landscaping actions.

The second goal, 25% of campus grounds are managed in a sustainable and ecologically responsible manner, leads BHSU on a path toward sustainable landscape management. This goal refers to both environmentally- and ecologically- friendly practices.

9. [Green Infrastructure](#), University of Nebraska Institute for Agriculture and Natural Resources.

- **Environmentally friendly practices** are those that improve soil health, reduce water use, increase plant biodiversity and/or reduce stormwater runoff. Two examples of existing environmentally-friendly practices on campus are the drought-resistant buffalo grass planted in front of the Life Science Lab and the bioswales which run through campus and direct stormwater runoff.
- **Ecologically responsible practices** are those that foster a healthy living natural system, like improving habitats for local plant and animal life, and key migratory species. Examples in this category include providing habitats for bees and butterflies via pollinator gardens and constructing habitats for bat populations that are living on the edge of campus. Building habitats for bats at the edge of campus supports the native species and helps prevent the bats from trying to create habitats in campus buildings. Additionally, keeping bats nearby assists landscaping practices because they are a natural source of pest management. Another ecologically responsible strategy example includes building a buffer zone around waterways to protect from stormwater and other runoff. The biodiversity assessment that will be completed as part of the first goal will help to identify additional species that live in the environs of the BHSU campus that should be supported.



Building bat habitats, such as those installed on these trees, to support native species is an example of an ecologically responsible practice. It also assists landscaping practices as a source of natural pest management.

### What is a pest?

Pests are organisms that damage or interfere with desirable plants in our landscapes. Pests also include organisms that impact human or animal health. Pests may transmit disease or may be just a nuisance. A pest can be a plant (weed), vertebrate (bird, rodent, or other mammal), invertebrate (insect, tick, mite, or snail), nematode, pathogen (bacteria, virus, or fungus) that causes disease, or other unwanted organism that may harm water quality, animal life, or other parts of the ecosystem.



# PRIORITY STRATEGIES

1

## Create a Landscape Management Plan

Integrated Pest Management is an ecosystem-based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, and use of resistant varieties. Pesticides are used only after monitoring indicates they are needed and then only according to established guidelines, and treatments are made with the goal of removing only the target organism. Pest control materials are selected and applied in a manner that minimizes risks to human health, beneficial and non-target organisms, and the environment.<sup>10</sup> The plan will require Integrated Pest Management (IPM) standards for 100% of grounds, and organic land care standards for 25% of campus greenspace (17 acres). The portion of the BHSU campus that is considered “greenspace” (without buildings or parking lots) is approximately 70 acres. The American Association for Sustainability in Higher Education (AASHE) offers multiple resources on IPM and organic lawn care standards that BHSU can access when creating the Landscape Management Plan.



2

## Pilot Organic Land Management

Since it is expected that the organic land care strategies will be more challenging to implement than the IPM strategies, it is important for to begin a pilot for the practices before rolling out campus-wide. Organic landscape care includes using organic (versus synthetic) pesticides, herbicides, and pest management methods. As a crossover with the Waste goal, compost generated on campus could be incorporated into organic land management practices.



3

## Implement the Landscape Management Plan

Using the recommendations from the Landscape Management Plan, implement new practices for grounds care.



4

## Complete a Biodiversity Assessment

In accordance with STARS requirements, complete an assessment to identify endangered and vulnerable species (including migratory species) who have habitats on BHSU-owned or -managed land. Identify environmentally sensitive areas on BHSU-owned or -managed land. The Assessment is another opportunity to incorporate students into the campus sustainability. Students, with supervision, could do the bulk of the work for the Biodiversity Assessment.



5

## Create a Tree and Biodiversity Committee

The Campus Tree Advisory Committee has provided valuable service to the campus in recent years to guide its tree-planting efforts. This committee can now enlarge the scope of its responsibility to include biodiversity planning and stewardship. The name of the committee should be changed from the “Campus Tree Advisory Committee” to the “Campus Tree and Biodiversity Advisory Committee.” This group will have an important role in helping BHSU to achieve its goals with to create ecologically responsible grounds

6

## Create Educational and Informative Signage

Once strategies are in place to manage the grounds in more ecologically- and environmentally-friendly ways, it will be important to tell people about them. Add educational signage to campus areas with native or ecologically responsible habitats. This would include already existing areas like the buffalo grass planting, bio swales and the campus garden. Signage will raise awareness of the areas and of the importance of caring for the BHSU ecological environment and will serve a visible reminder of BHSU’s commitment to sustainability.

10. [What is IPM?](#), University of California, Agriculture and Natural Resources, 1996–2017.

# RECOMMENDED STRATEGIES



STARS Credit	STARS Category	Current Points	Possible Points
<b>OP 1</b>	<b>Landscape Management</b>	<b>0</b>	<b>1.25</b>
	<ul style="list-style-type: none"> <li>100% of the Institution’s grounds are managed in accordance with: An Integrated Pest Management (IPM) program or an organic land care standard or landscape management program that has eliminated the use of inorganic fertilizers and chemical pesticides, fungicides and herbicides in favor of ecologically preferable materials (organic land care is rated higher than the IPM program).</li> </ul>		
<b>OP 10</b>	<b>Biodiversity</b>	<b>0</b>	<b>1</b>
	<ul style="list-style-type: none"> <li>Institution conducts one or both of the following: An assessment to identify endangered and vulnerable species (including migratory species) with habitats on institution-owned or -managed land and/or an assessment to identify environmentally sensitive areas on institution-owned or managed land.</li> </ul>		
<b>Other</b>			
	<ul style="list-style-type: none"> <li>Continue tree planting; look to include native or water conservative species.</li> <li>Develop a comprehensive campus wide landscape management plan by 2019 with a goal to create an Integrated Pest Management plan, reduce diesel and gasoline by 10% or more, and identify a conservative watering and mowing schedule.</li> <li>Continue to grow the campus vegetable garden by working to increase the produce amount, number of containers in the container garden, and/or volunteers each year. Continue to use organic gardening techniques in the community garden.</li> <li>Continue to search for funds for a greenhouse to extend the growing season</li> <li>Incorporate Green Parking: extensive tree plants, bioswales, permeable pavement.</li> <li>Expand the organic land management to 25% of campus grounds.</li> <li>Replace the use of persistent and toxic herbicides and pesticides with organic options and natural solutions.</li> <li>Increase the amount of grounds used to promote native habitats for wildlife (bees, butterflies, bats, etc.) and improve existing native habitats.</li> <li>Work with faculty to design areas on campus grounds for native/drought resistant/native habitats that could be used for learning outcomes.</li> <li>Install signage on campus explaining the benefit of the native garden, milkweed, fescue, and bioswales by the landscape.</li> <li>Publish the campus’ efforts on the BHSU website.</li> </ul>		



# WASTE

## GOAL

### Zero Waste by 2030

Zero waste means that 90% of an organization's waste is diverted from the landfill through recycling, reuse, and composting.

Baseline: Annual 14% diversion as of FY 2017

**BHSU IS A RECOGNIZED SUSTAINABILITY LEADER** in the region, and its approach to waste and recycling is no exception. Campus-wide recycling at BHSU began in 2005, and in recent years the university has taken ambitious steps to reduce the amount of material it sends to the landfill, from the cafeteria to the entire campus.

A hydra-extractor was installed in the dishwashing area of the cafeteria. This machine extracts moisture from food waste, and leaves behind a semi-dry pulp of organic material. The material is then sent to a composting facility in Rapid City. This process reduces the volume of waste that BHSU produces, and cuts down on methane emissions otherwise associated with food waste.

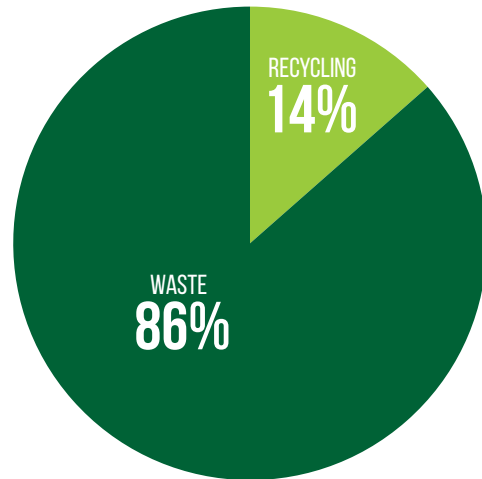
In 2016, the university placed several new recycling stations in prominent locations across campus and started a “trash buddy” container system to encourage increased recycling and decreased waste disposal. In the Sustainability Engagement Survey conducted in March 2017, nearly 75% of respondents mentioned the expansion of the recycling program and how it has increased recycling accessibility as a recent success in BHSU’s sustainability efforts.

With a goal to achieve zero waste by 2030, BHSU is now poised to take waste management to a new level. As defined by the International Zero Waste Alliance, zero waste means that 90% of an organization’s waste is diverted from the landfill through recycling, reuse and composting. Incineration is not recommended and cannot be counted as part of the 90%.

This goal will propel BHSU to create market-changing institutions for the region. Currently, the closest affordable recycling and composting facility is located in Rapid City. Hauling services between Spearfish and Rapid City are insufficient, which means that transporting recycling and composting to Rapid City not ideal. To reach its goal, BHSU will need to become a service provider for both recycling and composting. This means that the university will need to sort its own recycling and start its own commercial composting operation.

The priority strategies below will guide BHSU’s activities to successfully meet the zero waste goal.

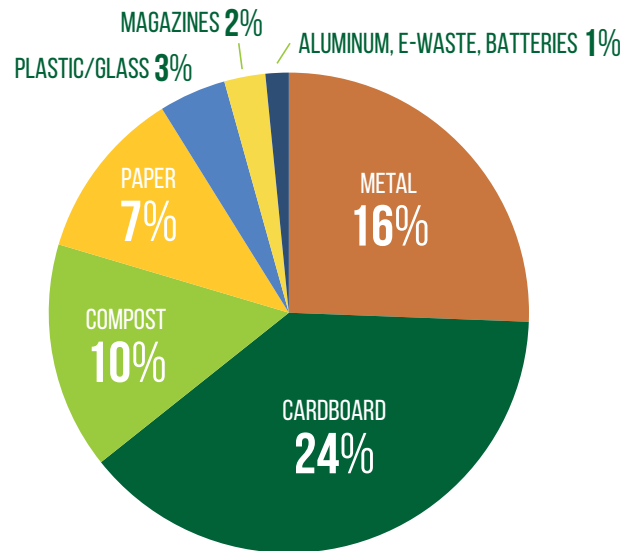
## BHSU DIVERSION RATE



BHSU Waste Diversion Rate, by weight, FY 2017  
2030: 90% diversion rate (Zero Waste)

## BHSU RECYCLING MATERIAL STREAM

Recycled materials, by weight, FY 2017







# PRIORITY STRATEGIES

1

## Hire a Zero Waste Coordinator

In order to meet the ambitious goal of achieving zero waste and the simultaneous need for BHSU to ramp up a significant recycling and composting operation, it will be necessary to create a full-time position to manage BHSU's outgoing materials stream. This position's responsibilities would include, but not be limited to, managing the recycling hub and compost operation, managing the student recycling crew, assisting with zero waste campus education, and hosting zero waste events. This position would work in conjunction with the Sustainability Office and Facilities.

2

## Complete a Market Analysis of the Regional Recycling Market

The first step toward developing a recycling and composting operation that will serve the region is to formally assess the current need and opportunity for a regional recycling hub. This assessment will include current recycling operations, recycling practices in Spearfish, identification of waste streams, historical information on past efforts and financial analysis. This analysis could make an ideal project for a graduate student who could get academic credit for the work and make an important contribution to the region.

3

## Create a Business Plan for the Regional Recycling Hub

Using the information from the market analysis, complete a business plan that will act as a roadmap for creating the regional recycling hub. The business planning process could be completed internally by staff, by a graduate student with supervision, or outsourced to an external company. The plan will address the needs and opportunities identified in the market analysis, and give BHSU the opportunity to think through the path toward creating a successful recycling operation. The plan should include financial projections on a yearly basis over at least five years that will show projected income from the community as well as the level of university support that will be needed to ensure success and projected expenses. Potential sources of grant funding and partnerships should also be identified.

4

## Complete the Campus-Wide Recycling Container Expansion

The 2016 recycling expansion called for the placement of recycling containers across campus. The first phases—placing them in indoor and outdoor common areas on campus—has been completed, and it is now necessary to complete the implementation so that the recycling overhaul is finished in the residence halls, apartments, and coordinated for all campus events.

Although BHSU's distance from a recycling facility creates challenges, BHSU is moving forward to improve their diversion rate and increase recycling. The recycling expansion will offer convenient recycling opportunities to the entirety of campus and will significantly improve BHSU's waste diversion rate.

## 5

**Improve Tracking Methods**

Establish a process to regularly track waste, recycling, electronics, construction waste/recycling, motor oil, and other materials leaving campus for recycling or the landfill. While it may be difficult to set up a tracking system for all materials, reasonable efforts should be made to do so in order to capture the entirety of materials leaving campus. Materials can be tracked by volume or by weight, but the accuracy and availability of data should determine the method.

Currently, recycling weight is tracked, but the waste totals are not. Waste weight totals are estimated based on volume of dumpsters and the collection frequency. BHSU should work with the waste hauler to obtain weight amounts of each pick-up. The weight information will also help BHSU ascertain if they are able to reduce the number or frequency of pick-ups, potentially allowing for financial savings.

Other streams, such as electronics, construction and demolition waste/recycling, electronics, motor oil, and other materials should be including in tracking as much as consistent and reliable data is available or can be requested. Items that do not have inconsistent or difficult to ascertain data, such as materials from the Facilities surplus sale, should still attempt to be recorded for reporting purposes. Doing so will allow BHSU to obtain an accurate waste diversion rate and to work effectively to increase it in coming years.

## 6

**Complete a Feasibility Study for Composting**

Commercial composting services are lacking in the region. In order for BHSU to meet its zero waste goal, it may need to start its own composting operation. Many options exist for commercial composting, including windrow, in-vessel and static. The feasibility study should analyze the options for a BHSU composting operation, including method, space, labor and cost considerations, to determine the best option for moving forward. This study could make an ideal project for a graduate student who could earn academic credit and make a significant contribution to the university.

## 7

**Pilot a Composting Operation**

Using the results of the completed feasibility study, pilot a composting operation for on-campus compostable materials. Set up a system for collecting food waste from the residence halls for composting. The pilot should include an education campaign for all participants so that they can identify organic material and know how and where to dispose of it. This pilot could serve as a learning opportunity for students learning about chemistry, greenhouse gases, food waste, sustainability and other topics. The compost could also be used on-site for fertilizing.

# RECOMMENDED STRATEGIES



## Tracking

Develop a system for tracking waste and recycling by weight or volume on a monthly, quarterly, or annual basis.

Work with the current trash hauler to obtain trash weights.

Work with the waste hauler to add volume sensors to the trash dumpsters.

Begin tracking construction waste and recycling from non- LEED building projects.

Complete annual waste and recycling audits. Use the results from these audits to guide waste and reduction activities.

## Waste Reduction



Add acceptable materials from Einstein Bagels to the Somat (hydra-extractor).

Use soy or vegetable based ink for printers and copiers wherever feasible.

Eliminate the use of one-time use plastic water bottles in dining, meetings, and events on campus.

Implement a campus-wide electronic workflow policy, guidelines that outline practices for staff to send materials electronically instead of sending paper copies.

## Recycling



Look into hauler options for regular recycling pick-ups or another solution for regular pick-ups to Rapid City for recycling and compost until a regional recycling hub and compost operation can be established.

Become a Styrofoam-free campus. Replace Styrofoam with recyclable or compostable options.

Evaluate recycling bin needs every two years; replace or add more as needed.

Pilot the collection of organic materials for composting (other than from the Somat).

Expand the collection of organic materials across campus after a pilot (see the priority strategies).

## Engagement

Implement an ongoing engagement program to educate and engage staff and students on recycling and composting (when available).

- Present at new student orientation to train/educate new students on the recycling procedures on campus and in the residence halls.
- Encourage individual departments to reduce waste through more sustainable purchasing.
- Publish results from annual waste and recycling audits. Use building-specific results where possible.

Review recycling and waste signage and revise if necessary.

Keep a portion of the BHSU sustainability website updated that is easily accessed and shows what can be recycled and where.

Begin an education campaign on the environmental and health hazards of Styrofoam (polystyrene) as part of a Styrofoam-free effort.

## Purchasing



Work with vendors to reduce packaging waste or replace packaging waste recyclable items.

Purchase 100% recycled-content paper campus-wide as financially feasible.

Implement a purchasing policy that discourages the purchase of single-use items and allows for the purchase of sustainable options with a reasonable increase in cost.

Implement a purchasing policy that prefers items locally sourced, reusable, recyclable, or compostable that are similar in function and comparable or slightly more in price.



# WATER

## GOAL

**By 2030, reduce annual campus water use by 15 percent**

Baseline: 39,852 Mgal (million gallons)<sup>11</sup> (avg. 2012–2016)

**SITUATED IN THE BLACK HILLS ECOREGION**, the Spearfish area receives nearly 22 inches of rain per year.<sup>12</sup> Water is an essential resource for all aspects of the university from energy to health to food. Current and future climate change is expected to stress water resources as heat rises and droughts are predicted to intensify. The focus of BHSU’s water goal is to reduce overall use and to increase efforts to reclaim water that naturally falls on campus.

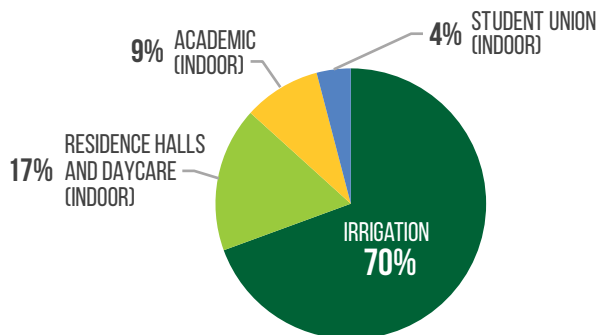
Emissions associated with waste water treatment is included as part of the Carbon Footprint goal. But since waste water usage is responsible for less than one percent of BHSU’s total emissions, a separate goal exists to focus on water conservation.

Both water quantity and quality are important for sustainability. The water goal focuses on water quantity, while the Grounds goal will help improve water quality through reduced chemical pesticide and herbicide use and protecting natural waterways from runoff and pollution.

Using water collected on campus is important for a few reasons: it reduces emissions by avoiding the electricity-fueled movement of water, and it can help develop a sensitivity to a natural water budget. In nature, ecosystems only use as much water as naturally falls in the form of precipitation. Though BHSU is not limiting itself to a natural water budget at this time, collecting rainwater and snowmelt will help remind BHSU personnel of the natural limits in which the campus operates.

11. This baseline figure represents an average of annual usage from 2012 – 2016.  
 12. Spearfish, SD Climate Data, U.S Climate Data, 2017.

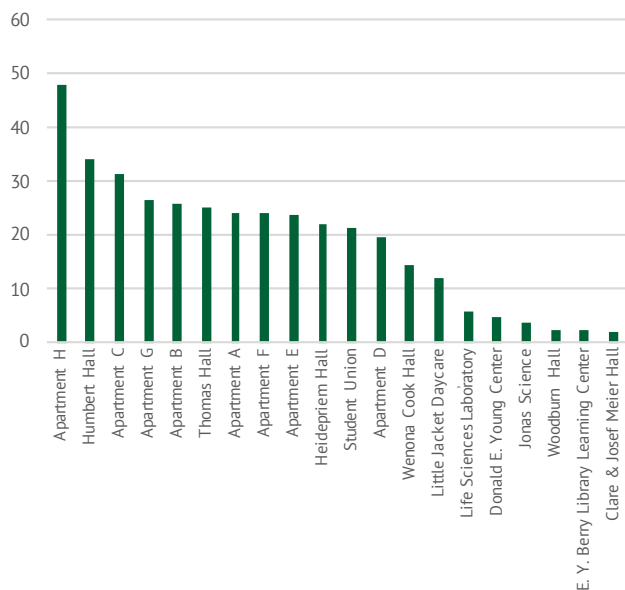
### BHSU BASELINE WATER USE BY TYPE



Opportunities for water reductions on campus lie mainly in making alterations to irrigation practices. Many newer buildings on campus already have water efficient features, thanks to LEED building standards that have been adopted by BHSU. Other buildings, due to their older plumbing, are not able to accommodate low-flow water fixtures. Currently, the irrigation ditch that runs through campus is not metered, so those water quantities are not included in the baseline calculation. Going forward, it is important for BHSU to begin to meter this ditch and being tracking this data.

However, there is still an opportunity to reduce building water use through building occupant education. Signage, electronic communication, and regular personal reinforcement at orientation sessions, meetings and gatherings will go a long way toward encouraging water conservation behavior on the part of building inhabitants.

### GALLONS PER SQUARE FOOT BY BUILDING



This table lists the annual gallons of water used per square foot for each building during the baseline (average 2012 to 2016). Apartment H is the only residence hall used year-round, and the residence buildings typically use more water than the academic buildings.



# PRIORITY STRATEGIES

**1**

## Implement a New Irrigation System

A new weather station irrigation system has recently been procured by the Facilities department. This system senses rainfall and controls the amount of water used for irrigation accordingly. It also allows for manual control when necessary. Implementing this system will allow for irrigation based on rainfall totals.

**2**

## Pilot Rainwater Collection



Create a rooftop catchment system that collects water in a rain barrel or cistern and then routes the water to where it is needed for irrigation. Using water that naturally falls onsite not only eliminates the need to move water to campus, but it eliminates the materials used to treat water in the commercial system. Irrigation water does not need to be as clean as the water used for drinking, showering, etc.

**3**

## Meter the Irrigation Ditch

BHSU does not currently know how much water, in total, is used because the water use from the irrigation ditch is not metered. While this body of water is referred to as a ditch, it actually a significant body of water that runs through the local area. Metering the water use out of the ditch will allow BHSU to know and impact their total water use.

**4**

## Create a Water Management Team

This team will consist of Facilities personnel and will be tasked with analyzing water data on a quarterly basis. Based on the data, the team will help to identify opportunities for reduced water use. Without regular monitoring, leaks or other opportunities for water use reduction can be missed for long periods of time.

**5**

## Use Soil Moisture Sensors

Install automatic sprinklers with soil moisture sensors, which only water based on soil needs, a better predictor of water needs than total rainfall.



# RECOMMENDED STRATEGIES

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## Outdoor Water

Increase the amount of drought-resistant turf.

Restore native habitat where practical, which typically requires less water.

Install/pilot rainwater collection and reuse systems.

Manage and reduce stormwater runoff onsite through rain gardens, more bioswales, and other landscaping tactics.

Combine the different outdoor water control systems into one, which will streamline the irrigation process and make it more efficient. Prioritize the systems by the apartment buildings or the Young Center. Use the same system that is currently in use at Crow Peak Hall.

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## Indoor Water

Install low-flow sinks where possible.

Install low-flow shower heads ( $\leq 1.0$  gpm) where possible.

Install low-flow toilets ( $\leq 0.8$  gpf) where possible.

Install low-flow kitchen faucets ( $\leq 0.7$  gpm) where possible.

Install Water Sense certified dishwashers ( $\leq 3$  gallons/use) where possible.

Install water catchment systems and a way to use the water within buildings.

Treat all evaporation and evapotranspiration as a source of water.

Pilot the use of composting toilets.

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## Indoor & Outdoor

Implement water saving behavior change tactics, including point-of-use prompts, and campus-wide education.

Implement on-site greywater collection, treatment, and reuse of greywater for irrigation.

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## Tracking & Education

Include water use education in the Eco-Rep program.

Install educational signs to reduce water use at point of use in buildings.

Measure the water use from the irrigation ditch and add it to the total consumption.



# WELLBEING

## GOAL

**70% of survey respondents will indicate they are satisfied with the quality of their work/student life at BHSU**

Baseline: Not available



Wellbeing is defined as a state of dynamic equilibrium in which an individual has the resources to meet the challenges he or she faces, feels a part of his or her community, and is connected to his or her natural surroundings.

**HUMAN WELLBEING** is interdependent with the natural environment in a number of ways. Wellbeing is included in this Sustainability Master Plan as part of the holistic view of sustainability that acknowledges that for species to thrive, the natural environment must thrive too. The natural world provides the material foundations of our wellbeing—a stable climate, food, energy, clean air and water, and the natural resources from which we build our civilization. If any one of these becomes compromised, human wellbeing suffers. For this reason alone, it is in our interest to protect the natural resources upon which all life depends. In addition, research shows that access to green spaces, plants, animals, fresh air and natural light contribute to physical and mental health, as well as to social cohesion.

The vision for BHSU is that wellbeing will become a concept that is embraced at all levels of the university in order for all participants of the community to thrive in relation to themselves, to one another and to nature. BHSU is already engaged in several strategies related to wellbeing, but a fresh look at the issue shows many more opportunities for growth. A university culture that embraces wellbeing can be expected to see increased rates of student, staff and faculty recruitment and retention, more innovation, greater job satisfaction, fewer health-related absences and a greater sense of equity and inclusion on campus.

For the purpose of this plan, wellbeing is defined as a state of dynamic equilibrium in which an individual has the resources to meet the challenges he or

she faces<sup>13</sup>, feels a part of his or her community, and is connected to his or her natural surroundings. We adopt the commonly-accepted eight dimensions of sustainability as a framework through which BHSU can build its efforts. They are:<sup>14</sup>

- **Physical:** Practicing healthy behaviors around physical activity, nutrition, sleep, substance use, etc.
- **Emotional & Mental:** Thriving while fully experiencing the diverse range of human emotions, experiences and vulnerabilities.
- **Environmental:** Living in, working in and contributing to safe, healthy, and sustainable environments.
- **Financial:** Developing knowledge and skills for managing financial decisions.
- **Occupational:** Sustaining personal satisfaction and enrichment from one's work.
- **Social:** Developing a sense of connection and belonging, having a well-developed support system, and contributing to a healthy inclusive community.
- **Intellectual:** Pursuing knowledge and skill development.
- **Spiritual:** Expanding one's sense of purpose and meaning in life.

The following strategies will start BHSU on a course toward embracing wellbeing as part of its core values.

13. "The Challenge of Defining Wellbeing," R. Dodge, A. Daly, J. Huyton & L. Sanders. *International Journal of Wellbeing*, 2(3), 2012, 222-235.  
 14. Adapted from the [University of Michigan Wellness Program](#).



# PRIORITY STRATEGIES

1

## Start a Wellness Program

A BHSU wellness program will bring together all of the wellness activities the university is already doing under one umbrella, allowing for greater coordination and improved services. Student counseling services, meditation groups and fitness center memberships are examples of benefits that are currently offered and which could be brought under a wellness program. New offerings could include sporting clubs, peer learning groups, a chaplaincy network and online resources for healthy living and home environments. The program will be available to students, faculty and staff and should be directed by a staff member out of the new wellness center.

2

## Establish a New Wellness Center on Campus

Plans are already underway to build a new wellness center, which will hold tremendous opportunity for the BHSU community. The wellness center can provide fitness assessments, offer fitness events like bike clubs, fun runs and camping trips, provide resources on nutrition, weight management, sleep health, alcohol and nicotine use, and offer daytime yoga classes for the university community. The fitness center may include a climbing wall and a fly fishing pond—amenities that will be attractive to everyone.

3

## Offer Professional Development Opportunities

Listening sessions and interviews revealed a need for increased professional development opportunities for all staff. Managers can benefit from training that shows best practices for managing employees. All staff can benefit from having access to tools and resources that show how they can better do their jobs.

4

## Articulate the Vision of BHSU

Listening sessions and interviews showed that all staff will benefit from understanding how their jobs contribute to the larger vision and purpose of BHSU, and how the campus community will continue to thrive in the midst of financial challenges. In recent years, BHSU has weathered some budget cuts, and unfortunately this has left some staff feeling scared, vulnerable or demoralized. Leadership at all levels of the university, from managers to vice presidents, need to articulate the vision of BHSU and let their staff know how their work plays a necessary part in achieving that vision. These conversations will lead to a greater sense of cohesion, group purpose and job satisfaction.

5

## Create an Assessment Tool

In order to improve wellness at BHSU, it is necessary to begin to quantify and measure it. The first step is to create a wellbeing assessment tool in the form of an online survey. Suggested questions for such a survey are included in [Appendix 3](#).

6

## Assess Wellbeing Annually

Each year, BHSU should launch the wellness assessment survey and actively solicit responses, preferably with some kind of incentive. Students, staff and faculty will take the survey and the responses will be analyzed and used by the director of the wellness program, as well as by BHSU leadership, to identify areas of concern and opportunity for growth. Such efforts will lead to a happier, more engaged and productive workforce, and students who are able to better succeed in their academic journeys.



# RECOMMENDED STRATEGIES

## Overall

Start a BHSU wellness program for students, faculty, staff. Designate a staff person to oversee this program at the new fitness center.

Create a wellbeing assessment tool in the form of an online survey.

Complete an annual wellbeing assessment for the campus community.

Incorporate wellness evaluations into annual employee reviews.

Publicize the availability of the Employee Assistance Program.

## Physical

Establish a new wellness center on campus.

Provide fitness assessments.

Build a fly fishing pond.

Build a climbing wall.

Provide resources on nutrition, weight management, sleep health, alcohol and nicotine use.

Offer fitness events for the BHSU community (fun runs, bike tours, camping trips).

Offer daytime yoga classes for campus community.

Convene activity clubs such as for golfing, biking, hiking, fishing and more that are open to students, faculty, staff and community members.

Create internships, work-study and leadership opportunities to students from the Exercise Science, Outdoor Education, Physical Education and the Business schools at the new wellness center.

Incorporate a bike garage in each residence hall.

Increase number of bike racks on campus.

Create marked walking paths across campus with distance markers.

Continue to offer fitness center memberships to faculty and staff, potentially at a discounted rate.

Offer fitness center memberships to community members.

## Emotional

Expand mental health counseling services to staff and faculty.

Provide resources on stress management.

Effectively communicate policies on harassment, discrimination and bullying.

## Financial

Offer financial counseling resources to students, staff and faculty.

## Social

Incorporate the Spearfish community into wellness programs.

Link wellness center to community via bike path.

Offer a range of programs to support students from underrepresented groups; international students; LGBTQ students; students with disabilities.

Create an Ombudsman Team.

Create a bias response team to respond to and support those who have experienced or witnessed a bias incident, act of discrimination or hate crime.

## Intellectual

Offer a benefit of auditing one class per year to all staff at no cost.

Create a casual “lunch and learn” event where students, staff or faculty could learn from one another (for example: beer brewing, knitting, bee-keeping).

Encourage staff to use the library for personal use.

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## Spiritual

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Create a BHSU Interfaith Chaplaincy Network consisting of faith leaders from local faith communities who can be available to students, faculty and staff.

Offer forums and resources on Lakota spirituality.

Continue to provide meditation classes on campus.

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## Occupational

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Encourage BHSU leaders to better articulate how staff contribute to the larger vision and purpose of BHSU, and how the campus community will continue to thrive in the midst of financial challenges.

Offer professional development opportunities to all staff.

Offer specialized trainings to help managers do their job well.

Identify and allocate funding for expanded professional development programs.

Create a policy that allows staff to use up to two hours per week to participate in wellness activities.

Start and incentivize an active commuting program.

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## Environmental

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Increase nature experience programming.

Expand the number of immersive learning experiences in nature offered.



Offer resources on how to set up a pleasing and efficient work station, dorm room or home.

See above strategies in the Physical category for outdoor activity groups and experiences.



# BUILDING CLIMATE RESILIENCY

**WE LIVE AT THE TURNING POINT** to a different world. Climate change is bringing increased temperatures, rising seas, more rain, floods and wildfires, loss of species, the risk of food disruption, health crises and much more to areas around the globe. Our climate is already changing, and in the years ahead those changes are expected to become more pronounced. The environmental health of South Dakota will be affected by changes happening thousands of miles away. A range in the severity of climate impacts exists due to variables in the amount of greenhouse gasses that will continue to be emitted into the atmosphere in coming years, but even low-emission projections show significant and multi-faceted impacts that will affect BHSU and the surrounding community.

Every community needs to be prepared for these changes so they can continue to thrive. Universities and municipalities across the country are now beginning to undertake climate resiliency planning efforts. Resilience is defined as the ability of a system or community to survive disruption and to anticipate, adapt, and flourish in the face of change.

For universities, resiliency planning is not only about ensuring that it can withstand weather extremes, but

**Resilience is defined as the ability of a system or community to survive disruption and to anticipate, adapt, and flourish in the face of change.**

that it can continue to adapt to new challenges over time. BHSU has a timely opportunity to join with City of Spearfish and Lawrence County partners in taking on an intentional three-year process of climate resiliency planning. The culmination of the process would be that after three years, BHSU will have a Resiliency Plan,<sup>15</sup> close partnerships with community leaders, and the ability to continually adapt to environmental challenges of the future.

In 2007 BHSU was a charter signatory of the American College and University Presidents Climate Commitment (ACUPCC), a resolution to act on climate with the understanding that higher education has the capacity and responsibility to lead on climate and sustainability action for the sake of their students and society. This work is now continuing under the leadership of the non-profit organization Second Nature, which provides climate and resiliency planning guidance to colleges and universities.

Our recommendation is that BHSU sign the Second Nature Climate Commitment (an integration of the Carbon and Resilience Commitments) and follow their recommended process for resiliency planning. That process is outlined below.

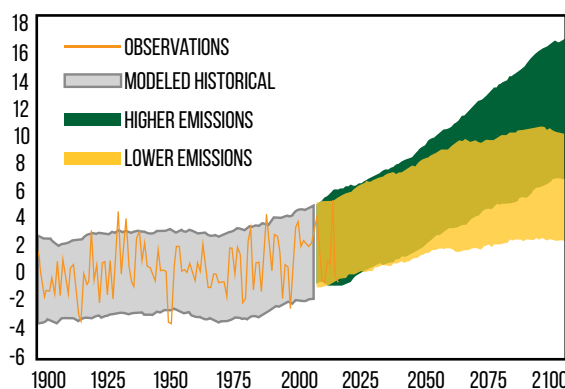
## PROJECTED CLIMATE IMPACTS FOR SOUTH DAKOTA

One of the first steps in a resiliency planning process is to assess strengths and vulnerabilities in terms of projected climate impacts to the region. According to NOAA, the following climate impacts are expected for the future in South Dakota:<sup>16</sup>

- Temperature increases between 2°F and 16°F by 2100
- Increased annual precipitation in winter and spring
- 15% increase in winter precipitation by 2050
- Increase in heavy precipitation events
- Increase in heat wave intensity
- Decrease in intensity of cold waves
- Increase in intensity of droughts
- Increased wildfires

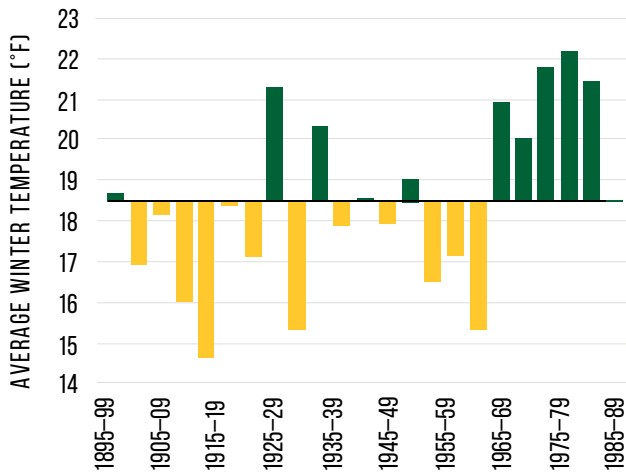
15. The plan may be designed to augment an existing sustainability plan, written as part of a new sustainability plan, or function as a standalone plan.  
 16. All climate data and graphs on this and the following two pages are from the National Oceanic and Atmospheric Administration (NOAA). [State Climate Summaries: South Dakota](#), NOAA National Centers for Environmental Information.

### OBSERVED AND PROJECTED TEMPERATURE CHANGE

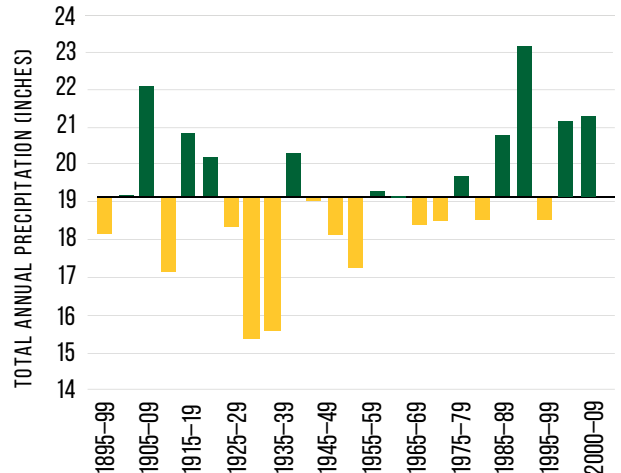


Observed and projected changes (compared to the 1901–1960 average) in near-surface air temperature for South Dakota. Observed data are for 1900–2014. Projected changes for 2006–2100 are from global climate models for two possible futures: one in which greenhouse gas emissions continue to increase (higher emissions) and another in which greenhouse gas emissions increase at a slower rate (lower emissions). Temperatures in South Dakota (orange line) have risen almost 2°F since the beginning of the 20th century. Shading indicates the range of annual temperatures from the set of models.

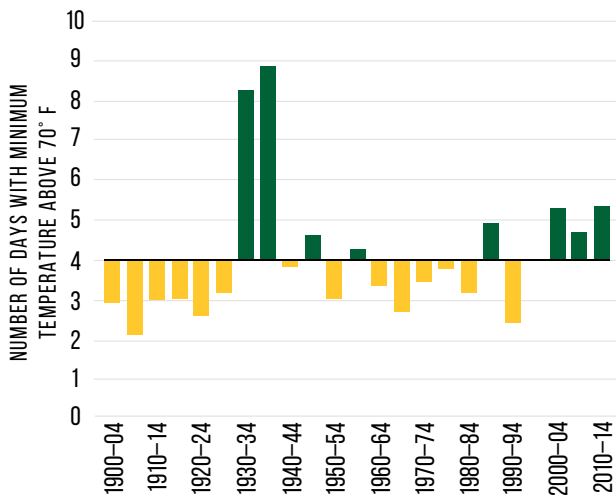
### OBSERVED WINTER TEMPERATURE



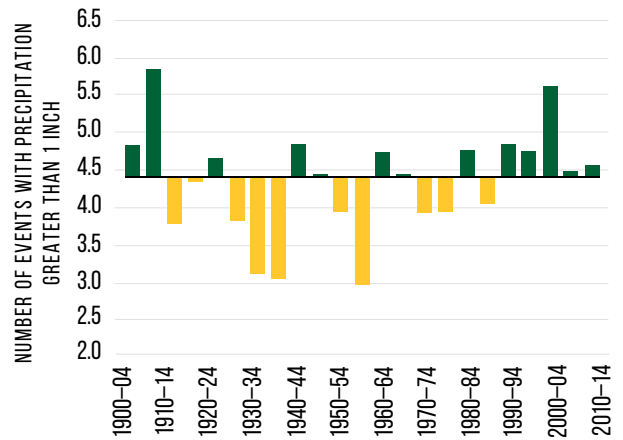
### OBSERVED ANNUAL PRECIPITATION



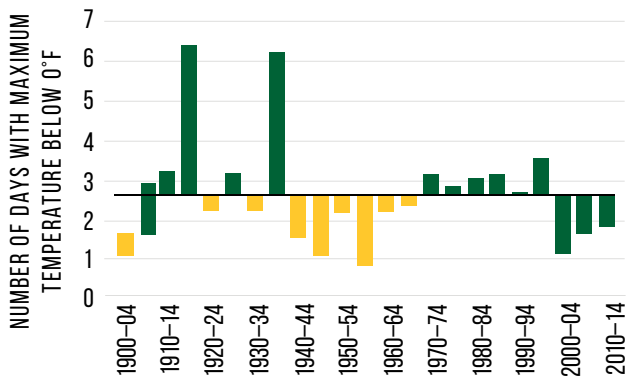
### OBSERVED NUMBER OF WARM NIGHTS



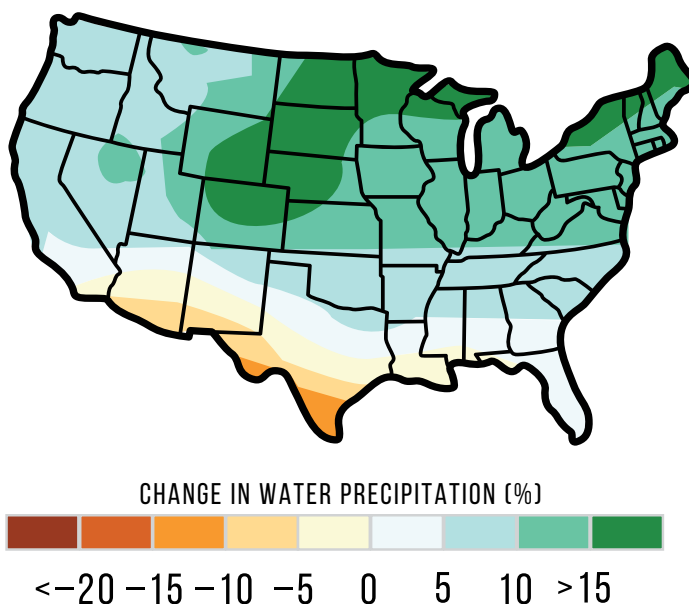
### OBSERVED NUMBER OF PRECIPITATION EVENTS



### OBSERVED NUMBER OF VERY COLD DAYS



## PROJECTED CHANGE IN WINTER PRECIPITATION



Projected changes in winter precipitation (%) for the middle of the 21st century compared to the late 20th century under a higher emissions pathway. Winter precipitation is projected to increase by 10%–20%.

## ENVIRONMENTAL RISK FACTORS

Those climate changes are expected to lead to the following environmental impacts:

- Floods, especially in spring. There is particularly high risk with a combination of increased winter snowfall, rapid spring warming, and intense rainfall.
- Loss of soil nutrients due to intense rainfall events, potentially delaying and preventing planting, and potential losses of agricultural yield.
- Drought. Higher temperatures will lead to increased soil moisture evaporation, increasing the risk and duration of droughts, especially when paired with periods of low precipitation.
- Heavy snowfall events. Average annual snowfall in Spearfish is currently 132 in. (11ft). The projected 15% increase in winter precipitation could lead to 152 in (12.6ft) of annual snowfall. However, when combined with warming temperatures, some of the projected increased winter precipitation could fall in the form of rain, increasing the risk of flooding.
- Food availability and affordability. Most food purchased in western South Dakota has been transported to the area from great distances. With the increasing risk of severe weather events across the globe, crop yields will be affected and supply

chains may be disrupted.<sup>17</sup> Such disruptions may cause the price of affected foods to rise.

- Economic stress to the region. Agricultural losses could have a widespread effect on the economy of the Great Plains. The trickle-down effect of negative economic conditions could impact BHSU in the future.

## POTENTIAL ENVIRONMENTAL BENEFITS

The following are two potential benefits to South Dakota of a changing climate:

- Increased soil moisture. Increased precipitation and more moisture in the air due to warming temperatures could lead to increased soil moisture.
- Decreased cold intensity. Climate data shows that average winter temperatures in South Dakota have increased over the last 30 years. From 2000 to 2009, South Dakota’s winter temperatures were nearly 22% higher than its 20th-century average. The trend toward milder winters is expected to continue as the climate continues to change. This may extend the food growing and tourist seasons, resulting in a potential economic gain.

17. “World Food Supplies at Risk as Climate Change Threatens International Trade, Warn Experts,” *The Independent*, June 26, 2017.



## RESILIENCY PLANNING

In order for BHSU to meet the environmental and social challenges that lie ahead, it should embark on a climate resiliency planning process. It is critical that BHSU forge relationships of mutual trust and respect with leaders from the city, county and state to engage to bring about the greatest benefit for the inhabitants of the Spearfish region. Climate impacts will not, of course, affect the BHSU campus in isolation. They will affect the entire region, calling all who live there to join together in creating resilient communities. BHSU has many assets that it can share with the community in times of need. BHSU leadership—starting with the president—need to initiate and guide the climate resiliency planning process to demonstrate the investment that BHSU has in the issue.

The resiliency of any community or campus is based on its own unique set of characteristics, future goals, existing resiliency capacity, current and future vulnerabilities, and tolerance for disruption. The planning process makes these factors evident and allows for a firm foundation to be established, upon which the community can build increased resiliency. Part of developing increased resiliency is undertaking the assessment, social engagement, and planning process itself.

Following is a brief outline of the resiliency planning process as recommended by Second Nature:

### PROCESS TO CREATE A RESILIENCY PLAN<sup>18</sup>

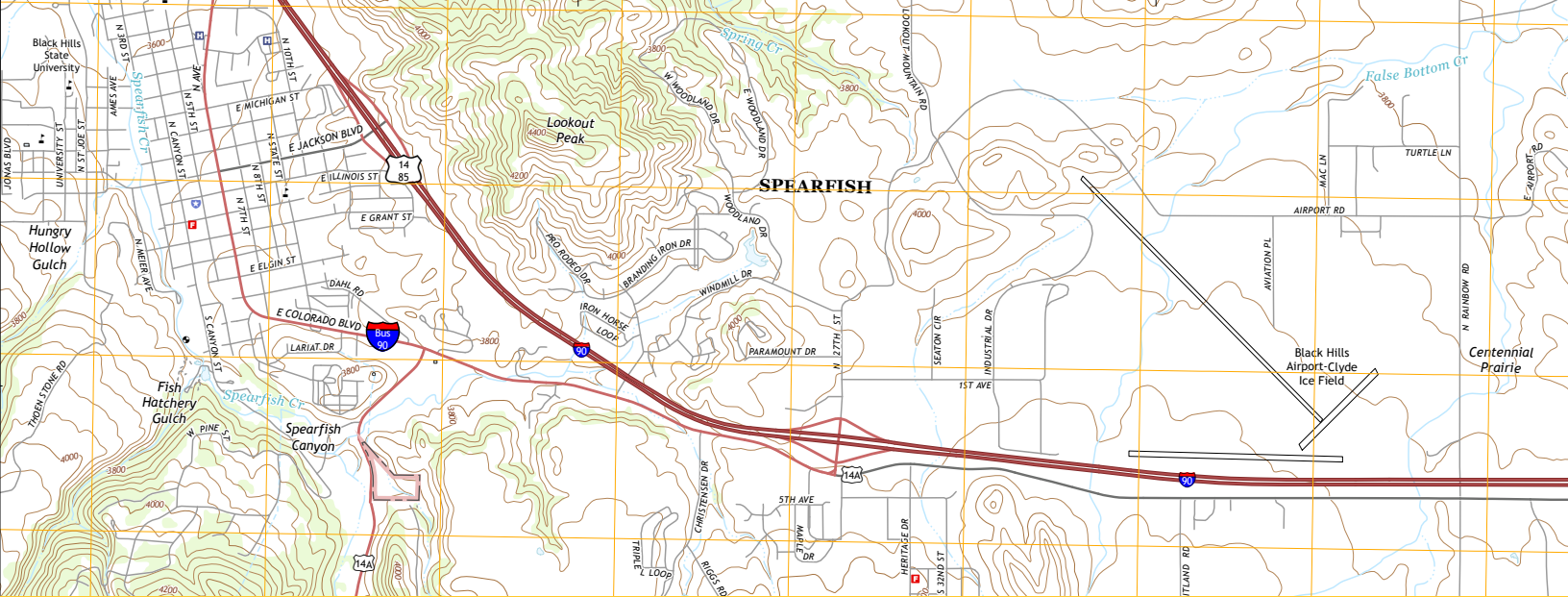
Following is a brief outline of the resiliency planning process as recommended by Second Nature:

- 1 **Secure a commitment from city and county partners to engage in the resiliency planning process.**
- 2 **Sign the Second Nature Climate Commitment.**
- 3 Within two months of signing the Second Nature commitment, **create an internal institutional structure to guide the development and implementation of the Plan.** This could be the BHSU Sustainability Committee or another group commissioned for the task.
- 4 Within one year of the implementation start date, **facilitate the development of a joint campus-community task force to ensure alignment of the Plan with community goals.** The individuals on this task force can include those with expertise in community planning, resiliency, sustainability goals, and others: risk management professionals, facilities managers, architects, emergency planners, etc. Submit the first annual evaluation of progress to Second Nature.
- 5 Within two years of the implementation start date, **complete a campus-community resiliency assessment including initial key indicators and a vulnerability assessment.**

The resiliency assessment can be seen through the five categories of adaptive capacity: social, human, natural, physical, financial. Core components of a resiliency assessment include:

- a. Understanding strengths and assets.
- b. Understanding weaknesses and existing vulnerabilities.
- c. Developing initial resiliency indicators that capture where you have or want capacity in the future (including opportunities). Key indicators could include: diversity, health and wellness, local food access, a culture of small business, policies that encourage renewable energy, natural landscapes that act as buffers, education and training, a sense of place, degree of capital investment, community engagement, or others.

18. For a full description of the process, see [Commitments Implementation, Second Nature](#).



During this process, the group can review past environmental disasters in the region to look at how the community responded and what was learned. In this case, some valuable examples to review would be the 1972 Spearfish flood, the 2013 winter storm Atlas and the 2016 Crow Peak wildfire.

The group will be invited to do scenario planning, in which they will walk through a few future scenarios, from business-as-usual to worst-case to best-case. How would BHSU and the community withstand a 500-year flood? A devastating wildfire with economic impacts on the community? An extended electrical outage? The group will discuss, reflect and learn from these experiences how to build resiliency for the region.

**6 Create a Resiliency Plan.** The final plan will include the following:

- A target date by which defined thresholds of resiliency will be met. For example: “By 2022, BHSU will have the capacity to provide emergency food and shelter for 200 people for 7 days.” Or “By 2030, the Spearfish community will have successfully addressed risk to all buildings in a 500-year floodplain.”

- Interim target dates for meeting milestones that will lead to increasing resiliency.
- Mechanisms and indicators for tracking progress, including those that cut across campus-community boundaries.
- Plans to make resiliency a part of the BHSU curriculum and educational experience for all students. This will include education and outreach activities to publicize the elements of the plan. It may include workshops for the community on specific aspects of resiliency.
- Plans to expand research in resiliency.
- Plans to continue to work with community partners on increasing resiliency in the future.

**7 Complete an annual evaluation of progress toward goals, and submit to Second Nature.**

By following the process outlined above, BHSU will go a long way toward ensuring its ability to thrive through the environmental challenges of the future.

**Resources**

1. [NOAA South Dakota Climate Summary](#)
2. [What Climate Change Means for South Dakota \(EPA\)](#)
3. [Second Nature Climate Resiliency Commitment](#)
4. [South Dakota WaterWatch- flood map](#)
5. [South Dakota WaterWatch- drought map](#)
6. [1972 Black Hills-Rapid City Flood Revisited](#)
7. [Laura Edwards, South Dakota State Climatologist](#)
8. [MIT Resiliency Planning](#)

# APPENDICES

## APPENDIX 1:

# PREVIOUS BHSU SUSTAINABILITY EFFORTS

This Sustainability Master Plan is intended to function as a comprehensive account of BHSU's previous and future sustainability efforts. To that end, what follows is a listing of the university's extensive previous sustainability efforts.

### ACADEMICS

- **Academic Courses:** BHSU offers 59 undergraduate and 6 graduate courses with sustainability content.
- **Learning Outcomes:** 7.74% of students graduate from programs that have adopted at least one sustainability learning outcome.
- **Graduate Program:** BHSU offers a Master's of Science in Sustainability.
- **Immersive Experience:** BHSU offers two immersive, sustainability-focused educational study programs.
  1. The first is a project funded by the REU Sites Program in the Chemistry Division and the Experimental Program to Stimulate Competitive Research (EPSCoR) (both at the National Science Foundation (NSF)). The project supports a Research Experience for Undergraduates Site that will support two students at BHSU during the ten-week summer program. It is focused on environmental and green materials chemistry and provide the students with multi-disciplinary research experiences. The goal is to provide cutting-edge research experiences, mentoring, and research-themed professional development to increase the students' preparedness to pursue graduate school or environmental/green chemistry careers.
  2. Secondly, BHSU Geography students in Spring of 2017 studied how the history and geography impact the foodways of Italy. Students in the class traveled to the Tuscan region of Italy over Spring Break to see the food system first hand. They presented research projects based on their field work. Topics in this class involved the slow food movement and how Italy's culture and politics vary from the United States. Students learned about the local food work happening in Spearfish and compared and contrasted current local issues with those of Italy.
- **Campus as a Living Laboratory:** BHSU is utilizing its campus as a living laboratory. Following are some of the student/faculty projects that contribute to advancing sustainability on campus in relation to air and climate:
  1. The campus's greenhouse gas report is used to educate students about the effects that campus activity has on the climate. Students aid with the data collection and calculations for the greenhouse gas report. Participation in the carbon footprint report allows for students to be more conscious of their impact as individuals.
  2. The Student Union is a LEED certified building which has a sustainability tour, which is commonly used in classes as a living lab. Tours and signage show various points that make up the building certification.
  3. The university has faculty engaged in solar energy research that use the several renewable energy devices (solar cells, wind turbine) on campus in student discussions and experiments. On campus, students fabricate and measure solar cell activity and have received grants for funding in this area.
  4. BHSU has a community vegetable and fruit garden on campus. Several workshops on organic gardening and growing food take place throughout the summer. Volunteers are able to take home produce. Biology lab students are planting seeds to test growth. Those starts will be planted in the garden after the semester is over. In previous years, students have received internship class credit for work on local food marketing throughout Spearfish Local program.
  5. BHSU science professors worked with their students to develop a native plant ethnobotanical garden on campus located on the southwest corner of the Life Sciences Laboratory. The plants grown there are native to the region and use less water and require less care than the green grass elsewhere on campus. Students continue to maintain the garden and utilize it in their coursework.
  6. A Sustainability Masters degree student is creating a new survey to measure transportation behaviors for a capstone class project. The results of this survey will help to assess the campus's greenhouse gas emissions footprint.
  7. A student wrote a proposal for a waste minimization overhaul program. The report included three phases of a researched-based implementation plan including a budget proposal. The report resulted in implemen-

tation of the trash buddy system in all campus offices. This new system has increased recycling participation across campus.

8. Outdoor education students are using the campus sustainability programs to create a curriculum plan for an Eco-Rep training.
  9. Students are heavily involved in the public engagement programming in the sustainability office: advertising, publicity, outreach, press releases, videos, social media, graphic design, and event planning. Their work leads to press, education, and increased public engagement.
  10. Two BHSU biology and geology classes have identified, mapped, and measured all campus trees. An expanded research project took place when three research students worked with Drs. Tara and Justin Ramsey to identify health scores and take pictures and samples of each tree as well. The information is available for use in GIS, online map, and Excel. The biology classes use this inventory in coursework, identifying patterns in planting choices and species health.
- **Research and Scholarship:** 50% of BHSU staff and faculty are engaged in sustainability research.
  - **Support for Research:** BHSU has an ongoing program to encourage students in multiple disciplines or academic programs to conduct research in sustainability:
    1. The university takes part in two programs, in which students can apply for research stipends to work under the direction of BHSU faculty. The two programs are the BRIN program and the EPSCoR program, both of which have sustainability at the core at BHSU. Students through the EPSCoR program research and test new materials for solar cell applications. Through the BRIN program students work on one of several projects at the Center for the Conservation of Biological Resources housed in the School of Natural Sciences at BHSU.
    2. The university has a seed grant program to initiate and support faculty research. In addition to this, the faculty have access to the South Dakota Board of Regents competitive research grant program. Both of these programs have always had an emphasis on the states and the universities research initiatives for which sustainability is a common thread. Recent examples are the emphasis on renewable energy and biofuels.

## CARBON FOOTPRINT

### Energy

- LED lighting installed in all new construction and lighting updates, including the E.Y. Library Learning Center.

- Donald Young Center High-Bay Lighting Retrofit: replaced 400-watt metal halide fixtures with high bay fluorescent fixtures in the gym, upper gym, and field house.
- Installed higher-efficiency natural gas boilers in 2012.
- Installed smart energy and water meters on most buildings; manage usage through Energy Cap software.
- Implemented a policy to purchase Energy Star appliances, including washers, dryers, printers, etc. Energy Star appliances are certified to be more energy efficient than the standard appliance.
- Installed a wind turbine in front of the Student Union, producing over 2,000 kWh per year.

### Energy, Water, Waste

- Instituted a policy that all new buildings will be built to LEED Silver standard.

### Transportation

- Began a carpool parking program for faculty, staff, and students. Groups of three or more traveling to campus are eligible for discounted parking fees.
- Faculty traveling to BHSU Rapid City are asked to carpool when possible.
- Instituted a Lisa Bike program with six bikes that students can rent for a semester. Added a fix-it station on campus.
- Replaced fossil-fueled vehicles with electric carts for intercampus transportation.
- Purchased a lawn mower with a 12-foot swath, leading to reduced mowing time.
- Hazardous laboratory waste transportation is coordinated with other Regental schools to reduce unnecessary trips.

## DIVERSITY

### Support for Underrepresented Groups

- The Center for American Indian Studies provides programming designed to meet the needs of American Indian Students such as Bridge Programming, Mentoring, Jump Start, two student organizations and a general studies class that is offered the fall semester.
- Non-discrimination policies are in place that apply to students, staff, and faculty.

## ENGAGEMENT

- **Student Educators Program:** 24.5% of students are served by a peer-to-peer educator program

1. Wellness Wheel Program: Each semester every Resident Assistant is required to hold three programs for campus residents. Program themes are selected from a 'Wellness Wheel' with eight sections including an "Environmental" section and others relating to health. On average each hall will complete the Wellness Wheel two times each semester giving an environmental program two times each semester. The larger halls can complete the wheel three times a semester, making three environmental programs each semester.
  2. Eco-Rep Program: Piloted in 2015. Will launch an expanded program for academic year 2017-18. Students will be responsible for educating their peers through programming, zero-waste events and recycling move-in and move-out days as well as attending three meetings/month.
- **Student Orientation:** 77% of all students are provided an opportunity to participate in orientation activities and programming that prominently include sustainability. Students living in the residence halls are provided a "Going Green and Gold" guide. The guide presents information regarding sustainability at the university and ways that students can be involved. The Sustainability Office provides a training to the RA's at their orientation. The RA's are then responsible for distributing learned skills (recycling, etc.) to the residents. A sustainability presentation is included during Green and Gold Days about ways to get involved in campus. This is open to all students.
  - **Student Life:** BHSU has several active student groups that focus on sustainability:
    1. Environmental Sustainability Student Organization (ESSO) - Purpose of ESSO is to protect and conserve our environment while creating awareness to generate involvement surrounding environmental issues on campus and within the community and to gain experience in leadership and volunteering through community engagement, education, outreach, and expansion of our social networks.
    2. Scientia - A student-run organization dedicated to all areas of science. Acting as a support network for students and faculty alike, Scientia holds regularly scheduled meetings to plan future events that help inform the public about opportunities in science related fields.
    3. Enactus - Teaches the free enterprise system to others on campus and throughout the Black Hills. They create opportunities to learn how to use the free enterprise system. Nationally, Enactus has adopted sustainability as a value, something that our local chapter has adopted as well.
    4. COLP – The Collegiate Outdoor Leadership Program is focused on providing opportunities for sustainable outdoor recreation. Examples include outdoor activity workshops with a focus on Leave No Trace Principals, as well as service activities such as Adopt a Trail.
    5. AISES - American Indian Science and Engineering Society - a national non-profit organization which nurtures building of community by bridging science and technology with traditional native values. The ultimate goal of AISES is to be a catalyst for the advancement of American Indians and Native Alaskans as they seek to become self-reliant members of society. This program provides many students with valuable scholarships for college.
  - **Outreach Materials and Publications:** The sustainability page on BHSU.edu highlights energy saving and sustainability initiatives and events on campus.
  - **Outreach Campaign:** BHSU held two sustainability-related outreach campaigns that was directed at students and yielded measurable, positive results in advancing sustainability:
    1. Recyclemania Basketball Challenge: BHSU has organized a zero waste basketball game. Crowds were required to compost or recycle their trash with help from students and staff at waste stations. This resulted in an increase in our diversion rate as we increased awareness on recycling and composting.
    2. Trash Buddy Recycling: In order to increase waste stream inefficiencies on campus, BHSU employees were asked to participate in a new desk-side recycling system. Trash cans, which were previously emptied by custodians each day, were replaced with a recycling bin and an attached trash buddy. Employees are now responsible for emptying their own garbage and recycling can in centralized bins, equaling the field on ease of throwing an item in the landfill versus recycling.
  - **Community Partnerships:** BHSU has the following formal community partnerships to advance sustainability:
    1. Biodiesel with Pangea Design: BHSU's Dining services, A'viands, reserves used fryer oil to Pangea Design Group. Jared Capp, owner of Pangea Design, utilizes it to make biodiesel which he uses in a business vehicle. It is mutually beneficial partnership since we are able to divert that waste from the landfill or drain and he is able to re-purpose it for fuel. There are no other businesses producing biodiesel in Spearfish. The project has been formally ongoing

- for over five years with agreement between Pangea Design and A'viands. It has continued through two changes in leadership at A'viands.
2. Gardens for Schools: BHSU works with an elementary school and two preschools to provide materials, training and ongoing education for on-site gardens. They worked with Creekside Elementary to provide materials for raised beds (compost, soil) and held weekly gardening classes throughout the growing season. They work with two preschools to provide raised beds, seeds, hoses, and guidance.
  3. Center for American Indian Studies: The Center for American Indian Studies formally partners with local high schools, tribal governments, and local nonprofits to organize and implement programs to benefit Native students working toward a college degree.
  4. Inter Campus Collaboration: BHSU is an active member of AASHE, the Association of Higher Education Facilities Officers (APPA), and the American College and University Presidential Climate Commitment (now run through Second Nature). Regionally, BHSU is a member of SPNR: Sustainability Partnership of the Northern Rockies; Resilience Studies Consortium coordinated through Western State Colorado University.
  5. Participation in Public Policy: BHSU advocates for policies that support campus sustainability and that advance sustainability at the local level.

- in 58% of all lighting.*
- *CFL light bulbs.*
- *Energy Star qualified copier, fax, scanner, printer, and fax.*

**Food**

- 32% of monthly food purchases are vegan
- 30% of monthly food purchases are vegetarian

**Pollution & Chemical Reduction**

- Preferred parking for employee carpools, alternative fuel or hybrid vehicles.
- 98% of all linear fluorescent bulbs are low-mercury.
- Uses dish-washing products with reduced packaging.

**Waste**

- 100% reusable dishes, cups, and silverware for staff meals.
- No bottled water served in dining halls.
- Serves only bulk condiments.
- No individual packets for coffee station items.
- Recycles cardboard, paper, plastics, grease, and glass.
- Implemented tray-less dining.
- Implemented a printing fee and encouraged online classroom documents.

**Water**

- Implemented water efficient pre-rinse spray valves (<1gpm).
- Implemented low-flow (1.28 gpf) toilets and touchless sensor faucets.

**Other**

- Achieved a two-star Green Restaurant Association rating for the Hive (163.69 points).
- Achieved a two-star Green Restaurant Association rating for the Buzz Shack (163.24 points).

**CAMPUS FOOD**

**Disposables**

- Cafeteria uses cups with 24%, 30%, and 80% post-consumer materials.
- Uses reusable plates, glasses, and cups.
- Eliminated the use of Styro-foam in cafeteria operations.
- Uses paper napkins that are 100% recycled, 30% post-consumer content.

**Energy**

- Placed a barrier between outside air and main entrance- double doors.
- Kitchen operations installed numerous pieces of energy-saving equipment, including:
  - *Hood with variable volume control.*
  - *Hood with wall-mounted exhaust canopy.*
  - *Programmable thermostat.*
  - *T5 lamps in 34% of all lighting.*
  - *High-performance T8 lamps*

**COMMUNITY FOOD**

**Strategy**

- Began a community garden on campus.
- Began a local food hub that connects farmers with consumers.
- Developed a Local Food Committee.

## GROUNDS

- Installed a native plant garden by the Life Science building.
- Created five bioswales on campus, diverting stormwater.
- Achieved a Tree Campus USA certification.
- Committed to planting ~200 trees on campus per year (to reach a goal of 1,000 trees in five years).
- Began a food forest on campus. In 1895, then-President Cook began an apple orchard on campus. This apple orchard has remained until today. The food forest is going to expand the apple orchard into a complete food forest for the campus and community.

## WASTE

### Cleaning

- Implemented the use of Green Seal products. Green Seal products are bio-based and do not use harmful chemicals.

### Compost

- Installed a hydro-extractor in the Hive’s kitchen to reduce the volume and weight of food and fiber waste. The hydro-extractor takes foods waste and fiber materials (napkins, etc.), grinds the materials, and removes the moisture from the materials. The final product from the hydro-extractor is used as composting material, which is then taken to Rapid City to compost.

### Engagement

- Participated in the RecycleMania competition. RecycleMania is a competition where universities and colleges work for eight weeks to reduce waste and increase recycling.
- Send monthly recycling updates campus-wide.

### Recycling

- Implemented recycling in every building on campus.
- Implemented campus-wide recycling for motor oil and batteries.
- Host a once-a-year sale of surplus equipment.
- Recycling pallets, scrap metal, furniture, cooking oil, residence hall move in/move out waste.
- Construction and demolition materials are recycled or donated.
- Grow recycling program by continuing to increase the amount of recycling bins across campus and find outlets to recycle new materials such as

magazines, newspapers, cell phones, and plastic bags with the goal to increase recycling from 40 tons in 2014 to 50 tons per year by 2018.

### Waste Reduction

- Implemented a printing fee and encouraged online classroom documents.
- Reduce the use of plastic one-use water bottles on campus by increasing the number of filtered water bottle filling stations across campus and providing high quality, affordable water bottles to students starting 2017.

## WATER

- Transitioned custodial services to green cleaning supplies and instituted water-saving procedures.
- Installed nine refillable water stations in various buildings across campus.
- A portion of landscaping is xeriscaping, focusing on low-maintenance and native plants.
- All new construction focuses on responsibly managing stormwater.
- Installed a green roof on the Student Union.
- Utilizes a drip irrigation system for grounds.
- Only waters grounds in the early morning and evening in the summer when possible.
- Installed a native plant garden by the Life Science building.
- Installed high efficiency plumbing fixtures in most buildings.
- Created five bioswales on campus, diverting stormwater.

## WELLBEING

### Physical

- Offers fitness center memberships to staff and community members.
- Hosts regular blood drives.

### Emotional

- Offers mental health counseling for students.

### Occupational

- Offers ergonomic assessments to employees.
- Offers flu shots.
- Has breastfeeding rooms available to nursing mothers.
- Provides counseling on workplace issues.



## APPENDIX 2: CAMPUS FOOD GOAL STRATEGIES

Following is comprehensive list of strategies to follow to achieve a 4-star certification from the Green Restaurant Association as noted in the Campus Food chapter.

GRA CATEGORY	STRATEGY	POINTS POSSIBLE	SOURCE
<b>Disposables</b>	Use 100% recycled, 40% post-consumer waste, processed chlorine-free multifold towels	1.75	2014 GRA Assessment Report- the Hive
	Use 100% post-consumer content recycled plates	1	2014 GRA Assessment Report- the Hive
<b>Chemical &amp; Pollution Reduction</b>	Use Green Seal Certified hand soap	1	2014 GRA Assessment Report- the Hive
	Implement a no idling policy for vendors	0.5	2014 GRA Assessment Report- the Hive
	Use an unbleached pan liner	1.25	2014 GRA Assessment Report- the Hive
	Eliminate Styrofoam in all dining operations, including catering		
	Provide deliveries by foot or bicycle to a separate building other than where the food was cooked. The separate building cannot be directly adjacent or across the street.	13	Green Restaurant Certification Standards
	Implement waste vegetable fueled or electric vehicles	10.5	Green Restaurant Certification Standards
	Eliminate HCFC-base refrigerants	3	Green Restaurant Certification Standards
	Eliminate HFC refrigerants	3	Green Restaurant Certification Standards
	Instill a particulate matter filter system for wood - and coal- burning ovens	3	Green Restaurant Certification Standards
	MERV 14 air filtration or higher	3	Green Restaurant Certification Standards
	Use sustainable textiles for chef coats (Oeko-Tex or GOTS certified, Hemp, linen, organic cotton, or mechanically produced bamboo)	0.5-1.5	Green Restaurant Certification Standards
Use sustainable textiles for staff uniforms (Oeko-Tex or GOTS certified, Hemp, linen, organic cotton, or mechanically produced bamboo)	0.5-1.5	Green Restaurant Certification Standards	
Use sustainable textiles for merchandise (Oeko-Tex or GOTS certified, Hemp, linen, organic cotton, or mechanically produced bamboo)	0.5-1.5	Green Restaurant Certification Standards	

GRA CATEGORY	STRATEGY	POINTS POSSIBLE	SOURCE
<b>Chemical &amp; Pollution Reduction</b> (continued)	Use sustainable textiles for napkins (Oeko-Tex or GOTS certified, Hemp, linen, organic cotton, or mechanically produced bamboo)	0.5-1.5	Green Restaurant Certification Standards
	Use sustainable textiles for linens (Oeko-Tex or GOTS certified, Hemp, linen, organic cotton, or mechanically produced bamboo)	0.5-1.5	Green Restaurant Certification Standards
	Local, Organic, and Veraflora certified plants and flowers	3	Green Restaurant Certification Standards
	Use soy- or other vegetable-based inks and toner for paper printing	2.5	Green Restaurant Certification Standards
	Use soy- or other vegetable-based inks and toner for screen printing fabrics	2.5	Green Restaurant Certification Standards
	Signage for no smoking within 25 ft.	0.5	Green Restaurant Certification Standards
	Green Shield Certified or GreenPro Certified pest control company	8.25	Green Restaurant Certification Standards
	Manual dish soap that meets EPA's Safer Choice or EcoLogo standards	7.75	Green Restaurant Certification Standards
	Dish machine detergents meet Green Seal-53 standard	1	Green Restaurant Certification Standards
	Implement a Living Wall	3	Green Restaurant Certification Standards
Use low or zero VOC paints	1.75-2.00	Green Restaurant Certification Standards	
<b>Energy</b>	Implement a heat recovery system for the HVAC system	4.75	Green Restaurant Certification Standards
	Use an Energy Star certified exhaust fan	3.75	Green Restaurant Certification Standards
	Cover windows in window film that block solar heat	3.75	Green Restaurant Certification Standards
	Implement weather-stripping where applicable	3.75	Green Restaurant Certification Standards
	Insulate pipes	3.75	Green Restaurant Certification Standards
	Use equipment timers	3	Green Restaurant Certification Standards

GRA CATEGORY	STRATEGY	POINTS POSSIBLE	SOURCE
Energy (continued)	Use hand dryers that are less than 1000W and less than 15 second dry time	7.5	Green Restaurant Certification Standards
	Use a TRSA Clean Green certified linen service (Rapid City / Servall Uniform & Linen Supply)	2	Green Restaurant Certification Standards
	Use all LED and LEP lamps	18	Green Restaurant Certification Standards
	Use occupancy sensors in restrooms and storage closets	4.5	Green Restaurant Certification Standards
	Use occupancy sensors for the walk-in and vending machine	2.25	Green Restaurant Certification Standards
	Use occupancy sensors in the office and kitchen	2.5	Green Restaurant Certification Standards
	Use fully insulated food warmers and soup wells	2.25	Green Restaurant Certification Standards
	Use a CEE Tier 2 or Energy Star qualified holding cabinet	11.25	Green Restaurant Certification Standards
	Use an Energy Star qualified convention oven and combination oven	6	Green Restaurant Certification Standards
	Use an Energy Star qualified griddle	6	Green Restaurant Certification Standards
	Use an exhaust hood hat recovery filters	9	Green Restaurant Certification Standards
	Use a hood with variable volume control	3.5	Green Restaurant Certification Standards
	Use a Food Service Technology Center rebate qualified rack oven	10.5	Green Restaurant Certification Standards
	Use an Energy Star solid door reach-in freezer	6	Green Restaurant Certification Standards
	Use an Energy Star glass door reach-in freezer	6	Green Restaurant Certification Standards
	Use an Energy Star solid door reach-in refrigerator	6	Green Restaurant Certification Standards
	Use an Energy Star glass door reach-in refrigerator	6	Green Restaurant Certification Standards
	Use an Energy Star/CEE Tier 2 qualified ice machine	6	Green Restaurant Certification Standards
	Walk-in with strip curtain	2.25	Green Restaurant Certification Standards
	Walk-in with temperature or humidity control systems that mimic food and beverage temperatures	2.25	Green Restaurant Certification Standards
Walk-in with fan motor control	1	Green Restaurant Certification Standards	

GRA CATEGORY	STRATEGY	POINTS POSSIBLE	SOURCE
<b>Energy</b> (continued)	Walk-in with Q12, Q10 & Q8 carbon fiber fan blades	1	Green Restaurant Certification Standards
	No electric pans under refrigerators	1.75	Green Restaurant Certification Standards
	Digital scroll compressor	7.5	Green Restaurant Certification Standards
	Refrigeration rack systems	3	Green Restaurant Certification Standards
	Demand defrost for refrigeration units	2.25	Green Restaurant Certification Standards
	Merchandiser with T8 Lights and night curtain	2.25	Green Restaurant Certification Standards
	Annual maintenance on refrigeration, HVAC, and cooking equipment	4.5	Green Restaurant Certification Standards
	Smart power strip that shuts off peripherals	0.75	Green Restaurant Certification Standards
	Increase the amount of on-site renewable energy	333	Green Restaurant Certification Standards
<b>Sustainable Food &amp; Beverage</b>	Increase the amount of main dishes offered that are vegan	100	Green Restaurant Certification Standards
	Increase the amount of main dishes offered that are vegetarian	75	Green Restaurant Certification Standards
	Increase the amount of produce that is certified organic, sourced locally, regionally, or from within a 400-mile radius	15-Mar	Green Restaurant Certification Standards
	Increase the amount of dry goods that is certified organic, sourced locally, regionally, or from within a 400-mile radius	15-Mar	Green Restaurant Certification Standards
	Increase the percentage of prepared foods that are certified organic or certified naturally grown	15	Green Restaurant Certification Standards
	Increase the percentage of prepared foods that are certified humanely raised and handled	3	Green Restaurant Certification Standards
	Purchase eggs that are certified organic, local, regional, within a 400-mile radius, or certified humanely raised and handled	15-Mar	Green Restaurant Certification Standards
	Purchase dairy items that are certified organic, local, regional, within a 400-mile radius, or certified humanely raised and handled	15-Mar	Green Restaurant Certification Standards
	Purchase meats items that are certified organic, local, regional, within a 400-mile radius, or certified humanely raised and handled	15-Mar	Green Restaurant Certification Standards
	Purchase seafood items that are certified organic, local, regional, within a 400-mile radius, or certified humanely raised and handled	15-Mar	Green Restaurant Certification Standards

GRA CATEGORY	STRATEGY	POINTS POSSIBLE	SOURCE
<b>Sustainable Food &amp; Beverage</b> (Continued)	Do not use red listed seafood	3	Green Restaurant Certification Standards
	Use coffee items that are certified bird friendly	5.5	Green Restaurant Certification Standards
	Use coffee and tea items that are certified organic	5	Green Restaurant Certification Standards
	Use nonalcoholic, non-coffee or non-tea items that are certified organic	5	Green Restaurant Certification Standards
<b>Waste</b>	Find a composting end use for the material from the Somat	17.5	2014 GRA Assessment Report- the Hive
	Reusable Container program	10	Green Restaurant Certification Standards
	Recycle fluorescent lamps	0.5	Green Restaurant Certification Standards
	Recycle batteries (single-use and rechargeable)	0.5	Green Restaurant Certification Standards
	Recycle electronics	0.5	Green Restaurant Certification Standards
	Recycle used appliances	0.5	Green Restaurant Certification Standards
	Implement paperless billing for all vendors	3	Green Restaurant Certification Standards
	Implement paperless payroll for all employees	3	Green Restaurant Certification Standards
	Donate unneeded appliances or furniture	2.5	Green Restaurant Certification Standards
	Implement returnable packages with vendors	2.25	Green Restaurant Certification Standards
	Implement a reusable mug program	2.25	Green Restaurant Certification Standards
	Remove bottled water	3.5	Green Restaurant Certification Standards
	Do not offer paper towel dispensers in the restrooms	2	Green Restaurant Certification Standards
	Donate uneaten food	10	Green Restaurant Certification Standards
	Offer smaller portions at a reduced price	2.25	Green Restaurant Certification Standards
	Implement on-site vegetable oil filtration and reuse	1.75	Green Restaurant Certification Standards

GRA CATEGORY	STRATEGY	POINTS POSSIBLE	SOURCE
<b>Water Efficiency</b>	Use low-flow faucet aerators (0.5gpm) for hand washing sinks	3	2014 GRA Assessment Report- the Hive
	Use low-flow faucet aerators (1.5 gpm) for prep sinks	1.5	2014 GRA Assessment Report- the Hive
	Use foot/pedal controlled sinks	3	Green Restaurant Certification Standards
	Install ultra high-efficiency toilets	3	Green Restaurant Certification Standards
	Install waterless urinals	4.25	Green Restaurant Certification Standards
	Install solar or water-powered touch less sensor faucets	3	Green Restaurant Certification Standards
	Use greywater reuse for plumbing	7.25	Green Restaurant Certification Standards
	Use greater reuse for mechanical operations	3	Green Restaurant Certification Standards
	On-site waste water treatment and reuse as potable water	25	Green Restaurant Certification Standards
<b>Energy/Water</b>	Flow rate of non-fill prep sinks of less than or equal to 0.5gpm	3	Green Restaurant Certification Standards
	Implement a dishwasher with energy recovery, and energy-star qualified dishwasher, or a drain water heat recovery dishwasher	6.00-10.50	Green Restaurant Certification Standards

# APPENDIX 3

## WELLBEING ASSESSMENT TOOL

The following is a suggestion of a tool that can be used to assess Wellbeing on campus. This tool could be adapted into an online survey and administered to students, faculty and staff every year. Such an assessment will be necessary to allow BHSU to meet its Wellness goal. This survey is adapted from one used by the University of North Dakota.<sup>19</sup>

### Personal Wellness Assessment

Circle the number that applies to you for each statement. Then, total up the number for each of the 4 columns. Write the sum of all your totals for each column in the light gray box on the right of the chart. That number is your score for that dimension.

<b>PHYSICAL</b>		Rarely, if Ever	Sometimes	Most of the time	Always
1	I maintain a desirable weight.	1	2	3	4
2	I engage in vigorous exercises for over 30 minutes a day (i.e. brisk walking, cycling) up to 5 times a week and strengthening exercises 2 or more days a week.	1	2	3	4
3	I get 7-8 hours of sleep each night and awake feeling refreshed.	1	2	3	4
4	I listen to my body; when there is something wrong, I seek professional advice.	1	2	3	4
5	I abstain from drug abuse both over the counter (OTC) and illicit.	1	2	3	4
6	I responsibly use alcohol. (i.e. designating sober drivers and avoiding binge drinking).	1	2	3	4
7	I know my important health numbers: cholesterol, blood pressure, blood glucose, body weight, etc.	1	2	3	4
8	I protect my skin from sun damage by using sunscreen, wearing hats, and/or avoiding tanning booths and sun lamps.	1	2	3	4
9	I eat at least 5 servings of fresh fruits and vegetables daily and drink water regularly.	1	2	3	4
10	I protect myself from STDs or unwanted pregnancy by either abstaining from sexual behavior or using proper protection such as condoms or dental dams.	1	2	3	4
<b>TOTAL</b>					

<b>EMOTIONAL</b>		Rarely, if Ever	Sometimes	Most of the time	Always
1	I am able to ask for assistance when I need it, from either friends and family, or professionals.	1	2	3	4
2	I am able to recognize the stressors in my life and have ways to reduce those stressors.	1	2	3	4
3	I accept responsibility for my own actions.	1	2	3	4
4	I am able to set priorities.	1	2	3	4
5	I try to avoid chronic worry and I am not usually suspicious of others.	1	2	3	4
6	I feel good about myself and believe others like me for who I am.	1	2	3	4
7	I am flexible and adapt or adjust to life's challenges in a positive way.	1	2	3	4
8	I can express all ranges of feelings (i.e. hurt, sadness, fear, anger, and joy) and manage related behaviors in a healthy way.	1	2	3	4
9	I maintain balance of work, family, friends, and other obligations.	1	2	3	4
10	I do not let my emotions get the better of me and I think before I act.	1	2	3	4
<b>TOTAL</b>					

<b>OCCUPATIONAL</b>		Rarely, if Ever	Sometimes	Most of the time	Always
1	I balance work with play and other aspects of my life.	1	2	3	4
2	I take advantage of opportunities to learn new skills which will enhance my future employment possibilities.	1	2	3	4
3	I know what skills are necessary for the occupations I am interested in.	1	2	3	4
4	I strive to develop good work habits. (Examples: punctuality, dependability, and initiative).	1	2	3	4
5	Enjoyment is a consideration I use when choosing a possible career.	1	2	3	4
6	I work effectively with others.	1	2	3	4
7	I am developing the necessary skills to achieve my career goals.	1	2	3	4
8	I have confidence in my job search skills (resume writing, interviewing, etc.).	1	2	3	4
9	I have explored different career options.	1	2	3	4
10	I know where to find student employment at the University of North Dakota	1	2	3	4
<b>TOTAL</b>					

19. University of North Dakota Health & Wellness Program.

<b>ENVIRONMENTAL</b>		Rarely, if Ever	Sometimes	Most of the time	Always
1	I am concerned about environmental pollution and actively try to preserve and protect natural resources.	1	2	3	4
2	If I see a safety hazard, I take the steps to fix the problem.	1	2	3	4
3	I reduce, reuse, and recycle products.	1	2	3	4
4	I live with the awareness of wholeness and the interconnectedness of all living systems.	1	2	3	4
5	I use both sides of the paper when taking class notes or doing assignments.	1	2	3	4
6	I have adopted water saving habits (i.e. I try not to leave the faucet running too long when I wash dishes, brush my teeth, shave, or bathe).	1	2	3	4
7	I participate in campus events that help my community. (Food drives, fundraisers, planting trees, disaster relief, Habitat for Humanity).	1	2	3	4
8	I spend time outdoors enjoying nature.	1	2	3	4
9	I use ecologically friendly products (i.e. eco-friendly cleaning supplies, organic products, energy efficient appliances), whenever possible.	1	2	3	4
10	I walk, bike, use public transportation or carpool.	1	2	3	4
<b>TOTAL</b>					

<b>SOCIAL</b>		Rarely, if Ever	Sometimes	Most of the time	Always
1	I am involved in at least one university or community group.	1	2	3	4
2	I plan time with family and friends.	1	2	3	4
3	I enjoy the time I spend with others.	1	2	3	4
4	I respect the diversity of others (i.e., race, ethnicity, religion, gender, ability, or sexual orientation).	1	2	3	4
5	I give priority to my own needs by saying 'no' to others' requests of me when applicable.	1	2	3	4
6	I participate in a wide variety of social activities and enjoy being with people who are different than me.	1	2	3	4
7	I try to be a "better person" and work on behaviors that have caused problems in my interactions with others.	1	2	3	4
8	I have someone I can talk to about my private feelings.	1	2	3	4
9	I consider how what I say, might be perceived by others before I speak.	1	2	3	4
10	I give and take equally in cooperative relationships.	1	2	3	4
<b>TOTAL</b>					

<b>SPIRITUAL</b>		Rarely, if Ever	Sometimes	Most of the time	Always
1	I have a deep appreciation for the depth of life, death and understanding universal human connection or consciousness.	1	2	3	4
2	I recognize that there are many spiritual paths and that every spiritual tradition recognizes and teaches basic precepts or laws of wise and conscious human conduct while seeking qualities of altruism, optimism, hope and forgiveness.	1	2	3	4
3	I integrate my "spiritual practice" within everyday life of work, family and relationships.	1	2	3	4
4	I make time for relaxation in my day.	1	2	3	4
5	I take time alone to think about what's important in life - who I am, what I value, where I fit in, and where I'm going.	1	2	3	4
6	I have faith in a greater power, be it a God-like force, or something else.	1	2	3	4
7	I work for peace in my interpersonal relationships, in my community, and in the world at large	1	2	3	4
8	My values guide my decisions and actions.	1	2	3	4
9	I have a sense of purpose in my life.	1	2	3	4
10	I am accepting of the views of others.	1	2	3	4
<b>TOTAL</b>					



<b>INTELLECTUAL</b>		Rarely, if Ever	Sometimes	Most of the time	Always
1	I seek personal growth by learning new skills.	1	2	3	4
2	I listen to ideas different from my own and constantly re-examine my judgments on social, cultural, age, gender, religion, sexual orientation, race, disability, national origin, ethical, and political issues.	1	2	3	4
3	I look for ways to use my creativity and critical thinking skills.	1	2	3	4
4	I am open to new ideas.	1	2	3	4
5	I keep informed about social, political and/or current issues.	1	2	3	4
6	I watch educational programs on television every week, (News, political discussions, documentaries, public TV, or the Discovery channel).	1	2	3	4
7	I learn about different topics that interest me from books, magazines, newspapers, and the Internet.	1	2	3	4
8	Before making decisions, I gather facts.	1	2	3	4
9	I know about available campus resources in my area of study	1	2	3	4
10	I know how to access academic resources when necessary.	1	2	3	4
<b>TOTAL</b>					

<b>FINANCIAL</b>		Rarely, if Ever	Sometimes	Most of the time	Always
1	I always have the money for what I need.	1	2	3	4
2	I review my bank statements when I receive them.	1	2	3	4
3	I pay all of my bills on time.	1	2	3	4
4	I balance or reconcile my bank accounts regularly.	1	2	3	4
5	I keep my Social Security Card or Number in a secure place.	1	2	3	4
6	I save part of my income every time I receive any money (from work, family, gifts, or refunds of any kind).	1	2	3	4
7	I pay my credit card bill off completely every month.	1	2	3	4
8	I check my credit report to look for any errors (TransUnion, Experian, or Equifax).	1	2	3	4
9	I follow a spending plan every month.	1	2	3	4
10	Every time I get a new Debit Card I change the PIN (Personal Identification Number).	1	2	3	4
<b>TOTAL</b>					

## Personal Wellness Checklist

Write in your scores from each of the dimensions and compare it to the maximum score.

DIMENSION OF WELLNESS	MAXIMUM SCORE	YOUR SCORE
PHYSICAL	40	
EMOTIONAL	40	
OCCUPATIONAL	40	
ENVIRONMENTAL	40	
SOCIAL	40	
SPIRITUAL	40	
INTELLECTUAL	40	
FINANCIAL	40	

Which dimensions of Wellness could you improve?

Write 1-2 goals on how you are going to improve your multi-dimensional Wellness:

- 1)
- 2)



## APPENDIX 4

# PEER REVIEW RESEARCH

The following ten institutions were named by the planning team as peer institutions to BHSU. Following is an assessment of how they compare with BHSU’s sustainability efforts.

INSTITUTION	AASHE MEMBER	SECOND NATURE SIGNATORY	CARBON NEUTRALITY DATE	COORDINATION
<b>Bemidji State</b> Bemidji, MN	---	yes Carbon	2050	Strategic Sustainability Plan Sustainability Office Climate Action Plan
<b>Adams State</b> Alamosa, CO	yes	yes Carbon	2030	Climate Action Plan
<b>Minot State</b> Minot, SD	---	yes Carbon	2030	Climate Action Plan
<b>Montana State</b> Billings, MT	---	---	---	Sustainability Office
<b>Eastern Oregon University</b> La Grande, OR	---	yes Carbon	---	---
<b>Louisiana State</b> Shreveport, LA	---	---	---	---
<b>Southwestern Oklahoma State</b> Weatherford, OK	---	---	---	---
<b>Fairmont State</b> Fairmont, WV	---	---	---	---
<b>Georgia Southwestern State</b> Americus, GA	---	---	---	---
<b>Eastern New Mexico University</b> Portales, NM	---	---	---	---
<b>Black Hills State University</b> Spearfish, SD	yes	yes Carbon	2050	Climate Action Plan Sustainability Office Sustainability Coordinator

Note: none of the peer institutions have an active STARS rating OR were a member of Princeton’s Green Colleges & Universities list for 2015 or 2016.

