Fall 2015 Student Sustainability Grant Proposals

Total Funds Requested: $25,500.99
Total Funds Allocated: $19,306.64

1. The WeGrow to Give Community Garden Project: At The Community Garden

Principal Investigator: Christine Uggeri
Faculty/Staff Advisor: Johnson Haas, Environmental and Sustainability Studies

Abstract: The WeGrow to Give Community Project is a new project initiative that will take place at the WMU Community Garden during 2016 growing season. This project will bring students together for a common mission and provide a learning environment for sustainable gardening while fostering personal growth for students and improving the Western Michigan University and Kalamazoo community. The project will use five of the large garden plots at WMU Community Garden, where WMU students will grow produce using sustainable and low waste techniques. Produce grown by students will be donated to the organization Peace House on the Eastside of Kalamazoo to help feed families and children in our community. All Western students are welcome to join Volunteer Garden Day and/or Volunteer at the Vegetable Stand at Peace House. The presence of Western Students at the Eastside neighborhood will help Kalamazoo families and expose both families and students to sustainable gardening practices, broadening a mission of being a sustainable campus to the surrounding community. The funding from the Student Sustainable Grant will provide the startup equipment and supplies necessary to make this project sustainable and successful. The WeGrow to Give Community Project supports the WeSustain community initiative at Western Michigan University and improves the experience of our student body and quality of life for the people of Kalamazoo.

Amount Requested: $1,040.61 Amount Allocated: $1,040.61

2. Green Chemistry as a Sustainable Approach to the Undergraduate Chemistry Laboratory

Principal Investigator: Casey Wright, Lainey Barber
Faculty/Staff Advisor: James Kiddle, Chemistry Department

Abstract: Among the many challenges to sustainability, organic chemistry laboratories in particular, generate large amount of wastes in the form of organic solvents each year. Organic solvents represents large amount of organic waste created by the undergraduate laboratory enterprise in the Department of Chemistry (over 70%) at Western Michigan University. The waste generated is both a financial burden on the institution because of the cost associated with the disposal as well as having a significant environmental impact. This project will focus on the application of the twelve principles of Green Chemistry to Design. Into the framework of the undergraduate chemistry laboratories sustainable practices that will reduce the impact of the experiments on the environment and use established matrix to demonstrate the efficiency of the adopted experiments.

Amount Requested: $4,969 Amount Allocated: $4,169

3. Sustainable Light Activated Catalysts

Principal Investigators: Gregory Johnson, David Sellers
Faculty/Staff Advisor: Elke Schoffers, Chemistry Department

Abstract: Increasing energy demands and rising concerns over greenhouse gas emissions have made research into clean and sustainable energy sources urgent and pivotal. Solar energy can be part of the solution. Analogous to chlorophyll in plants, light activated catalysts are chemical that are able to harness the energy from light to drive chemical reactions or to store and use energy via solar cells. A majority of the currently known light-activated catalysts use carbon containing compounds bound to ruthenium and iridium. These metals are expensive and have large environmental footprint associated with their extraction, and are limited to non-renewable resource. It is likely that within this century, the supplies of these two metals will diminish

substantially. Iron would be the most ideal alternative. It is roughly 500,000 times more abundant. Our lab has synthesized a library of compounds in previous projects that are able to bind to metals like iron. They are promising precursors for developing light activated catalysts. In this project, we will prepare earth-abundant metal complexes with our existing library of compounds and screen them for their application as catalysts. We will expand WMUs capacity to conduct research by adding new functionality to current equipment. Students will help broaden our research into solar cells on campus. Therefore, our research team will help advance WMUs sustainability efforts.

Amount Requested: $4,999 Amount Allocated: $4,999

4. Locally Sweet Treats

Principal Investigator: Anja Grammons, Lauren Rabish
Faculty/Staff Advisor: Caroline Webber, Dietetics

Abstract: This proposal was submitted by ten Western Michigan University dietetic interns. The WMU dietetic internship concentrates on sustainable food systems. We have participated in many sustainability projects during the internship and would like to expand on those projects by producing two different food products that focus on sustainability. “At its core, sustainability is all about improving the human condition-now and into the future-while adapting our activities to fit what nature can provide.” Michigan has all the products we need for our project, now it is up to us to turn those products into something community would need.

We hope that by producing a sustainable product, we can reach out and introduce nutrition ideals through these goods. The two products that will be produced are pear sauce and cookie made with gluten-free ingredients and agriculturally sustainable farming methods. The key ingredients will be made or grown in Michigan. Using Michigan ingredients helps support the WMU Sustainability focus by putting funds back into the local community.

This grant will cover these expenses: ingredients for the products, packaging, ingredient labels and marketing fliers. By receiving this grant, the WMU interns can demonstrate the importance of sustainability related to food and nutrition in WMU community.

Amount Request: $235 Amount Allocated: $235

5. A Proposal to Hold a Bike Safety Day on Campus

Principal Investigator: Annalisa Wilder, Chiante Lymon
Faculty/Staff Advisor: Chris Sligh, SALP

Abstract: Western Michigan University has continued to be a beacon for sustainability, advancing the university in many different fields. Bikes have become a popular mode of transportation for students here at WMU. With growing bike usage, It is important to continue to promote bike safety . We propose putting on an event that would promote bike safety. We would work with the Western Student Association to put on a bike safety awareness day. We would also work with other public universities in Michigan to ensure that we all hold our Bike Safety Day on March 23rd, 2016. We will put posters up, start a Facebook event and work with Western Student Association to promote the event. We will be passing our bike bells and reflective bike spoke sliders.

Amount Requested: $5,550 Amount Allocated: $5,550

6. Sustainable Bicycle Generator

Principal Investigator: Erika Fogtik, Kelsey Pitschel
Faculty/Staff Advisor: Dr. Miller, Electrical Engineering

Abstract: Human powered energy is an underutilized and ubiquitous type of renewable energy that is able to combat small-scale dependencies on natural gas and coal. The bicycle generator is a form of harnessing energy that ranges in complexity, materials and system output. The Sustainable Bicycle Generator

project focuses on redesigning a bike generator to be sustainably sourced, efficiently competitive, and cost effective and aesthetically pleased for home and office applications. The overarching objective of the project is to create a turnkey solution for hands-on learning about energy and self-sufficiency in order to develop a deeper understanding of how humans develop and consume energy. Additional benefits include promoting well-being through exercise even during winter months, a modular system that is portable and replicable, and a solution for remote energy needs via portable batteries. The generator will act as add on to trainers for stationary use of a bicycle with easy set up and teardown. Main components of the system shall include a motor, a battery, an inverter, and an educational display screen that tracks calories burned and kWh generator. An additional objective of the project is to conduct a Life Cycle Assessment of the components in order to determine how much pedaling must occur in order to offset the upstream and downstream impacts of building the bike generator.

Amount Requested: $ 3283.03 Amount Allocated: $3283.03

7. Drive Safe Kalamazoo Tablet Proposal

Principal Investigator: Keith Meyers
Faculty/Staff Advisor: Kate Bates, SALP

Abstract: Drive Safe Kalamazoo – a registered student organization and 501(c) 3 non-profit – provides safe, non-judgmental and confidential rides home to Western Michigan University Students during the school year. Each night of operations, somewhere between 6-8 sheets of paper is used for assorted contracts protecting the organization, volunteer and patrons, all while adding up to 500 sheets annually. By using Refurbished iPad Mini 2 Tablets with a pdf signing application, we will be able to reduce that number to zero or very few sheets per night. It would also reduce the cost of space required to provide efficient services to the students, reduce the cost of funding our organization, and possibly be able to spread to other safe ride programs across the country as we attempt a new method of operations. This

should cost about $1,650 to begin a long term savings on paper, ink and money.

Amount Requested: $1,624.35 Amount Allocated: Denied

8. Growing Hemp Based Insulation

Principal Investigator: Jorge Cortez
Faculty/Staff Advisor: Dr. Hastings, Global & International Studies

Abstract: We propose to have Gibbs House grow and install its own hemp based insulation through the use of hemp hurds, which can be specially molded into various construction materials. In this way Gibbs House can continue to promote economic sustainability for Western Michigan Universi9ty. Although the Gibbs house is a leading model of sustainability, it is not a symbol of economic heating and cooling efficiency.

Amount Requested: $3,800 Amount Allocated: Denied

Spring 2015 Student Sustainability Grant Proposals

Total funds requested: $24,639
Total funds allocated: $23,240

1. Sustainable Student Centered Café

Principal Investigators: Nora Gimpel, Taylor Sawyer
Faculty/Staff Advisor: Carol Weideman

Abstract: Western Michigan University is working on building a culture of Sustainability. Part of the mission of this project involved propelling WMU forward. Supporting local sustainable food systems by opening a Sustainable Student Centered Café is the next step to increasing our campus sustainability. Our grant is going to fund filling the café space with commercial kitchen/café

equipment as well as sustainable options for utensils and carry out boxes. This will promote sustainability on campus by providing: healthy food options, educational experiences, increased retention student interactions and support to local economy. The services provided by this café will allow the WMU community to collectively come together and make a positive impact for the future. Besides just offering healthy choices, it would allow students to consume food sourced by local suppliers. Education will help influence students to make healthier choices. By embracing student talents and delivering a venue in which they can express themselves, students can grow as individuals and foster a community culture on campus. Furnishing the space will allow the café to serve food sooner and in the "phased-in" process, with decreased monetary constraints.

Amount Requested: $8,979 Amount Allocated: $8,979

2. Sunseeker Solar Array Encapsulation Project

Principal Investigators: Bryan Harris, Cameron Knight
Faculty/Staff Advisor: Bradley Bazuin, Electrical and Computer Engineering

Abstract: The Sunseeker Solar Car Team at Western Michigan University is looking for ways to further improve the efficiency of their next generation solar vehicle. To do this, the team needs to design the necessary circuitry, structure, and hardware. An analysis of the system will be completed to make certain that the design is optimized within the 2016 American Solar Challenge Regulations. This work could prove useful in the calculations of the energy offset provided by placing solar cells on commercial vehicles.

Amount Requested: $8,851 Amount Allocated: $8,851

3. Carbon Neutral USB-Drives – RSO Orientation

Principal Investigators: Krysta Coleman, Jesus Romero
Faculty/Staff Advisor: Nicole Haase, RSO Development Advisor of SALP

Abstract: The RSO Orientation has been conducted in various formats for many years for students and RSOs that apply for SSG, WSA-AC, GFAC and SCC funds. Each academic year, RSOs and other grant receivers are required to attend this workshop. Traditionally, during these workshops, mandatory reading materials have been handed in paper format of approximately 36-40 pages. With funding from the SSG, students that attend these workshops will receive these reading materials, payment forms, sample forms, sample contracts, presentation notes, RSO Handbook, etc., in electronic format via a Carbon Neutral USB-Drive made partially from hardwood from a FSC certified source. This potentially reduces the amount of ink, electricity and paper for this project by over 15,200 pages per academic year, thus further increasing the Sustainability of the University and its undergraduate and graduate students. The USB-Drives will bear a logo or other acknowledgement indicating that this project was funded by SSG-AC, hence promoting and bringing further awareness of the culture of Sustainability at WMU.

Amount Requested: $4,410 Amount Allocated: $4,410

4. Western Student Association T-Shirt Swap Grant Proposal

Principal Investigators: Courtney Cox
Faculty/Staff Advisor: Chris Sligh, Director of SALP

Abstract: Starting in the 2009-2010 school year, the Western Student Association developed the t-shirt swap that took apparel from other canmpuses, such as University of Michigan, Michigan State University, etc., and traded it for a brand new WMU shirt. We are proud to be bringing this pride initiative back to campus; however things are going to look a little different this year! We have learned that T-shirts can be pretty harmful to the environment and also not all students have apparels from other schools to swap. The WSA has decided to partner with “Earth Week” to give away safer organic shirts in exchange for a pledge to do something good to the environment. We will also encourage the donation of any gently used clothing to give to shelters and organizations in Kalamazoo community.

Amount Requested: $1,000 Amount Allocated: $1,000

5. Habitat for Humanity Rain Garden

Principal Investigators: John Smith
Faculty/Staff Advisor: Peter Strazdas, Facilities Management

Abstract: The Habitat for Humanity Rain Garden is a part of the 2015 Global Youth Service Day and an AmeriCorps Legacy project that works with Kalamazoo Valley Habitat for Humanity. This project is planned for April 18th. The current Habitat plan is to collect storm water in a depressed retention area with tubes that will hold the extra water and slowly filter it back into the ground. However, there is currently no plan to filter possible contaminants that enter the collection basin. This project will create an environmentally sustainable solution by planting native plants that will naturally filter the storm water. This project will teach you how to preserve their communities by engaging young adult volunteers from local high schools and Western Michigan University. The goal of the project is to create empowered youth that will take the charge and improve their communities through environmental sustainability. This project will show Habitat is committed to lessoning its environmental impact to the communities it serves and providing low cost services to Western Michigan University students through the Habitat ReStore. This project will increase the awareness of these services which include low price furniture, rugs and small repair items that can benefit both students living on and off campus with purchasing needed items. With increased awareness of the ReStore students can reduce the amount of waste they produce during the time they move out of the resident halls, apartments or their off campus living locations through donating unwanted and unneeded goods.

Amount Requested: $ 1,400 Amount Allocated:$0

Spring 2014 Student Sustainability Grant Proposals

Total funds requested: $20,349.43 Total funds allocated: $20,349.43

1.Hullabazoo: A celebration of DIY (Do it Yourself)

Principal Investigators: Janet Aladetohun.
Faculty/Staff Advisor: Donald Cooney, Department of social work, Kalamazoo City Commissioner

Abstract: Hullabazoo is a dynamic, inclusive, horizontally organized event that involves all-day local music, a local artisan market, and free workshops throughout the day. Hullabazoo is a true celebration of DIY (Do-it-Yourself) culture. This event is in the heart of campus toward the close of the spring semester, on April 5While buds and flowers are blooming, we will unite for our third annual Hullabazoo to provide workshops on topics such as zine making, hand-made book binging, screen printing, bicycle maintenance, herbalism and a panel of local farmers. By providing workshops, students leave Hullabazoo with new skills, and a small fire of inspiration in their bellies to do things for themselves, instead of relying on super stores and fossil-fueled car culture to meet their needs. The Wesley Foundation of Kalamazoo is donating building use for this project for the third year. The Hullabazoo is the explosive finale celebration at the end of a fun-filled, social justice oriented peace week. The event begins on March 29 and spans until April 5.

The planning organization is a hub for student activism on Western's campus. We organize students around issues of social, environmental, and economic justice. We have continuously mobilized students around issues of peace and social justice for over 30 years. Peace Week is an annual spring event on campus, and people keep an eye out for it. Hullabazoo brings together a diverse group of people from campus, and the community to unite around a localized economy, skill learning, creativity and resilience.

Amount Requested: $1,480.89 Amount Allocated: $1,480.89

2. Michigan Mi-Plate Guide

Principal Investigators: Alanna Troyer, Elizabeth Palmer. Faculty/Staff Advisor: Gary Bischof, PhD, interim Chair, FCS.

Abstract: Sustainability in the food system is an important part of responsible environmental stewardship as it helps preserve the health of both land and people. Consuming more local and seasonal foods can decrease the distance that food travels, reducing carbon emissions. Decreasing the length of time between harvest and consumption of food can also result in greater retention of nutrients. Increasing nutrition in the food supply and reducing harmful pollution are two ways we can support a sustainable food system. It is therefore our goal wit this project to increase WMU students' knowledge of how to select and prepare seasonal foods grown in Michigan in order to promote sustainability.

Based on USDA's ChooseMyPlate tool, we plan to design and produce the Michigan Mi-Plate Guide, a three-fold brochure which will open up to reveal a diagram of the state of Michigan divided into 4 quadrants, plus the U.P., representing five food groups. Text will include lists of Michigan foods from the four seasons, and feature healthy uncomplicated recipes that will appeal to students with limited time and financial resources. It will also explain how their food choices can impact the environment and local economy in addition to their own health. We hope this will encourage students to try new foods and cook more for themselves. The guides can be distributed through sites frequented by all students such as Sindecuse Health Center, Bernhard Center, and the Student Recreation Center.

Amount Requested: $1,800 Amount Allocated: $1,800

3. Solar Car Array Optimization Electronics

Principal Investigators: Vincent Kucway and Karen Haubert. Faculty/Staff Advisor: Bradley Bazuin, ECE Dept. Faculty

Abstract: Solar technology offers one of the most promising paths to a future of sustainable personal transportation with 100% renewable, zero-emission power. This project involves optimizing the efficiency of the solar array on an all-electric vehicle through the evaluation and improvement of the solar charging electronics. The most vital system on a solar powered vehicle is the solar array, which serves as an environmentally responsible energy source. When designing a high efficiency solar array, an essential consideration is the implementation of a solar array system, amplifying the overall energy efficiency of a solar powered vehicle. The design and fabrication of solar powered vehicles actively demonstrates the capabilities of solar energy for everyday transportation, promoting sustainable energy use and engineering. With the expansion of these capabilities at WMU, students, as well as the surrounding community, are able to engage in the promotion and advancement of these technologies at a more relatable level. Our proposal focuses on procuring multiple custom electronics modules in order to increase the efficiency of our solar array, therefore expanding the capability of our team to reach public events throughout the community while granting invaluable experience to our members through testing and implementation of these devices.

Amount Requested: $6,321.74 Amount Allocated: $6,321.74

4. Filtered Hydration Station in Wood Hall, Third Floor

Principal Investigators: Shaana Way and Nora Gimpel.
Faculty/Staff Advisor: Brian Peterson, Assistant Professor Environmental and Sustainability Studies

Abstract: Over 60 million plastic water bottles are sent to landfills or are incinerated each day in the United States. To reduce these destructive environmental practices, WMU endorses sustainable efforts that benefit students and faculty alike. Several buildings across campus have hydration stations that quickly dispense clean, refrigerated water that has reduced metallic elements and improved taste. However wood hall lacks such an

apparatus. The third floor of wood is home to several science departments that endorse sustainable efforts, including GEO, CHEM, BIOS, ENVS, and PSY departments. This key location would greatly benefit the faculty and students that operate in this high-traffic area while simultaneously raising awareness of WMU's sustainability endeavors. Additional benefits of this modification include hands-free refills, which reduce contamination. Filtered water drinking fountains such as the Elkay Hydration Station will discourage purchasing bottled water, reduce plastic waste, and represent the university's public and proactive position to foster sustainability.

Amount Requested: $7,500 Amount Allocated: $7,500

5. Insect Walls and Workshop

Principal Investigators: Jared Aslakson and Kenneth Crocker.
Faculty/Staff Advisor: Stephan Keto. Natural Areas and Preserves Manager

Abstract: In recent years, populations such as bees and wasps have been declining. Although the reasons for these trends are manifold, a major contributing factor is habitat loss. Insects, particularly bees and wasps, provide a major service through pollination and play a number of roles enhancing ecological integrity and stability. Although pollination is associated primarily with honeybees, solitary bees and wasps that are native to Michigan provide the same services. Additionally, these insects have a special relationship and are especially beneficial to native plants. To that end, this grant would fun the construction of three insect walls in addition to a construction and educational workshop available to students and the public. Insect walls are constructions designed to provide habitat for native, solitary bees and wasps. Two of which would be installed at the Gibbs House property. The third would be installed at the community garden at the Stadium Drive apartments. These locations would be ideal since both have vegetable and native gardens that would benefit from the pollinating services provided by these insects, including a food forest planned at the Gibbs House property. The workshop would be held at the Gibbs property during one of the summer

sessions, and would include the construction of the three walls to be installed on campus, in addition to miniature walls that can be taken home by participants. Not only would this encourage beneficial insect populations on and off campus, it would spread the university's image of commitment to sustainable agriculture.

Amount Requested: $1,672.80 Amount Allocated: $1,672.80

6. Permanent Recycle Signs for Welcome Week

Principal Investigators: Adam Williams.
Faculty/Staff Advisor Dr. Heather McGee, Psychology

Abstract: The beginning of the new school year can be a busy time for college students. The university has less than a week to move all of the students into the dorms. To act more efficiently, the university provides big recycle bins in front of each dormitory. In the beginning of the year, all the students have brand new things such as laptops, TVs and refrigerators that are still in cardboard boxes that came with the purchase. Within these cardboard boxes there is Styrofoam, plastic, bubble wrap and other materials that can be recycled. The biggest opportunity for wasting and recycling is when the students are moving into the dorms. The bins that are provided have inadequate labeling, which results in confusion for the students. One solution is to identify waste and recycle respectable by having big signs in front of them that identify what type of waste goes in each. This proposal has the opportunity to reduce the landfill waste, and increase the recycle waste during moving week on campus. Making the signs reusable will also reduce the stress and time put into making signs each year for the recycle bins. This proposal will have a major impact on the environmental footprint of our campus

Amount Requested: $1,074 Amount Allocated: $1,074

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Principal Investigators: Connor Smith.
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7. Western Student Association T-Shirt Swap Grant Proposal

Principal Investigators: Connor Smith.
Faculty/Staff Advisor: Chris Sligh

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clothing to give to shelters and organizations within the Kalamazoo community.

Amount Requested: $500 Amount Allocated: $500

Fall 2013 Student Sustainability Grant Proposals

Total funds requested: $15,386.45
Total funds allocated: $13,936.45

1. Reinvestment in our WMU Community Garden

Principal Investigators: Weston Hillier and Scott Warner.
Faculty/Staff Advisor: Todd Barkman, Assistant Professor, Department of Biological Sciences.

Abstract: In this proposal we seek to promote a campus culture of sustainability by reinvesting in the Stadium Drive Community Garden in 2014. Management will be conducted by Students for a Sustainable Earth and BioClub (Dept. of Bio Sciences). These organizations have a long history on campus, value sustainability and already have a stake in the community garden. Through educational workshops, community events, collaborative work and provision of a space for growing food, we seek to spread the spirit of sustainable food production and preservation throughout campus and to the wider community. The ever-growing awareness of foods impact on out health, community relationships, and economics is evident right here in Kalamazoo in many wonderful ways. Specifically, KVCC has proposed to build a $42 million state of the art food sustainability and wellness campus right downtown. We want to see WMU continue to take action on these important topics as other institutions.

The community garden has been well established since 2010, when it was founded as a Student Garden Organization project. Stewardship passed to the

Office for Sustainability (OfS) in 2012, who maintained it through the 2013 season. As the OfS Prepares to build a production garden at the Gibbs House, they are ready to pass the community garden management over to interested student organizations. As sustainability-minded organizations with lots of internal interest, BioClub and SSE are logical successors in this endeavor.

Our budgeting seeks to reflect WMU's commitment to being leaders in ecological and cultural sustainability. By using organic methods free of synthetic chemicals for the need of transportation and packaging, we will set an example of ecological responsibility. Through comprehensive plot promotion, we hope to gain cultural diversity among participants, which will facilitate an exchange of unique plant varieties and of sustainable farming practices. Taken together, we hope to bring WMU to the forefront of local and sustainable campus-based food production.

Amount Requested: $4,973.83 Amount Allocated: $4,973.83

2. Redesigned Hydraulic Bicycle For The Chainless Challenge

Principal Investigators: Luis Morales and Juan Hernandez.
Faculty/Staff Advisor: Jorge Rodrigues, Ph.D., MBA. Advisor
Department/Program: Industrial and Manufacturing Engineering

Abstract: One aspect that is extremely important in sustainability all over the world is transportation. Developed societies have come to depend on transportation to have economic and social standards, but without the proper attention to the environment.

A Hydraulic bicycle is a chainless bicycle that transfers power to the pedals by means of a liquid passing through tubes from hydraulic pump to hydraulic motor and back.

Due to demand for energy efficiency and environmentally friendly transportation, we are seeking to improve the hydraulic and drive train design for increased energy utilization and regeneration. Also to validate the efficiency in simulated competition conditions and for the first time, to design and fabricate the frame of the bike, due to previous issues, such a spacing for valves, pedals, hoses, etc.

The goal of this invention is to provide a drive mechanism that could be much more efficient. All mechanical elements of this drive mechanism that require lubrication are fully enclosed and thus eliminate all the well known disadvantages of current drive chains; namely, exposed grease lubricated chains with the potential of staining and jamming cloths, low driving efficiency and high maintenance requirements. Added advantages are, a considerably improved driving efficiency, simplifies drive wheel change out, a simpler frame design and zero maintenance on any drive component. In addition to the efficiency gain the mechanical drive components, is confirmed that the drive ergonomics of this new drive could be better than a conventional bicycle crank drive. There is no penalty, when compared to a convention bicycle crank drive.

The proposed project complements the design and fabrication of the transportation vehicle; it develops an implementation plan to use such vehicles in WMU campus. These can be considered as a wonderful initial step towards having a campus wide culture in terms of alternative non-motorized vehicles.

Amount Requested: $4,750 Amount Allocated: $4,750

3. Assessment and management plan for the dwarf hackberry, savanna remnant and urban forest at Western Michigan University

Principal Investigators: Dean Simionescu, Bruce Howe.
Faculty/Staff Advisor: Steve Keto, Natural Areas and Preserves Manager

Abstract: Recently a dwarf hackberry (Celtis tenuifolia) was discovered growing on a sandy hillside located on Western Michigan University (WMU) property next to the Stadium Drive apartment complex. The ecosystem where this uncommon tree species id growing is reminiscent to a pre-settlement savanna, now nearly absent to the Kalamazoo area. A study don't by WMU researchers based on old U.S. Public Land Survey information were able to create a map showing vegetation in Kalamazoo county during the 1820's. the new data shows that this spot lies at the convergence of what was believed to be an oak savanna and burr oak opening before settlers began to transform the landscape (Appendix A). This urban green space has sandy soil and maintains a mix of dense forest, woodland and open savanna area. Since the discovery in 2010 of C. Tenuifolia by Dr. Todd Barkman, more individuals have been identified on the land. This tree species has been recorded in Michigan only 30 times (populations and individuals) in 6 different counties since 1974 and makes this finding the first in Kalamazoo County to be recorded (MNFI). In Michigan C. Tenuifolia is classified under special concern status and is considered 'rare or uncertain' yet is not legally protected. The land sits on the lower slopes of the remnants of the Kalamazoo Psychiatric Hospital, holding historic value but also acts as an important area for the natural storm water drainage. This urban green space is an important aspect to students living in the Stadium Drive apartments, the community garden and the overall aesthetic appeal that WMU provides to its students and its community. A tree inventory was done with a GPS unit and a point data collection with a new mobile application by Avenza (Figure 6). The data will be evaluated with spatial-temporal analysis GIS techniques. This report will highlight C. Tenuifolia and the ecology of the savanna remnant, draw out the interconnectedness of this property with the University as a whole, and layout a management plan to preserve and improve the land in accordance with the WMU Tree Care Plan and Policy standards (Appendix G).

Amount Requested: $4,212.57 Amount Allocated: $4,212.57

4.Reducing Western Michigan University's Carbon Footprint

Principal Investigators: Christopher A. Roth.
Faculty/Staff Advisor: Duane Hampton, Geosciences.

Abstract: Greenhouse gasses, when in our atmosphere, trap heat and increase global temperatures. Over 50% of these greenhouse gas emissions are in the form of CO_2 and generally come from coal or gas-fired power plants and vehicular traffic. With the EPA edging toward new taxes on power plants that dump greenhouse gasses into the atmosphere, and considering that Western Michigan University (WMU) generates all of its power by burning gas, it is financially as well as environmentally important for WMU to find a way to limit its carbon footprint. Carbon sequestration is an upcoming technology that could be used to reduce CO_2 emissions created by the deep saline aquifer that has been proven reliable in the storage of waste materials. This project will focus on the creation of a steady state CO_2 sequestration model that can be used to estimate the storage efficiency of the Mt. Simon Aquifer. Money from this grant will be used for the applicant to receive proper training in creating this model using GEM. Upon completion of this research, WMU will have a valid estimate of the sequestration efficiency of the underlying aquifer. In addition to environmental benefits, as EPA standards become stricter, it is important that the university is prepared to limit and reduce its carbon footprint before it becomes a taxable issue.

Amount Requested: $1,450 Amount Allocated: $0

5. Rain Water Collection Feasibility Study

Principal Investigators: Kyle Simpson.
Faculty/Staff Advisor: not identified

Abstract: this Student Sustainability Grant will evaluate the potential for implementing rainwater collection systems across Western Michigan University property. Areas included in the study will be: Main Campus,

Oakland Campus, Parkview Campus, Student Housing, The Office for Sustainability, and the Gibbs House. The methods will include in-depth research into existing and prior art, implementation of similar programs and structures in the United States and abroad, potential filtration and sterilization techniques, potential legal considerations, and cost evaluations for future implementation to the specific areas mentioned prior. This feasibility study will be concluded with a technical paper, reviewing aforementioned methods and conclusions, and a PowerPoint presentation of the study's results to any interested parties. This study will not yield any physical structures by the time of completion, but will instead serve as a fundamental base for future considerations in this area of research while educating the local community. Rainwater collection is abundant throughout many parts of the world, and for many it is the only source of portable water. WMU currently pipes in all the water the campus uses via the city mains, which comes with both a monetary cost and a cost to the environment. Kalamazoo water has a well-deserved reputation for being un-ideal, due to the slew of contaminants that are detrimental to local human, animal, and environmental life. Rainwater often contains less contaminant than piped city water, although is still prone to problems of its own. This feasibility study for a rainwater collection program and necessary structures at WMU offers a more self-reliant, self-sustainable, and a potentially healthier and more cost-effective solution.

Amount Requested: $0 Amount Allocated: $0

Spring 2013 Student Sustainability Grant Proposals

Total funds requested: $35,050.70
Total funds allocated: $35,050.70

1. WMU Plant Policy Initiative

Principal Investigators: Karma Hassell and John-Luke D'Ambrosio.
Faculty/Staff Advisor: Scott Smith, Assistant Professor, Geography.

Abstract: The advancement of sustainability on the campus of Western Michigan University is an effort that benefits all members of the University community. New sustainable projects and initiatives are prevalent and can be seen at this level in many capacities. This proposal provides an outline of a sustainable design project that will result in an increase in the biophilic elements seen on campus. Increasing the amount of plants within indoor environments has sustainable benefits that are realized in many ways. Associated research shows that plants-filled buildings contain a substantially less amount of air-borne mold and bacteria. Research has also shown positive benefits as to plants' abilities to purify the air of indoor pollutants such as CO2 and Benzene. This proposal outlines the installation of indoor plants inside a small area of Wood Hall. The current absence of any such plant installation in Wood Hall makes this project a well-suited fit for such proposal. Using wall mounted plants as well as a Balconera (box) planters, this simple initiative will establish a presence of "greenness" in Wood Hall that is currently absent and will benefit all who work and study there. Aside form the environmental and health aspects of such green installations, this project will substantially increase the aesthetics associated with Wood Hall. Though this aspect of the proposal it is the hope of the authors that this project will provide for an increased awareness of sustainability on campus though exposure and knowledge of such sustainable projects.

Amount Requested: $4,375.70 Amount Allocated: $4,375.70

2. High Efficiency Low-Flow Showerheads

Principal Investigators: Daniel Nowak and Mayra Yat Aguilar. Faculty/Staff Advisor: Scott Smith, Assistant Professor, Geography.

Abstract: Water consumption in the United States is among the highest around the world. Americans use roughly 43 billion gallons of fresh water everyday. Western Michigan University is no exception to this trend. Looking for new ways to reduce our carbon footprint is what WMU is all about. This proposed pilot project aims to do just that. By renewing the showerheads of Britton and Hadley Halls in the fall of 2013 with low flow showerheads, we

plan to show that with little cost to the university we can make a substantial difference in our move towards the goal of WMU's 5-year comprehensive master plan for year 2014-2018. With the implementation of the pilot project, we expect to save 2,592,000 gallons of water annually with just 150 low flow showerheads with an output of 1.5 gallons per minute (GPM) as opposed to the current showerheads that average 3.0 GPM. With the highest density living situations for on campus living, this pilot project would cost roughly $3,800, an extremely sound investment as it would be able to pay itself back within a year based on energy savings, reduction in carbon emissions and water consumptions.

Amount Requested: $3,800.00 Amount Allocated: $3,800.00

3. Apiculture Training Installment for Continued Horticultural Research

Principal Investigators: Nicholas Wikar and Weston Hillier. Faculty/Staff Advisor: Dr. Lawrence John Connor, Founder of Wicwas Press.

Abstract: With our proposal we are trying to setup an apiary horticulture research installment on Western Michigan University's property. The proposal was authored by the members of SSE as a collaboration with the Office for Sustainability, Biological Sciences Department, Landscaping Services, and the Environmental Studies Department. Though this research, we aim to build upon the Office's existing garden space and future goal of a permaculture system. Bees play a vital role in many biological systems, specifically as pollinators.

We are very pleased to have the opportunity to work alongside our advisor, Dr. Lawrence Connor, who is a world- renowned entomologist, author, and publisher. With a Bachelors of Science, Masters of Science, and a PH.D from Michigan State in Entomology, Dr. Connor will help foster a working relationship between the student researchers and the Biological Sciences and Environmental Studies Department of Western Michigan University. Our aim will be to integrate this research installment into the future curricula, with

special events open to both undergraduate and graduate students, as well as the community. Though the employment of train-the-trainer educational techniques, it is our hope that is project will be a long-term opportunity, for individuals to share the materials and rotate throughout the years to ensure increased apiculture literacy. These educational opportunities will include direct beehive maintenance, microscopic lab analysis of bee anatomy, and the exploration of the potential benefits of harvestable resources such as honey and proposes form the hives.

Amount Requested: $11,065.00 Amount Allocated: $11,065.00

4. "I AM WMU" T-Shirt Swap

Principal Investigators: Nicole Davenport and Christine Davenport. Faculty/Staff Advisor: Chris Sligh, Director of Student Activities and Leadership Programs.

Abstract: Each year, Western Michigan University students are provided with the opportunity to receive t-shirts that proudly promote the university's organizations and campus programming. These basic t-shirts being disbursed do not adequately represent WMU's sustainability initiatives. We propose for the Western Student Association (WSA), the student body representation, to initiate the change to a more eco-friendly t-shirt being provided by Western's campus. This will be done on April 17, 2013, where WSA's Student Pride Committee will facilitate a "T-Shirt Swap." On this day, any student will have the opportunity to exchange either apparel from another university or make a documented pledge to be more sustainable for an eco-friendly long-sleeve "I AM WMU" t-shirt. This exchange will serve as an example for Western Michigan University that students are acknowledging that basic t-shirts are not sustainable for the long-term mission of this University and initiate the discussion for eco-friendly t-shirts a normal requirement for this campus.

Amount Requested: $1,535.00 Amount Allocated: $1,535.00

5. Office for Sustainability Green Wall

Principal Investigators: Elise Crafts and Curtis Aardema. Faculty/Staff Advisor: Scott Smith, Assistant Professor, Geography.

Abstract: This proposal details the design and implementation of a green wall on the western exterior of the Office for Sustainability building. A green wall in this location will have many benefits, including: reduced air, noise, and water pollution; reduced heating and cooling costs for the OfS building; and increased educational opportunities for all WMU and non-WMU peoples who utilize the Howard Street and West Michigan Avenue corridors and associated public realm. Using a recycled trellis provided by WMU Landscape Services or other material, the design will incorporate rainwater harvesting adjacent to the wall. The project planting materials will be determined upon collaboration with the Department of Biology and Environmental Studies to offer educational opportunities as well as native species plant selection. Additionally, the Department of Fine Arts will be consulted for final project design that is both accessible and informative to a diverse population. Landscape services will provide ongoing maintenance including watering, pruning, and general repair as needed.

Amount Requested: $9,750.00 Amount Allocated: $9,750.00

6. The Forum [Amphitheater] Design Initiative

Principal Investigators: Anthony Haduch and Brandy Morgan. Faculty/Staff Advisor: Chris Sligh, Director of Student Activities and Leadership Programs.

Abstract: The Forum [Amphitheater] Design Initiative is a special project driven entirely through student efforts. Working with administrators of Western Michigan University to repurpose the amphitheater space, located in the center of Dunbar, Knauss, and Friedman Hall. Currently, this area has no defined use. We as a student body are working toward further defining its purpose as a location for outdoor events to be held. The purpose of this grant request is to obtain funding to fully implement “stage one” of the cosmetic renovation to the amphitheater event space.

“Stage one” of this cosmetic renovation will consist of a WMU student

designed mural, brown and gold tapestry, and assorted vegetation to bring life to the space. Since this venue is meant to be a point of pride for our university, student(s) from out art program will facilitate the design of the mural. This stage of implementation will use the artistic theme of "Western Values". These artistically represented values will embody what it means to be a student here at Western Michigan University: academics, student involvement, diversity, university pride and, of course, sustainability. There will be a professional consultant provided by facilities management to monitor the realistic approach toward the completion of the mural.

Due to the timing of this grant application, we are unable to request funding for the supplies to design the mural. Instead, we are asking that the sustainability grant specifically fund the essential finishing touches to enhance the space. These items are those listed as assorted plant life, including our University Flower the Brown-Eyed Susan, as well as, WMU themed tapestry that will overhang across the top of the amphitheater. If this budget is approved, we will be sure to purchase the most sustainable and durable fabric for the use of this design. Facilities Management has the resources to sort through vendors that will fit the mission of this sustainability initiative.

Amount Requested: $4,525.00 Amount Allocated: $4,525.00

Fall 2012 Student Sustainability Grant Proposals

Total funds requested: $13.269.00
Total funds allocated: $13,269.00

1. Aquaponics / Black Soldier Fly Larvae / Vermicomposting

Principal Investigators: Brian Balconi and Tyler Shelton. Faculty/Staff Advisor: Jorge Rodriguez, Associate Professor, Industrial and Manufacturing Engineering.

Abstract: Aquaponics is a food production system of that combines hydroponics—growing plants without soil, and aquaculture —fish farming.

Fish wastewater is utilized as a nutrient source for plants grown in media, and plant filtered water is then cycled back to the fish. Specifically, bacteria convert fish effluent ammonia into nitrogen that is plant soluble as nutrients. Aquaponics is a developing technology, gaining momentum in food production without the use of synthetic chemicals. We intend to expand upon aquaponics by incorporating vermiculture and black soldier fly larvae. Pre-consumer organic food waste can be directly fed to worms in vermicomposting. Vermicomposting converts this food waste into nutrient-rich castings. Castings can be applied to a garden or used as media for rooting our aquaponics plants. A portion of the worms will be used as fish feed in the aquaponics system. Black soldier fly larvae will consume lipids and fats that the worms cannot. The larvae will produce a black residue that is very palatable for the worms. The worms then further convert the residue into worm casts, while larvae/fly protein will be used as fish feed. Currently the Office for Sustainability is transitioning into a permaculture approach of food production. In permaculture systems thinking is highly valued. The incorporation of the systems above will allow for research into comprehensive waste management. This system will also allow us to research an alternative to energy and pollution intensive industrial agriculture, which is a major contributor to current global climate change.

Amount Requested: $4,999.00 Amount Allocated: $4,999.00

2. Alternative Energy Vehicles, Make it Fun!

Principal Investigator: Baxter Gill. Faculty/Staff Advisor: Jorge Rodriguez, Associate Professor, Industrial and Manufacturing Engineering.

Abstract: Transportation is a topic of extreme importance in sustainability efforts all over the world. Society has come to depend on transportation in order to have economic and social standards, but its dependence on fossil fuels is the largest negative effect on the environment. Fortunately there have been strong efforts in the area of alternative energies, like electric and solar vehicles, and in the area of energy storage, like flywheels. We are proposing the design, fabrication and benchmarking of vehicles (go-karts) that use these

technologies. One vehicle will have the capability to operate with electric and/or solar energy, and the second one with a standard gas- engine, but with a modification to include the flywheel concept. Two goals are pursued with this project, that these vehicles will be used to i) benchmark performances under different conditions, and II) showcase during student events to raise awareness about sustainability and alternative energies, in a fun way. Every young person is attracted to driving and competition, and these unique vehicles will be great educational tools because students will have the opportunity to experiment with them in future projects, and at the same time they will be great engaging devices that will capture young minds and will put that seed about sustainability and alternative energies in their brains. The group of students proposing this project have been involved with the SAE Baja and Formula competitions, and firmly believe that the impact that these vehicles will have in the College and WMU will eventually be reflected in the global environment because they have learned about green transportation while having fun.

Amount Requested: $3,495.00 Amount Allocated: $3,495.00

3. Urban Transportation Tricycle Prototype Using a Sustainable Open Source Design

Principal Investigators: Adam Hill and Michael Robinson. Faculty/Staff Advisor: David Middleton, Senior Instructor, Industrial and Manufacturing Engineering.

Abstract: Bicycling is an incredibly efficient means of transportation. When cycling at relatively fast speeds, it is the most efficient form of transportation, more efficient than an automobile or even walking (Exploratorium, 2012). Thus, experimenting, improving, and cultivating awareness of different cycling options is a great method of increasing our level of sustainability on campus and in the community. We propose to build an urban transportation tricycle in order to provide alternative options of transportation to students while exploring different technologies that can assist these methods of transportation. Our design team will build a recumbent tricycle frame using

raw materials and materials from other bicycles; it will be lightweight, have room for storage, and be usable in adverse weather conditions. This prototype will serve as a platform to which other technologies can be added to improve functioning and to explore alternative transportation options. Our electrical engineering team will be outfitting the bike with the first of these technology options – an electric hub motor system and a hydrogen fuel cell to provide the vehicle with clean power to assist the rider and extend the range of its use. When finished, the plans will be made available for free as an open-source to any student or community member who wishes to construct a similar vehicle. *Somewhat* similar vehicles are available on the market to day but are impractical due to their high cost or weight. Ideally our tricycle could be made for comparatively little money, thus becoming an affordable option for a student to build and use for daily commuting.

Amount Requested: $4,775.00 Amount Allocated: $4,775.00

Spring 2012 Student Sustainability Grant Proposals

Total funds requested: $11,648.59
Total funds allocated: $10,928.00

1. Prototype of a Hybrid Solar Updraft Tower

Principal Investigators: Josef Imesch and Adam Haslinger. Faculty/Staff Advisor: Jorge Rodriguez, Associate Professor, Industrial and Manufacturing Engineering.

Abstract: This project involves the design and fabrication of a prototype Hybrid Solar Updraft Tower (HSUT). This tower uses the sun's light to create energy through the use of a greenhouse, chimney, and turbine. The sun shines onto the greenhouse, heating the air within. Concentration techniques will be utilized (Hybrid) by having lenses mounted on top of the greenhouse to focus light onto mirrors. These mirrors will then redirect the light onto the tower, where hot air will rise and drive turbines to create electricity. Solar updraft

towers have been tried before, with mixed results, but none of them utilized lenses and mirrors. This new design will be more efficient and, hopefully, competitive with other forms of green energy. Green energy is growing more important every day as power plants spew more and more pollution into our atmosphere. This tower is another step toward understanding the capabilities of a full size HSUT, and will be used as a proof-of-concept. We currently have solar panels and a wind turbine on campus. The addition of a prototype HSUT would show a stronger commitment to becoming a more sustainable campus. To the best of our knowledge, we would be the only campus with a prototype of such a tower. This would set us apart form other universities. This prototype would be used to encourage current students to become involved in similar projects. It would also be used as a showpiece to get perspective students more interested in coming to WMU.

Amount Requested: $2,925.00 Amount Allocated: $2,925.00

2. Botany Club

Abstract: Botany Club is based around giving the WMU population a chance to learn and grow plants in a student led discussion about how and what to do. Using the money given to the RSO the goal will be to help start and situate the club in its finances; giving the right environment and supplies necessary to thrive.

Amount Requested: $720.55 Amount Allocated: $0.00

3. New Student Orientation: Strides Toward Becoming Sustainable

Principal Investigators: Anthony Haduch and Brian Donahue. Faculty/Staff Advisor: Steve Booher, Orientation Coordinator, First-Year Experience.

Abstract: The First-Year Experience Program is moving toward making changes within its programs to become more sustainable. Our programs interact with all incoming first year students and their families. With these interactions we are able to provide a proper first impression that students can

anticipate while attending Western Michigan University. As an office, we are adapting our programs to utilize more sustainable practices. Through this proposal an explication of shifting from plastic ponchos to durable and reusable umbrellas will be made. A discussion of how this will enhance the environment of Western Michigan University, as well as how our department plans to express the importance of the sustainability efforts at both our programs and the University are progressing toward.

Amount Requested: $3,125.00 Amount Allocated: $3,125.00 NOTE: Although this abstract reads as though the proposal came from a WMU department, it was authored by an undergraduate student and supported by a graduate student in keeping with SSG funding guidelines.

4. Carbon Neutral USB-Drives – RSO Financial

Principal Investigators: Izaak Blankenstijn and Meredith Atchison. Faculty/Staff Advisor: Kate Bates, Assistant Director, Student Activities & Leadership Programs.

Abstract: The RSO Financial Workshop has been conducted for many years for students and RSOs that apply for SSG, WSA-AC, GFAC, and SCC funds. Each academic year, RSOs and other grant receivers are required to attend this workshop. Traditionally, during these workshops mandatory reading materials have been handed out in paper format of approximately 36-40 pages. With funding from the SSG, students that attend these workshops will receive these reading materials, payment forms, sample forms, sample contracts, presentation, RSO Handbook, etc., in electronic format via a Carbon Neutral USB-Drive made partially from hardwood from a FSC certified source. This potentially reduces the amount of ink, electricity, and paper for this project by over 15,200 pages per academic year, thus further increasing the sustainability of the University and its undergraduate and graduate students. The USB-Drives will bear a logo or other acknowledgement indicating that this project was funded by the SSG-AC, hence promoting and bringing awareness to the culture of sustainability at WMU.

Amount Requested: $4,878.00 Amount Allocated: $4,878.00

Fall 2011 Student Sustainability Grant Proposals

Total funds requested: $45,830.00
Total funds allocated: **$31,803.00**

1. Prototype of a Dual-Purpose Assisted HP Transportation Vehicle for Campus

Principal Investigators: Kevin W. Peabody, Shane Ambler, Ryan Mass, and Bill Burd. Faculty/Staff Advisor: Jorge Rodriguez, Associate Professor, Industrial and Manufacturing Engineering.

Abstract: Sustainability has become one of the biggest issues in the last decade. A specific aspect of extreme importance in sustainability is transportation. Developed societies are highly dependent on transportation for economic and social standards, but without attention to the environment. We are proposing the design and fabrication of a prototype of a dual-purpose assisted human powered transportation vehicle for campus use. It will be a prototype, since it will be a single unit that will serve as a proof-of –concept, it is dual-purpose because the goal auxiliary power capabilities to fulfill requirements, and it is a vehicle, which implies at this point that it will be "something that moves", the alternatives (ie.,2-,3-, or 4-wheel vehicles) will be evaluated, and the final vehicle will fulfill safety and road regulations. The proposal considers as well developing an implementation plan to use such vehicles on campus.

The plan for the design will follow a standard engineering design process, and the budget covers mainly materials and components. This proposal can be considered as a wonderful initial step towards having a campus wide initiative in terms of vehicles, and an additional step that supports existing initiatives on campus (e.g., borrow a bike) or in the community (e.g., bike paths). The benefits for sustainability on campus are great, by showing fun, healthy options, it is expected that more people will be involved and eventually the

campus culture will change. We just need support to get the ball rolling.

Amount Requested: $2,700.00 Amount Allocated: $2,700.00

2. Vermicomposting: Reducing Waste and Promoting Sustainability

Principal Investigators: Dean Simionescu and John W. Lee Faculty/Staff Advisor: Matthew Hollander, Coordinator of Sustainability Projects, Office for Sustainability.

Abstract: Vermicomposting is a method of converting organic waste into a natural fertilizer using microbes and earthworms. This method of waste conversion has gained popularity across the globe for its ecological and economical benefits. As food waste is consumes, worms produce excrement, called castings, which are further broken down by microbes. These castings provide nutrients for plants to grow larger and yields more produce and can even help deter pests and insects (Perumalsamy). The castings are often turned into a compost tea, which can then be sprayed for easy application. There is already ongoing research on campus for compost tea using a 150-gallon brewer located at the Gibbs house. The compost tea produced will be used by the Student Garden Organization (SGO) and will allow us to explore the potential for business and municipal integration. Establishing a small-scale vermicompost facility on campus will allow students to learn the processes that comprise decomposition;, allow for experiments to further explore and expand the limits of vermicompost capabilities while producing a super nutrient-rich fertilizer.

Amount Requested: $3,868.00 Amount Allocated: $3,868.00

3. Used Bike Rental Program

Principal Investigators: Brian Oswald and Zach Waas Smith. Faculty/Staff Advisor: John Schmitt, Business Consultant, Haworth College of Business.

Abstract: In order for WMU to increase its sustainability, it must reduce its

carbon dioxide emissions, one third of which come from transporting alone (Bessey, Braman, Davis, 2010). While the university is making great strides toward reducing carbon emissions, more must be done in the way of transportation reorganization if WMU hopes to become a leader in sustainability. Cycling is not only a sustainable mode of transportation, but it promotes positive health and physical condition of riders, improves air quality, requires very little infrastructure (compared to cars), and contributes to social inclusion (Grabrow and others, 2011; Engbers, Hendriksen, 2010). STEED, a registered student organization (RSO) at WMU, focuses on the advocacy of Non-motorized transportation (NMT) through education and empowerment. The Bike Stable, who works directly with STEED offers in-shop services such as maintenance, repair education, and tool accessibility. The Bike Stable has already made a headway toward a bicycle rental program in OCTOBER of 2011 The Bike Stable worked with WMU Public Safety to select 8 bikes from Public Safety's collection of abandon bikes which are now bound for eventual rental. However, the components on the bicycles have become very weathered and rusted. While The Bike Stable will work to reuse and salvage any usable parts on the bikes, many of the components will require replacement to ensure safe operation of the bikes. The goal of this project is to work with The Bike Stable to provide a bicycle rental program to expand services beyond the physical confines of our on-campus shop.

Amount Requested: $4,996.69 Amount Allocated: $5,096.69 (SSG-AC allocated $100 additional funding for program promotion)

4. Increasing Recycling: Prompts & Response Effort

Principal Investigators: Kathryn Kestner, Elian Aljadeff-Abergel, and Yannick Schenk. Faculty/Staff Advisor: Stephanie Peterson, Associate Professor, Psychology.

Abstract: The purpose of this study is to the effectiveness of two interventions for increasing appropriate recycling and trash sorting in Wood Hall. The first intervention will use visual prompts/cues appearing or the existing recycling and trash stations in the hallways on the first and second

floors of Wood Hall. These prompts will include more detailed waste-sorting information in order to increase appropriate recycling and decrease in errors. The second intervention will be the addition of lids on top of existing classroom trashcans to increase the effort of throwing material into classroom trashcans to encourage individuals to instead choose the less effortful response of using the open recycling/trash centers in the hallway. An additional prompt will appear on the classroom trashcans to; indicate the recyclable materials should be disposed of in the appropriate cans in the hallway. There are no recycling receptacles in the classrooms; individuals using the centers in the hallway will come into contact with the opportunity to recycle. Our hypothesis is that providing detailed waste sorting information in the hallway receptacles will increase appropriate sorting while reducing errors. We hypothesize that the additional component of increasing the response effort involved in the use of the classroom's trashcans will further increase appropriate recycling and waste disposal.

Amount Requested: $858.40 Amount Allocated: $858.40

5. Earth Hour 2012

Abstract: Earth Hour has become a global movement that raises the awareness of sustainability in a monumental fashion; there is no other event worldwide that brings so many people together to support sustainability (currently 1.8 billion). While they might not physically be together, we are united as one for this one time a year where people all over the world are fighting for the same cause, sustainability.

Surprisingly the city we think has proven time and time again to be a frontrunner in modernization and innovation has let this spring event slip through their fingers, but it's time that Earth Hour and its followers inhabit Kalamazoo.

Earth Hour takes place on March 31, 2012 at 8:30. At this time the lights go off, and I mean this literally. The goal of this event is to power down the ENTIRE city, that means cars, buses, businesses and anything else that uses energy. During this hour a festival is held to celebrate the generous act that is

taking place, to come together as a community and of course to fill the void that our technology driven lives are missing without instant connectivity.

Amount Requested: $9,990 Amount Allocated: $0.00

6. RSO Financial Workshop USB-Drives

Abstract: The RSO Financial Workshop has been conducted for many years for students and RSOs that apply for SSG, WSA-AC, GFAC, and SCC funds. Each academic year, RSOs and other grant receivers are required to attend this workshop. Traditionally, during these workshops mandatory reading materials have been handed out in paper format of approximately 36-40 pages. With funding from the SSG, students that attend these workshops will receive these reading materials in electronic format via USB- Drive. This potentially reduced the amount of paper for this project by 15,200 pages over academic year, thus further increasing the sustainability of the University and its undergraduate and graduate students.

Amount Requested: $4,137.00 Amount Allocated: $0.00

7. 2011 Student Garden Organization Grant Proposal

Principal Investigators: William H. Derouin and Kevin Martini. Faculty/Staff Advisor: Matthew Hollander, Coordinator of Sustainability Projects, Office for Sustainability.

Abstract: As Western Michigan University's Student Garden Organization (SGO), our proposal represents the continuation and expansion of currently existing sustainability projects associated with Western Michigan University's gardens at the Gibb House and on Stadium Drive. We seek to create opportunities for students and Kalamazoo-area residents to become better educated about sustainable options for food production through direct, active learning experiences. At the same time, we will be developing and maintaining gardens capable of supplying WMU catering services with sustainably grown produce, with year-round provision of herbs made possible through collaboration with the Finch greenhouse. Additionally, we seek to create a

conservation area to protect native Michigan biodiversity, while providing a relaxing and inviting atmosphere, conductive to community outreach programs, including educational events and activities. Ultimately, our goals are to increase overall sustainability at WMU and expanded outreach to a larger segment of WMU's student population.

Amount Requested: $9,992.00 Amount Allocated: $9,992.00

8. The Campus Beet's Weekly Meal

Principal Investigators: Brian Balconi and Michelle Tomasko. Faculty/Staff Advisor: Matthew Hollander, Coordinator of Sustainability Projects, Office for Sustainability.

Abstract: The Campus Beet is an initiative to begin a student-led café on Western Michigan University's campus. The Campus Beet will focus on providing sustainable, healthy food choices and providing menu items that cater to special dietary needs. The Campus Beet will attain these goals through sourcing food from local and/or organic vendors, planning menus that reflect the seasonality of produce on the region, collaborating with on-campus farming initiatives to source items. Menu items will cater to gluten and/or diary-intolerances, as well as gain and demonstrate competence in regularly preparing and serving food from a licensed kitchen.

Amount Requested: $9,288.78 Amount Allocated: $9,288.78

Spring 2011 Student Sustainability Grant Proposals

Total funds requested: $22,308.58

Total funds allocated: **$19,384.58** *1. Evaluation of University Residence Halls on Utilities*

Abstract: The price of utilities continues to climb throughout the world, and it is no different for on-campus residents of Western Michigan University. With

costs constantly rising, universities are being forced to raise the price of student housing to match the demands of growing energy costs. However, I believe we can curve the demand in cost increases by giving money back to nearly 5,000 students who choose to live in in university residence halls annually. If these 5,000 students are contributing $8 per semester, they are contributing $80,000 annually towards the Sustainability Fund. Some of this money should be allocated for the sustainable improvement of residence halls. This research would look for ways to efficiently decrease the amount of energy consumed by on-campus residents through alternative energy resources, such as wind turbines, high efficiency light bulbs, solar panels, or other more sustainable methods. The research will include the cost to implement suggested improvements, estimated amount of money the community would save on utilities, and student response to suggested improvements.

Amount Requested: $2,834.00 Amount Allocated: $0.00

2. Campus Bicycle Cooperative

Principal Investigators: Zachary Waas Smith and Jacob Huizenga. Faculty/Staff Advisor: Harold Glasser, Executive Director, Office for Sustainability.

Abstract: Over a third of Western Michigan University's total greenhouse gas emissions are the result of gasoline- powered transportation. In order to lessen the impact of transportation carbon emissions and improve WMU sustainability, WMU needs to invest in alternative transportation options. A campus bicycle cooperative is one of these options and is an essential step toward advancing campus bicycle infrastructure. This project will ne the first effort to establish a bicycle cooperative at WMU, but not the first at any university; there are several very successful campus bike co-ops in existence across the continent whose efforts have contributed to the structural development of this co-op. This co-op will focus on bicycle maintenance, repair, education, accessibility, and promoting the bicycle as a mode of transportation. Money from this grant will support the purchase of necessary tools, promotional efforts, and operational structure (computers, staff,

signage, office materials, etc.). Students will work collaboratively to operate the campus bike co-op, and this grant will augment their success. This grant will improve WMU sustainability through the amelioration of infrastructure for alternative transportation options available to WMU faculty, staff, and students.

Amount Requested: $9388.00 Amount Allocated: $9388.00

3. Free Store/Share Space Infrastructure

Abstract: Over the past three years, I have been trying to formulate an alternative consumer community as well as utilize the creative and thrifty population of students on WMU's campus. This project of a Free Store/Share Space would mean that there would be a permanent location for these items and ideas to thrive and be exchanged. In order to do that, I need a minimal amount of infrastructure for organization and aesthetics. Tentatively, this space will be in a few Offices in the basement of Faunce; two rooms for display, and one room for storage and organization. All of these rooms will need shelving units, clothing racks, and hangers.

Amount Requested: $540.00 Amount Allocated: $540.00 (conditional) NOTE: The proposal author failed to meet the SSG-AC's allocation conditions. Funds were not disbursed.

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4. The Campus Beet Open House

Principal Investigators: Amelia Stefanac and Caleb Oliver. Faculty/Staff Advisor: Matt Hollander, Coordinator of Sustainability Projects, Office for Sustainability.

Abstract: The Campus Beet is a Registered Student Organization that is working towards building a student-led café. This initiative is in a response to a growing need for students to have a source for local and sustainable foods on campus that fit their dietary needs, as well as a need for a social, creative, and co-curricular outlet on Western's campus. We recently collaborated with

dining services and dietetics inters to hold a menu-taste event that was well attended and thoroughly enjoyed. With the feedback on recipes from that even, we plan on making improvements through mini-tastes held on campus every other week. After working in the Bernhard kitchen for the menu test, we decided on pieces of equipment necessary to make this possible and ease the stress of production on such a mass scale. On April 8th, we will showcase the vision for this café through a finalized and perfected menu, along with musical guests poetry and fiction readings, film screenings, and visual art, all of which display the various talents of Western students. There will be a videographer to document, promote, and share our efforts throughout the University to further illustrate the success of this initiative.

Amount Requested: $9,996.58 Amount Allocated: $9,996.58