



# Kalamazoo College Sustainability and Climate Action Plan

First Edition - January 2010



## Foreword

---

The Kalamazoo College Sustainability Plan represents a 28-month collaboration that brought together an inclusive cross-section of all the College's constituents. Students, faculty, staff, alumni, and trustees were involved in the planning meetings, strategy reviews, emissions inventories and, finally, the many drafts necessary to complete this document. We are particularly proud of the fact that, other than the inspiration we received from the colleges and universities that have joined us in this Climate Commitment, the Kalamazoo plan is a completely "home-grown" product. We take particular pride in our students who lobbied for the College to become a charter signatory to the ACUPCC and then stepped up to play a crucial role in helping the College meet its initial commitments.

The Kalamazoo Plan was developed in an environment of competing priorities and limited financial resources. While the path to a workable plan led to compromises, this document supplies sound prescriptive strategies and identifies funding to achieve an aggressive yet realistic goal for greenhouse gas emission reductions over the next 10 years. The successful realization of this short-term goal will develop the infrastructure and build the momentum needed to carry Kalamazoo College to its long-term goal of attaining climate neutrality. This plan promotes the continuing intellectual inquiry that will lead to greater understanding of the issues surrounding climate change and fosters, as well, the creativity that will help Kalamazoo College provide the leadership its community, country, and planet will need to meet the challenges ahead.

We urge every member of the Kalamazoo College community to read this document and recognize that there is a role for each of us to play in the College's effort to meet its goal of contributing significantly to the understanding of climate change and, ultimately, leading the way in the struggle to prevent the future degradation of the earth's climate.

Eileen B. Wilson-Oyelaran, President

Paul Manstrom, Chair of the Climate Commitment Planning Committee

## **Acknowledgements**

---

Kalamazoo College gratefully recognizes the efforts of the following individuals who participated in the many planning meetings, data collection, strategy reviews, and finally the countless draft iterations that were required to produce our Sustainability and Climate Action Plan:

### **Climate Commitment Planning Committee**

#### **Administrators and Staff**

Paul Manstrom, Director of Facilities Management, Chair  
Michael A. McDonald, Provost  
Brian Dietz, Assistant Dean of Students  
Marcquel Pickett '08, Sustainability Coordinator

#### **Faculty**

Binney Girdler, Biology  
Amelia Katanski, English  
Olga Bonfiglio, Education

#### **Students**

Zachary Workman '08  
Samantha Weaver '08  
Nicholas Kelly '09  
Adam Smith '11

### **Sustainability Task Force**

#### **Trustees**

Richard E. Yehle '68, Chair  
Gail A. Raiman '73  
L. West Nelson '81  
Roger E. Brownell '68  
Helen B. Etkin '76  
Jon L. Stryker '82  
Alfred J. Gemrich '60 (Emeritus)

## **Sustainability Task Force (cont.)**

### **Faculty**

Bruce Mills, English

### **Staff**

Jane Hoinville, Development

### **Students**

Jillian McLaughlin '10

Christopher Hutchinson '10

### **Support**

James E. Prince, Vice Present for Business and Finance

Michael A. McDonald, Provost

Paul Manstrom, Director of Facilities Management

## Table of Contents

---

Kalamazoo College’s Commitment.....	1
The Nature of the Plan.....	2
Sustainability Goals and Strategies.....	5
Greenhouse Gas Emissions Mitigation Strategy.....	5
Energy System Retrofits and On-Site Renewable Energy Systems.....	7
Funding Retrofits and Renewable Energy Systems.....	8
Major Building Renovations and Replacements.....	9
Funding the New Energy Standards for Renovations and Replacements.....	10
Energy Conservation Initiatives.....	10
Cleaner Fuel Mix Profile for Purchased Electricity.....	11
Reduction in College Fleet Emissions.....	13
Reduction in Commuting Mileage.....	13
Long Term Goal.....	14
Long Term Strategy.....	14
Resource Conservation.....	15
Storm Water Management.....	15
Potable Water Conservation.....	16
Campus Landscaping and Green Space.....	16
Solid Waste Minimization.....	17
Green Cleaning.....	18
Purchasing Best Practices.....	19
Academics and Civic Engagement.....	20
Curriculum.....	20
Experiential Education.....	21
Scholarship.....	23
Measuring Progress.....	24
Conclusion.....	25
Appendix A: Emissions Projection Chart.....	26

# The Kalamazoo College Climate Action Plan

---

## ***Kalamazoo College's Commitment***

Climate change has been asserted as endangering our planet's health. As former United Nations Secretary-General Kofi Annan said at the time of the 2009 Copenhagen worldwide summit on climate change:

*"The stakes are enormous. Economic growth has been achieved at great environmental and social cost, aggravating inequality and human vulnerability. The irreparable damage that is being inflicted on ecosystems, agricultural productivity, forests and water systems is accelerating. Threats to health, life and livelihoods are growing. Disasters are also increasing in scale and frequency."*

"Sustainability" has been suggested by many environmental experts and advocates as a means vital to meeting the world's challenges. But understanding what sustainability is, why it is needed, and what practices should be implemented remains conceptually elusive to most people because of their lack of familiarity with this critical issue, especially at a scale of global proportions.

The most popular definition of sustainability can be traced to a 1987 United Nations conference, *Our Common Future*, which defined sustainable developments as those that "meet present needs without compromising the ability of future generations to meet their needs" (World Commission on Environment and Development, 1987). Seeking sustainability, however, requires new ways of thinking about the use of our natural resources, a re-evaluation of our energy policies and practices, and changes in our daily lifestyles. It requires that we create "learning laboratories" that not only direct our attention to strategies and attitudes aimed at reducing carbon emissions but that we make opportunities available so that we may understand, experiment, and practice new and more ecological ways of living. As an educational institution, Kalamazoo College is well-positioned to be a "learning laboratory" for teaching its students such sustainability

theories and practices. It can also demonstrate sustainability leadership by adopting policies that reduce the institution's environmental footprint.

Kalamazoo College, with its 55-acre campus, 21 buildings, 1,400 students, and 350 employees, has a significant environmental footprint. As an official first step, in July 2007, the College joined 347 other institutions as a charter signatory to the American College & University Presidents Climate Commitment (ACUPCC) in a pledge to reduce greenhouse gas emissions attributable to the operations of their respective campuses. President Wilson-Oyelaran then established a campus-wide committee charged with creating a comprehensive institutional action plan to move the College toward complete climate at the earliest possible date. Through this commitment, the College aims to do its part in reducing its environmental impact in measurable ways and to become a leader in the local community by developing and advocating environmentally sound values and practices among its students, faculty and staff. This document outlines the goals and strategies for achieving this ambitious but essential endeavor.

The College has already established some practices supportive of sustainable environmental standards in its operations and facilities. Individual members of the College have also demonstrated interest and commitment as reflected in a broad range of initiatives, activities and research that they have pursued. The time has come, however, to build on those initiatives and articulate a comprehensive set of sustainability goals that call upon all members of the College community, both individually and collectively, to help the College play its role in the global effort to achieve a sustainable future for all.

We believe that we have a responsibility to look for ways to achieve environmental improvements in our own operations. By using the campus as a laboratory for the development and deployment of new technologies and practices, we will not only contribute to and exemplify the range of behaviors needed to achieve a sustainable society, but we will also involve our students in ways that will train them to be good environmental citizens.

### ***The Nature of the Plan***

The first premise of this plan is that Kalamazoo College must ensure that its campus and plant operations (the areas with the largest and most immediate environmental impact) reflect, respect and contribute toward achieving sound sustainable practices. However, this plan also includes various academic and community outreach initiatives as means to inform and shape values that acknowledge the world's natural resources are limited and to promote different use patterns as a means to lessen adverse impacts.

The plan proposes aggressive but achievable goals in three priority areas that are particular to Kalamazoo College and the broader Kalamazoo community: i.e. **Greenhouse Gas Reduction; Resource Conservation; and Academics and Civic Engagement.** It deliberately resists the trend toward symbolic gestures or strategies such as purchasing offsets that are popular but are not likely to lead to much real progress in reducing Kalamazoo College's actual carbon emissions. The plan aims to take a principled approach to sustainability by selecting specific objectives in areas in which Kalamazoo can achieve real and measurable progress. Integrating into major operational decisions a careful cost-benefit analysis that evaluates the long-term economic and environmental implications of such decisions will be a cornerstone of the program.

The plan finds inspiration for environmental stewardship in the College's mission of "prepar[ing] its graduates to better understand, live successfully within, and provide enlightened leadership to a richly diverse and increasingly complex world." It is also consistent with one of the four principles of the Kalamazoo College Honor Code that specifically cites Accepting Environmental Responsibility with the following charge: "To maintain and improve the condition of our physical environment, we commit ourselves to the respectful and prudent stewardship of our community's material and natural resources."

Indeed, change on campus has already begun. For example, students have participated in projects to:



- Calculate the carbon sequestration potential of the Anderson Arboretum biomass.
- Use infrared technology to calculate heat loss in the College's steam distribution system.
- Encourage more bicycle use by both campus residents and commuters.
- Develop software that will automatically retrieve data from the College's energy meters, and publicly display current and historical energy use.
- Develop research strategies to reduce emissions for the purpose of fulfilling the ACUPCC commitment.
- Establish tray-less venues in the Hicks Center cafeteria.

Faculty and staff have sponsored several sustainability initiatives to:

- Promote locally sustainable agriculture and the use of locally grown food in the College's food services operation through the Farms to K program.
- Establish the Sustainability Guild, which strives to encourage sustainable practices on campus, in the community, through the alumni network and around the globe.
- Offer several courses that are either focused on environmental issues or that incorporate the subject in the course syllabus.

Physical plant operations have met many components of the ACUPCC charge, including to:

- Establish a College policy that requires ENERGY STAR certification for products purchased by the College.
- Participate in the Recyclemania Waste Minimization competition.
- Launch a campaign to reduce all campus solid waste including those materials currently being recycled.
- Earn silver level LEED (Leadership in Energy and Environmental Design) certification for the renovation of the College's student center.

While these projects are commendable, we have chosen to do more. As an institution of higher learning, we believe we have a responsibility to look for ways to

achieve environmental improvements in our own operations through the emergence of new technologies, innovation using existing technologies, and causing behavioral change. We believe that by serving as a learning laboratory, not only can we contribute to and exemplify the range of behaviors and technological practices needed to achieve a more sustainable society, but also to involve our students in ways that will prepare them to be good environmental citizens.

The next section outlines goals and strategies that the College proposes for the next 10 years in three priority areas, as it moves toward securing a more sustainable future and to attain complete climate neutrality by the year 2050.

---

## ***Sustainability Goals and Strategies***

### **A. Greenhouse Gas (GHG) Emissions Mitigation Strategy**

This strategy sets an Interim Goal to reduce Scope 1, 2 and 3 GHG emissions resulting from campus operations to 25% below 2008 levels by the year 2020. The strategies supporting this goal focus primarily on our buildings and the steam and chilled water plants that support them, which account for approximately 85% of the College's emissions. Finally, the actions of students and staff will be addressed to deal with the remainder of the emissions.

The College has had a significant focus on energy conservation and GHG emissions mitigation in recent years that forms a foundation for future actions. We have experienced a steady decline in annual GHG emissions from 2004<sup>1</sup> to 2008, the year we first submitted a greenhouse gas inventory report as required by the ACUPCC. During this period, Kalamazoo College's annual GHG emissions have been reduced by 6% or 775 MTCE (Metric Tons of Carbon Dioxide Equivalent). The decline in emissions is the result of a combination of small-scale energy system retrofits, a better understanding of the campus energy use profile resulting from an ongoing project to sub-meter campus buildings, gains in efficiency as the result of the Upjohn Library

---

<sup>111</sup> Kalamazoo College computes GHG emissions on a fiscal year basis but reports data in a calendar year format. Calendar year references in this plan translate into the closing year of a fiscal year. For example the emissions for the "base year 2008" are actually those measured in Fiscal Year 2007-08.

Commons and Hicks Center renovations, and improved digital building control systems. This recent reduction in emissions occurred despite a 7% increase in total campus building area. The trend continued into 2009 as the College began investing an educational discount received from the regional utility company (Consumers Energy) in additional projects designed to reduce energy use and emissions. The decline in emissions over the last fiscal year amounted to an additional 1.9% reduction.

The most significant sources of GHG emissions are found in campus buildings, campus operations and transportation. The Plan offers Interim and Long-term Goals for GHG mitigation in those areas.

*Interim Goals*

- Complete an ongoing program to install energy sub-meters in all campus buildings by the end of 2010.
- Reduce annual Scope 1, 2 and 3 emissions (as defined by the ACUPCC) by 25% below 2008 levels by 2020. Kalamazoo College’s GHG emissions in 2008 were 12,509 MTCE. Successful attainment of the Interim Goal will result reduce GHG emissions to 9,382 MTC in 2020 a reduction of just over 3,100 MTCE.
- Component strategies of the Interim Goal to reduce GHG emissions and the estimated annual reduction in emissions for each strategy are displayed in the table below:

<b>Mitigation Strategy</b>	<b>Estimated Reduction in Annual Emissions (MTCE)</b>
Conventional Energy Systems Retrofits	1,750
On-site Renewable Energy Systems	200
Major Building Renovations and Replacements	500
Low or No Cost Energy Conservation Initiatives	200
Cleaner Fuel Profile for Purchased Electricity	900

Reduction in College Fleet Emissions	150
Reduction in commuting mileage	150
Maintain current REC contract with Consumers Energy	250
Effect on emissions reductions from the construction of new campus buildings	(1,000)
<b>Total Reduction in Annual Emissions</b>	<b>3,100</b>

*Strategy Details:*

**1. Energy Systems Retrofits and On-Site Renewable Energy Systems**

- These two related strategies will be implemented in a series of projects that will incrementally reduce annual College GHG emissions. These projects will be completed independently of major capital projects on campus
  - The initial implementation of these strategies will concentrate on upgrading conventional HVAC and lighting technologies with new equipment that is much more energy efficient.
  - Upgrades of conventional technologies will continue throughout the period leading up to the target Interim Goal date of 2020 but beginning in the year 2015 the focus of investment will shift to the installation of alternative fuel/renewable energy systems on campus. Details of this shift in focus will be designed to complement the College's renovation/construction plans and advances in technology.
- The range of renewable energy systems will include any equipment that can be installed on campus and produce electricity or building heat from renewable or alternate fuel sources. This would include such devices as photovoltaic (PV) arrays and wind turbines designed to fit on building roofs, and alternate fuel solutions for campus boilers.

- To meet the GHG emissions reduction goal for on-site renewable energy, systems capable of producing an equivalent annual total of 285,000 kWh will need to be installed on campus by 2020.

### **Funding Energy System Retrofits**

Both energy systems retrofits and on-site renewable energy systems will be financed from savings realized from completed projects, the utility company's current discount to education facilities, utility rebate programs, and targeted grants. Money from these sources will be pooled in a dedicated revolving fund that will eventually provide \$200,000 annually for mitigation programs. The revolving fund represents the formalization of a process that has been in place for several years and in this current fiscal year (2009-10) has begun to use realized accumulated energy savings to augment the utility discount.

Mitigation goals and the related funding requirements for conventional system retrofits between now and 2020 are:

Annual GHG Reductions by 2020 (MTCE)	Incremental Total Cost
<b>1,750</b>	<b>\$1,370,000</b>

Mitigation goals and funding requirements for on-site renewable energy systems between now and 2020 are:

Annual GHG Reductions by 2020 (MTCE)	Incremental Total Cost
<b>200</b>	<b>\$500,000</b>

- The majority of funding for on-site renewable energy systems is intended to come from the revolving funds that will be disbursed in years 2015-2020.
- The \$500,000 estimate assumes that renewable energy systems will be wholly funded by the existing revolving fund.

The total revolving fund expenditure required to meet the 2020 mitigation goals and the schedule for the disbursements from the fund between now and 2020 is shown in the table below:

<b>Fiscal Year</b>	<b>Retrofit Budget</b>
2009-10	\$70,000
2010-11	\$100,000
2011-12	\$130,000
2012-13	\$170,000
2013-14	\$200,000
2014-15	\$200,000
2015-16	\$200,000
2016-17	\$200,000
2017-18	\$200,000
2018-19	\$200,000
2019-20	\$200,000
<b>TOTAL</b>	<b>\$1,870,000</b>

Kalamazoo College has, in the past, taken advantage of utility rebates and government grants to upgrade energy systems on campus. The increased availability of such funding and/or additional savings in energy costs may give the College cause to increase the base spending levels of the revolving fund.

**2. Major Building Renovations and Replacements**

- For the purpose of GHG mitigation, the College will design and construct all major projects so that they achieve an energy efficiency that is 30% greater than that required by ASHRAE 90.1 (2004) or an equivalent standard. The guidelines established for achieving ten credits in LEED version 3 Energy Optimization may be used to document a project’s attainment of the College’s new efficiency standard. Application of the LEED standard for this purpose shall be independent of any decision to seek actual LEED certification for a

project which the College will continue to consider on a project by project basis.

- This energy standard will be incorporated into a series of projects planned to replace or renovate existing facilities, the first three of which are in the very early planning stages and are not yet approved for construction. The projects are:
  - A facility containing a Fitness Center and new Natatorium
  - The Arcus Center for Social Justice Leadership
  - A replacement for Calder Fieldhouse (part of a larger project to upgrade the athletic fields)
- It is highly probable there will be additional renovation or new construction projects before the Interim Goal date of 2020 and that they also will have state of the art principles incorporated into their design and construction practices.

### **Funding the Energy Efficiency Standard for New Construction and Major Renovations**

This energy efficiency standard will apply to all major building projects and Kalamazoo College will provide the necessary additional funding for projects in an attempt to achieve the 30% efficiency increase up to the following limits:

- Building projects with budgets below \$1,000,000
  - **10%** of the project budget
- Building projects with budgets between \$1,000,000 and \$10,000,000
  - **\$100,000 plus 2%** of the project budget
- Building Projects with budgets over \$10,000,000
  - **3%** of the project budget

### **3. Energy Conservation Initiatives**

- The creativity and innovation of the campus community is already evident in current initiatives and will be further developed to find opportunities for energy conservation beyond the ideas below. The following areas will be subject to new policies or guidelines that will be developed through collaborative efforts with students and staff.
  - Student-led initiatives for energy conservation in the residence halls.
  - Establishment and strict enforcement of reasonable and uniform temperature guidelines for campus buildings.
  - Strict enforcement of the ban on electric space heaters
  - Expansion of the current program for the "free" exchange of incandescent bulbs for CFLs.
  - Improvement in building scheduling with a focus on the reduction of heating, air conditioning, and lighting loads.
  - Continuous improvement of the energy-consuming operations through regular meetings of an energy group at Facilities Management.
  - Development of incentive programs to reward ideas for low-cost energy conservation.
  - Working with all stakeholders including the Dining Services vendor to improve oversight of the energy consuming operations associated with Dining Services.

### **4. Cleaner Fuel Mix Profile for Purchased Electricity**

- Utilize power purchase practices to achieve GHG reductions.

Kalamazoo College purchases 100% of the electricity used on campus from the sole reasonable provider, Consumers Energy, a Michigan-based regional utility regulated by the State of Michigan. The State has mandated that all public utilities in the state will provide 10% of the electricity they produce from renewable energy sources by the year 2015. This mandate will result in annual



reduction in emissions attributable to Kalamazoo College operations by approximately 600 MTCE in 2015. The State has also indicated that it will be increasing the required percentage of renewable energy produced electricity past the 2015 date but has not yet decided on the final figures. We conservatively estimate that our annual emissions will have decreased by 900 MTCE by our Interim Goal Date of 2020 as a result of these future requirements.

- Maintain the Current Renewable Energy Certificate Contract with Consumers Energy.

As part of earning a LEED credit for in the Renewable Energy category for the Hicks Center renovation, Kalamazoo College currently has a contract to purchase 360,000 kWh of "green energy" annually from Consumers Energy. This green energy is produced at a wind farm in Michigan's "Thumb" area and the amount being purchased represents 42% of Hicks' annual usage and about 4% of the annual use of the major campus buildings. The current contract expires at the end of 2010 and it is recommended that the College extend the contract if the terms remain agreeable. This represents a very minimal investment (currently \$4,800 annually), it supports a Michigan operation and it can serve as a hedge against some of the pressures mentioned earlier that may cause net increases in GHG emissions in some campus buildings.

- Additional Offsets or Renewable Energy Contracts

The following strategies in general do not include the purchase of offsets or participation in projects not directly tied to property used or owned by the College in order to meet the objectives. Purchasing offsets, in essence, gives the purchaser the right to continue emitting greenhouse gases; in theory, the money expended to purchase the offsets would pay the costs of reducing emissions elsewhere in the world. We have two reasons for regarding this as an unsuitable strategy for Kalamazoo College as we attempt to achieve our 2020 target.

First, knowledgeable observers have suggested that many payments for offsets never actually get used to pay for the promised environmental improvements. In other cases they are reported to pay for improvements which would have been

undertaken even in the absence of the offset payment (because they were economically efficient). In either of these scenarios, the offsets have little (or no) impact on the emission of greenhouse gases.

Second, even if we could be confident that offset payments would be used for their intended purposes, we do not believe that purchasing offsets is a viable long-term response to global warming. It is not enough to offset emissions; there needs to be a reduction in emissions, and to reduce them, some people must reform their own behavior rather than pay others for the privilege of continuing to pollute. Consequently, the use of offsets or other off-campus projects is not proposed at this time. We do recognize, however, that there are constituencies in the College community that support this method of neutralizing emissions and may be able to independently secure funding for the purchase of offsets or renewable energy certificates. If funds restricted to the purchase of offsets, etc. are made available, we would then integrate those purchases into our climate neutral strategy.

## **5. Reduction in College Fleet Emissions**

- Reduce emissions from College fleet vehicles by 50% below the base year of 2008 by the year 2020 through the phased replacement of campus vehicles with appropriate zero or low-emission vehicles and reductions in annual fleet vehicle mileage totals

## **6. Reduction in Commuting Mileage**

- Reduce emissions from faculty, staff and student commuting by 25% below the base year of 2008 by the year 2020 through the use of:
  - Incentives for commuter use of public transportation.
  - Incentives for carpooling and/or participation in a ride-share program.
  - Incentives to encourage walking and biking as a means of commuting through establishment of weather-protected bike storage facilities.
  - Development of a telecommuting policy for College employees

- Increased use of videoconferencing.
- Development of policies to reduce the number of vehicles on campus particularly for residential students.
- Increased controls in the existing parking system as a means for discouraging vehicle use.
- Development of incentives for faculty, staff and students to use fuel efficient vehicles for their commuting needs

*Long-Term Goal:*

- Kalamazoo College will become a climate neutral campus no later than the year **2050.**

*Long-Term Strategy:*

- The rate of reduction in GHG emissions required to successfully achieve Kalamazoo College's 2020 goal establishes the parameters necessary for the College to achieve climate neutrality no later than the year 2050.
- Kalamazoo College commits to developing a series of five-year plans beginning in 2020 to maintain the desired rate of GHG emissions reductions through the year 2050.
- In the long term, investment in GHG mitigation strategies, technology and equipment will continue to focus on initiatives and projects on the central campus. Investment in offsets, renewable energy certificates, etc. will only be made with restricted funds that become available for that use.
- As part of the annual reporting process described elsewhere in this plan, Kalamazoo College will continue to monitor both technological advances and political developments and begin to formulate plans for the period after 2020 using newly available information to develop the necessary strategies.

## **B. Resource Conservation**

Kalamazoo has a history of institution-wide resource conservation with initiatives such as the early adoption of 100% recycled paper and Dining Services' purchase of food from sustainable sources. Even though the largest impact of the plan will come from decreasing greenhouse gas emissions, the College aims to continue its leadership in conserving resources. This plan identifies continuing and building upon conservation initiatives in multiple College operations, including:

- Recyclemania
- Hicks Resource Conservation
- Campus Surplus Sale
- Student-led Initiatives

The plan calls for improved conservation of resources by taking action in the following categories:

### **Storm Water Management**

#### *Goals*

- Reduce campus storm/rain water runoff 50% by 2020

#### *Strategies*

- Decrease the amount of impervious surfaces associated with the campus buildings and grounds.
- Promote the use of pervious pavement in any parking development or reconstruction on campus.
- Set a standard for storm water detention for all major renovation and new construction on campus.
- Develop a pilot storm water collection system to be used for watering campus areas not currently irrigated.
- Expand storm water collection for irrigation to other areas of campus.

- Develop planting schemes that will capture and utilize storm water on campus.
- Include "green" roofs in renovation/construction options.
- Improve the quality of water outflow.
- Develop water retention for irrigation purposes as part of the athletic field upgrades.

## **Potable Water Conservation**

### *Goals*

- Reduce potable water use 25% below 2008 levels by 2020.

### *Strategies*

- Expand the use of waterless urinals beyond their use in Hicks Center.
- Install dual flush toilets in the residence halls.
- Investigate the feasibility of using composting toilets in some of the Living Learning Units.
- Survey and inventory the use of low flow water fixtures already installed on campus.
- Develop a strategy to have 100% low flow fixtures in place by 2011.
- Reduce the use of potable water for irrigation.
- Expand the use of brown and gray water in campus systems currently using potable water.
- Develop strategies to significantly reduce water use by Dining Services – one of the major water users on campus.

## **Campus Landscaping and Green Space**

### *Goals*

- Develop an enlightened and environmentally sustainable landscape on the Kalamazoo College campus.

- Giving due regard to the traditional landscaping of historically important areas, shift the emphasis of campus landscaping to feature more sustainable species and concepts.
- Improve the methods of deploying landscaping equipment and supplies on campus.
- Preserve and work to increase green spaces on campus

### *Strategies*

- Reintroduce indigenous plant species.
- Eliminate invasive alien plant species.
- Reduce or eliminate landscape elements that are energy, pesticide, and/or fertilizer intensive.
- Plan landscape design for major projects so the need to mow or irrigate is limited or eliminated.
- Encourage student involvement in landscaping design and management.
- Develop gardens on campus designed to be maintained by students, faculty and staff.
- Commission a new Campus Landscaping Master Plan prioritizing the achievement of these goals.

## **Solid Waste Minimization**

### *Goals*

- Increase the level of participation in the College Recycling Program (current recycling rate of nearly 60% overall)
- Reduce total solid waste (including recycling) that is sent off campus by 25% by 2020.

### *Strategies*

- Develop the campus and regional infrastructure needed to compost College yard and food waste.

- Recycle 90% of all demolition and construction waste produced during campus projects.
- Increase the emphasis on reusing resources on campus while maintaining or improving the recycling rate of the remaining solid waste.
- Further develop a formal surplus recycling program designed to sell or redistribute surplus campus supplies, furniture, fixtures and equipment.
- Reduce the use of disposable paper supplies by introducing hi-efficiency automatic hand driers to selected areas of campus.
- Institute print management strategies to reduce use of and/or reuse paper on campus.
- Hold educational sessions for faculty and staff covering strategies to reduce the use of paper supplies (expanded use of Moodle, etc.)
- Reduce funding for printing for student organizations to stimulate more innovative and less resource-intensive advertising.
- Improve campus awareness of resources made available by the campus recycling department.
- Institute "best practices" materials handling for the bookstore and Dining Service operations.

## **Green Cleaning**

### *Goals*

- Maximize the use of Green Seal certified or equivalent cleaning products on campus

### *Strategies*

- Establish and publish a College-wide standard for "green" cleaning products.
- Continue the current program to increase the use of "green" cleaning products.

- Convert to "green" cleaning products only when cleanliness and health concerns are not compromised.

## **Purchasing Best Practices**

### *Goals*

- Reduce the environmental impact of College purchasing policies/decisions.

### *Strategies*

- Establish energy efficiency standards for all purchased equipment.
- Maintain the current comprehensive Energy Star purchasing policy.
- Encourage the use of Energy Star appliances by students in residence halls.
- Incorporate evaluation of sustainability practices in the selection of vendors and contractors.
- Maximize the use of local products when they contribute to sustainability goals.
- Consolidate purchasing efforts to eliminate multiple trips to the same store or parts supplier over short periods of time and maximize the use of vendor delivery when economically feasible.
- Work with vendors to minimize wasteful product packaging.
- Consider requiring vendors to retrieve packaging materials from their products so the college does not have to recycle them.
- Increase the amount of local foods purchased by Dining Services when justified by environmentally and economically sound principles.



## **C. Academics and Civic Engagement**

In addressing its mission to shape knowledgeable, imaginative, and socially-committed citizens capable of continually adapting to an ever-changing world, the College's academic program already accommodates philosophies, theories and practices that are core to sustainability ideals. The campus culture also fosters a faculty and student body dedicated to an international orientation and pedagogical practices that encourage a broad-reaching exchange of ideas. Consequently, the College is well-poised to incorporate a more sustainability-focused academic program in three ways: i.e. **Curriculum, Experiential/Co-Curricular Education, and Scholarship**

### **1. Curriculum**

Currently, the Environmental Studies Concentration is the one program that most directly provides courses focused on sustainability issues. While some faculty from other academic programs incorporate sustainability concerns into their courses, this Sustainability Plan aims to encourage more faculty toward this end across the curriculum and through interdisciplinary courses that are within the bounds of the "K" Plan and the undergraduate liberal arts curriculum. The following goals and strategies seek to deepen and broaden this commitment to sustainability.

#### *Goals*

- Identify, facilitate and advance connections among faculty in order to offer courses and programs that address sustainability across the College's academic divisions: Fine Arts, Humanities, Languages, Natural Sciences and Mathematics, Physical Education, Social Sciences.
- Foster disciplinary and interdisciplinary knowledge and participation among students, faculty, staff and alumni by cultivating opportunities to build more sustainable communities at the local, regional, national and/or global levels.
- Facilitate and advance sustainability education through civic engagement and service-learning activities.

#### *Strategies*

- Engage, encourage and recognize faculty with interests in sustainability.

- Support the curricular development of a Sustainability Studies Program as a broader, more interdisciplinary approach to the Environmental Studies Concentration.
- Collaborate with the Mary Jane Underwood Stryker Institute for Service-Learning, Arcus Center for Social Justice Leadership, Provost's Office, and Faculty Development Committee in establishing and providing funding sources for curricular and programmatic development in relation to sustainability.
- Develop the Lillian Anderson Arboretum as a resource for curricular development and Sustainability Studies Program activities.
- Establish collaborations between the Center for International Programs, Center for Career and Professional Development, Arcus Center for Social Justice Leadership, and Mary Jane Underwood Stryker Institute for Service-Learning for further development of sustainability-related opportunities locally, regionally, nationally and internationally.
- Seek out and support grant opportunities for curricular and programmatic enhancement through the Director of Faculty Grants and Institutional Research.

## **2. Experiential Education**

The distinctive experiential components of the "K Plan" (Study Abroad, service learning, Guilds, Internships/Externships, and Senior Independent Projects (SIPs) provide ideal venues for encouraging consciousness-raising, action-oriented projects, and a commitment to sustainability throughout the College community. For example, the Sustainability Guild is establishing campus and community relationships by "foster[ing] connections between the many elements of life at 'K' that strive to encourage sustainable practices between students, alumni, faculty and staff, and community partners who are interested in promoting the importance of sustainability." The Kalamazoo College Recycling Department and student organizations such as EnvOrg and Farms to K contribute significantly to the Climate Commitment. In fact, student

leaders were centrally involved in advocating for LEED certification of the Hicks Center and in encouraging President Wilson-Oyelaran to sign on to the American College and University Presidents' Climate Commitment. The following goals and strategies seek to deepen and broaden the College's commitment to sustainability.

### *Goals*

- Introduce principles of sustainability to all Kalamazoo College community members through various experiential education opportunities.
- Identify and create intentional connections among elements of the K Plan, Guilds, student organizations, and curriculum as they relate to sustainability.
- Develop campus leadership in sustainability among students, faculty and staff.
- Increase various project opportunities that facilitate links between local, regional, national and international communities involving sustainability issues.

### *Strategies*

- Develop the Lillian Anderson Arboretum as a key resource for the leadership and development of experiential education programming in sustainability.
- Support faculty, student and staff sustainability initiatives as they relate to campus life.
- Create orientation and training programs that promote sustainability practices for daily living both on and off campus among all students, faculty and staff.
- Train Campus Life staff to teach, model and encourage all students to follow good sustainability practices and to take responsibility for sustainability in their daily lives both on and off campus.
- Further develop the Sustainability Guild so that it might continue building collaborations among on- and off-campus constituencies.
- Identify and establish sustainability internships and externships through the Center for Career Professional Development.

- Develop collaborative relationships with the sustainability efforts of the local institutions of higher education, schools, hospitals, Kalamazoo County, the City of Kalamazoo, and local business and civic groups.

### **3. Scholarship**

Scholarship plays a vital role in promoting sustainability and the College especially values research that arises from the collaboration between faculty, students, and/or staff because it hones critical thinking skills, fosters creativity, and develops core knowledge within and between disciplines. Such knowledge, skills and values promote effective and timely responses to challenges associated with climate change. Students have already expressed a strong interest in sustainability issues by producing a number of SIPs on this subject. The following goals and strategies seek to enhance this element of learning and to deepen the College's commitment to sustainability.

#### *Goals*

- Facilitate and encourage collaborations between faculty and students to pursue sustainability-related research.
- Create a campus culture that seeks to identify campus needs as well as provide the financial, personnel and material resources required to support research projects.

#### *Strategies*

- Support initiatives that use the campus, especially the Lillian Anderson Arboretum and Facilities Management, as a laboratory for sustainability experiments and research.
- Support campus-based projects that foster collaboration between students, faculty and staff on sustainability research and projects.
- Support independent student research relating to campus-based sustainability projects.
- Support faculty scholarship and student SIPs that enhance education and research in sustainability.

---

### ***Measuring Progress***

The Kalamazoo College Climate Commitment Planning Committee (CCPC) will directly oversee the College's progress in its sustainability efforts as it attempts to meet its goals in Greenhouse Gas (GHG) emissions reduction, resource conservation, and the involvement of the academic program and civic engagement in carrying out this Climate Action Plan.

The CCPC will be appointed to open-ended terms by the College's President and will oversee the publication of an annual report, which will be presented to the College and the Board of Trustees at each October Board of Trustees meeting. The report will include the following information:

- The College's GHG emissions inventory as compiled by the Cool Air-Clean Planet campus emissions calculator.
- Graphic analyses of the College's emissions data and trends.
- Predictive analysis of success in meeting the 2020 GHG reduction goals as well as the long-range goal of climate neutrality by 2050.
- An overview of various circumstances that affect the outcomes of the Climate Action Plan goals and strategies.
- Benchmarking of the College's progress in comparison to its peer institutions.
- Recommendations for adjusting the plan to help achieve the interim goals as well as the long-range goal of climate neutrality by 2050.
- Examination of technological advances and global political factors that may provide more detail to our long-range plan past 2020.
- A review of academic activities pertaining to sustainability education and scholarship.
- A review of the College's engagement with the outside community.

---

***Conclusion***

The Kalamazoo Climate Action Plan will build on a series of recent initiatives to establish a value system that has come to be recognized by its sustainability principles, i.e. the conscientious use of resources, thoughtful regard for the environment, and innovative use of materials and technologies. The plan applies these principles to the challenges of our time in ways that are ambitious and achievable, and that will allow Kalamazoo College to play a more visible leadership role in support of environmental sustainability as it conducts its operations, supports its faculty, and prepares its students to make their own contributions to a sustainable future.

Appendix A: Historical and Projected GHG Emissions

