MISSION STATEMENT

The mission of the Office for Sustainability is to guide and assist the Western Michigan University community in fulfilling and growing its sustainability commitments. Through building a diverse and flourishing learning community around sustainability, we will continually explore and develop new opportunities to create a culture of sustainability and improve quality of life for all.
Dear Friends,

Colleges and universities have been defined by what happens in academic departments. But the world has problems—serious, knotty, and increasingly interconnected problems—and these generally do not fit neatly into departments.

Climate change leadership requires casting climate change as a symptom of a larger set of problems—from poverty to overconsumption and bad design to biodiversity loss—that drive unsustainability and diminish quality of life for all. At Western Michigan University, we recognize that there is a tremendous opportunity to create transformative, system structure change by reimagining formal education and using it to build a culture of sustainability.

Climate leadership is certainly about greenhouse gas reduction. We have reduced ours by 13% from 2008 to 2012 using no offsets, and we started at 12% below the average for doctoral-granting universities. Over the past 17 years WMU increased building square footage by 19% and reduced energy use by 15%, and we just added 235 kW of PV. Climate change leadership is also about behavior change research, water conservation, and green building. We are partnering with Honeywell to explore the potential of electricity dashboards to facilitate consumption reductions. We have reduced water use by 50% over the past decade and are approaching stormwater neutrality. We have followed Leadership in Energy & Environmental Design principles on 14 buildings, require all major new buildings to be LEED Silver Certified at a minimum, and have the first LEED EB Gold building in higher education.

Climate leadership is also about fiscal responsibility and wise, anticipatory administrators who model their sustainability commitments. The Sustainable Endowments Institute has identified WMU as having the oldest documented Quasi-Revolving fund and the one with the second highest return on investment. WMU is a Founding Circle Member of the Billion Dollar Green Challenge, our president serves on the ACUPCC Steering Committee, and we have built sustainability into our mission and Strategic Plan and use STARS as a core framework for evaluating it’s implementation. Climate leadership is about students who have the vision to create a Sustainability Fee (ours was the first in Michigan), engaged faculty (42 faculty from all seven colleges participated in our Sustainability Across Research & Teaching Initiative in year one and we are researching and developing sustainability core competencies), and integrating sustainability into our First Year Seminar (through a video competition).

Finally, climate leadership includes cultivating community engagement. Our Community Sustainability Incubator model is gaining wider recognition as others begin to seek place-based solutions to climate change dilemmas. During the past year community and university partners collaborated to deliver more than 25 major climate change programs. We are leading the City of Kalamazoo’s first GHG inventory and this year’s National Campus Sustainability Day featured a Community Sustainability Roundtable (with nine campus and community leaders, including our president and the mayor) and a Sustainability Slam.

For these and other efforts, the Detroit Free Press recognized WMU as a 2013 Michigan Green Leader. These collective efforts to build a culture of sustainability have begun to inform everything we do; it’s becoming second nature.

Warm regards,

Harold Glasser, Ph.D
Executive Director for Campus Sustainability & Professor

This piece was submitted as a competitive entry for the 2014 Second Nature Climate Leadership Award. In June 2014, it was announced that WMU was a winner of this national award in the Doctoral Granting Universities category.
STUDENT SUSTAINABILITY GRANT

WMU undergraduate and graduate students are expanding action research on campus, creating the green jobs of the future right now, and tackling real world problems that require collaboration and global engagement.

The Student Sustainability Grant is available to all students who pay the Student Sustainability Fee. Proposals that promote a campus culture of sustainability and potentially benefit all students are eligible. Proposals must be safe, legal, adequately budgeted, and possible within existing University infrastructure to qualify. Selection is through a blind-review process by student peers. Faculty members are encouraged to sponsor and mentor student efforts. Proposals are due at 11:59 p.m. the Thursday before Thanksgiving (fall allocation) and 11:59 p.m. the Thursday before Spring Break (spring allocation). $75,000 was available during the 2013–2014 academic year. Student projects that have helped to shape our campus’ growing culture of sustainability include:

- The Campus Bicycle Cooperative now the Bike Stable
- The Campus Beet Open House & Weekly Meal now the Campus Beet
- The Student Garden now the Gibbs Farm

Recent grantees on the aquaponics team are growing fish and plants in a closed-loop indoor system. The Office for Sustainability has adopted this project, dedicated interns to manage it, and plans to expand on it. Other recent grantees on the apiculture team, spearheaded by the Registered Student Organization “Students for a Sustainable Earth,” established a thriving apiary near the WMU Parkview Campus. They harvested 180 lbs of honey in their first season and used some of it to produce products like lip balm and hand lotion. They have also graciously donated jars of honey for university events and accepted donations to support future operation and maintenance of the apiary.

The Student Sustainability Grant program is learner centered and supports discovery driven student projects. It is a collaborative effort between the student body, the Western Student Association, Student Activities and Leadership Programs, and the Office for Sustainability.

The WMU Student Sustainability Grant is a nationally recognized program that has awarded over $120,000 for student projects since Fall 2010.
EXPERIENTIAL OPPORTUNITIES

The Office for Sustainability offers a range of ways for undergraduate and graduate students to get involved with campuswide sustainability efforts. The following are opportunities, in order of increasing time commitment and responsibility:

- Volunteers are always needed to help with Office for Sustainability efforts and many other campuswide tasks.
- A limited number of paid part-time positions are available each semester. These positions are recommended for undergraduates and require a commitment of 4 or more hours per week.
- Wesustain Internships are semester-long opportunities open to all students who pay the sustainability fee. Interns participate in leadership and discovery-driven learning opportunities and are introduced to sustainability research projects, and policies. Internships require a commitment of 6 or more hours per week.
- The Gibbs House Fellowship is a year-long, residential, cooperative living program for students to implement sustainable design solutions and projects. The historic Gibbs House borders the expansive Asylum Lake Preserve and aims to serve as a community sustainability resource center for the research, education, and practice of sustainability principles.
- A limited number of graduate and doctoral assistantships are available each semester. Assistantships are highly competitive and availability is limited by funding.

101 students, hailing from the United States, Haiti, Kenya, Nigeria, Dominican Republic, Japan, Ethiopia, Poland, and China, have participated in the Office for Sustainability’s programs since Fall 2010. 18 students have attended leading national campus sustainability conferences and 13 delivered presentations.
ENGAGING FACULTY

It’s not just students creating WMU’s campus culture of sustainability. Faculty sustainability champions are emerging as they work to fulfill WMU’s commitment to the infusion of sustainability across the curriculum.

In January 2012, the Office for Sustainability conducted a survey of faculty to help identify and prioritize the types of initiatives and policy changes faculty believe are important for facilitating the infusion and integration of sustainability into research and teaching. The result of this survey was the creation of the Sustainability Across Research & Teaching (StART) Initiative, a ground-up, faculty-driven effort in the form of a new universitywide learning community on education and research in the broad areas of sustainability.

The Office of the Provost, the Office of Faculty Development, and the Office for Sustainability supported the StART-II Initiative which offered opportunities for a focused, cross-disciplinary group of faculty to study pedagogical topics of shared interest in an in-depth, ongoing, scholarly, and systematic manner. Participants delved into existing research on their common area of inquiry, then designed and pursued individual projects that required them to apply and test new ideas and information about teaching and research in sustainability. Participants advanced their professional skills and promoted the development of new or updated sustainability curricula.

The Office hosted Faculty Learning Community meetings and generated a related resource website, purchased materials for faculty in part using funding available through a 5-year, $50,000 Milton Ratner Foundation grant, hosted visiting advisors (Dr. Michael Shriberg, from the University of Michigan Graham Sustainability Institute and Dr. Mitchell Thomashow, past president of Unity College), and recently completed a Spring 2014 event with students, faculty, and potential employers called the Sustainability Leadership Summit featuring David Hales.

Of 3,049 courses, WMU offered 197 undergraduate and 65 graduate courses that included sustainability during the 2012-2013 academic year.
Supporting Sustainability Infusion

Office for Sustainability Graduate Assistant, Jamie Hirsh, has been conducting foundational and evidence-based research toward the development of a more immersive sustainability curriculum, including the potential creation of a sustainability-focused graduate program. The majority of this research has been comprised of developing and identifying “core competencies” in learning for sustainability—meaning the minimal set of knowledge, attitudes, and skills that are well-suited to support sustainability challenges and opportunities, as well as transformative system structure changes needed to improve quality of life for all. Further progress in this line of research was explored in 2013 during a workshop sponsored by the Office for Sustainability at the annual Association for the Advancement of Sustainability in Higher Education conference that took place in Nashville, Tennessee. A publication stemming from the experience gained from conducting this workshop is in the works. A second publication focused on persistent gaps, challenges, and conceptual issues related to this line of research, including a meta-analysis of the existing research, is also in development.

In exploring the creation of an interdisciplinary sustainability graduate program, case studies on other academic sustainability programs were developed to help understand how programs address the development of learning outcomes and the assessment of competencies.

Sustainability conversations and faculty champions are blossoming around campus in areas including sustainability education, behavior change, and resource development. The Office for Sustainability continues to connect with faculty involved in new sustainability and climate change efforts in the Center for Research on Instructional Change in Post-secondary Education, the Transportation Research Center for Liveable Communities, and the Humanities Center Climate Change Work Group. WMU faculty are leading these efforts, and the Office for Sustainability is thrilled to support everything we can.

Pending final approval, for fall 2014 several new sustainability program offerings will become available to students in diverse areas including food service, business, engineering, and freshwater studies.
PLANNING

The President’s Universitywide Sustainability Committee includes representatives from all seven colleges, major operations units, and both undergraduate and graduate students. Many of the highlights documented in this report stem from actions taken to meet goals detailed in a 2009 Strategic Sustainability Initiatives Report. Contact the Office for Sustainability if you are a Bronco interested in participating.

CAMPUS SUSTAINABILITY ASSESSMENT

Western Michigan University recently generated our first Sustainability Tracking, Assessment & Rating System (STARS) report, and we were rated gold. The system is a transparent, self-reporting framework for measuring the University’s sustainability performance developed by the Association for the Advancement of Sustainability in Higher Education.

The report details sustainability in curriculum, research, engagement, operations, planning, administration, and innovation and cuts across all five categories of WMU’s strategic plan. This rating system was chosen by the Associate Provost for Institutional Effectiveness as a key tool for organizing strategic planning implementation efforts.

Ongoing reporting for numerous campus sustainability rating/ranking schemes (including but not limited to STARS) reaffirms our belief that to provide value they must be relevant to policies and practices on campus and have buy-in and support from administrators. Without buy-in and clear linkages to internal strategic planning processes, participation might be more of a distraction to sustainability champions, taking away precious time to implement potential sustainability initiatives already prioritized on campus.

INVESTING IN LEADERS

The Wesustain Internship Program provides students with the necessary skills to be well-informed and effective advocates and leaders in creating a sustainable future for all. In order to improve upon the existing program operated by the Office for Sustainability, best practice research was conducted on experiential learning practices. Diverse programs were evaluated through phone interviews and an online resource review leading to case studies. Examples of program design, feedback methodology, and learning objectives were identified as possible models that could enhance the current program.

This research, combined with feedback from previous participants, identified a clear demand and great opportunity to improve and re-imagine the program. A newly designed “Sustainability Leadership Internship”, launched in fall 2014, will provide an experience that develops a diverse set of skills in our students.

An internship leader will coordinate the new program.

The Wesustain Internship program will integrate foundational learning to provide a positive and well-rounded experience for students.
INVESTING IN OURSELVES
In October 2011, Western Michigan University became the first university in Michigan to join with 32 other universities to form the Founding Circle of the Billion Dollar Green Challenge. The Challenge is a program of the Sustainable Endowments Institute, which has also recognized WMU as one of 80 national campus sustainability leaders.

Participants vow to invest a minimum of $1 million over four years in green revolving funds that support energy conservation and other sustainability initiatives on their campuses. The Challenge is inspired by the success of green revolving funds which lower operating costs through investments in sustainability initiatives that yield avoided costs. Savings are reinvested (at least in part) in the green revolving funds to yield additional avoided costs, continuing the cycle. When the Challenge becomes fully implemented, the entire campus community will have the opportunity to propose an increasingly diverse set of green projects and initiatives. In the meantime, WMU continues to turn over every leaf to identify investment opportunities here on campus.

RESULTS
WMU is a signatory to the American College & University Presidents’ Climate Commitment and has a Climate Action Plan (2012). Both recognize that colleges and universities must take initiative and serve as models for society by exemplifying behavior that works to eliminate greenhouse gas emissions and to graduate citizens with the skills and stamina to address climate change.

Building from previous Greenhouse Gas Inventories (2008 and 2012) and using the Climate Action Plan as a living document, which maps a path to achieving carbon neutrality by 2065, an implementation committee took shape in 2013. The committee is co-chaired by Dr. Paul Pancella, Department of Physics, and Chris Caprara, WMU Energy Manager. There will be many opportunities to leverage the Climate Action Plan and use it to further sustainability research, teaching, and other operations.

Between 2008 and 2012, WMU substantially reduced emissions of equivalent carbon dioxide (eCO₂) by 14.1% (see figure to right). There are two reasons for this reduction. The primary reason is that we purchased less electricity generated from the burning of coal from Consumers Energy (Scope II), and substituted natural gas used in our own cogeneration power plant to generate electricity and steam. Burning gas results in fewer emissions. The secondary reason for our reduction is related to the availability of better commuting data in 2012 (part of Scope III). Our 2008 estimate was high, but we obtained more rigorous data in 2012 due to a collaborative campuswide transportation survey effort with WMU Auxiliary Enterprises and Parking Services.

2008
- SCOPE I: 59,654 MT eCO₂
- SCOPE II: 24,939 MT eCO₂
- SCOPE III: 39,872 MT eCO₂

2012
- SCOPE I: 70,444 MT eCO₂
- SCOPE II: 5,312 MT eCO₂
- SCOPE III: 31,172 MT eCO₂

RECOGNITION & CONTINUED LEADERSHIP
On behalf of sustainability champions across campus, we are proud to highlight several recent awards that recognize WMUs long-term investment, leadership, and future commitments. WMU has:

- Been named a 2013 Michigan Green Leader in the public sector category by the Detroit Free Press.
- Won a 2014 Climate Leadership Award from the higher education sustainability thought leader, Second Nature, and earned the most votes in the associated video competition with co-organizer Planet Forward.
- Become a founding signatory of the Alliance for Resilient Campuses, a commitment to respond to challenges triggered by global climate change.

WMU emissions dropped by 14.1% between 2008 and 2012 and we are well on our way to achieving our 2065 carbon neutrality goal.
ECOMUG
In 2009, Western Michigan University created a novel waste reduction initiative. WMU was the first major university to offer all incoming students a free, reusable beverage container. The EcoMug is a high-quality, ISO-certified, stainless steel mug with a variety of incentives. The EcoMug is designed to do much more than counteract disposable cup use on campus. It’s an innovative model for introducing students to our sustainability commitments and for encouraging long-term, meaningful behavior change.

EcoMug highlights:
• Nearly 19,000 mugs have been distributed since 2009.
• Consumers Credit Union has sponsored the EcoMug for the past three years.
• Thirteen local businesses and all campus cafes offer discounts for using the EcoMug.
• The EcoMug is the only reusable mug accepted in WMU’s dining halls.

FOOD WASTE MANAGEMENT
Scraping perfectly good food into trashcans and garbage disposals strains landfills, provides extra loading to wastewater treatment plants, generates additional greenhouse gas emissions, wastes money, and is unjust to the nearly one billion people worldwide who are undernourished. Composting this post-consumer food waste presents unique challenges, and the Office for Sustainability continues to investigate cutting edge practices that mimic biological processes (a concept known as biomimicry).

Current research examines:
• Challenges related to vermicomposting post-consumer food waste such as the treatment of meats, dairy, fats, and oils.
• Development of a general compost system at the community garden.
• Signage and communication (see figure above).

Future plans:
• Integration of aquaponics with a viable food composting system containing black soldier fly larvae.
• Feasibility study of heating a hoop house utilizing the heat generated from composting.

FOOD COMPOST
Vegetables
Fruits
Coffee Grounds (No Filters)
Tea Bags (No Staples)
Grains & Grain Products
Egg Shells

No Greasy Foods, Fatty Foods or Nuts
DISCOVERY DRIVEN ACTION RESEARCH

In the spring of 2012, Carolyn Noack, Manager of Solid Waste Reduction, conducted a study in Schneider Hall to determine if recycling could be handled by regular custodial staff without significantly increasing workload. Recycling and trash containers were removed from classrooms and replaced with centralized waste stations. Occupants of offices were required to empty their own landfill trash container. This process was so successful that the study became a model for expansion across campus.

Starting in fall 2012, Building Custodial & Support Services (BC&SS) and Solid Waste Reduction began a systemized implementation of the process for all campus buildings. Full implementation was attained in early 2014.

This process has allowed BC&SS to focus less time on waste handling even though they now handle the recycling as well as the landfill trash, resulting in cleaner buildings. In addition, the onus for proper waste handling is placed on the generator of that waste, hopefully resulting in a better understanding of waste practices.

The custodial staff is pleased with the program due to the reduced number of containers that must be serviced. There have been some challenges such as removing bins from areas that needed especially easy access and perceived aesthetic challenges in high profile locations. Most concerns were alleviated with discussion or elapsed time. However, some situations required a more comprehensive redesign of the process.

Numerous Solid Waste Management programs over the past twenty years have steadily advanced, leading to a waste diversion rate of 77% and recycling rate of 62% in 2012 (see figure below). This includes construction and demolition debris.

WMU added 20 combined waste/recycling stations—10 indoors and 10 outdoors in 2013.
TRANSPORTATION

ELECTRIC VEHICLE INFRASTRUCTURE

In February 2012, 15 new electric vehicle charging stations and a 50 kilowatt solar photovoltaic array were activated near the Miller Auditorium parking deck. The project was funded by a $700,000 Department of Energy grant administered by the Clean Energy Coalition, which also offset the cost of five all-electric Ford/Azure Dynamics Transit Connect work vans and two other vehicles. Dr. Harold Glasser, Executive Director for Campus Sustainability, was the grant’s principal investigator, but putting this new infrastructure to work at WMU would never have happened without the expertise, collaboration, and long-term commitment of WMU’s operations teams.

The solar panels:
• Generate enough energy annually to run about 5.6 average U.S. homes.
• Generate enough energy each day, on average, to fully charge approximately 11 Chevrolet Volts, 7 Nissan Leafs, or 6 Azure Ford Battery Electric Transit Connects.

The electric vehicle charging stations:
• Operate 24/7 on the national ChargePoint network.
• Are compatible with all electric or plug-in hybrid electric vehicles.
• Are free to the public until at least June 2015.

The infrastructure:
• Encourages the purchase and use of electric vehicles by providing access to charging stations.
• Supports research and WMU’s growing electric vehicle fleet.
• Stores excess nighttime WMU-generated power in vehicle batteries for later use on campus.
• Offsets an estimated 142,720 pounds of carbon dioxide annually.

By January 2014 the array had generated more than 130,000 kilowatt hours of electricity and the work vans had used more than 26,000 kilowatt hours.

WMU’s electric vehicle charging capabilities are the new standard for campuses nationwide.

THE BIKE STABLE

The Bike Stable leads group rides, workshops, weekly open studio nights, and research. Open studio nights provide students, staff, and community members the opportunity to gain hands-on experience fixing their own bikes under the guidance of peer mechanics. The service is free for all, but participants are required to bring their own parts in most cases. The Stable team also researches the viability of bicycles or cargo bicycles in place of or in addition to motorized campus fleet vehicles.

Our Bike Stable program hosts weekly shop nights that are open to the public and have had over 340 visitors since 2010, and a bike rental program is set to launch in 2014.
NON-MOTORIZED TRANSPORTATION
The Office for Sustainability conducts best practice and policy research on non-motorized transportation. This past year, Kevin Martini investigated bikeshare options for WMU and regional stakeholders. Research results were presented at a town hall event in Kalamazoo and at a national sustainability conference in Nashville. We also wrapped up extensive best practice research on policy and signage for pathway designation, specifically pertaining to pedestrian and bicycle users. This best practice analysis formed the basis of a document authored to guide WMU in the development of a codified and well-marked non-motorized transportation infrastructure for the consideration of the campus planning and finance council.

The office works to promote the use of alternate transportation across the WMU community by quantifying, researching, and testing new ideas. On an average day in September 2013 Dr. Scott Smith’s planning class counted 696 bicycles parked at 93 different bike racks and an additional 83 fugitive bikes parked elsewhere on campus. A 2011 WMU transportation survey indicated that 46% and 23% of students and employees, respectively, use more sustainable commuting options, which are options other than single occupant automobiles for commuting.

COMMUNITY & ALTERNATIVE TRANSPORTATION
Student and community collaboration is on the rise with campus groups and local bicycle advocacy groups responding to surveys, distributing information, connecting potential collaborators, and hosting meetings. The Office for Sustainability has also lent support to the newly formed Kalamazoo Bicycle Pedestrian Coalition, which has made incredible progress collaborating with the Michigan Department of Transportation, the City of Kalamazoo, and local Kalamazoo businesses to identify infrastructure problems and opportunities.

Related research is also increasing around campus. A WMU research team under the direction of Dr. Jun-Seok Oh received a $1.4M grant from the Department of Transportation in 2013 to support a transportation research center on campus to improve sustainable transportation options for underrepresented communities.

The Office for Sustainability installed a publicly available do-it-yourself bike repair station at 2529 W. Michigan Ave. It is accessible 24-hours per day.
This Western Michigan University Campus Sustainability Features Map identifies buildings, initiatives, and certifications that demonstrate our efforts to build a campus culture of sustainability and model our university’s sustainability commitments. Some of these “features” are visible and standout, others are seamlessly integrated into everyday operations. In every case, however, these efforts represent bold and inspiring attempts of members throughout our campus community to link vision to action. Sustainability efforts and initiatives are popping up in departments, programs, offices, centers, and institutes all over campus—from Dietetics to Environmental and Sustainability Studies and the Office of Diversity and Inclusion to the Center for Sustainable Business Practices. We are fortunate to have a tremendous abundance of sustainability activities on this campus and cannot do the depth and breadth of these efforts justice by singling out a few—please talk to your friends, colleagues, and professors, and ask: “What does sustainability mean to you?”
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ENGAGEMENT

INTRODUCING SUSTAINABILITY
WMU showcases sustainability in its promotion and recruitment materials. It is a collaboration between the Office for Sustainability, several departments, and faculty sustainability leaders. Future Broncos and their families get an early introduction to our unique campus culture of sustainability.

Student Orientation Leaders and Student Ambassadors provide campus tours and trainings highlighting, among other things, campus sustainability infrastructure and programs. Students and their families are encouraged to connect the dots between Ecomugs, hydration stations, solar panels, green roofs, stormwater features, natural areas, diversity and inclusion, economic development, climate change, and sustainable communities.

EXPERIENTIAL LEARNING
The First Year Seminar video contest is a collaboration between the Office for Sustainability and First Year Experience that offers incoming students an alternative research project. Since Fall 2011, students have worked to create interesting, compelling, and professional videos focusing on campus sustainability topics. Students have the opportunity to learn basic research methods, gain knowledge of sustainability on campus, advance their video production and communications skills, have fun, and spread the word about WMU’s sustainability achievements. Videos may range from 2-3 minutes and students formally script, storyboard, shoot, and edit their videos with support from section instructors.

STAYING CONNECTED
The Office for Sustainability actively engages with students and the greater WMU campus community using Facebook and Twitter. Since we implemented a new social media plan at the start of the Fall 2013 semester, we have gained 216 more followers on Facebook and 135 more followers on Twitter. Our average Facebook post now reaches 683 individuals, with the highest posts reaching upwards of 1,300 individuals. Followers specifically access and view our Facebook page 18 times a day on average, which includes links to photos, events, and posts. Those who engage with our social media learn more about campuswide sustainability and how they can take advantage of the opportunities and events available to them.

44 documentaries and public service announcement videos have been completed by 18 sections (over 750 students) of First Year Seminar.

We continue to gain followers every day and welcome you to join in by visiting:

facebook
www.facebook.com/WMU.Sustainability

twitter
www.twitter.com/WeSustainWMU
STUDENT PARTICIPATION

The WMU Sustainability Fee was created in early 2010. To honor this student-led initiative the student body is invited to complete an annual Student Sustainability Survey, which is often created and promoted by students in Dr. Glasser’s Environmental and Sustainability Studies 4100 class.

This year the survey collected ideas, suggestions, and recommendations from 1,356 students, an 8% increase over the previous year. Both undergraduate (84%) and graduate students (16%) responded.

A Town Hall Meeting was conducted and 35 survey participants discussed elements of the survey and Sustainability Fee. The survey team used survey and meeting results to recommend short and long-term goals.

Short-Term:

- Increase healthier food options on campus, including local and diet sensitive options. Develop a student initiated Sustainable Café.
- Create a sustainability campaign in coordination with the Office for Sustainability to further advance the building of a campus culture of sustainability and increase sustainability-oriented learning opportunities for students.
- Integrate sustainable living strategies and trainings into Residence Life.

Long-Term:

- Create an introductory sustainability course to fulfill general-education credits.
- Increase investments in renewable energy infrastructure (i.e., solar, wind, geothermal).

The annual survey process creates another pathway for the student body to help shape campus sustainability efforts.

WMU’s sustainability website serves new students by connecting them to past, present, and future sustainability initiatives across campus and community. Visit http://www.wmich.edu/sustainability.
INCUBATION
Fostering sustainability requires collaboration across the student body, faculty, staff, administration, and community partners. We think of it as building bridges around campus and blazing trails between campus and our surrounding community.

Sustainability incubation often happens in our budding Office for Sustainability, which features a variety of flexible work, research, and studio spaces and houses existing campus sustainability initiatives such as the Bike Stable. The office has been designed to stimulate and advance brainstorming, collaboration, and experiential learning as well as to test emerging sustainable products and technologies. It features upgrades and pilot test examples of electric vehicle charging, food and fiber compost collection, a DIY outdoor bike repair station, and “zero waste” pilot testing. A recent LED lighting retrofit lowered electricity usage substantially (see figure to right).

Incubation also means being at the table with community both on and off-campus. It means sharing the responsibility of developing leaders who can move WMU sustainability commitments forward to create thriving, regenerative, living local economies that improve quality of life for all.
SUSTAINABILITY EVENT SERIES
During 2013 we shaped what has become our Annual Sustainability Event Series. The Series includes National Campus Sustainability Day, a Sustainability Across Research & Teaching (StART) event, and SustainabiliBASH.

Campus Sustainability Day events feature workshops, campus tours, community discussions, and national and local sustainability leaders. Our first special guest was “Planetwalker” John Francis. Francis spent years walking through the United States without speaking. Along the way he earned advanced degrees and developed a deep commitment to action, which he shared with our campus and community.

A more recent event featured a Community Sustainability Roundtable panel discussion with campus and community leaders (including students, President Dunn, and Kalamazoo Mayor Bobby Hopewell). It also included the first ever Sustainability Slam, which featured 22 two-minute talks by a diverse group of community members. Talks were a cross between a TED talk and a poetry slam. Both elements brought community leaders to campus to help us all explore the question “What does sustainability mean to you?”

Spring StART guests have included Dr. Mitchell Thomashow and David Hales. Both guests explored sustainability in higher education with the public, faculty, students and administrators. Dr. Thomashow explored his approach to the elements of campus sustainability, and David Hales emphasized the urgency, challenges, and opportunities before us in the face of planet-scale dilemmas like overconsumption, community breakdown, climate change, biodiversity loss, and inequality.

Our Sustainability Leadership Summit explored the skills, knowledge, and attitudes established and growing local sustainability champions are looking for from new talent using an open panel discussion. Comparative perspectives from public and private sector employers were represented.

The SustainabiliBASH is a celebration of WMU’s sustainability achievements organized by students for students. Recent BASH celebrations at Gibbs House have featured food from the Gorilla Gourmet Food Truck and the Campus Beet, live local music, permaculture demonstrations, educational tabling, and hands-on skill development.

We still manage to squeeze in other special guests when the opportunity arises. Dr. Dorceta Taylor from the University of Michigan focused on justice and sustainable food systems. She met with students, staff, faculty, and community and delivered a public keynote titled Race, Poverty, and Access to Food in America: Resistance, Survival, and Sustainability. She packed the house during her keynote at Sangren Hall.

COMMUNITY ON CAMPUS
The Office for Sustainability:
• Co-designed, built-out, initiated programming, and gave over 100 tours in a new Office for Sustainability building and Studio.
• Integrated a new sustainability-themed art space in the new Office for Sustainability building and hosted two student shows (Rebecca Brand and Taylor Bishop).
• Promoted “Spare Change: The Art of Climate”, a juried art exhibit addressing climate change, which ran in WMU’s Richmond Center for Visual Arts.
• Sought grants for an outdoor education space at the Gibbs House.
• Created an education space design competition for Gibbs House.
• Accepted donations of renewable energy equipment for reuse.
• Hosted the Michigan Renewable Energy Association and the Society of Environmental Journalists River Institute.

CAMPUS IN COMMUNITY
The Office for Sustainability:
• Conducted a pro bono Bike Share Options study for Kalamazoo at the request of the mayor.
• Sought grants for community bicycling infrastructure and school garden curriculum.
• Crafted and operated the region’s largest community garden.
• Supported Peace Jam and visiting scholar Dr. Rob White on climate justice.
• Added a donated body of research on ecovillage living to the Office for Sustainability library.

WMU delivered more than 25 major climate change programs in the community during the 2013–2014 academic year.
RESILIENT LIVING

GIBBS HOUSE
The 150 year old Gibbs House, across from Asylum Lake, serves as a community sustainability resource center. The Gibbs House was acquired by WMU in 1959, and the Office for Sustainability took over management of the property in 2010. A Gibbs House fellowship program has existed since 2003. The program currently provides yearlong experiential opportunities for up to five students to live, learn, research, and work in a dynamic residential setting. Fellows work on projects to enhance campus sustainability across a range of academic disciplines. Fellowship applications are due March 31 for the following semester.

PROPERTY UPDATES
Changes to the Gibbs House property are underway. We are implementing our recently completed Property Master Plan (see figure on opposite page top). Campus and community will enjoy new opportunities in this living and learning laboratory, which will exemplify sustainable living practices. The research projects and land use practices that take place on the property will be in many ways consistent with the historic use of the Gibbs House. For example, in spring 2014 we began transforming the overgrown landscape into a productive educational and research space. We are preparing our soil, planting extensive gardens, and establishing a 7-layer perennial food forest. These gardens and forest will be the test beds to explore what it takes to plan, plant, weed, water, and harvest the annual and perennial fruits, nuts, and produce that will be grown at the Gibbs House. Programming at the site will challenge our innovative student research staff, and it will educate and engage guests of all ages.

Two new hoop houses will provide enough passive solar heat to keep student vermicomposting bins active all year nurturing our soil and extending the Michigan growing season. Outside our hoop houses, we will capture and store water in our raised hugulkultur beds made from buried invasive trees taken from the site. Other food related ventures include a living fence, mushroom cultivation, fruit orchards, grape trellises, herb spirals, food dehydration, canning workshops, an outdoor kitchen, a cob oven, and more.

OUTDOOR EDUCATION SPACE
We have initiated a student design competition to establish an outdoor education space on the Gibbs House property. This design competition challenges students and community professionals to work together as teams to create a useful and innovative space. This design effort showcases the potential that the Gibbs House has to help create opportunities and build relationships among students, staff, and community members.
DEEP GREEN BUILDING
WMU continues to conduct foundational efforts to build support for the creation of a facility that will inspire broad university and community collaboration and research on real-world sustainability and sustainable development issues. We continue to investigate and promote deep green buildings through Living Building Challenge research. Our Education Space Design Challenge is inspired by Living Building Challenge principles, which we have promoted in several public workshops. Honors student Nicole Pascareta worked with Giovanni Roberto and Dr. Machiorlatti to create a video about the Living Building Challenge.

View the video pictured below at: http://vimeo.com/69360242

STORMWATER
Capturing and making use of rainfall on site is a basic principle of sustainable design. WMU has gone above and beyond existing regulations for decades in new and retrofit construction projects in order to manage runoff on campus with the ultimate goal of being stormwater neutral. Across campus, WMU has incorporated retention, detention, and green roof infrastructure treating over 430 acres - comprising 53.6% of campus as of 2012. This green infrastructure collects and retains water during periods of heavy precipitation and may release it over time thereby reducing erratic flows, flooding, and erosion; this treatment improves the sustainability of our community and landscapes. Some of this infrastructure is above ground and easily located, while some is below ground (including an infiltration basin beneath the Sangren Hall parking lot). WMU also partners with other stakeholders on stormwater programs within the Kalamazoo River watershed to reduce polluted runoff and meet surface water quality goals. Recently, WMU’s Environmental & Sustainability Studies program and Students for a Sustainable Earth assisted partners with the distribution of several hundred rain barrels.
FROM FARMING & GARDENING

In 2010 the Office for Sustainability began to develop garden space behind the WMU Gibbs House on Parkview Avenue. Through collaboration with multiple units on campus and hundreds of hours of student, staff, and volunteer labor, the land became known as the Student Farm.

To facilitate changes and updates to the Gibbs House landscape this past year, our students and staff moved the Farm to a spot behind Stadium Drive apartments. Despite the challenging move to this temporary space, Will Derouin and the permaculture team grew 25 unique crops on 7,500 square feet of new production garden space. Over 350 lbs of produce were delivered to the Bernhard Center Cafeteria, and 172 lbs were used for distribution, food preservation workshops, and university events.

This year, students and staff operated the largest community garden in Kalamazoo. There are 35 garden plots meticulously tended by students, staff, and community members. Management of the community garden transitioned this past growing season to the Biology Club and Students for a Sustainable Earth.

Production, community garden, and Office tasks were gracefully coordinated by the permaculture team including constructing beds and planters, amending soils, trellising, planting, weeding, watering, sowing, harvesting, thinning, trimming, cover cropping, winterization, and composting on site.

In addition to producing local food for campus, the farm and community garden serve as living laboratories for research on sustainable food systems (e.g. testing hot peppers; photo above). Campus and community groups are encouraged to book educational tours or volunteer on the farm from early spring through late fall.

Food and biodiversity efforts are always collaborative and involve extensive research, consultation, and sharing of ideas and lessons learned with Biological Sciences, Landscape Services, other units around campus, and the surrounding community.

TO PERMACULTURE

Originally defined by Bill Mollison in the 1970’s: “Permaculture is the conscious design and maintenance of agriculturally productive ecosystems that have the diversity, stability, and resilience of natural ecosystems.” The definition was initially inspired to create a “permanent agriculture” and the idea has evolved beyond the realm of food to support a “permanent culture”. The concept of permaculture is applied to the Gibbs House design plan to inform the way all elements relate to one another to create a nourishing environment for plant production and educational enrichment. By maximizing useful connections between resources at the Gibbs House we are creating a whole that is greater than the sum of its parts.
Our students have hit the ground running at the new Gibbs House site. They have planned and refined techniques of seed starting, mushroom cultivation, food preservation, and composting. Coordinated volunteers bolstered the progress on all the changes that are leading to this new permaculture installation, contributing more than 340 hours of service as individuals and as campus and community groups.

The Office for Sustainability is indebted to collaborators in the Finch Greenhouse where countless seed starts and other year-round pilot tests have occurred. Chris Jackson in particular is a tireless guide and collaborator, helping our interns experiment with tomato pruning methods and lettuce germination trials.

Scott Warner created and implemented a shiitake mushroom cultivation program. The process begins by inoculating jars of sterile grain with shiitake mycelium. The colonies are transferred to sterilized wood shavings in bran bags, the substrate is eventually hung, and mushrooms grow to harvestable size. Stay tuned as Scott refines and integrates what he has developed at the new Gibbs House site.

Weston Hillier and other students created production garden plots and experimented with no till gardening and soil building techniques. In one example, the team layered cardboard, soil, mulch, and horse manure lasanga-style; while in another example they tarped an area of leaf covered soil to trap heat and encourage decomposition and leaf-mold.

Mike Lucas used vermicomposting to compost food and paper waste produced at the Office for Sustainability. Vermicomposting utilizes red worms (eisenia fetida) and bacteria to breakdown food that turns into rich castings that can be used as compost.

New permaculture research ideas are coming our way regularly. Please share yours and watch for seed saving, mushroom logs, and a 7-layer food forest.
SOCIAL LEARNING

The Office for Sustainability applies social learning to leverage behavior change and bridge the “gap” between people’s stated aspirations for a sustainable world and their generally unsustainable actions. With every sustainability project or initiative, we create open, cross-college and/or community collaborations that build durable and ongoing relationships, which support the development of new sustainability champions.

To successfully act on our President’s call to build a culture of sustainability, we recognized that we needed a coherent, systems-based approach to model sustainability and drive continuous improvement. Our “learning for sustainability” foundation includes three key elements of the formal education process:

- **Content** – What do we teach?
- **Pedagogy** – How do we teach?
- **Context** – How do we model our values and our commitments in all facets of university policy and practice?

As we work to re-imagine the purpose and promise of higher education, we pay particular attention to the underdeveloped element, context, as we build our culture of sustainability.

Sustainability is both a process and an end goal. As we pursue it, we want anyone who encounters the WMU community to recognize an interdisciplinary, collaborative, and discovery driven experience. This level of fully integrated sustainability, one that strikes you as you step foot on campus and stays with you when you leave, requires long-term commitments that draw together campus operations, education, administration, and the broader community.

Planning, best practice review, fundamental behavioral analysis research, pilot testing, and other related efforts are guided by working groups of faculty, staff, administrators, community stakeholders, and most importantly undergraduate and graduate students. In each case, the Office for Sustainability references and leverages university sustainability commitments and a growing network of sustainability leaders rooted in the President’s Universitywide Sustainability Committee.

Our social learning approach is constantly evolving but guides how we tackle individual projects that have more concrete timelines and deliverables. New ideas or potential improvements on existing policies or practices turn into projects that progress through cycles of Engagement, Inspiration, Leadership, Assessment, Measurement, Benchmarking, Design, Implementation, Evaluation, and Iteration. In pursuit of sustainability, no project is ever really done. Projects may enter these cycles at any point and may cycle through several iterations.
ACTION RESEARCH

Lucid Design Group has developed a feedback system using internet-based “dashboards” on computer monitors that display real-time visualizations of building energy consumption. We will use this system to display electricity consumption information in 22 WMU buildings and Kate Binder will study the behavioral effects on users of interactive dashboards displayed on touchscreen computer monitors for her Ph.D. dissertation (in 9 of the 22 buildings).

Over the course of the past year, Kate performed a literature review focused on programing designed to leverage dashboard feedback into significant behavior change. She presented the findings of this review at the Association for the Advancement of Sustainability in Higher Education annual conference in Nashville, Tennessee and earned a Precourt Energy Efficiency Center Student Fellowship to present at the Behavior, Energy and Climate Change Conference in Sacramento, California.

Kate has also been working with campus facilities and construction staff to coordinate the installation of new electricity meters in buildings slated to be included in the dashboard research project. Installation of the first phase of energy dashboards will be completed during summer 2014.

BEHAVIOR CHANGE

Learning together, in a place that models sustainability, has many benefits. For example, the WMU Facilities Management team, which has successfully pursued aggressive energy conservation measures for years, genuinely enjoys working with and “teaching” students.

WMU recognizes that the next, and maybe final frontier, in energy and emissions reductions will require behavior change by everyone.

“This photograph of a landfill is comprised of many small pieces, similar to the way climate change can be caused by many everyday occurrences.” – Lauren Giuliani says of her piece, Accumulation of Trash.
THANK YOU!

THANK YOU TO OUR COLLABORATORS
Admissions • Office of Faculty Development • Athletics • Family and Consumer Sciences • Environmental Studies • Extended University Programs • Service Learning • Provost’s Office Associate Provost for Institutional Effectiveness • Office of Business and Finance • Graduate College • Office of Diversity and Inclusion • Lee Honors College • First Year Experience • Student Affairs Office of Community Outreach • Dining Services • Catering • University Relations • Faculty Senate • Seita Scholars Program Residence Life • Environmental Health and Safety • Psychology • Biological Sciences • Development Office • Western Student Association • Haworth College of Business • Graduate Student Advisory Committee • College of Engineering and Applied Sciences College of Aviation • College of Fine Arts • Landscape Services • College of Health and Human Services • College of Education and Human Development • Custodial • College of Arts and Sciences • Facilities Management • Campus Planning • Office of the Vice President for Research • Interdisciplinary Humanities Group for the Study of Climate Change • Billion Dollar Green Challenge Association for the Advancement of Sustainability in Higher Education • American College and University Presidents’ Climate Commitment • University Leaders for a Sustainable Future • National Wildlife Federation’s Campus Ecology Program Climate Savers Computing Initiative • United States Green Building Council • PeaceJam • Pretty Lake Camp • Sustainable Endowments Institute • United States Environmental Protection Agency Energy Star • Michigan Recycling Coalition • College and University Recycling Coalition • MRC Industries • Clean Energy Coalition • Second Nature • Kalamazoo Nature Center Michigan State University • City of Kalamazoo • Southwest Michigan Sustainable Business Forum • Pierce Cedar Creek Institute Bike Friendly Kalamazoo • TOAD Bicycle Cooperative • Open Roads • Consumers Credit Union • SouthWest Michigan Regional Sustainability Covenant Signatories • Milton Ratner Foundation • Kalamazoo Bike Club • Pedal • Alfred E. Bike • Cabbage Bros. Bicycles • Detroit Agricultural Network • Greening of Detroit • D-Town Farms • The Kresge Foundation • and many others...

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Photo on left: Near Nature is a series of photographs that challenges viewers to consider what may or may not be a natural experience. Each image is comprised of natural and synthetic elements. —Rebecca Brand
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