

Contact: John Nash

CAMPUS SUSTAINABILITY ANNUAL REPORT

Action Requested: Receive the Campus Sustainability Annual Report.

Executive Summary: Iowa's public universities are committed to a sustainable future through academics and research, operations, and economic development. Respect for the impact on the environment is part of decision-making at all levels. Regent institutions apply campus sustainability broadly – in the general operations of each institution, in the curriculum and experiences of students and employees, in effectively collaborating with industry and government, and in technology transfer.

Each Regent university participates in the Association for Advancement of Sustainability in Higher Education (AASHE) Sustainability, Tracking, Assessment, and Rating System (STARS) program. STARS is the universal standard for tracking sustainability in higher education. This report is organized into the three historical categories within the STARS program:

1. Education and Research
2. Campus Operations, and
3. Planning, Administration, and Engagement.

In this year's report, each Regent university has highlighted one accomplishment or project from each of these three categories.

Sustainability contacts:

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1. EDUCATION AND RESEARCH

A primary function of colleges and universities is to educate students. By training and educating future leaders, scholars, workers, and professionals, higher education institutions are uniquely positioned to prepare students to understand and address sustainability challenges. This STARS category recognizes institutions that have formal education programs and courses, as well as sustainability learning experiences outside the formal curriculum.

University of Iowa

Sustainability Programs on the Rise

Sustainability is meeting the needs of the present without compromising the ability of future generations to meet their own needs. Accomplishing this goal requires an understanding of human and environmental systems and the complex interactions between them.

Students at the graduate and undergraduate level are increasingly interested in programs that prepare them to solve interdisciplinary sustainability challenges. The undergraduate sustainability certificate enrolled 90 students in 2015 and has grown to 244 students in 2018. Students take electives in dynamics of natural systems, dynamics of human systems, and communication, ethics, and interpretation. They also must have experience with analyzing real-life problems in and outside of the classroom and with working collaboratively to solve such problems.



On the graduate level, the new Sustainable Water Development (SWD) program, started in fall 2017. It trains MS and PhD students in critical skills needed for food, energy, and water sustainability in resource-constrained communities such as those often found in rural areas, poor urban centers, and developing countries. The SWD program presents a new model for graduate education that connects students directly to communities in need while tailoring education and research activities to each students' career path. Traditional engineering coursework is complemented with training in policy, economics, informatics, communications, and cultural competency. SWD prepares students to be experts and leaders in solving food, energy, and water problems in diverse, global contexts, not only as researchers and professors, but also as entrepreneurs, consultants, and civic, professional, and global engineers.

University of Northern Iowa

Pollinator Habitat Evaluation Services Project

Since 2011, Iowa farmers have taken advantage of the Conservation Reserve Program, administered by the USDA-Natural Resources Conservation Service to set aside over 200,000 acres for the benefit of butterflies and other pollinators. Naturally, many farmers wanted to find out how well their planting was doing, but USDA-NRCS county field offices lack the staff and expertise assist.

The UNI Tallgrass Prairie Center, in collaboration with the Department of Biology identified that UNI biology students could simultaneously serve a need in the rural community, gain experience



doing scientific research, and collect valuable data to address important research questions. A pooled effort with the Biology Department's Summer Undergraduate Research Program brought together five faculty and nine students in the summer of 2017. These efforts were supported by the Roy J. Carver Charitable Trust Science-in-Action program at UNI and the US Department of Agriculture Farm Services Agency.

Student experience began with a three week, intensive course in plant identification, called "Botany Boot Camp", where students were

introduced to nearby high quality remnant prairies. Over three weeks, students learned to identify over 100 species of native plants and weeds, as well as bees and butterflies. Students developed a field protocol for measuring and tracking the density of wildflowers and weeds in each field.

Over the course of the summer, students completed comprehensive field surveys on thirteen sites. Information for each farm was compiled, published, and distributed to each stakeholder. As a result, there was an overwhelmingly positive response from landowners, leading to the creation of even more resilient partnerships for the future.

Student research results from year one of this project can be found on the Tallgrass Prairie Center website at www.tallgrassprairiecenter.org/student-research-posters.

As this work moves forward, the US Department of Agriculture Farm Services Agency has allowed the team to add thirty new sites. Researchers are in the process of sending out a survey to over 800 farm owners as the research project expands. This effort will result in students gaining more experience working with a diverse cross section of landowners and a richer data set.



Iowa State University

Showcasing Sustainable Fashion

Iowa State University offers many hands-on sustainable experiences through clubs and organizations -- one of which is the Iowa State Apparel, Events and Hospitality Management's (AESHM) Fashion Show. From its humble beginning as a simple runway show in a MacKay Hall classroom, it has grown to be one of the largest student-run fashion shows in the nation in its 36th year. The annual event engages hundreds of students as designers, event planners, marketers, and models. It hosts more than 2,500 audience members and hundreds of additional online viewers.

The 2018 Fashion Show challenged student designers to promote durable and creative fashion, as opposed to wasteful, fast fashion through their garments, in accordance with this year's theme of RESILIENCE – encompassing a representation of minimalistic, modern concepts and organic, greenhouse-inspired elements. Each year, the success of the event is dependent upon identifying a Guest Designer who represents and embraces the chosen theme.



The Fashion Show's student planning committee wanted to host a brand that valued sustainability and whose socially responsible initiatives were applicable to all majors and not just limited to AESHM. It was also important the Guest Designer's brand followed a significant mission statement and had a solid presence on Iowa State's campus. Based on these standards, they decided on Patagonia and worked tirelessly to unite not only the Fashion Show, but also a week of activities leading up to the event, with the company's values.



Included in Fashion Week's activities were a clothing swap, encouraging ISU students, faculty and staff, as well as Ames community members, to donate their gently used clothing items in exchange for a "new to you" item of clothing. Patagonia's Worn Wear College Tour set up shop on the Iowa State University campus to offer free mending of any Patagonia gear or a recycling option for gear beyond repair, which is in line with their mission to "cause no unnecessary harm and implement solutions to the environmental crisis." In addition, Patagonia representatives took time to speak to several university classes on the importance of sustainability and the

value of their voice in environmental issues, as well as engaging with high school students during "The Fashion Show's Behind the Scenes" event.

2. CAMPUS OPERATIONS

This STARS category encompasses everything within the daily operation of a campus. It includes quantitative data reporting in the areas of Building Operations, Climate, Dining Services, Energy, Grounds, Purchasing, Transportation, Waste, and Water Usage. This overarching category notes that institutions can design, build, and maintain a campus in ways that provide a safe and healthy environment for the campus community. It recognizes the outstanding efforts to maintain a more sustainable campus environment.

University of Northern Iowa

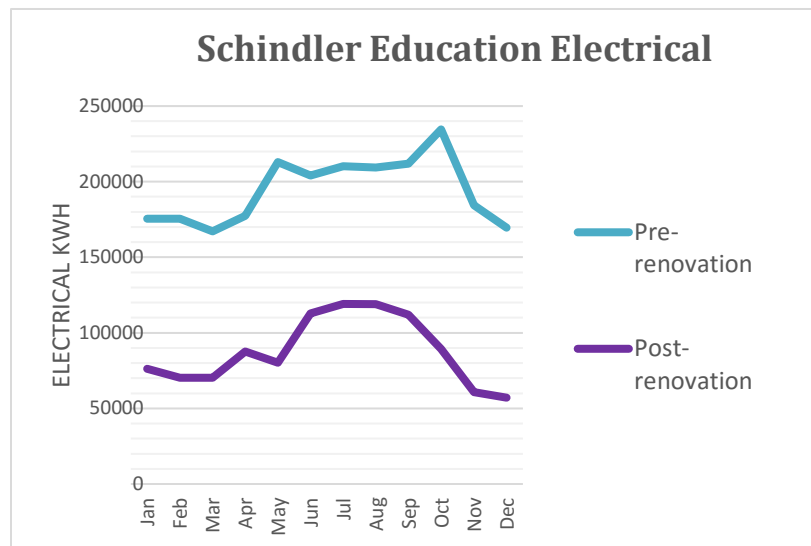
Energy Conservation at UNI

The University of Northern Iowa has a long history of energy conservation. This was evidenced through UNI's early adoption of distributed digital controls in the early 1980s, as well as the more recent installation of Fault Detection and Diagnostic software (FDD). FDD provides continuous feedback of the operation of building mechanical systems and aligns well with our recent implementation of self-performing

building commissioning of new construction projects, as well as re-commissioning of existing buildings. Other energy conservation efforts include building equipment scheduling, specific energy reduction projects, and general building renovations.

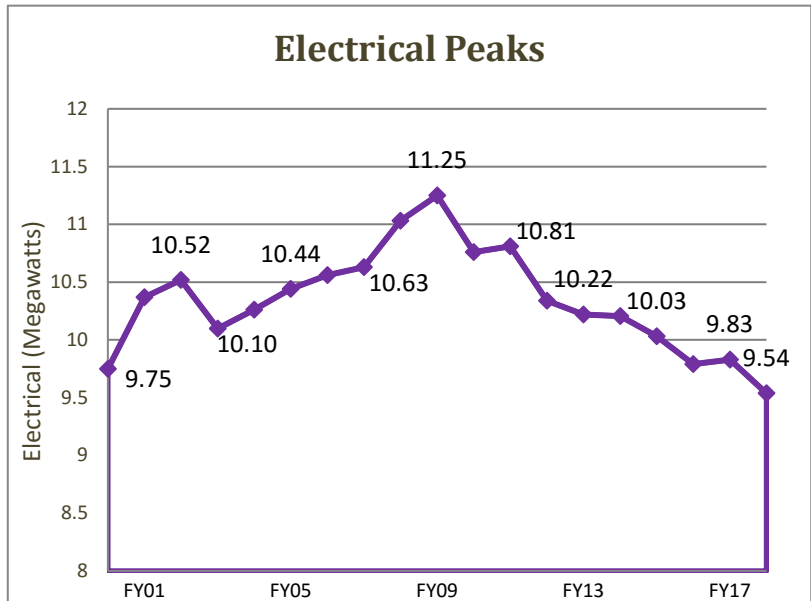


The recent large renovation project of Schindler Education Center has produced a 55% reduction in electrical consumption and a 65% reduction in steam consumption. LEED gold was obtained with this renovation and 37% of the LEED points were related to energy conservation efforts.



Those include replacement of inefficient lighting, adding variable speed drives to fan and pump motors, room level control schemes that include occupancy sensor controlled lighting and temperature set points, innovative HVAC control schemes, energy recovery equipment, and envelope improvements. With all of these efforts, the total campus electrical usage has been reduced by 11% over the past eight years. The total campus steam usage has been reduced by 11% over the past six years.

A prominent area of focus has been controlling the electrical peak of the campus. UNI does not have enough electrical generation capacity to provide power to campus at all times throughout the year. Therefore, we pay the local utility company a peak demand fee in order to have them provide the additional capacity. This rate is determined by the difference between our generation capacity and the maximum hourly usage for the year. Based on historical data, we know our electrical peak is set on a warm afternoon at the beginning of the fall semester. With this knowledge, we are able to engage the campus community in energy reduction efforts, along with leveraging building mechanical and electrical systems with building automation. This effort has reduced the electrical peak for UNI to a level below that of FY2000 (see chart at right). All of these energy reduction efforts have amounted to substantial cost savings to the university.

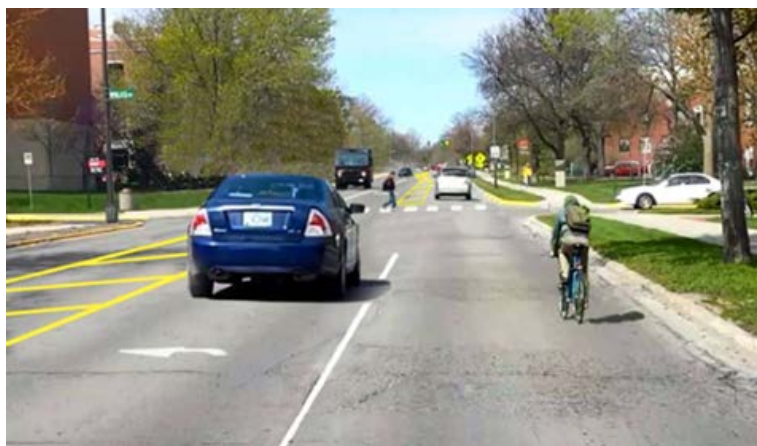


Iowa State University

Mobility Strategies for Safety and Sustainability

During the past three years, the university community has identified and focused on many multi-modal initiatives to improve access, circulation, and safety on campus with a particular focus on pedestrians, bicycles, and transit. This focus strongly aligns with campus sustainability initiatives; encouraging the use of diverse forms of movement through the community. With over 40% growth in enrollment in the past 10 years, circulation of people through the transportation infrastructure has been impacted.

In addressing needs and opportunities, a vast pool of data was collected and considered, ranging from surveys to videos. In addition, the campus community was engaged to participate through surveys, meetings with the nearby building representatives, student groups, transportation advisory council, and open houses. These efforts resulted in several initiatives on core campus streets, street corridors, and intersections. Efforts to better integrate various forms of travel on core campus streets (Osborn, Pammel, Bissell, and Union) have been addressed through multiple strategies. Those include improved pedestrian crossings, widened sidewalks, 'walk your wheels' program and



signage, greater clarity for bikes to ride on-street, reduce daytime on-street parking to increase visibility, greater restrictions for vehicular access to the campus core, elimination of over-road vehicle deliveries to campus core, and adaptations to bus stops. Also, strategies for lane reductions, lane widths, sharrows (bike lanes shared with cars), bike lanes, pedestrian refuge islands, traffic signal upgrades, and phasing for leading pedestrian intervals were implemented.



Transit – With CyRide transit ridership growing to over seven million rides a year, opportunities were recognized to provide a more efficient system and better integration with campus circulation. To that end, CyRide is implementing service changes with new routes and fare reduction among other adjustments.

Bicycles – The university has initiated a bicycle study to review the existing infrastructure, identify gaps in the network and, identify and prioritize improvements. The process includes engagement with the campus community and wellness programs.

As in the past and into the future, the university continuously looks for ways

to improve the campus transportation infrastructure. With a goal of accommodating all modes of travel by encouraging and facilitating low-impact options (pedestrian, bicycle and transit), support is also provided to Iowa State University's overarching efforts in sustainability, environmental, economic, and social.

University of Iowa

University of Iowa Fault Detection & Diagnostics Program and Zero Coal Update

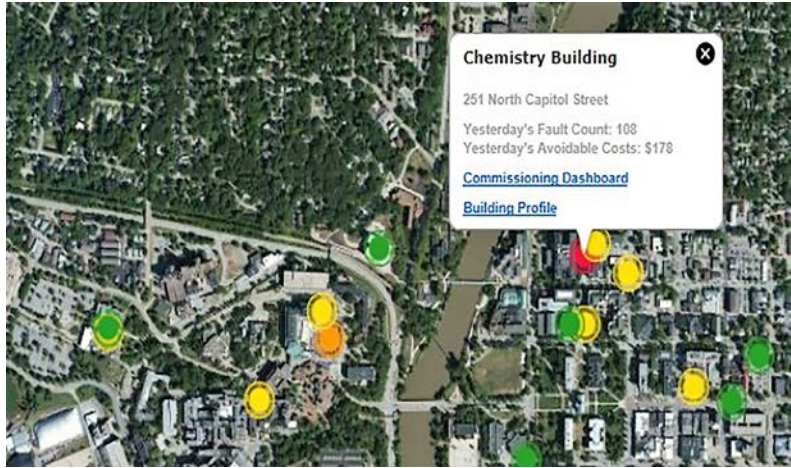
In 2014, University of Iowa Facilities Management began an exhaustive study of a Big Data evolution in building systems management - Fault Detection and Diagnostics (FDD). After visiting Microsoft's Redmond Campus and seeing the substantial impact FDD had on their operations, UI embarked on a groundbreaking, large-scale effort to implement FDD in a campus environment.

By March 2017, UI deployed FDD in 20 buildings across campus encompassing academic, lab, recreational, and office spaces.

Integration included all major HVAC equipment, air handling units (AHU), heating/chilled water (HW/CHW) systems, pumps, terminal units, and four different Building Automation Systems (BAS). Within six months, UI realized \$600,000 in energy savings and demonstrated 24% of quarterly work orders were generated by FDD for predictive maintenance—transitioning the organization from reactive to planned mode. During this time, the UI team addressed 117 energy

issues, 171 comfort issues and 304 maintenance issues. UI also leveraged FDD for commissioning two newly constructed buildings and warranty punch lists.

The successful adoption of a new data-driven culture generated insight and best practices, which UI shared publicly on-stage at APPA's Annual Conference and APPA Institute in 2017. It was also selected for publication in APPA: Leadership in Educational Facilities' March issue of *Facilities Manager* magazine featuring Sustainability Best Practices case studies from institutions large and small throughout North America. The FDD program won a national award in 2018 in recognition of its effectiveness and innovation.



On the supply-side, the UI continues to make progress on its zero coal goal. A boiler at the main Power Plant that had been powered by coal for over four decades has transitioned to zero coal. For the past six months, the boiler has been operating solely on a combination of natural gas and energy pellets. Energy pellets are 60-70% biomass combined with non-recyclable pre-consumer materials that deliver high heating value and substantially reduce emissions at a cost competitive with coal. The next steps will be to develop local production of energy pellets and to transition the one boiler that still uses coal to energy pellets.

3. PLANNING, ADMINISTRATION, AND ENGAGEMENT

This STARS category encompasses a wide variety of planning, engagement and outreach areas. It includes quantitative and qualitative data reporting in the areas of Coordination and Planning,



Diversity and Affordability, Human Resources, Investment and Public Engagement. This overarching category notes that institutions of higher learning can make significant contributions to sustainability throughout society by sharing their experiences and expertise with others. Sharing best practices and lessons learned can help other institutions, communities, and individuals realize efficiencies that they otherwise may not have considered.

Iowa State University

Engaging Businesses in Sustainability

The City of Ames Smart Business Challenge began in 2014, through a collaborative vision of the City of Ames Chamber of Commerce, City of Ames Electric Services and Iowa State University Office of Sustainability, and kicked-off as a part of the citywide sesquicentennial celebration. Since that time, the Challenge has been adopted as a new comprehensive EcoSmart program of the City of Ames, Smart Business. The Challenge is devoted to celebrating the sustainable achievements of Ames businesses, as well as increasing awareness of and engagement in sustainable opportunities related to products, procedures and practices.



The Challenge is overseen by the ISU Director of Sustainability as part of a shared services agreement between ISU and the City of Ames to engage the community, as well as campus in sustainability efforts, opportunities and commitment. In addition to outreach and engagement offered through these shared services, the Challenge also offers two student internships each academic year, allowing ISU students the opportunity to assist community businesses in achieving their goals and supporting a sustainable Ames, while also gaining a diversified portfolio of professional development skills.

Businesses can join the Challenge to simply show their support for and commitment to a more sustainable Ames, or they can join to receive sustainability certification. Certification is based upon dedication to and accomplishment in all facets of sustainability (environmental, economic and social) and focused on 10 specific performance areas including: energy and water conservation, transportation, waste reduction, indoor and outdoor environmental quality, carbon

footprint and community engagement.

A business can achieve one of four levels of certification, bronze, silver, gold or platinum, based upon their level of commitment within each performance area. To achieve each certification level, a business must exhibit achievement in eight of ten areas. Achievement is based on providing education and awareness related to the performance area – bronze; implementing practices and procedures relevant to the performance area – silver; and adopting policies or commitments in line with the performance area – gold. LEED Platinum certification is achieved by implementing a practice or procedure that goes above and beyond any performance area. By offering a certification based upon quality of commitment, rather than quantity of performance, the Challenge is accessible and high levels of achievement are attainable for any size and type of business and is not biased to businesses that own their buildings, rather than rent.

As well as the opportunity to attain certification, businesses are also invited to city and university sustainability events to highlight and be recognized for their sustainable achievements and commitments. The first annual Smart Business Challenge Recognition Event was held in 2018, specifically honoring the Challenge's seven platinum certified businesses, including a grocery store, car wash, retirement community, restaurant, medical clinic and secondhand clothing store. To date, 27 businesses have joined the Smart Business Challenge.

University of Iowa

Sustainability Theme Semester and Iowa Initiative for Sustainable Communities

The University of Iowa's Theme Semester unites faculty and students across campus on a single issue once a year. It is a collaboration that brings diverse perspectives to bear on a topic of importance to Iowa and the world. Grounded in the education mission of the university, the Theme Semester provides opportunities for teaching, engagement, and learning both on campus and throughout the state of Iowa. This year's theme, Climate for Change, brought together the UI, City of Iowa City, state of Iowa and national experts to explore topics related to sustainability – from community health and economic development to the environment and social equity.

Theme semester events ranged from lectures including Ellen Stofan, former Chief Scientist of NASA, and a World Climate Simulation to an Iowa River cleanup and a faculty business sustainability summit. A Prompt for the Planet event, organized by a UI student, engaged high school students around eastern Iowa as well as students on campus to showcase their creativity and interests through art, music and poetry.



The Provost's Office of Outreach & Engagement is the umbrella office to the Theme Semester as well as the Iowa Initiative for Sustainable Communities. This past year, the IISC worked with students and faculty from 18 different UI departments to complete 22 projects ranging from a mobile app design for Visit Mason City to a brownfields inventory and prioritization plan for the East Central Intergovernmental Association's 5 county region. In total, UI students and faculty

worked with 23 community partners and completed more than 20,000 hours of work across the state of Iowa.

University of Northern Iowa

Iowa Green Brewery Certification Program

The Iowa Waste Reduction Center, part of UNI's Business and Community Services has been helping Iowa small businesses reduce waste and decrease their environmental impact for over 30 years. In early 2017, the center officially launched its latest program focused on a fast growing, resource intensive industry - craft breweries.

The Iowa Green Brewery Certification Program aims to provide technical assistance to Iowa's brewers to ensure they are not only meeting applicable environmental regulations and compliance requirements, but are able to surpass the requirements to improve their efficiency and reduce their footprint on the environment.



IWRC specialists first work to ensure the brewery is complying with all applicable air quality, stormwater, wastewater, and non-hazardous, and hazardous waste regulations. Then they work collaboratively with the brewery on four main categories.

1. Environmental management
2. Energy efficiency
3. Water quality and conservation
4. Solid waste and resources management

For each one, the specialists provide a current assessment of where the brewery ranks in each category and provides recommendations to improve. Some recommendations can be as simple as installing motion sensors and timers, swapping out old light bulbs for energy efficient bulbs, or finding a local farmer to send their spent grain rather than tossing it in the landfill.



Beyond the technical assistance, each brewery is then awarded a certification level based on their overall environmental compliance and management. As of April 2018, six breweries have joined the program with many more currently in the process of implementing initiatives to achieve their desired certification level. Breweries currently in the program include SingleSpeed Brewing (Waterloo, IA) at platinum; followed by Franklin Street Brewing Company (Manchester, IA) with gold; Keg Creek Brewing (Glenwood, IA), Lark Brewing (Waterloo, IA), and SingleSpeed Brewing (Cedar Falls, IA) with silver; and 7 Hills Brewing Company (Dubuque, IA) with bronze.

In its short time, this program has received statewide recognition. In October 2017, the Iowa Recycling Association awarded the program with its Commitment to Iowa Award. The award is provided annually and recognizes a project that has demonstrated noteworthy advancements, innovation, or commitment to recycling or waste reduction in Iowa.

In addition, the manager for the program has had discussions with two other states that are replicating the Iowa Green Brewery Certification Program. Most recently, the IWRC has collaborated with the Brewers Association, the national organization for craft brewers, to host a six to eight week summer 2018 internship for a University of Northern Iowa student. That student will be working with Iowa craft breweries to provide environmental and cost-saving solutions by utilizing the Brewers Association's proprietary benchmarking tools.