



CUYAHOGA COMMUNITY COLLEGE  
Sustainability Plan  
2010





## TABLE OF CONTENTS

Introduction	2
Energy, Climate and Transportation	8
Green Building and Grounds	14
Procurement	22
Recycling and Waste Reduction	26
Academics and Workforce Training	32
Communications and Community	36
Acknowledgements	40
Glossary	42
Appendices: A and B	

### MISSION

*To provide high quality, accessible and affordable educational opportunities and services – including university transfer, technical and lifelong learning programs – that promote individual development and improve the overall quality of life in a multicultural community.*

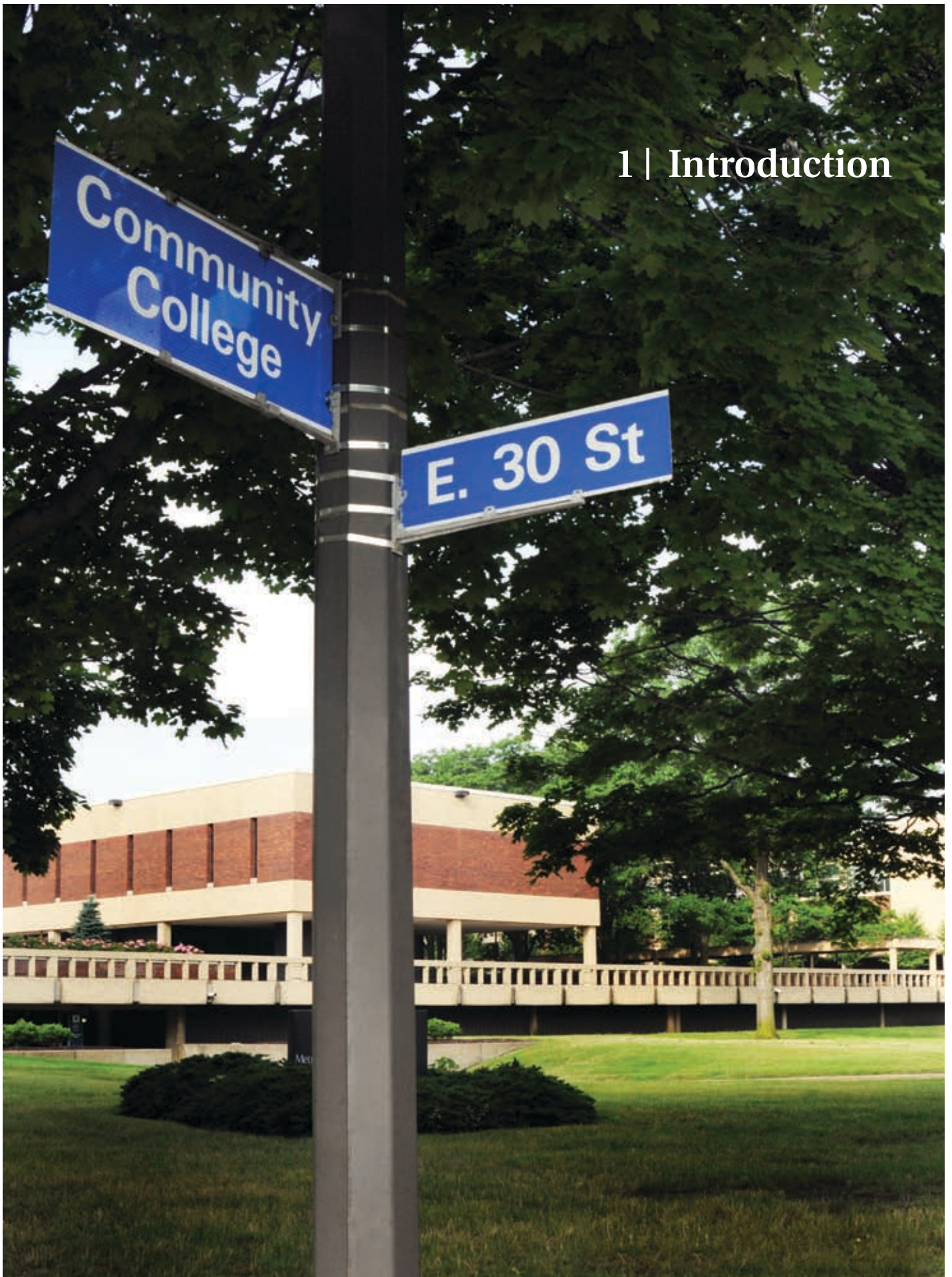
### VISION

*Cuyahoga Community College will be recognized as an exemplary teaching and learning community that fosters service and student success. The College will be a valued resource and leader in academic quality, cultural enrichment, and economic development characterized by continuous improvement, innovation, and community responsiveness.*

### VALUES

*To successfully fulfill the mission and vision, Cuyahoga Community College is consciously committed to diversity, integrity, academic excellence, and achievement of individual and institutional goals. We are dedicated to building trust, respect, and confidence among our colleagues, students, and the community.*

# 1 | Introduction



## COMMUNITY COLLEGES: CHAMPIONING SUSTAINABILITY AND COPING WITH ECONOMIC CHALLENGES

Community colleges are a vital and essential component of the national and local economic recovery, and enrollment numbers are climbing to prove it. Community colleges are well positioned to offer workforce training that provides new sustainability and green jobs skills to the unemployed and underemployed. Federal stimulus funding could support these types of training programs.

In the midst of dealing with growing student populations and building course offerings in a time of lower revenues, many community colleges are also immersed in efforts to become more sustainable institutions. Thus, planning to grow to accommodate rising student enrollment while also working to improve sustainability performance offers challenges as well as great opportunities.

## SUSTAINABILITY: A COMPELLING MISSION

As a vital part of the educational and economic health of Northeast Ohio, Cuyahoga Community College (Tri-C®) has committed to become a more sustainable institution. Sustainability at Tri-C means achieving the College's educational and community missions with a sense of responsibility for preserving the environment, promoting the economy, and improving society as a whole.

Tri-C set-out to create a sustainability plan that would provide guiding principles for the development of strategies. The plan outlines current sustainability programs at Tri-C, and lists goals and key strategies in each of the following areas: Energy, Climate, and Transportation; Green Buildings and Grounds; Procurement; Recycling and Waste Reduction; Academics and Workforce Training; and Communications and Community.

### Sustainability Mission Statement

*“Tri-C recognizes that its commitment to education and community includes a sense of responsibility to our environment. Tri-C will lead by example by investigating, developing, and promoting sustainable policies, practices, and curricula, with the goal of achieving sustainability throughout the College. The College also aspires to instill in our students, faculty, and staff a sense of stewardship towards the environment by giving them the information and support to continue sustainability efforts beyond the campus environment. We must strive to prepare our students, faculty, and staff to be leaders in creating and promoting a culture of diversity, sustainability, and environmental sensitivity through our community.”*

## Achieving Sustainability at Tri-C

As Cuyahoga Community College continues its efforts to make the institution a more sustainable one, it does so under a number of external pressures, decreased revenue being a critical issue.

Revenues have decreased due to:

- Low tuition rates that help retain and attract students
- Limited funding from County Property Tax
- Decreasing state subsidies

Current economic cycles and external pressures on Tri-C will change or subside. But in the meantime, the College will face ongoing responsibility to trim costs and make operations more efficient.

## Leadership and Initiatives

The Facilities Development and Operations Department hired a Sustainability Manager early in 2009 to coordinate the ongoing efforts for improving sustainability at the College. These efforts have been incorporated into the Sustainability Plan. In addition, the Academic and Student Affairs division hired a Vice President of Sustainability to lead curriculum development and work with local economic development entities to further improve coordination of sustainability programs.

The following are a few examples of sustainability initiatives being pursued:

- Capital & Construction's policy is for new buildings to obtain the U.S. Green Building Council's LEED™ Silver certification and for all construction and renovation projects to follow sustainability standards.
- Tri-C procures office paper that is Forest Stewardship Council (FSC) certified and has a minimum of 50% post consumer waste recycled content.
- The College offers both an Associate of Applied Science degree as well as a post-degree certificate in Environmental Health and Safety Technology.
- The Advanced Manufacturing and Engineering program has a new Wind Technician Training program.

- Tri-C received a \$50,000 Ohio Department of Natural Resources grant to add recycling bins to each campus in 2008 for co-mingled plastic, metal, glass, and cardboard as well as paper collection.
- Phi Theta Kappa, the International Honor Society of the Two-Year College, launched an "E-Waste Not/Want Not" campaign to collect and recycle cell phones and ink cartridges in Fall 2008.
- A student print management program was instituted by the business services office in May 2008, resulting in a 33% reduction in college printing.

The Sustainability Plan charts a course to continue efforts already underway by dedicated faculty and staff at Tri-C to make the institution more sustainable.

The College's commitment to sustainability has importance not only for environmental and social reasons, but for economic ones as well. This Sustainability Plan explains some of the efforts Tri-C is making on a local scale to improve the environment, the lives of the people and the economy of its region.



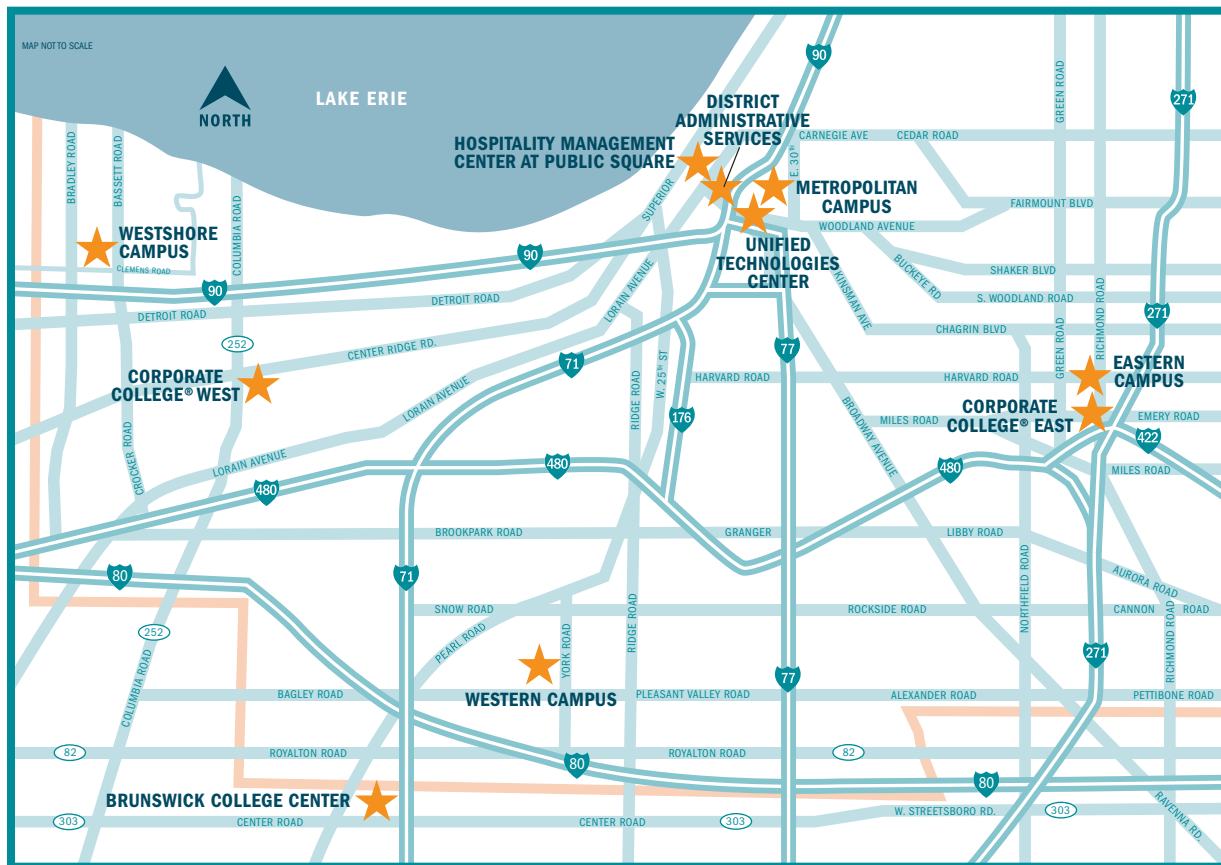
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## About Cuyahoga Community College®

Cuyahoga Community College (Tri-C®) opened in 1963 as Ohio's first community college and remains Ohio's largest community college. Tri-C now serves more than 55,000 credit and non-credit students each year.

The College's facilities include its Eastern, Metropolitan and Western campuses, along with the new Westshore Campus in Westlake; two Corporate College® locations; the Unified Technology Center (UTC); the new Brunswick College Center in Brunswick; and the District Office downtown.

College-wide operations include 2.7 million square feet of building space and over 500 acres of grounds. For over 46 years, Tri-C has provided high quality, affordable education and programs to more than 900,000 members of our community.





## SUSTAINABILITY GOALS

Tri-C has defined goals for each area of sustainability discussed in the Plan.

### Energy, Climate, and Transportation

#### Goal

To strive for carbon neutrality at Tri-C by increasing energy efficiency, exploring renewable energy options and reducing the College's transportation footprint.

### Green Buildings and Grounds

#### Goal

Reduce the environmental impacts of Tri-C's buildings by following the USGBC LEED™ standards and other best sustainable design and construction practices; creating healthy spaces and programs; and improving stormwater management.

### Procurement

#### Goal

To apply sustainability to procurement by (1) adopting clear and transparent criteria so that full life cycle impacts will be considered in purchasing and contracting decisions; (2) reducing consumption of goods and reducing the impact of chemical usage; and (3) providing training and necessary tools and resources to procurement staff.

### Recycling and Waste Reduction

#### Goal

Increase Tri-C's waste diversion recycling rate to 50% by 2025.

### Academics and Workforce Training

#### Goals:

Tri-C faculty and instructors will infuse sustainability literacy throughout the curriculum.

Tri-C students will recognize and understand the basic concepts of sustainability and effectively communicate those concepts to others in the community.

### Communications and Community

#### Goal

Increase awareness of sustainability issues among campus and community members through education and outreach and empower sustainability action on campus and within the broader community.



*Metropolitan Campus Wind Turbine*

## 2 | Energy, Climate, and Transportation

### GOAL

*To strive for carbon neutrality at Tri-C by increasing energy efficiency, exploring renewable energy options and reducing the College's transportation footprint.*

### The Tri-C Energy Master Plan

The Tri-C Energy Master Plan is a roadmap for reducing energy consumption from the use of natural gas and electricity by 20% in 2014, as required by Ohio House Bill 251 (HB 251). As a result of the College's commitment to energy efficiency and the implementation of the Energy Master Plan, Tri-C has reduced energy consumption from 2000 to 2009 by 29%, exceeding the HB 251 requirements. Similarly, *greenhouse gas (GHG)* emissions have been reduced by 18% between 2000 and 2008. Some of the energy conservation measures already enacted include lighting retrofits, boiler and chiller replacements, building air conditioning system optimizations, and swimming pool cover installations.

Continued improvement in reducing energy usage will be challenging, given the College's projected enrollment growth and associated growth in the built environment (see Section 4 for more information on green building commitments). Tri-C has already finished many projects that reap the "low-hanging fruit," which are the projects involving easily implemented solutions with short payback periods.

### Climate Neutrality and the American College and University Presidents' Climate Commitment (ACUPCC)

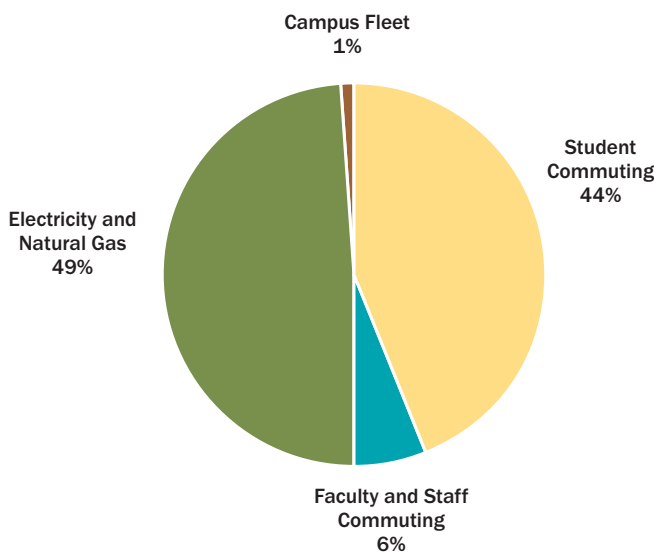
In spite of the challenges, Tri-C is committed to maintaining its leadership in the area of energy efficiency and greenhouse gas (GHG) emission reductions. The College's efforts will be guided by the principles in the American College and University Presidents' Climate Commitment (ACUPCC), which provides a framework for institutions to pursue climate neutrality (see box on page 9). In fact, Tri-C is already completing most of the required actions of the ACUPCC. Tri-C will sign the ACUPCC and strive toward carbon neutrality as this sustainability plan is made public. The College will invest in cost effective energy efficiency, energy management, alternative transportation, renewable energy projects and other tactics to reduce our energy usage and GHG emissions.

## Energy Consumption and Greenhouse Gas Emissions

At Tri-C, the main sources of energy consumption and GHG emissions are natural gas (used primarily for heating), electricity, and fuels for running the campus fleet. The commuting of the campus community is a large source of GHG emissions not under the College's direct control but included in the larger Tri-C carbon footprint.

**Tri-C Estimated Annual Greenhouse Gas Tons**

	Metric Tons CO <sub>2</sub> e
Electricity and Natural Gas	32,620
Campus Fleet	411
Student Commuting	28,700
Faculty and Staff Commuting	3,980
<b>TOTAL:</b>	<b>65,711</b>



3.1 Breakdown of Tri-C's estimated Greenhouse gas emissions, a full emissions inventory will be completed during the 2011 academic-year.

## Greenhouse Gas Emissions Inventory

Tri-C has not formally completed a comprehensive campus-wide GHG inventory; thus, the information presented here represents an initial estimate of the College's GHG emissions.

According to the Tri-C Energy Master Plan, GHG emissions from electricity and natural gas usage were 40,473 tons CO<sub>2</sub> in 2000, and dropped to 35,080 tons CO<sub>2</sub> in 2008, for a 15% reduction.

Using other data sources, Tri-C has estimated emissions from student, faculty, and staff commuters, as well as emissions from the Tri-C fleet (see 3.1.).

Currently, Ohio energy providers rely heavily on coal-fired power plants to generate electricity, which leads to higher GHG emissions per unit of electricity delivered. In the future, emissions from electricity at Tri-C will decrease due to power producers complying with Ohio Senate Bill 221, which requires producers to have a 25% renewable energy portfolio by 2025.

## American College and University Presidents' Climate Commitment (ACUPCC)

The ACUPCC is an agreement signed by over 650 institutions that provides a framework for implementing comprehensive plans in pursuit of climate neutrality. The Commitment recognizes the unique responsibility that institutions of higher education have as role models for their communities and in educating the people who will develop the solutions needed to reverse global climate change and create a more sustainable society.

ACUPCC institutions have agreed to:

- Complete a GHG emissions inventory
- Within 2 years, set a target date and interim milestones for becoming climate neutral
- Take immediate steps to reduce GHG emissions by choosing from a list of short-term actions
- Integrate sustainability into the curriculum and make it part of the educational experience
- Make the action plan, inventory, and progress reports publicly available

### Buildings: Heating and Electricity

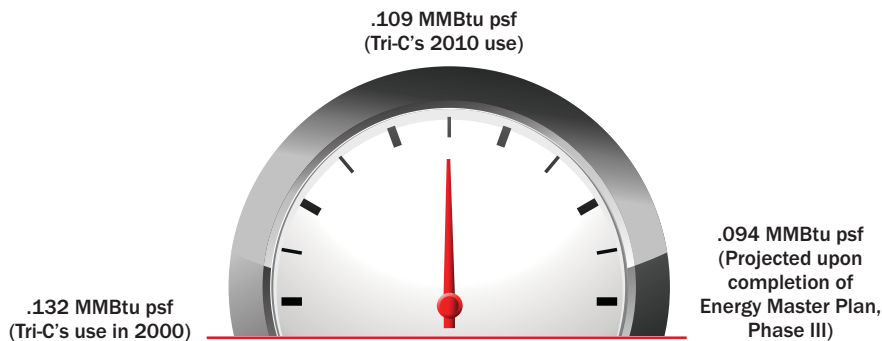
As of 2000, energy usage at Tri-C was over 45 million kilowatthours (kWh) of electricity per year, which was reduced to just under 39 million kWh per year by 2008. During the same time period, natural gas usage declined from about 320,000 million British Thermal Units (MMBtu) in 2000 to 164,000 MMBtu. These gains were made in spite of growth at Tri-C, and energy use per square foot also declined by 14% between 2000 and 2008. (See 3.2).

Some of the measures in the Tri-C Energy Master Plan are financed through Ohio House Bill 7 (HB 7). This bill allows the College to enter into contracts with a consultant based on a Request for Proposal process for the implementation of energy savings measures. Projects can be paid for with energy costs savings over a 15-year period.

### Transportation: Tri-C Campus Vehicles and Fuels

Tri-C currently owns and operates 85 vehicles for public safety, maintenance and other tasks, and 54 non-plate vehicles (vehicles that are not used primarily for transportation and do not need license plates), which includes tractors, forklifts, salt spreaders, sweepers, mowers, golf carts and six Segways.

All Tri-C vehicles are gasoline or diesel fueled except for approximately 10 alternative fuel or hybrid vehicles used in the automotive technician training program (See 3.3 for Tri-C's types of fleet vehicles). Total liquid fuel usage per year is about 34,500 gallons. (See 3.4 for the percentage of the fleet using alternative fuels.)



3.2 Tri-C's annual energy use is tracked per square foot of total building space. Tri-C reduced energy use by 29% from 2000-2010.



A Tri-C police officer on a Segway, an electrically charged alternative vehicle.

**Transportation: Private and Public Transit**

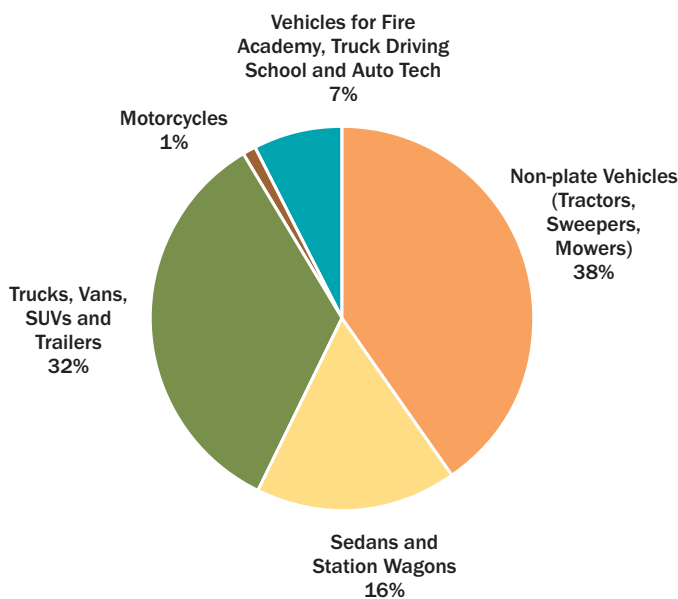
About 20% of the campus population, both students and faculty, drives to Tri-C and parks there during peak occupancy periods. Currently, there is approximately one parking spot for every four persons (including all part-time and full-time credit students at the main campus locations <sup>1</sup>).

Campuses vary greatly in their access to public transportation services. Sixteen bus lines serve the Metropolitan Campus. Recent data from parking permit sales show that there are fewer parking permit sales per person at the Metropolitan campus than the Eastern and Western campuses, indicating that the campus community at the Metropolitan campus is likely using alternative forms of transportation such as public transportation. In contrast, the Eastern Campus and Corporate College East are served by two bus routes, while the Western Campus is served by three bus routes.

**Carpooling, Vanpooling and Bicycling**

Local carpooling and vanpooling options exist through Ohio Ride Share ([www.noaca.org/ohrs.html](http://www.noaca.org/ohrs.html)), but Tri-C does not facilitate these programs or maintain statistics on the campus community's participation. The College is considering ways to encourage carpooling and biking to campus.

Cleveland's regional environmental groups work to promote bicycling and the development of bicycle infrastructure. In line with this trend, Tri-C will increase bike racks and access to showers for bicycle riders.



3.3 Tri-C owns nearly 100 vehicles, the fleet breakdown shows the types of vehicles Tri-C uses.



3.4: Percentage of the Tri-C fleet using alternative fuel or hybrid technology is 10%

<sup>1</sup> Desmond and Associates. Cuyahoga Community College Parking System Assessment. February 2008.



*A solar panel array on the Tri-C Metropolitan campus near the Science & Technology building.*

## THE PATH TO SUSTAINABILITY

### Energy, Climate, and Transportation Goal

To strive for carbon neutrality at Tri-C by increasing energy efficiency, exploring renewable energy options and reducing the College's transportation footprint.

#### Key Strategies for Reaching Goal

##### **Buildings: Heating and Electricity**

- Continue reducing building energy use and associated GHG emissions:
  - Update and continue to implement the Energy Master Plan.
  - Explore renewable energy generation.
  - Build LEED™ certified buildings.

##### **Transportation: Tri-C Vehicles**

- Evaluate the following options to reduce College fleet fuel usage and associated GHG emissions:
  - As vehicles retire, consider replacing them with alternatively fueled or highly efficient vehicles.
  - Reduce landscaping maintenance requirements to lower emissions from off-road vehicles and equipment.
  - Study a reroute of Tri-C vehicles to reduce vehicle miles traveled.
  - Promote videoconferencing in lieu of traveling to meetings.

##### **Transportation: Commuting Options**

- Strive to reduce fuel usage and GHG emissions associated with student, faculty and staff commuting by evaluating the following:
  - Restructured parking rates.
  - A shuttle service between campuses or between high traffic areas (i.e., downtown Cleveland) and campuses.
- Encourage carpooling/vanpooling through consideration of:
  - Creating an online coordination system for finding carpools and vanpools.
  - Providing priority parking spaces for carpools and vanpools.
- Maximize walking/biking through evaluation of:
  - Improved bike routes, increased bike lanes and bike racks.
  - Optimizing sidewalk systems and implementing low speed limits on adjacent streets near campuses.
  - Development of a plan to increase the availability of showers and lockers.

The Tri-C administration has worked together with Greater Cleveland Regional Transit Authority to develop a pilot partnership program in where Tri-C students will have the opportunity to buy a semester bus pass at a 30% savings. This savings of \$100 per semester on the semester bus pass will be available starting in Fall 2010 to all interested students. The student savings is possible thanks to a College subsidy along with an RTA discount.

# 3 | Green Buildings and Grounds

## GOAL

*Reduce the environmental impacts of Tri-C's buildings by following the USGBC LEED™ standards and other best sustainable design and construction practices; creating healthy spaces and programs; and improving stormwater management.*

### **The Tri-C Ten-Year College-Wide Academic and Facilities Master Plan**

In order to achieve the College's mission, vision and values, Tri-C is committed to the creation of spaces that enhance student, faculty, and staff performance. The Tri-C Academic and Facilities Master Plan includes a goal that the College will be more efficient and effective in their use of space.

### **Green Buildings: Enhancing Efficiency and Optimizing Space**

Tri-C is making strides to reduce the negative environmental impacts of its new buildings. The goals for such projects are to design and construct buildings that comply with the U.S. Green Building Council (USGBC) LEED™ Silver criteria; develop and use green building and sustainability guidelines for renovation projects; and to implement extensive energy efficiency upgrades in existing buildings.



*Opening January 2011 the new Westshore Campus green building, the first of three buildings on this campus, will improve stormwater management, reduce potable water consumption, and protect and enhance natural areas.*



### Green Buildings: Enhancing Efficiency and Optimizing Space (cont'd)

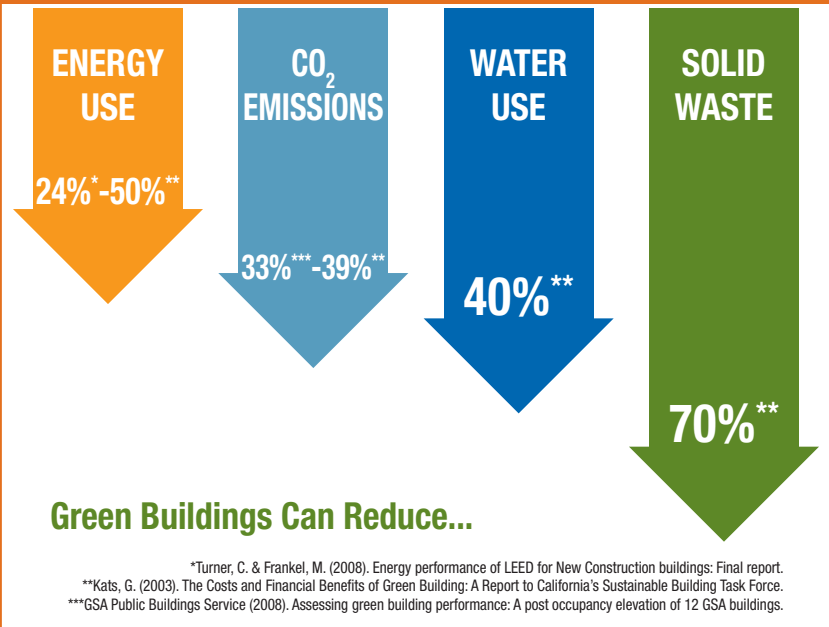
As of summer 2009, Tri-C had over 2.7 million square feet of space in buildings that are on average 29 years old. Retrofits made from 2000-2009 have made Tri-C facilities 29% more efficient, the resulting savings will be \$35 million over ten years, allowing Tri-C to reduce energy use per square foot of building space. (For more information on our energy efficiency projects, see the Cuyahoga Community College House Bill 251 Energy Master Plan and section 3 of this document.)

Several new buildings in the planning and development stages will accommodate future growth in student enrollment. At the completion of Phase II of the Master Plan, current square footage at Tri-C will increase by about 17 percent. To reduce the impact of these new buildings, six projects in the design or construction phases are targeted to achieve a LEED™ Silver rating. The College's first LEED™ building was designed and built to achieve a LEED™ Certified rating. All current LEED™-designed projects total 281,000 square feet.



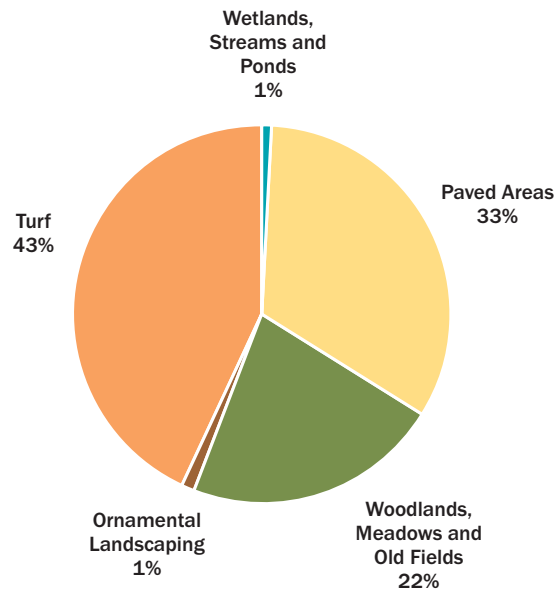
LEED™ is an internationally recognized green building certification system, providing third-party verification that a building or community was designed and built using strategies aimed at improving performance across all the metrics that matter most: energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental

quality, and stewardship of resources and sensitivity to their impacts. Developed by the U.S. Green Building Council (USGBC), LEED™ provides building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations, and maintenance solutions.





**EASTERN CAMPUS HEALTH CAREERS TECHNOLOGY BUILDING:** Cisterns, like the one above, provide a non-potable irrigation source. Vegetated swales slow water flow and reduce erosion to increase water quality as storm water moves away from the building above.



4-2 Types of grounds surfaces at Tri-C locations.

## Healthy Spaces

The College's goal to create healthy spaces and programs will incorporate making connections between all of the sustainability programs. Collaboration between Facilities Development and Operations, Workforce Solutions, and Academic and Student Affairs will allow students to learn from the sustainable operations of Tri-C's buildings and grounds.

## Grounds and Stormwater Runoff: Natural Assets and Solutions

Tri-C manages 517 acres, including more than 100 acres of wooded or natural areas. Permeable surfaces, which reduce stormwater runoff, cover approximately 64% of that area. (For a breakdown of the various surfaces at each site, see 4-2.)

Excess stormwater from paved areas has traditionally drained directly into storm sewers without on-site treatment or storage. New Tri-C buildings projects will incorporate stormwater management features such as detention basins, ponds, or underground tanks that reduce peak discharges. Additional opportunities for stormwater management include rain gardens, bioswales, cisterns, pervious pavement, green roofs and green streetscapes. Tri-C has identified this area as key for positive impacts on future sustainability efforts.

Other initiatives include reducing potable water usage and protecting and enhancing natural areas on our campuses.



**EXAMPLE OF A RAIN GARDEN** located in a parking lot to detain and filter rainwater that flows from the parking lot.



**GREEN ROOF AT CORPORATE COLLEGE® EAST:** Green roofs lessen the heat island effect, prolong the longevity of the roof and filter rainwater.



Brunswick College Center is one of the six currently commissioned buildings applying for LEED certification.

## **Tri-C sits near one-fifth of the world's surface fresh water – the Great Lakes...**

are a natural resource of global significance. Lake Erie is a dominant feature of Northeast Ohio and affects the region by shaping the weather and supplying a constant source of water for drinking, industry and recreation. The Tri-C sustainability vision ties together buildings, land use and water use, enhancing the College's connection to the Great Lakes. New buildings often mean new parking lots, new landscaping and new water consumption, all of which have an impact on stormwater systems and, eventually, Lake Erie. To address these linked environmental concerns, Tri-C has begun to incorporate green stormwater management design features into Capital & Construction projects, which will result in a healthier lake. The College is committed to leadership in the responsible use of local natural resources. The Northeast Ohio Regional Sewer District (NEORS) is developing a new stormwater fee program to begin in mid-2010 to reduce the region's growing stormwater management issues. The fee is based on units of 3,000-square-foot areas of impervious surface area called ERUs (Equivalent Residential Units). Stormwater fees will be based on the number of ERUs at each site; current fees are approximately \$100,000 annually. Up to 75% of that amount can be eliminated by reducing the number of ERUs.



### From Turf to Natural Habitats

Turf, defined as vegetation made up of grass, grass roots and other small plants, comprises about 42% of the grounds, or about 200 acres. Tri-C will evaluate converting portions of its turf area to native meadow at the Eastern Campus with the construction of the Health Career and Technology (HCT) Building as a part of the LEED™ Silver goal.

### Conservation of Current Habitats

The Eastern Campus has about 95 acres of woodlands, meadows and old fields, important natural areas to preserve because of their impact on stormwater management, the need for habitats for local wildlife, and for their potential to be integrated into future academic programs. For example, the Eastern Campus has a landscape adaptable to teaching ecology courses and for creating wetlands. A substantial percentage of Tri-C grounds are currently undeveloped and provide open space and habitat for native species. (See 4.4)



**THE EASTERN MEADOWLARK:** A once-common meadow bird whose numbers are in decline. Replacing turf with meadow and protecting and enhancing natural areas should help species like this one to recover. Decreased mowing at the Western Campus will create a habitat for this bird.

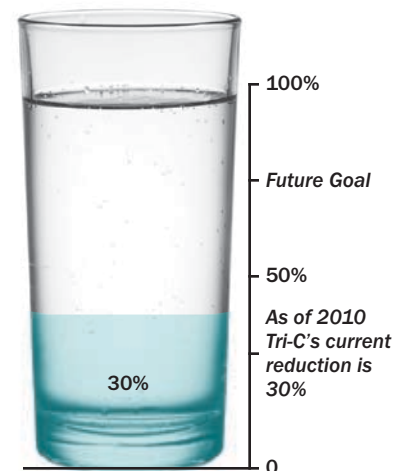


4.4 Percentage of Tri-C grounds that provide open space or habitat versus those that covered by buildings and parking lots

### Potable Water Usage: Minimizing Waste and Consumption

Tri-C campuses used about 51 million gallons of potable water in 2008, a reduction of 30% since the implementation of the Tri-C Energy Master Plan (see 4.3). About 40% of potable water usage occurs on the Metropolitan campus and 39% occurs on the Western campus. About 12% of all potable water was used for irrigation.

The current cost of potable water to Tri-C is less than 1 cent per gallon, resulting in long payback periods for water efficiency projects. Currently no gray water or rainwater collection systems are in place at Tri-C. However, a cistern for harvesting rainwater is under construction at the new HCT Building on the Eastern Campus. The rainwater collected by the cistern will be used for landscaping irrigation.



4.3 Tri-C is striving to reduce the amount of potable water that is used annually by installing low flow technologies. From 2000-2010 the College reduced usage 30%.

## THE PATH TO SUSTAINABILITY

### Green Buildings and Grounds Goal

To reduce environmental impacts of buildings by following USGBC LEED™ standards and other best sustainable design and construction practices; to create healthy spaces and programs; and to improve stormwater management.

### Key Strategies for Reaching Goal

#### Buildings

- Improve space utilization in existing buildings.
- Continue upgrades to mechanical systems in existing buildings to improve energy efficiency.
- Attempt to design and construct all major new buildings to the LEED™ Silver standard in the short term and beyond in the midterm, with additional considerations for design that incorporates natural elements into the College's indoor environment (often referred to as biophilia).

#### Healthy Spaces

- In the long term, strive for *carbon neutral* "net zero" buildings, a goal from the national Architecture 2030 Challenge.
- Create connections between the sustainability programs, Workforce Solutions, and Academic and Student Affairs to enable students to learn from the sustainable operations of the College's buildings and grounds. Some potential methods include:
  - Integrate interactive building kiosks that allow faculty, students and visitors to learn about green building systems at Tri-C.
  - Create a Landscape Implementation Plan for each campus.
  - Have students participate in creating educational wayfinding that incorporates the LEED™ buildings' green elements.
  - Add information from building LEED™ scorecards, energy performance, water use, daylighting levels, and occupant surveys to relevant Tri-C classes and training programs.



Eastern Campus

*Water features and natural areas on Tri-C campuses provide storm water control as well as habitat.*



Western Campus

### **Grounds and Stormwater**

- Develop cost-effective projects to reduce stormwater runoff. Options include *bioswales*, rain gardens, green roofs and retention ponds. These actions will also reduce the College's stormwater fees under the new NEORS D program.

### **Potable Water Usage**

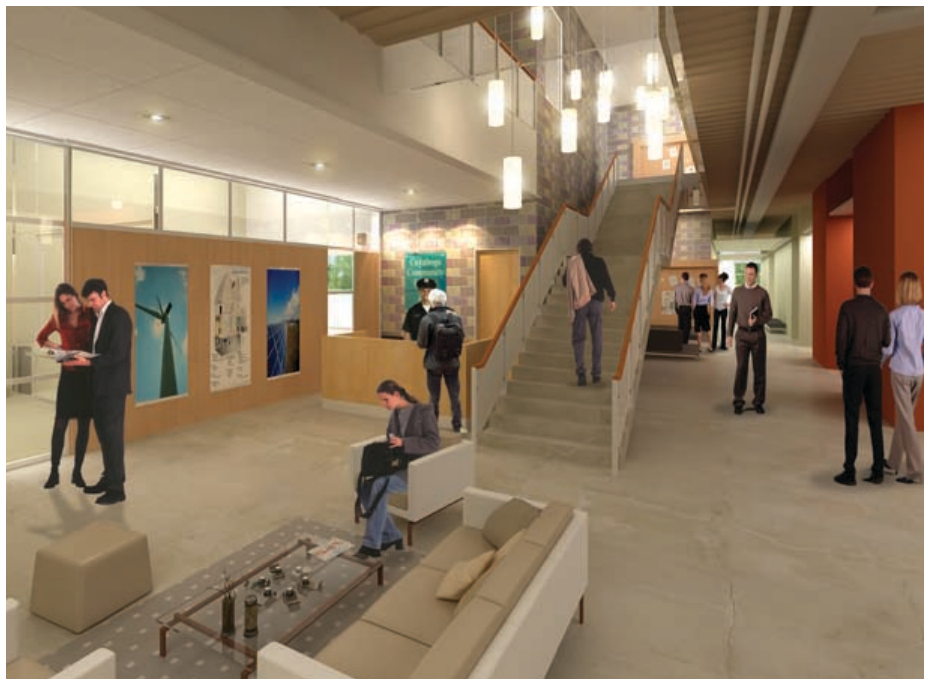
- When practical, explore and implement *best management practices* for reducing irrigation, such as using native plants that do not require irrigation.
- Continue the use of low-flow fixtures, *condensate collection systems*, and other potable-water-saving technologies.

### **Natural Habitats**

- Protect and enhance natural areas by implementing preservation and *habitat rehabilitation* projects.
- Evaluate the Master Plan for tracts of land that could be designated for preservation projects.

### **Chemical Usage**

- Expand the Integrated Pest Management Program, currently in place at the Metropolitan campus, to all campus locations.
- Investigate methods to reduce applications of fertilizers and pesticides.
- Explore more sustainable options for grounds maintenance; examples include consideration of beet juice deicers, potassium carboxylate/carbo-hydrate mixtures, potassium formate, and calcium magnesium acetate for snow removal.<sup>1</sup>
  - While some of these solutions may come at a higher cost than the traditional salts, they lead to less damage of the outdoor infrastructure, resulting in cost savings over time.



**WORKFORCE TRAINING CENTER, EMERGING TECHNOLOGY AND ENERGY INSTITUTE** to be completed January 2012 on the Metropolitan Campus.

<sup>1</sup> Beet juice deicers are becoming more widely accepted when mixed with traditional deicers and have actually proven more effective than salt applications alone, especially in sub-zero temperatures. The Ohio Department of Transportation has applied such mixtures in Akron and Cincinnati, and Chicago has adopted these mixtures across the city. Potassium carboxylate/carbo-hydrate mixtures such as IceClear have been proven to cause minimal damage to nearby vegetation and are highly effective in temperatures up to -50 degrees F. These mixtures biodegrade easily and contain no toxic materials that will corrode metals or pavement.

## 4 | Procurement

### GOAL

*To apply sustainability to procurement by (1) adopting clear and transparent criteria so that full life cycle impacts will be considered in purchasing and contracting decisions; (2) reducing consumption of goods and reducing the impact of chemical usage; and (3) providing training and necessary tools and resources to procurement staff.*

### Supplier Managed Services

Through the volume of goods and services it procures, Tri-C has the ability to influence the economy of the surrounding area and the educational and social awareness of its students, faculty and staff.

### Sustainable Procurement: Global Considerations

According to the United Nations (2004), sustainable procurement occurs when an organization uses its own buying power to give a signal to the market in favor of sustainability and bases its choice of goods and services on more than just economic considerations. These include best value for the money, availability, and functionality. Other considerations include effects on the environment over the whole life cycle of the product or service and the social effects of purchasing on issues such as poverty eradication, equity, labor conditions, and human rights.

**“Money talks. Higher education wields real financial clout, and even a small university holds within its grasp significant buying power.**

**Once we tie sustainability to spending – as we do when green purchasing policies are put in place – doing what’s right for the environment simply becomes smart business that saves money. And that’s when we can make a real difference.”**

*John Riley,  
Executive Director, Procurement and Business Services,  
Arizona State University,  
President, National Association of Educational Procurement*



## Current Tri-C Sustainable Procurement Practices

Tri-C has a centralized procurement system and operates two internal stores, one for building supplies and one for office supplies. Buyers across Tri-C use this centralized system, which also includes an electronic procurement system. The Supplier Managed Services Department also works with internal clients across the College to prepare Requests for Proposals (RFPs) for various services.

Tri-C spends a total of about \$45 million per year on goods and services. These include office supplies, computer and communications equipment, laboratory chemicals, books, building and construction supplies, furniture, fitness equipment, building maintenance supplies and services, landscaping supplies and services, medical supplies, vehicles and fuels, and utilities. Tri-C contracts for custodial, food and catering services, and management of the campus bookstores. Maintenance, groundskeeping, and snow removal are performed by Tri-C staff at the main campuses.

## Reducing Consumption of Goods

Reducing paper consumption, in addition to using recycled content paper, is a key initiative for Tri-C. Paper products tend to make up the highest percentage, by weight, of the waste stream at most colleges. Strategies include requiring new printers to have double-sided printing capability and to be Energy Star certified. Staff should be encouraged to use networked printer hubs. In addition, food service, event planning, and catering services can incorporate sustainable practices such as recycling used cooking oils.

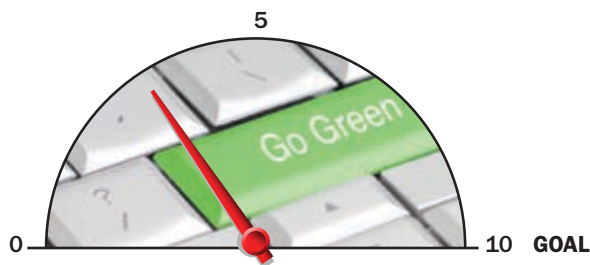
## Green Products

Some of the items offered through the centralized supplies stores have green attributes, such as recycled content paper and compact fluorescent light bulbs.

Computer equipment is another example of a green product offering. At Tri-C, it is procured from Hewlett-Packard (HP). HP has a green information technology policy in place and is an active participant in EPEAT, a rating system for “green” computers. Currently, 180 HP products are rated either Silver or Gold under the EPEAT system.

65% of the HP model types purchased by Tri-C in recent years are EPEAT Gold or Silver, and 88% of the model types recommended and supported by IT in 2010 are EPEAT Gold or Silver.

**EPEAT** is a system that helps purchasers evaluate, compare, and select electronic products based on their environmental attributes. The system currently covers desktop and laptop computers, thin clients (computers or a computer programs that depend heavily on their server), workstations, and computer monitors. Desktops, laptops and monitors that meet 23 required environmental performance criteria may be registered in EPEAT by their manufacturers. Registered products are rated Gold, Silver, or Bronze depending on the percentage of 28 optional criteria they meet above the baseline criteria. EPEAT operates an ongoing verification program to assure the credibility of the registry.



5-1 Number of sustainable or green procurement programs or contracts at Tri-C.

Early analysis estimates that the hospitality academic program's supplier purchased 16-20% of their food grown in the state of Ohio.

### Green Services

Some recent RFPs included specifications for green products and services (see 5.1). For example, the RFP for janitorial services requested bidders to purchase nontoxic cleaning supplies and to implement more environmentally friendly cleaning practices, where possible and cost-effective.

The recently selected vendor for food services will implement several sustainability measures, such as using green cleaning products and recycling used cooking oil.

One of the College's key food service suppliers will be able to source more locally grown food items in the future. Early analysis estimates 16-20% of food purchased by the Tri-C food service vendor was grown in the state of Ohio.

### Chemical Usage

Tri-C uses various chemicals to support laboratory curricula and campus operations such as snow removal and landscaping maintenance. Naphthalene, one of the chemicals used in chemistry classes, is on a list of 31 chemicals established by the EPA that are federal priorities for reduction or elimination. Limiting or phasing out use of the EPA high-priority chemicals is an important strategy.

Tri-C annually uses 900 tons of snow and ice removal products, 275 concentrated gallons of pesticides and herbicides, and 4.1 tons of fertilizers. These chemicals likely leach into groundwater and drain into local waterways, negatively affecting the local watershed and drinking water sources.

To begin addressing concerns over chemical usage, the Metropolitan Campus has implemented an Integrated Pest Management (IPM) program that reduces the use of chemicals for pest control.



Words in *italics* are defined in the glossary.

## THE PATH TO SUSTAINABILITY

### Procurement Goal

To apply sustainability to procurement by adopting clear and transparent criteria so that full life-cycle impacts will be considered in purchasing and contracting decisions and tracked using the criteria; by reducing consumption of goods and reducing the impact of chemical usage; and by providing training and necessary tools and resources to procurement staff.

### Key Strategies for Reaching Goal

#### **Sustainable Procurement**

Establish a list of Sustainable Procurement Guidelines based on:

- Existing voluntary procurement compliance standards
- Risk
- Greenhouse gas emissions
- Energy efficiency
- Raw material inputs
- Toxins associated with manufacturing and toxic effects of using the product
- Labor conditions in manufacturing
- Distance of distribution
- Disposal or recycling options
- Recycled content

- Develop and implement tracking mechanisms for the Sustainable Procurement Guidelines
- Incorporate sustainable procurement language and requirements into all specifications, RFPs, and contracts for goods and services
- Limit items stocked by the contracted office and maintenance supply companies to items complying with the Sustainable Procurement Guidelines and require rationale with additional approval(s) for exceptions

#### **Reducing Consumption of Goods**

- Require new printers to have double-sided printing capability and to be Energy Star certified.
- Minimize individual printer purchases and encourage staff to use networked printer hubs.
- Establish guidelines for sustainable event planning and catering.
  - Corporate College East has developed Green Event Guidelines that could serve as a template for other campus locations' guidelines.

#### **Supplier Managed Services**

- Provide training and the necessary tools and resources to Supplier Managed Services and other designated program staff who make procurement decisions.
- Provide general awareness training to the Tri-C buying community and specialized training to the Supplier Managed Services department in sustainable purchasing for goods and services.
  - Solicit and incorporate feedback on ways to “green” day-to-day operations.

# 5 | Recycling and Waste Reduction

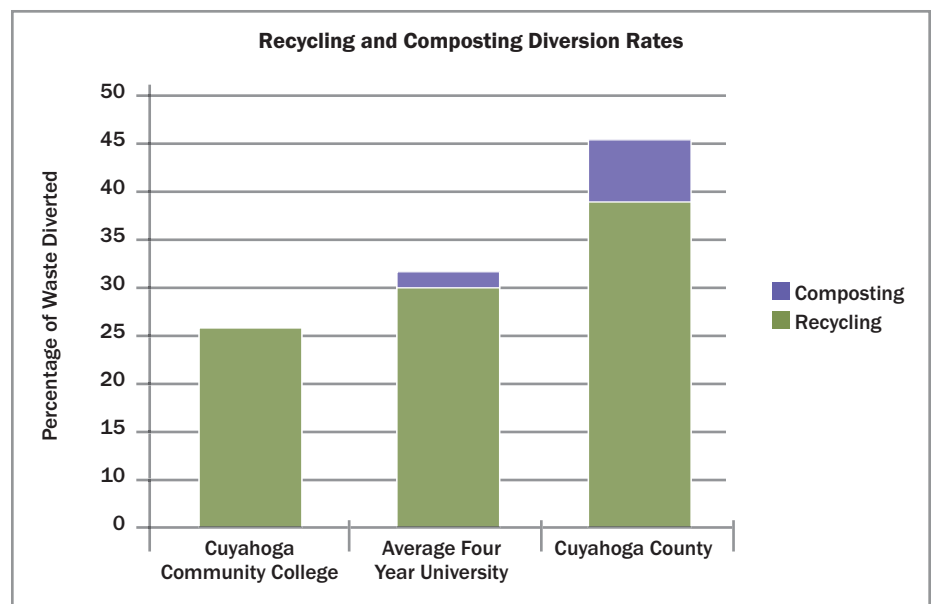
**GOAL**  
*Increase Tri-C's waste diversion, recycling rate to 50% by 2025.*

## Waste Diversion: Reduce, Reuse, Recycle

The waste diversion rate of an institution is the percentage of waste materials diverted from traditional disposal, such as landfilling or incineration, to be recycled, composted or reused. In Fall 2008, Tri-C implemented an expanded comprehensive recycling program at all locations. Preliminary data shows that Tri-C increased its recycling rate from 12% to 21% after this new program was rolled out, a significant achievement for the College. However, additional work is needed to bring the College's diversion rate in line with local averages (see 6.1).

Currently, only one small landfill is in operation in Cuyahoga County; thus, most of the county's waste is transported to non-local landfills, increasing air and *greenhouse gas* emissions caused by transporting the waste.

Recycling not only reduces waste disposal's impact on the environment, but also adds jobs to the economy. According to data from 2000, recycling was the third largest industry in the state of Ohio, employing more than 100,000 people and generating \$22.5 billion in sales annually.<sup>1</sup>



6.1 Recycling and composting diversion rates. Data for the Average Four Year University obtained from Greenopia. ([www.greenopia.com](http://www.greenopia.com)). Data for Cuyahoga County obtained from the Cuyahoga County Solid Waste Management Plan.

<sup>1</sup>State of Ohio, Department of Natural Resources website. See <http://ohiodnr.com/Home/why/tabid/9402/Default.aspx>.

### New Tri-C Recycling Program

In fall 2008, Tri-C implemented a uniform recycling program across all the campuses and began contracting with a new waste hauler. The campus community now recycles paper, cardboard, plastic, glass and metal. In addition, the new program greatly expanded the number of bins on all the campuses from about 65 to 1,700, and new bins are added each semester as needed. Tri-C now has a single-stream recycling program, meaning that all the recyclable items can be disposed of in the same recycling bins. Recycled materials are later sorted at a materials recovery facility operated by the contracted vendor.



The College's goal in implementing the new recycling program was to increase the waste diversion rate to at least 25%. While our increased diversion rate of 21% demonstrates that the new program is improving recycling efforts, additional work is needed to meet the goal.

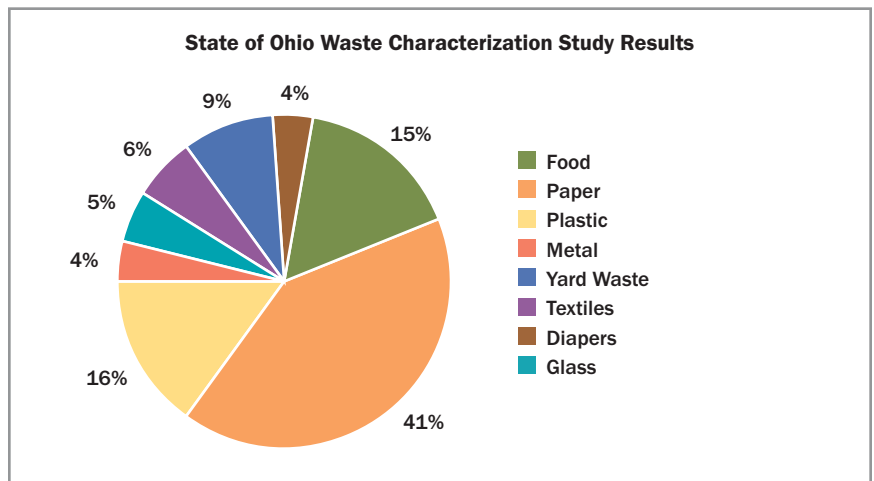
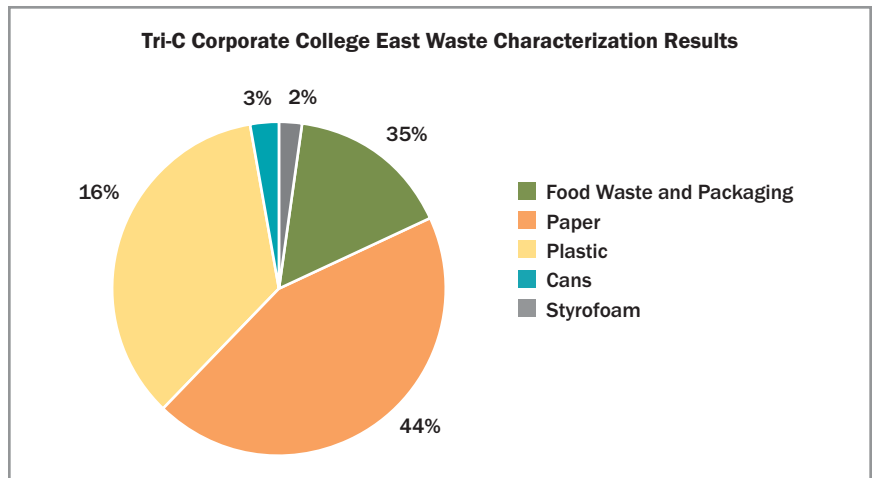
Tri-C does not currently have a food composting program, but is evaluating a pilot as more composting facilities come online in Cuyahoga County.

### Current Conditions

Based on information provided by the new waste hauler, Tri-C generates about 92 tons of waste and recycling per month, or about 1,100 tons per year. While data on landfilled waste is accurate, data on recycling tonnages are preliminary, and based on estimates rather than actual tonnages.

### Waste Characterization Audit Data

Results from a small, preliminary waste audit conducted at the Tri-C Corporate College East campus are shown in comparison with a waste audit conducted by the State of Ohio (see chart 6.2).<sup>2</sup> Data presented in 6.2 are based on tonnages of waste (as opposed to waste volumes). The results are consistent with those for other college campuses and are fairly consistent with the statewide waste audit results.<sup>3</sup>



6.2 Tri-C Corporate College East conducted a dumpster dive to determine the make-up of their trash. The results of the State of Ohio's solid waste analysis shows a similar make-up of materials is headed to the landfill.

<sup>2</sup> State of Ohio Department of Natural Resources. *State of Ohio Waste Characterization Study*. April 2004.

<sup>3</sup> For a summary of waste data for other colleges in Ohio, see Cooper, Larry. *Florida College and University Waste Management Workshop Presentation*, February 6, 2009.

### **Additional Tri-C Programs**

Universal waste, generally defined as items that are common in most waste streams and containing low levels of hazardous materials, are required by law to be recycled. Examples include batteries and light bulbs containing mercury. The Tri-C Environmental Health and Safety department recycles all of these items as required by law, including about 1.2 tons of lamps and 0.2 tons of batteries per year.

Tri-C staff at the Metropolitan Campus have taken the initiative to recycle bulk waste whenever possible. For example, scrap metal is collected and taken to a local metal recycler, resulting in savings through reduced trash bills and reimbursements from the metal recycler.

Paper products tend to make up the highest percentage by weight of the waste stream at most colleges, and also in statewide and national waste streams. Notably, plastics make up the same percentage – 16% – in both the Tri-C and the statewide waste stream. Seeking and implementing opportunities to reduce paper, plastics, and food and food packaging waste could greatly reduce the total amount of waste generated at Tri-C. However, additional study is needed to determine whether food waste and packaging comprise a large percentage of the waste stream at the College.

Another example of a waste reduction program in place is the Tri-C Asset Management Program to reuse unwanted or outdated equipment and furnishings. Through this program, furniture, computers, etc. are stored in a central location and redistributed to College users or sold. The resulting cost savings to the College are due to both reduced waste removal fees and sales of equipment.

**One of the key challenges in implementing waste reduction at Tri-C is that all cafeteria food and most food at catered events is served via disposable serving ware, boxes, and wraps, in part because students, staff, and faculty often take their meals to go. Changing this trend will require ongoing education to raise awareness about more sustainable options.**



### A Growing Problem: E-Waste

Recent contract language stipulates that newly purchased electronic equipment must be taken back, or recycled, at the end of its useful life. It currently takes about four to five years for equipment to become obsolete. Tri-C now collects e-waste that is not covered by the take-back program and salvages critical components, then sends the material to an offsite recycler. In the future, Tri-C will consider using e-Steward certified recyclers as they become available.



**e-Stewards**  
THE GLOBALLY RESPONSIBLE WAY  
TO RECYCLE YOUR ELECTRONICS

#### e-Stewards

Created jointly by the environmental community and business leaders, the new e-Stewards Certification and Standard is the first certification program for electronics recycling, a project of the nonprofit Basel Action Network ([www.ban.org](http://www.ban.org)).

The e-Steward Certification is a fully accredited certification that relies on independent, third-party auditors to verify safe and ethical e-waste disposal. It is awarded to companies that recycle electronics without using practices that far too many in the U.S. electronics recycling industry rely upon – using municipal landfills and incinerators, exporting to developing countries, or using U.S. prison labor for disposing of toxic old electronics.

Businesses that agree to make their best efforts to use e-Steward recyclers will be rewarded as designated e-Stewards Enterprises. The first global companies to receive these e-Steward Enterprise designations, as well as the first Certified e-Steward recyclers, were announced in March 2010. For more information see [www.e-stewards.org](http://www.e-stewards.org).



**“The fastest-growing toxic waste stream on earth is from computers, mobile phones and other electronics.”**

*e-Stewards.org*

## THE PATH TO SUSTAINABILITY

### Recycling and Waste Reduction Goal

Increase Tri-C's waste diversion, recycling rate to 50% by 2025.

### Key Strategies for Reaching Goal

#### **Waste Diversion**

- Collect additional data on waste characterization to determine which waste types make up the largest percentages of the waste stream at Tri-C.
  - Based on collected data, customize future outreach and waste reduction efforts.
- Develop an ongoing sustainability outreach initiative covering topics such as recycling, waste reduction, water conservation and energy conservation.
- Focus on diverting more materials into the recycling program by monitoring proper placement of bins and creating enhanced signage for all waste and recycling bins.
- Encourage all campuses to recycle scrap metal.
- Consider using e-Steward certified recyclers as they become available.
- Research and implement new recycling or composting programs as they become cost-effective and publicly available.

#### **Reducing Waste**

- Consider a “zero waste” goal to guide future decisions
  - Zero waste is a guiding philosophy for decision-making that helps minimize waste as new products and systems are purchased and implemented.
  - By adopting this goal, Tri-C could strive to create programs that reduce as much waste as possible.
  - Finally, Tri-C would develop or expand programs to reuse, recycle, or compost any remaining waste, so that the amount sent to landfills is dramatically minimized.
- Research and consider new waste reduction programs that focus on paper, food waste, food packaging and bulk waste.
  - Examples: implementing reusable dishware instead of disposable materials at food service locations and requiring all documents to be printed double-sided.





## 6 | Academics and Workforce Training

### GOALS:

*Tri-C faculty and instructors will infuse sustainability literacy throughout the curriculum.*

*Tri-C students will recognize and understand the basic concepts of sustainability and effectively communicate those concepts to others in the community.*

### SUSTAINABILITY LITERACY AND CURRICULUM

Teaching and learning is the core of Cuyahoga Community College's vision. We aspire to instill in students, faculty and staff a sense of stewardship toward the environment by providing the information and developing the skills that allow them to engage in sustainability efforts not just now on campus, but throughout their lives wherever they may be.

The College's faculty play the central role in guiding students along the path of sustainability literacy.

As the college has worked to make operations and business practices more sustainable, we are working to make our curriculum more sustainable as well. To that end we have been reviewing both our curriculum and the rapidly changing nature of the economy. Our goal is to leave every student with an understanding of the interconnected nature of a sustainable economy and be prepared to function in that emerging economy. We are not only building sustainability into core course work, we are also developing green clusters of courses that respond to the demands of our changing economy. Specific examples include new focus on the Smart Grid and a Sustainable Energy Future and on Sustainable Urban Agriculture and the Local Foods Movement in the Hospitality Industry.



The Tri-C Global Issues Resource Center offers the Earth Trek Program to provide both capacity building workshops for educators and complimentary learning activities for K-12 students. The capacity building elements of the Earth Trek Program are aligned with the Ohio Environmental Education 2010 Strategic Plan to provide an increased number of professional development opportunities for teachers. The main goal of these workshops is to highlight innovative pedagogical approaches and evidence-based curricula while helping K-12 practitioners integrate environmental education into a wide variety of subjects.

**The Global Issues Resource Center's Earth Awareness Traveling Classroom** (the "Earth Balloon"). The Earth Balloon is a 22' dia. traveling classroom and one of the largest of its kind in the world.

## Current Programs with Sustainability Components

The College's current offerings that incorporate sustainability literacy components include

- a. Credit Programs
  - i. Applied Industrial Technology
  - ii. Automotive Technology
  - iii. Construction Engineering Technology
  - iv. Electrical / Electronic Engineering Technology
  - v. Environmental, Health & Safety Technology
  - vi. Manufacturing Industrial Engineering Technology
  - vii. Mechanical Engineering Technology
  - viii. Plant Science & Landscape Technology
  - ix. Energy System Integration
- b. Credit Certificates
  - i. Automotive Technology
  - ii. Environmental Health & Safety Technology
  - iii. Manufacturing Industrial Engineering Technology
  - iv. Plant Science & Landscape Technology
  - v. Precision Machining Technology
- c. Non-Credit Training
  - i. Alternative Energy Installation Certificate



Ruth Silon, Associate Professor of English, Metropolitan Campus teaches sustainability literacy in a Language Fundamentals I class.

### Sustainability in the Classroom with Professor Silon

Long before Cuyahoga Community College had a formal recycling program, Professor Ruth Silon brought recycling bags to class so her students would have an alternative to throwing their cans, bottles and scrap paper in the trash. Since 2008, Professor Silon has further promoted sustainability in the classroom by integrating the film *An Inconvenient Truth* into her developmental English 0980 curriculum. Students are guided through a series of writing assignments, using the film and related readings as the basis for their compositions and clarifying discussions in the classroom.

Professor Silon has noticed significant changes in both the students' writing and their attitudes toward the environment. "Students who did not understand the term recycling began to recycle. Some students bought *An Inconvenient Truth* and showed it to their friends and family. Many changed their light bulbs. Clearly, watching the film and writing about it made a difference in their writing and in their lives! They were empowered to make a change and they did. Not surprisingly, for many, they wrote their best papers of the semester."



*Westshore Campus, the first of three new campus buildings in Westlake, will open in January. It was designed and constructed to achieve LEED™ Silver green building certification.*

## THE PATH AHEAD

### Goals:

- Cuyahoga Community College faculty and instructors will infuse sustainability literacy throughout the curriculum
- Cuyahoga Community College students will recognize and understand the basic concepts of sustainability and effectively communicate those concepts to others in the community

### Key Strategies for Reaching Goals:

#### **Outreach and Training**

The recently-hired Vice President – Sustainability will:

- Serve as the liaison for the College with various higher education, community and economic development entities that are focused on attracting and retaining green-related and alternative energy industries to Northeast Ohio.
- Seek cooperation and offer support College-wide to deliver a consistently high quality presence in all areas of sustainability courses offered in all workforce and academic areas of the College.
- Work with the Executive Vice-Presidents of Academic and Student Affairs (ASA) and Workforce and Economic Development Division (WEDD) on identifying and implementing strategies to involve a broad cross-section of College personnel, including but not limited to student, staff and faculty sustainability groups, in sustainability literacy efforts.

#### **Sustainability Literacy and Curriculum**

To encourage and empower faculty to integrate sustainability into the curriculum Academic and Student Affairs leadership will:

- Identify and recognize College faculty who have incorporated sustainability literacy concepts in their curriculum.
- Look for support and opportunities to send faculty members to the Association for the Advancement of Sustainability in Higher Education (AASHE) Sustainability Across the Curriculum Leadership Workshop.
- Develop and schedule Sustainability Across the Curriculum Workshops for College faculty, led by the SAC Leadership Workshop participant(s).
- Work with Workforce and Economic Development Division to coordinate curriculum, training and certificate program development and integration.

#### **Chemical Usage**

- Incorporate the use of microscale equipment and green chemistry principles into laboratory curricula.
  - Evaluate labs' success in reducing chemical usage and waste while furthering the educational curricula.

## 7 | Communications and Community

### GOAL

*Increase awareness of sustainability issues among campus and community members through education and outreach and empower sustainability action on campus and within the broader community.*

### SUSTAINABILITY AWARENESS

Sustainability has many definitions and uses. Diverse definitions and views on environmental sustainability can offer a fresh perspective. As a community college embedded in a dense urban community we have our own perspective on sustainability. The Tri-C community's growing awareness will bring the concepts in this document to life.

Sustainability awareness has increased in the Tri-C community through Earth Day education activities such as guest expert speakers; campus faculty, staff and student green teams, committees and clubs; workforce training programs focusing on green jobs; the programs of the Phi Theta Kappa chapters that recycle ink cartridges and cell phones and support other environmental education; as well general awareness on the College's Administrative implementation projects such as the expanded recycling program and "Power Down" campaign, which encourages employees to turn computers off when not in use. Sustainability awareness is growing throughout the Northeast Ohio community as well with increased media coverage and regional efforts such as the City of Cleveland: Sustainable 2019 Summit.



*Speakers at an Earth Week event, held April 19, 2010 at the Tri-C Metropolitan Campus. From left to right: Andrew Watterson, City of Cleveland Chief of Sustainability, Mayor Frank Jackson, City of Cleveland, Dr. Michael Schoop, Tri-C Metropolitan campus President*

## Empowering Individuals

Broad community knowledge about the importance of sustainability to Tri-C and how individual action by students and staff can positively impact the quality of life in the region remains an area for improvement and growth. Tri-C has an opportunity to have a sustainable ripple effect in the region by empowering students, faculty and staff to embrace the triple bottom line of sustainability: making lifestyle and purchasing decisions that positively impact people, planet and prosperity.

Implementation of the Tri-C Sustainability Plan will help support the mission of Tri-C, specifically reinforcing two aspects. First, keep campus and community members informed and educated about the activities on campus, and second, empower campus and community members to make sustainable choices and advocate for implementation of campus activities that support the region's overall quality of life.

## Collaboration with other organizations

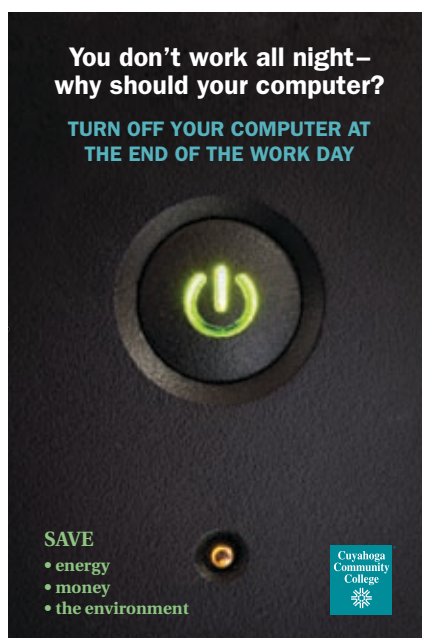
Tri-C collaborates with many local and state organizations involved in sustainability efforts through campus events, academic programming, sponsorship or organizational membership. This strengthens and enhances Tri-C's overall outreach efforts internally and externally, and is an area to continue to build upon.

A few of the organizations the College has partnered and worked with on sustainability initiatives include:

- Bioneers Cleveland
- City of Cleveland Office of Sustainability
- Collegiate Sustainability Practices Consortium
- Council of Smaller Enterprises (COSE)
- Cuyahoga County Solid Waste District
- Cuyahoga County Office of Sustainability
- Earth Day Coalition
- Entrepreneurs for Sustainability
- Great Lakes Energy Institute at Case Western Reserve University
- Green Energy Ohio
- Northeast Ohio Regional Sewer District
- Northeast Ohio Chapter of the U.S. Green Building Council
- St. Vincent Quadrangle Inc.
- University System of Ohio

“Right now over 70 percent of the world population is convinced that something serious has to be done about the dangers facing the planet. ...Most of humanity wants to know how to make the change. It's one of those tipping-point times where things can change unbelievably fast.”

- Paul H. Ray and Sherry Ruth Anderson, *The Cultural Creatives*



The Tri-C Power Down campaign encourages faculty and staff to save energy by turning computers off when not in use.

## THE PATH TO SUSTAINABILITY

### Communications and Community Goal

- Increase awareness of sustainability issues among campus and community members through education and outreach and empower sustainability action on campus and within the broader community.

### Key Strategies for Reaching Goal

- Create a sustainability webpage that includes the College's goals; dashboard metrics such as carbon footprint, energy use reduction and recycling rate and improvements; related academic and workforce training offerings; event calendar; a guide on how students, faculty and staff can participate in sustainability at the College and at home; as well as a blog with up to date sustainability tips and information.
- Have a regular sustainability presence in the *Inside Tri-C* newsletter and on *my Tri-C space* that covers topics such as recycling, waste reduction, water conservation, energy conservation and green purchasing.
- Maintain an internal Website for faculty and staff to post questions, comments and suggestions regarding sustainability in the curriculum and operations.
- Produce updated print material about the Sustainability program, goals and successes.
- Host a sustainability lecture series that is open to the Tri-C community and the public.
- Provide tours for the College community and the public of sustainable projects such as the green buildings, efficiency technology, and green jobs training programs.
- Incorporate sustainability or green event strategies into Tri-C's many gatherings and hosted events, such as discouraging the use bottled water and disposable products, encouraging recycling, or hosting paper-less meetings or events.
- Collaborate with the human resources department to integrate sustainability procedure information into staff trainings.
- Improve and increase sustainability related signage around campus regarding recycling, energy conservation, water conservation, green buildings, transit, printing/paper.
- Promote student involvement in sustainability related communications including marketing materials, Web pages, campus signage and High-Vis (the college TV system).

Words in *italics* are defined in the glossary.



- Coordinate communications between the Sustainability Manager, Capital & Construction, VP of Sustainability, Academic and Student Affairs, and Marketing & Communications to ensure that sustainability efforts are accurately and frequently featured in media releases.
- Enroll in a certification program to help measure, benchmark and guide successful implementation of Tri-C's sustainability efforts such as the Association for the Advancement of Sustainability in Higher Education's (AASHE) Sustainability Tracking, Assessment and Rating System (STARS).
- Encourage student commitment to sustainability and campus club/group participation by launching a pledge campaign or similar effort and engaging students in campus and community sustainability volunteer opportunities.



## 8 | Acknowledgements

### **President of Tri-C**

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## 9 | Glossary

### B

**Best Management Practices** - Stormwater management practices accepted by Federal and State EPAs (Environmental Protection Agencies) that reduce impervious cover (see *Pervious Pavement*), promote infiltration of rainwater into the soil and remove pollutants by capturing solids picked up by the rainwater as it crosses parking lots and fertilized areas through the use of stormwater capture devices such as *rain gardens*.

**Bioswale** - Depression created in the landscape that collects and filters rainwater (*stormwater*). Plant materials in this depression are selected for their ability to filter out pollutants. Bioswales increase the quality of water entering the *watershed* through this filtering action. Bioswales also reduce the quantity of water entering storm sewers by recharging the ground water rather than releasing that water into the sewer system.

**British Thermal Unit (BTU)** - The amount of heat required to raise the temperature of 1 pound of water by 1 degree Fahrenheit. MMBTU is shorthand for one million BTU. These terms are used to represent the amount of energy needed to heat and cool buildings.

### C

**Carbon Neutral or “Net Zero Carbon Footprint”** - Carbon neutral developments or building projects result in no net additional release of carbon or GHGs (see *Greenhouse Gases*) as a result of the development. Carbon neutral developments either create their own energy through clean energy sources such as solar power and wind turbines or buy energy from clean sources of power such as hydroelectric. GHG emissions can also be eliminated through offsets – paying others to reduce carbon emissions offsite.

**Condensate Collection System** - System to collect water removed by air conditioning units by dehumidifying outside air that enters a building.

### G

**Greenhouse Gases (GHGs)** - Gases released primarily as byproducts of burning fossil fuels to produce electricity or operate cars and machinery. GHGs include carbon dioxide, methane, nitrous oxide, sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons. These gases trap lower-energy infrared radiation, thus increasing atmospheric temperatures.

**Green Roofs** - Roofs on buildings that are covered with plant material. Green roofs reduce temperatures in the vicinity of the buildings by replacing heat-absorbing surfaces with plants that cool the air through evaporation of water from leaves (evapotranspiration). Green roofs also retain and filter rain water that falls on roofs (see *BMPs*).

**Green Streetscapes** - Similar to *green roofs*, green streetscapes reduce local temperatures by substituting planting material for paved surfaces and providing shade. Green streetscapes also use *Best Management Practices*, such as *permeable pavements*, to reduce stormwater runoff.

## H

### Habitat Rehabilitation / Restoration

- Projects that restore the site's landscape to conditions that existed before any development occurred. Habitat restoration uses plantings that naturally occur in the area (native planting); these native plantings typically reduce maintenance costs since they require less fertilizer, pesticides and water to grow. Native plantings also attract and help sustain local wildlife.

## L

### Landscape Implementation Plan -

A Landscape Implementation Plan provides a framework for future planting by focusing on the following areas: (1) Maintenance (2) Sustainable Forest Management (3) Species and Ecosystem Conservation (4) Soil Conservation and Watershed Conservation.

**LEED™** - Leadership in Energy and Environmental Design is a green building rating system developed by the United States Green Building Council (USGBC) and administered by the GBCI – Green Building Certification Institute.

## P

### Permeable or Pervious Pavement /

**Surfaces** - Paving materials that allow rainwater from storms (stormwater) to flow through the surface of the paving material into the ground beneath the paving. Permeable paving materials include open pore concrete and asphalt and solid paving materials with open spaces between paving blocks.

## R

**Rain Gardens** - Rain gardens are manmade depressions in the site landscape that capture and retain stormwater that flows from parking and other paved areas. A rain garden is constructed with porous soil materials that filter the water, removing impurities. Rain gardens divert water that would normally flow into storm sewers, overloading treatment plants during heavy rain events.

**Retention Ponds** - Retention ponds are a portion of *Best Management Practices* to control stormwater on a site. The purpose of retention ponds is to prevent more stormwater from leaving a site than left the site prior to development. Increased stormwater that flows from a site results in flooding and stream erosion downstream from the site. Retention ponds capture stormwater that flows on paved surfaces and slowly releases that water days after a storm has occurred.

**Retrofitted** - Retrofitting a building means replacing building components such as windows, heating, ventilation, and air conditioning systems (HVAC), and light fixtures with more modern components that use less energy and resources than the components they are replacing. This retrofitting results in lower operating costs due to lower utility and maintenance costs and also reduces *GHG emissions*.

## S

**Stormwater Management** - All rainwater that leaves a site is part of calculated stormwater runoff volume. A series of *Best Management Practices* that utilize techniques such as *green roofs, bioswales, rain gardens, pervious pavements* and *retention ponds* reduce the impact of rainwater that falls on a site. The NEORS (Northeast Ohio Regional Sewer District) is now charging Tri-C for the amount of impervious pavement on a site.

## U

**USGBC** – see LEED™

## W

**Watershed** - A watershed is the area of land where all of the water that is under it or drains from it goes into the same place. Pollutants from parking lots, streets, and fertilizers and pesticides applied to landscaped areas flow from the surfaces into the creeks, streams, rivers, and lakes that make up the watershed.



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