

A stylized green globe showing the continents of North and South America. The globe is set against a light green background. In the bottom right corner, there are two white circles with thick green outlines, one larger than the other.

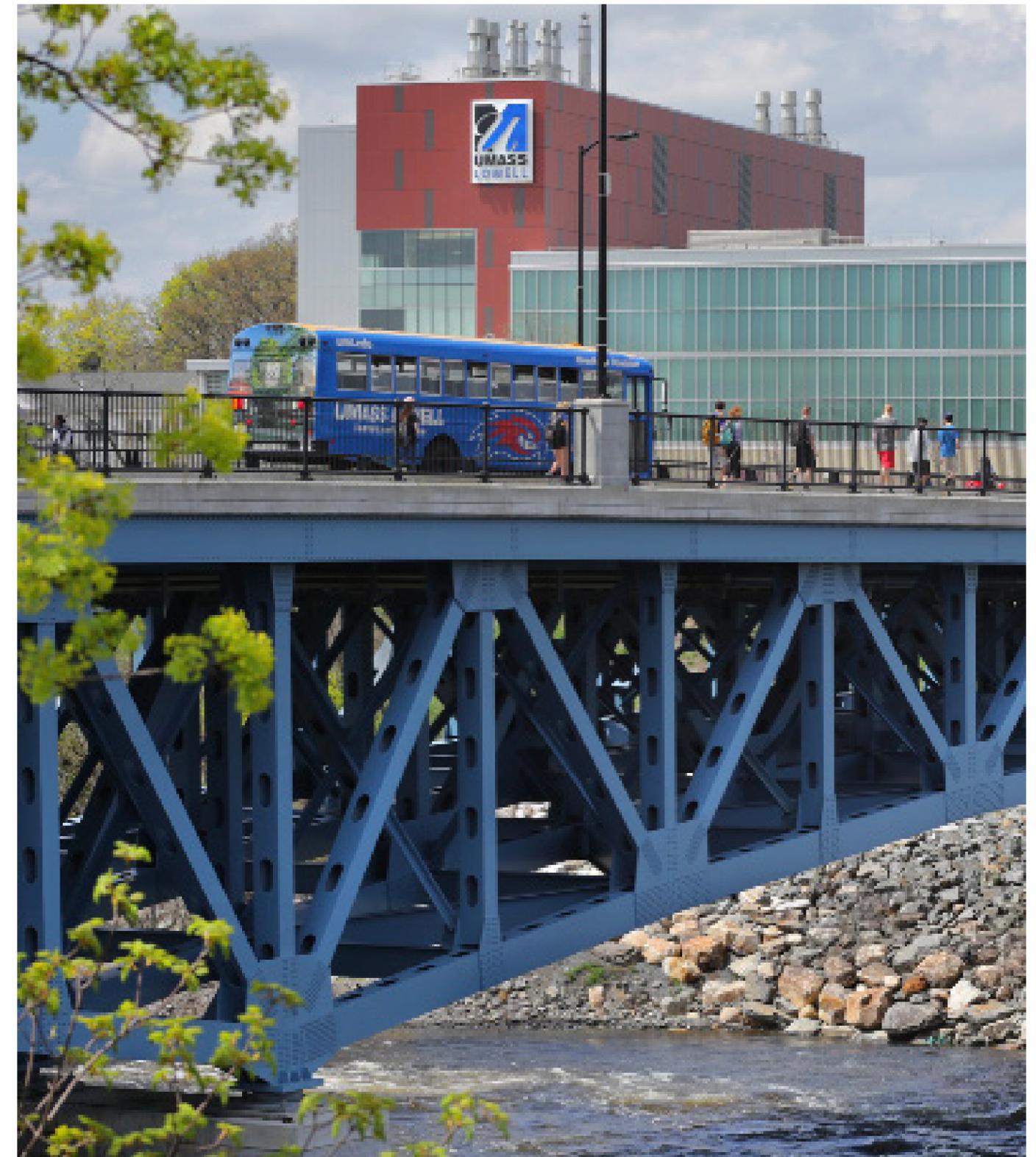
Looking Through The Lens of

THE OFFICE OF SUSTAINABILITY

at the University of Massachusetts Lowell

The University of Massachusetts Lowell is committed to climate neutrality as an institution. UMass Lowell is a leader in sustainable education, research, and innovation. The Office of Sustainability was introduced to the campus in 2015. The office has provided and continues to provide the campus community with essential and centralized support services that integrate, communicate, and promote sustainable opportunities. Since then, UMass Lowell has seen a dramatic transformation that has generated impressive results and woven sustainability into every aspect of campus life.

This document was created as a guide to help inform students, faculty, and staff of show all the different ways the University of Massachusetts Lowell works towards becoming a more sustainable campus. This guide also includes fun facts and tips for students, faculty, and staff on how they can do their part and help their campus reach its sustainability goal.



Hanna O'Brien
Senior Capstone Project
Fall 2020

BUILDINGS



LEED CERTIFICATION

Leadership in Energy and Environmental Design (LEED), is a national certification system developed by the U.S. Green Building Council to encourage the construction of energy and resource-efficient buildings. The design incorporates energy-efficient, water-conserving buildings with sustainable materials. UML has six LEED-Certified buildings around campus; Emerging Technologies and Innovation Center (ETIC), Health and Social Sciences Building (HSSB), McGauvran Center, Pulichino Tong Business Center (PTB), University Crossing, University Suites.



SUSTAINABILITY TRACKING ASSESSMENT RATING SYSTEM

The Sustainability Tracking Assessment Rating System, or STARS, is a transparent, self-reporting framework that measures Universities' sustainability performance. It allows institutions to benchmark their performance amongst peer institutions and incentivizes change with public recognition. Institutions are recognized based on their overall STARS score as Bronze, Silver, Gold, or Platinum institutions. UML has a Gold STARS score as of 2019!



Did You Know?
There are currently five other buildings on campus in the process of becoming certified LEED buildings; Perry Hall, Coburn Hall, Bourgeois, Leitch, and Fox Dining Hall.

GREEN SPORTS ALLIANCE

In October of 2019, the UMass Lowell athletic department and the Office of Sustainability announced a joint partnership with the Green Sports Alliance. "The Green Sports Alliance is honored to have UMass Lowell's exemplary leadership join our members and partners," said Executive Director of the Green Sports Alliance, Roger McClendon. The GSA is an environmentally-focused trade organization that convenes stakeholders from around the sporting world to promote healthy, sustainable communities and it is committed to creating awareness and dedicated to creating meaningful change towards a more sustainable future. UML's partnership with the GSA provides UML Athletics with a network that allows for the enhancement of sustainability efforts on regional and national levels. The partnership is also a part of the university's 2050 Climate Action Plan to not only reduce emissions of heat-trapping pollutants, but also educate and inform students.



Fun Fact!
UMass Lowell is one the "Coolest Schools" in the country, according to Sierra magazine's annual ranking of North America's greenest colleges and universities.



ENERGY EFFICIENT

The Tsongas Center recently installed high efficiency LED lighting for the playing surface and concourse areas. Athletics added updated branded trash and recycling units. These units are made from recycled milk jugs and with 100% renewable power. The athletic department has already completed so many positive steps to becoming more environmentally friendly, including solar panels atop Costello gym, fan tailored recycling programs, and the first Grind2Energy food waste program in the northeast.

TAKING INITIATIVE

UMass Lowell's River Hawks are 10th in the NCAA Division and are the first athletic program in America East and in the Northeast region to formalize a partnership with the GSA.



Scan here to learn more!



GROUNDS



URBAN AGRICULTURE PROGRAM

UML partners with Mill City Grows to provide a robust Urban Agriculture Program. UML has developed a program that fosters food justice in Lowell by improving physical health, economic independence and environmental sustainability through increased access to land, locally-grown food and education. This program also includes a living and learning lab!



GREEN ROOFS

UML Green Roofs are gradually becoming home to numerous plant species. These green roofs are both ecologically and economically friendly. Research is proving that green roofs have numerous benefits and they provide UML with secure outdoor locations for the campus community.



Scan here to learn more!

TREE CAMPUS USA CERTIFICATION

In 1998, Lowell became certified as a Tree City and UML was certified as a Tree Campus in 2011. By welcoming trees back into Lowell, UML helps to counter that trend and at the same time improve the ecological health of the city that we call home. This, in conjunction with sustainable purchasing practices and other operations that UMass Lowell enacts, helps us to live reciprocally with nature.

TREE CARE PLAN

The plan seeks to identify the policies, procedures, and practices that are used in establishing, protecting, maintaining, and removing trees on the UMass Lowell campus. So far trees have been mapped and labeled on campus, and a virtual tree tour of campus is in the works. South Campus specifically is home to a large number of labeled trees.



BEE CAMPUS USA CERTIFICATION

The City of Lowell is a certified Bee City and UML is a certified Bee Campus. UML is working with Bee City USA, a national organization, to increase the conversion around pollinators and to create sustainable habitat for pollinators. U.S. honey bee populations are declining at an annual rate of 44% or more. This is why it UML welcomes bees and provides a safe place for them to live and reproduce.

Fun Fact!
90% of the world's flowering plants depend on pollinators to reproduce.



POLLINATOR GARDENS

UML has and continues to create numerous pollinator sanctuaries campus wide. The flowers in these pollinator sanctuaries bloom throughout the growing year. They will provide a consistent source of food and refuge for pollinators. There are a wide variety of pollinators, such as bats, butterflies, beetles, and moths, with the goal of bring these species back to campus.

Did You Know?
1 in 3 bites of food we eat is courtesy of insect pollination.



BIODIVERSITY

In 2018 the university worked with the Ecological Extension Service of Mass Audubon on a project to better follow AASHE STARS' reporting criteria for biodiversity. This project both assessed biodiversity on campus and identified endangered and vulnerable species that have habitats on institution owned or managed land.

FOOD AND DINING



GREEN RESTAURANT CERTIFIED

The following restaurants are Green Restaurant Certified, Crossroads Cafe, South Campus Dining Commons, Hawk's Nest Dining, and Cumnock Marketplace.

Students, Faculty and Staff: Dine at one of these five certified restaurants and encourage the university to keep working for the Certified Green Restaurant label for all campus dining halls. Support these restaurants along with choosing a plant-based and/or locally sourced meal.



FOOD PURCHASING

UML Dining Services sources food from local farmers, growers and distributors. UML firmly believes that responsible sourcing has a direct impact on the local and global economies, as well as our health and wellness, and the environment. With every purchase UML engages with suppliers and partners in an effort to source environmentally and socially responsible products.

Students, Faculty and Staff: Buy locally and responsibly sourced food!

CAMPUS COMPOSTING

Since 2015 UML has engaged in composting at all dining halls and at events that offers food.

Students, Faculty and Staff: When disposing of leftovers, leave any trash out of the food waste to make it easier for the back of the house to sort. If disposing leftovers, use the correct bins. Do not mix trash with composting. Do not take more food than you can eat!



Fun Fact!
Using a reusable water bottle saves on average 1,460 single use water bottle per year!

HYDRATION STATIONS

Having hydration stations easily accessible throughout campus reduces the usage of single-use water bottles. Currently there are over 90 hydration stations around campus.

Students, Faculty & Staff: Carrying a reusable water bottle around campus and utilizing the hydration centers will help reduce the amount of single use plastic that is generated on campus. There are hydration centers in every single building on campus, therefore faculty should utilize the ones that are in their office buildings and the buildings where their classes are held. With hydration centers being accessible all around campus, staff should also do their part and bring and refill a reusable water bottle.



PLANT BASED MEAL OPTIONS

UMass Lowell Dining Services offers "Meatless Mondays," "Farmer's Market" meal options, and an extensive salad bar. The menus also highlight which of those dishes are plant-based (vegetarian and/or vegan).

Students, Faculty & Staff: When choosing a meal from the dining hall, students should take advantage of the wide variety of plant-based options that are offered. If purchasing meals on campus consider the delicious plant-based options that are offered at each dining hall or campus market. Support the university's dedication to providing clean, healthy plant-based options by selecting them when dining on campus.

PURCHASING



Students, Faculty & Staff: Purchasing clothing at thrift stores and buying second-hand is a great way to save money and practice sustainable habits. Buy less new clothing and fix any items of clothing that might need repair. Utilize textile recycling opportunities.

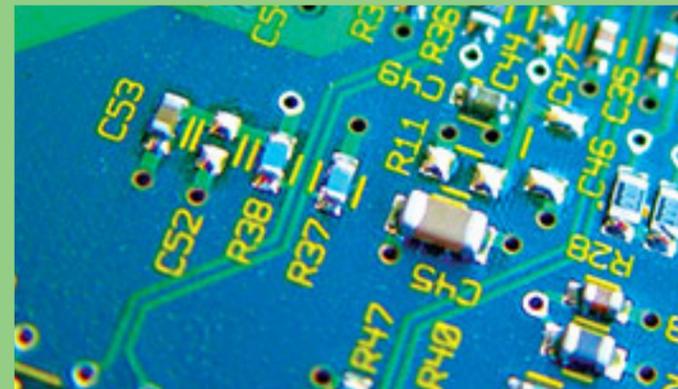
CLOTHING

UML is an affiliate of the Workers Rights Consortium, which is an independent labor rights monitoring organization that conducts investigations of working conditions in factories around the globe. The university works to purchase apparel from companies that ethically produce their products.

ELECTRONICS

The university aims to purchase electronic products that are certified by EPEAT, the top global sustainability certification for IT products that the Green Electronics Council manages. EPEAT certified products aim to counter damaging trends, by providing more sustainable alternatives.

Students, Faculty & Staff: Cracked screen? Don't replace it, fix it!



Did You Know?

A smartphone handset consists of around 40% metal, 40% plastic, and 20% ceramic and trace materials.



PAPER

UMass Lowell is committed to reducing the amount of printing through the UPrint program. There has been over a 40% reduction in printing due to this program since 2011. Post-consumer recycled content and agricultural residue content both reduce the number of trees cut down to create paper.

Students, Faculty & Staff: To reduce paper waste, print only what is needed and print double sided. Using an electronic device for school can also reduce paper waste. Be sure to recycle and reuse paper when you can and consider purchasing recycled content paper.



GREENER GIVEAWAYS GUIDE

UML's Greener Giveaways guide was created to reduce the costly, unnecessary, and environmentally unfriendly swag waste stream. By adopting new ways of promoting ourselves, we can protect our eco-friendly brand and our planet.

Students, Faculty & Staff: Students, instead of spending money on swag, spend it on an experience. Also consider purchasing environmentally friendly swag!



CLEANING AND JANITORIAL PRODUCTS

UML has taken great strides to ensure that the cleaning products are as safe as possible. The university aims to purchase cleaning and janitorial supplies in line with AASHE STARS' purchasing guidelines. The university uses products that aim to satisfy at least one of, and ideally multiple of, the following requirements; Forest Stewardship Council (FSC) Certified, Green Seal Certified, UL Ecologo Certified, U.S. EPA Safer Choice Labeled.



Eco-friendly Cleaning Solutions: Homemade All-purpose Spray

1 part distilled water
1 part white vinegar
Optional: 12-15 drops of essential oil

ENERGY



CLEAN ENERGY

As part of the University's South Campus Exterior Lighting Project to improve exterior lighting, safety, security, and energy efficiency, the University has added a SolarOne renewable solar-powered bus stop enclosure with LED lighting, motion detection, and storage battery that operates 24 hours a day every day. UML has four Owner-operated and serviced solar arrays located on the roofs of Costello, Bourgeois, Leitch, and Dugan. They have reduced electrical costs by \$26,850. This reduced solar-generated energy was in part due to the harsh winter.



ACCELERATED ENERGY PROGRAM

This program reduces energy by more than 20% of the annual energy usage of the building involved in the project. It is calculated to reduce annual campus utility usage by 6 Million kWh, 500,000 therms, and 2.5 Million gallons of water.

The program includes:

- The modernization and energy efficiency upgrade of Olney Laboratory fume hood systems.
- The Tsongas Arena LED Lighting Upgrade; Mechanical System Controls; Low flow plumbing fixtures; showers; and interior and exterior Lighting System upgrades.
- The install or upgrade BAS, energy recovery, plumbing, electrical, and perform fuel switches.
- Renewable technologies programs include: Solar thermal heating at ICC; and Parking Canopy Solar PV at South Campus Garage.

Fun Fact!
This year, UML placed 16th on Sierra magazine's 2020 annual ranking of the greenest colleges and universities list, its highest ranking ever!



Scan here to find out more!

WATER



Did You Know?
The Merrimack River supports student life here on campus! The water that supplies our campuses comes from the Merrimack River. Here at UML we are indebted to the river and it needs our help! The Merrimack river was recently named one of the most endangered rivers in the country. It connects and supports life ranging all the way from the Atlantic to the Pemigewasset Wilderness in New Hampshire.

REGULATIONS AND REPORTING

The Massachusetts Environmental Policy Act requires UML to report on certain aspects of water conservation. We source our water from the municipal Lowell Regional Water Utility, and our wastewater flows to the Lowell City Wastewater Utility's, Duck Islands Waste Water Treatment Plant. These utilities treat the water before it either comes out of our faucets or back into the Merrimack. Campus projects such as pollinator gardens, urban forestry and waste reduction are all working together to improve the health of the Merrimack River and those who rely on it.



CONSERVING WATER

UML works hard to conserve water on campus. All LEED buildings on campus are outfitted with water conservation fixtures. The green roofs on campus absorb rain-water, provide insulation and reduce the effects of heat. Hydrations stations also provide clean, drinkable water for all campus members while also reducing single use bottle use.



TRANSPORTATION



Did You Know?
Riding a bike is not only eco-conscious, but it is also great for your health!

FREE WHEELERS BIKE SHARE

UML provides free bicycles for all students, faculty and staff. Bicycle checkout is quick and easy and you only need to register once. Simply check out and return a bike at any of our five check-out stations.

Students, Faculty & Staff: Whether it be going to class or a cross campus, students, faculty, and staff are encouraged to check out a free wheeler bike to get to their destination.

SHUTTLES

UML provides all students, faculty and staff a free shuttle system that will bring you around the different campuses.

Students, Faculty & Staff: Take the shuttles around campus whenever possible instead of driving your car back and fourth. When needing go to another campus, hop on one of the shuttles instead of driving. This will reduce emissions.



WALKING

Routes connecting North, East, and South campus are all well-lit and have sidewalks. UML offers a guide from the Police Department for safe travel in the city.

Students, Faculty & Staff: When time allows, students should skip the busy shuttle and walk to class, dining halls, the recreation center, and more. Walking to and from classes or meetings whenever possible is highly recommended.



PUBLIC TRANSIT

The city of Lowell and surrounding towns have public transportation options for getting to campus including the Lowell Regional Transit Authority, Merrimack Valley Transportation Authority and the MBTA Commuter Rail.

Students, Faculty & Staff: Whether it be before commuting to school or headed around town students should take advantage of the public transportation systems that are provided around them. When possible, instead of driving a car into work faculty and staff members are encouraged to use the public transportation systems that the city offers.



ZIPCAR

Zipcar is an on-campus, on-demand car rental service that lets campus members use cars whenever needed. They are available by the hour or by the day, with the price of gas and insurance included.



ELECTRIC VEHICLE CHARGING STATIONS

The university recently installed six new dual head electric vehicle charging stations. Campus wide there are EVC to support the fueling of electric cars.

Students, Faculty and Staff: UML encourages anyone with an electric vehicle to take advantage of the new charging stations that are around campus.

Find out more about our Free-Wheelers!



Learn more about ZipCar on campus!



Scan here to learn about shuttle routes!



CLIMATE CHANGE INITIATIVE AND CLIMATE ACTION PLAN



CLIMATE ACTION PLAN

UML adopted the Climate Action Plan in January of 2012 in response to UMass Lowell signing onto the American College and Universities residents' Climate Commitment (ACUPCC). It publicly demonstrates UMass Lowell's commitment to reducing GHG emissions through carbon mitigation projects and widespread campus and community engagement. It contains greenhouse gas mitigation phases and interim milestones with overall goals of carbon neutrality by 2050.

HOW UML TRACKS PROGRESS

Scope 1 Emissions: Direct

These are emissions from onsite generation and fleet field consumption. For example, the heating plants that are located on campus.

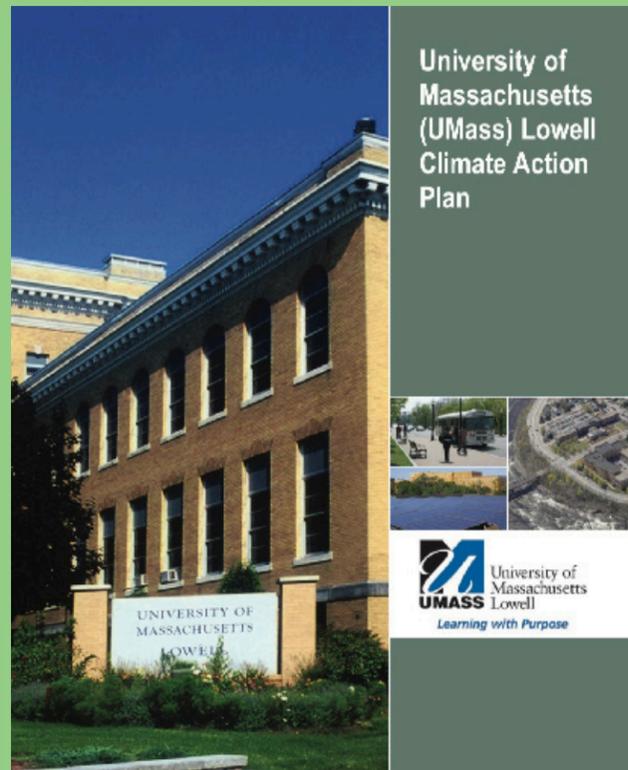
Scope 2 Emissions: Indirect

These are emissions from power plants providing purchased electricity.

Scope 3 Emissions: Supplemental

These are emissions from indirect sources, such as company travel and supply chain management. They are emissions that are not necessarily tied to the university but are the result of activities such as commuting to the campus and study abroad air travel.

Scan here to learn more!



RECENT IMPLEMENTATION HIGHLIGHTS

Since April of 2019 UML has had the largest Completed Accelerated Energy Program in the state. \$23.1 million has been devoted to projects implemented over 100 energy-saving measures in 30 buildings across campus:

- \$1.2 million annual energy savings
- 1.7 million gallons of water saved annually
- 9 million pounds of carbon emission avoided annually
- \$10 million in deferred maintenance

UML has merging operations with teaching and research sources to help students get a holistic understanding of carbon reduction and mitigation strategies in a real-world setting. As of now, there is a collective focus on partnerships, both on campus and in the greater Lowell and Massachusetts community.

BUILDING BRIDGES

UML was awarded a \$13.7 million Tiger Grant for the replacement of six bridges. The completion of this project will have a massive impact in terms of reducing our carbon emissions. There will be less commuting, less bus travel, and it will be easier to walk/bike across campus.

Since the Climate Action Plan was adopted, emissions have fallen 28% per 1000 sq. ft. and 19% FTE despite a period of enormous growth. UML met the 2020 Interim greenhouse gas reduction goal in 2015. UML currently has a plan implemented to replace gas-powered grounds equipment with battery-powered and electric equipment.



Consider Utilizing:

- Free Regional and Campus Transit
- Bike Share
- EV Infrastructure Build-out
- Full Suite of TDM Options

NEXT STEPS

- UML needs to maintain existing emissions reductions
- In order to meet the 2030 interim goal, the University requires a 5% emissions reduction
- For the campus to meet the 2050 goal it will require enormous effort and investments



WASTE AND RECYCLING



Did You Know?
There are over 20 boxes
located all over campus!



BATTERY AND SMALL ELECTRONICS RECYCLING BOX DROP OFF

It is free for all students, faculty, and staff members to recycle batteries and small electronics on campus. There are collection bins spread throughout campus in easy to get to locations. All materials are sent out to responsible vendors who dispose of all batteries and small electronics in a sustainable and environmentally friendly way.

FREecycle PROGRAM

All items such as books and school supplies that are collected from the Move Out Program, office moves, clean-outs, and other means are offered back to the members of the campus.



ZERO SORT RECYCLING

All over campus, there are black and blue bins. The black bins are for trash and the blue bins are for recycling. They are located inside throughout all buildings.

Students, Faculty & Staff: Be sure to read the sign when throwing something away to ensure it ends up in the correct bin. Contamination is a big concern for recycling. At desks, post up images of UMLs accepted materials in recycling and trash containers, so it is clear what materials go where.



TIPS FOR OFFICE AND LAB RECYCLING

Always line desk-side containers and change them regularly to prevent any unwanted smells and pests. This is a great way to reuse plastic bags from stores. Place only clean recyclables at desk-side containers. Any dirty waste containing leftover food or sugar should be immediately brought to the nearest trash bin or left on the desk until getting them to a container.

Did You Know?
One of the most important principles of sustainability reducing waste.

REFERENCES



For more information on the buildings at UML head to:
<https://www.uml.edu/office-sustainability/Practices/Buildings/>
OR scan



For more information on energy innovations at UML head to:
<https://www.uml.edu/office-sustainability/Practices/Energy/>
OR scan



For more information on food and dining at UML head to:
<https://www.uml.edu/office-sustainability/Practices/Dining/>
OR scan



For more information on transportation at UML head to:
<https://www.uml.edu/office-sustainability/Practices/Transportation/>
OR scan



For more information on the grounds at UML head to:
<https://www.uml.edu/office-sustainability/Practices/Grounds/>
OR scan



For more information regarding purchasing at UML head to:
<https://www.uml.edu/office-sustainability/Practices/Purchasing/>
OR scan



For more information regarding the Climate Change Initiative and
Climate Action Plan at UML head to: <https://climatechangeinitiative.org>
OR scan



For more information on waste and recycling at UML head to:
<https://www.uml.edu/office-sustainability/waste-recycling/>
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