

MACALESTER COLLEGE
Sustainability Plan
1st Revision

December 2011



Table of Contents

Executive Summary	3
About this Update	4
Introduction	5
About this Update	5
What is Sustainability?.....	5
Strategic Planning Process	6
Summary of Progress on the Original 2009 Sustainability Plan Goals	7
Sustainability Strategic Plan	10
1.1 Leadership: Demonstrating leadership by encouraging innovation and action to foster sustainable communities ^(PCC)	10
<i>Greenhouse Gas Emissions</i> ^(PCC)	12
1.2 Operations: Realizing our mission by designing, implementing and improving our process	15
<i>Building Green</i> ^(PCC)	15
<i>Energy</i>	16
<i>Water</i>	20
<i>Transportation</i> ^(PCC)	21
<i>Landscaping</i> ^(PCC)	27
<i>Stormwater</i>	28
<i>Recycling and Waste</i> ^(PCC)	29
<i>Purchasing</i>	32
1.3 Education: Educating Campus Community to Build a Coalition ^(PCC)	34
<i>Student Learning in the Classroom</i> ^(PCC)	34
<i>Student Learning Outside the Classroom</i> ^(PCC)	36
<i>Student Learning After the Classroom</i>	38
<i>Campus and Community Learning</i> ^(PCC)	38
<i>Research</i> ^(PCC)	40
1.4 Implementation and Progress	41
<i>Tracking</i> ^(PCC)	41
<i>Financing</i> ^(PCC)	42
<i>Prioritization</i> ^(PCC)	43

Incentives 43

Conclusion 45

List of Revised Goals 46

Appendix A: History of Sustainability at Macalester 49

^(PCC) indicates items which are required by the American College and University Presidents Climate Commitment

Executive Summary

Sustainability is the continuous effort to meet the needs of the present generation without compromising the ability of future generations to meet their needs by working toward a healthy environment, social justice, and a strong economy.
At Macalester, sustainability is infused throughout our core values of academic excellence, internationalism, multiculturalism, and service to society.

Macalester College, 2009

Macalester College is committed to addressing climate change by taking responsibility for our institution's carbon footprint, rapidly reducing it, and becoming carbon neutral by 2025 and Zero Waste by 2020.

In 2007, scientists from around the world came to consensus that the average world temperature will increase three degrees Celsius by 2100. In completing this long-term, strategic, comprehensive sustainability plan, Macalester is proud to be a leader among American colleges and universities in addressing climate change. This plan, the result of a year-long, campus-wide strategic planning process, demonstrates our commitment to living our values and preparing each generation to confront the challenges they will face in the years ahead.

For the past three decades, Macalester has proactively implemented numerous sustainable practices. However, until now, the college has never set specific, measurable and tangible goals for sustainability that will touch every part of the institution. This plan articulates concrete goals and actions the college will take, including:

- Achieve carbon neutrality by 2025
- Produce zero waste by 2020
- Integrate sustainability into curriculum and student programs
- Adopt a 'green building' policy to reduce emissions in the construction and operations of facilities
- Decrease carbon emissions from travel
- Implement the responsible purchasing policy

This plan organizes specific tactics that will significantly reduce Macalester's carbon footprint, promote behavior change within the campus community, and integrate sustainable practices into operations, under three broad categories:

- **Leadership:** by demonstrating and encouraging innovation and action
- **Operations:** designing, implementing and improving processes
- **Education:** changing behavior and raising awareness on campus and in the community.

To ensure the college delivers on the ambitious goals of this plan, we will annually track our greenhouse gas emissions and other sustainability metrics every two years.

The cost of implementing this plan will be financed by investing in energy efficiency and using the payback to fund climate neutrality/sustainability projects. In addition, the college will investigate innovative financing opportunities.

This plan is intended to guide sustainability projects on Macalester's campus and to encourage collaboration with other groups, especially other institutions of higher education, as well as in the broader community.

Finally, this plan is intended to fulfill Macalester College's commitment under the American College and University Presidents Climate Commitment (ACUPCC). The plan combines both the ACUPCC institutional action plan for climate neutrality and the outcomes from a year-long sustainability strategic planning process.

About this Update

The 2009 plan was the first time the college comprehensively set goals and adopted strategies to address sustainability issues. Now that the plan has been underway for two years, many of the strategies were completed. To provide ongoing realignment of our actions to achieve our broad goals of climate neutrality by 2025 and zero waste by 2020, we updated the plan and provide an update on our progress on our goals to date. We are proud to offer this updated version of our plan that will keep our efforts toward sustainability active as we move toward climate neutrality and zero waste.

Introduction

For the past three decades, Macalester has been a leader in implementing sustainable practices (Appendix A). However, until the adoption of this plan, the college has never had a long-term, strategic plan that is focused on every aspect of the institution, and establishes specific, measurable sustainability objectives and goals.

This *Sustainability Plan* articulates the sustainability, leadership, environmental, social, educational, and financial objectives that Macalester College will achieve to fulfill its obligations under the American College and University Presidents Climate Commitment (ACUPCC). The plan combines both the required institutional action plan for climate neutrality that ACUPCC requires and the outcomes of a year-long college-wide sustainability strategic planning process.

The plan is organized into four sections, plus appendices: Leadership, Operations, Education, and Implementation and Progress. The Leadership section articulates Macalester College's long-term vision for sustainability and includes an ambitious goal to achieve climate neutrality by 2025. The Operations and Education sections articulate goals and deadlines that pertain specifically to campus operations and mission. Finally, the Implementation and Progress section explains how Macalester College will track, finance, and encourage its sustainability progress.

About this Update

The 2009 plan was the first time the college comprehensively set goals and adopted strategies to address sustainability issues. Now that the plan has been underway for two years, many of the strategies were implemented. For example, we have a new sustainability landscaping master plan that comprehensively addresses landscaping and stormwater issues. In addition, Facilities Services undertook a major energy recommissioning of our main campus buildings

The plan is now revised to provide ongoing realignment of our actions to achieve our broad goals of climate neutrality by 2025 and zero waste by 2020. We've added a summary of our progress on our goals and included a new section, "Student Learning After the Classroom" to engage our alumni. Other goals were realigned, for example, our recycling goals, stormwater strategies and our "Student Learning in the Classroom" strategies were updated and expanded. We are proud to offer this updated version of our plan that will keep our efforts toward sustainability active as we move toward climate neutrality and zero waste.

What is Sustainability?

In 2008-09, Macalester's Sustainability Office facilitated a campus-wide strategic planning process that engaged diverse stakeholders from across the college community to develop concrete strategies and tactics the college could adopt to reduce its carbon footprint and advance its academic and civic mission.

As part of the planning process, the Macalester community expanded on the Brundtland Commission's classic 1987 definition¹ to create a Macalester-specific definition of sustainability:

Sustainability is the continuous effort to meet the needs of the present generation without compromising the ability of future generations to meet their needs by working toward a healthy environment, social justice, and a strong economy. At Macalester, sustainability is infused throughout our core values of academic excellence, internationalism, multiculturalism, and service to society.

Clearly, sustainability is a value and a practice at Macalester College that is core to our mission. This definition of sustainability is broad and has implications for all aspects of campus life, operations, and academic and civic engagement programs. It is also closely tied to ecological vitality, social and cultural diversity, financial stability, and community-building.

Strategic Planning Process



The Sustainability Office engaged stakeholders from across Macalester to develop this strategic plan. The campus-wide, participatory strategic planning process engaged a team of students, faculty, staff, and administrators to answer the overarching question, "How does sustainability advance the core mission of Macalester?" The planning team developed goals, obstacles, strategies and priorities for achieving campus sustainability².

During the summer of 2009, Sustainability Advisory Committee task forces analyzed the goals that were drafted through the planning process and the climate neutrality recommendations developed by the 2009 Environmental Studies Senior Seminar class. The goals in this plan are the culmination of this planning process.

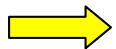
¹ "Report of the World Commission on Environment and Development." *United Nations*. 1987. <http://www.un.org/documents/ga/res/42/ares42-187.html>.

² A full summary of the strategic planning process is available at: www.macalester.edu/sustainability.

Summary of Progress on the Original 2009 Sustainability Plan Goals

Below is a summary of Macalester College's progress on the 2009 Sustainability Plan goals. Significant progress on the goal is signified with . Some progress is signified with . No goals had minimal progress.

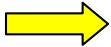
Leadership:



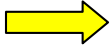
- Achieve climate neutrality by 2025.
 - 2015 – 17.5 percent reduction from 2007-2008 levels
 - 2020 – 35 percent reduction from 2007-2008 levels
 - 2025 – 52 percent reduction from 2007-2008 levels, 48 percent would be offset or obtained from off-site renewable energy.



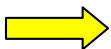
- Serve as a model for sustainability by managing Macalester College as a leader in sustainability in operations.



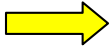
- Prepare students to be community and world leaders in sustainability through academic and co-curricular educational efforts.



- Cultivate and empower leadership by students, staff, faculty, and administrators.



- Partner with other institutions to strategically leverage broader change toward sustainable systems.



- Use campus operations as a teaching tool.

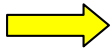
Operations:

Green Buildings



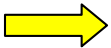
- Incorporate sustainability principles and practices into all construction and renovation projects, thereby reducing Macalester's carbon footprint and demonstrating the college's environmental commitment.

Energy



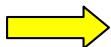
- Invest in energy efficiency and switch to carbon-neutral fuel sources.

Water



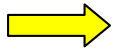
- Reduce the amount and improve the efficiency of water use on campus.

Airline Travel



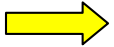
- Macalester College will promote reductions in airline emissions through voluntary means and will offset the rest of the travel emissions. By utilizing voluntary means, the College will reduce emissions from airline travel 10% from 2008 levels by 2025.

Study Abroad



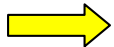
- Reduce greenhouse gas emissions from study abroad travel by 10% without compromising the study abroad experience. Increase the awareness of the connections between travel and GHG emissions.

Commuting



- Reduce single-occupancy vehicles commuting to campus by 50% from 2008 levels by 2025.

Campus Vehicles



- Reduce emissions from campus vehicles.

Landscaping



- Maintain grounds in a sustainable and educational manner while providing green space for recreation and events.

Stormwater



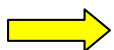
- Reduce the pollution, quantity, and speed at which water runs off of Macalester College's campus by infiltrating the first inch precipitation.

Recycling and Waste



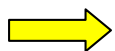
- Achieve zero waste by 2020 and increase Macalester's recycling rate to 40 percent by 2010-2011.

Purchasing



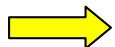
- Seek and create purchasing options that minimize Macalester College's costs and promote a positive ecological and social impact.

Education:



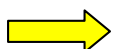
Education Inside the Classroom

- Increase the number of students exposed to sustainability through academic work.



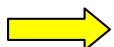
Education Outside the Classroom.

- Incorporate sustainability in student learning outside the classroom.



Campus and Community Learning

- Create diverse opportunities for the campus community to be involved in efforts to foster ownership of sustainability processes in all aspects of college life and operations.



Research

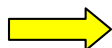
- Increase the amount of faculty research on sustainability.

Implementation and Progress:

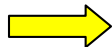
Tracking

-  • Ensure systems, processes, and staffing is in place to accurately record and monitor Macalester's sustainability efforts.

Financing

-  • Invest in energy efficiency and use the payback to fund climate neutrality projects and implement donor, grant, and innovative financing opportunities with sound, sustainable companies that promote positive change.

Incentives

-  • Encourage innovation and creativity in the sustainability area by rewarding and recognizing action.

Sustainability Strategic Plan

Leadership, operations and education are the strategic directions that guide Macalester's sustainability plan. Within these broad categories, we have developed goals and strategies, the majority of which were refined from the recommendations of the 2009 Environmental Studies Senior Seminar's *Climate Action Plan Recommendations*, and the priorities identified by the sustainability strategic planning team. To ensure the plan is comprehensive, goals and strategies were added to address a handful of specific issues and responsible parties and deadlines are listed, if applicable.

Macalester recognizes that achieving sustainability is an ongoing process. The goals in this report are intended to guide the college's progress and are not meant to be limiting.

1.1 Leadership: Demonstrating leadership by encouraging innovation and action to foster sustainable communities ^(PCC)

Macalester is committed to being a leader among institutions of higher education to create an optimal educational experience, demonstrate sustainable business practices, and foster sustainable communities. Macalester understands that its commitment to sustainability must reflect its interdependency with other local and global communities and ecosystems. As well, we believe that our economic prospects rest on the flourishing of sustainable economic practices and activities, and we recognize the liability that unsustainable industries invariably pose.

Using the lens of sustainability, Macalester will teach and practice local and global citizenship. We will support sustainable community development beyond the campus by proactively engaging the broader community in the transition to sustainability. The college will use its purchasing power (alone or in purchasing pools) and educational actions to influence and provide examples of sustainable behavior. Macalester's commitment to looking beyond its own boundaries to make the world more sustainable (rather than simply minimizing its institutional negative impact) is a crucial responsibility that is reflective of the college's core values.

Goals – Leadership

The following goals and attendant strategies articulate Macalester's commitment to leadership in sustainability, both on campus and in the broader community.

- *Carbon neutrality occurs when energy and resources usage does not increase the net amount of carbon dioxide or other greenhouse gases in the atmosphere over time. To lessen the college's negative environmental impact and to demonstrate leadership, Macalester is committed to being carbon neutral by 2025.*

To ensure our efforts to achieve climate neutrality by 2025 are on track, we've set benchmarks, as follows:

- ✓ 2015 – 17.5 percent reduction from 2007-2008 levels
 - ✓ 2020 – 35 percent reduction from 2007-2008 levels
 - ✓ 2025 – 52 percent reduction from 2007-2008 levels, 48 percent would be offset or obtained from off-site renewable energy³.
- *Serve as a model for sustainability for colleges and the community as a whole by managing Macalester as a leader in sustainability in operations*
 - *Prepare students to be community and world leaders in sustainability through academic and co-curricular educational efforts*
 - *Cultivate and empower leadership by students, staff, faculty, administrators, and alumni*
 - *Partner with other institutions to strategically leverage broader change toward sustainable systems*

*Note: See the operations and education sections for strategies on the non-greenhouse gas reduction goals.

Strategies: Demonstrate leadership and achieve carbon neutrality by 2025

I. Invest in Energy Efficiency

The potential cost savings from increasing energy efficiency on campus are significant; energy efficiency strategies should be implemented as soon as possible. A campus energy re-commissioning of the main campus buildings in 2010 recommended projects totaling \$371,500, with an expected two-year payback. Savings from these projects can be reallocated to implement the following strategies thereby creating a self-funding path to carbon neutrality.

Macalester will track the savings from energy efficiency projects and other sustainability programs; the savings from early initiatives will be accumulated and used to finance more expensive but substantial future projects.

II. Transition to Carbon-Neutral and Renewable Fuel Sources

Macalester's electrical emissions benefit from the Minnesota Renewable Energy Standard that requires Xcel Energy to generate 30 percent of its power from renewable sources by

³ These interim goals are based on the analysis of the 2009 Environmental Studies Senior Seminar recommendations available at: <http://www.macalester.edu/sustainability/data/macalestercarbonneutrality052009.pdf>. The class estimated a 52% reduction of emissions which calculates to a 2.9% annual reduction.

2020. Macalester also has some limited opportunities to develop renewable sources on campus.


III. Offset the Remaining Emissions

Preliminary analyses show that Macalester will likely need to offset or develop offsite renewable energy for 48 percent of its emissions by 2025. Offsets (well-researched and tracked “traditional” offsets or off-site renewable energy generation) should be implemented after energy efficiency and on-site renewable energy options are in place.

IV. Collaborate

We will reach out to regional, national, and international higher education and sustainability networks for inspiration, assistance, and joint endeavors. Collaboration will occur across hierarchical lines, incorporating ideas of our students, staff, faculty, alumni, parents, and community experts.

Progress Since the 2009 Sustainability Plan

 *Some progress made*

We have made progress in energy efficiency with a campus-wide energy recommissioning study and we have seen an increase in energy efficiency per square foot and are seeing reduced greenhouse gas emissions (currently a 12% reduction from our 2008/2009 baseline). Macalester College is also seen as a leader among our college and university peers. For example, several colleges and at least one church have created sustainability tour maps on our model. Sustainability has been a consistent part of our co-curricular education and we have made progress on incorporating sustainability into our academics. We have made progress on cultivating leadership among our students, staff and faculty in this area. The Sustainability Office is actively collaborating with ACTC and the Upper Midwest Association for Campus Sustainability.

Greenhouse Gas Emissions ^(PCC)

The college’s 1990-2006 greenhouse gas emissions were originally calculated by the 2008 Environmental Studies Senior Seminar using the Clean Air/Cool Planet (CACP) calculator. The Sustainability Office updates the calculations annually. In 2009-2010, Macalester College emitted 19,351 metric tons of carbon dioxide equivalents (Figure 1). Greenhouse gas emissions have been declining since 2004-2005⁴. Even accounting for variations in weather, the data show a promising trend, as our current emissions are 25% lower than the highest emissions.

⁴ Please note that greenhouse gas emissions calculations are not weather normalized.

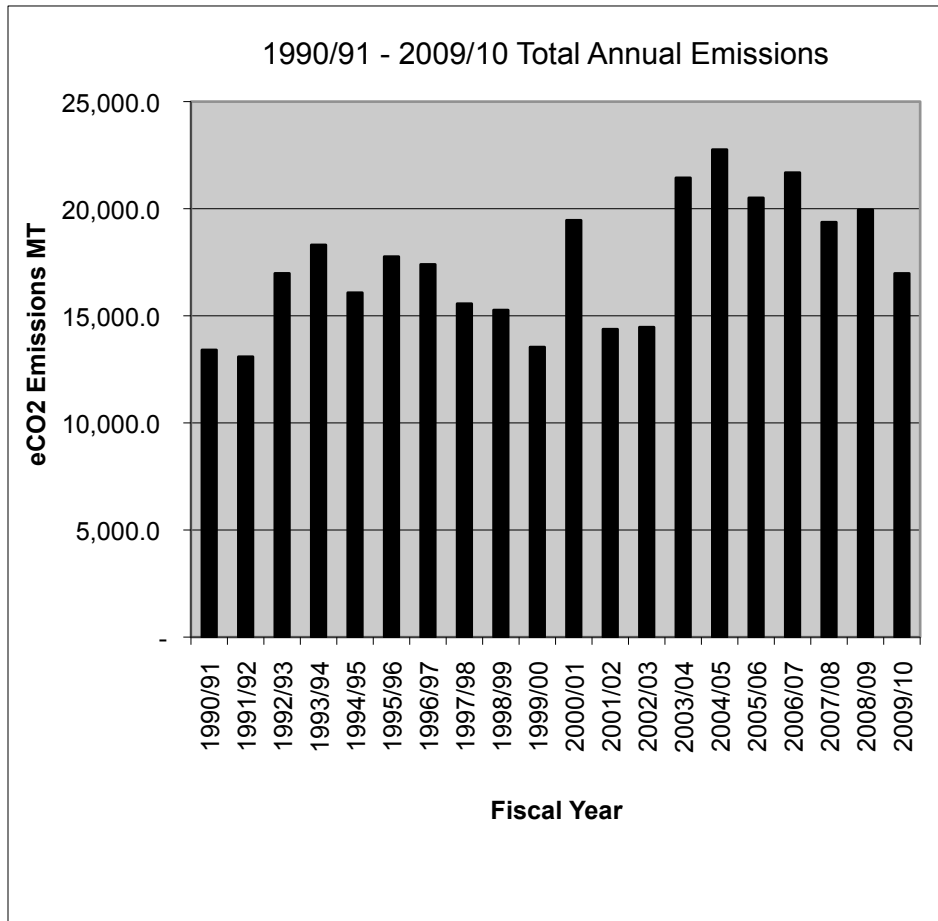


Figure 1: Macalester College Greenhouse Gas Emissions Over Time

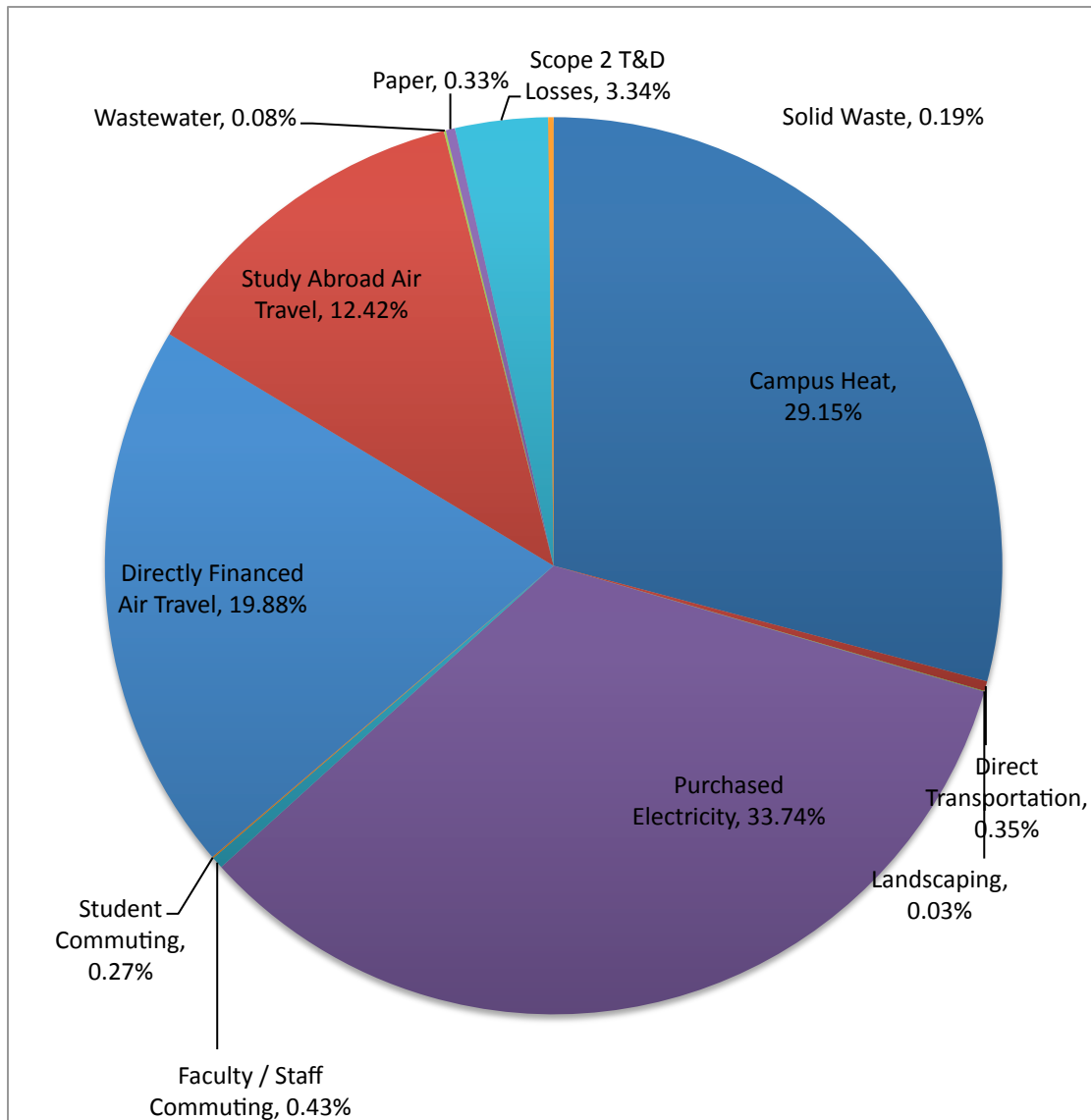


Figure 2: Macalester College 2009-2010 Greenhouse Gas Emissions by Source

In 2009-1010, energy (including electricity use and heat) is the largest source of emissions and produces approximately 66 percent of the college’s annual emissions (Figure 2). Transportation is the second largest source of emissions (33%) followed by smaller amounts for paper, solid waste, wastewater, and landscaping.

1.2 Operations: Realizing our mission by designing, implementing and improving our process

Critical to Macalester's sustainability plan is integrating efforts into every aspect of operations, including buildings, transportation, landscaping, stormwater, recycling and waste, and purchasing.

Building Green^(PCC)

Macalester's commitment to green building is increasingly evident in buildings across campus. Markim Hall, home of the Institute for Global Citizenship is the first LEED platinum facility on a college or university campus in Minnesota and the third facility in the State of Minnesota. Sustainable criteria were used in the design of Macalester's athletics and wellness facility, the Leonard Center, which opened in October, 2008. More than 90 percent of the field house, which was demolished to make way for new construction, was reused.⁵

EcoHouse is a renovated student residence that serves as a living and learning laboratory for students and a model for the community. Among the green features of the house are a domestic solar hot water system, a recyclable steel roof, wall insulation, and high efficiency ENERGY STAR appliances. The campus also hosts two student-designed green roofs, one on a residence hall, and the other on an event and program center.

Goal–Building Green

Incorporate sustainability principles and practices into all construction and renovation projects, thereby reducing Macalester's carbon footprint and demonstrating the college's environmental commitment.

Strategies: Building Green

- **Implement a Green Building Policy**

All new construction or major renovations must meet the Minnesota B3 guidelines or be designed to at least a LEED silver standard

Sustainability Advisory Committee and Facilities Services, ongoing

- **Systematically share information and gather feedback about major infrastructure projects with the Macalester community**

Sustainability Advisory Committee and Facilities Services, ongoing

- **Analyze the effectiveness of current green building metrics for campus buildings**

Sustainability Office and Facilities Services, 2011-2013

⁵ An article in *Construction Executive* reporting on the recycling of the former Macalester athletics facility can be found online at: http://www.constructionexec.com/Issues/June_20092/Features2.aspx.

- Investigate LEED for existing buildings

Sustainability Office 2011-2013

Progress Since the 2009 Sustainability Plan



Significant progress

Since the adoption of the 2009 Sustainability Plan, the Janet Wallace Fine Arts center is using the Minnesota B3 green building guidelines. We have systematically shared information on green building with the campus community through the sustainability website and EnviroThursday speakers series. An environmental studies class also analyzed the potential for a dorm green roof.

Energy

The majority of Macalester's heating and cooling demand and a portion of its hot water needs are met by a centralized high-pressure, closed-loop steam plant. From September to May, the system provides heat and hot water to 26 campus buildings and 11 privately- and college-owned residences. During the summer, small water heaters across campus supply hot water. The main system burns natural gas, and #2, and #6 fuel oil. The type of fuel used (natural gas or fuel oil) varies based on heating needs and the relative price per BTU of different fuels.

There are three sites of renewable energy generation on-campus: A small wind turbine near Olin Rice Science Hall; a solar hot water system in EcoHouse that reduces the need for gas powered hot water; and an educational photovoltaic array on the roof of the Olin Rice Science Center. However, these sources do not produce a significant portion of the energy consumed on campus.

Macalester Facilities Services has worked to improve energy efficiency since the 1960s and many of these projects have resulted in significant cost savings. For example, the 2006-2008 re-commissioning of Olin Rice Science Center included a retrofit of the HVAC system which now produces an estimated \$50,000 in annual energy savings. Similarly, in 2008, Macalester replaced its campus air-conditioning system with a highly efficient new chiller system. A re-commissioning of all main campus buildings was completed in 2009 and energy efficiency project are currently underway. We also reduced the number of vending machines, and associated electricity, waste, and maintenance costs by 20 percent in 2009. Finally, our Clean Energy Revolving Fund (CERF), which was in place from 2007 – 2010 to finance investments in sustainability, has supported projects which save \$46,000, and reduced CO_{2e} by 492 metric tons, and water use by 260,000 gallons annually.

Goal–Energy

Invest in energy efficiency and switch to carbon-neutral fuel sources.

Strategies—Energy: Short-term

- **Implement energy efficiency projects with a five-year or better financial payback and projects with longer paybacks where practical. Annually review energy efficiency options**
Facilities Services and the Sustainability Advisory Committee, ongoing
- **Develop a mechanism to track cost savings from energy projects in order to fund later projects**
Facilities Services and the Sustainability Advisory Committee, ongoing
- **Investigate new ways to form partnerships (with other schools, community groups, utilities, etc.) to generate, own, and reap financial benefit from clean energy generation**
Sustainability Office, ongoing
- **Investigate installing solar panels when renovating buildings**
Facilities Services, ongoing
- **Investigate renewable energy opportunities and implement renewable energy programs as they become practical**
Sustainability Office, Facilities Services, ongoing
- **Investigate systems to individually monitor energy usage for buildings**
Sustainability Office and Facilities Services, 2011-2012
- **Investigate creating an energy-efficiency maintenance position**
Facilities Services, 2011-2012
- **Investigate opportunities for energy savings through behavior change, information feedback loops, and outreach**
Sustainability Office, Facilities Services, 2011-2013

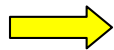
Strategies—Energy: Mid-term

- **Eliminate fuel oil usage by switching to natural gas by 2015**
Facilities Services, 2014-2015
- **Install solar panels on Markim Hall**
Facilities Services, 2014-2015

Strategies—Energy: Long-term

- **Install on-site energy systems as these projects become financially practical**
Facilities Services and Sustainability Office, ongoing
- **Research carbon-neutral, renewable fuel sources such as biogas with the goal of switching to a carbon-neutral fuel at Macalester College by 2025**
Facilities Services and Sustainability Office, 2024-2025

Progress Since the 2009 Sustainability Plan

 *Some progress made*

In 2009-2010, Macalester expanded on earlier energy efficiency projects by institutionalizing an energy efficiency partnership with Xcel Energy. Staff from the college and Xcel Energy meet monthly to discuss energy efficiency goals and progress. In addition, we recommissioned all of our main campus buildings for energy efficiency. The report recommends \$371,500 in improvements and estimates a two-year payback period. The recommendations are currently in the process of implementation. In addition, Macalester improved a campus boiler's efficiency by adding Oxygen Control, also known as an O₂ trim, and insulated the steam pipes that deliver heat to campus buildings. Energy efficiency improvements included in the planned renovation and expansion of the Janet Wallace Fine Arts Center are also expected to reduce energy consumption.

Macalester's long-term efforts in energy efficiency have already resulted in use reductions. Reviewing data taken from 1988-89 to 2008-2009, both electricity use (Fig 5) and heating fuel use (Fig. 6) per gross square foot (GSF) have decreased.

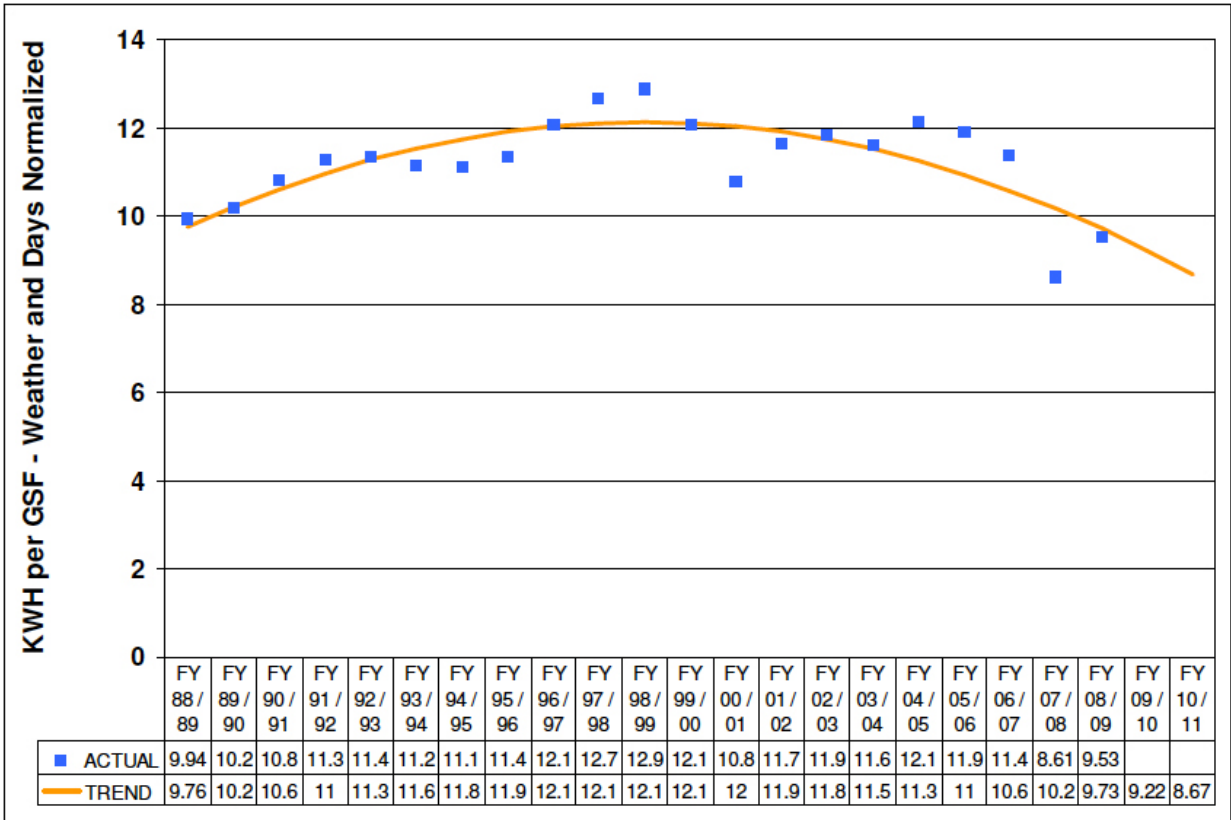


Figure 3: Macalester Campus Energy Use, weather normalized, per square foot

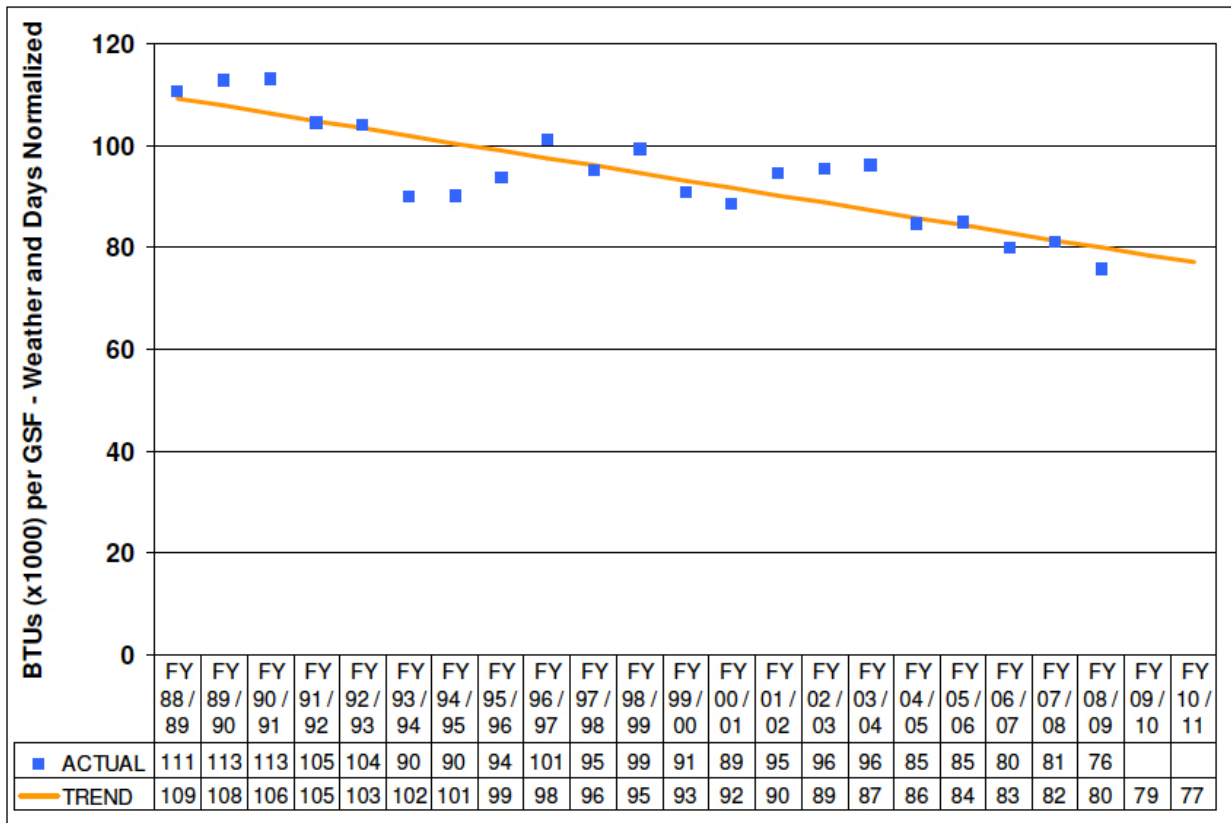


Figure 4: Weather Normalized Fuel BTU Consumption per GSF

Water

Markim Hall and the EcoHouse have dual flush toilets and water-efficient fixtures. Since 2007, water efficiency projects in specialty student housing have saved 260,000 gallons of water annually.

Goal – Water

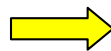
Reduce the amount and improve the efficiency of potable water use on campus.

Strategies—Water: Short-term

- **Install water efficient fixtures in all new buildings and major renovations**
Facilities Services, ongoing
- **Replace old fixtures with efficient fixtures when replacement is warranted**
Facilities Services, ongoing

- **Investigate and support behavioral strategies and practices that will reduce water consumption**
Sustainability Office and Facilities Services, ongoing
- **Investigate greywater reuse options on campus**
Sustainability Office and Facilities Services, ongoing

Progress Since the 2009 Sustainability Plan

 *Some progress made*

A program to change dorm aerators and install efficient pre-rinse spray valves in the commercial kitchens is underway in 2011.

Transportation ^(PCC)

Airline Travel

Air travel represents the vast majority of our travel-related greenhouse gas emissions and transportation costs. Institutionally-sanctioned air travel currently represents 26 percent of Macalester’s total greenhouse gas emissions.

Goal—Institutional Airline Travel

Macalester College will promote reductions in airline emissions through voluntary means, such as using technology to reduce the need for travel, and will offset the rest of the travel emissions. The College will reduce emissions from airline travel 10% from 2008 levels by 2025.

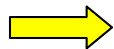
Strategies—Institutional Airline Travel: Short-term

- **Promote direct flights and travel by train, bus, or other mass transit**
Purchasing and Sustainability Office, ongoing
- **Increase promotion of, and training for, teleconferencing and videoconferencing**
Information Technology Services and Sustainability Office, ongoing

Strategies—Institutional Airline Travel: Long-term

- **Investigate options for offsetting all college-funded airline travel in a responsible, sustainable manner, with a goal of implementing such offsets by 2025**
Sustainability Office, 2025

Progress Since the 2009 Sustainability Plan

 *Some progress made*

This area is a challenge, given the international nature of education at Macalester College. Since the adoption of the 2009 Sustainability Plan, the Sustainability Office and Procurement Office have made alternative transportation information available and staff development opportunities have included sessions on teleconferencing and transportation options. Information Technology Services has increased their support for remote computer access to college systems. The Procurement Office and Sustainability Office website include information on train travel options.

Study Abroad

Learning within other cultures is central to Macalester's mission; however, study abroad contributes a large percent of the college's total GHG emissions. The 2009 Geography Senior Seminar students found that the majority of students studying abroad go to Europe and Asia, while relatively few students study in closer destinations, such as Mexico, the Caribbean, and Central America (Figure 3). These countries may offer comparable, academic and cultural study abroad experiences without incurring as many airline travel emissions as other locations. They also noted that reducing the number of trips and staying longer in a single destination will reduce emissions⁶.

⁶ The full report, "[An Institutional Carbon Footprint: The Assessment of Transportation-Related eCO₂ Emissions and Applied Study of Mitigation Policies for Macalester College](http://www.macalester.edu/sustainability/data/macalestercarbonfootprint.pdf)" - Laura Cullenward, Kim DeLanghe and Mark Stonehill, Spring 2009, is available at: <http://www.macalester.edu/sustainability/data/macalestercarbonfootprint.pdf>.

Macalester College Study Abroad: Spring 2008

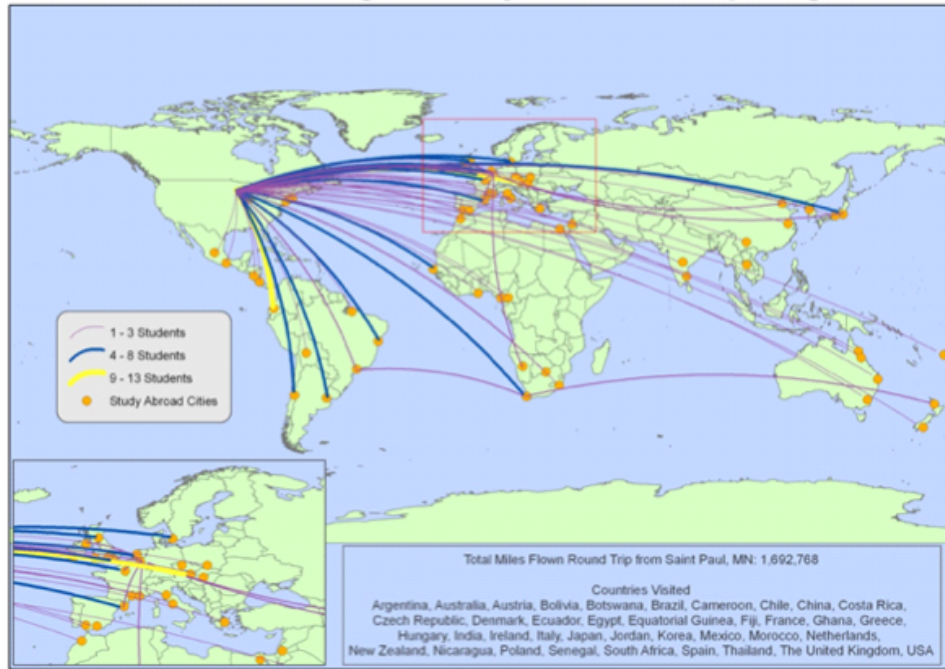


Figure 5: 2009 Student Study Abroad Travel Locations

Goal—Study Abroad

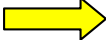
Reduce greenhouse gas emissions from study abroad travel by 10% by 2025 without compromising the study abroad experience. Increase the awareness of the connections between travel and GHG emissions.

Strategies—Study Abroad

- **Develop a plan to raise awareness among students of the environmental impacts of travel and study abroad**
International Center and Sustainability Office, ongoing
- **Include sustainability in the planning of new Macalester-led January and semester study abroad programs**
International Center and Sustainability Office, ongoing
- **Develop a more robust accounting of emissions associated with travel and living in different areas where Macalester students participate in study abroad**
International Center and Sustainability Office, 2011-2012

- **Investigate offsetting or compensating for study abroad travel emissions**
International Center and Sustainability Office, 2011-2012
- **Investigate ways for Macalester students to share their sustainability knowledge with communities in which they study**
International Center and Sustainability Office, 2012-2013

Progress Since the 2009 Sustainability Plan

 *Some progress made*

Since the 2009 Sustainability Plan, the International Center has promoted the Green Passport program and is currently investigating how to further address this issue.

Commuting

Faculty, staff, and students commuting to campus are a relatively small percentage of GHG emissions for Macalester, approximately 412.9 MT CO_{2e} per year, which is approximately 3 percent of total emissions. Most students live within walking or bicycling distance to campus and 32% of the faculty and staff lives within 3.2 miles of campus.

However, reducing the number of single-occupancy vehicles driven to campus would further reduce transportation emissions and regional transportation opportunities are available in St. Paul. Several institutional programs and policies that strengthen the sustainability of Macalester's transportation system have been underway, including:

- *Subsidized Bus Passes*, one of two immediate actions taken by Macalester in 2008 to move towards fulfilling the American College and University Presidents Climate Commitment. This program currently subsidizes bus passes for students, staff and faculty.
- *MacBike Share*, a joint collaboration between MacBike and the Library, implemented in 2006 to provide bicycles and related equipment to students, staff, and faculty.
- *An HOURCAR* car-sharing program hub next to campus was supported through a grant by the High Winds Fund.
- *Priority, designated parking* for those with low-emitting vehicles or who carpool has been in place since 2009.
- *Twin Cities Bike/Walk to Work Day* encourages employees across the Twin Cities to bike or walk to work one day each year. Macalester College won the Twin Cities workplace competition in 2008.
- *Bike/Walk to Work Coffee*, sponsored by the Sustainability Office, invites employees who bike or walk to work to complimentary coffee twice a month.
- *First-year car ban*, first-year students are not allowed to have cars on campus.

- *Pedestrian-oriented development projects*, led and funded by Macalester’s High Winds Fund, include installing planted medians on Grand and Snelling Avenues, adjacent to campus to calm traffic and improve pedestrian and bicyclist safety.
- The “*Walk to Work*” Program, funded by Macalester’s High Winds Fund, provides financial assistance for faculty and staff members to purchase homes within one mile of campus. Those who participate in the program receive “fix up” matching grants up to \$3,000 for home improvement projects.

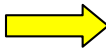
Goal–Commuting

Reduce single-occupancy vehicles commuting to campus by at least 50 percent from 2008 levels by 2025. Reduce emissions from commuting faculty, staff and students.

Strategies—Commuting: Short-term

- **Continue subsidizing bus passes**
Treasurer, Sustainability Advisory Committee, ongoing
- **Develop new incentives and a promotional plan to encourage more faculty, staff and students to participate in existing transportation options, such as bus passes, carpooling, and the Walk to Work program**
Sustainability Office, Campus Center, ongoing
- **Promote compressed work week, telework and/or flexible scheduling, as ways to reduce commuting without impacting service quality**
Employment Services and Sustainability Office, ongoing
- **Promote the NiceRide bicycle sharing program available next to campus**
Sustainability Office, ongoing
- **Include planning for electric vehicle charging stations when parking lots are renovated**
Facilities Services ongoing
- **Investigate carpooling listing service options**
Sustainability Office, 2011-2012
- **Promote the Central Corridor transit option**
Sustainability Office, 2013-2014

Progress Since the 2009 Sustainability Plan

 *Some progress made*

Since the 2009 Sustainability Plan was adopted the following projects were undertaken:

- The *MacBike* bicycle repair shop moved to a permanent location in the summer of 2010 and offer bike repair classes for student and staff. A bike pump and helmets are available at the Information Desk.
- *E-workplace telework pilot program*, several departments participated and evaluated telework pilot projects. Training materials are now available for employees and supervisors considering telework options.
- *Preschool and daycare*: the MacParents group hosts a list of pre-school and daycare options near campus on their moodlegroup site.
- *NiceRide* Bikeshare program received HighWinds funds for a station near campus.

Campus Vehicles

Macalester has landscaping vehicles, lawn care machines, and a van fleet. Currently, Facilities Services uses only electric Cushman vehicles unless a gasoline-fueled vehicle is specifically needed. The van fleet is now comprised of one half ton Chevy vans with fuel ratings under 20 miles per gallon. Individuals also drive their own vehicles on college business and for athletic events.

Goal—Campus Vehicles

Reduce emissions from campus vehicle through low carbon fuel alternatives and vehicle efficiencies.

Strategies—Campus vehicles: Short-term

- **Investigate options for replacing the current van fleet with alternatively-fueled and/or more efficient vans and smaller vehicles**

Facilities Services, ongoing

- **Promote department and student organization use of the HOURCAR for small numbers of people**

Sustainability Office, Campus Programs, ongoing

Strategies—Campus Vehicles: Long-term


- **As plug-in-electric (or other low-carbon) vehicles enter the market and become financially viable, Facilities Services will conduct periodic research on the feasibility of converting the vehicle fleet**

Facilities Services, ongoing

- **Investigate opportunities for biodiesel use by campus vehicles**

Facilities Services, 2014-2015

Progress Since the 2009 Sustainability Plan

 *Some progress made*

Options for different campus vehicles were investigated, but options were not currently available. Departmental memberships are available for the HOURCAR, a car-sharing program, and we are developing a plan for student organization HOURCAR memberships.

Landscaping ^(PCC)

Macalester College property includes our main campus, college-owned houses, High Winds-owned commercial and residential properties, and the Katherine Ordway Natural History Study Area. The Grounds department, part of Facilities Services, is responsible for landscaping, snow removal and contracted waste hauling on the main campus. The main campus consists of 53 acres, which includes approximately 27.5 acres of turf and ornamental gardens, 545 parking spaces, six miles of sidewalk, and five acres of irrigated athletic fields.

Goal—Landscaping

Maintain grounds in a sustainable and educational manner while providing green space for recreation and events.

Strategies—Landscaping

- **Implement the Sustainable Landscaping Master Plan**

Facilities Services, ongoing

- **Review the de-icing products the college uses to find options that require the least energy to produce and have the least harmful environmental impact**

Facilities Services, ongoing

- **Implement the Integrated Pest Management Plan**

Facilities Services, 2011-2012

- **Develop a record-keeping and information sharing system for data about fertilizer, biodiversity, and water use**

Facilities Services and Sustainability Office, 2011-2012

Progress Since the 2009 Sustainability Plan



Significant progress made

In 2011, Facilities Services developed a comprehensive and innovative Sustainable Landscaping Master Plan (<http://www.macalester.edu/sustainability/initiatives/sustainablelandscapeplan.pdf>) that provides guidance in maintaining the grounds in a way to reduce greenhouse gas emissions and adapt to a changing climate. A Facilities Services student worker investigated alternative deicing options, but found no suitable current options. In addition, Facilities Services developed an integrated pest management program and a fertilizer record keeping program.

Stormwater

Macalester's proximity to the Mississippi River, the stormwater pollution attributed to Macalester's broader neighborhood, and the opportunity for educational and research programs, make stormwater reduction an integral part of campus sustainability. Of the 13 stormwater monitoring sites near Macalester, the one closest to campus (Kittsondale), reports the highest relative levels of total suspended solids and total phosphorus.

There are several stormwater control pilot projects on campus used to test the feasibility of various ideas and as educational tools. Macalester has two green roofs: a 300 sq. ft. green roof on a covered walkway between two residence halls (Doty and Turck) and a 1,350 sq. ft. green roof installed on Kagin Commons. A campus rain garden (on the north side of the library) and prairie (on the south side of Olin Rice) also hold stormwater. A rain barrel is installed at the EcoHouse. In addition, porous pavement has been installed near the Ruth Stricker Dayton Campus Center, in front of Markim Hall, near Weyerhaeuser Memorial Chapel, and in front of the Library.

Goal –Stormwater

Reduce the pollution, quantity, and speed at which water runs off of Macalester College's campus by infiltrating the first inch of precipitation on campus.

Strategies—Stormwater: Short-term

- **Implement appropriate storm water/biodiversity projects as part of the Sustainable Landscaping Master Plan across campus**

Facilities Services, ongoing

- **Investigate the opportunities for green roofs when buildings are renovated**
Facilities Services, ongoing
- **Promote communication amongst the Sustainability Office, building project designers, landscaping managers, students, the Macalester College Student Government, faculty, and staff, as large projects are planned and undertaken**
Sustainability Advisory Committee, ongoing
- **Collect storm water data and maps for campus for possible use in classes**
Sustainability Office ongoing

Progress Since the 2009 Sustainability Plan



Significant progress made

A major accomplishment since the 2009 Sustainability Plan was the development of a Sustainable Landscaping Master Plan in 2011 that includes stormwater as a major component. Several community meetings were held in conjunction with developing that project. Stormwater projects are underway in the Janet Wallace Fine Arts renovation parking lots. An environmental studies class investigated the potential for a green roof on a dorm, but found it unfeasible.

Recycling and Waste ^(PCC)

Macalester generates 227 tons of solid waste per year. Twenty five percent of this waste goes to a Resource Recovery Technologies incinerator in Newport, MN and 75 percent goes to Seven Mile Creek landfill, which captures methane and uses it to generate electricity. Since 2007, Macalester has had a Zero Waste policy and a Zero Waste Committee. Among the initiatives we have implemented to reduce waste are:

- Contracting with Barthold Farms to take all food waste generated at Café Mac and Catering Services for use as hog feed
- Collaborating with Habitat for Humanity to host a student group garage sale with discards from Move Out
- Providing reusable take out containers at the campus dining hall and discounting coffee purchased in refillable mugs
- Creating a free, online service (MacFreeSwap) for students, faculty and staff to give away unwanted items
- Printing awareness week in the library
- Graduation gown donation program.

Goals—Recycling and Waste

Achieve zero waste by 2020 and reduce toxicity of waste.

Strategies—Recycling and Waste: Short-term

- **Continue monitoring recycling, waste, e-waste, and reuse programs and assess current diversion rates and cost savings (or expenditures) from these discard programs**
Zero Waste Committee and Facilities Services, ongoing
- **Continue a recycling and reuse outreach program**
Zero Waste Committee, ongoing
- **Develop a paper reduction plan and outreach campaign**
Zero Waste Committee, Information Technology Services, Library, and the Sustainability Office, ongoing
- **Increase composting at EcoHouse and the Veggie Co-op by providing additional training to students and develop a composting education program across campus.**
EcoHouse students, ongoing
- **Participate annually in a waste reduction competition**
Zero Waste Committee, Facilities Services, Residential Life, and Sustainability Office, ongoing
- **Develop a guide for sustainable events to assist campus event planners**
Zero Waste Committee and Sustainability Office, 2011-2012
- **Investigate campus-wide commercial compost options**
Zero Waste Committee, 2011-2013
- **Develop a plan for adoption of compostable instead of disposable products**
Zero Waste Committee, 2011-2012
- **Develop program or partnership to reduce and recycle plastic bags, stretch wrap, and styrofoam**
Zero Waste Committee, 2011-2012
- **Develop a hazardous waste reduction plan that builds on our successful current program**
Zero Waste Committee, 2011-2013

Progress Since the 2009 Sustainability Plan



Significant progress made

In February, 2010, MN Wastewise, with the assistance of the 2010 Environmental Studies Senior Seminar students, performed a waste assessment and waste sort to determine the current state of waste generation on campus. The waste sort results showed that 45% of the waste stream was commercially compostable. Non-recyclable plastic (21%), non-recyclable paper (12%), garbage bags (2%), and miscellaneous garbage (9%) comprised 41% of the waste stream. Materials that were recyclable made up 10% of the waste stream. These materials included recyclable paper (5%), plastic (2%), cardboard (2%) and recyclable cans (1%). Potentially recyclable materials with a current market included plastic film (1%).

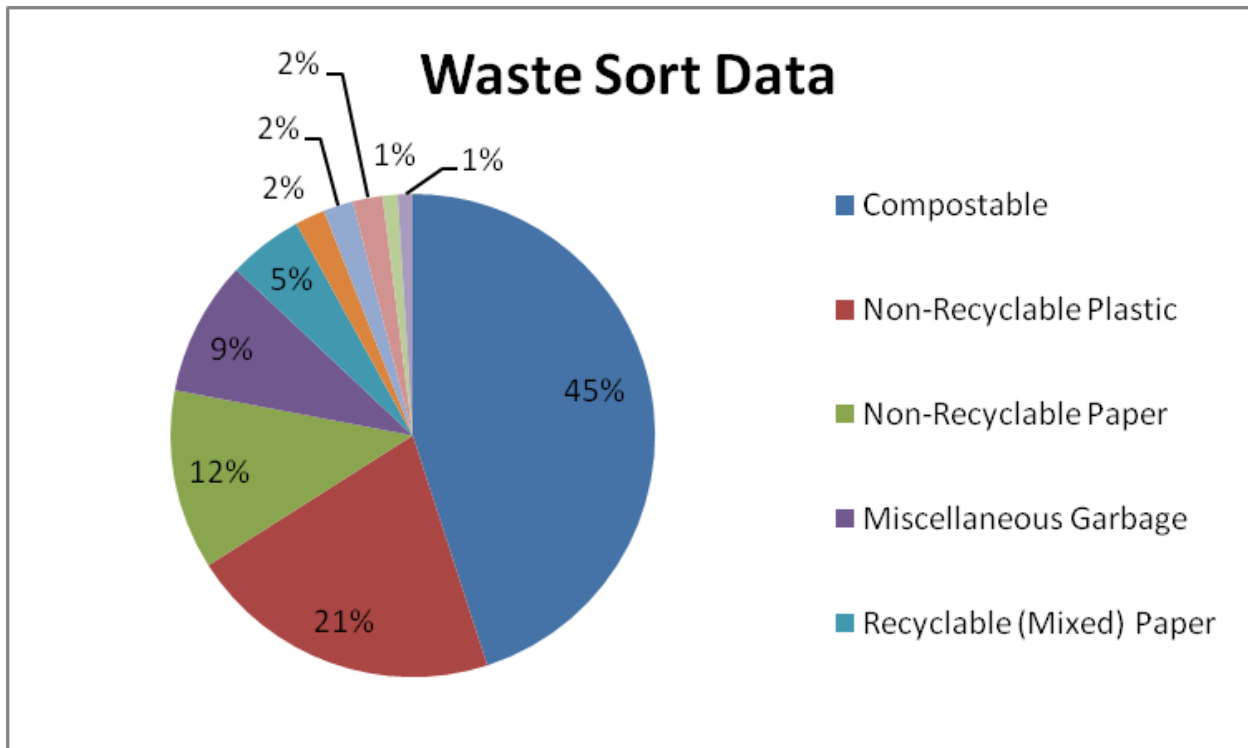


Figure 6: 2010 Waste Sort Data

In addition, the following projects have moved the college close to Zero Waste since the adoption of the 2009 Sustainability Plan:

- Working with the Network for Better Futures to recycle student discards from spring Move Out.
- Establishment of the MacFreeSwap table in Kagin Commons.

- Recycling communications redesign competition undertaken for a new logo for inclusion on new communications pieces.
- Recycled art and craft fair hosted.
- Reused one sided paper notebooks, “onesies” given to all first year students from the Library.
- Implementing electronics and CFL recycling on campus

In 2010, however, the Zero Waste Committee decided not to participate in the Recyclemania competition due to significant challenges with obtaining needed data. The committee is expected to develop an in-house waste reduction competition.

Purchasing

Macalester recognizes that the goods and services the college purchases have both an environmental and social impact. The college has taken steps to reduce the negative impact of apparel purchases. In 2001, we became a member of the Workers’ Rights Consortium, which monitors the labor practices at apparel factories. For the past two years, the Purchasing Department has employed a sustainability student worker and has been active in promoting sustainable purchasing on campus.

Goal—Purchasing

Seek and create purchasing options that minimize Macalester’s costs and promote a positive ecological and social impact.

Strategy—Purchasing


- **Explore opportunities for coordinated purchasing/investment with the goal of improving the sustainability of supply chains that Macalester uses while improving access for others to those supply chains**

Purchasing Department, ongoing

- **Develop implementation plan for the Responsible Purchasing Policy**

Purchasing Department, 2011-2012

Progress Since the 2009 Sustainability Plan

 *Some progress made*

Since September 1, 2011, the college has implemented a bottled water ban. The college no longer sells bottled water in our retail outlets. Departments are also not to purchase bottled water

with college funds. The Purchasing Department is currently finishing guidelines to implement the responsible purchasing policy.

1.3 Education: Educating Campus Community to Build a Coalition ^(PCC)

Integrating sustainability throughout the curriculum and other programs and activities that comprise the student experience at Macalester is consistent with both the college's mission and the goals of the ACUPCC. Macalester's mission compels us to provide "high standards for scholarship and a special emphasis on internationalism, multiculturalism, and service to society." Similarly, one goal of the ACUPCC is to "make climate neutrality and sustainability a part of the curriculum and other educational experience for all students."⁷ Education for a sustainable future that examines the environmental, social justice and economic impacts of individual and community actions is consistent with Macalester's core values of multiculturalism, internationalism, and civic engagement.

Education is also essential for strengthening the culture of sustainability on campus and empowering students, faculty, staff, and the community to take action in the wider world. Macalester fosters a vibrant learning community for students through academic experiences in the classroom guided by faculty, and through experiences beyond the classroom, guided by student affairs educators.

Student Learning in the Classroom ^(PCC)

Academic courses and experiences offer rich opportunities and give students the knowledge and skills to be leaders in sustainability in their personal and professional lives after graduation.

Macalester has a strong and growing Environmental Studies department. Environmental Studies students have been involved in academic work that provides invaluable contributions to the development and implementation of any sustainability effort. Projects to date have included research on the EcoHouse, studying campus greenhouse emissions and developing recommendations for an institutional climate action plan.

However, for Macalester College to continue to lead on issues of sustainability and meet student learning and broader community needs, it is essential that sustainability be further infused throughout the curriculum. A wide variety of academic disciplines can find relevant teaching examples centered on sustainability issues. These include case studies, research projects, service learning opportunities, and historical references. The environmental aspects of sustainability are an excellent fit in the sciences, and the social justice and economic aspects are a focus in many social science disciplines. Yet, bridging these disciplinary boundaries and integrating these aspects across the curriculum is challenging.

Goal—Student Learning in the Classroom

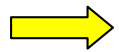
⁷ "Text of the American College & University Presidents Climate Commitment." *American College and University Presidents Climate Commitment*. 2009. <<http://www.presidentsclimatecommitment.org/about/commitment>>.

Increase the number of students exposed to sustainability through academic work.

Strategies—Student Learning in the Classroom

- **Continue supporting academic internships that focus on sustainability**
Internship Office, Environmental Studies Dept, Sustainability Office, ongoing
- **Increase opportunities to use the campus as a teaching tool**
Sustainability Office, ongoing
- **Support new faculty seminar, academic leadership seminars, and “talking about teaching” sessions that focus on sustainability topics**
Sustainability Office, ongoing
- **Augment faculty development by providing resources and encouragement to integrate sustainability throughout the curriculum**
Sustainability Office, ongoing
- **Continue to support and strengthen faculty connections to ongoing community partners whose focus is sustainability issues**
Civic Engagement Center, ongoing
- **Identify sustainability opportunities and programs for study abroad**
Sustainability Office, International Center, ongoing
- **Support students in creating academic civic engagement projects to promote innovative sustainability efforts related to campus operations, and/or create Macalester-community partnerships**
Civic Engagement Center, Sustainability Office, ongoing
- **Continue outreach to faculty about opportunities for sustainable classroom management** (i.e. reducing paper, electronic media for guest speakers, etc.)
Information Technology Services, Sustainability Office, ongoing
- **Continue to offer grants for curriculum and course development** Curriculum development grants already exist, and the Provost has committed to offering this assistance to faculty to incorporate sustainability into courses
Provost, 2011-2012
- **Develop resource guides by department with examples of syllabi, assignments, service learning, course materials, and other tools to assist faculty who want to include sustainability as part of courses they teach and research they conduct with students**
Sustainability Office, ACTC office, 2011-2012

Progress Since the 2009 Sustainability Plan



Some progress made

Macalester has made some strides in this area. In 2010-2011, President Rosenberg included sustainability as one of the criteria for curriculum development grants. The Serie Center for Scholarship and Teaching included two “Talking About Teaching” sessions on sustainability and included distinguished guests as speakers for the January Professional Development session and as the keynote in the May Professional Development session. In addition, data was collected in 2011 on the numbers of sustainability-related and sustainability-focused classes taught on campus for the Sustainability Tracking, Assessment and Rating System (STARS), available at: <http://www.macalester.edu/admdept/sustainability/public.www/SustainabilityCourseList.pdf>.

Student Learning Outside the Classroom ^(PCC)

Macalester is a vibrant learning community where students are highly motivated to learn beyond the classroom. This informal learning takes place through experiences such as residential living, involvement in student organization, on- and off-campus work study, civic engagement, internships, intrapersonal and interpersonal conflicts, time management, spiritual exploration, and personal health and wellness.

Student worker positions dedicated to sustainability have been created in many departments (Facilities Services, Purchasing, Civic Engagement Center and the Library, for example). These positions have been integral to creating, developing, and implementing a number of new sustainability programs across campus, including the Responsible Purchasing Policy and the food waste to pig food program.

The Civic Engagement Center (CEC) has maintained a long term commitment in this area and has had a student organizer position specifically focused on the environment since 1996. Social justice issues are also interwoven into all 12 student organizer positions. The CEC has facilitated an institutional relationship with University Bank, a local bank highly committed to sustainability practices. Students are involved in research with the bank and the Macalester community can participate in socially responsible banking via the on-campus ATM. The Off Campus Student Employment and Bonner Community Scholar programs hosts between 60-80 work study positions focused on social justice with a significant percentage in the area of sustainability. The Lilly Project sponsors a community living summer program that lifts up sustainability as one of its core values. The CEC sponsors approximately 50 staff and student memberships of the HourCar.

Sustainability has also been incorporated in new student orientation for two years and sustainability issues are part of campus life learning outcomes. The college sponsors service trips during January, summer and spring break and many of these trips focus on sustainability

issues. The college sponsors annual experiences and partnerships in New Orleans that raise issues in the areas of the environment, sustainability and justice.

In 2009-2010, residence hall outreach activities included sustainability. Macalester student organizations such as MacCares, MULCH, MacBike, and MPIRG all focus on environmental aspects of sustainability issues. Cultural organizations and social justice organizations have focused on the social justice aspects of sustainability. The student-led programs and outreach of these groups take the form of everything from offering passersby bicycle-blended smoothies, setting up a bicycle check-out service at the college library, running the college's community garden, and raising awareness of current sustainability issues.

Goal—Student Learning Outside the Classroom

Incorporate sustainability into student learning outside the classroom.

Strategies—Student Learning Outside the Classroom

- **Leverage residence hall living to educate students about sustainable living by providing information about sustainable living on bulletin boards, Resident Assistant (RA)-led discussions, and participating in sustainability initiatives and contests by floor and by building**

Residential Life, Sustainability Office ongoing

- **Support students in creating co-curricular civic engagement projects to promote innovative sustainability efforts related to campus operations, and/or create Macalester-community partnerships**

Civic Engagement Center, Sustainability Office, ongoing

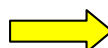
- **Expand and support the Sustainability Student Network, a group of student workers who meet and discuss sustainability projects in their individual departments**

Sustainability Office in collaboration with host departments, ongoing

- **Ensure all students are made aware of Macalester's sustainability efforts/culture during orientation**

Sustainability Office, ongoing

Progress Since the 2009 Sustainability Plan

 *Some progress made*

Sustainability learning goals were developed by Campus Life staff. The Sustainability Student Worker network has become a significant addition to the already extensive options available for students to undertake sustainability projects.

Student Learning After the Classroom

Many alumni work in the sustainability area and are interested in learning from each other and offer assistance to students and the campus on sustainability issues. Strong partnerships with the career center, alumni office and sustainability office can help foster connections among alumni and current students. This area is a new addition to the 2011 Sustainability Plan.

Goal—Student Learning After the Classroom

Provide students with information about sustainability career options by connecting alumni with Macalester's sustainability programs and goals.

Strategies—Student Learning After the Classroom

- **Support students looking for sustainability related career options**
Career Development Center, Sustainability Office, ongoing
- **Continue to offer sustainability tours and other sustainability topics at Reunion**
Alumni Office, Sustainability Office, ongoing
- **Increase opportunities to leverage alumni engagement and connect with students around sustainability issues, including guest lectures, provide internships and career support**
Sustainability Office, Alumni Office, 2011-2012
- **Investigate developing a Sustainability Alumni Network**
Alumni Office, Sustainability Office, Career Development Center, 2012-2013

Campus and Community Learning ^(PCC)

Macalester strives to foster learning about sustainability, not just for students, but also among members of the faculty, staff, and broader community. The Sustainability Office also periodically presents to campus faculty and staff groups, such as the Staff Advisory Council and has partnered with Wellness and Health at Macalester to promote healthy choices for staff. Macalester's new employee orientation program includes a session on sustainability. Macalester's Civic Engagement Center has connected students with community service activities for more than 20 years. Macalester students have a history of initiating innovative community projects in the area of sustainability that have grown out of such opportunities as the Action Fund, the Live It! Fund, Davis Projects for Peace. Several alumni have gone on to work that originally grew out of student organizing. The Summer of Solutions and the Clean Energy Resource Teams are examples of two such projects.

In addition, the EcoHouse student residence hosts events for the campus community and neighbors on sustainability issues. The Environmental Studies Department hosts a regular EnviroThursday speaker series that is open to the college and wider community. In addition, Macalester's High Winds Office also regularly gives grants to community groups and sustainability related projects. .

Several Macalester students have taught sustainability courses for the Twin Cities Experimental College (EXCO), which offers free classes to community members. There are currently several EXCO classes taught by Macalester students that are related to environmental, economic, and social issues.

Goals—Campus and Community Learning

Create diverse opportunities for the campus community to be involved in efforts to foster ownership of sustainability processes in all aspects of college life and operations.

Connect Macalester community members with sustainability opportunities in the community and connect community members with sustainability opportunities and events on campus.

Strategies—Campus and Community Learning

- **Promote sustainability across campus by requiring each administrative department to develop a bi- annual Departmental Sustainability Action Plan**

Sustainability Office and individual departments, ongoing

- **Develop campus outreach programs to raise awareness of, and participation in, sustainability projects including, but not limited to, waste reduction and the Campus Energy Challenge**

Facilities Services, Zero Waste Committee, and Sustainability Office, ongoing

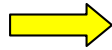
- **Create outreach opportunities for campus sustainability events and programs for the community**

Sustainability Office, High Winds, Communications and Public Relations, ongoing

- **Continue to support ongoing student initiated community projects, such as the Live It! Fund, Action Fund and Projects for Peace**

Civic Engagement Center, ongoing

Progress Since the 2009 Sustainability Plan

 *Some progress made*

Sustainability Action Plans have been developed by Facilities, Business Services, Employment Services, High Winds Office, Information Technology Services, Campus Life, International Center, and the Civic Engagement Center. To promote further learning and discussion, the Library and Sustainability Office co-sponsor a Sustainability Book Club for the campus and broader community. The new bikeshare program, NiceRide, as well as the MacGroveland composting pilot projects received High Winds funding.

Research^(PCC)

Promoting and increasing faculty research on sustainability and climate is a part of the ACUPCC. This area is also part of the Sustainability, Tracking, Assessment and Rating System (STARS) in which Macalester College participated.

Goal—Research

Increase the amount of faculty research on sustainability issues.

Strategies—Research

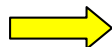
- **Develop and implement a plan to more effectively publicize opportunities for sustainability research funding.**

Corporate and Foundation Relations, Sustainability Office, 2012-2013

- **Develop an effective tracking mechanism for faculty sustainability research**

Sustainability Office, 2012-2013

Progress Since the 2009 Sustainability Plan

 *Some progress made*

In 2011 comprehensive campus-wide data about faculty research on sustainability was compiled (<http://www.macalester.edu/admdept/sustainability/public.www/stars.html>).

1.4 Implementation and Progress

Tracking ^(PCC)

Tracking Macalester’s sustainability progress is crucial to the implementation and success of this plan. The American College and University Presidents Climate Commitment requires annual tracking of institutional greenhouse gas emissions. Annual greenhouse gas emissions have been calculated from 1990 to the present.

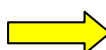
Goal—Tracking

Ensure systems, processes, and staffing is in place to accurately implement, monitor, and communicate Macalester’s sustainability efforts.

Strategies—Tracking

- **Calculate GHG emissions annually**
Sustainability Office, ongoing
- **Participate in the Association for the Advancement of Sustainability in Higher Education’s Sustainability Tracking, Assessment and Rating System (STARS)**
Sustainability Office, ongoing
- **Report our progress to the community in a “sustainability report” every two years**
Each biannual review will assess changing financial structures and technology and include an updated list of two-year priorities. This report will be shared with the campus community, posted on the Sustainability Office website and senior staff and trustees will be briefed on progress.
Sustainability Office, ongoing
- **Develop a Sustainability Plan outreach plan.**
Sustainability Office, ongoing

Progress Since the 2009 Sustainability Plan

 *Some progress made*

In 2010, the Sustainability Office published a Sustainability Plan Update that tracked our progress toward implementing our Sustainability Plan (<http://www.macalester.edu/admdept/sustainability/public.www/SustainabilityUpdateNov2010.p>)

In 2011, Macalester College earned a silver rating from the Association for the Advancement of Sustainability in Higher Education's Sustainability Tracking, Assessment and Rating System (STARS) (<http://www.macalester.edu/admdept/sustainability/public.www/stars.html>).

Financing ^(PCC)

While some sustainability projects are low cost and easy to implement, others are more expensive and difficult to execute. The 2009 Environmental Studies Senior Seminar developed a set of climate neutrality recommendations that save money in the long run. While some of the assumptions in that plan may be optimistic, the set of projects they propose merits further analysis and investigation. The student plan recommends investing in energy efficiency and carbon neutral fuel sources, and paying for offsets only after other projects are implemented.

The potential cost savings from increasing energy efficiency on campus are significant. The payback from energy efficiency projects should be tracked and used to implement additional sustainability projects. This approach will ensure Macalester's path to carbon neutrality is financially prudent, even beneficial.

Goals–Financing

Invest in energy efficiency and use the payback to fund sustainability projects and implement donor, grant, and innovative financing opportunities with sound, sustainable companies that promote positive change.

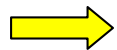
Strategies—Financing: Short-term

- **Implement all recommended energy efficiency projects with a five-year energy efficiency payback and investigate those with longer paybacks**
Facilities Services, ongoing
- **Continue to investigate and obtain XCEL Energy rebates for energy efficiency**
Facilities Services, ongoing
- **Investigate grant opportunities and creative financing strategies for renewable and energy efficiency work**
Grants Office, Facilities Services, and Sustainability Office, ongoing

Strategies—Financing: Mid-term

- **Seek donor funding for sustainability projects**
Advancement and Sustainability Office, 2012-2013

Progress Since the 2009 Sustainability Plan

 *Some progress made*

In 2010, the Clean Energy Revolving Fund merged with Technology, Equipment and Maintenance Sustainability Fund, as part of the regular Technology, Equipment and Maintenance Budget (TEM). Each year some funds will be earmarked in the TEM budget for sustainability projects on campus. The recommendations from the campus energy recommissioning report are underway. However, we do not have a mechanism for capturing cost savings from projects to fund future projects.

Prioritization (PCC)

In implementing this *Sustainability Plan*, high priority projects will be those meeting one or more of the following criteria:

- Significant greenhouse gas emissions reduction
- Significant environmental benefits
- Significant educational potential
- Significant social benefit
- Low implementation cost
- High opportunity for cost savings
- Partnership opportunities
- Ease (time, complexity, disruption, etc.) of implementation

Incentives

The Sustainability Strategic Planning Team recommends the college create change by rewarding and recognizing action to encourage innovation and creativity. The Green Star Award, administered by the Sustainability Office, recognizes students, staff and faculty who advance sustainability projects on campus. The Civic Engagement Center also administers an Action Fund to support student civic engagement projects. Faculty may request sustainability course development funding from the Provost.

Goal-Incentives

Encourage innovation and creativity in the sustainability area by rewarding and recognizing action.

Strategies—Incentives:

- **Celebrate annually Green Star Award winners and other campus sustainability accomplishments**

Sustainability Office, ongoing

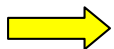
- **Develop incentives for behavioral change projects, such as energy efficiency and commuting/transportation changes**

Sustainability Office and relevant departments, ongoing

- **Develop a formal Sustainability Award for Students, Staff, and Faculty**

Sustainability Advisory Committee, 2011-2012

Progress Since the 2009 Sustainability Plan

 *Some progress made*

In 2010, the Sustainability Office started a Sustainability Small Project Fund. A donor also provided funds for a faculty award for curricular innovation in sustainability. The first recipient will be announced in the fall of 2011.

Conclusion

Macalester clearly has a commitment to sustainability and reducing our impact on the environment by achieving carbon neutrality. With this plan, we now have a specific, meaningful roadmap to get there. We believe this plan is a starting point, not the end point. We will continually review progress against our goals and revise our plan as new technologies are developed and the external environment changes.

This *Sustainability Plan* integrates the ACUPCC-required institutional action plan for climate neutrality into a more comprehensive sustainability plan. It is intended to guide Macalester's approach to sustainability in all its operations both on and off campus and to encourage collaboration with other groups, especially other institutions of higher education. As indicated in Macalester's definition of "sustainability," this plan is also intended to engage all parts of the Macalester community in building a sustainable future.

We encourage students, faculty, staff and the broader community to participate in making this plan a reality and welcome feedback and input to this work on an ongoing basis.

List of Revised Goals

Macalester's sustainability plan includes the following goals:

Leadership:

- Achieve climate neutrality by 2025. Carbon neutrality occurs when energy and resources usage does not increase the net amount of carbon dioxide or other greenhouse gases in the atmosphere over time. To lessen the college's negative environmental impact and to demonstrate leadership, Macalester is committed to being carbon neutral by 2025.

To ensure our efforts to achieve climate neutrality by 2025 are on track, we've set benchmarks, as follows:

- 2015 – 17.5 percent reduction from 2007-2008 levels
 - 2020 – 35 percent reduction from 2007-2008 levels
 - 2025 – 52 percent reduction from 2007-2008 levels, 48 percent would be offset or obtained from off-site renewable energy⁸.
- Serve as a model for sustainability for colleges and the community as a whole by managing Macalester as a leader in sustainability in operations
 - Prepare students to be community and world leaders in sustainability through academic and co-curricular educational efforts
 - Cultivate and empower leadership by students, staff, faculty, administrators, and alumni
 - Partner with other institutions to strategically leverage broader change toward sustainable systems

Operations:

Green Buildings

- Incorporate sustainability principles and practices into all construction and renovation projects, thereby reducing Macalester's carbon footprint and demonstrating the college's environmental commitment.

Energy

- Invest in energy efficiency and switch to carbon-neutral fuel sources.

⁸ These interim goals are based on the analysis of the 2009 Environmental Studies Senior Seminar recommendations available at: <http://www.macalester.edu/sustainability/data/macalestercarbonneutrality052009.pdf>. The class estimated a 52% reduction of emissions which calculates to a 2.9% annual reduction.

Water

- Reduce the amount and improve the efficiency of potable water use on campus.

Airline Travel

- Macalester College will promote reductions in airline emissions through voluntary means, such as using technology to reduce the need for travel, and will offset the rest of the travel emissions. The College will reduce emissions from airline travel 10% from 2008 levels by 2025.

Study Abroad

- Reduce greenhouse gas emissions from study abroad travel by 10% by 2025 without compromising the study abroad experience. Increase the awareness of the connections between travel and GHG emissions.

Commuting

- Reduce single-occupancy vehicles commuting to campus by at least 50 percent from 2008 levels by 2025. Reduce emissions from commuting faculty, staff and students.

Campus Vehicles

- Reduce emissions from campus vehicle through low carbon fuel alternatives and vehicle efficiencies.

Landscaping

- Maintain grounds in a sustainable and educational manner while providing green space for recreation and events.

Stormwater

- Reduce the pollution, quantity, and speed at which water runs off of Macalester College's campus by infiltrating the first inch of precipitation on campus.

Recycling and Waste

- Achieve zero waste by 2020 and reduce toxicity of waste.

Purchasing

- Seek and create purchasing options that minimize Macalester College's costs and promote a positive ecological and social impact.

Education:

Student Learning in the Classroom

- Increase the number of students exposed to sustainability through academic work.

Student Learning Outside the Classroom

- Incorporate sustainability in student learning outside the classroom.

Student Learning After the Classroom

- Provide students with information about sustainability career options by connecting alumni with Macalester's sustainability programs and goals.

Campus and Community Learning

- Create diverse opportunities for the campus community to be involved in efforts to foster ownership of sustainability processes in all aspects of college life and operations.
- Connect Macalester community members with sustainability opportunities in the community and connect community members with sustainability opportunities and events on campus.

Research

- Increase the amount of faculty research on sustainability issues.

Implementation and Progress:

Tracking

- Ensure systems, processes, and staffing is in place to accurately implement, monitor, and communicate Macalester's sustainability efforts.

Financing

- Invest in energy efficiency and use the payback to fund sustainability projects and implement donor, grant, and innovative financing opportunities with sound, sustainable companies that promote positive change.

Incentives

- Encourage innovation and creativity in the sustainability area by rewarding and recognizing action.

Appendix A: History of Sustainability at Macalester

Macalester has long been a leader on campus sustainability (for a timeline of key milestones, see Table 1). Macalester students and Facilities Services staff were the first to systematically organize environmental work on campus beginning in the late 1960s with recycling and energy efficiency programs. Shortly thereafter, in 1973, the Environmental Studies department was established. Numerous students, faculty, and staff have implemented projects that explore sustainable food, renewable energy, waste reduction, alternative transportation, environmental justice, energy efficiency, and innovative finance as part of the vision of creating a community that is sustainable in all respects.

However, it was not until 2000 that Macalester formally established itself as a sustainability leader in among higher education institutions. That is when former college President Michael McPherson signed the Talloires Declaration;⁹ the first official statement committing to environmental sustainability made by university and college administrators. This plan tracks and expands on Macalester's implementation of the Talloires Declaration.

In 2005, Macalester included sustainability among its master plan objectives for the first time. Specifically, the master plan states that environmental and long-term performance criteria are to be included in future development, and sustainability practices are to be expanded in the everyday campus operations and maintenance. The master plan also recommends the college use sustainable design in new building and grounds projects, explore innovative and long-term cost savings technologies (such as wind and solar power), evaluate operational practices, and support student groups promoting environmental awareness on campus.¹⁰

In 2007, President Brian Rosenberg signed the American College and University Presidents Climate Commitment (ACUPCC), further establishing the college as a leader in sustainability and committing to developing a plan for climate neutrality¹¹. The ACUPCC is a formal acknowledgement by college and university presidents of the urgent need to reduce greenhouse gas (GHG) emissions.

In 2009, the college established a Sustainability Office with the hiring of our first Sustainability Manager. In the 2008-2009 academic year, Macalester College began to fulfill its commitment to the ACUPCC by subsidizing bus passes and purchasing only ENERGY STAR appliances to immediately reduce emissions. In 2008, the Environmental Studies Senior Seminar calculated a *Greenhouse Gas Emissions Inventory* for Macalester from 1990-2006. The 2009 Environmental Studies Senior Seminar developed recommendations for an institutional climate action plan.

⁹ The full text of the Talloires Declaration and its Macalester signatories is at <http://www.macalester.edu/environmentalstudies/talloires.htm>

¹⁰ Macalester College Campus Master Plan, Master Plan Report, September, 2005. (Consultants: Offices N, Bruner/Cott & Associates, Close Landscape Architecture, Jonas Design.)

¹¹ The full text of the ACUPCC is at: <http://www.presidentsclimatecommitment.org/html/commitment.php>

Table 1: Key Sustainability Milestones and Timeline

1967-2000:

Education:

- Establish Katharine Ordway Natural History Study Area (1967)
- Create Environmental Studies Program (1973)
- Create Civic Engagement Center (1988)

Operations:

- Implement campus-wide recycling (1970s)
- Undertake numerous campus energy efficiency projects (1960s and 1970s)

2000-2007:

Policy:

- Sign Talloires Declaration (2000)
- Sign American College and University Presidents' Climate Commitment (2007)
- Master Plan includes sustainability (2005)
- Join Worker's Rights Consortium (2001)

Education:

- Establish Environmental Studies Department (2004)
- Open EcoHouse student residence (2007)
- Establish Lealtad-Suzuki Center (2002)

Operations:

- Install wind turbine on campus (2003)
- Plant native prairie on campus (2004)
- Create new position for a sustainability student worker in Facilities Services & Purchasing (2005)
- Install green roofs on two campus buildings (2006)
- Create Clean Energy Revolving Fund (2006)
- Create bike share program: MacBike (2006)

2008-2009:

Staff:

- Hire Sustainability Manager
- Establish Sustainability Student Worker Network

Policy:

- Launch sustainability strategic planning process
- Subsidized bus pass program
- Develop and implement green cleaning policy
- Create designated suppliers program

Education:

- Environmental studies class audits campus greenhouse gas emissions and recommends actions for climate action plan.

Operations:

- Markim Hall designed and built to LEED Platinum standard
- "MacFreeSwap" starts to reduce waste

2009-2010

Policy

- Develop Sustainability Plan

Education

- Environmental studies senior seminar students focus on zero waste projects

Operations

- Develop move out waste reduction program
- Food waste to pig food program started
- Energy recommissioning report for all main campus buildings

2010-2011

Policy

- First Sustainability Update report
- Sustainability course definition adopted
- Bottled water free policy developed

Education

- Campus life includes sustainability in educational outcome goals

Operations

- Sustainable Landscaping Master Plan developed

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