GREENFIELD COMMUNITY COLLEGE

Sustainability Plan

Date: April 20, 2005
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This Sustainability Plan has been reviewed and approved by *Robert Pura, President* of *Greenfield Community College* on *April 20, 2005*.

Harry E. Gaines for Robert L. Pura _____
Signature of Agency Head or other Appropriate Designee

1. Agency Information, Impact Identification and Sustainability Team

1.1 Agency Description and Scope

Greenfield Community College was founded in 1962 by visionary citizens of the community who saw how a community college would enhance the quality of life and offer opportunities for growth to the people of Franklin County and surrounding areas, even to southern Vermont and New Hampshire. GCC is the smallest of the 15 community colleges in the Massachusetts higher education system, known for the caring and supportive attitude of the faculty and staff, and for the broad support it enjoys from the surrounding community. We are fully accredited by the New England Association of Schools and Colleges. GCC offers associate degrees for students planning to transfer to four-year colleges as well as associate degrees and certificates to prepare students to enter the knowledge-based workforce in fields in demand in Western Massachusetts.

As the only college in Franklin County, GCC exists as the center of higher education in the region and, as such, is committed to providing cultural activities, and life-long learning opportunities that enrich our entire service area. Our mission is:

- To be the primary source of adult education in the northern half of the Pioneer Valley.
- To provide low-cost, high quality open-admission education in a small college setting.
- To participate in transforming our region into a knowledge-based economy and to prepare our students to live and work in the emerging global society.

The college is sited on 112 acres of mixed topographical and resource areas. Buildings, roads and parking areas occupy approximately 40 acres. Athletic fields and wetlands areas comprise another 25 acres. A steep, forested mountainous area housing 45 acres of mixed woodlands is used as an Outdoor Leadership Program laboratory. The main campus facility has 3 wings totaling 220,000 sq. ft. The East building covers a 48,000 sq. ft. area. The athletic fields are maintained for public recreation use by local school programs and youth soccer and lacrosse programs. The one half mile main entrance drive is mown and well

maintained. A downtown presence is maintained for Community Services Programs and Health Services programs operation from a 16,000 sq. ft. facility.

The unduplicated headcount of students was 2,267 in day and evening classes during 2004. The Campus faculty and staff are composed of 327 people (78 full time and 105 adjunct faculty.)

1.2 Agency Impacts on the Environment and Human Health

Being an educational institution the college has operated on the current site for 41 years; routine seasonal wear and tear is experienced on campus roads and parking areas, physical plant utilities usage/conservation, athletic field and lawn maintenance, academic teaching spaces cleaning and waste removal.

Total Facility Usage:

	FY 2003	***FY 2004***
electricity	*4,951,034 kwh*	*4,050,768 kwh*
water/sewer	*2,514 C cu.ft.*	*2,755 C cu.ft.*
nat. gas	*24,546 Therms*	*22,120 Therms*
haz. Waste	*4 X shipments*	*4 X shipments*
non-haz. Waste	*106.43 Tons*	*95.86 Tons*

1.3 Agency Operational Cost

	FY 2003	***FY 2004***
electricity	*$437,189*	*$363,112*
water/sewer	*$ 12,343*	*$ 13,016*
nat. gas	*$ 19,739*	*$ 28,160*
haz. waste	*$ 4,967*	*$ 4,886*
non-haz. Waste	*$ 12,772*	*$ 11,503*

1.4 Agency Sustainability Team Members

The Sustainability Team is comprised of two groups of contributors: Primary Team addresses Long-term and short-term planning and Implementation. The Contributing Team are members of the Staff and Faculty with specific expertise providing input to one or more Program Areas as required.

Primary Team:	Harry Gaines	Director of Physical Plant	B.A./UMass
	David Fisher, Jr.	Regional Professional Engineer	B.S./W.P.I.
	John Markwell, Jr.	Bldg/Grounds Maint. Superv. II	A.A./G.C.C.
	Theresa Jones	Environ. Science Faculty	M.A./UMass
Contrib. Team:	Brian Adams	Environ. Studies/Nat. Resources	M.A./Antioch
	Monserrat Archibald	Recycling Committee	B.A./Oberlin
	Wayne Coller	Utility Plant Operator	Mass. License
	Ted Johnson	Physics/Science Faculty	M.A./M.C.L.A.
	Val Knowlton	Director of Safety & Security	A.S./G.C.C
	Martha Markwell	Purchasing Agent	
	John Murphy	Shipping/Receiving Coord.	A.S./G.C.C.
	Frank Peterson	Bldg. Maintenance Superv. II	MasterFitter/HVAC
	Robert Pura	President	PhD/Austin, Texas
	Tim Shippee	Head Groundskeeper	A.S./G.C.C.
	Ron Smith	Science Tech. Ass't.	A.S./G.C.C.

2. Long-Term Goals/Vision

The Greenfield Community College has established programs regarding energy and water conservation, waste management, recycling, purchase of recycled paper products, wood land management, building and system maintenance and environmental compliance. The College has maintained long-term goals regarding sustainability of facilities and programs to:

A. Maintain the best teaching platform to foster learning by all students in the Northern Pioneer Valley as earlier identified in the "College Mission Statement."

B. To lower utility costs incurred as an "all electric Main Building Facility" by using more efficient equipment and more environmentally friendly fuels during major construction projects (referenced in Short-Term Goals).

3. Long-Term Goals

ELECTRICITY

Change Electric energy dependence of the all-electric Main Facility to Natural Gas high efficiency hot water boilers to provide heat and hot water. In 2004 (with the South refurbishment)during the Asbestos Abatement Removal Project EJ966 DC3 by D.C.A.M./S.E.A. Consultants/S.A.R. Engineering, design completion and installation was started for six package high efficiency hot water boilers to replace South HVAC heating and potable hot water heating. The new plant located in the Core Wing is designed with adequate capacity to serve the Core and North needs upon future phase renovations.

ROADWAY PAVING WITH RECYCLED MATERIALS

During 2004, in-house staff with the Regional Engineer developed Contract Plans and drawing documents for the replacement of the (1/2 mile long) 30 + year old Campus Drive entering the Main Campus from Colrain Road. Funding for the $525,000 project is currently being searched. The design plans include the removal and recycling of base and finish bitumen surface course materials to be used in the repaving process. This planned action will lower the use of natural resources and reduce the materials cost for the project.

NATURAL RESOURCES PROTECTION FOR WOODLANDS AND WETLANDS

From 1975 to 1999 some 45 acres of mountainside wooded land (on the campus) was under a woodlot management program. Cord wood was annually harvested by the Grounds Department personnel for wood fired furnace heating of the Equipment Repair Garage Facility. Approximately 12 cords of wood heated the Garage per season. With the construction of the East Classroom/Office Building in 1998 – 1999, the use of wood was ended when prevailing wind patterns directed Garage flue gases into the new building outside air intakes. The Garage was converted to natural gas unit heaters at an annual heating cost of $2,800 to $3,000/season.

During 2004 several discussions have been held regarding the potential advantages of looking to the feasibility study to evaluate alternative wood fired boiler heat generation. Campus Grant writers are currently researching funding sources (Green Building Program, etc.) for a feasibility study.

The forested acreage is currently used as an outdoor laboratory for the Outdoor Leadership Program and maintained for rock climbing, high-line and low-line training activities among other course programs.

4. Short-term Actions and Priorities

During the past five years, The Greenfield Community College has internally placed emphasis upon many of the “Sustainability Goals” currently noted a Program Areas. A variety of short-term actions state facilities can take to reduce their environmental impacts have been implemented as listed in the Planning and Implementation Guide. The 8 program areas listing of potential recommended activity steps include about 95+ examples. Greenfield Community College currently performs over 75 of the steps. In depth evaluation found 22 potential steps warranting listing as realistic.

4.1 Priority and Areas Goals

CLIMATE CHANGE/ENERGY EFFICIENCY WITH SOLAR WINDOW FILM

Added solar film installation for southerly exposed classroom windows in the East Building will provide energy benefits with solar heat gain reduction and lower thermal heat loss during the cold season. A specific need installation was applied on E108 multi-purpose, dance studio during May 2004 and found to be very effective. The southern classrooms application will be very effective with window shades for year around use to reduce the electric air-conditioning and gas-fired heating load uses.

WASTE REDUCTION AND RECYCLING FOR PAPER

Paper recycling to be increased by purchase of added recycle containers and utilizing recycle collection labor with program including student involvement. A reborn campus recycling committee to support a current aggressive historical recycling program has been instituted this past Fall. New containers with (only) narrow necked receptacles will be utilized to prevent disposal of partially filled beverage containers being dumped into paper recycle bins and rendering paper non-recyclable(previous major headache for Custodial staff handling saved materials.

SUSTAINABLE DESIGN AND CONSTRUCTION FOR NEW HVAC/R SYSTEMS

To make sure all HVAC/R systems and other large equipment are inspected and maintained on a regular basis; added annual maintenance contracts, internal preventative maintenance task assignments and added personnel requests for new technology assumed with the construction in the South Wing have been presented to support sustainable Construction.

4.2 Agency Action Steps

Agency Sustainability Workplan Worksheet is located in Appendix 4 regarding specific strategies, assignments and responsibilities as submitted.

5. Management Systems and Institutionalization

Reference: 1.4 Agency Sustainability Team Members Section

5.1 Integrating Environmental Impacts into Key Decision Points

The extended Sustainability Team is composed of two groupings. Each person was selected based on daily job task responsibilities and/or special interest and knowledge.

5.2 Education and Training of Staff

The inclusion of Team members from Faculty, Staff and Student body will insure a filter down training flow from the Program documents through the members to the various departments as represented to insure long term retention and follow-up in tracking and reporting.

5.3 Management Systems

The Greenfield Community College does not have a formal Environmental Management System In place at this time. Individual line Directors or Supervisory personnel have individual responsibility by assignment for various areas of need: Compliance, Energy Conservation, Waste Management, Grounds & Natural Resources, etc.

6. Tracking Progress and Program/Plan Review

6.1 Agency Tracking and Reporting Form

The Sustainability Team Leader will develop the appropriate data and updates to file the annual Agency Tracking & Reporting Form.

6.2 Continuous Improvement

How will continuous improvement be insured?

- *A questionnaire will be distributed via e-mail quarterly identifying the attached short-term goals with feed-back requested for Primary Team evaluation and action/response.*
- *Feed-back input request for future planning will be part of the quarterly questionnaire to the extended team.*
- *An annual report will be filed with the President of G.C.C. with a copy of the Annual filing requirement to the Sustainability Council.*

Appendix 4 - Agency Sustainability Workplan Worksheet

For Use in Section 3 of the *Agency Plan Template* "Short Term Actions and Priorities" and should be submitted as part of the agency plan.

This worksheet is intended to help agencies develop an action plan to help identify the key sustainable activities the agency wants to address, as well as identify the key staff necessary to ensure program success. The information provided here is for sample purposes only

Sustainable Goal	Benefits	Specific Tasks	Responsible Staff	Timeline
Install solar window film on southerly classroom windows in East Building.	*- Solar heat reduction affecting classroom use.* *- Thermal heat loss during cold season.*	*- Verify actual achieved affect by test installation in the E108 multi-use Dance Studio in May 2004.* *- Secure funding for installation on South windows.* *- Verify functionality and energy savings by monitoring and metering energy differences.*	• *Harry Gaines* • *Richard Hillier* • *John Johnson, Commissioner* • *Wayne Coller, Utilities Elect.* • *Sustainability Team Review*	• *January 1, 2004* • *February 1, 2003* • *February 15, 2003* • *February 25, 2003* • *March 1, 2003*
Purchase recycle containers And institute use by committee Report on success rate of dedicated containers	*- Provides more equipment for use.* *- Validate use and cost.*	*- Install and monitor use of new containers.* *- Place in desire recycle source locations.* *- Recycle committee achieves goals.*	*- Harry Gaines* *- Monserrat Archibald* *- John Markwell*	
New HVAC/R maintenance programs supporting Sustainable Construction	*- Insure adequate programs and personnel to operate and maintain new heating systems and controls*	*- Get as-built instructions, plans, manuals and training for new technology systems (i.e.; boilers, 4 pipe fan coils and associated control applications.* *- Institute preventative maintenance programs updates.* *- Perform preventative maintenance tasks.*	*- Wayne Coller* *- DCAM* *- Frank Peterson* *- Frank Peterson* *- HVAC/R Tech II by position*	

PROGRAM AREA #1 ACTION STEPS TO GREENHOUSE GAS REDUCTIONS

"Added solar film installation for south exposure windows in the East Building for solar heat gain reduction and lower thermal heat loss during the cold season."

A specific need installation of solar film was applied on E108 multi-purpose, dance studio during May 2004 and found to be very effective. The southern classrooms application will be very effective with window shades for year around use reducing the electric air-conditioning load.

"Main Facility classroom lighting control using programmable lighting control in the South Wing and existing lighting motion detector modification in the North Wing to reduce electric use in non-occupied classrooms, conference rooms and office spaces."

The motion detector modification was shelved during 2003 with the Utility company (WMECO) due to the South computerized programmable lighting control system.

"A new Natural Gas fired boiler hot water system is currently being installed in the South Wing to replace electric heated space and hot water heaters."

PROGRAM AREA #2 WASTE REDUCTION AND RECYCLING

"Increase paper recycling be increasing receiving recycle containers and utilizing Recycle collection labor with program including student involvement."

A new campus recycling committee to support current aggressive historical recycling program has been instituted this past Fall. New container only narrow necked receptacles will be utilized to prevent disposal of partially filled soda cans and /or bottles being dumped into paper recycle bins and rendering paper non-recyclable (previous major headache for Custodians handling recyclables).

"Solid waste and recycle contracts are divided into separate vendors to receive white paper, cardboard; solid waste; and consortium program recycling of electronic/computers/monitors materials."

Purchases of printing paper, paper towels, and other disposable paper products Contracts are identified as being processed from recycled paper materials.

"Increase use of State Surplus Property System to dispose of acceptable property overflow from refurbishment of classrooms, laboratories, and offices which have accumulated and being stored following construction project."

Since the original relocation of the North Wing to the East Building during Phase I in 2000, there has been a continued accumulation of classroom and office equipment and materials being stored in semi-truck trailers for potential reuse upon returning to the Main Facility following refurbishment. Currently some 19 rental semi-trailers exist on site for temporary storage. Existing inventories are in process of review with Faculty and Staff to determine the potential transfer to the State Surplus property System.

PROGRAM AREA #3 MERCURY AND PBT REDUCTION

"Insure that 100% of all fluorescent, H.I.D., and other mercury containing lamps be recycled and properly handled for disposal."

Current recycling efforts include: batteries, mercury thermostats and thermometers and any controlled science laboratory materials.

“All boiler ignitions, new gas fired kitchen appliances, and rooftop heating units will contain electronic ignitions.”

“Mercury Spill kits are supplied and maintained in Science areas and accessible to trained staff members.”

Sphygmomanometers and other mercury containing products have been removed from service and replaced with non-mercury containing equipment. Students do not have access to known mercury containing materials or objects.

“PBT chemicals were largely removed from laboratories with ceasing Organic Chemistry Laboratory program offerings in the student curriculum in 2002.”

PROGRAM AREA #4 SUSTAINABLE DESIGN AND CONSTRUCTION

“Make sure all HVAC/R systems and other large equipment are inspected and maintained on a regular basis.”

Annual maintenance contracts and internal preventative maintenance task assignments are maintained and expanded as need arises. Added maintenance personnel have been requested to meet the need of changing technology with new construction in the South Wing incorporating boiler and HVAC/R equipment and skills levels.

“Conduction of energy audits and updates are being maintained with each new facility coming back on line.”

With substantial changes in systems and equipment technology being installed with each refurbishment, added operational standards and protocols are addressed on a continuing basis. Added sub-metering of revised electrical loads are mandatory to ascertain the levels of reallocation from one energy source to another.

“Using State Contracts to purchase new and used /recycled/refurbished building materials (building office landscape panels, etc.) has recently been implemented.”

State O.S.D. Labor Contracts are used to install the materials contract purchased materials.

Plant staff have been implemented to educate the Faculty staff to turn off lights upon the class completion.

“A part-time Regional Professional Engineer is retained on staff to support in-house Staff regarding energy efficiency, code requirements, indoor air quality, and other related operations and maintenance programs.”

Key staff members have recently attended “Green Buildings Program Seminars and Sustainability Workshops to maintain a close relationship with the programs.

PROGRAM AREA #5 WATER CONSERVATION

“To further reduce non-essential water uses by eliminating watering of lawns and athletic fields.”
The only watering is used to support new plantings of shrubs and/or trees to survive the moves. No automatic irrigation systems are permitted on campus. Use of mulch and wood chips are placed to maintain lower moisture.

Any leaking water lines, faucets shower heads, flushometers, or sill cocks are immediately repaired upon identification. Motion hand wash sensors and toilet flushing mechanisms are installed and maintained upon a continuing basis. No once-through cooling applications are permitted on campus.

“Water meters are scheduled to be installed of the HVAC/R cooling towers make-up units to measure evaporation or spillage of condenser water systems.”

PROGRAM AREA #6 ENVIRONMENTALLY PREFERABLE PURCHASING

“Plastic outdoor products including: plastic lumber, planters, other outdoor products are routinely purchased as preferable.”

“Recycled paper products are universally purchased for printing paper, restroom supplies in bulk quantities.”

“Bio-based lubricants, low V.O.C. paints, cleaners, adhesives and alternative compound snow melt materials are preferred purchasing by the College.”

“Statewide and Consortium contracts are used to purchase pre-tested, quality products.”

PROGRAM AREA #7 ENVIRONMENTAL COMPLIANCE

“The Director of Health & Safety maintains absolute control of mandated Environmental Compliance and environmental Impacts.”

Hazardous Waste, tanks and containers, storage, delivery, tracking, records, chemical inventories, right to know, E.H/ & S Policies, periodic meetings, agency emergency contact notification, nuclear emergency response protocols are all part of the coverage.

Employee testing services with workplace health organizations are maintained with annual testing for asbestos related activities.

PROGRAM AREA #8 NATURAL RESOURCE PROTECTION

“Mowing the grass on 20 acres of athletic fields at a 2 ½ inch minimum height is adequate to maintain a strong root structure (high water table).”

The clippings are left on the ground to be integrated into the soil. No fertilizers are used

“Trees and vegetation is protected during site work, facility renovation, or new construction.”

Approximately 45 acres of forest lands are included in the College site. The wooded Land was historically under woodlot management for 25+ years. Use of wood harvested from the site was used until 1999 to heat the College garage repair facility. Predominate wind patterns funneled stack flue gases to be directed into the outside air intake ducts for the new East classroom, and office building. The garage heating systems were converted to natural gas in 2000. The woodlands are also used as an outdoor leadership laboratory space for rock climbing, high lines, and associated functions for outdoor skill teaching.