

A large, stylized tree graphic in a light green color. The tree's trunk and branches are solid, while the foliage is represented by a series of white, leaf-like shapes that create a sense of depth and texture. The tree is positioned on the left side of the page, with its canopy extending towards the right.

Social, Economic and Environmental Sustainability at Macalester College

December 2012
Progress Report

Executive Summary

The Macalester College Sustainability Plan, created in 2009 and updated in 2011, outlines specific, measurable, and tangible goals for sustainability that will touch every part of the institution, including climate neutrality by 2025 and zero waste by 2020. The goals and strategies are organized under three broad categories developed from a comprehensive sustainability strategic planning process in 2008-2009:

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

This report describes the progress we have made toward our sustainability goals and provides a summary of actions taken in each goal area, along with supporting metrics. Highlights since the previous update include:

- Greenhouse gas emissions are decreasing and we will likely meet or beat our first interim greenhouse gas emissions reduction goal.
- Significant progress has been made on our zero waste goal including a switch to mixed recycling and composting.
- The college adopted an ambitious Sustainable Landscaping Master Plan which reduces water runoff from campus and the area requiring mowing.
- President Rosenberg signed the Commitment to Sustainable Practices of Higher Education Institutions on the Occasion of the United Nations Conference on Sustainable Development (April 2012) and the Real Food Challenge (October 2012).

Overall, we made significant progress in continuing to incorporate sustainability into operations and student life. Our future efforts will need to go beyond initial energy efficiency projects and other “low-hanging fruit” toward additional climate neutrality initiatives. Challenges include supporting faculty in sustainability research and incorporating sustainability in academics.

The Sustainability Advisory Committee will continue to oversee the progress of implementing the Sustainability Plan. Comments on Macalester’s Sustainability Plan or this Annual Report may be directed to the Sustainability Office at sustainability@macalester.edu.

Summary of Sustainability Plan Goals

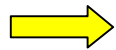
Below is a summary of Macalester College's progress on the 2011 Sustainability Plan goals.

Significant progress on the goal is signified by , some progress , and minimal progress .

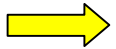
Leadership:



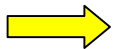
- Achieve climate neutrality by 2025.
 - 2015 – 17.5 percent reduction from 2007-2008 levels
 - 2020 – 35 percent reduction from 2007-2008 levels
 - 2025 – 52 percent reduction from 2007-2008 levels, 48 percent would be offset or obtained from off-site renewable energy¹.



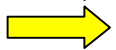
- Serve as a model for sustainability for colleges and the community as a whole by managing Macalester as a leader in sustainability in operations



- 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

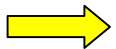
- Invest in energy efficiency and switch to carbon-neutral fuel sources.



Water

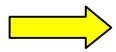
- Reduce the amount and improve the efficiency of potable water use on campus.

Airline Travel



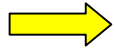
- Macalester College will promote reductions in airline emissions through voluntary means, such as using technology to reduce the need for travel, and will offset the rest of the travel emissions. The College will reduce emissions from airline travel 10% from 2008 levels by 2025.

¹ 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.



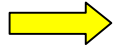
Study Abroad

- 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% from 2008 levels by 2025.



Campus Vehicles

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



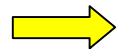
Landscaping

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



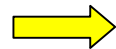
Stormwater

- 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

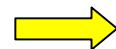
- Achieve zero waste by 2020 and reduce toxicity of waste.



Purchasing

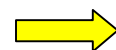
- Seek and create purchasing options that minimize Macalester College's costs and promote a positive ecological and social impact.

Education:



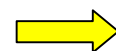
Student Learning in the Classroom

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



Student Learning Outside the Classroom

- Incorporate sustainability into 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.



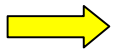
- Connect Macalester community members with sustainability opportunities in the community and connect community members with sustainability opportunities and events on campus.

Research



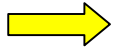
- Increase the amount of faculty research on sustainability issues.

Implementation and Progress:



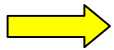
- Ensure systems, processes, and staffing is in place to accurately implement, monitor, and communicate Macalester's sustainability efforts.

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.

Introduction

The Macalester College Sustainability Plan, created in 2009 and updated in 2011, outlines specific, measurable, and tangible goals for sustainability that will touch every part of the institution and organizes specific tactics under three broad categories:

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

This annual report describes the progress we have made toward our sustainability goals and provides a summary of actions taken in each goal area, along with supporting metrics. Currently, the data shows promising initial findings, with significant reductions in waste, as well as reductions in greenhouse gas emissions and water use. Challenges include implementing renewable energy and working with faculty to include sustainability in classes and supporting sustainability research.

The Sustainability Advisory Committee will continue to oversee the progress of implementing the Sustainability Plan. Comments on Macalester's Sustainability Plan or this Annual Report may be directed to the Sustainability Office at sustainability@macalester.edu.

Leadership

Guiding Theme: Demonstrating Leadership by Encouraging Innovation and Action to Foster Sustainable Communities

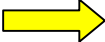
Macalester College is committed to acting as a leader in creating an optimal educational experience, demonstrating sustainable business practices, and fostering sustainable communities. We plan to do this by reducing our greenhouse gas emissions and advancing campus sustainability efforts.

Greenhouse Gas Emission Reduction

Goal: Carbon Neutrality by 2025

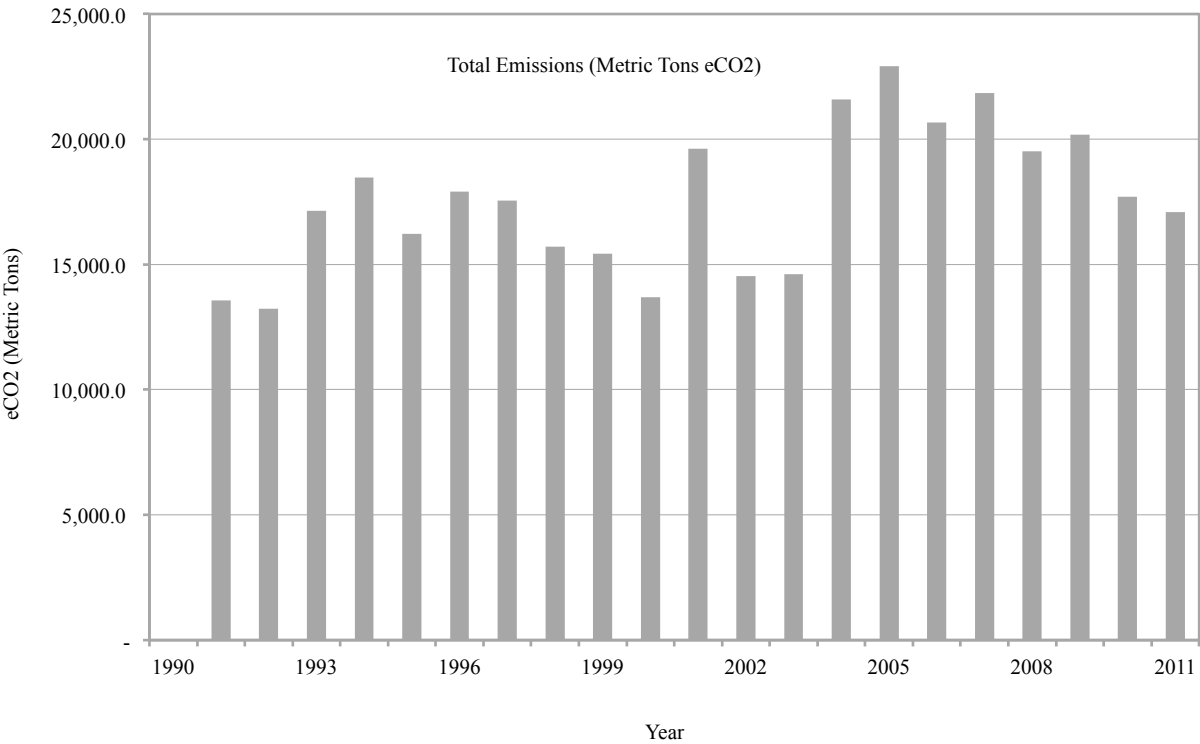
The college committed to achieving climate neutrality by 2025. Our strategy is to invest in energy efficiency first, then pursue on-site renewable energy, then pursue off-site renewable energy or purchase renewable energy credits and carbon offsets.

Progress on Goal:

 Some progress made

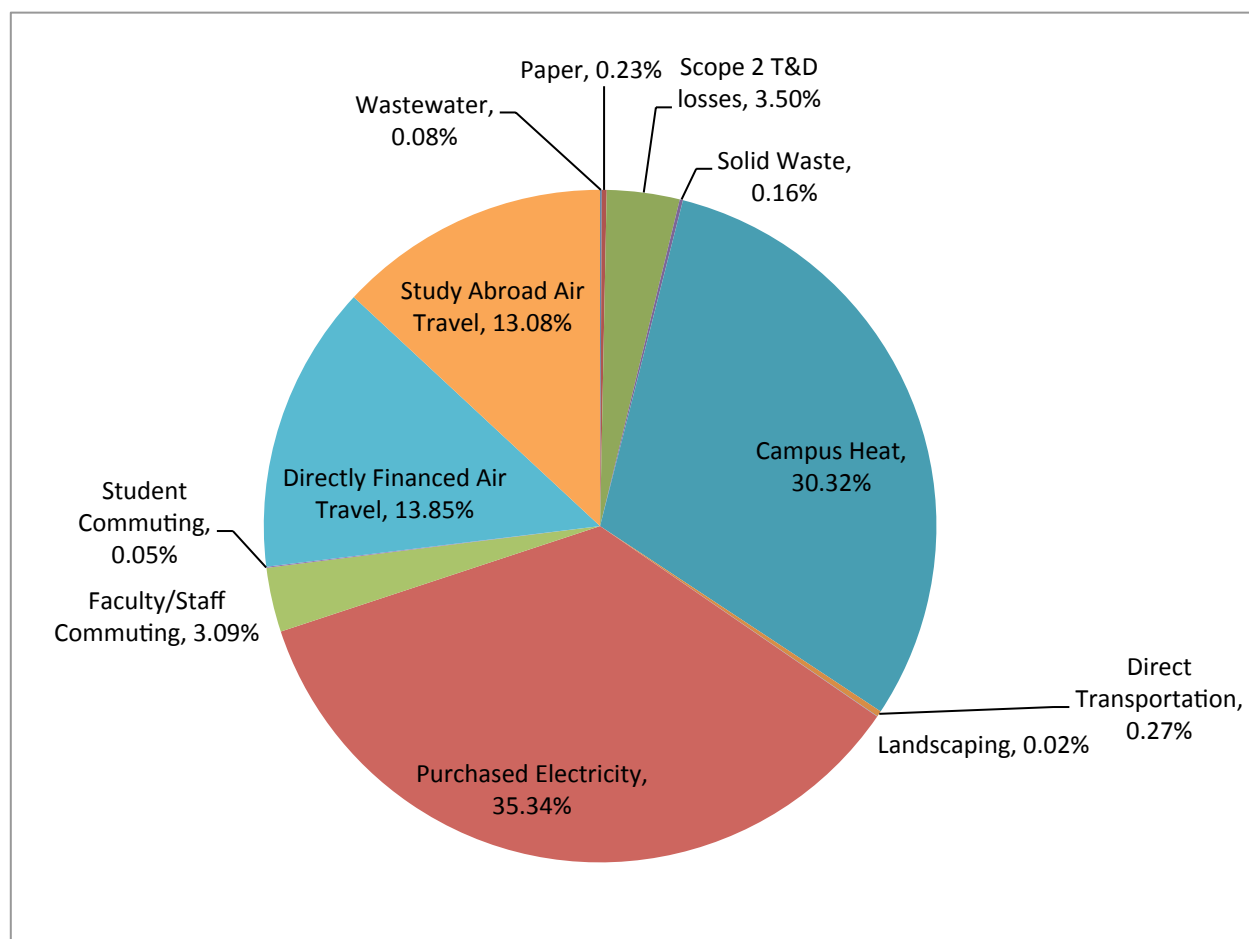
We have reduced emissions since 1005 (currently a 12% reduction from our 2008/2009 baseline). In 2010, the college undertook a major energy recommissioning and has steadily implemented the recommendations from that study. At our current trend, we will likely meet or exceed our interim goal of 17.5% reduction in greenhouse gas emissions by 2015 (Fig. 1).

Figure 1: Campus Greenhouse Gas Emissions over Time



Breaking Macalester's 2010-2011 greenhouse gas emissions down by sector (Fig. 2), campus heat and electricity account for 66 percent of emissions, the largest share. Air travel by faculty and staff as well as study abroad students account for 27 percent, the next largest share. Faculty and staff commuting accounts for 3 percent of total emissions; while paper, solid waste, and wastewater account for less than one percent.

Figure 2: 2010-2011 Greenhouse Gas Emissions by Sector.



Other Leadership Activities

Macalester College is also seen as a leader among our college and university peers. In 2011, Macalester received a “silver” rating in the Sustainability Tracking Assessment and Rating System. The college is one of 104 schools nationwide to receive this rating; 41 schools received a “gold rating”.

In 2012, President Rosenberg signed the Commitment to Sustainable Practices of Higher Education Institutions on the Occasion of the United Nations Conference on Sustainable Development” (<http://rio20.euromed-management.com/Declaration-for-HEI.pdf>). This Declaration expressly connects Macalester’s history of internationalism with our strong commitment to sustainability.

In addition, President Rosenberg signed the Real Food Challenge Campus Commitment, which commits the college to 30% real food (local, organic, fair trade) by 2020.

Sustainability has been a consistent part of our co-curricular education and we have made progress on incorporating sustainability into our academics. We have progressed 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.

Operations

Guiding Theme: Realizing our Mission by Designing, Implementing, and Improving our Processes

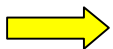
Critical to Macalester's Sustainability Plan is integrating efforts into all aspects of operations including buildings, transportation, landscaping, stormwater, recycling/waste management, and purchasing.

Green Buildings

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

As part of the Sustainability Plan, a green building policy was adopted "All new construction or major renovation must meet the Minnesota B3 guidelines or be designed to at least a LEED silver standard." Green building was also part of building projects prior to 2009.

Progress on Goal:



Some progress made

Table one summarizes the construction of green buildings on campus. Facilities Services has also made progress on other Sustainability Plan green building goals by systematically sharing information on green building with the campus community through the sustainability website and the EnviroThursday speaker series. An environmental studies class also analyzed the potential for a green roof on a dorm building, but found that it was impractical.

Table 1: Green Buildings at Macalester College

Date	Building	Sustainability Features
2007	EcoHouse	Student residence renovated with sustainability criteria
2008	Leonard Center	Sustainability consultants hired; significant energy reductions; over 90% recycled or reused
2009	Markim Hall	LEED platinum certified, first LEED platinum building at in Minnesota Higher Education
2012	Janet Wallace Fine Arts Center	Minnesota Buildings, Benchmarks, and Beyond (B3) criteria used as guideline; significant energy reductions

Energy Efficiency

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

Since signing the American College and University Presidents' Climate Commitment, 41 energy efficiency projects have been completed on campus. In 2010, the college recommissioned all of the main campus buildings for energy efficiency. The report recommended \$371,500 in improvements with an estimated a two-year payback period. Implementation of 11 of the recommendations is complete and further incorporation of the audit recommendations is expected in 2012-2013.

In 2009-2010, Macalester expanded on earlier energy efficiency projects by institutionalizing an energy efficiency partnership with Xcel Energy. Staff members from the college and Xcel Energy continue to meet regularly to discuss energy efficiency goals and progress. In 2011-2012, all of the campus houses were audited for energy efficiency. "The Energy Squad" also added weather stripping and other efficiency improvements. Implementation of the audit recommendations is expected in 2012-2013.

Progress on Goal:



Significant progress made

Macalester's significant efforts in energy efficiency have resulted in energy reductions. Both electricity use (Fig 3) and heating fuel use (Fig. 4) per gross square foot (GSF) have decreased.

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

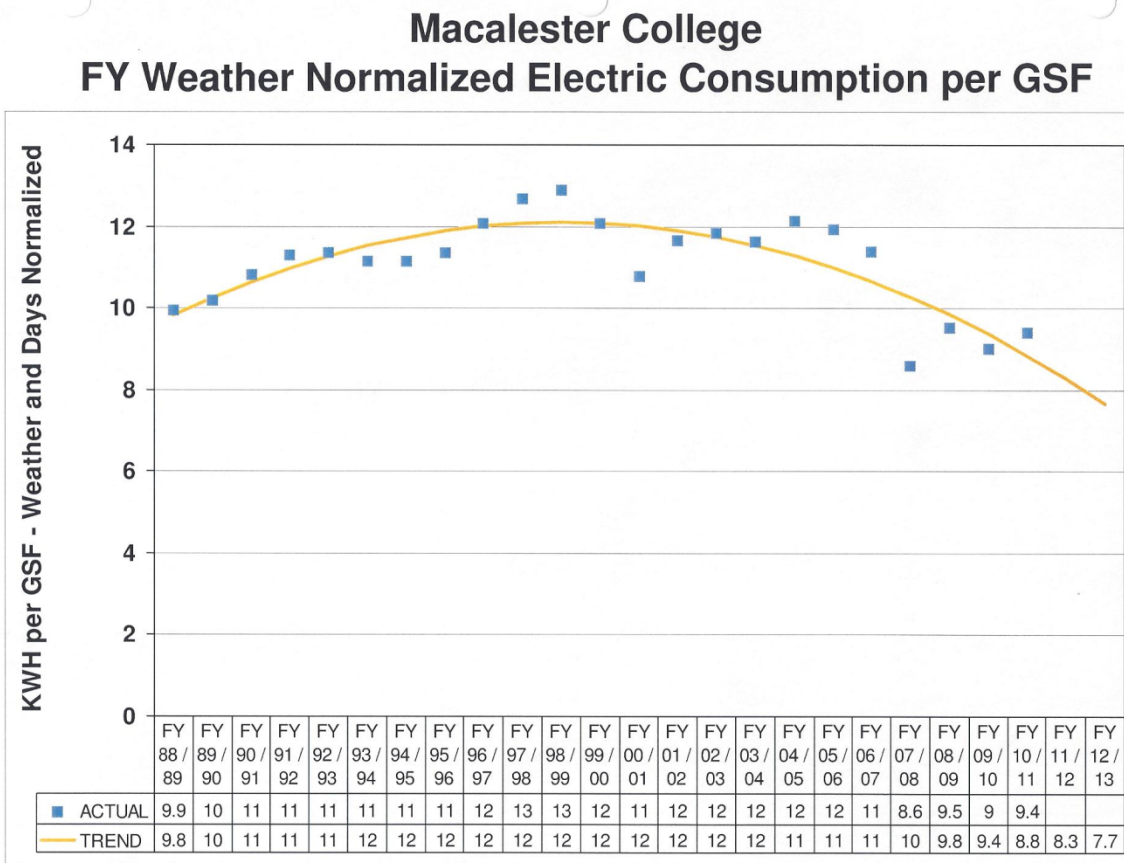
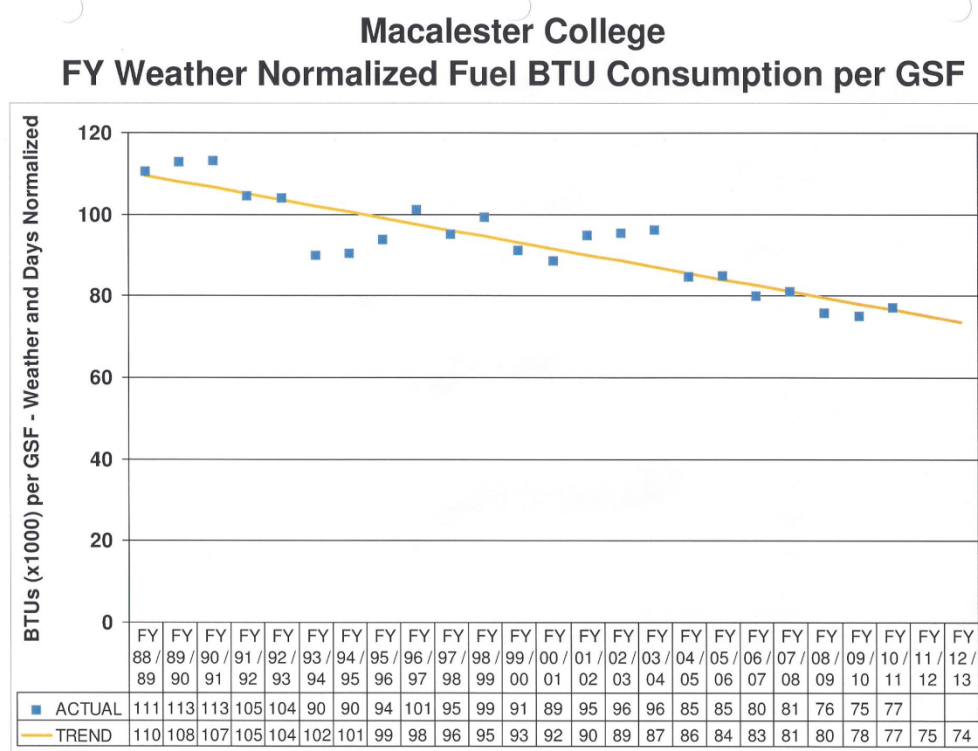


Figure 4: Weather Normalized Fuel BTU Consumption per GSF



Page: 26

FuelBtuGSFWNFYTrend

Carbon-Neutral Fuel Sources

In 2012, the Sustainability Office contracted with LHB and Associates to analyze the possibility of solar installations. Unfortunately, Olin Rice, Leonard Center, Dupre Hall, and the Campus Center do not have sufficient structural roof capacity to handle standard solar installations.

The Environmental Studies Senior Seminar students recommended adding 4.33 kW photovoltaic array on top of the Spanish House and submitted a sustainability small project fund request. The proposal has been tabled due to costs.

In 2009-2010, Macalester wrote a grant to fund installation of solar photovoltaic panels on Markim Hall and solar thermal pool heating for the Leonard Center. However, the grant proposal was not selected and the projects were not feasible without grant funding. Markim Hall is designed to take a solar array; the Sustainability Office and MacCARES student group students have been discussing possibilities with vendors.

Off-site Renewable Energy and Offsets

As part of Markim Hall's LEED Platinum certification, Macalester offsets 100 percent of the electricity used by and 100 percent of the on-site carbon emissions from the building. Through a contract with Renewable Choice, these offsets go to wind projects, predominantly in the Upper Midwest and a landfill gas program in Illinois (www.renewablechoice.com/business-projects-REC-VER-Carbon.html).

The Environmental Studies Senior Seminar in 2012 recommended that the college invest in off-site wind projects. The Sustainability Advisory Committee will review their recommendations in 2012-2013. Macalester does not intend to buy offsets for campus-wide energy use until energy efficiency and renewable energy projects are completed.

Water

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

Progress on Goal:

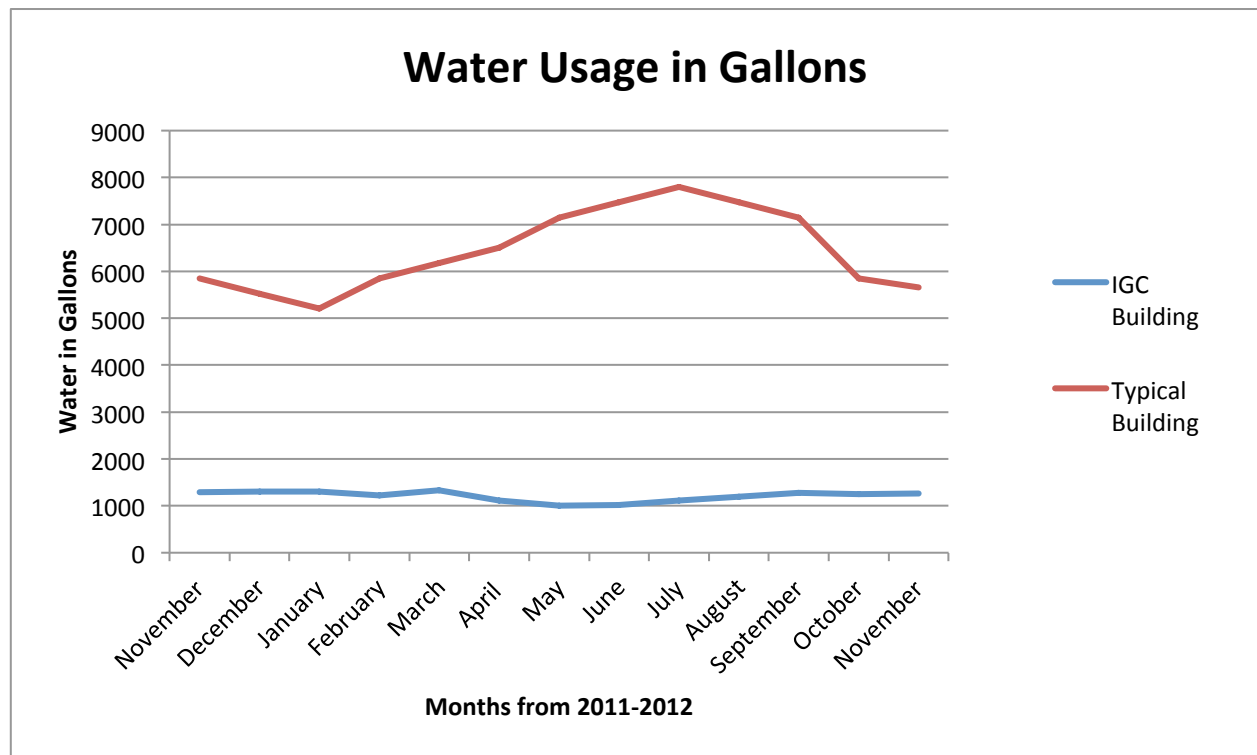


Significant progress made

Macalester's Sustainability Plan calls for installing water efficient fixtures when renovating or replacing existing fixtures. Significant progress was made on this issue in 2011-2012 when as an extension of an internship with the Clean Energy Resource Teams (CERTS) Rosie Mate '12 proposed that the college take part in a bulk buy of faucet aerators and commercial kitchen pre-rinse spray valves. Rosie worked with Facilities Services, Bon Appétit, the Sustainability Office, student workers, and student volunteers to install efficient aerators on campus sinks. The projects are expected to save 2,962,500 gallons of water and 562,090 BTUs of energy a year.

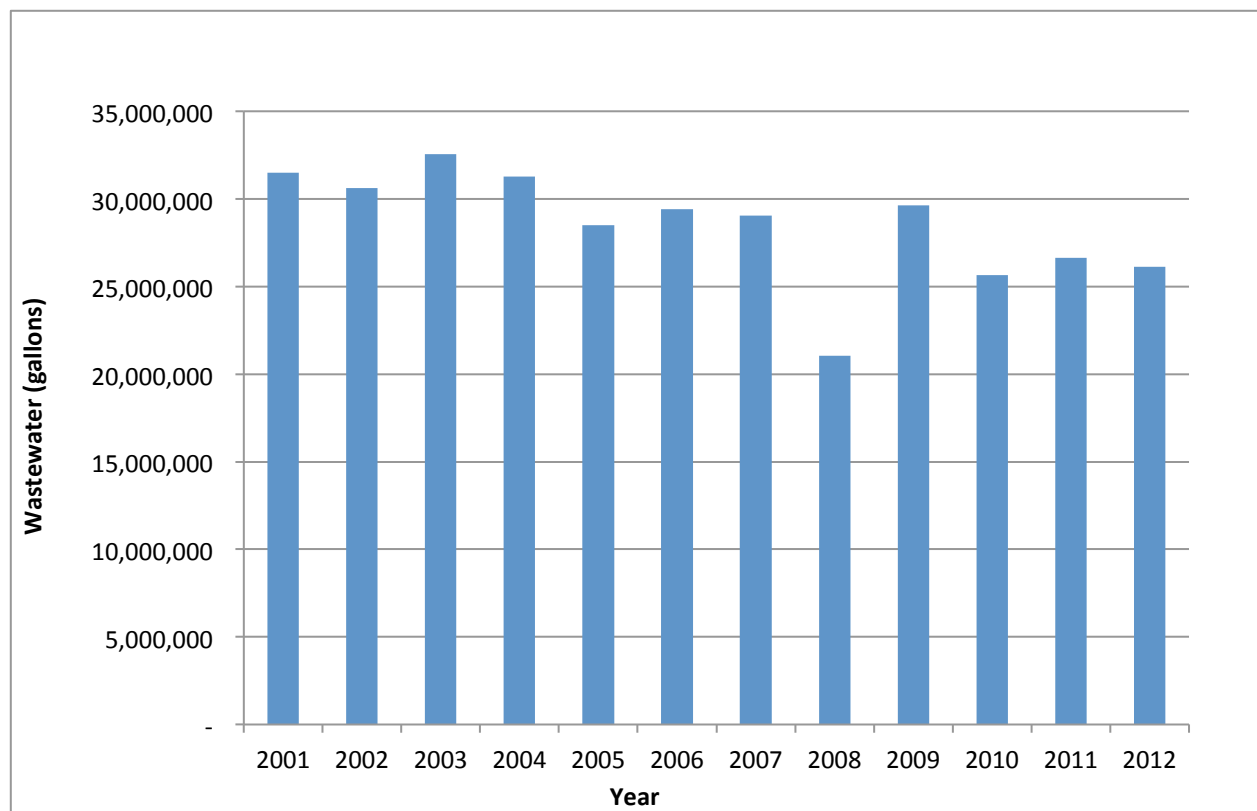
Markim Hall, the LEED platinum building on campus, has also shown significant water use reduction, much larger than anticipated (Fig. 5). Real-time data is shown on the green touchscreen (<http://igc.macalester.greentouchscreen.com>).

Fig. 5: Markim Hall water use graph



Wastewater data from the entire campus is trending downward. The lowest amount of wastewater was when the Leonard Center was under construction (Fig. 6).

Figure 6: Wastewater (in gallons) produced over time



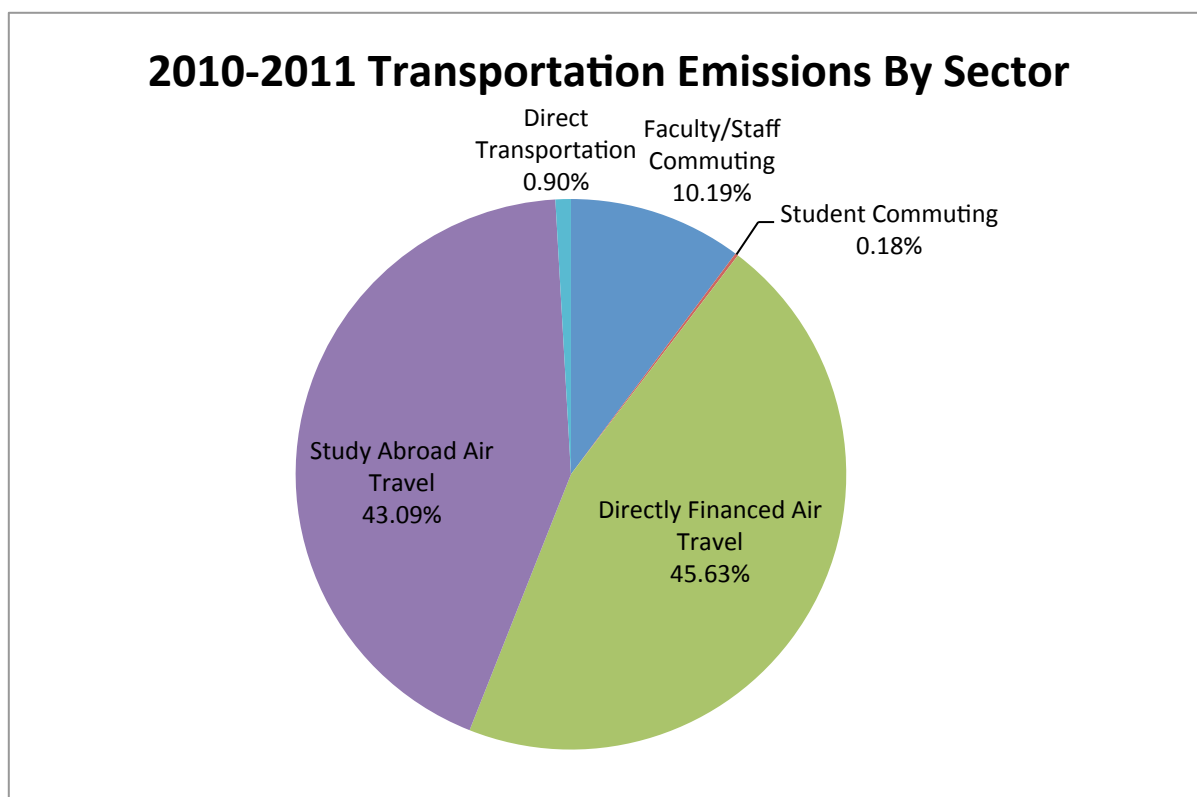
Transportation

Airline travel

Goal: 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.

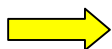
Airline travel accounts for a significant amount of the college's transportation category of GHG emissions from travel (Fig. 7).

Figure 7: Transportation Greenhouse Gas Emissions by Sec



Reducing travel is a significant challenge considering the international emphasis of the college. Collecting data on airline travel is also challenging, given the fact that travel locations are only reported when the college purchasing cards are used, making the data quality for this part of Macalester's emission inventory problematic.

Progress on Goal:



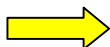
Some progress made

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. The Procurement Office and Sustainability Office website include information on train travel options. Information Technology Services has increased their support for remote computer access to college systems. In 2012, travel offsets will be included in the college accounting system and travel offsets will be included as reimbursable expenses.

Study Abroad

Goal: 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.

Progress on Goal:



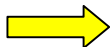
Some progress made

To introduce study away students to the principles of sustainable travel, the International Center and Sustainability Office provides information about the Green Passport Program through which these students can take the Green Passport pledge and share sustainable travel best practices. However, few students have taken advantage of the Green Passport program. The Sustainability Office is working with the International Center to increase awareness of sustainability among study away students in 2012-2013.

Commuting

Goal: 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.

Progress on Goal:



Some progress made

Numerous projects are underway to reduce emission from commuting (Table 2).

Table 2: Transportation Projects

Multi-modal Transportation projects	Summary
First-year car ban	First-year students are not allowed to have cars on campus.
E-workplace telework pilot program	Several departments participated in a pilot project and evaluated telework. Training materials are available for employees and supervisors considering telework.
Twin Cities Bike/Walk to Work Day	The college takes part in the annual event. Macalester College won the Twin Cities workplace competition in 2008.
Bike/Walk to Work Coffee	Sustainability Office invites employees who bike or walk to work to complimentary coffee at a local coffee shop twice a month.
Local preschool and daycare list	MacParents group hosts a list of pre-school and daycare options near campus on their Moodle group site

Alternative commuter listserv	Staff member Brian Longley keeps a listserv for alternative commuters.
Pedestrian projects	
Pedestrian-oriented development projects	Macalester's High Winds Fund developed medians on Grand and Snelling Avenues, adjacent to campus to calm traffic and improve pedestrian and bicyclist safety
"Walk to Work" Program	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.
Bicycle projects	
Bikeshare	Collaboration between MacBike and the Library to provide free bike-share bicycles to Macalester students and staff
MacBike bicycle repair shop	The repair shop moved to a permanent location in the basement of Doty Hall in 2010 and MacBike students offer bike repair classes for students and staff. A bike pump is available at the Information Desk in the Campus Center.
NiceRide Bike-share	The HighWinds Fund supported the installation of a NiceRide bikeshare station near campus.
Bicycle commuting WHAM lunch and learns	The staff "Wellness and Health at Macalester" group typically sponsors a bike commuting lunch and learn in collaboration with the Sustainability Office.
Bicycle racks	Ample bicycle parking is available on campus. New bicycle racks and added when needed.
Carpooling and Low Emitting Vehicles	
Low emitting vehicles and carpool parking	Priority designated parking available throughout campus
HOURECAR	Community car sharing program supported through a grant by the High Winds Fund
Electric vehicle charging station	In 2013, two electric vehicle-charging stations will be installed near the Janet Wallace Fine Arts Center. These stations are made possible by a grant from the Minnesota Pollution Control Agency and Xcel Energy.
Carpool listing service	In 2012 potential carpoolers can look on the MetroTransit carpool site for possible rides/riders with the entire MetroTransit system or with Macalester people only.
Transit	
Subsidized bus passes	Started as part of the American College and University Presidents' Climate Commitment. Available to students, staff and faculty



Covered bicycle parking.



Subsidized bus passes

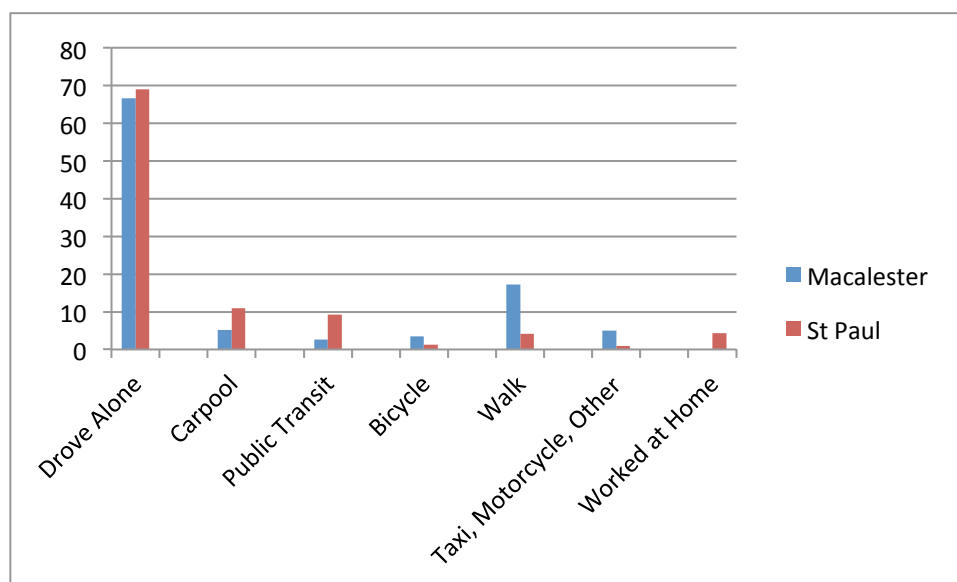


Alternative commuter coffee

In May 2010, the Sustainability Office, working with the local nonprofit St. Paul Smart Trips, conducted a faculty staff commuter survey. The survey was emailed to 450 employees and had a response rate of 76 percent. The results show a majority of 66.6 percent of faculty and staff “drive alone” as their main commute mode while the next most popular mode is “walk/run/skate” at 17.3 percent. Significantly more staff “drive alone” (72.4 percent) than faculty (55.4 percent). A greater percentage of faculty also reported “bike, walk, or use public transit” than staff. Those who report “drive alone” as their major commute mode indicated they are “less satisfied” than those who use other modes. In the past three years, 20.5 percent of the employees changed their commute mode with 54 percent changing to “drive alone.” Of these employees, 15 percent cited childcare needs, 9 percent cited work schedule changes, and 7 percent cited saving money.

The percent of Macalester’s commuters who drive alone is similar to the St Paul average (Fig. 8) while the percent that walk and bicycle to work is higher. Carpool and public transit use is lower than the St. Paul average.

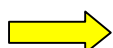
Figure 8: Commute by Transportation Mode for St. Paul and Macalester College Faculty and Staff, by Percentage 2010 Survey Results



Campus Vehicles

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

Progress on Goal:



Some progress made

Macalester owns and operates landscaping vehicles, lawn care machines, and a van fleet. To reduce emissions from these vehicles Facilities Services only uses electric landscaping vehicles unless a gasoline-fueled vehicle is specifically needed. Staff searched for more efficient vans for the fleet, which currently is comprised of half-ton models with fuel economies less than 20 miles per gallon. However, no equivalently sized and more efficient vans proved to be available and cost effective.

Departmental memberships have been made available for HOURCAR, a car-sharing program with a hub next to campus, and so far Macalester's Civic Engagement Center, Sustainability Office, Environmental Studies Department, Hispanic Studies Department, and Advancement Office have signed up. Since 2009, over 1000 trips have been made using the HOURCAR by college departments. Students also use the HOURCAR for personal trips. In 2011-2012, 43 students had active HOURCAR accounts.

Figure 9:

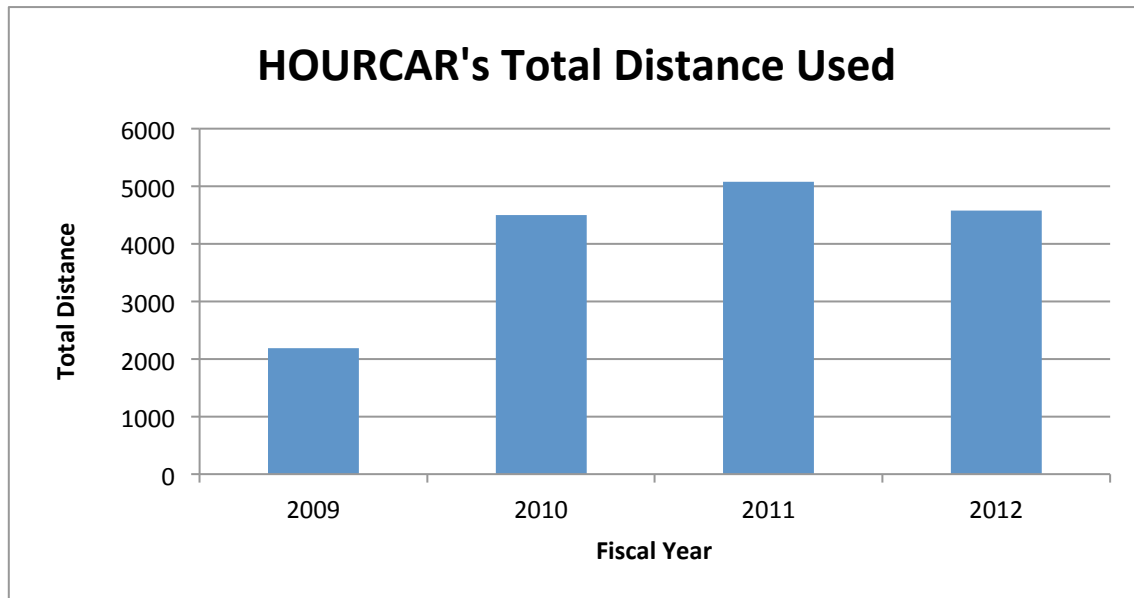
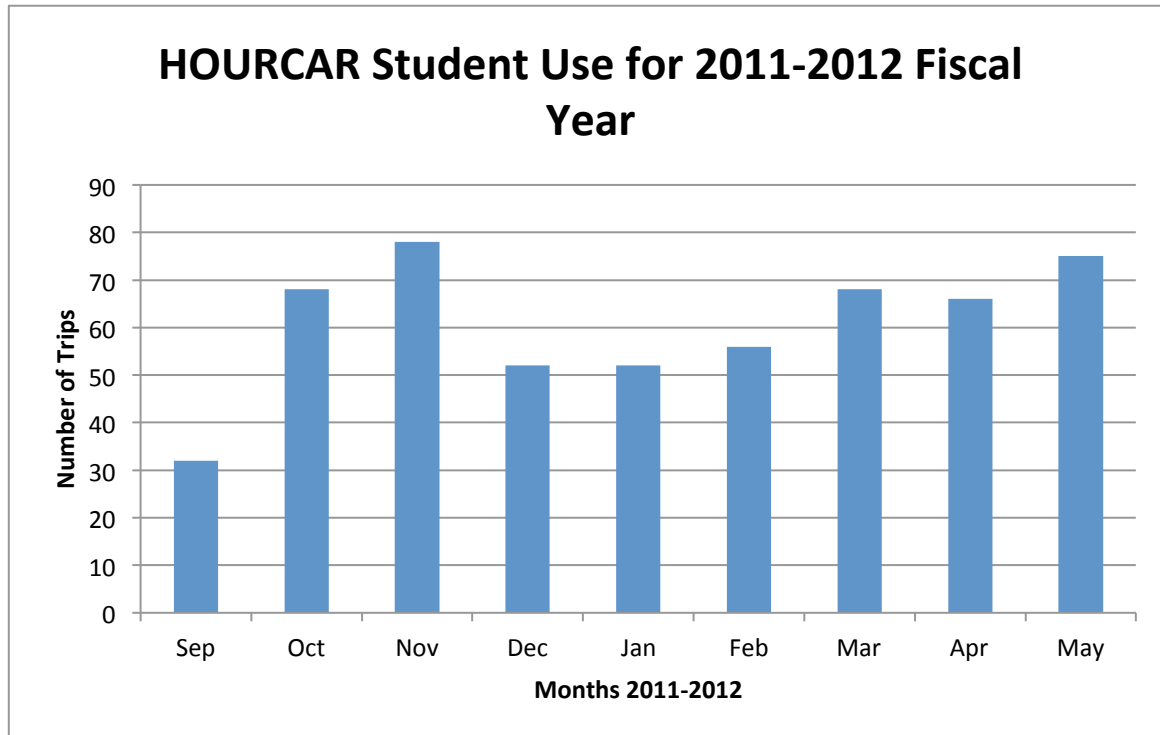


Figure 10:



Landscaping

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

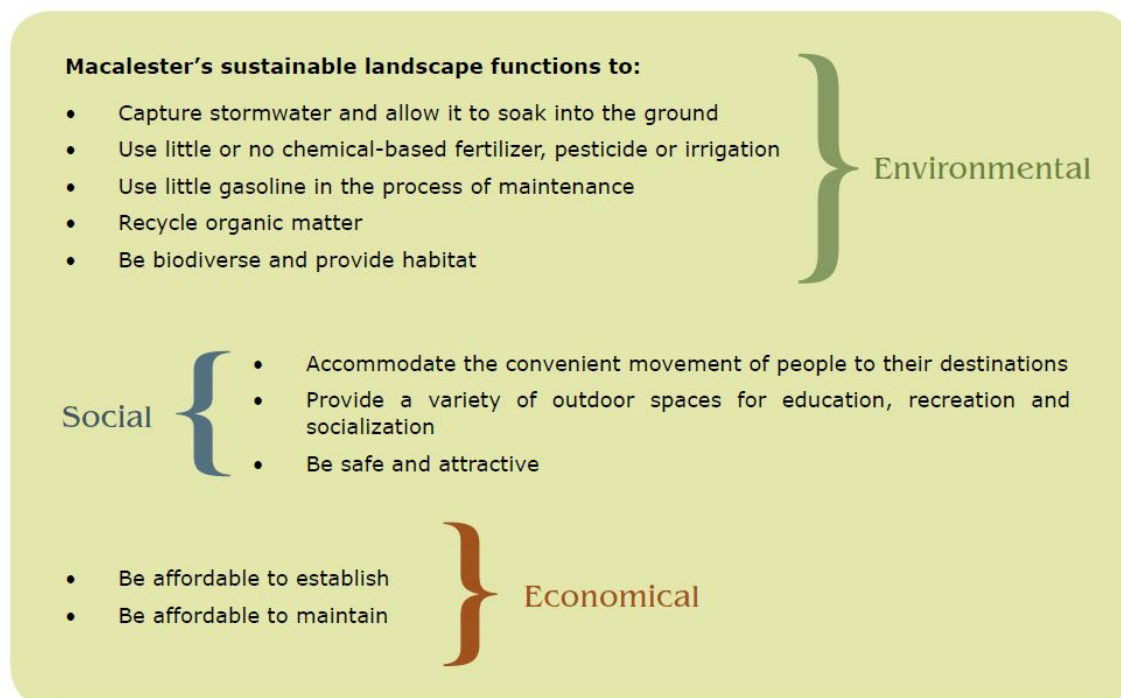
Progress on Goal:



Significant progress made

The Sustainable Landscaping Master Plan comprehensively addresses the sustainability and aesthetics of the campus grounds. The plan includes ways to capture stormwater, use little or no pesticides, provide educational and recreational spaces, and be affordable to establish and maintain. Goals of this plan are included in Figure 11. A list of sustainable landscaping projects is presented in Table Three.

Figure 11: Sustainable Landscaping Master Plan Goals.



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. In addition, the college received a grant from the Capitol Region Watershed District to improve stormwater in the Janet Wallace Fine Arts Center Parking Lot. The estimated runoff volume capacity for the 45,000+ square foot impervious parking lot is a minimum of one quarter of one-inch runoff from the lot, or about 1,000 cubic feet. An estimated level of pollutant removal for the runoff volume capacity is 70 to 80% removal of Total Suspended Solids, over 50% removal of Total Phosphorus, 45 to 85% removal of metals, 35% removal of pathogens and 80% removal of hydrocarbon toxins (estimated treatment values from the Minnesota Stormwater Manual).

In addition, in 2011, the Environmental Science (ENVI133) class investigated the potential for a green roof on Doty Hall, but found it unfeasible. A list of stormwater projects is included in Table four.

Table 3: Sustainable Landscaping Projects

Date	Project	Notes
2005	Olin Rice prairie	80 species of prairie plants
2002	Library rain garden	Native plants included as part of a class project
2009	Markim Hall landscaping	Native plants included as part of a LEED platinum building
2011	East entrance landscaped with sustainable design features	Sustainable landscaping
2012	EcoHouse re-landscaping	Sustainable and low maintenance landscaping in 2012



Students installing new plants on Kagin green roof

Stormwater

Goal: 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.



Photo of Janet Wallace Fine Arts Parking Lot stormwater project and Olin Rice prairie.

Progress to Date



Significant progress made

Significant projects have been put in place (table 4). However an accurate estimate is not yet available on the progress on the goal of infiltrating the first inch of precipitation from campus.

Table 4: Campus Stormwater Projects

Date	Project	Notes
2002	Library rain garden	Infiltrates part of roof stormwater from the library
2009	Markim Hall stormwater	Perforated stormwater pipe promotes stormwater infiltration; porous pavers installed
2006	Green roofs on link and Kagin	Built by student volunteers and EPA grant. Kagin roof replanted in 2012.
2009	Porous pavers on walkway near Weyerhaeuser Hall	Porous pavers

2009	Porous pavers on Marvin Plaza	Porous pavers
2011	Rainwater Gardens at the Janet Wallace Fine Arts Center Parking Lot	Grant from the Capitol Region Watershed District. Infiltrates stormwater from parking lot east of Janet Wallace Fine Arts Center
2012	Janet Wallace Fine Arts	Permeable pavers, no mow grass, stormwater from the parking lot on the north and the roof drains from the building are connected to about 700 feet of 6-foot diameter perforated pipe.

Zero Waste

Goal: Achieve zero waste by 2020 and reduce toxicity of waste.

The college has a long history of reducing waste and promoting recycling. Students started the first recycling program in the 1960s. The goal of zero waste by 2020 is from the 2009 Sustainability Plan.

Progress to Date



Significant progress made

Table five highlights zero waste projects undertaken since 2008

Table 5: Zero Waste Projects

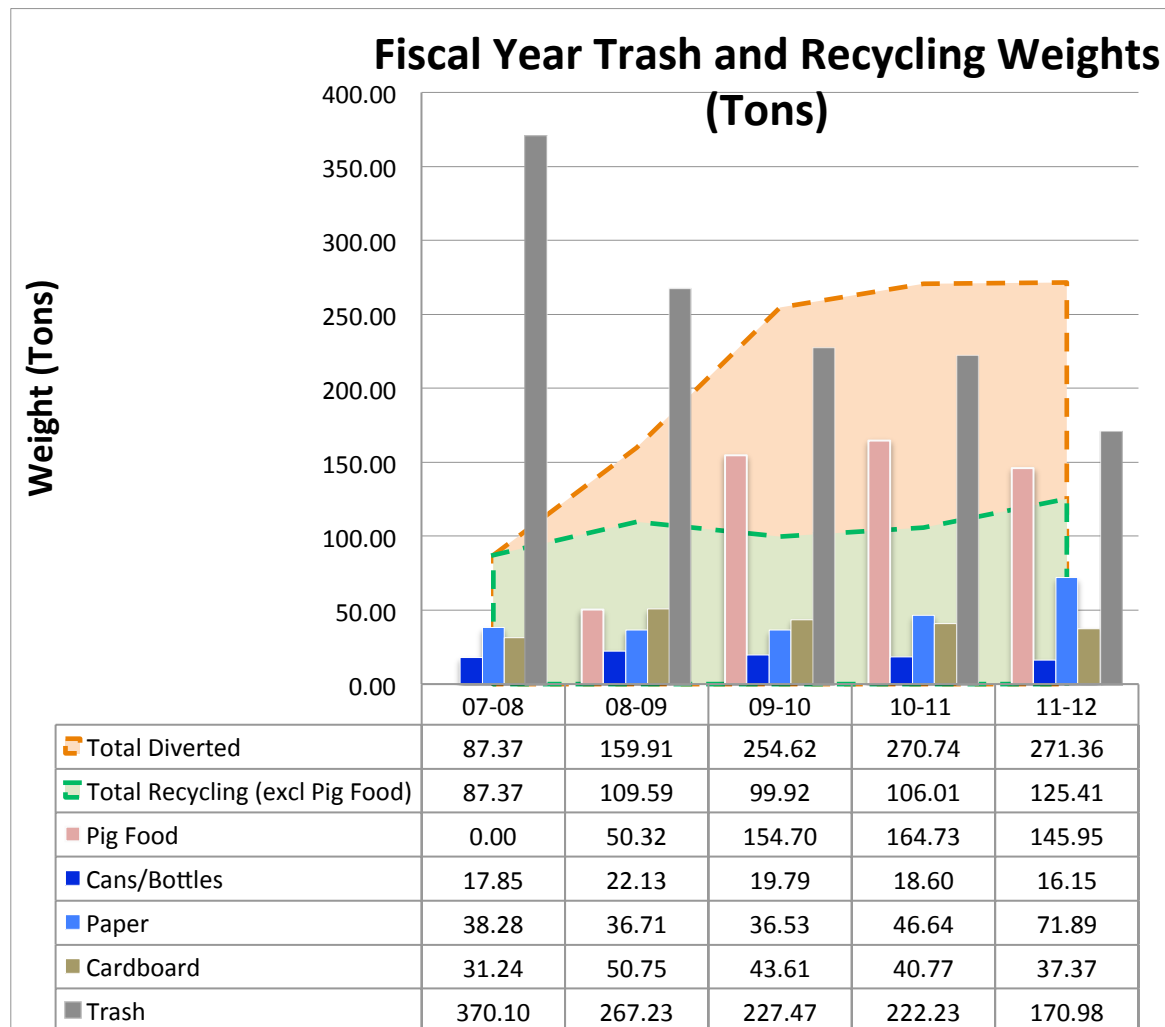
Date	Projects	Notes
2008	Graduation Gown Donation Program	Mac grads donate graduation gowns to MN Internship Charter High School
2008	Greening Reunion	Zero Waste Picnic incorporated, started email outreach instead of postcards, water coolers instead of water bottles.
2008	EcoClamshell	Reusable carryout containers available at the Grill
2009	Papercut software	ITS installed Papercut software to count pages printed by student

2009	100% Recycled Letterhead	Letterhead changed to a 100% post-consumer waste recycled paper
2009	Printing awareness week	Library starts annual printing reduction outreach
2009	Pig Food Waste Recycling Program	Food waste sent to Barthold Farms instead of going to a waste hauler
2009	Student Account eBilling	Switched from paper bills to eBilling
2009	Move Out	Extensive recycling and reuse program put in place. Recycling rate jumped from 17% in 2008 to 46% in 2009
2010	Onesies	Reused one sided paper notebooks, "onesies" given to all first year students from the Library in 2010
2010	CFL and e-waste recycling on campus	Bins available in the Sustainability Office for student, staff and faculty
2010	Reusable dishware and dishwashers	MCSG bought a set of reusable dishware for student organizations
2010	MacFreeSwap	Listing service on 1600 Grand and free stuff table in Kagin Commons
2010	100% Recycled Copy Paper	100% recycled copy paper standard started as campus standard
2010	Print release stations	Reduces accidental printing
2011	Bottled Water Ban	Bottle water policy instituted on campus. Bottled water is not sold and college funds are not used to purchase
2011	Reuse of Macalester Pipe Organ	Macalester Pipe Organ donated to local church

2011	Holiday Light Recycling Program	Collaboration with the Recycling Association of Minnesota to collect discarded holiday lights and electrical cords
2012	Backyard composting	Backyard composting bins added to campus houses
2012	Recycled Art and Craft Fair	Student recycled art and craft fair hosted

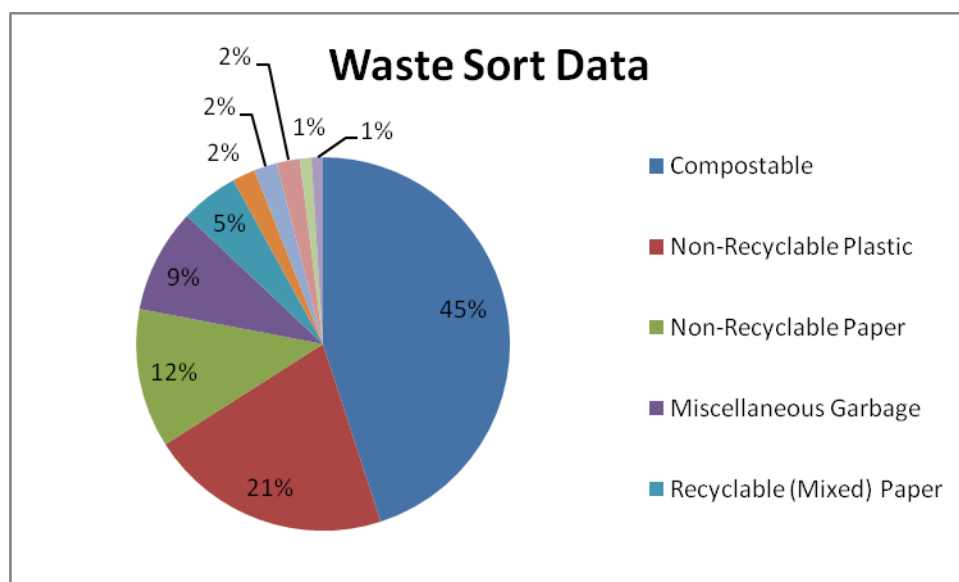
In 2011-2012, the campus generated 171 tons of trash, which is 51 tons fewer than the previous fiscal year in 2010-2011 (Fig. 12). Macalester's program to send campus food waste to a local pig farm began in 2008-2009 and was found to have been a significant cause of the reduction of non-diverted waste in 2009-2010. In 2012, the college hired a new waste vendor who offers single-stream recycling. Composting is planned to begin in January 2013.

Figure 12: Fiscal Year Trash and Recycling Weights, in Tons



In addition, the 2010 Environmental Studies Senior Seminar focused on zero waste related projects. In February 2010, the class along with MN Wastewise staff performed a waste assessment and waste sort for the college.

Figure 13: Waste Sort Composition

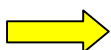


The waste sort results showed that 45% of the waste stream was commercially compostable. Non-recyclable plastic (21%), non-recyclable paper (12%), garbage bags (2%), and miscellaneous garbage (9%) comprised 41% of the waste stream. Materials that were recyclable made up 10% of the waste stream. These materials included recyclable paper (5%), plastic (2%), cardboard (2%) and recyclable cans (1%). Potentially recyclable materials with a current market included plastic film (1%) (Fig. 13).

Purchasing

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

Progress on Goal:



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 and departments do not purchase bottled water with college funds. The Procurement Department is currently finishing guidelines to implement the responsible purchasing policy.

In addition, the college changed all college general purpose paper purchases to a 100 percent post-consumer recycled, Forest Stewardship Council certified, no-chlorine bleach variety in 2010.

Education

Guiding Theme: Educating the Campus Community to Build a Coalition

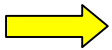
A goal of our Sustainability Plan is to integrate sustainability throughout our curriculum and other programs and activities across the campus. Some of this integration already occurs on campus regularly, but more can be done. As Macalester students graduate, it is our hope is that they will promote sustainability in the careers they pursue and in the communities where they live.

Education In The Classroom

Academics

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

Progress on Goal:



Some progress made

In 2010-2011, President Rosenberg included sustainability as one of the criteria for curriculum development grants. In addition, 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>. At the time, 17 sustainability-focused and 115 sustainability-related courses were offered out of the 870 courses offered at Macalester.

Research

Goal: Increase the amount of faculty research on sustainability issues.

Progress on Goal:



Minimal progress made

In the 2010-2011 academic year, the Sustainability Office collected data on how much sustainability research is occurring on campus for the STARS report. A faculty member suggested starting a research group, but the project did not occur. Research is happening on campus, but there is not an effort to support faculty working specifically on sustainability research or to specifically increase faculty research in this area.

Education Outside The Classroom

Goal: Incorporate sustainability in student learning outside the classroom.

Progress on Goal:



Some progress made

Macalester has a history of incorporating sustainability in co-curricular activities. The terms for these activities have gone by many names including civic engagement or residential life activities, student organization activities or outreach campaigns. In 2009-2010, residence hall outreach activities included sustainability. The halls had sustainability learning goals developed by Campus Life staff. In 2010-2011, sustainability student workers in Residential Life will work to improve residence hall outreach.

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 side of sustainability.

A unique program is our Sustainability Student Worker network. Through this program, student employees are empowered to identify opportunities for their host department to become more sustainable. In 2012-2013, this network included 22 student workers in 10 college departments.

The college participated in the nationwide Recyclemania competition from 2009 to 2010, but discontinued the competition in 2011. In 2012, the college plans to compete again. In addition, the college participated in the Minnesota and National Campus Energy Challenges (the competitions were started by Macalester students), however, interest waned and the college did not participate in 2011-2012. The Sustainability Office plans to restart an energy competition during the 2012-2013 academic year.

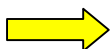


MULCH students with newly installed chicken coop; MULCH produce; Bikeshare bicycle

Student Learning After the Classroom

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

Progress on Goal:



Some progress made

The Sustainability Advisory Committee started a task force in this area in 2011. In 2012, the Career Development Center, Alumni Office, and Sustainability Office collaborated on a Student-Alumni Connect program specifically on sustainability. A group of students met with alumni in the sustainability field and asked questions about career options. In addition, a reception for alumni working in the sustainability field was hosted at reunion in 2012 after a sustainability walking tour of campus. The Sustainability Tours have been a regular feature of reunion since 2008.

Campus and Community Learning

Goal: 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.

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

Progress on Goal:



Some progress made

The Civic Engagement Center (CEC) of Macalester's Institute for Global Citizenship has a long history of connecting Macalester students with the larger community through academic service

learning, volunteer activities, and off-campus work-study positions. Many of the CEC programs revolve around sustainability themes.

Employee outreach has been a focus of the Sustainability Office since 2009. The Sustainability Manager meets with all new staff members during new staff orientation. The campus community is welcome to share new sustainability ideas through an online suggestion box. The Library and Sustainability Office collaborate to offer a sustainability book club open to all students, staff, and community members that discusses one book each semester. In 2011-2012, staff and students organized sustainability lunch discussion groups.

In the Sustainability Plan, departments across campus will be asked to write Departmental Sustainability Action Plans. Several departments developed plans (<http://www.macalester.edu/sustainability/initiatives/deptactionplans.html>), but the plans did not gain interest of many departments on campus. The Sustainability Office started a pilot Green Star Office training in spring, 2012 to offer sustainability training to interested staff. These staff members were advocates in their departments for developing departmental action plans, however the action plans still did not get adopted.



Green Office Pilot participants at Ordway Field Station

Tracking:

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

Progress on Goal:



Some progress made

The Sustainability Advisory Committee reviews part of the Sustainability Plan every month and reviews this update document every two years. In 2012, the Sustainability Office is using a new data management system, CarbonSolv, which should assist with data organization and access.

Financing

Goal: 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.

Progress on Goal:



Some progress made

In 2010, the college established a special fund within the regular capital budget, the Technology, Equipment and Maintenance (TEM) budget for sustainability. This budget merged with the three-year-old Clean Energy Revolving Fund (CERF) that was created by Macalester students. The result is dependable funding source for college-led and student-initiated sustainability projects. Remaining funds in the CERF were split between the TEM budget and a Sustainability Office fund for projects with an economic payback.

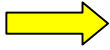
The Sustainability Office also started a small project fund in 2010 to support innovative sustainability projects. Projects funded since 2009 are:

- Travel to Seed Savers Exchange
- Compost bins for off-campus student composting project
- Acquisition of bike-share bicycles
- Sustainability survey research and outreach to campus
- Purchase of workplace sustainability books for lunch discussion groups
- Native and edible plants for EcoHouse backyard
- Prizes for energy efficiency campus workshop
- Trial of non-toxic lab staining agent for chemistry
- Water efficient pre-rinse spray valves and faucet aerators
- Non-toxic marker trial
- “Bag it” film rights
- Honorarium for real food challenge speaker
- New plants for green roof
- Printing for food event table tents
- Printing for “onesie” one sided paper reuse
- Chicken coop and start up feed
- Olin Rice dishwasher
- Rain barrel for EcoHouse
- Vermicomposting pilot project supplies
- Travel to farm tour

Incentives

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

Progress on Goal:



Some progress made

The Sustainability Office awarded 20 Green Star awards since the program began in 2008. The award recognizes individuals and groups who have successfully implemented a sustainable idea.

- 100% Reduction through Reuse
- Water Efficiency
- Reduction Through Reuse at Facilities
- Reuse of the Macalester Pipe Organ
- 100% Recycled Copy Paper
- Reducing Waste in Olin Rice
- Reducing Waste Through MacFreeSwap
- Reducing Energy from Vending Machines
- Reducing Waste and Energy in the Classics Department
- Saving Energy in Kagin Commons
- Waste Reduction at Move Out
- Macalester Prairie, Rain gardens, and Green Roofs
- Saving Paper through eBilling
- Pig Food Waste Recycling Program
- Reducing Disposable Bottles on Campus
- 100% Recycled Letterhead
- Reusable Take-Out Containers
- Increasing Recycled Content in Printing Projects
- Greening Reunion
- Graduation Gown Donation Program

The Sustainability Plan called for formal sustainability awards. Donor Alfred N. Page offered funding for a Macalester Sustainability Award for Curricular Innovation. In 2011, Environmental Studies Faculty member, Christie Manning, Visiting Assistant Professor of Environmental Studies earned the award.

Other formal awards have not been undertaken to date, but the Sustainability Advisory Committee will discuss this in 2012-2013.

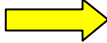
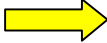


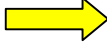
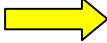
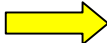
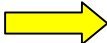
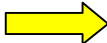
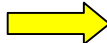

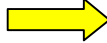


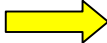
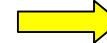
Conclusion

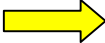
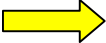
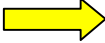
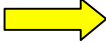
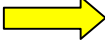
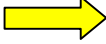
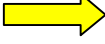
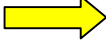





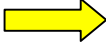
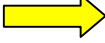
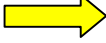
Macalester College made significant progress in incorporating sustainability into operations and student life. Greenhouse gas emissions are decreasing and progress is being made towards the zero waste goal. Significant progress was made in reducing waste as well as energy efficiency and landscaping planning. Challenges continue in supporting faculty in sustainability research and incorporating sustainability in academics.



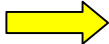
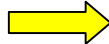
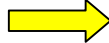
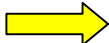
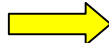
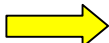
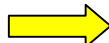
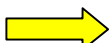

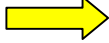
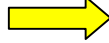
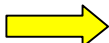
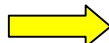
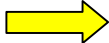
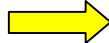
The Sustainability Advisory Committee will continue to oversee the progress of implementing the Sustainability Plan. The full report is available on the Sustainability Website:

<http://www.macalester.edu/sustainability/sustainabilityplan/MacalesterSustainabilityPlanDec2011.pdf>.

Comments on the plan or this annual report should be directed to the Sustainability Office at sustainability@macalester.edu. If you are a student or faculty member, the Potential Student Projects List includes some ways that you or your class can get involved with the Sustainability Plan <http://www.macalester.edu/sustainability/studentprojects/possibleprojects.html>.

	2011 progress	2012 progress*
Leadership Goals		
Achieve climate neutrality by 2025		
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 Goals		
Incorporate sustainability principles and practices into all construction and renovation projects, thereby reducing Macalester's carbon footprint and demonstrating the college's environmental commitment.		
Invest in energy efficiency and switch to carbon-neutral fuel sources		
Reduce the amount and improve the efficiency of potable water use on campus		

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.		
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.		
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.		
Reduce emissions from campus vehicle through low carbon fuel alternatives and vehicle efficiencies.		
Maintain grounds in a sustainable and educational manner while providing green space for recreation and events.		
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.		
Achieve zero waste by 2020 and reduce toxicity of waste.		
Seek and create purchasing options that minimize Macalester College's costs and promote a positive ecological and social impact.		

Education Goals		
Increase the number of students exposed to sustainability through academic work		
Incorporate sustainability in student learning outside the classroom.		
Provide students with information about sustainability career options by connecting alumni with Macalester's sustainability programs and goals.	New goal in 2011	
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		
Ensure systems, processes, and staffing is in place to accurately implement, monitor, and communicate Macalester's sustainability efforts.		
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.		
Encourage innovation and creativity in the sustainability area by rewarding and recognizing action.		

*Note: Goals changed slightly in the 2011 Sustainability Plan Revision