



Sustainability Plan of Action

American Colleges & Universities Presidents' Climate Commitment

[Adopted May 15, 2011]

This document is a plan for LSC to achieve at least a 50% reduction in eCO₂ emissions by 2030. Recognizing the fluctuating nature of environmental technology and social change, this Plan will focus on the next few years followed by five-year interim goals until 2030; bi-annual reviews of this document will address the years to follow. This review process will address LSC's goal to achieve climate neutrality by 2060. To achieve this goal thoughtful planning and direction are necessary. This goal and Plan will prompt meaningful discussion and development of policies and procedures needed to get us there.

Lake Superior College's definition of sustainability:

A person who practices sustainability supports the interacting roles that healthy environments, economies, and social justice play in meeting the current and future needs of individuals, communities, and the environment.



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INTRODUCTION

In early 2008, the President of Lake Superior College (LSC), Dr. Kathleen Nelson, brought the concept of signing onto the American College & University Presidents' Climate Commitment (ACUPCC) to the President's Cabinet. The Cabinet unanimously endorsed this important initiative. Mark Winson, Vice President of Finance and Administration, was assigned the responsibility of meeting the requirements of the Commitment. The initiative was presented to the LSC's Environmental Council, an interdisciplinary group including faculty and staff from all operating units, who agreed to take on the planning and research to meet the requirements. In the years following, a restructuring of responsibility took place. In July 2009, Wade Gordon, Director of Diversity, took over responsibility of meeting requirements of the Commitment, and in July 2010, Dr. Patrick Johns became President of Lake Superior College.

The Environmental Council formed a subcommittee which was comprised of faculty and staff to complete the initial Greenhouse Gas Inventory (GGI) and Greenhouse Gas Report (GGR) while subsequent annual GGI and GGRs were completed by faculty, staff, and students. The subcommittee decided that for tracking purposes, the reporting would follow Minnesota State Colleges and Universities' (MnSCU's) fiscal year beginning July 1 and ending June 30.

As part of the ACUPCC, the Environmental Council was tasked with the responsibility of completing the initial Implementation Profile and adopting two of seven possible Tangible Actions as defined in the ACUPCC text. These Tangible Actions were implemented between the date of signing the commitment in 2008 and completion of this document in 2011. The Tangible Actions LSC adopted include:

Tangible Action One

Establish a policy that all new campus construction will be built to at least the U.S. Green Building Council's [Leadership in Energy and Environmental Design] LEED Silver standard or equivalent.

LSC adheres to MnSCU's design and construction standards which comply with the [State of Minnesota's Buildings, Benchmarks & Beyond Sustainable Building Guidelines \(B3-MSBG\)](#). Developed by the University of Minnesota's Center for Sustainable Building Research, MSBG requires all new construction utilizing state funds adhere to established guidelines. These guidelines are comparable to achieving LEED Silver Certification. Within the limits of financial constraints, LSC will make every effort to achieve at least LEED Certification in new building design and construction.

In August 2007, LSC completed the first LEED certifiable building in the MnSCU system. The building received LEED certification in July 2010. In April 2010, LSC's new Health and Science building addition was approved and will also be constructed to LEED specifications.

Tangible Action Two

Encourage use of, and provide access to, public transportation for all faculty, staff, students and visitors at LSC.

Beginning in September 2001, all students were eligible to ride Duluth Transit Authority (DTA) buses for free under the U-PASS Program. In December 2009, LSC commemorated its 500,000th rider since the start of the Program. In March 2011, monthly ridership topped 16,000 riders. Further analysis of this Program is found in the Mitigation Strategies section of this document.

During spring semester 2010, a Sustainability Plan of Action (SPA) subcommittee was formed to complete this document. The subcommittee included LSC's Environmental Coordinator and an LSC Student Stewardship Liaison who was hired with funding from a Great Lakes Innovative Stewardship through Education Network (GLISTEN) Grant. This subcommittee utilized the knowledge of the Environmental Council as well as members of various campus faculty and staff in compiling data and information.

FORMAT This Document is arranged following the ACUPCC Implementation Guide v. 1.1 2009 General Format Guidelines. Operational Boundaries within these guidelines outline reporting standards.

Consistent with GHG Protocol standards, signatories are expected to track and report emissions of the six greenhouse gases covered under the Kyoto Protocol...

[Also]...the GHG Protocol defines three "scopes" for GHG accounting and reporting purposes. Scope 1 refers to direct GHG emissions occurring from sources that are owned or controlled by the institution, including: on-campus stationary combustion of fossil fuels; mobile combustion of fossil fuels by institution owned/controlled vehicles; and "fugitive" emissions [campus generated energy]...Scope 2 refers to indirect emissions generated in the production of electricity consumed by the institution [grid energy]. Scope 3 refers to all other indirect emissions-those that are a consequence of the activities of the institution, but occur from sources not owned or controlled by the institution. (ACUPCC Implementation Guide)

For all intents and purposes of this document, our Mitigation Strategies are arranged into Source 1, 2 and 3 which reflect the bulk of our total greenhouse gas emissions. For reference purposes, each Source is also cross-referenced according to ACUPCC Scope and depicted in Table 1 on page 8 of this document. Under each Source are goals, strategies, tangible outcomes and proposed policies; each of which will be reviewed bi-annually with proposed policies adopted following the college's process for review and approval of policy.

This document and annual GGI results are uploaded to and available on the ACUPCC official reporting system, <http://acupcc.aashe.org/> and also the LSC Environmental Council blog, <http://blogs.lsc.edu/environmentalcouncil/>.

BACKGROUND This document is intended to work in conjunction with the LSC Fiscal Year 2010 Presidential Work Plan completed in October of 2009, the LSC 2011-2014 Strategic Plan currently in draft form, and the LSC Master Facilities Plan completed in the spring of 2007. The Presidential Work Plan specifically addresses an action plan initiative aimed at creating a more sustainable campus and also specifies the goal of completing and submitting this document by the end of 2010. The latest draft of LSC's Strategic Plan directly speaks to reducing our energy budget through technology, education, and conservation by 8% per square foot over the next four years. Additionally, five of the nineteen LSC Master Facilities Plan Goals include intent to improve campus environmental quality including:

- *addressing primary site challenges through creatively increasing "connectivity" by creating better pedestrian walkways and increasing access to Miller Creek,*
- *promoting sustainability through site alterations and adopting "clean and green" maintenance procedures,*
- *creating a pedestrian-oriented campus by developing landscaped pedestrian pathways between parking, naturalized areas, academic buildings, and out-buildings,*
- *updating campus landscaping to accommodate active and passive learning and recreation,*
- *controlling stormwater runoff by developing a stormwater management plan*

(LSC Master Facilities Plan: Spring 2007)

MNSCU'S COMMITMENT The following demonstrates MnSCU's commitment to sustainability through outlined policies, responsibilities, and accountability measures in the 2010 revised version of [Sustainability, Resources Conservation and Recovery, and Environmentally Responsible Practices, Chapter 5.17](#):

- *Part 1. Policy Statement*
The Board of Trustees promotes sustainability, reduction of waste, resources conservation and recovery, and environmentally responsible practices, including energy conservation and pollution prevention, consistent with law and current executive orders.
- *Part 2. Responsibilities*
The chancellor, in concert with college and university presidents, shall develop system-wide procedures and initiatives that reflect long-term stewardship of the campus physical environment. The chancellor shall develop facilities planning guidelines, design and construction standards, and energy conservation procedures that appropriately provide for enhanced sustainability and long-term stewardship of campus physical resources.

College and university presidents shall develop and implement campus-based initiatives in support of these practices, and identify and report accomplishments consistent with Part 3.
- *Part 3. Accountability*
The Office of the Chancellor, and each college and university shall appoint a representative(s) for all environmental and resource recovery issues and shall maintain records regarding recycling, energy consumption and conservation, and pollution prevention efforts. The Office of the Chancellor and each college and university shall report progress and accomplishments periodically to the Board.

(Minnesota State Colleges and Universities Board Policies Chapter 5-Administration)

In [Designing the Future: Minnesota State Colleges & Universities Strategic Plan 2010-2014](#), each of the following Strategic Directions speak to MnSCU's intent to incorporate sustainability into campus culture:

- *Strategic Direction 3: Provide learning opportunities, programs and services to enhance the global economic competitiveness of the state, its regions and its people*
Goal 3.1 Be the state's leader in workforce education and training.
Goal 3.2 Support regional vitality by contributing artistic, cultural and civic assets.
Goal 3.3 Develop each institution's capacity to be engaged in and add value to its region and meet the needs of employers.
- *Strategic Direction 4: Innovate to meet current and future educational needs*
Goal 4.1 Build organizational capacity for change to meet future challenges and remove barriers to innovation and responsiveness.
Goal 4.2 Draw on the talents and expertise of faculty, staff, students and others to meet the challenges facing the system.
Goal 4.4 Critically examine and improve structures, technologies, policies and processes to support transformative innovation.
- *Strategic Direction 5: Sustain financial viability during changing economic and market conditions*
Goal 5.1 Make budget decisions that reflect priorities in the core mission and fiscal stewardship.
Goal 5.2 Rigorously pursue ways to reduce unnecessary costs.
Goal 5.3 Develop funding sources to supplement revenues from state appropriations, tuition and student fees.

(Designing the Future: Minnesota State Colleges & Universities Strategic Plan 2010-2014)

Finally, the following system-wide [Strategic Directions and Goals from Minnesota State Colleges and Universities 2010 Action Plan](#) also specifically includes measures in sustainable innovations:

- *System Strategic Direction 4: Innovate to meet current and future needs*
System Strategic Plan Goal 4.2: Reward and support institutions, administrators, faculty and staff for innovations that advance excellence and efficiency

Additionally, [System and Institutional Activities for FY2010](#) outline MnSCU's goals in Energy Conservation:

- *Develop a Comprehensive Environmental Sustainability Policy for Board Adoption to advance sustainable campuses by focusing on improved facilities planning processes, construction, renovation and operation of campus facilities.*
- *Publish Procedures and Standards for sustainable planning, design, construction and operation of facilities.*
- *Develop a System-wide Energy Benchmarking System to capture data on consumption of energy in physical plant, guide establishment of benchmarks, and measure and compare progress in reducing energy consumption and costs.*
- *Report to Board of Trustees on Accomplishments towards achieving sustainable campuses.*

(Strategic Directions and Goals from Minnesota State Colleges and Universities; 2010 Action Plan)

CAMPUS EMISSIONS

Campus Emissions Goal *Relative to the 2009 baseline calculation of 11367.2 MTeCO₂, LSC will reduce its total eCO₂ emissions by at least 50% by 2030 and will be carbon neutral by 2060. Because of the large span of time between now and 2060 and recognizing the speed at which technology changes, this plan will focus on short-term and five-year interim goals until 2030 and bi-annual reviews of this document will address the years to follow.*

Equivalent carbon dioxide (eCO₂) emission amounts were derived utilizing the same method used to calculate total carbon output for entry to the ACUPCC reporting system. [Clean Air-Cool Planet](#) (CA-CP) has partnered with the ACUPCC as a resource to help colleges and universities compile a comprehensive greenhouse gas inventory while also making results reproducible year after year and comparable against other colleges. We used the CA-CP Carbon Calculator[®] by entering raw data obtained from multiple sources on campus and using the “s_eCO₂_sum” spreadsheet tab which is designed to calculate eCO₂ emission from raw greenhouse gas¹ emissions data.

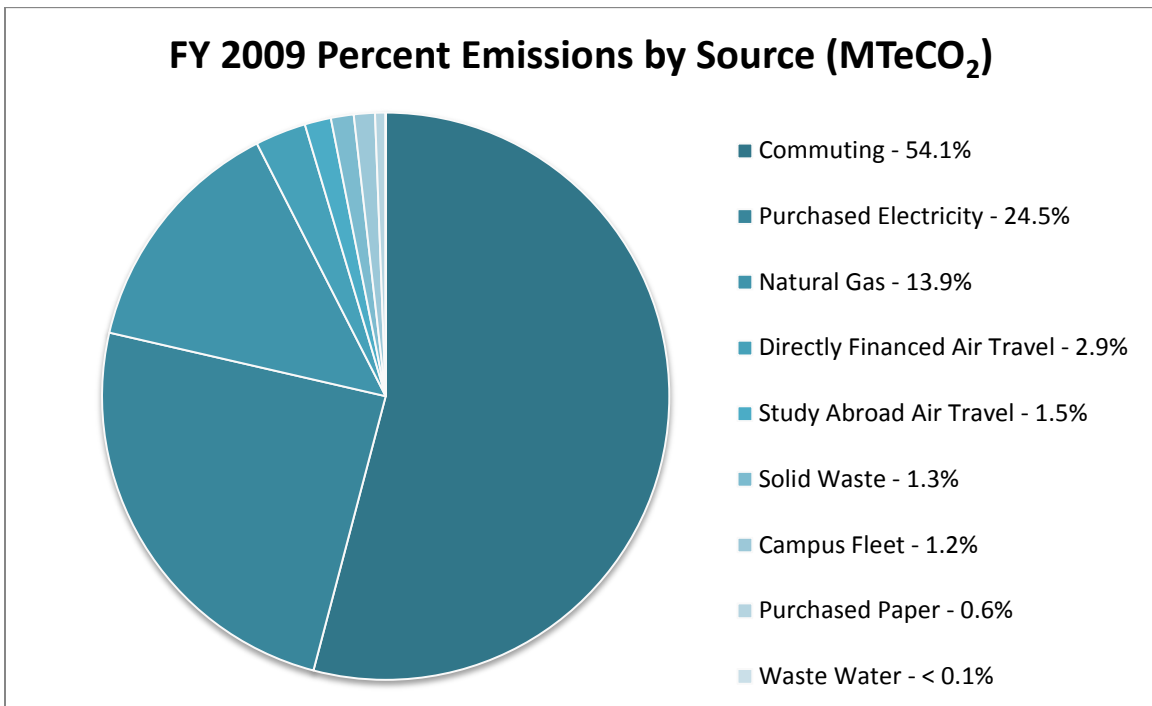
LSC is comprised of two campuses. At the LSC main campus on Trinity Road in Duluth, data is based on three main structural buildings: the main building, the art building, and cold storage. At the LSC Emergency Response Training Center’s (ERTC) campus on Highway 23 west of Duluth, data is based on its three buildings: main classroom building, fire and rescue tower, and the emergency response building. The total area covered in our GGI includes 362,241 ft². The primary sources captured by our GGI include CO₂, CH₄ and N₂O. The CA-CP Calculator translates these numbers into eCO₂ emissions. Those numbers are summarized in Table 1 below, is depicted as percentages in Graph 1, and separated into scopes in Graph 2. The CA-CP Calculator was also used to anticipate a business-as-usual trajectory. This trend line and tangible actions from each Mitigation Strategy in this Plan were used to create Graph 3.

Table 1

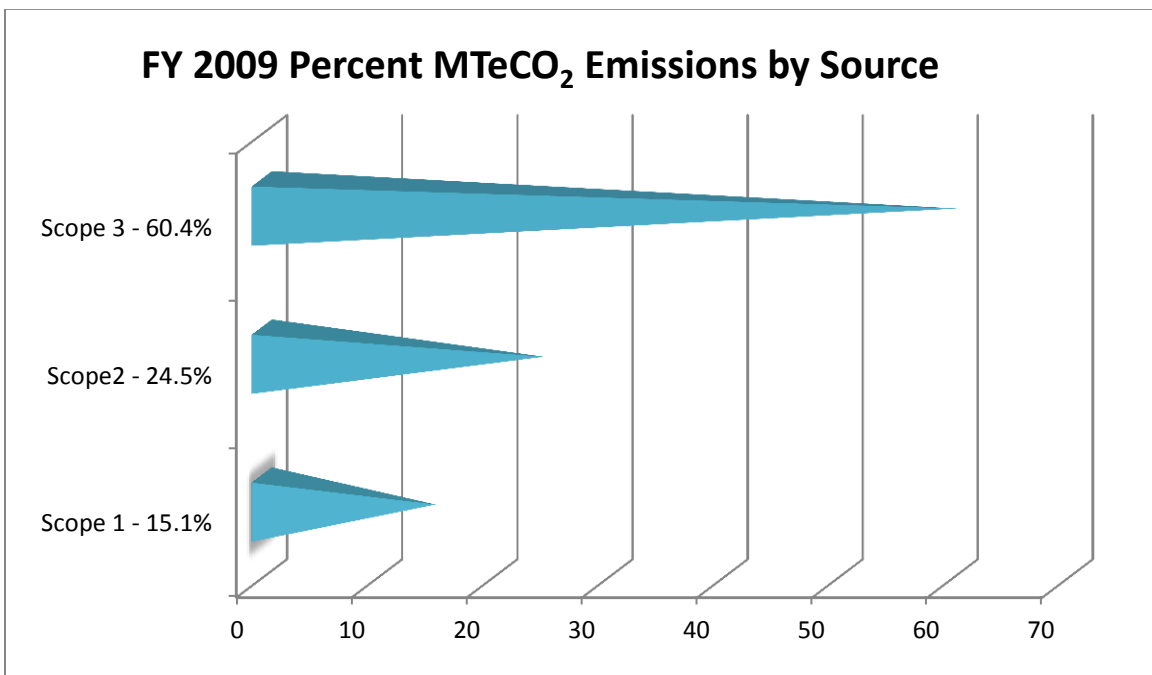
Scope	FY 2009 eCO ₂ Emissions Source	Amt. eCO ₂ in metric tons (MT)
1	Natural Gas	1589.6
1	Campus Fleet	132.5
2	Purchased Electricity	2780.9
3	Commuting: Student, Employee and Reimbursed Mileage	6148.0
3	Directly Financed Air Travel	328.5
3	Study Abroad Air Travel	165.0
3	Solid Waste	153.2
3	Waste Water	1.9
3	Purchased Paper	67.5
	Total MTeCO₂	11367.2

¹From CA-CP: Greenhouse Gas Emissions defined as “Any gas that absorbs infrared radiation in the atmosphere. Greenhouse gases include water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), halogenated fluorocarbons (HCFCs), ozone (O₃), perfluorinated carbons (PFCs), and hydrofluorocarbons (HFCs)...”

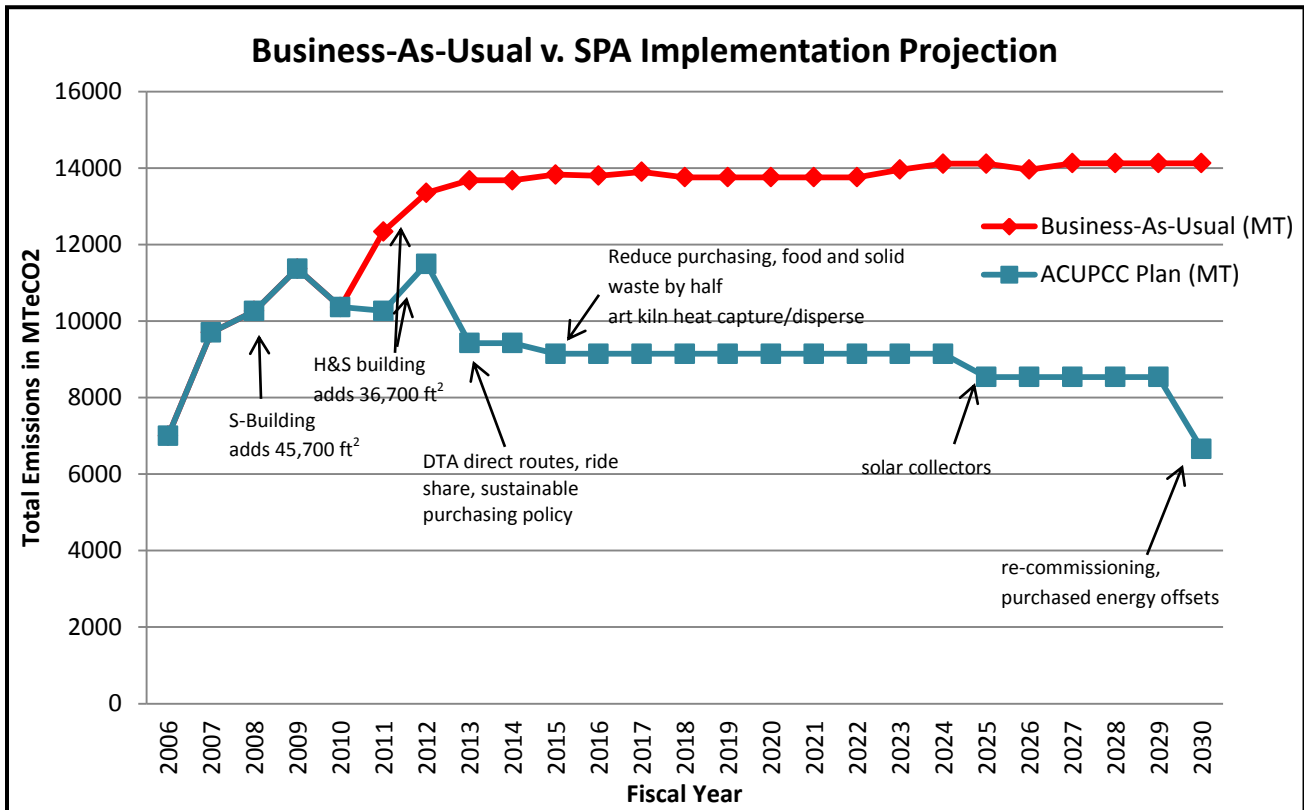
Graph 1



Graph 2



Graph 3



	Key GHG Reduction Strategies	Overall GHG % Reduction Projected
2009 (baseline)		
2010		
2011	decrease air travel	1%
2012	shorten summer building hours/classroom zoning, begin implementing no-mow zones	3%
2013	Sustainable Purchasing and Use Policies, solar/wind parking lights, parking permits replace campus access fee, begin campus shuttle service and online rideshare portal	18%
2015	art building kiln heat capture/disperse, reduce solid waste, reduce purchasing, reduce food transport	3%
2025	solar collectors installation	7%
2030	wind energy generation, purchase energy offsets, re-commissioning and control upgrades	22%

MITIGATION STRATEGIES

SOURCE 1: TRANSPORTATION (Scope 3)

Goal LSC will reduce student and employee commuting and travel by at least 30% by 2030.

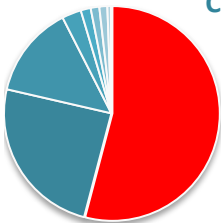
Strategies

- Online ride-share program-2011
- Decrease directly financed air travel-2011
- Four-day class schedule for summer session-2012
- Greater non-motorized accessibility through sidewalks and trail maintenance-2012
- Connection to city commuter paths-2012
- Create in-city and out-of-city carpool incentives-2012
- Re-work parking "Access Fees" to reflect "Parking Permit" specifically-2013
- Allow work-from-home-2013
- More direct and extended hours for LSC bussing-2013
- Establish park-and-ride locations for shuttle and carpool-2013
- Establish air travel tracking system-2013
- Establish directly financed travel tracking system-2013
- Purchase sustainable fleet vehicles-2015

Tangible Outcomes

- Restructure bus service, utilizing one or several of suggested strategies-decrease commuter eCO₂ emissions by 20%
- Establish online rideshare interface on homepage-decrease commuter eCO₂ emissions by 3%
- Four-day class schedule for summer session-decrease commuter eCO₂ emissions by 3%
- Parking permits to replace Campus Access Fee-decrease commuter eCO₂ emissions by 5%
- Decrease air travel-decrease air travel eCO₂ emissions by 2.2%

Overall Transportation eCO₂ emissions drop from 58.5% to 25.3% = 2872.3 MteCO₂ reduction



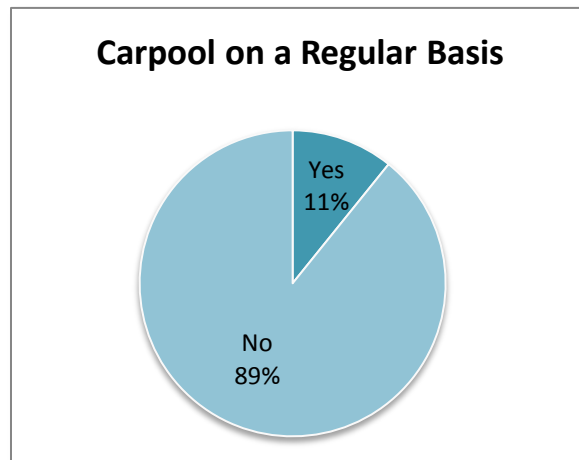
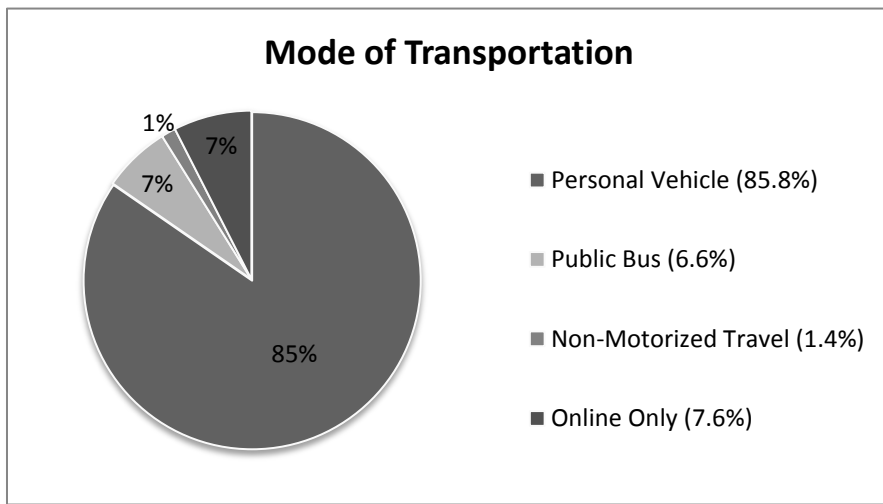
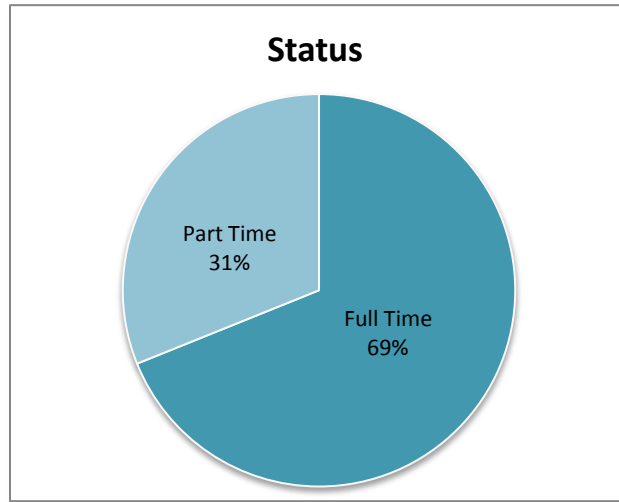
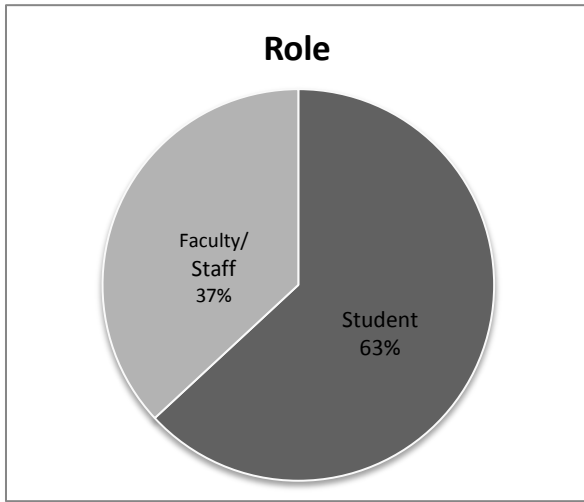
Commuting

As a commuter college without on-site housing, transportation is a major contributor to our total GHG emissions. Commuting here includes not only daily commuting to campus by students and employees, but also other directly financed ground travel. Commuting makes up over half of our total emissions at 54.1%; total transportation emissions, including commuting and directly financed air travel, is 58.5%. This falls closely in line with other institutions in our Carnegie Classification of

Community College/Tribal College where the average source emissions for Scope 3 is 54% of total campus emissions.

In April 2010, a survey of students' commuting habits was done and the results are outlined in the graphs below:

2010 LSC Commuting Survey Results



*Survey Offered Online
Results Based on Total of 480 Responses*

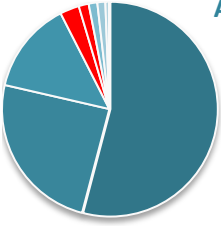
In September 2001, LSC joined other area colleges including University of the Minnesota-Duluth, the University of Wisconsin-Superior, and College of St. Scholastica in partnership with the Duluth Transit Authority (DTA) to provide free rides to college students and employees throughout the twin ports area through the U-Pass Program.

Priority Concerns

- *Increased utilization of the U-Pass* has been consistent although we haven't seen a large drop in total commuters to campus. Because of our unique location, travel time on the bus to campus has proven to be the main issue deterring users as multiple transfers are needed to reach campus. Currently there is no direct bus route to campus, and transfer time, as well as total travel time, is a large deterrent for ridership.
- *Late night class accommodation* with our current bus schedule does not exist. This not only affects commuter habits, but also affects LSC's ability to offer and fill evening classes.
- *The cost* to LSC and Student Life to provide this service has also steadily increased, and the entire program may be in jeopardy if it isn't revamped. It is also worth noting that students may ride anywhere in town, at any time, any day of the week. This leads us to believe that the costs associated with the program are not necessarily directly benefitting LSC, although it does promote favorable commuting habits for our students, and it has an overall positive effect on community carbon emissions as well.

Strategies

- *Restructuring the bus system* is going to be one of our best strategies for enticing students to ride to campus. More scheduling flexibility is important, and this may be accomplished by: negotiating changes to our current routes, extending hours, offering LSC routes more frequently throughout the day, and/or utilizing a private shuttle service. Many of these options may require that, for funding reasons, the unlimited bus pass be limited to school days only or limited only to routes that service LSC. The ability to track direct campus ridership will be an integral starting point to assess the potential of such changes. By initiating one or a combination of these changes, bus ridership to and from campus could increase by as much as 20%.
- *An online-ride share program made available on LSC's homepage* would give students and employees an avenue to coordinate carpooling. This would be a voluntary program and completely organized by volunteers after the on-line portal is established. After getting the ride-share online, we anticipate a 3% reduction in single commuters.
- *Establishing for-purchase parking permits*, which students and employees would knowingly elect to purchase each semester, may prompt individuals to use the free bus service or be more pro-active in establishing carpools. Currently, all students, driving or not, are assessed a "Parking & Access Fee" as part of student tuition fees. This Fee includes parking lots, sidewalks and trails. The parking permits, we estimate, will cut back on cars traveling to LSC by 5%. For this to be successful, a more efficient and timely bus route to campus must first be established.
- *Initiating a four-day class schedule* during summer semester could serve as a general baseline for assessing how effective a shortened weekly schedule would be on a year-round basis. Theoretically, cutting Friday building hours over summer semester could reduce commuting by 3%. Potential energy savings are outlined later in this document.
- *Existing and planned walking and biking trails leading to and throughout the campus* are valuable assets to LSC. Some of the main trails should be made more usable for bikers and also made handicap accessible. The trails should be treated as another form of commuting to campus and not purely for recreation; therefore they need to be safe, reliable and well maintained. With anticipated increased use of paths and sidewalks for biking, bike racks and/or lockers need to be installed in highly visible areas of the campus. A parking and transportation task force has been discussing the need for parking lot re-design, and this specific issue has been identified as a priority.



Air Travel

Total air travel, including study abroad and directly financed air travel, comprises about 4.4% of LSC’s total eCO₂ emissions. Currently, we do not have a system in place to track exact air mileage. Invoices were collected for purchase orders directly addressing air travel, but some campus related air travel is paid for through credit cards. It is extremely difficult to obtain data related to these individual credit cards; therefore our data reflects an educated estimate. We hope to implement an

Air Travel Tracking System in 2013 to get a more reliable idea of college air travel.

Air Travel GHG Emissions Reduction Because of outside financial influences and a change in campus leadership, LSC is making an immediate aggressive effort to reduce out-of-state travel and air travel. We expect this change will reduce our air travel emissions by half.

Transportation GHG Emissions Reduction If all of the above mentioned strategies are implemented, we expect a 33% decrease in the number of students, staff, and faculty driving to school on a weekly basis and a 50% decrease in air travel. An overall trajectory of reductions can be seen in Graph 3 on page 12.

SOURCE 2: ENERGY (Scopes 1 & 2)

Goal LSC will reduce energy and electricity emissions by at least 25% by 2030 based on 2010 campus square-footage consumption rates.

Strategies

- Expand native landscaping-2011
- Evaluate *Guaranteed Energy Service Project*-2011
- Expand no-mow and rain garden areas-2011
- Energy conservation through technology (lighting, computers, vending machines)-2011
- Single building (zoned) weekend class scheduling-2011
- Eliminate personal refrigerators, printers, microwaves, coffee pots, space heaters-2011
- Nightly computer power-down: educate students and staff-2011
- Water conservation through interior fixtures-ongoing
- Eliminate outdated/energy inefficient technology and equipment-ongoing
- Address diurnal timing of outside lights-2012
- Better utilize interior natural lighting and expand use of lighting sensors-2012
- Install solar parking lot lights-2012
- Install solar powered LED campus entrance sign-2012
- Four-day class scheduling for summer session-2012
- Capture and redistribute heat from art building kilns-2015
- Install solar panels-2015
- Install hot water solar collectors-2015
- Begin purchasing renewable energy from outside sources-2015
- Install rainwater rooftop collectors for toilet/landscape use-2020
- Install wind turbine-2027
- Entire building re-commissioning: Integrated energy management between all heating/cooling systems-2030

Tangible Outcome

Overall Energy eCO₂ emissions drop from 39.6% to 14.3% = 1621.1 MteCO₂ reduction

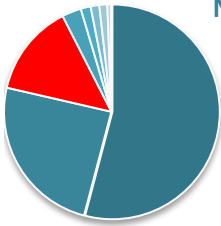
Proposed Policies

- LSC will ensure energy savings by doing the following:
 - Writing and adhering to sustainable purchasing policy (in process)*
 - Writing and adhering to energy use policy (in process)*
- LSC will invest in energy retrofit projects based on five-year or better payback and consider longer payback where practical.

Because we do not generate our own electricity, Transmission & Distribution Losses (T&D Losses) were not included in our analysis of MTeCO₂.

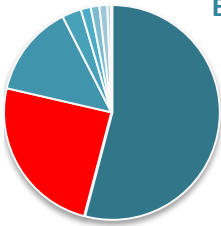
Some electricity is lost during the transmission and distribution (T&D) of power from electric generators to end users. T&D losses should be reported by the entity that owns or controls the T&D lines. If your entity does not own or control the T&D system, you should not account for T&D losses in your entity's GHG inventory. In this case, you should only report the emissions associated with the amount of electricity you consume within your facilities (and report them as Scope 2 emissions; see Chapter 5 for more information).

(“Accounting for Transmission and Distribution Losses” The Climate Registry)



Natural Gas

Comfort Systems is LSC's provider of natural gas, which is used to power the boiler systems for hot water and heat and accounts for 13.9% of LSC's total emissions. Natural gas is an extremely efficient and clean burning alternative to other sources of energy production although not always the most environmentally preferable method of energy collection. Hot water solar collectors would be a relatively inexpensive start to sustainable energy production. Grant opportunities and rebate incentives are available from state and federal programs.



Electricity

Minnesota Power is LSC's provider of electricity. Minnesota Power is currently Minnesota's largest hydroelectric producer, and about 10% of its total electricity is renewably produced from hydro and wind with a very small portion generated from biomass. Purchased electricity makes up 24.5% of LSC's total emissions.

Background LSC's classes are technically spread between two campus locations. The main campus on Trinity Road in Duluth is the primary site addressed by this document. The Emergency Response Training Center (ERTC) campus is located west of the City of Duluth and houses LSC's firefighting program. It was constructed in 1994 with 34,600 square feet and sits on 105 acres of largely undeveloped wooded land. The current Trinity Road campus building includes 327,641 square feet and sits on 97 acres of LSC property.

Expanding Our Footprint In 2007, with a 45,700 square-foot building addition, LSC became the first MnSCU institution to earn LEED Certification on new building construction. In 2010, ground was broken for a fifth addition to the original structure and LEED guidelines have been followed in the design and planning process of the building. As stated in the Building Master Plan, the building will use design methods that will maximize natural day lighting and energy efficient components while working to minimize the campus's overall footprint. The addition of this new facility will increase our GHG emissions considerably, and this anticipated increase is shown in Graph 3 on page 10 of this document. In accordance with LSC's 2007 Master Facilities Plan as well as MnSCU's 2010 Action Plan (page 6 of this document), LSC is committed to adhering to LEED building principals for subsequent campus additions.

Priority Concerns

- *LSC's floor plan* at the main campus site is such that over a span of forty-one years, four additions have been added to the original 1966 structure. This has led to a challenging scenario to efficiently meet heating and cooling needs. With budget constraints in past additions, subsequent systems have been linked together, but not necessarily designed with maximum efficiency in mind. This should be a priority in future improvement plans. A complete re-commissioning of existing systems would be an extremely beneficial capital improvement priority for long-term energy savings.

Strategies

- *Past and present projects* at LSC have made strides to rectify some energy inefficiencies. Projects have included lighting efficiency analysis and upgrades, fixture replacements for water conservation, automated heating and cooling controls upgrades, and automated vending machine energy controls. Johnson Controls was contracted in 2005 to complete a 10 year Guaranteed Energy Service Project. This project has saved LSC about \$50,000 per year in energy costs. Further lighting retrofits are currently underway, and the use of decorative lighting is being evaluated.
- *Solar powered and/or LED parking lot lighting* should be researched.
- *Individual space heaters, refrigerators, and personal printers* are also a large source of wasted energy, and the use of these items should be restricted. This issue will be addressed in a Sustainable Purchasing Policy and Energy Use Policy; both are currently in draft form and will build upon guidelines already established by MnSCU.
- *Wind Energy* Research in wind energy generation should be one of LSC's primary long-term priority investment opportunities. Using several small rooftop wind generators may be a financially conservative approach to initial wind energy production. LSC's location atop a hill makes the main campus a candidate for research into different methods of capturing this renewable resource. Several colleges in less ideal locations throughout the United States have installed wind turbines strictly for the education and publicity benefits they provide. LSC could be an educational leader in our area for these reasons in addition to supplemental energy production. Currently, Minnesota Power offers several options for businesses to invest in renewable sources of energy. [Wind Sense](#) offers customers an opportunity to invest in wind energy by paying a surcharge in addition to their current energy usage charge. This surcharge doesn't guarantee that businesses obtain only wind energy as their electricity source; however it does allow businesses an opportunity to show financial support for wind generated power. Minnesota Power also supports a project specifically designed for educational institutions. The [Conservation Improvement Program \(CIP\)](#) offers a 100% match grant program to defer costs of installing a small-scale wind generation demonstration facility used for education. This would be a tool used not only for sustainable energy production, but could also be considered a versatile piece of laboratory equipment. Research into programs like this will be a priority for LSC by 2027. These types of educational opportunities have been discussed as LSC creates its latest Strategic Plan (more about these ideas can be found in the "Education" section of this Plan).
- *Solar Energy* Minnesota Power also sponsors a [SolarSense](#) rebate program. This program works with state and federal programs to offer rebate incentives and also technical knowledge in installing solar electric and solar thermal heating systems. This would also be a reasonable consideration for LSC.
- *Alternative options to bulky audio and video projection equipment* to outfit LSC's new LEED designed health and science building are being discussed within a task force. The hope is to reduce equipment cost, avoid eventual disposal of outdated equipment, and save energy that is typically used to power this equipment five or six days a week.
- LSC could also consider a *four-day work week*. Many colleges are choosing to reduce the normal class/work week to Monday through Thursday particularly during the summer session. This has saved thousands of dollars in operating costs at similar sized institutions and also reduces energy consumption.
- *Zoning weekend classes*, which means locating all classes offered on weekends in the same section of the building, could be another cost saving effort eliminating the need to heat or cool all sections to accommodate just a couple of classrooms.

Energy GHG Emissions Reduction By implementing solar and wind initiatives in addition to other projects listed above, LSC could potentially reduce its energy related carbon emissions by up to 35% by 2030.

SOURCE 3: SOLID WASTE, PURCHASING AND FOOD (scope 3)

Goal LSC will reduce solid waste emissions by at least 50% by 2030.

Strategies

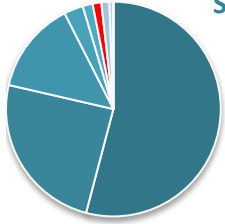
- LEED Certified new construction policy-2011
- Initial edible landscape/campus garden in daycare-2011
- Post-consumer food waste pick-up for compost-2011
- Campus-wide purchasing policy-2011
- “Waste-Sort” through Minnesota WasteWise-2011
- Participate in Recycle Mania-2011
- Waste and recycling tracking (pre- and post- “Waste-Sort”)-2012
- Replace all classroom trash cans with recycle bins-ongoing
- Duplex printers in all teaching labs-ongoing
- Energy use policy-2012
- Incorporate vegetarian/vegan options into food service-2012
- Incorporate more sustainable/local food options (current amount not documented and assumed zero)-2012
- Waste reduction/more efficient recycling program-2012
- Expand campus garden space-2015
- Rain barrel collection for garden use-2015

Tangible Outcome

Overall eCO₂ emissions drop from 1.9% to 0.95% = 111.3 MTeCO₂ reduction

Proposed Policies LSC will minimize solid waste through adoption of a sustainable purchasing policy, recycling, and pre- and post-consumer food waste composting.

- *Waste-LSC will reduce waste by the following means:*
 - Provide recycling services and recycle all paper, plastic, aluminum, and cardboard.*
 - Compost all pre-consumer cafeteria food waste utilizing vermiculture bins.*
 - Divert all styrofoam brought onto campus from the landfill through shredding and re-distribution.*
 - Offer student incentive for double-sided printing on all lab printers.*
 - Require committees to utilize electronic meeting agendas and minutes where possible.*
- *Purchasing-LSC’s purchasing will be done to minimize environmental impact while minimizing cost.*
Refer to LSC’s Purchasing Policy.
- *Food-LSC’s food services will reduce transportation eCO₂ emissions by doing the following:*
Refer to LSC’s Purchasing Policy.



Solid Waste

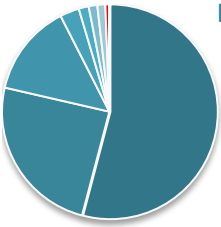
In an effort to take a comprehensive look at our current waste generation, the college became a member Minnesota Waste Wise in 2008. Minnesota Waste Wise offers services such as environmental sustainability assessments and consulting, education, publication, and a materials exchange program. In 2008 and 2011, Minnesota Waste Wise conducted site visits at LSC and generated comprehensive reports highlighting our achievements in sustainable efforts and also made excellent suggestions for future projects.

Current Solid Waste Practices Solid waste accounts for 1.3% of our total GHG emissions. In 2007, LSC's Environmental Council initiated an aggressive program to make recycling for employees more available. Not only did LSC purchase many large recycling receptacles to be placed throughout campus, they also purchased small saddlebags, to be used for trash, which are hung on larger individual recycle bins at employee desks. The smaller saddlebag gives individuals a visual cue and reminder that trash is a secondary receptacle for waste and recycling is primary. Another notable project includes placing vermiculture bins in a highly visible location on campus. These worms take all pre-consumer food scraps from the kitchen, and compost generated is used to start seedling plants in the spring, which are sold at the Annual LSC Scholarship Foundation Plant Sale fundraiser. In the future, LSC will send all post-consumer food waste to a local composting center. We also reduce food waste by donating our used vegetable oil for bio-diesel refining to a local community member as well as donate excess food to a local homeless shelter. In addition, the food service program in LSC's cafeteria has purchased reusable plates and silverware and also employs students with disabilities from the community to educate students on the importance of keeping our reusable dinnerware out of the trash. These individuals also help out with routine clean-up in the kitchen prep area. Also, the Machine Technologies Program has designed and constructed a machine that shreds large chunks of polystyrene. The shredded styrofoam is bagged and given to numerous businesses for different purposes such as packing material (similar to packing peanuts) or insulation. The purpose is to extend the life of the existing product thereby diverting it from landfills and alleviating the need for production of new foam-based materials. Thus far, the machine has shredded over 7,000 cubic feet of what was previously non-usable styrofoam. The availability of the material is advertised online on the Minnesota Materials Exchange website and other free-materials sites.

Suggestions made in this report have been used as guidelines for some new campus initiatives. Some such suggestions include plastic bag and shrink wrap re-use and recycling, outdoor combination trash and recycling bins, and full-scale waste-sort to name a few. Initial steps have been taken in these areas but continued work is needed to fully implement these projects.

Strategies

- *Expanding on the waste-sort program*, LSC's Environmental Council, Student Life, and Student Senate should work cooperatively on Recycle-Mania; an engaging student-run recycling competition. The competition not only makes the current recycling program more visible, but will be a great way to gain student support in waste-reduction by creating ongoing recycling campaigns on campus. This program has a bulk recycling and waste tracking component. With the combination of waste-sort and Recycle-Mania, we will have a better handle on the composition of the waste we generate and can make informed decisions to implement changes and save money.
- Review bi-annual [waste hauler contract](#) to reflect pick-up on an as-needed basis rather than a scheduled basis.
- *Educating* all students and employees on the importance of recycling is a priority in waste reduction.



Purchasing

Current Purchasing Practices Purchased paper makes up 0.6% of LSC's eCO₂ emissions, and the copy center is currently testing 30% recycled content paper in all printers and copiers. To supplement these efforts, LSC proudly became an increasingly electronic based campus with online registration, catalogs and bill pay in addition to requiring email as the primary means of communication for all students and employees. The Information and Technology Department at LSC

is also in the process of expanding student print tracking software aimed at reducing paper abuse and is looking at other software and ways to further reduce our paper needs. Students currently receive a two cent discount per duplex print as an incentive to conserve paper. Many service departments are also actively looking for ways to cut paper usage by utilizing the online employee document sharing portal system. All of these initiatives will be included in LSC's sustainable purchasing policy.

LSC currently employs a computer re-use program organized through our Technology Department. When new student lab computers are purchased, the older lab computers are then wiped of all sensitive information and sent into a two-year rotation for faculty and staff office use. This has tremendously reduced the amount of electronic waste generated and also assures the most energy efficient machines financially available are being used throughout campus. The sustainable purchasing policy will include measures to ensure Energy Star computers and appliances are purchased and computer reuse continues.

LSC has also made Innovative Office Solutions (IOS) its primary distributor for office supplies. IOS offers a cheaper alternative to refillable printer toner and ink cartridges. These products are currently being used on a trial basis. If results are favorable, mandatory purchases of these products will be included in the sustainable purchasing policy. IOS also offers many recycled-content and green office product options at a much lower cost than previous suppliers.

The LSC Store has made a dramatic shift away from high quality plastic consumer bags to reusable bags for merchandise sold. The Store also offers a discount to individuals who opt to bring in their own bag, and, at the same time, also not opposed to using general plastic bags that are collected through our plastic bag recycling program, further reducing our waste load.

The Facilities Management Department began purchasing certified green cleaning products in 2007, and currently 90% of all products used are designated green. In 2008, a full-scale switch to recycled content paper towels was initiated where hand dryers are not available. Also, many campus office suites were previously equipped with five-gallon water coolers, and since 2009, all but one cooler has been removed.

LSC has also made a commitment to perform an annual campus clean-out day, devoting one day to bring all unused office equipment to a re-use room to be redistributed to departments on campus that may be in need of it.

Strategies

- *Cultural and habitual changes* are almost always an obstacle for advancement. LSC has made many notable advances in sustainable purchasing. The main strategy here will be to educate all employees involved in the purchasing process on best practices and compile a list of universally accepted standards for cost savings and efficiency with sustainability in mind. Working together, the Business Office and Environmental Council can create a sustainable purchasing policy as well as a sustainable use policy, both of which will be assets in this ongoing education process.

Campus Food System LSC's cafeteria system is a la carte, so very little post-consumer food waste is generated. Our cafeteria is run in-house, meaning all employees are staff members of LSC.

Priority Concerns

- LSC does not track the amount of locally grown cafeteria food it purchases; it is assumed this amount is zero. *Currently there is not a universally accepted definition for local food but "...the Farm Bill defines locally-produced agricultural food product as one that is raised, produced, and distributed within a locality or region and is transported less than 400 miles from its origin" (United States Department of Agriculture).*
- LSC's cafeteria offers a limited amount of vegetarian/vegan food options.

Strategies

- Discussions between LSC's Food Services, Environmental Council, and our Student Senate's Food Service Committee will be important in *forming a plan for a sustainable menu*. This menu could include vegetarian options and information regarding the significance of meat production and its environmental impact as well as the benefits of locally produced food and information on the food's origin. The sustainable purchasing policy will include a section aimed at local food procurement.
- Planning for *an edible landscape food plot* on campus began in fall 2010. The project will incorporate an educational component by involving LSC's daycare center. Once established, the daycare will utilize this food plot for education and special event food production. Expanding this concept to utilize more on-ground programs and individual expertise will be a priority in future years. Partnering with the City of Duluth's Community Garden Program may be another option for launching a larger scale program on campus property.
- LSC employees suggested *utilizing current planters to grow edible foods*. The group responsible for maintenance will decide who benefits from the project.

Solid Waste, Purchasing and Food GHG Emission Reduction Purchasing local foods, further reducing our paper usage, making a greater shift toward green cleaning products, and creating more student and employee education opportunities regarding recycling should decrease our solid waste emissions by half following a revision of the current waste hauler contract.

EDUCATIONAL AND COMMUNITY OUTREACH EFFORTS

Over the past decade LSC has been working on expanding and incorporating concepts of sustainability into our educational offerings and campus operations. Faculty members of the Environmental Council have carried out a number of projects to infuse sustainability into the curriculum. The recent change of administration has presented us with an opportunity to expand our efforts.

Campus faculty members have been very receptive to learning the concepts of sustainability and promoting its implementation by including student assignments addressing sustainability in curriculum and class objectives. In addition, faculty model sustainability behavior in classes by reduced printing/handouts and requiring assignments to be turned in online.

CURRICULUM AND EDUCATIONAL EXPERIENCES

Goals LSC will:

- *integrate sustainability at multiple levels into courses across the curriculum.*
- *involve students in the study of efforts to integrate sustainability into campus operations.*
- *expand faculty understanding and involvement.*

Strategies

- Define Sustainability in the curriculum-2010
- Establish a college-wide outcome regarding sustainability-2010
- Establish sustainably related course list-2011
- Involve students in developing the food service committee-2011
- Develop a module on sustainability in general and on campus operations for the mandatory Intro to College course-2012
- Establish 2+2 articulation agreements for environmental science and sustainability with the University of Minnesota-Duluth and other 4-year colleges-2012
- Incorporate installation of solar powered LED campus entrance sign into electrical course work-2012
- Identify one faculty/staff per division as a Sustainability Representative-2012
- Develop stormwater management plan and provide training to maintenance staff-2012
- Create Miller Creek Forest Management Plan-2013
- Establish accessible real time data of building operations/efficiency for use in coursework-2013
- Establish renewable energy related programs/certificates-2014

Proposed Policies

- *Faculty and Staff will participate in training related to campus sustainable initiatives such as rain garden and native landscaping area purpose, maintenance, and educational possibilities.*
- *Faculty are encouraged to incorporate sustainability into course content as well as into methods of conducting courses at LSC, such as reduced paper handouts, assignment submittal online, etc.*
- *Student involvement with campus committees and activities is encouraged.*

- Interpretive Trail* LSC's hardwood forest area boasts an interpretive trail that was designed and established in 2007 as a collaborative project between LSC Biology, Environmental Science, Geology, and Civil Engineering Technology departments. This project highlights LSC's largest rain garden, Miller Creek's population of Brook Trout, natural historical features such as rock outcroppings and glacial striations, hydrology specific to Miller Creek, local macroinvertebrates, regional birds, and white pines and northern hardwood forest species in an interpretive trail guide. This guide is available to the public at the trail head in reusable paper form or online at <http://www.lakesuperiorstreams.org/streams/miller.html> or on LSC's sustainability webpage at <http://www.lsc.edu/sustainability/LandWater/MillerCreekTrail/>.

Annual tree planting is also a large part of the Miller Creek reforestation project that has been active for over 10 years. Each year students plant over 300 trees and set up deer exclosures in the riparian area as part of Ecology of Minnesota, Principals of General Biology, and Introduction to Environmental Science Courses. One of LSC's goals is to formalize this Project and create a five-year and long-term forest management plan.
- Landscape* The LSC campus is bordered on all sides by forested area. At present, the extent of landscaping around original buildings is mowed grass with no irrigation and very little pesticide control measures. The Facilities Master Plan suggests installing irrigation systems to critical and visible locations, but, consistent with sustainable practice, it is in the campus' best interest to transform strategic areas into outdoor educational areas with native prairie grasslands, tree planting, and wildflower vegetation. This would alleviate the need for watering as these types of landscapes, once established, require little to no maintenance outside of routine burning for native grasses and weeding around saplings. Long term, this would decrease maintenance cost by more than half for these areas, monies which could be put into a sustainability revolving fund to expand native vegetated areas. It has also been suggested that incorporating more rain gardens into this landscape plan and eliminating mowing in stormwater catchment areas such as ditches would lead to further compliance with stormwater regulations. Education for grounds staff on how to maintain these features is crucial.
- Edible Landscaping on Campus* A one-year sabbatical project for one LSC faculty is focused on developing edible landscaping and gardens on campus. A pilot plot is being conducted with the day care center located on campus in spring 2011. This idea could be expanded by partnering with the City of Duluth's Community Garden Program or the University of Minnesota-Duluth's Sustainable Agriculture Program to promote and create educational opportunities, for LSC students, related to urban farming, local, and organic food systems.
- Toyota Prius Conversion* In 2009, LSC's Automotive Service Technology (ASTE) Department was awarded a grant to provide funding for the conversion of a Toyota Prius hybrid electric vehicle to a plug-in hybrid electric vehicle (PHEV). The grant was also applied to acquisition of data associated with the conversion and integration of information into curriculum associated with the project. After completion of the grant, the Lake Superior College ASTE Program was, and still is, able to use the PHEV for program instruction and development.
- Earth Day* Earth Week festivities at LSC have been steadily growing in recent years. Our Student Senate, Student Life and Environmental Council plan activities for the day including a campus and creek trash clean-up competition, live music, a local/sustainable food picnic, a variety of student and community business information booths lining the campus concourse including electronics recycling and clothing donation, as well as guest speakers and videos. Many faculty members also incorporate these activities into classes offering assignment opportunities or extra credit to attend key note speakers. Many class projects have resulted in proposals for energy and waste reduction projects on campus.

- Sustainability Related Duty Days*** In fall 2009, LSC’s Environmental Council organized an all campus duty day focused on sustainability, which included a keynote speaker and authority on sustainability in education, Deb Rowe. As a result, ideas were solicited from across the campus on ways to apply sustainability to campus operations and infuse it into our curriculum.

In spring 2011, LSC’s first campus-wide “LEAN, Clean, and Green” all employee in-service day was organized by the campus’ Professional Development Committee, Environmental Council, and Facilities Management Department. The day featured campus clean-out, utilizing its first ever re-use room and information on responsible recycling opportunities. The day proved incredibly successful and the amount of re-used material was tracked. The Professional Development Committee intends to make it an annual event and possibly expand the re-use room to be a permanent campus resource.
- Sustainability as a College-Wide Outcome*** In 2010, new LSC college-wide outcomes were developed and now includes the practice and application of sustainability.
- LSC’s definition of Sustainability*** In 2010, the Environmental Council created a working definition of sustainability to be used in the 2010-2011 Strategic Planning Process and various course development workshops. LSC’s working definition of sustainability reads:

A person who practices sustainability supports the interacting roles that healthy environments, economies, and social justice play in meeting the current and future needs of individuals, communities, and the environment.
- New Course Development*** In 2009, a new course, Introduction to Sustainability, was developed and approved through Academic Affairs and Standards Committee. LSC’s Environmental Council members are currently working to compile a list of sustainably related courses and assignments to be made available on LSC’s Sustainability Website.
- LSC’s Sustainability Website*** In 2010, the Environmental Council, Institutional Effectiveness Committee, and the Technology & Connect e-Campus Department began work on developing a portion of LSC’s website dedicated to sustainability. A student volunteer intern took on this project with great enthusiasm. The site is now functional and will be a useful educational and outreach tool aimed at members of the campus and greater community. The website will incorporate everything from campus facility plans for sustainability to grounds maintenance; also policies related to the environment and sustainable practices. The website will also be host to sustainability maps which outline all campus initiatives to date that benefit our future as an environmentally sustainable institution. The maps are a visual representation of projects with links to responsible departments or individuals, pictures, and links to further information. This series of maps is a collaborative effort between the Environmental Council and a student volunteer working toward a Computer and Web Programming degree at LSC.
- Statewide Sustainability Conference*** In 2010, LSC faculty organized a statewide, interdisciplinary conference titled “Sustainability Across the Curriculum”. The workshop was held at LSC and hosted over forty faculty and staff from across the MnSCU system who shared ideas from their teaching and sustainability efforts.

COMMUNITY OUTREACH AND COMMUNICATION

Goal LSC will expand cooperative community partnerships through student stewardship projects, sustainability focused conferences, and will create transparency through LSC Sustainability webpage.

Strategies

- Student recruiting for EC Student Task Groups- 2010
 - LSC's Sustainability webpage active-2010
 - Comprehensive Stormwater Management Plan-2011
 - Ongoing campaigns promoting waste reduction/recycling goals-2010/2011
 - Incorporate campus sustainability efforts into annual Living Green Conference-2011
 - Establish ourselves as a Tree Campus USA school, continue annual tree planting-2011
 - Establish work study positions for Task Groups through EC-2012
 - Full time LSC Sustainability Coordinator position-2012
- **Collaborative Community Efforts** Community outreach and communication related to sustainability covers a broad range of initiatives. Lake Superior College has made many strides in incorporating sustainable community events with campus activities. LSC plans to work more with outside organizations to coordinate efforts to engage the public and build long-standing community partners.
General examples of relevant community partnerships include LSC taking an active role to promote and sponsor more jobs and internships in the local green economy; working with organizations such as the Northern Communities Land Trust, Duluth Energy Efficiency Program (DEEP), Seeds of Success, Duluth Stream Corps, Community Action Duluth, Superior Hiking Trail Association, Western Lake Superior Sanitary District (WLSSD), the Sustainable Farming Association, the Blue-Green Alliance, Minnesota Power, and local companies such as Conservation Technologies.
More specifically, students might work with the Duluth Stream Corps in mitigating erosion along Miller Creek on campus. Similarly, LSC may provide opportunities for students to work with the City of Duluth in implementing the city's ambitious trails plan. At the same time, this collaboration will provide opportunity to engage students in the City of Duluth's vision to promote its greenbelt for parks and open space while ensuring LSC remains a connected part of the overall city parks and trails systems. Related to LSC's lack of housing and also addressing our large carbon emissions associated with commuting, the LSC building and construction programs might train students in energy efficiency and work with DEEP, and also participate and even find employment in constructing sustainable student housing. LSC might also work directly with the City to create more housing in proximity to campus.
 - **Stormwater Management Plan** LSC is in the process of creating a comprehensive Stormwater Management Plan in conjunction with the Great Lakes Innovative Stewardship Through Education Network (GLISTEN). As part of this collaboration, two Lake Superior College students work with community partners to foster learning opportunities through summer internships, and then use the resources and knowledge gained to carry those skills to the classroom during the school year. One of LSC's students worked with the St. Louis County Soil and Water Conservation District in stormwater mapping. The other student worked with the St. Louis River Alliance on local surface water quality monitoring while working to restore LSC's hardwood forest and a stretch of Miller Creek that runs through LSC's property.
LSC's Stormwater Management Plan will address concerns related to the fragile ecosystem just downhill from the main campus buildings. Miller Creek is a designated trout stream and is currently under a Minnesota Pollution Control Agency Total Maximum Daily Load (TMDL) study for temperature and also is impaired for biota. Currently,

Shoreland Zoning restrictions outline specific guidelines related to impervious surfaces and setback regulations adjacent to the creek. LSC's Master Facilities Plan addresses these restrictions and also addresses the dramatic topography of the college property. A majority of the City of Duluth is built on a steep slope that culminates at multiple streams, the St. Louis River, and ultimately Lake Superior. LSC is no exception to this expansive gradient; consequently this poses an added need and challenge for successful stormwater management efforts.

- **Expanding Student Participation** LSC's Environmental Council is the driving organization for campus sustainability efforts. As a two-year college, the Environmental Council has had difficulty recruiting and retaining a dedicated student membership, which in turn makes it difficult to keep momentum going on smaller student run-projects and initiatives. Currently the EC is made up of 90% faculty and only 10% students. In the fall of 2010 the previously established Student Environmental Club began to actively recruit students. The Environmental Club will work closely with the Environmental Council on projects, but will also have the opportunity to organize and participate in outdoor activities like hiking, climbing and canoeing. The faculty and staff members of the Environmental Council will perform a recommending and advisory role to the Club.
- **Energy Dashboard** As mentioned earlier, LSC's new Health and Science Building includes building and design principles following LEED Certification Standards. The Environmental Council has recommended that efforts be made to incorporate a substantial education component geared for the campus community as well as the community at large. It has been suggested that an online "energy dashboard" be installed to monitor and track the real-time daily fluctuations in energy use of the building. This "dashboard" would also compare the energy consumption of this LEED building to one of similar size built without sustainable principles. This tool would be available for classroom use and would also be available online to anyone via a link on LSC's Sustainability webpage. Research in cost and feasibility of this project is currently being done by the Environmental Council.

FEASIBILITY STUDIES

Strategies

- Energy dashboard cost /benefit study-2011
- Post-consumer waste study-2011
- Establish a Local/Sustainable Foods Feasibility Task Group-2011
- Evaluate energy waste of decorative lighting-2011
- Complete building energy efficiency assessment-2012
- Evaluate bus field trip transportation policy-2013
- Research solar collectors-2013
- Research cost effectiveness of purchasing renewable energies-2013
- Forested area carbon sequestration study-2014
- Solar/wind energy feasibility study-2015

This document is designed to be a roadmap for LSC to achieve reduced carbon emission output. For a roadmap to be helpful, thoughtful planning and direction are necessary. These feasibility studies are intended to prompt meaningful discussion and groundwork before implementation goal deadlines arise. It is intended that each of these studies will prompt a taskforce to lay the foundation of policy and/or initiate change. The benefits realized are discussed in previous sections of this Plan.

GREENHOUSE GAS INVENTORY (GGI)

Goal LSC will monitor and document greenhouse gas emissions annually and use that data as a benchmark for prioritizing potential future energy savings projects.

Strategies

- Continue annual Greenhouse Gas Emissions Inventory reporting-2010 and beyond
- Perform landscape Carbon Sequestration Inventory-2015

Proposed Policy LSC's Environmental Council will be responsible for initiating annual greenhouse gas data collection and submission of greenhouse gas results to American College and University Presidents' Climate Commitment (ACUPCC) through the ACUPCC online reporting system. LSC's Office of Research will be responsible for compiling annual data.

LSC's Office of Research will be responsible for providing enrollment and employment data

LSC's Business Office will be responsible for providing applicable data

LSC's Facilities Management Department will be responsible for providing applicable data

LSC's Food Service Department will be responsible for providing applicable data

LSC's Vice President of Finance will be responsible for providing applicable financial data

LSC's Director of Student Life will be responsible for providing applicable student travel data

LSC's Copy Center Manager will be responsible for providing applicable paper usage data

The initial Greenhouse Gas Inventory (GGI) was completed by faculty and staff in July 2009 for the FY08 GGI and initial submission of results to ACUPCC. The 2010 data collection for FY09 GGI was gathered by a work-study student, entered into the Clean Air-Cool Planet (CA-CP) Calculator, and reported by faculty and staff. This approach for data collection and reporting will be followed annually. The Environmental Council is in the process of refining the data collection process for consistent results and will work with LSC's Research and Business Offices to streamline this process.

In April 2010, two employees and a student from LSC's Environmental Council attended a training session focused on utilizing the many functions of the CA-CP Calculator. Tools gained from this training were used in predicting our greenhouse gas emission trajectories for this report. For more information on this process, see the "Campus Emissions" section of this document.

Note: If the Carbon Sequestration feasibility study proves a carbon sequestration inventory of either campus' wooded areas is sizeable enough to create an offset for our campus, annual inventory of these areas will be included in the GGI as well.

FINANCING

Goal LSC will commit to creating and sustaining a revolving fund that utilizes financial payback from campus energy efficiency projects where monies are used for additional energy savings initiatives.
LSC will support the Student Senate in establishing a Student Eco Fee wherein funds will be used to supplement sustainable related projects wherein Student Senate has a majority voice in deciding how these funds are reinvested.

Strategies

- Establish Sustainability Revolving Fund-2012
- Expand LSC Sustainability Coordinator position-2012
- Continue to peruse energy retrofit projects supported by rebate programs – ongoing
- Seek out grant funding opportunities for energy efficiency projects - ongoing
- Student Eco Fee -2014

Proposed Policy Individuals involved in overseeing LSC's revolving fund will include the Vice President of Finance, a member of Business Services, the LSC's Environmental Council, and Student Senate.

- **Retrofit Rebate Projects** In 2010, LSC obtained an almost \$10,000 rebate incentive to retrofit the 1995 main corridor lighting fixtures with more energy efficient fixtures and a photo control system. More efficient bulbs are continually being replaced in fixtures where ballasts permit. These long-term savings should be tracked and the information made publically available. A quarterly campus Sustainability Newsletter has been started to update the campus community on such projects.
- **Sustainability Revolving Fund** In order to prompt and stimulate progress in new sustainability projects, it is recommended that a Sustainability Revolving Fund be established in no less than two years. This fund will catch monies that would otherwise be spent on business-as-usual practices after sustainable alternatives are initiated. Examples of such practices include current lawn maintenance practices, projects proposed by the Sustainable Purchasing Policy, and savings realized by projects like wind and solar energy generation. Annual tracking can be performed in-house using B3 data. With approval from Student Senate, a portion of a Student Eco Fee could also be incorporated into this Fund. Additionally, using a portion of this Fund to extend the Sustainability Coordinator position would allow for research and implementation of potential money saving projects.
- **Student Eco Fee** As mentioned above, with student support, a Student Eco Fee could be rolled into the Sustainability Revolving Fund. The student monies should be differentiated from project savings, and the portion added by students will give them input as to which projects are initiated; this will greatly increase the student's stake and interest in sustainable projects. The monies could also be used to subsidize the ever-growing cost of campus bus service with DTA, a program in which Student Senate has voiced great support in continuing. The Environmental Council will work closely with Student Senate in coming year to assess the support of such a fee.

TRACKING PROGRESS

Goal *LSC's Environmental Council will establish a system of obtaining, compiling, and submitting annual greenhouse gas data to ACUPCC utilizing the expertise of LSC's Research division and other representative divisions. The Environmental Council will also set annual sustainability goals following dates outlined in this Plan and will track progress of completed initiatives. The Environmental Council will also be responsible for bi-annual SPA review and updates, submitting the required bi-annual progress reports to ACUPCC. LSC will make relevant information available on its Sustainability webpage and in its Sustainability Newsletter.*

Strategies

- Establish annual and long-term campus goals-2011
- Adopt STARS sustainability reporting system-2012
- Annual GGI - ongoing
- Bi-Annual SPA review - 2013, 2015-ongoing

CONCLUSION

Compiling data and information for this document has given us, the LSC community, an opportunity to make great strides in documenting and outlining past, current, and future sustainability initiatives. We've also been able to recognize areas of weakness within our institution and have begun to create a systematic way to streamline processes associated with these weaknesses.

The most unexpected benefit of crafting this document has been the shared and collaborative effort throughout the campus community to create a cohesive goal of sustainability. By eliciting input and feedback from our campus community, we've opened up a dialog which has prompted other task groups on campus to incorporate ideas from this Plan into other organizational campus documents. The Plan has created for us a format which covers the gamut of sustainability from the viewpoint of energy, transportation, policy, curriculum and community outreach; thereby creating a more holistic view of campus-wide sustainability.

This Plan will work as and clear and concise annual guide for the Environmental Council in working to advise the college in sustainable initiatives. At the same time, it will prompt more comprehensive tracking of progress while reminding us of our purpose and ultimate goal; for LSC to achieve at least a 50% reduction in eCO₂ emissions by 2030 while laying the foundation to achieve climate neutrality by 2060. This Plan will, without a doubt, prompt meaningful discussion and development of policies and procedures needed to get us there.