University of Minnesota
2009 Campus Sustainability Reports
November 2010
Report to the Board of Regents
from
University of Minnesota Strategic Sustainability Committee Co-Chairs
Chancellor Jacqueline Johnson, U of M Morris
and
Vice President Kathleen O’Brien, University Services
# 2009 Campus Sustainability Reports

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A. *University of Minnesota Systemwide Sustainability Goals*

B. *Campus Sustainability Committee Information*

C. *Preliminary Assessment Goals Progress by Campus*
“Sustainability is a continuous effort integrating environmental, social, and economic goals through design, planning, and operational organization to meet current needs without compromising the ability of future generations to meet their own needs.”

Introduction

In 2009, the report *University of Minnesota Systemwide Sustainability: Goals, Outcomes, Measures, Process* was presented to the Board of Regents. Each campus also provided an overview of their sustainability programs. During the past year the work on each campus has continued and the attached reports highlight a few program activities. The goals from the report are presented in Appendix A.

In 2010, President Bruininks charged a new standing Systemwide committee, the *University of Minnesota Strategic Sustainability Committee* to align implementation of the Regent's policy across the university system. Committee membership is presented in Appendix B. This is a unique effort aimed at systemwide strategy and coordination. The committee is comprised of faculty, students and staff from across our campuses. One of the recommendations of the Systemwide Sustainability report was to have regular updates to the Board of Regents on progress. The information presented here provides a few examples of where we are on our path to becoming a stronger and more sustainable institution – whether it is through modeling solutions in our campus operations, by contributing to our communities through education or in our research focused on the big vexing problems facing our society and our world.

The comprehensive nature of the Regents’ policy supports decisions that will create healthier communities for the people of the state of Minnesota through a balance of our social, economic and environmental needs. The University of Minnesota campuses are as diverse as our state. The people, places and priorities reflect a convergence similar to the four biomes of our state - prairie, deciduous forest, boreal forest, tall grass aspen forest. Environmental stewardship is a strong existing foundation that will help us integrate the more complex aspects of sustainability into our land grant mission. The Board of Regents Policy: *Sustainability and Energy Efficiency* provides the guiding principles to help move us more thoughtfully together while ensuring that campus priorities are met. The policy guides us and has also become a model for other institutions around the country seeking to take a more comprehensive system approach to their sustainability programs.

During the past year, the University of Minnesota campuses continued their work to become more sustainable campuses. Understanding and communicating the work we are doing remains one of our challenges.

The reports presented have a strong emphasis on operational aspects. In many ways, we recognize this information is easier to measure and report. Some campus operations metric systems are mature due to existing data gathering and reporting. For example, our energy use greenhouse gas emissions are verified by third party review for Chicago Climate Exchange participation. Estimates of other type of emissions – for example, commuter data - are less rigorous.

Like other campuses around the country, gathering comprehensive information to report on areas of research and education that integrate sustainability concepts is a challenge, in part due to our size and decentralized nature, in part due to the absence of clear and simple systems for “counting” curriculum
and co-curriculum initiatives, and in part due to the absence of agreed upon categories for coding sustainability research. Even with these challenges, there is considerable evidence to demonstrate the presence of curriculum, co-curriculum, research and outreach activities related to sustainability in the University of Minnesota system. Here are a few examples:

Curriculum Highlights

- A sustainability minor on the Twin Cities campus and under consideration at Crookston
- A graduate sustainability program is in early stages of development on the Twin Cities campus
- Environmental Studies and Environmental Science majors at Morris and at Duluth
- A Natural Resources major at Crookston
- Numerous majors in various schools on the Twin Cities campus related to the environment, environmental design, engineering, etc
- Opportunities to consider the relationship between the environment and health at Rochester
- Biomass/gasification course in Morris, developed in partnership with MNSCU technical college faculty and researchers at the West Central Research and Outreach Center and USDA Soils Lab
- An assessment for a Sustainability Certificate program has been initiated in Duluth and at Twin Cities through the College of Continuing Education
- A multidisciplinary group of faculty in Duluth are working on a Sustainable Operations graduate program, which was approved as an Interdisciplinary Graduate Group

Co-curriculum Highlights

- Undergraduate research opportunities available in environmental, renewable energy, and sustainability areas on four out of five campuses
- Minnesota GreenCorps programs at Crookston, Duluth, and Morris
- A host of student organizations focused on environmental and sustainability issues on all campuses
- Students engaged in conservation and recycling efforts on all campuses
- Student artistic production related to sustainability and climate change—video, theater, and art—at Morris
- Sustainability themes are infused into Welcome Week at Duluth and Twin Cities
- Duluth holds a Sustainability Fair each semester focusing on topics such as energy, food systems, art and design, transportation, and more

Research Highlights

- $24.8 Million for renewable energy efforts from the Institute on the Environment and the Institute for Renewable Energy Initiatives, supporting research across the University system, including the Outreach Centers
- Research to support the development of “nature nooks” at Crookston
- Wind policy and other renewable energy research at Morris
• Engineering, science, design, and architectural research on Twin Cities campus
• Law School program on energy policy
• The Malosky Stadium Solar Research Project in Duluth was led by undergraduate students in Duluth's Electrical Engineering program
• The Center for Water and the Environment at Duluth’s Natural Resources Research Institute is a regional leader in water research
• Duluth launched a Sustainable Development Research Opportunity Program (SDROP) to provide students an opportunity to work closely with northeastern Minnesota communities on projects

Outreach Highlights

• Efforts to support home owner energy audits on the Twin Cities campus
• Morris’ new “Carbon College”, an umbrella concept that covers a host of activities, credit bearing and non-credit bearing intended to provide educational opportunities for interested citizens
• Crookston’s partnership with community on energy audits
• Duluth is an active partner in the Regional Stormwater Protection Team, through UMD Facilities Management, Sea Grant, and Natural Resources Research Institute
• The Center for Water and the Environment at Duluth's Natural Resources Research Institute is a regional leader in watershed and stormwater outreach
• The Regional Sustainable Development Partnerships and Clean Energy Resource teams support successful Community – University partnerships working on local food economy and community energy reduction, such as MN Schools Cutting Carbon

Additional details are provided for each campus in the summaries provided with this report. The summaries highlight campus specific programs that support the goals proposed in the 2009 report, University of Minnesota Systemwide Sustainability: Goals, Outcomes, Measures, Process. These goals were developed to help implement the Regents policy; alignment with key goals is noted in the reports.

In addition to providing these campus reports, a preliminary analysis of the focus of current work underway at each campus in relation to the goals was initiated. This preliminary analysis is presented separately in Appendix C. It is a starting point for our committee in filling in gaps of information especially related to the great work being done in our research and education areas.
System Highlights

Climate Action Planning
This year our campuses are developing the initial climate action plans that will influence our work for the next 40 years. This is a significant effort at all our campuses, with widespread impacts and completion of this task is a 2010 priority for our sustainability and energy management teams.

In 2008, President Bruininks signed the American College and University Presidents Climate Commitment (ACUPCC), which commits the University to achieve climate neutrality as soon as possible. Jacqueline Johnson, Chancellor at the Morris campus was a charter signatory, signing before March 2007. This commitment is aligned closely with the direction set by the Board of Regents Policy: Sustainability and Energy Efficiency along with work of the Institute of the Environment and energy-focused research at IREE (Initiative on Renewable Energy and the Environment). University Presidents around the country united around the scientific consensus regarding the anticipated serious adverse impacts of global warming. The commitment acknowledges the important role for universities to play in research, education and modeling solutions to help achieve significant reductions in greenhouse gas emissions.

The largest source of our university’s greenhouse gas emissions are from the combined electricity purchases and onsite energy generation, so our work in energy conservation and the investments we make in energy research are critical to our success. State and federal policies related to expanding renewable electricity generation and transmission are also a factor in meeting these goals. Additional tables following the Introduction show the relative greenhouse gas emission by type and also weighted for building square footage.

The University of Minnesota campuses are still defining all the practical and innovative actions needed to meet this commitment. However many schools around the country have completed plans that include conserving energy, installing renewable energy options, generating energy through onsite energy production, sequestration projects using owned land and also creating offsets through local community investments. There are student and community groups with interests in specific aspects of our climate action plan - for example, the use of coal as a flexible fuel source. The path to achieving climate neutrality has regulatory, policy, budgetary and personal implications that will require innovative research and creative solutions over many years. Initial climate action plans are being developed at all our campuses with input from our campus communities and beyond.
ACUPCC Milestones and Information

<table>
<thead>
<tr>
<th>Campus</th>
<th>Initial Greenhouse Gas Emission Inventory (Data year)</th>
<th>Est. Greenhouse Gas Emissions Reported (Metric Tons CO2 equivalent)</th>
<th>Climate Action Plan Status and Climate Neutrality Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crookston</td>
<td>Complete (2009)</td>
<td>12,500</td>
<td>Complete Climate Neutrality Target 2030</td>
</tr>
<tr>
<td>Duluth</td>
<td>Complete (2009)</td>
<td>56,500</td>
<td>In process</td>
</tr>
<tr>
<td>Morris</td>
<td>Complete (2007)</td>
<td>11,900</td>
<td>Complete Climate Neutrality Target 2010</td>
</tr>
<tr>
<td>Rochester</td>
<td>Complete (2009)</td>
<td>200</td>
<td>Complete Target date to be determined</td>
</tr>
<tr>
<td>Twin Cities</td>
<td>Complete (2008)</td>
<td>643,000</td>
<td>In process</td>
</tr>
</tbody>
</table>

Source and more details found at: [http://acupcc.aashe.org/](http://acupcc.aashe.org/)

Green Building Highlights

Energy conservation and design for energy efficiency are critical elements of climate action planning. Space utilization and even reducing the number of buildings on campus is part of our conversation in how to reach these goals. When new buildings are needed, how we build them is just as important.

On the Twin Cities campus alone, building space has grown by nearly 20 percent in the past ten years, while maintaining a fairly flat carbon footprint. This has been done through dedicated energy conservation programs and ensuring new buildings are as energy efficient as possible. The State of Minnesota requires higher energy standards for bonded buildings. These standards, targeted to the unique regional cold weather conditions, are called B3 standards and generally require buildings to perform at least 30 percent better than a building built to code. The B3 standards were developed at the University of Minnesota’s Center for Sustainable Building Research.

A third party verification system called Leadership in Energy and Environmental Design (LEED) developed by the US Green Building Council (USGBC) has received high visibility and attention around the country as a way to demonstrate adherence to green building standards. Many states without their own standards have adopted LEED as their system for green building construction. At the University of Minnesota, a case by case decision has been made for LEED certification based upon local campus situations. Cost is one consideration to consider when applying for LEED certification, however there are examples of successful LEED projects that have managed the process with on campus LEED – certified resources and stayed within budget. While there are several LEED certified buildings, buildings that are not LEED certified may also incorporate features that go beyond LEED which are important to the campus locale – such as a glass feature intended to help reduce bird impacts. Recent published assessments of building performance show LEED certification does not guarantee the building performs...
as designed. Moving forward, the University of Minnesota intends to better communicate our state and university building standards to individuals, media and survey institutions that are familiar with LEED. (See Green Buildings Table at the end of the Introduction)

We do not need to look far to find expertise in energy policy or energy technology across our university system. Likewise resources for green buildings are found on our Twin Cities campus and serve both the Twin Cities and communities around the state. The Center for Sustainable Building Research (CSBR) and the College of Design are recognized for their expertise and programs such as the community resilience design programs that support communities around the state. The Sustainability Track of the Masters of Science program in Architecture is an example of curriculum integration of sustainability and providing future graduate with knowledge about designing more sustainable buildings.

**Minnesota GreenCorps Jobs**

In 2009, the University of Minnesota Morris campus and the Minnesota Pollution Control Agency (MPCA), in partnership with AmeriCorps and ServeMinnesota launched a new program to protect and preserve Minnesota’s environment while developing the next generation of environmental professionals. Minnesota GreenCorps, an environmentally focused AmeriCorps program administered by MPCA, helps communities conserve energy, reduce waste, and, through proper recycling and conservation education, reduce the amount of toxic chemicals discarded. As of 2010, GreenCorps positions are also located on the Crookston and Duluth campuses. These environmental professionals are working on projects both on campus and in the surrounding communities and towns – supporting the education and outreach mission of our university.

**Measurement**

One of the goals of our systemwide sustainability effort is to establish metrics to track our progress. The report to the Regents contains 35 goals and 95 proposed measures and outcomes. A more comprehensive measurement system also will communicate about our programs and progress.

The Association for the Advancement of Sustainability in Higher Education (AASHE) is a resource of schools around the country and has taken on a challenge from their membership to develop a metric system for sustainability in higher education to help schools deal with the numerous subjective surveys coming from various third party organizations. AASHE developed a peer-reviewed transparent metric system that was piloted at over 60 schools in the past two years. The metrics system, Sustainability Tracking and Reporting System (STARS) was launched at the beginning of 2010 to help campuses deal with the growing number of surveys and requests for data about campus sustainability programs. While not perfect, and acknowledged to be dynamic with updates occurring every two years, this metric system provides an initial mean to begin to gather data and report it on a campus specific basis. Many of the areas reported in STARS align directly with our goals and outcomes. One advantage of participating in this existing online reporting system is to help us determine where data is available or requires more robust systems to meet our long term reporting needs. Another advantage is that it will encourage development of common units of measure - current metrics across the campuses are difficult
to consolidate because the metrics are not always reported similarly. Twin Cities, Duluth and Morris are formally participating in the program to test it out and determine areas that may require improvement.

This effort is a significant resource priority for our campuses and requires the support of various department staff to provide the data for reporting. Much of the operations data is available while curriculum and research information requires more development.

**Research, Education and Outreach Metrics**

One of the first conversations of our University of Minnesota Strategic Sustainability Committee acknowledged that the available metrics and reports from our campuses were strongly focused on operations. The committee members note that the reports need to be broadened to provide a better view of our education, research and outreach on our campuses, at our Research and Outreach Centers, through our Extension Services, etc. While our faculty have received numerous awards and recognition and we have many stories and examples of work underway across our state, and even globally, there is not a good system for gathering and reporting this information. The AASHE STARS metrics also includes Education, Research and Outreach categories for reporting. However these metrics are not well-defined for a school of our size and breadth. One of our largest challenges in the next year is to find a way to gather and report this information and to provide feedback to AASHE about better ways to measure progress in these areas.

**Communications**

As noted, one of our challenges as a university and working as a system is how to communicate our work. There are efforts underway for a more coordinated communication approach – only two are highlighted here.

With content input from the systemwide sustainability team and aligned with the key guiding principles of our policy, a portal was developed by resources at the Institute on the Environment to aid in identifying university sustainability and environmental programs. This portal was launched in August 2010 with links to existing campus web sites on sustainability and will continue to be improved with input from across the university system. [http://portal.environment.umn.edu/](http://portal.environment.umn.edu/)

The University’s reputation as a sustainability leader is growing. In addition to key research areas of energy technologies, environment, policy, agriculture, water resources, biofuels, global land use, transportation and many other areas, our campuses have been given high marks and recognition in various surveys. Our sustainability staff is also being recognized for their knowledge and expertise. At the recent nationwide AASHE conference, from a field of about 725 submissions, eleven students and staff from Twin Cities, Duluth and Morris were accepted for presentations, posters and panels. [http://environment.umn.edu/news_events/press_releases/pressrelease_aashe10112010.html](http://environment.umn.edu/news_events/press_releases/pressrelease_aashe10112010.html)
**Moving Forward**

The U of MN Strategic Sustainability Committee met in May, August and September of this year. Through these meetings the group is becoming more familiar with the overall system efforts in the area of sustainability. The committee is in the process of defining and establishing teams to do the work identified as high priority for the next year.

The following initial priority areas and work plans ideas were proposed in the last meeting:

- **Learning and Curriculum**
  - Determine crucial outcomes, determine how to be useful and exciting to faculty, create pilots of richly experiential learning, develop a sustainability program to leverage the strengths of our systemwide approach

- **Communications**
  - Develop a communication plan that will include reporting the work of our committee, sharing certain information across campuses and help develop tools to gather information about our work across education, research and outreach
  - Initiate a more thorough conversation with representatives from our University research community to understand the breadth of work and identify synergies to achieve sustainability goals

- **Renewable Energy**
  - Increasing renewable energy use on campus

- **Purchasing**
  - For example, leverage purchasing across our system for bigger impact and cost savings related to green products

- **Student Engagement**
  - Define how students can encounter sustainability every day; identify and provide student leadership opportunities.

The newly formed committee is already a cohesive and energetic group committed to making a difference and encouraging the use of the principles of sustainability to help create a stronger institution for the future. This is the beginning of a journey to implement the policy.

As committee co-chairs, we are pleased to highlight a few key areas that have received and will continue to receive attention during the year. The attached campus reports highlight additional accomplishments.

Jacqueline Johnson, Chancellor of University of Minnesota Morris,
Kathleen O’Brien, Vice President of University Services
## Additional Campus Sustainability Metrics

### Green Building Examples

<table>
<thead>
<tr>
<th>Campus</th>
<th>Building</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crookston</td>
<td>Evergreen</td>
<td>First LEED-certified residence building in U of MN system</td>
</tr>
<tr>
<td>Duluth</td>
<td>Life Sciences</td>
<td>LEED – Silver</td>
</tr>
<tr>
<td></td>
<td>Labovitz School of Business and Economics</td>
<td>LEED – Gold. First LEED certified new higher education building in the state of MN.</td>
</tr>
<tr>
<td></td>
<td>Swenson Civil Engineering</td>
<td>LEED – Gold</td>
</tr>
<tr>
<td></td>
<td>Bagley Outdoor Classroom</td>
<td>First LEED Platinum building in the U of MN System, also followed Passivhaus energy efficiency standard</td>
</tr>
<tr>
<td>Morris</td>
<td>Welcome Center</td>
<td>Applied for LEED - Platinum certification; anticipated to be first Platinum Building on the National Register of Historic Places</td>
</tr>
<tr>
<td>Rochester</td>
<td>318 Commons (Includes Student Housing)</td>
<td>City Partnership through combined University and Commercial Space in city for positive community impacts</td>
</tr>
<tr>
<td>Twin Cities</td>
<td>TCF Stadium</td>
<td>LEED - Silver; First collegiate or professional LEED stadium in the country</td>
</tr>
<tr>
<td></td>
<td>Science Teaching and Student Services</td>
<td>Applied for LEED – Gold. Pending</td>
</tr>
</tbody>
</table>

Note: Leadership in Energy and Environmental Design (LEED)
**University of Minnesota Greenhouse Gas Emissions**  
**Energy Sources Only**  
*(Metric Tons CO₂ equivalent/1000 sq ft, 2007 to 2008)*

![Bar chart showing green gas emissions by scope for different University of Minnesota campuses.]

### Greenhouse Gas Emissions by Scope
(Percent of Total Campus Greenhouse Gas Emissions)

<table>
<thead>
<tr>
<th>Campus</th>
<th>Scope 1</th>
<th>Scope 2</th>
<th>Scope 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crookston</td>
<td>61.7%</td>
<td>32.8%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Morris</td>
<td>44.0%</td>
<td>39.2%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Rochester</td>
<td>3.1%</td>
<td>57.6%</td>
<td>39.3%</td>
</tr>
<tr>
<td>Duluth</td>
<td>34.5%</td>
<td>58.3%</td>
<td>7.2%</td>
</tr>
<tr>
<td>Twin Cities</td>
<td>31.5%</td>
<td>53.2%</td>
<td>15.3%</td>
</tr>
</tbody>
</table>

**Note:**  
Scope 1 = emissions related to on-campus energy and fleet  
Scope 2 = emissions related to purchased electricity, energy  
Scope 3 = emissions related to operating campus – commuter, air travel, etc.
### Waste Diversion Rates
(Percent Recycled Materials per Total Waste, by weight)

<table>
<thead>
<tr>
<th>Campus</th>
<th>Diversion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crookston</td>
<td>Not Available</td>
</tr>
<tr>
<td>Morris</td>
<td>20%</td>
</tr>
<tr>
<td>Rochester</td>
<td>In Process with Mall Owner</td>
</tr>
<tr>
<td>Duluth</td>
<td>42%</td>
</tr>
<tr>
<td>Twin Cities</td>
<td>40%</td>
</tr>
</tbody>
</table>
Introduction and Campus Overview
The Crookston campus is located in the Red River Valley, a prime agricultural region of northwest Minnesota, near where the prairie biome meets the forest to the east. The first development at the current site was an agricultural experiment station in 1895 followed by the establishment of a residential, agricultural high school in 1905. In 1966, the high school phased out and a two-year technical college was established, building on the experiential learning tradition. The agricultural experiment station continues to be co-located with the college and is currently known as the Northwest Research and Outreach Center, conducting research and outreach in agronomy, soils, plant pathology, and natural resources. The technical college transitioned to a baccalaureate institution in 1993 and has a current enrollment of 1,420. There are four academic departments: Agriculture and Natural Resources; Business; Math, Science, and Technology; and Liberal Arts and Education. The predominance of students are majoring in Agriculture, Natural Resources, and Business programs. Recent programs have been added in Biology, Criminal Justice, and Environmental Science. The smaller campus size facilitates collaborative teaching and students having an awareness of other disciplines and majors that may not be as obvious on a larger campus. Additionally, about 10 percent of on-campus students are international which can broaden the global perspective of the campus. There is a very active service learning program on campus which engages students with the broader community and makes education real.

The campus mission is: “The University of Minnesota, Crookston (UMC) is integral to the University's statewide land grant mission. The college provides its unique contribution through applied, career-oriented learning programs that combine theory, practice and experimentation in a technologically rich environment. UMC connects its teaching, research and outreach to serve the public good.”

The campus vision is: “The University of Minnesota, Crookston is unique in the region, providing access to world renowned teaching and research and serving as a regional hub for:

- undergraduate education leading to a University of Minnesota diploma
- technology applications in higher education
- innovation, entrepreneurship, and regional sustainability
- leadership development
- global and diverse cultural experience”
The comprehensive principles of the **Campus Master Plan** approved in 2010 are:

- Changes to campus lands and practices will achieve sustainability in design, construction, and operations activity.
- Investments in campus facilities will allow the campus to flourish as a complete community and a resource to the region.

Campus growth will be balanced between financial resources and goals for academic and environmental leadership.

**Chronology of Campus Events Related to Sustainability**

**2005** Fabian Pommier, French graduate student, conducts first campus energy audit. Sustainable Development Conference hosted on campus. Students conducted research projects with a sustainability theme. Strong campus support for sustainability initiatives by Linda Kingery, Executive Director – NW Regional Sustainable Development Partnership (NW RSDP) and is on-going.

**2006.** Campus sustainability seminars held. Development of Nature Nook and Shaver Butterfly Garden commenced as an illustration of native campus plantings.

**2007.** Biofuels and renewable energy major established.

**2008.** Chancellor Casey appoints Sustainability Committee with work groups in: Local foods; Recycling; Curriculum; Communication and Outreach; and Physical Operations. Moodle site established to communicate activities of Committee. Chris Waltz hired to complete Green House Inventory as part of American College and University Presidents’ Climate Commitment (ACUPCC) agreement signed by President Bruininks in 2008. UMC students form Crookston Students for Sustainable Development (CSSD), obtained $8,000 Clean Energy Resource Teams (CERTS) grant for planning of the new residence hall to be constructed according to LEED standards and sponsorship of sustainability speakers, establish “green fee” to fund student sustainability assistant, and support retreat for Crookston Student Association officers. Peter Phaiah conducts research on food waste effects of going tray-less in Food Service and commenced the promotion of recycling efforts which is on-going. UMC Students in Free Enterprise (SIFE) begins increased activity since sustainability is included in two of their required organizational themes to enter regional competition. Recycling bin management is begun by different student clubs.

**2009.** Greenhouse Gas (GHG) report completed in May 2009. Release time grant awarded for faculty landscape architect (Eric Castle) and an engineer (Brenda Miller) to complete campus stormwater management plan. Funding procured for climate neutrality plan preparation from NW RSDP – CERTS grant, UMC Chancellor’s office, and NW Minnesota Foundation. Chancellor Casey establishes Center for Sustainability. Evergreen Hall dedicated as first LEED-certified residence hall in U of MN system. UMC chosen to partner with Otter Tail Power Company for a Campus Energy Challenge to reduce campus energy use by 10-15 percent over a one and one half year period. UMC named a host site for inaugural
GreenCorps program and an energy conservation specialist was appointed (Chris Waltz). First student sustainability assistant hired (Lisa Gentele). Recyclemania engagement is coordinated by Peter Phaiah.

2010. Proposal to establish sustainability minor was developed and considered. Campus Master Plan approved with sustainability one of three comprehensive principles. UMC represented at Upper Midwest Association for Sustainability Conference in April at River Falls, WI. Action Plan for Climate Neutrality and Sustainability completed by U of MN Center for Sustainable Building Design and is awaiting Chancellor approval. UMC awarded host site for GreenCorps program – Green infrastructure, stormwater emphasis. Sustainability Committee being proposed as a standing committee of Campus Assembly. Energy Star appliance policy being considered. Separate building meters being installed to better monitor energy usage. Power profiler added to web site to display campus energy use.

The UMC Center for Sustainability
An overarching principle is that sustainability is definitely not status quo or stagnation; it is growth and vitality but operating in a sustainable fashion. The Center for Sustainability, in conjunction with the Northwest Regional Sustainable Development Partnership, will provide a focus for creative, interdisciplinary thinking about sustainability and innovation across the Crookston campus with students, administration, faculty, and staff. The operating principles are empowerment, inclusiveness, and synergy. The Center strives to provide assistance in sustainability best practices, curriculum integration of sustainability, and efficient energy use. The Center promotes grant writing to obtain extramural funding to support interdisciplinary, sustainability related education, research, and outreach programs; contributes to system-wide sustainability coordination and reporting requirements; provides sustainability outreach and liaison to the community; provides input to campus master planning to ensure the incorporation of sustainability principles in design and development; sponsors guest speakers and conferences to stimulate integrative, holistic thinking; and serves as a clearing house for sustainability information in the “Green Library” in Hill 109 and on the Sustainability web page. The Center will collaborate within the University of Minnesota system (U of MN Systemwide Sustainability- Goals, Outcomes, Measures, and Process Report, September 2009), other academic institutions, and the greater community; and with a sustainability focus of applied research, service learning, outreach, and campus infrastructure. With this expanded view, UMC will still be the best of what it has been, and is, but even more. We will ensure that our graduates have an academic experience that is forward thinking to prepare them for a changing, culturally diverse, and interconnected world; but in a campus community that physically and philosophically demonstrates sustainability. The campus will actively incorporate “sustainability into its teaching, research, and outreach and the operations that support them” (Regent’s Policy on Sustainability and Energy Efficiency, adopted 7/04).

Sustainability as a Unifying “Communiversity”\(^1\) Theme for UMC

\(^1\) Communiversity is a composite term including a community and its university and suggests a sharing of resources and a striving for synergy in meeting the needs of its citizens and students.
Sustainability is broad in its application and ranges from saving energy, to promoting local food, and to promoting and teaching about renewable energy. The latter increases our independence as a nation while improving our balance of trade and reducing pollution which can improve public health and the biotic integrity of our world. UMC continues to increase synergistic relationships with the local community through service learning, assisting with community development initiatives, and by its presence serving as an economic engine. For example, GreenCorps energy specialist, Chris Waltz helped the city of Crookston garner nearly $100,000 to offset the cost of installing energy-saving LED street lights. Similarly, he assisted with identifying lighting changes in UMC’s gymnasium, livestock facility, greenhouse, and fitness center which will result in substantial energy saving with a payback around two years. New state regulations are being proposed regarding stormwater management and discussions are in progress with the city of Crookston to evaluate the use of stormwater retention basins and rain gardens to address a problem while providing community amenities. This will be the focus of UMC’s newest GreenCorps specialist along with working with a campus stormwater plan. UMC is already engaged in cooperative, sustainability initiatives with the community that are noteworthy and perhaps theme-worthy as we consider ways to promote and unify our “communiversity.” Public engagement is an increasing priority within the University and these are bragging points of real world examples which we can promote to students and our constituency as we strive for relevant education. Students like to be involved in making a difference.
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Introduction

The University of Minnesota Duluth is located at the western edge of Lake Superior in northeastern Minnesota. The area’s climate demands a long heating season of the campus heating plant, which is powered by natural gas boilers. The air conditioning season is shorter, but campus chillers are electrically powered. Electricity is supplied by Minnesota Power and mainly generated by coal-fired power plants. Electricity purchases are the largest source of greenhouse gas emissions for the campus; natural gas is second. The energy used to heat, cool, and power buildings on campus contributes over 90 percent of the campus carbon footprint; therefore, buildings are a large priority for sustainability activities at UMD.

Executive Summary

Energy conservation and energy efficiency are high priorities for UMD in their quest to reducing the energy intensity and greenhouse gas emissions from campus buildings. Starting in the 1980's with a visit from Amory Lovins, an energy efficiency expert, UMD began conserving energy by scheduling and operating buildings more efficiently. Energy retrofits for buildings followed: lights, fans, windows, and rooftops. These efforts continue today, with leadership from both the Building Systems Operation Center and UMD Facilities Management. [Energy Efficiency Goals 1, 2, and 3]

With a nearly 40 percent increase in campus square footage in the past decade, building energy-efficient buildings has been a necessity to keep energy use and greenhouse gas emissions in check. With leadership from Facilities Management, the campus gained its fourth LEED certified building, the Bagley Outdoor Classroom, a building that also met the rigorous Passivhaus energy efficiency standards. [Operations Goal 3; Leadership and Modeling Goal 1, 3]

Engaging the campus in energy conservation makes a difference. Over the 2008-2009 winter break, UMD leadership asked the campus community to pitch in by encouraging staff to take vacation and reporting departments that were closed over the entire break. Buildings were scheduled to be cooler and less ventilated, so people who planned to be on campus were asked to prepare for cooler temperatures. Students have also led carbon reduction activities, ranging from taking part in a solar research project at Malosky stadium, attending sustainability fairs and events, volunteering on the Student Sustainability Coalition- including an energy audit of three UMD buildings and Bike-to-School events, working on class projects focused on campus operations, or interning/working with the UMD Office of Sustainability on resource conservation. The UMD Sustainability website, AddingUptoZero.com
blog, and campus announcements all help to keep the entire campus community informed and engaged.  
[Energy Goal 1, 2, 3; Communication Goal 1; Research Goal 5]

Stormwater management is a leadership area for UMD. The campus location—set in two Lake Superior tributary watersheds, one of which is a trout stream—makes controlling runoff and pollution important. In 2005, a large rain garden was built on campus that is a popular destination for stormwater professionals and community members to learn about stormwater best management practices. Additional rain gardens and runoff treatment methods (green roofs, pervious pavers, biofiltration, underground storage) have been added, along with continued partnership with the Regional Stormwater Protection Team and the LakeSuperiorStreams.org website.  [Operations Goal 1]

In addition to energy and stormwater, the UPASS program is a popular and sustainable transportation option with UMD students. The UPASS allows ridership of all full-time students, staff, and faculty on the Duluth Transportation Authority bus system. The UPASS is currently provided to free-of-charge.  [Operations Goal 3]

Key successes for UMD Sustainability

- Reflective of efforts to conserve energy, treat stormwater runoff, purchase green materials, and minimize water use, UMD earned LEED certification for new construction for the four most current buildings to be opened on campus: Life Sciences: LEED Silver, Labovitz School of Business and Economics: LEED Gold, Swenson Civil Engineering: LEED Gold, Bagley Outdoor Classroom: LEED Platinum.  [Operations Goal 1]
- While total greenhouse gas emissions has increased slightly from 2007 until 2009 (3.2 percent increase), the intensity of energy (per 1,000 net square feet of campus buildings) has decreased slightly (-3.32 percent.) See UMD Greenhouse Gas Emission Intensity graph below.  [Energy Goals 1, 2, 3]
- Over the 2008-2009 winter break, UMD realized $18,399 in utility savings over the 11-day period due to curtailment of energy use by turning down building heat and ventilation that were either unoccupied or sparsely occupied over break.  [Energy Goals 1, 2, 3]
  - Natural gas use in the campus heating plant was reduced by 2,151 million cubic feet: a reduction of 113 metric ton of greenhouse gases- or 13 percent - over the same period last year. Electricity use was reduced during this period by 79,196 kilowatt-hours, a reduction of 65 metric tons of greenhouse gases, 6.3 percent below the same period the previous year.
- The Bagley Outdoor Classroom building was built to meet a remarkable level of energy efficiency, water conservation, and waste reduction. The building is used as a base for education and research for many UMD classes (biology, environmental science, outdoor education, etc), however the building itself is a teaching tool as it has many unique and sustainable features. See http://www.duluth.umn.edu/sustain/green_buildings/bagley_tour.pdf  [Leadership and Modeling Goal 3]
- UPASS ridership grew quickly and reached a sustained level of nearly 100,000 rides per month during the busiest season. Total ridership on the Duluth Transit Authority through the UPASS
has exceeded three million, contributing to nearly 50 percent of total student commuting miles being by bus instead of single-occupant vehicles. **[Operational Improvements Goal 3]**

Future progress at UMD will include the creation of a climate action plan (UMD Energy Plan), through the UMD Sustainability Committee, which will outline a path for the campus to reduce energy use and greenhouse gas emissions (expected submission date to the American College and University Presidents Climate Commitment: December, 2010.) Challenges for progress at UMD include the long heating season, the electricity use for air conditioning of buildings, the need to meter individual buildings (difficult for the connected layout of the UMD campus), and reducing energy use despite a growth in student enrollment and an increase in square footage of campus. Funding for energy efficiency projects in the past has been provided by UMD Facilities Management and the **Higher Education Asset Preservation and Replacement** funds; however future energy reduction projects will require additional funding sources.

**Metrics for UMD Sustainability**

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**UMD Greenhouse Gas Emissions from energy sources, 2007 - 2009**

<table>
<thead>
<tr>
<th>Year</th>
<th>Metric Tons of CO2-equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>50,922</td>
</tr>
<tr>
<td>2008</td>
<td>52,146</td>
</tr>
<tr>
<td>2009</td>
<td>52,548</td>
</tr>
</tbody>
</table>

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- **Electricity**
  - 2007: 32,936 Tons
  - 2008: 32,535 Tons
  - 2009: 33,401 Tons

- **Gas**
  - 2007: 17,986 Tons
  - 2008: 19,611 Tons
  - 2009: 19,147 Tons
UMD Greenhouse Gas Emission Intensity
from energy sources, 2007 - 2009

Other metrics:

- Total square footage of LEED-certified buildings at UMD:
  - 192,260 sq. feet
- Student modal split (in miles driven) for 2007
  - Single Occupant Car: 2,715,339 miles
  - Bus: 2,018,445 miles
- Energy use for 2009
  - Electricity use: 40,426,642 kWh,
  - Natural Gas (heating plant): 361,884 MMBTU
- Greenhouse gas emissions per student (in metric tons of CO2-equivalent):
  - 5.0 metric tons of CO2-equivalent per student
UMD Campus Waste 2007

- Recyclables: 40%
- Solid Waste: 60%

UMD Campus Waste 2008

- Recyclables: 35%
- Solid Waste: 65%

UMD Campus Waste 2009

- Recyclables: 42%
- Solid Waste: 58%

Note: Food waste recycling data not included for 2007-2009 recycling numbers
UMD 2007 Commuting

- Students: 2,018,445 miles
- Faculty/staff: 146,503 miles

Total: 2,164,948 miles
Introduction
The University of Minnesota, Morris, is situated in a unique location in west-central Minnesota. The City of Morris is the county seat of Stevens County and is on the Minnesota prairie. The region has many important assets. The soil is young and productive despite the short Minnesota growing season, and if you visit in summer you will see corn and soybeans from horizon-to-horizon in each direction. To reach Morris, you would travel Interstate 94 for about one-and-a-half hours northwest to Sauk Centre, and then travel west on a county road for one hour. From a distance outside of Morris, you would see a glance of the University of Minnesota wind turbine, situated on a glacial ridge above the Pomme de Terre River, located at the U of M West Central Research and Outreach Center. The region is rich in natural resources, great soil, abundant biomass and sun, and winds that spin turbine blades and discourage mosquitoes.

The history of this region and campus are equally rich. Since the late 1800s, this campus has been a place of learning. It began life as an industrial boarding school for American Indians, under the auspices of the Sisters of Mercy. The experiment of integration began to falter in the early 1900s and the federal government stepped in to continue it until about 1910. During the next fifty years, the land and buildings became home to the West Central School of Agriculture, transmitting important skill and knowledge to regional youth for decades. Many graduates of the WCSA are still living in the region and proud of its heritage. In 1960, the educational experiment in Morris evolved again, and the lands became the University of Minnesota’s first and only public liberal arts college. For the past forty years, the University of Minnesota, Morris has served a dedicated population of students seeking a small, residential college experience with a focus on teaching excellence. Today the Morris campus serves about 1700 students seeking an undergraduate education. The campus does not offer any masters or doctoral degrees. We have the highest percentage students of color in the U of M system. Our student body is 20 percent students of color, 12 percent of whom are American Indian. Our student body travels widely and has been nationally recognized for their adventurousness. Our students are serious scholars, with large percentages of the body taking part in undergraduate research, scholarly and creative work and eventually, attending graduate schools to pursue their educations.

In the past decade, the connections between how we live, how we treat our land and natural resources, and how intertwined these considerations are has never been clearer. In our 1973-1975 bulletin, it reads, “UMM is in the continual condition of “becoming,” changing as the vision of its participants changes, reflecting as an institution the ceaseless learning which is life both to community and to
educated women and men.” Today this learning has come full circle and connects liberal arts learning to the themes of sustainability. Our new campus tagline for Morris campus reads, “A renewable, sustainable education.” As a campus community we are working to infuse our curriculum, co-curriculum and campus life with opportunities to ask big questions, and find big solutions. Together, our history and regional abundance provide a unique opportunity and place for students to explore these questions, the ethic of sustainability, and their own educational and personal development.

Executive Summary and Narrative
There are several drivers that have helped to advance sustainability efforts. A shared campus governance process at Morris engages members from our entire community. Students, faculty and staff are all involved with helping to shape the campus culture and identify priorities. We have had excellent relationships across these groups, and excellent leadership emerging from all of these groups. In total, our sustainability initiatives on campus touch nearly all aspects of campus life.

Leadership and Modeling
Morris campus has taken a leadership role in helping to demonstrate and promote sustainability, energy production and conservation, and producing sustainability leaders. The Morris campus strategic and master plans feature sustainability and energy production and conservation components. Morris campus is a charter signatory of the American College and University Presidents Climate Commitment. Morris campus was pilot site and is charter signatory of Association for the Advancement of Sustainability in Higher Education STARS program, a sustainability tracking and rating system. Morris campus participated in a Rocky Mountain Institute Advancing Campus Climate Initiatives project and was featured as a campus leader. In 2006, Morris campus hired the first sustainability coordinator in the U of M system. Morris campus Chancellor Jacquie Johnson is a member of the AASHE Board of Directors. Vice-Chancellor Lowell Rasmussen is a board member of the American Council on Renewable Energy Higher Education Steering Committee. Morris campus Center for Small Towns collaborated with MPCA to create a new AmeriCorps program in Minnesota, the GreenCorps. Morris campus is a charter member of the Pride of the Prairie, one of the longest running local food programs in Minnesota Higher Education. We are currently advancing a Morris Healthy Eating Initiative to bring even more local, sustainable food to the table of students and citizens. And our students are actively engaged in all of these initiatives and creating new ones. [Leadership and Modeling Goals 1, 2, 3, 4, 5, 6]

Operations and Energy Efficiency
Our operational work has examined everything from what we eat, to how we heat, to what we drive. Morris is currently implementing an energy service contract (ESCO) to improve the campus’s conservation efforts, which includes building improvements, equipment upgrades, more efficient lighting and windows, and new renewable energy technologies. At Morris you can see and experience, wind, biomass, solar thermal, solar PV systems, and more. Our newly renovated and historic (it is on the National Registry of Historic Places) Welcome Center is on track to becoming a LEED-Platinum certified building, which would make it one-of-a-kind. We have plans to build a green residence hall in the near future, the Green Prairie Living and Learning Residence Hall. We are converting our transportation fleet
over to hybrids to conserve fuel and lower greenhouse gas (GHG) emissions. And we continue to improve our food system, we have no trays in the dining hall at Morris, and we continually are increasing our local food supply.  

[Operations Goals 1, 2, 3, 4]

Research
Morris faculty and students are engaged in a variety of research areas that connect to our sustainability mission. In the past few years, Morris has launched a new Environmental Studies and Environmental Science programs to encourage multidisciplinary collaboration. Recently, the Morris Environmental Studies department participated in the Engaged Department Program through the U of M system, identifying ways that their research could impact community needs. One faculty member in Environmental Studies and Economics and Management, Dr. Arne Kildegaard has realigned some of his research to help understand the benefits and tradeoffs of community versus corporate wind projects. He was sought by the Minnesota Legislature to give testimony about this topic. Faculty members have performed other community engaged research in collaboration with the Center for Small Towns addressing pressing needs of communities. A sampling of other research at Morris includes: investigations into antibacterial resistance at organic versus conventional dairies, synthesis of new materials for LEDs, new synthetic paths for making ammonia, nature inspired poetry and other creative works, investigations into the effects of climate change on the prairie, local food systems, and more.

[Research Goals 1, 2, 4, 5]

Education and Outreach
Our outreach and educational work continues to evolve. Morris offers green energy tours to many visitors each year from both educational and business sectors. We have made sustainability and energy a part of our everyday activities, incorporated into our new faculty and student orientation experiences on campus. Students and student groups have played a catalyst role in creating new opportunities that reflect this change. Students help lead our on campus recycling program. We have a sustainability floor in our residence halls. Our students lead a month-long sustainability-themed February each year. Morris has developed new educational opportunities, too. The past two years we offered a renewable energy course focused on biomass gasification and this year added an industry short course on biomass gasification. And we have helped launch a new GreenCorps program. Morris was the first campus in Minnesota to engage undergraduate students in this GreenCorps program. This program engages with schools and local units of government to improve their environmental performance. Finally, engaged students in 2010-2011 have helped to write grants and secure funding for a solar thermal system on the Regional Fitness Center in Morris.

[Education and Outreach Goals 1, 2, 3, 4]

Communications
Morris has worked to improve sustainability messaging across campus and with outside audiences. We have developed a new sustainability piece that will help communicate our efforts with new and existing students and other audiences. Recent marketing work about Morris students and alumni has led to a
new rebranding effort, featuring sustainability. And students helped to lead a sustainability messaging campaign on campus with support from Beautiful U. We are working to improve our website and available information about our efforts. [Communication Goals 2, 3]

Metrics for UMM Sustainability

<table>
<thead>
<tr>
<th>Energy Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gas Use, mmbtu</td>
<td>76%</td>
</tr>
<tr>
<td>Oil Use, mmbtu</td>
<td>2%</td>
</tr>
<tr>
<td>Purchased Electricity, mmbtu delivered</td>
<td>22%</td>
</tr>
</tbody>
</table>
2008 UM Morris Campus Energy Source Breakdown

- Biomass, mmbtu: 65%
- WT-1 Generated Electric, mmbtu out: 15%
- WT-2 Generated Electric, mmbtu out: 12%
- ST-1 Generated Electric, mmbtu out: 5%
- Purchased Electricity, mmbtu delivered: 14%
- Oil Use, mmbtu: 2%
- Gas Use, mmbtu: 4%

2010 UM Morris Campus Energy Source Breakdown

- Biomass, mmbtu: 58%
- WT-1 Generated Electric, mmbtu out: 12%
- WT-2 Generated Electric, mmbtu out: 12%
- ST-1 Generated Electric, mmbtu out: 5%
- Purchased Electricity, mmbtu delivered: 7%
- Oil Use, mmbtu: 2%
- Gas Use, mmbtu: 4%
Note:
Scope 1 (darkest green) = emissions related to on-campus energy and fleet
Scope 2 (mid level green)= emissions related to purchased electricity, energy
Scope 3 (lightest green)= emissions related to operating campus – commuter, air travel, etc.
Mission Statement
The University of Minnesota Rochester community strongly believes in the importance of gathering information with the intent of informing immediate and long-term practices that contribute to responsible resource utilization and environmental sustainability. UMR, as the newest campus in the University of Minnesota system, exists physically in leased space. Although we have limited control over decisions impacting our physical space, we strive to create sustainable policies and activities as we are able. Certainly, we have the unique ability to completely build and maintain our future campus within the new world of sustainable mindfulness.

Greenhouse Gas Emissions Mitigation Plan
The University of Minnesota Rochester has an excellent record of contributing extremely low amounts of carbon to the atmosphere. In 2009, UMR contributed 0.6 metric tons of CO2e per full-time enrollment and 4.0 metric tons of CO2e per 1000 square feet. UMR is a new campus beginning only its second year of undergraduate education. Currently, we lease space in a shopping mall and utilize existing community resources for our needs. Our hope is that as we grow, we can protect the policies and initiatives that give us our current low-carbon status. Those policies/initiatives include:

- Continue to use community resources and infra-structure. For example, why should we build a dining hall when there are many varied food options within walking distance of our campus? UMR has also partnered with the Rochester Family Y to provide students with recreational and student activities space, along with student work/study employment.
- Continue to utilize technology to decrease our need to travel to other University of Minnesota campuses. We are part of a system; this requires us to pursue relationships with four other campuses. Fortunately, UMR has more ITV equipped rooms than any campus in the University of Minnesota system. In addition, we can easily communicate with others using UMConnect and PolyCom; we discourage driving to other campuses unless there is no other technological option.
- Continue to use only hybrid technology if driving is necessary. Also, we will continue to utilize an online reservation system to facilitate carpooling to off-campus meetings.
- Continue to purchase furniture made largely of recycled materials.
• Continue to use automatic light switches in all common areas.

• Continue our aluminum, plastic and paper recycling plan. We will work within the mall where UMR is located to expand recycling opportunities beyond UMR’s borders.

• Continue to utilize a state-of-the-art heating and cooling system of pumps to regulate temperatures over a 24-hour period.

• Continue to work with interested and energetic students.

And, the most important policy/initiative:

• Continue to plan future building and expansion with sustainability as a major factor. For example, UMR has entered into a public/private partnership with a local firm to develop a mixed-use retail, office, classroom and residential development.

UMR will have a master lease for six-floors of residential housing and two floors of classroom, office and student life activity space. The remainder of the building will house retail opportunities and one floor of non-UMR residential housing.

The construction began in May 2010 with completion scheduled for July 2011. The HGA (architects) design team is leading a process to achieve LEED certification for the facility. The LEED designation level will not be known until construction is complete and the review process finalized. The initial goal is to achieve the Silver level of certification.

The classroom and office furniture currently being considered for the 318 Commons academic and office space are Steelcase products. Each of the products under consideration is 74-95 percent recyclable and is made from 33-58 percent recycled material. UMR is also responsible for furniture in the outdoor plaza of the new building. It is currently considering outdoor furniture, trash bins and recycling bins made entirely from recycled plastic milk jugs.

The University of Minnesota Rochester has been working closely with community leaders, including the City of Rochester, to plan a downtown community to encourage living, working and learning in the downtown area. The effort, known as the Rochester Downtown Master Plan, includes elements designed to promote a reduced dependency on the automobile, establishment of open and green connected spaces for community health, and provide for a walkable downtown.

The plan recommends that these goals, and others, can be achieved through investments in a dedicated mass transit system to lessen the traffic pressure and parking requirements in the downtown core, uncoupling parking space requirements from downtown development to further encouraging integrating living, commercial and retail properties, as well as the redesigning of streetscapes and traffic flows to better accommodate walking and biking commutes.
Environmental Research
UMR is in its infancy in developing a research agenda. As of Fall 2010 UMR is in its second year of employing tenure-track faculty in its first degree program - the Bachelor of Science in Health Sciences (BSHS). The faculty have three components of concentration; education, research, and outreach. The research component's primary focus for all tenure-track faculty is teaching and learning, with a secondary focus on disciplinary research. The faculty's chief agenda through the 2012-2013 academic year is developing the curriculum for the BSHS program. A few of the faculty are beginning to explore research opportunities in teaching and learning and their focus on disciplinary research will begin in the future. UMR will report in each successive update to our Climate Action Plan on the status of current or future research being undertaken that focuses on climate neutrality and sustainability.

Sustainability and Health Science Education
Our signature undergraduate program, the Bachelor of Science in Health Sciences, is built with an integrated curriculum design model as a foundational principle. One of the themes that is used as an integration point is 'Environment and Health". Courses across the curriculum plan to coordinate content delivery on multiple aspects of the relationship between the environment (all dimensions: cultural, psychological, social, natural, physical), public health, individual health, politics of health, public policy and sustainability. For example, a topic such as "chemical toxins" might be addressed in chemistry, biology, sociology, history, statistics and ethics.

It is hoped that the broad curricular context in which this material is delivered will inform a broader contextual understanding of the issues related to the concept of environment in general and the natural environment specifically. From this perspective, students will develop a better understanding of the effects that global warming and other pressing environmental issues have on various aspects of their daily lives. They will understand that issues concerning the environment and sustainability are not simply outside of themselves and have little direct impact. Rather, the students should develop an appreciation of the direct effect that these phenomena and concepts have on their daily lives and personal health. Furthermore, the interdisciplinary approach to addressing environmental issues will assist student understanding of the variety of approaches that could be used to address these problems. Solutions and courses of action will be informed by student understanding that carbon neutrality and sustainability can and should be approached from disciplinary perspectives beyond biology.

Our educational model does not end at the classroom door. Once students appreciate the variety of steps that they could take, we will provide them with opportunities to form student organizations dedicated to contributing to decisions and actions. These organizations will provide a contact point to help educate other students, faculty, staff and members of the local community on carbon neutrality and sustainability.
Introduction
The University of Minnesota Twin Cities (UMTC or Twin Cities) campus is among the largest public research universities in the country, offering undergraduate, graduate, and professionals many opportunities for research and education. The campus is the oldest and largest part of the University of Minnesota system and is located in an urban setting in a major metropolitan area. UMTC is a small city with nearly 70,000 students, faculty, and staff. The Twin Cities campus is actually comprised of three distinct areas: East Bank, West Bank and St. Paul. The East and West Banks are on either side of the Mississippi River in Minneapolis. Four historic neighborhoods border the University and these neighborhoods along with businesses, neighborhood volunteers and university staff work together as part of the University District Alliance to help create a vibrant, safe, healthy and sustainable community. The St. Paul Campus is located in suburban city of Falcon Heights and with more green space that provides unique opportunities for sustainable campus practices. There are many long standing Twin Cities programs grounded in environmental stewardship. Three key successful operational programs that reflect our unique campus setting are in the areas of waste reduction, transportation and energy efficiency. The first recycling pilot started at the Twin Cities campus in 1983. The “quad” system implemented later was intended to make recycling easy while providing the greatest opportunity for high value return on recyclables. Currently 40 percent of waste is diverted to recycling or other uses. Transportation has also been a critical component of the Twin Cities campus operations for many years. More than 80,000 visitors are estimated at the Twin Cities campus each day – making it the third largest traffic generator in the state. Energy use reduction is a significant program due to the number of buildings and type of buildings – research laboratory buildings have a high energy use. In 2009, the annual energy/electricity cost for the Twin Cities campus was $45 Million dollars. Natural gas (over 70 percent) is the primary fuel source for steam production on campus. Coal is second at about 23 percent. Oat Hulls (3 percent) are also burned at the Minneapolis steam plant.

Summary
UMTC campus has demonstrated its commitment to sustainability and has made significant strides in implementing the Board of Regents policy. In a campus this large, with numerous and diverse activities underway, this summary report provides a snapshot of a few key achievements.
Administrative

The University of Minnesota System-wide Sustainability: Goals, Outcomes, Measures, Process Report was presented to the Board of Regents in late 2009. A result of a University-wide effort engaging students, faculty and staff from across the system, it presents goals and proposed measures to incorporate sustainability across the university’s mission. Key metrics are still in development - such as energy reduction – that will be reported regularly through the committee and to the President and the Board of Regents. The Twin Cities campus will establish baseline measurements using Association for Advancement of Sustainability in Higher Education Sustainability Tracking and Reporting System (AASHE STARS) as a framework. (http://stars.aashe.org/pages/about/) The University of Minnesota Sustainability Committee, Twin Cities Campus was formed to implement these sustainability goals at the Twin Cities campus. The two initial priorities for the UMTC Sustainability Committee are completion of the campus climate action plan to ACUPCC and metrics reports to AASHE. [Leadership and Modeling Goal 4]

External Recognition

The Twin Cities campus received the highest 2011 grade awarded in the Sustainable Endowments Institute (SEI) College Sustainability Report Card (A) and was one of only three schools to receive straight A’s in all nine categories. In 2010, the Twin Cities campus was named a 2010 Campus Sustainability Leader and in 2009, the Clean Energy Resource Teams of the Regional Sustainable Development Partnerships received the Champions of Sustainability in Communities award. [Leadership and Modeling Goal 1]

<table>
<thead>
<tr>
<th>Year</th>
<th>Grade</th>
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</thead>
<tbody>
<tr>
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<td>B-</td>
</tr>
<tr>
<td>2008</td>
<td>B</td>
</tr>
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<tr>
<td>2010</td>
<td>A-</td>
</tr>
<tr>
<td>2011</td>
<td>A</td>
</tr>
</tbody>
</table>

Interdisciplinary Research Example

The Institute on the Environment annually provides over $9 Million for interdisciplinary research related to renewable energy, global land use, freshwater and more. Since 2003, the Initiative for Renewable Energy and the Environment (IREE), a signature program of the Institute on the Environment, has provided nearly $24.8 Million for renewable energy research at the University of Minnesota. These funds have been used to leverage an additional $59 Million from a variety of sources including federal granting agencies, state government, and business and industry. [Leadership and Modeling Goal 2]

Operations

These are a few examples of operations sustainability initiatives. A new Purchasing Services Sustainability Policy leverages buyer power and supplier relationships across the university to encourage and increase purchasing that reflects the University's commitment to sustainability and promote
environmental factors.

University Dining Services (UDS) and Housing and Residential Life (HRL) are working on programs to increase use of locally purchased foods, recycling, and composting (including biodegradable packaging). Twenty percent of total food purchases in UDS are local; and 12 out of 35 dining facilities participate in composting. Sustainability initiatives already implemented in HRL include in-room recycling bins, energy and water conservation, and recycling/reuse during move-in and move out. HRL provides suggestions to incoming students on purchasing products with less packaging waste and energy efficient electronics.

Parking and Transportation increased transit ridership by 200 percent since 2000 by offering students, faculty, and staff subsidized low-cost, unlimited ride transit pass that is good on every bus and rail route in the Twin Cities. The program has been a tremendous success with more than 21,000 students using the U-Pass program every semester and 2,000 faculty and staff using the MetroPass, reducing more than 50,000 vehicle miles and saving more than 2,000 gallons of gasoline daily. The reduced driving also eliminates more than 400 tons of carbon monoxide and 4,500 tons of carbon dioxide emissions annually.

In the past year, the TCF Bank Stadium and Science Teaching and Student Services building were opened. The TCF Bank Stadium has an extensive stormwater control stem to reduce pollutants to the river – obtained LEED (Leadership in Energy and Environmental Design) silver certification. STSS was constructed to LEED Gold and contains innovative features like the energy recovery wheel. A sustainability tour map and signage was added in STSS to raise awareness of the sustainable building features.

[Operations Goals 1, 2, 3, 4]

Energy Efficiency

During the past year, significant effort was made to expand and focus the work already underway to implement energy conservation and energy efficiency measures. Students, staff and faculty showed a strong interest in energy matters. Facilities Management on the Twin Cities campus set a two year 5 percent energy use reduction goal, targeting $2.25 Million savings, by June 2010 and met it ahead of target. Over 25,000 tons of carbon dioxide equivalents were saved by the actions taken. 25,000 tons of carbon is approximately equivalent to twice the U of M Morris campus greenhouse gas emissions levels, or about the same as a campus the size of Macalester. The goal was met primarily through building recommissioning energy efficiency projects. An energy conservation goal for 10,000 pledges was set and reached. Nearly 400 unit/department pledges were also made. A new goal to save $2 Million dollars in the next year has been established. Several student groups self organized to form an Energy Efficiency Student Alliance to work with staff on building energy awareness. The students measure office energy use for each employee’s office and raise awareness about the energy use and vampire power. EESA has presented at regional and national conference, being recognized as leaders and a model for other schools. An Energy Conservation Operations Team was formed and is reducing energy use through various initiatives: green computing, lab hood standards, space utilization etc
The successful “It All Adds Up” campaign was expanded to include recycling and waste reduction and launched on Beautiful U Day 2010. A 5 percent increase in recycling rate has been set for 2012 - an additional 450 tons of recyclables. Student volunteers organized to help raise awareness about discarded recyclables in trash with a large scale garbage sort event at Coffman Memorial Union that received local regional and national press. [Energy Goals 1, 2, 3; Operations Goal 4; Leadership and Modeling Goal 1; Communications Goal 2]

Climate Action Planning
In 2008, the University of Minnesota committed to become climate neutral as a signatory of the American Universities and Colleges Presidents Climate Commitment (ACUPCC) but was already committed to reduce carbon emissions as a member of Chicago Climate Exchange since 2004. The UMTC has one of the largest carbon footprints of ACUPCC signatories. These emission levels are directly impacted by the type fuel used (coal, natural gas, biomass etc) and the number and types of buildings on campus. Greenhouse gas emissions are expressed in terms of Metrics Tons of Carbon Dioxide equivalents and reflect total energy use and energy mix (renewable vs. carbon based fuels). Standard protocols typically divide emissions into three categories called Scopes. Scope 1 are emissions directly owned or operated by the University; Scope 2 are emissions purchased or consumed by the University and Scope 3 are difficult to assess indirect emissions resulting from activities such as air travel and commuting. Figure 1 below shows the current split of emissions by Scope for UMTC.

Scope 2 emissions are currently the largest portion of UMTC’s greenhouse gas emission inventory due to the amount of electricity used and because our region gets a large part of electricity from coal. Scope 2 emissions are not under the University's control. They reflect the amount of electricity used and also factors like the state’s renewable energy goals – increasing wind and solar energy in the state. The University has numerous active programs to reduce Scope 1 and Scope 2 emissions in energy conservation, energy efficiency and is also investigating renewable and alternative energy fuel source options. Currently over 70 percent of fuel is natural gas. Scope 1 and Scope 2 emissions are reported, normalized for building square footage as a university metric. In Figure 2, Scope 1 is referenced as U of M Generated Steam and Scope 2 is called Xcel Generated Electricity. [Energy Goal 2, 3]

Education and Outreach
Office of Student Affairs, Orientation and First Year Programs is working with University Services and the Sustainability staff (in Education and Operations) to focus on communicating and modeling key sustainability practices during Welcome Week through workshops, and also by integrating them into events - zero waste lunch, getting students on bus and connector, working with corporate sponsors for more "sustainable" giveaways. In 2009 students and staff presented on the following areas - energy and energy conservation pledge tables, bike safety/bike courtesy workshop, living green on campus, info on alternative transportation - Zip Car, ZimRide, U-Pass, dining services composting and recycling and to provide student tabling to make connections with student groups as part of the Institute on the Environment Open House. There are approximately 20 student groups engaged in environmental and sustainability topics on campus, in the community and globally.
The Sustainability Studies Minor is one of the fastest growing on campus with over 300 students. Projects and internships support the living laboratory goals by providing service learning projects with university operations, community and local businesses. [Education and Outreach Goals 1, 2; Communications Goal 2; Operations Goals 3, 4]

Community Sustainability Partnerships
The University District Alliance which partners with the UMTC Minneapolis campus neighborhoods has partnered with Center for Energy and Environment Community Energy Services to help kick off a program of homeowner energy audits. As of Sept 2010, 118 home visits have been made in the University District neighborhoods. [Education and Outreach Goal 2]

Communications
One of the challenges faced at the Twin Cities campus is effectively communicating sustainability program successes and progress. In a smaller more intimate campus community those messages and events are prominent and may more easily receive high visibility in overall campus message. With high level administrative support and resources, the “It All Adds Up” campaign has become the cornerstone of communicating how the UMTC community can contribute to operational sustainability goals. Initiated as an energy campaign on Beautiful U day 2009, it was expanded to include recycling in 2010 and the next phase is planned to have Alternative Transportation goals.

Recognizing the challenge of ensuring a cohesive sustainability message to external audiences, in 2009 a priority was to establish a portal for the University. An Environment and Sustainability Portal was launched for fall semester 2010, development led by Institute on the Environment. Other media used for sustainability messages and event communication across the system is the University of Minnesota Sustainability Facebook page set up through University Services. Each campus was given administrative capability to add information to the page. Improved communications will continue as a focus in the next year including online feedback and input on climate action planning and other initiatives. [Communications Goal 1]
Metrics for UMTC Sustainability

- Scope 1 = emissions related to on-campus energy and fleet
- Scope 2 = emissions related to purchased electricity, energy
- Scope 3 = emissions related to operating campus – commuter, air travel, etc.

Figure 1: UMTC Greenhouse Gas emission, by Scope
Figure 2: Greenhouse gas emission, as metric Tons CO2, per 1000 Gross Square Footage
(Red line shows campus growth as Million GSF)

Population Density - Students, Staff, Faculty combined
30% live within two miles of campus
18% live within two to five miles of campus
52% live more than five miles away from campus

Travel Modes

Students, Staff, Faculty (combined)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bike</td>
<td>10%</td>
</tr>
<tr>
<td>Carpool</td>
<td>8%</td>
</tr>
<tr>
<td>Bus</td>
<td>27%</td>
</tr>
<tr>
<td>Walk</td>
<td>23%</td>
</tr>
<tr>
<td>Drive alone</td>
<td>32%</td>
</tr>
</tbody>
</table>

(October 2009 data)

Figure 3: UMTC Transportation – 2008-2009 Travel Modes;
Appendix A: University of Minnesota Systemwide Sustainability Goals

Leadership and Modeling
Goal 1: Be a national leader and pioneering model for sustainability and energy efficient operations among large public research land-grant institutions
Goal 2: Actively advance the transition to a sustainable world economy through research, teaching, outreach, and operations
Goal 3: Inspire and influence the community, nation, and world through innovative sustainable research and practices
Goal 4: Make significant continuous achievements toward sustainability goals and commitments
Goal 5: Embrace an organizational culture and individual decisions that support an inclusive, engaged, active, and sustainable healthy community
Goal 6: Meet all regulatory requirements and support the development of future regulations and policies through technical review, academic study, and practical experience

Operational Improvements
Goal 1: Plan, program, design, construct, and operate University of Minnesota facilities throughout their life cycle to provide restorative impacts to the natural environment and a healthy indoor environment for the University community
Goal 2: Integrate environmental, economic, and social priorities into purchasing and contract decisions
Goal 3: Use lower impact transportation alternatives that increase fuel efficiency, provide more sustainable fuel options, and help reduce the miles traveled on campus, to campus, and as part of the University of Minnesota enterprise
Goal 4: Manage resources for their highest end use by reducing consumption, minimizing waste, and strongly supporting the reuse and highest value recycling of unwanted materials

Energy Efficiency
Goal 1: Reduce energy use
Goal 2: Engage the University of Minnesota community in energy conservation
Goal 3: Pursue climate neutrality and energy efficient operations across the University of Minnesota
Goal 4: Adopt energy-related financial policies which enable the University of Minnesota to be socially, environmentally, and fiscally informed
Goal 5: Contribute to the development of progressive state and federal energy policies

Research
Goal 1: To advance sustainability, nurture cross-disciplinary collaboration and sharing of ideas and perspectives within and beyond the University
Goal 2: To advance sustainability, promote civically engaged, socially informed, and community responsive research and scholarship
Goal 3: To advance sustainability, instill sustainability principles in the research culture of the University of Minnesota; all levels of University leadership should embrace sustainability as a core pillar of the University’s mission
Goal 4: To advance sustainability, eliminate institutional barriers and disincentives to interdisciplinary and collaborative sustainability research
Goal 5: To advance sustainability, transform the University of Minnesota into a living laboratory for sustainability

Education and Outreach
Goal 1: Capture the land-grant mission: Sustainability is part of the educational or campus experience of each and every University of Minnesota student
Goal 2: Integrate service learning into the undergraduate and graduate experience, linking students, faculty, University of Minnesota Extension and community partners
Goal 3: Create and implement curricula and educational programs that address the interface of environment, society, and economy
Goal 4: Develop outreach programs for sustainability education of working professionals in the public and private sector

Communication
Goal 1: Create opportunity for dialogue to discuss global and local sustainability challenges, opportunities available, and the work of the University to advance sustainability
Goal 2: Develop and implement marketing/promotion efforts to engage those who may not be aware of sustainability-focused education, outreach, and research opportunities
Goal 3: Develop and maintain a transparent data management information system to enable decisions utilizing environmental, economic, and social factors
High Level Goals

The following high-level goals are distilled from the 27 work team goals and reflect key themes that repeatedly surfaced in the work teams’ reports.

1. Leadership
As a large public research land-grant university, the University of Minnesota will strive to be a leader in sustainability and energy efficiency.

2. Living Laboratory
The University of Minnesota will serve as a living laboratory as we integrate sustainability across operations, education, research, and outreach.

3. Engagement
The pursuit of sustainability will actively engage all dimensions of the University, and the University will promote activism and engagement related to sustainability.

4. Communication
Transparent and abundant communication will help build awareness of the what, why, and how of sustainability throughout the University of Minnesota community. The University will encourage communication, marketing, and transparency to build awareness and participation.

5. Policies
Uniform policies will help departments and programs adopt best practices for sustainability. The University will establish policies that make best practices (energy, purchasing, etc.) the most desirable choice for all departments.

6. Culture Change
The University of Minnesota community will undergo a fundamental culture change as sustainability is integrated through our programs and practices. The University will nurture a culture that views sustainability as an integral component of all we do.

7. Community Impact
The University of Minnesota’s pursuit of sustainability will enhance awareness and adoption of sustainable practices in the broader community. The University will create mechanisms for measuring impacts on campus and beyond. (How does our work change the world?)

8. Integration
The University of Minnesota will integrate sustainability into operational and financial decisions, teaching, research, and outreach.

Review the Systemwide Sustainability Report located at:
Appendix B: Sustainability Committee Information

**University of Minnesota Systemwide**

*Systemwide Sustainability Committee:*
Kathleen O’Brien, Vice President, University Services, Co-Chair
Jacqueline Johnson, Chancellor, University of Minnesota, Morris, Co-Chair
Britta Anderson, undergraduate student, UMTC
Leslie Bowman, Executive Director, Contract Administration, Auxiliary Services
Tom Cariveau, undergraduate student, UMD
Jeffrey Corney, Managing Director, Cedar Creek Ecosystem Science Reserve, UMTC
Robert Dunbar, Associate Professor, Biology, UMR
Ken Gilbertson, Associate Professor, Health, Physical Education and Recreation, Director, Center for Environmental Education, UMD
Mary Guzowski, Associate Professor, Architecture, College of Design, UMTC
Nick Jordan, Professor, Agronomy & Plant Genetics Department, UMTC
Linda Kingery, Executive Director, Regional Sustainable Development Partnership, UMC
Alexandra Klass, Associate Professor of Law, UMTC
Jerome Malmquist, Director, Energy Management, Facilities Management
Orlyn Miller, Director, Planning & Architecture, Capital Planning and Project Management
Craig Moody, Director, Department of Environmental Health and Safety
Karen Mumford, Assistant Professor of Biology & Environmental Studies, UMM
Kayla Pridmore, Undergraduate Student and Sustainability Student Intern, UMM
Amy Short, Sustainability Coordinator and Staff to the Committee
Dan Svedarsky, Director, Center for Sustainability, UMC & Northwest Research and Outreach Center
Lauren Snively, Undergraduate Student, UMC
David Bael, Graduate Student, HHH Institute of Public Affairs, UMTC

**Staff to the committee:**
Michael Fridgen, Assistant to the Vice Chancellor for Academic Affairs, UMR
Troy Goodnough, Sustainability Coordinator, UMM
Mindy Granley, Sustainability Coordinator, UMD
Anne Rittgers, Sustainability Student Assistant, UMD
Beth Mercer-Taylor, Sustainability Education Coordinator, UMTC
Shane Stennes, Sustainability Coordinator, UMTC

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**University of Minnesota Crookston**

**Crookston Sustainability Committee:**
Daniel Svedarsky, Professor and Director of Sustainability, Chair
Paul Aakre, Faculty
Jason Brantner, Research Fellow (NWROC)
Kent Freberg, Faculty
Shawn Friedland, Student
Pat Kelly, Crookston Public Works
Linda Kingery, Program Director (Minnesota Extension)
Douglas Langer, Senior Operating Engineer
Martin Lundell, Faculty
Rachel McCoppin, Faculty
Tim Norton, Director of Facilities and Operations
Peter Phaiah, Associate Vice Chancellor for Student Affairs
Christo Robberts, Faculty
Tricia Sanders, Finance Director
Jon Steiner, Polk County Environmental Services Officer
Ben Sullivan, Student
Chris Waltz, CERTS Coordinator
Ben Williams, Student
Chris Winjum, Asst to Chancellor
**Working Groups:**

**Recycling Working Group**  
Jenna Benoit, Student  
Brian Christensen, General Maintenance Supervisor  
Shawn Friedland, Student  
Thomas Melhorn, Student  
Melanie Meyer, Student  
Peter Phaiah, Associate Vice Chancellor for Student Affairs  
Chris Waltz, Student  
Andrew "A.J." Wilson, Student

**Curricular Working Group**  
Paul Aakre, Faculty  
Martin Lundell, Faculty  
Katy Smith, Faculty  
Dan Svedarsky, Faculty  
Chris Waltz, Student

**Foods Working Group**  
Natalie Brown, Director of Dining Services  
Eric Castle, Faculty  
Linda Kingery, Program Director (Minnesota Extension)  
Harouna Maiga, Faculty  
Ken Myers, Faculty  
Terry Nennich, Minnesota Extension  
Anna Ogaard, Student  
Peter Phaiah, Associate Vice Chancellor for Student Affairs  
Sharon Stewart, Faculty  
Deborah Zak, Minnesota Extension

**Communication and Outreach Working Group**  
Amber Bailey, E-Communications Manager  
Amber Evans-Dailey, Co-Chair/Director of Admissions  
Heather Donati, Lewis Student  
Kate Holmquist, Student  
Linda Kingery, Program Director (Minnesota Extension)  
Rachel Lundbohm, Faculty - Marketing  
Rachel McCoppin, Faculty - Communication  
Ben Sullivan, Student  
Dan Svedarsky, Faculty  
Elizabeth Tollefson, Co-Chair/Assistant Director of Communications  
Ben Williams, Student

**Physical Operations Working Group**  
Paul Aakre, Faculty  
Donn Anderson, Operating Engineer  
Jason Brantner, Research Fellow (NWROC)  
Kent Freberg, Faculty  
Douglas Langer, Senior Operating Engineer  
Tim Norton, Director of Facilities & Operations

**Water and Landscape Working Group**  
Eric Castle, Faculty  
Michael Knudson, GreenCorps Coordinator

---

**University of Minnesota Duluth**

**Duluth Sustainability Committee:**  
Tom Ferguson, Visiting Professor Electrical/Computer Eng  
Rod Leivano, Professor Finance/Management Info Services  
Mike Mageau, Assistant Professor Geography  
Tim Bates, Adjunct Instructor Outdoor Program  
Terry Brown, Research Associate  
Rich Axler, Senior Research Associate  
Stacey Stark, Coordinator Geography, GIS Lab  
John Sawyer, Principal Engineer Supervisor

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University of Minnesota 2009 Campus Sustainability Reports
Tim Bushnell, Principal Food Operations Manager  
Karl Novek, Maintenance Planner/Scheduler  
Nate Haugen, Student  
Cliff Tanner, City of Duluth Human Resources  
John King, VCFO/Director FM  
Mindy Granley, Campus Sustainability Coordinator  
Cheryl Anderson, Finance and Operations  
Stacy Gerth, Student  
Mahjoub Labyad, Environmental Health & Safety

University of Minnesota Morris

Green Team
Troy Goodnough, Chair, Sustainability Coordinator  
Lisa Harris, David Aronson, Facilities Staff  
Tom Ladner, Office of Residential Life  
Margaret Kuchenreuther, faculty  
TBD Representation from the students (2—to be appointed in consultation with MCSA)  
Kate Newland, food Services  
Christine Mahoney, communications

University of Minnesota Rochester

For more information, contact Michael Fridgen, Assistant to the Vice Chancellor for Academic Affairs.

University of Minnesota Twin Cities

Twin Cities Sustainability Committee:
Mike Berthelsen, Associate Vice President, Facilities Management, Co-chair  
Emily Hoover, Professor and Head, Department of Horticultural Science, Co-chair  
Todd Arnold, Associate Professor, Department of Fisheries, Wildlife, & Conservation Biology  
Nick Deffley, Program Manager, Capital Planning & Project Management  
Jim Green, Assistant Directory, Energy Management, Facilities Management  
Raymond Hozalski, Associate Professor & Director of Graduate Studies, Civil Engineering  
Cindy McComas, Director, MN Technical Assistance Program  
Heather Mentgen Dickson, Marketing Manager, University Dining Services  
Beth Mercer Taylor, Education Sustainability Coordinator, Institute on the Environment  
Ned Mohan, Professor, Electrical & Computer Engineering  
Lance Neckar, Professor, Department of Landscape Architecture  
Christy Newell, Undergraduate, Environmental Science and Policy Management  
Andrew Phelan, Assistant Director, Department of Environmental Health & Safety  
William K. Roberts, Associate Director, Parking and Transportation  
Amy Short, Sustainability Director, University Services
Virajita Singh, Senior Research Fellow, Center for Sustainable Building Research
Tim Smith, Associate Professor Bioproducts/Biosystems Engineering and Director of the Northstar Initiative for Sustainable Enterprise at the Institute on the Environment
Deb Swackhamer, Charles M. Denny Chair of Science, Technology, and Public Policy, Humphrey and Professor Environmental Health Sciences, School of Public Health and Co-director Water Resources Center
Brian Swanson, Budget Officer, Office of Budget & Finance
Connie Thompson, Assistant Director, Housing and Residential Life
George Weiblen, Associate Professor, Department of Plant Biology
Amelious Whyte, Chief of Staff, Office for Student Affairs
Donovan Woldt, Undergraduate, Aerospace Engineering and IT student group representative to MSA
David Smith, Graduate Student, Applied Economics

Subcommittees and Task Groups:

Energy and Operations Subcommittee
Mike Berthelsen, Facilities Management
George Weiblen, Associate Professor
David Crane, Classroom Facilities Coordination Manager
Nick Deffley, Capital Planning & Project Management
Jim Green, Associate Director Energy Management
Brad Hoff, Facilities Management
Judith Martin, Senate Committee for Finance & Planning Representative
Cindy McComas, MN Technical Assistance Program
Laurie McGinnis, Center for Transportation Studies
Heather Mentgen-Dickson, University Dining Services
Andy Phelan, Department of Environmental Health & Safety
Bill Roberts, Parking & Transportation Services
David Smith, Graduate Student
Connie Thompson, Housing & Residential Life
Donovan Woldt, Undergraduate
Shane Stennes, Sustainability Coordinator

Energy/Ops Task Groups:
Waste Stream: Stacey White
Dining: Leslie Bowman
Landcare: Les Potts
Utilities: Mike Nagel
Energy Demand: Jim Green

Research
Fotis Sotiropoulos, St. Anthony Falls Laboratory
Richard A. Hemmingsen, IREE, Institute on the Environment
Raymond Hozalski, Associate Professor & Director of Graduate Studies
Ryan Kennedy, Graduate Representative, GAPSA
Ned Mohan, Professor
Lance Neckar, Professor
Tim Smith, Associate Professor

Education and Outreach
Emily Hoover, Professor
Beth Mercer-Taylor, Education Sustainability Coordinator
Todd Arnold, Associate Professor
Norman Chervany, Senate Committee for Education Policy Representative
Ben Falter, Housing and Residential Life
Laurel Hirt, Career/Community Service-Learning Center
Peter Hudleston, Professor
Cody Mikl, Senate Committee for Education Policy Representative
Christy Newell, Undergraduate
Virajita Singh, Senior Research Fellow, Center for Sustainable Building Research
Amy Short, University Services
Amelious Whyte, Office for Student Affairs
The University of Minnesota Strategic Sustainability Committee is charged with helping align implementation of the Regent’s sustainability policy across the university system. This is a unique effort aimed at systemwide strategy and coordination. The earlier charged Sustainability Goals and Outcomes Committee developed U of MN Systemwide Sustainability Goals, Outcomes, Measures, and Process in 2009. They are listed below as organized in that 2009 report.

The following table is a preliminary assessment of the focus areas at each campus this year as related to the University’s Sustainability Goals and Outcomes. Based upon available information, the level of activity was rated on each goal as low or no (L), medium (M), or high (H). There are also some references by campuses as “don’t know” (DK) and “Not Met.” There was no attempt to establish a rating relative between campuses, it only reflects an initial self assessment at each campus. In many instances, data need to assess progress is not available in a centralized way.

<table>
<thead>
<tr>
<th>Leadership and Modeling Goal 1. Be a national leader and pioneering model for sustainability and energy efficient operations among large public research land-grant institutions</th>
<th>Morris</th>
<th>Duluth</th>
<th>Crookston</th>
<th>UMTC</th>
<th>Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LM1a. The University graduates the largest number of green leaders</strong></td>
<td>H</td>
<td></td>
<td>H</td>
<td>H</td>
<td>See Climate Action Plan /Report</td>
</tr>
<tr>
<td><strong>LM1ai. Students graduate with community experience related to sustainability</strong></td>
<td></td>
<td></td>
<td></td>
<td>M- there isn’t a specific measure but student leaders are organized and visible with sustainability activities; Green Job Expo - student led; Power Police, EESA; Sarita student</td>
<td></td>
</tr>
<tr>
<td><strong>LM1aii. Students are more aware of sustainability issues and behave in a more sustainable manner than before they came to the U</strong></td>
<td>M (need survey)</td>
<td></td>
<td></td>
<td>M - difficult to measure - no current survey</td>
<td></td>
</tr>
<tr>
<td><strong>LM1b. The University undergoes external sustainability assessments, and peer review, recognition, and rankings show progress toward sustainability (for example, the University of Minnesota has achieved a top ranking in reports on green campuses)</strong></td>
<td>STARS, CCX, ACUPCC, (other rankings?)</td>
<td></td>
<td>AASHE STARS</td>
<td>?</td>
<td></td>
</tr>
</tbody>
</table>
## Preliminary Assessment Goals Progress by Campus, 2009-2010

<table>
<thead>
<tr>
<th>Leadership and Modeling Goal 2. Actively advance the transition to a sustainable world economy through research, teaching, outreach, and operations</th>
<th>Morris</th>
<th>Duluth</th>
<th>Crookston</th>
<th>UMTC</th>
<th>Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LM2a. Financial, academic, and operational planning and decisions take a long-term lifecycle view and integrate environment, economy, social equity—also known as the “triple bottom line”</strong></td>
<td>M</td>
<td>H for green cleaning, and construction purchasing.</td>
<td>L</td>
<td></td>
<td>L - Some H (green cleaners); RFP for green cleaner system, Coke machine efficiency project. Need to get UMD Coke rep to respond</td>
</tr>
<tr>
<td><strong>LM2b. More research and education focuses on a green economy</strong></td>
<td>H - (but needs more definition, is it quality/quantity? UMM has done biomass course development, MN GreenCorps fix green jobs descriptions)</td>
<td>UMD Labovitz school of business is starting a Sustainable Operations Graduate group, and they have sustainability as a part of their mission.</td>
<td>M</td>
<td></td>
<td>H - Institute on the Environment, Center for Transportation Studies, Center for Sustainable Building Research; College of Design &amp; many other examples.</td>
</tr>
<tr>
<td><strong>LM2bi. The University of Minnesota is aligned with the Minnesota Green Jobs programs and new federal energy economy and green jobs programs</strong></td>
<td>H - see above</td>
<td>L - Green Corps</td>
<td>L - Green Corps</td>
<td></td>
<td>L - H in some areas; students organized a green jobs event with over 250 attendees; Engineers Without Borders and other programs provide practical real experiences.</td>
</tr>
<tr>
<td><strong>LM2c. By including sustainability, celebrations and events model transformative activities</strong></td>
<td>H - sus has been included in celebrations, orientations, and events</td>
<td>UMD includes sustainability as part of welcome week, catering offers local food options and composting at large events. Sustainability office is present at campus events, including fairs, farmers market, etc.</td>
<td>M</td>
<td></td>
<td>M - Beautiful U Day, Welcome Week integration of sustainability into events along with Institute on the Environment Open house; Student Groups are organizing various events</td>
</tr>
</tbody>
</table>

## Leadership and Modeling Goal 3. Inspire and influence the community, nation, and world through innovative sustainable research and practices

<table>
<thead>
<tr>
<th>LM3a. Institutional efforts support community, social ethic, and economic transitions toward a sustainable community</th>
<th>H - in local food and energy we are working</th>
<th>L</th>
<th></th>
<th>M - HECUA, MNTAP, CERTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LM3b. The University demonstrates that sustainable practices work, save money, and improve the community</strong></td>
<td>M (some projects are more risky, some less, we are also trying to innovate)</td>
<td>H</td>
<td>M</td>
<td>H - Energy Efficiency, Energy programs, salt-use reduction program, waste reduction and other examples exist</td>
</tr>
<tr>
<td><strong>LM3c. The University measures innovation and provides recognition for leaders and achievements in sustainability</strong></td>
<td>L (we should have more awards, on campus, and U-wide)</td>
<td>L</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>Preliminary Assessment Goals Progress by Campus, 2009-2010</td>
<td>Morris</td>
<td>Duluth</td>
<td>Crookston</td>
<td>UMTC</td>
</tr>
<tr>
<td>----------------------------------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>-----------</td>
<td>------</td>
</tr>
<tr>
<td><strong>Leadership and Modeling Goal 4.</strong> Make significant continuous achievements toward sustainability goals and commitments</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LM4a. The University reviews sustainability goals and assesses progress annually and reports on progress</td>
<td>H- (with a new U-wide committee, and other commitments)</td>
<td>H</td>
<td>H - In process</td>
<td></td>
</tr>
<tr>
<td><strong>Leadership and Modeling Goal 5.</strong> Embrace an organization and individual decision that support an inclusive, engaged, active and sustainable healthy community</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LMSa. Communication goals are met to ensure transparency about sustainable practices</td>
<td>M- (Communication seems to be the ongoing challenge, where it should be put, etc. We work with our website, kiosks, signage, other to get the word out)</td>
<td>Sustainability website created, sustainability blog updated weekly, working with campus newspaper, university relations, and local media to spread the word.</td>
<td>M</td>
<td>M- New system portal in place, but UMTC site needs updating. Difficult to get U Svc/U Relations to pick up sust message; working w/ Facebook. It All Adds up is good operation focused marketing</td>
</tr>
<tr>
<td>LMSb. Incentive rewards support sustainable choices</td>
<td>L</td>
<td>not met</td>
<td>L</td>
<td>L - It All Adds Up program is one example</td>
</tr>
<tr>
<td>LMSC. The University measures social shifts related to sustainability</td>
<td>L</td>
<td>not met</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td><strong>Leadership and Modeling Goal 6.</strong> Meet all regulatory requirements and support the development of future regulations and policies through technical review, academic study, and practical experience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LM6a. Operations track regulatory requirements</td>
<td>H: example is Stormwater program</td>
<td>H</td>
<td>H- stormwater, air permitting and air quality, compliance with B3 being extended to projects outside of those that are bonded</td>
<td></td>
</tr>
<tr>
<td>LM6b. University forums provide regular exchange of ideas and knowledge between academic, operations, and community sustainability leaders in policy areas of interest</td>
<td>M (campus forums address sus, we could be more specific and intentional, if we wanted)</td>
<td>M</td>
<td>M - Examples of policy presentations - Humphrey and Institute for Advanced Studies, also Stormwater Linkage annual meetings</td>
<td></td>
</tr>
<tr>
<td>Operational Improvements Goal 1. Plan, program, design, construct, and operate University of Minnesota facilities throughout their life cycle to provide restorative impacts to the natural environment and a healthy indoor environment for the University community</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy and lighting impacts</td>
<td></td>
<td></td>
<td></td>
<td>ST&amp;SS, Biomedical (not LEED) check data</td>
</tr>
<tr>
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<tr>
<td>---------------------------------------------------------</td>
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</tr>
<tr>
<td>OI1a. Operating energy from buildings is reduced</td>
<td>M- (ongoing work, need baseline, and data)</td>
<td>Not met: overall usage has increased slightly for UMD, but efficiency has reduced the intensity of our energy use and GHG emissions (per 1,000 sq. feet energy is decreasing)</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>OI1b. Greenhouse gas emissions from buildings are reduced</td>
<td>M (complicated, by conservation or generation)</td>
<td>see above: Per 1,000 sq ft reduced, but overall campus increased</td>
<td>L</td>
<td>See above</td>
</tr>
<tr>
<td>OI1c Heat island impacts are reduced</td>
<td>L -(we haven't removed large amounts of parking, for example)</td>
<td>Green roofs on Civil and Bagley, rooftops painted white on Civil and Bagley, vegetable gardening on roof near Life Sciences.</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td>OI1d. Night sky radiation is reduced</td>
<td>M -(we've started to address)</td>
<td></td>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

**Water resource impacts**

| OI1f. Potable water use is reduced                      | M | MINDY_ RESEARCH USAGE | No | | L |
| OI1g. Wastewater is reduced                            | DK | MINDY_ RESEARCH USAGE | No | | L |
| OI1h. Stormwater is managed to reduce runoff quantity, rate and pollution | DK | | H | | L |
|                                                            |     |                     |     | M; TCF and ST&SS design, raingardens St. Paul, Sarita needs improved quality |

**Building materials, design and usage**

| OI1i. Life cycle impacts of building materials are reduced | M | Through LEED: Civil, Bagley, Life Science, LSBE | L | | M - emphasize use of materials with low VOC's and formaldehyde, recyclable content, etc. in new construction and at Housing and Residential Life ; recycle waste products (ex. Carpeting) |
| OI1j. Our indoor environments are healthy                | M | Green Cleaning, building renovations and HVAC upgrades, LEED for new construction | H | M - new construction especially. Need more information |
| OI1k. Total campus square footage is optimized           | DK | ? | M | L- Space Utilization work team formed |
| OI1l. Construction waste is recycled                     | DK | H: 95% at Bagley! | L | M- large projects have high rate of diversion (70% plus); smaller projects less but improving. |
## Preliminary Assessment Goals Progress by Campus, 2009-2010

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</thead>
<tbody>
<tr>
<td>OI1m Pervious surface use is increased</td>
<td>L</td>
<td>Meeting: pervious pavers, green roofs, L</td>
<td>L</td>
<td>L - areas of concrete were removed on Beautiful U Day, other?</td>
<td></td>
</tr>
<tr>
<td>OI1n. Flora and fauna are maximized on building sites</td>
<td>M-(we have a lot of prairie plantings, and other traditional planting. Lots of indoor plants, too. Landscaping is a leader, but we still have work to do)</td>
<td>Meeting: new Civil example</td>
<td>L</td>
<td>Bioswales at TCF; Building removal is resulting in more green space; Need alignment with Master planning goals.</td>
<td></td>
</tr>
<tr>
<td>OI1o. Soil conservation is maximized</td>
<td>DK</td>
<td>Meeting: yes, through stormwater program</td>
<td>L</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td><strong>Operational Improvements Goal 2.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrate environmental, economic, and social priorities into purchasing and contract decisions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OI2a. An environmentally preferable purchasing (EPP) policy is developed and implemented with criteria that align with social and economic criteria currently used by University buyers</td>
<td>DK</td>
<td>??</td>
<td>L</td>
<td>M - new purchasing sustainability policy adopted, vendor surveys are in process.</td>
<td></td>
</tr>
<tr>
<td>OI2b. Sustainability is part of the University vendor code of conduct</td>
<td>DK</td>
<td>Vendor code of conduct form is being used for certain purchases...</td>
<td>University wide?</td>
<td>L- In Progress</td>
<td></td>
</tr>
<tr>
<td><strong>Operational Improvements Goal 3.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use lower impact transportation alternatives that increase fuel efficiency, provide more sustainable fuel options, and help reduce the miles traveled on campus, to campus, and as part of the University of Minnesota enterprise</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OI3a. Alternative transportation is increasingly available and use of mass transit is increasingly encouraged.</td>
<td>M - (we have biking programs in the work, a small transit system, but mostly residential for students, our fac and staff are a concern)</td>
<td>H</td>
<td>NA</td>
<td>H - subsidized bus passes, connectors/circulators; Car share and car pool; New bike share program,</td>
<td></td>
</tr>
<tr>
<td>OI3b. Everyone on campus has a wide array of transportation options; safety and convenience for all modes of travel, including walking and bicycling, has increased</td>
<td>M - need more racks, safe routes</td>
<td>H</td>
<td>L</td>
<td>H - continue to improve. Light rail agreement reached</td>
<td></td>
</tr>
<tr>
<td>OI3c. Housing alternatives for students, faculty, and staff near campus have been encouraged</td>
<td>DK</td>
<td>L</td>
<td>M</td>
<td>H- District Alliance - Boot your Commute</td>
<td></td>
</tr>
<tr>
<td>OI3d. Meeting and distance learning technologies are supported</td>
<td>DK</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td></td>
</tr>
</tbody>
</table>
### Preliminary Assessment Goals Progress by Campus, 2009-2010

<table>
<thead>
<tr>
<th>Operational Improvements Goal 4. Manage resources for their highest end use by reducing consumption, minimizing waste, and strongly supporting the reuse and highest value recycling of unwanted materials</th>
<th>Morris</th>
<th>Duluth</th>
<th>Crookston</th>
<th>UMTC</th>
<th>Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td>OI3e. Proper maintenance of fleet and operations vehicles, purchase of fuel efficient or alternatively fueled vehicles, and access to technology to reduce unnecessary travel has increased campus fleet efficiency</td>
<td>H-(our fleet is increasingly converting to hybrids/high MPG)</td>
<td>H</td>
<td>M</td>
<td>L to M - not consistent across university</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy Efficiency Goal 1. Reduce energy use</th>
<th>Morris</th>
<th>Duluth</th>
<th>Crookston</th>
<th>UMTC</th>
<th>Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE1a. Energy use is 5% below FY 2008 levels by the end of 2010</td>
<td>DK</td>
<td>Review 2010 trend needed</td>
<td>?</td>
<td>H- Met - 2010</td>
<td></td>
</tr>
<tr>
<td>EE1b. Each campus has unique long-term energy goals and energy plan by 2010</td>
<td>H- (we have a campus carbon master plan in place)</td>
<td>In progress.</td>
<td>H</td>
<td>M- In progress- 2010</td>
<td></td>
</tr>
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</table>

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<tr>
<th>Energy Efficiency Goal 2. Engage the University of Minnesota community in energy conservation</th>
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<tbody>
<tr>
<td>EE2a. Low carbon instructional delivery programs are evaluated by measuring the credit hours per carbon input</td>
<td>L</td>
<td>??</td>
<td>L</td>
<td>L</td>
<td>H - see it all adds up web page</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Energy Efficiency Goal 3. Pursue climate neutrality and energy efficient operations across the University of Minnesota</th>
<th>Morris</th>
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<th>UMTC</th>
<th>Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td>EE3a. University carbon reduction and renewable energy commitment and requirements are met</td>
<td>In progress</td>
<td>In progress</td>
<td>In progress</td>
<td>In progress</td>
<td></td>
</tr>
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</table>
### Appendix C:
Preliminary Assessment Goals Progress by Campus

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<tr>
<td>EE3ai. ACUPCC goals are met, including developing a comprehensive plan to achieve climate neutrality, inventorying greenhouse gas emissions, and establishing an action plan for becoming climate neutral with short-term and interim goals</td>
<td>In progress</td>
<td>In progress</td>
<td>H</td>
<td>In progress</td>
<td></td>
</tr>
<tr>
<td>EE3aii. The CCX requirement to reduce CO2 6% below baseline by 2010 is met</td>
<td>H-our wind and biomass efforts should offset traditional fossil fuel by 80-90%</td>
<td>Met by system</td>
<td>L</td>
<td>H- Met - 2010</td>
<td></td>
</tr>
<tr>
<td>EE3aiii. State and federal goals, including Minnesota's 25% by 2025 renewable energy standard, are met</td>
<td>DK</td>
<td>tbd - 2025</td>
<td>tbd - 2025</td>
<td>TBD- 2025</td>
<td></td>
</tr>
<tr>
<td>EE3b. By the end of 2010, a University-wide energy master plan has been created that identifies the most effective approach and strategy toward improving energy efficiency of campus buildings and infrastructure and reducing campus carbon footprint, including establishing an energy working committee to review current master plans and develop recommendations on how to migrate to a more comprehensive energy master plan</td>
<td>DK</td>
<td>In progress</td>
<td>?</td>
<td>M- In progress (climate action plan) - 2010</td>
<td></td>
</tr>
<tr>
<td>EE3c. Common auditable measures for energy consumption across all campuses have been established, with all buildings metered by 2012, norms for each campus, and a data warehouse for all energy data</td>
<td>DK- we have been working on increased energy monitoring options</td>
<td>Not met- metering expensive but we are working on this, new buildings and renovated buildings are submetered.</td>
<td>M</td>
<td>M- Not met - Status needed-believe snapshot measures serve need - 2012</td>
<td></td>
</tr>
<tr>
<td>Energy Efficiency Goal 4. Adopt energy-related financial policies which enable the University of Minnesota to be socially, environmentally, and fiscally informed</td>
<td>DK</td>
<td>NM</td>
<td>L</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>EE4a. The U of M measures CO2 in cost-benefit analyses and assigns a value to CO2 tied to an aggressive world CO2 index</td>
<td>DK</td>
<td>NM</td>
<td>L</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>EE4b. The University has adopted minimum and recommended carbon reduction techniques to be incorporated in new and recommissioned building project with ROI (return on investment) calculations up to 15 years. A minimum payback period at which energy initiatives must be incorporated into capital projects has been adopted and measured</td>
<td>DK- when projects are bundled as is often done in ESCOs, this may be more complicated</td>
<td>NM</td>
<td>L</td>
<td>M- Not met - Input needed</td>
<td></td>
</tr>
</tbody>
</table>
## Preliminary Assessment Goals Progress by Campus, 2009-2010

**Energy Efficiency Goal 5. Contribute to the development of progressive state and federal energy policies**
- **EE5a.** A legislative briefing group has been established to discuss pending or future energy-related legislative initiatives with U of M legislative relations staff
  - **Morris:** DK  
  - **Duluth:** ?  
  - **Crookston:** L  
  - **UMTC:**  
  - **Rochester:** L - Informal and by topic; so far

- **EE5b.** The U of M will demonstrate how to utilize state resources such as Higher Education Asset Preservation and Replacement (HEAPR) funding to enhance energy efficiency, reduce carbon, and work toward sustainability goals
  - **Morris:** H  
  - **Duluth:** H  
  - **Crookston:** M  
  - **UMTC:**  
  - **Rochester:** H - utilizing funding but could communicate better about the programs as related to goals.

**Research Goal 1. To advance sustainability, nurture cross-disciplinary collaboration and sharing of ideas and perspectives within and beyond the University**
- **R1a.** Publication of peer-reviewed collaborative research publications addressing interdisciplinary sustainability issues and involving researchers from multiple colleges, departments, and units has increased
  - **Morris:** L - I don't think this has been done.  
  - **Duluth:** ??  
  - **Crookston:** L  
  - **UMTC:**  
  - **Rochester:** Difficult to assess and track in a centralized manner. Papers are often reported on IonE portal news.

- **R1b.** The U of M has hosted a premier interdisciplinary sustainability research symposium
  - **Morris:** DK  
  - **Duluth:**  
  - **Crookston:** M  
  - **UMTC:**  
  - **Rochester:** L

- **R1c.** An online "knowledge map" of people and projects related to sustainability research has been inventoried and created
  - **Morris:** DK  
  - **Duluth:** ??  
  - **Crookston:** M  
  - **UMTC:**  
  - **Rochester:** L - Env. research resources on Environmental and Sustainability Portal

- **R1d.** Researchers partner with University Services and with sustainability education efforts to use campus facilities for case studies of sustainability issues
  - **Morris:** M - we have been increasingly using the campus as a laboratory, we have more work to do.  
  - **Duluth:** In progress: increase of student research projects concentrating on operations at UMD: Example: Malosky solar, thermal dynamics class, anthropology senior seminar, etc  
  - **Crookston:** M  
  - **UMTC:**  
  - **Rochester:** L - Some examples, Living lab "process" focus for 2011.

**Research Goal 2. To advance sustainability, promote civically engaged, socially informed, and community responsive research and scholarship**
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<tr>
<td>R2a. The sustainability focus and efforts of research and outreach centers, University of Minnesota Extension offices, Regional Sustainable Development Partnerships, and other outreach and public engagement arms of the U of M have increased to gain input and participation from citizens</td>
<td>H - Morris has a lot of public engagement taking place, in conjunction with WCROC, WCRSDP, WC CERTS (Troy is a board member) and other groups</td>
<td>Mindy is on the board of the NMRSDP, so are faculty from UMD</td>
<td>M</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td>R2b. Diverse cultures and socioeconomic groups within the Twin Cities and across Minnesota are increasingly engaged around sustainability issues</td>
<td>L</td>
<td>???</td>
<td>L</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>R2c. Connections between the Office of Public Engagement and Office of Research have increased</td>
<td>DK</td>
<td>H for UMD, we co-applied for Greencorps member for 2010</td>
<td>L</td>
<td>Unknown.</td>
<td></td>
</tr>
<tr>
<td><strong>Research Goal 3.</strong> Instill sustainability principles in the research culture of the University of Minnesota; all levels of University leadership should embrace sustainability as a core pillar of the University’s mission</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R3a. A long-term sustainability research committee is established and supported to enhance sustainability research</td>
<td>DK</td>
<td>?</td>
<td>M</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>R3b. An upper-level administrative office for sustainability is established</td>
<td>DK - what is upper-level? A provost position?</td>
<td>?</td>
<td>H</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>R3c. The number and profile of research projects, symposia, peer-reviewed publications, graduate theses, and external grants related to sustainability have increased</td>
<td>H - we have a lot of grant activity in areas we would strongly identify as sustainability-focused</td>
<td>How to measure?</td>
<td>L</td>
<td>M</td>
<td></td>
</tr>
<tr>
<td><strong>Research Goal 4.</strong> To advance sustainability, eliminate institutional barriers and disincentives to interdisciplinary and collaborative sustainability research</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R4a. Sustainability is a significant criterion for hiring faculty in relevant departments and sustainability research and teaching are recognized as positive criteria for performance evaluation in tenure review</td>
<td>DK</td>
<td>Not met</td>
<td>L</td>
<td>Not met</td>
<td></td>
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<tr>
<td>R4b. Research standards for sustainability have been adopted, and research projects are evaluated according to their relevance to and impact on sustainability</td>
<td>DK</td>
<td>Not met</td>
<td>L</td>
<td>Not met</td>
<td></td>
</tr>
<tr>
<td>R4c. New programs train the next generation of sustainability researchers by facilitating and funding undergraduate and graduate research and discussion focused on sustainability</td>
<td>DK</td>
<td>?</td>
<td>L</td>
<td>L</td>
<td>L</td>
</tr>
<tr>
<td>Research Goal 5. Transform the University of Minnesota into a living laboratory for sustainability</td>
<td></td>
<td>In process</td>
<td>In process - UMTC Sust Committee 2011 focus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R5a. Publication of peer-reviewed collaborative research related to sustainability issues in urban, exurban, rural, terrestrial, and aquatic socio-ecological systems across Minnesota and around the world has increased</td>
<td>DK</td>
<td>?</td>
<td>L</td>
<td>DK</td>
<td></td>
</tr>
<tr>
<td>R5b. The use of U of M property for sustainability research and education is coordinated through standing committees at all major campuses and centers</td>
<td>M - our campus governance and administration are working to increase the amount of education and research in sustainability done at Morris</td>
<td>?</td>
<td>M</td>
<td>L - Currently several groups are involved in coordinating projects; the UMTC Sustainability Committee is charged with this role.</td>
<td></td>
</tr>
<tr>
<td>Education and Outreach Goal 1. Capture the land-grant mission: Sustainability is part of the educational or campus experience of each and every University of Minnesota student</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>E01a. Systemwide initiatives are created that include academic and operational sustainability internships</td>
<td>DK</td>
<td>?</td>
<td>L</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>E01b. A systemwide summit is held by 2010 for students, faculty, extension, community partners, etc.</td>
<td>DK</td>
<td>?</td>
<td>L</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>E01c. Graduate and undergraduate sustainability-related minors on multiple campuses and first-year and graduate sustainability seminars are established by 2010</td>
<td>DK</td>
<td>?</td>
<td>H</td>
<td>M - Undergraduate Sustainability Minor in place; A graduate program is being developed</td>
<td></td>
</tr>
</tbody>
</table>
## Preliminary Assessment Goals Progress by Campus, 2009-2010

### Education and Outreach Goal 1. For residents, sustainability is an explicit aspect of living in student housing and being on campus

- **EO1d.**  For residents, sustainability is an explicit aspect of living in student housing and being on campus.  
  - *Morris:* We have a sustainability floor, community-advisors receive some training, etc.  
  - *Duluth:* In progress: working with housing on energy and water conservation outreach  
  - *Crookston:* H  
  - *UMTC:* M - IN process - Resources and training for CA’s was developed and a Sustainability Committee supports efforts. Housing makes purchases of Energy Star, sustainable materials/furniture. Improved communications about work needed.  
  - *Rochester:*  

### Education and Outreach Goal 2. Integrate service learning into the undergraduate and graduate experience, linking students, faculty, University of Minnesota Extension, and community partners

- **EO2a.** Service learning and undergraduate research projects related to sustainability are extended by 2012. Student assignments are linked to U of M operational needs.  
  - *Morris:* H - sustainability service learning and projects are a focus of our efforts  
  - *Duluth:* M  
  - *Crookston:* M  
  - *UMTC:* H (in some areas) - New internships in Sustainability Minor working on operations projects  
  - *Rochester:* L - Working to expand HECUA program; Who measures? - 2010  
- **EO2b.** The sustainability focus of service learning projects increases each year to reach 25% by 2020; research and outreach centers are used for service learning.  
  - *Morris:* DK  
  - *Duluth:* M  
  - *Crookston:* M  
  - *UMTC:* L - Working to expand HECUA program; Who measures? - 2010  
  - *Rochester:*  
- **EO2c.** Undergraduate research projects and applied research projects that address sustainability challenges increase each year to reach 25% by 2020.  
  - *Morris:* DK  
  - *Duluth:* M  
  - *Crookston:* M  
  - *UMTC:* L - Who measures? - 2010  
  - *Rochester:*  
- **EO2d.** By 2012, service-learning relationships with organizations are identified and formalized, building especially on the experience of the Regional Sustainable Development Partnerships, service learning coordinators, and faculty.  
  - *Morris:* H - we have well-established relationships with WCRSDP, WCROC, WCCERTs  
  - *Duluth:* M  
  - *Crookston:* M  
  - *UMTC:* L - 2012  
  - *Rochester:*  

### Education and Outreach Goal 3. Create and implement curricula and educational programs that address the interface of environment, society, and economy

- **EO3a.** Capacity is in place for creating and implementing sustainability-focused curricula and educational programs.  
  - *Morris:* M - we are working to address traditional barriers, and each year we see new courses and programs added  
  - *Duluth:* M  
  - *Crookston:* M  
  - *UMTC:* Not known - Assessment underway as part of AASHE metrics  
  - *Rochester:*  
- **EO3b.** Each campus has an academic sustainability coordinator.  
  - *Morris:* L  
  - *Duluth:* Not met  
  - *Crookston:* Yes  
  - *UMTC:* Yes and added new position  
  - *Rochester:*  

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## Appendix C: Preliminary Assessment Goals Progress by Campus

<table>
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<tr>
<th>Education and Outreach Goal 4. Develop outreach programs for sustainability education of working professionals in the public and private sector</th>
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<tbody>
<tr>
<td>EO4a. By 2010, existing U of M sustainability-related training programs are catalogued, a needs assessment has been conducted to determine what training and certificate programs would be most effective, and programs are prioritized.</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td></td>
<td>Not known</td>
</tr>
<tr>
<td>EO4b. First education programs for working professionals are established with program completion by first cohorts (e.g., certificates) by 2011.</td>
<td>DK</td>
<td>?</td>
<td>H</td>
<td></td>
<td>2011</td>
</tr>
<tr>
<td>EO4c. A mechanism is in place for fostering interaction among past participants and connecting them with current students interested in internship opportunities.</td>
<td>DK</td>
<td>?</td>
<td>L</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Communication Goal 1. Create opportunity for dialogue to discuss global and local sustainability challenges, opportunities available, and the work of the University to advance sustainability</th>
<th>Morris</th>
<th>Duluth</th>
<th>Crookston</th>
<th>UMTC</th>
<th>Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1a. Communication tools and tracking systems make data related to sustainable practices available to the U community</td>
<td>L</td>
<td>?</td>
<td>M</td>
<td></td>
<td>M - IAAU, Momentum; SUST Committee Website, Facebook (several)</td>
</tr>
<tr>
<td>C1ai. Building energy use is measured and kiosks inform occupants about ways to reduce energy consumption</td>
<td>L</td>
<td>Civil Eng. Has display about energy and water use</td>
<td>L</td>
<td></td>
<td>M - In process through IAAU, needs to be easier to locate</td>
</tr>
<tr>
<td>C1aii. Operational priorities are communicated</td>
<td>M</td>
<td>?</td>
<td>M</td>
<td></td>
<td>M - better coordination needed</td>
</tr>
<tr>
<td>C1aiii. Operational priorities for resource management and waste reduction are communicated throughout the University of Minnesota to maximize success</td>
<td>DK</td>
<td>?</td>
<td>M</td>
<td></td>
<td>M - Waste reduction and recycling goals were added to the It All Adds Up campaign in 2010</td>
</tr>
<tr>
<td>C1aiiv. Success is monitored for meeting operational goals and to provide feedback (to waste producers, for example)</td>
<td>DK</td>
<td>?</td>
<td>L</td>
<td></td>
<td>M - see above</td>
</tr>
<tr>
<td>C1b. Communication and reporting is provided throughout the University and to Resource Responsibility Centers (RRCs) to ensure awareness of policies, priorities and results of performance metrics discussed in this report</td>
<td>DK</td>
<td>L</td>
<td>M</td>
<td></td>
<td>L - Need more info about content of communications</td>
</tr>
</tbody>
</table>
### Appendix C: Preliminary Assessment Goals Progress by Campus

<table>
<thead>
<tr>
<th>Preliminary Assessment Goals Progress by Campus, 2009-2010</th>
<th>Morris</th>
<th>Duluth</th>
<th>Crookston</th>
<th>UMTC</th>
<th>Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication Goal 2.</strong> Develop and implement marketing/promotion efforts to engage those who may not be aware of sustainability-focused education, outreach, and research opportunities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C2a. By 2010, marketing plan and staff are designated to publicize and help implement goals</td>
<td>M-we have done marketing in this area, we are preparing publicity pieces to communicate our efforts</td>
<td>L</td>
<td>L</td>
<td>L</td>
<td>L - 2010 - A communications plan for climate action and AASHE was developed. Need longer term.</td>
</tr>
<tr>
<td>C2b. By 2010, a database and listserv have been developed of sustainability resources and opportunities have been developed</td>
<td>L</td>
<td>L</td>
<td>M</td>
<td>L - 2010</td>
<td></td>
</tr>
<tr>
<td><strong>Communication Goal 3: Develop and maintain a transparent data management information system to enable decisions utilizing environmental, economic, and social factors</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C3a. Select performance metrics discussed in the report are measured and reported on an annual basis for each campus</td>
<td>L</td>
<td>??</td>
<td>M</td>
<td>M - In process - this report is part of that effort along with reports</td>
<td></td>
</tr>
<tr>
<td>C3b. Select performance metrics discussed in this report are measured and reported on an annual basis for each Resource Responsibility Center (RRC)</td>
<td>L</td>
<td>??</td>
<td>L</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td>C3c. Information generated by a sustainability information system is incorporated into annual performance evaluations and budget decision making</td>
<td>L</td>
<td>??</td>
<td>L</td>
<td>L</td>
<td></td>
</tr>
<tr>
<td><strong>High level goals/themes across the work teams</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Leadership:</strong> As a large public research land-grant university, the University of Minnesota will strive to be a leader in sustainability and energy efficiency.</td>
<td>H</td>
<td>H</td>
<td>M</td>
<td>SEI Report, Committee formation, IonE and other faculty recognition</td>
<td></td>
</tr>
<tr>
<td><strong>Living Laboratory:</strong> The University of Minnesota will serve as a living laboratory as we integrate sustainability across operations, education, research, and outreach.</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M - Sust Minor</td>
<td></td>
</tr>
<tr>
<td><strong>Engagement:</strong> The pursuit of sustainability will actively engage all dimensions of the University, and the University will promote activism and engagement related to sustainability.</td>
<td>H</td>
<td>M</td>
<td>M</td>
<td>M - IT All Adds Up, Campus Beyond Coal, Student Green Jobs Expo</td>
<td></td>
</tr>
</tbody>
</table>

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### Preliminary Assessment Goals Progress by Campus, 2009-2010

<table>
<thead>
<tr>
<th>Goal Description</th>
<th>Morris</th>
<th>Duluth</th>
<th>Crookston</th>
<th>UMTC</th>
<th>Rochester</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Communication:</strong> Transparent and abundant communication will help build awareness of the what, why, and how of sustainability throughout the University of Minnesota community. The University will encourage communication, marketing, and transparency to build awareness and participation.</td>
<td>M</td>
<td>M</td>
<td>M</td>
<td>M - IonE Momentum recognized re: research, portal in progress, orientation, welcome week; AASHE STARS Charter member</td>
<td></td>
</tr>
<tr>
<td><strong>Policies:</strong> Uniform policies will help departments and programs adopt best practices for sustainability. The University will establish policies that make best practices (energy, purchasing, etc.) the most desirable choice for all departments.</td>
<td>L</td>
<td>L</td>
<td>M</td>
<td>L - Purchasing, U Svcs paper, idling and fleet commitments are in progress.</td>
<td></td>
</tr>
<tr>
<td><strong>Culture Change:</strong> The University of Minnesota community will undergo a fundamental culture change as sustainability is integrated through our programs and practices. The University will nurture a culture that views sustainability as an integral component of all we do.</td>
<td>M</td>
<td>L</td>
<td>M</td>
<td>IAAU, Welcome Week awareness raising, Beautiful U Day focus on sust, energy, waste - other</td>
<td></td>
</tr>
<tr>
<td><strong>Community Impact:</strong> The University of Minnesota’s pursuit of sustainability will enhance awareness and adoption of sustainable practices in the broader community. The University will create mechanisms for measuring impacts on campus and beyond. (How does our work change the world?)</td>
<td>H</td>
<td>L</td>
<td>M</td>
<td>District Alliance work with energy programs, CERTS, Working on improved food options and local food options, farmer’s market, other?</td>
<td></td>
</tr>
<tr>
<td><strong>Integration:</strong> The University of Minnesota will integrate sustainability into operational and financial decisions, teaching, research, and outreach.</td>
<td>M</td>
<td>H</td>
<td>M</td>
<td>U Svcs tracking initiatives and reporting to leadership team; need to consider green energy option long ROI, alternative models needed.</td>
<td></td>
</tr>
</tbody>
</table>