



Sustainability at UTM

Campus Affairs Committee

October 30, 2018

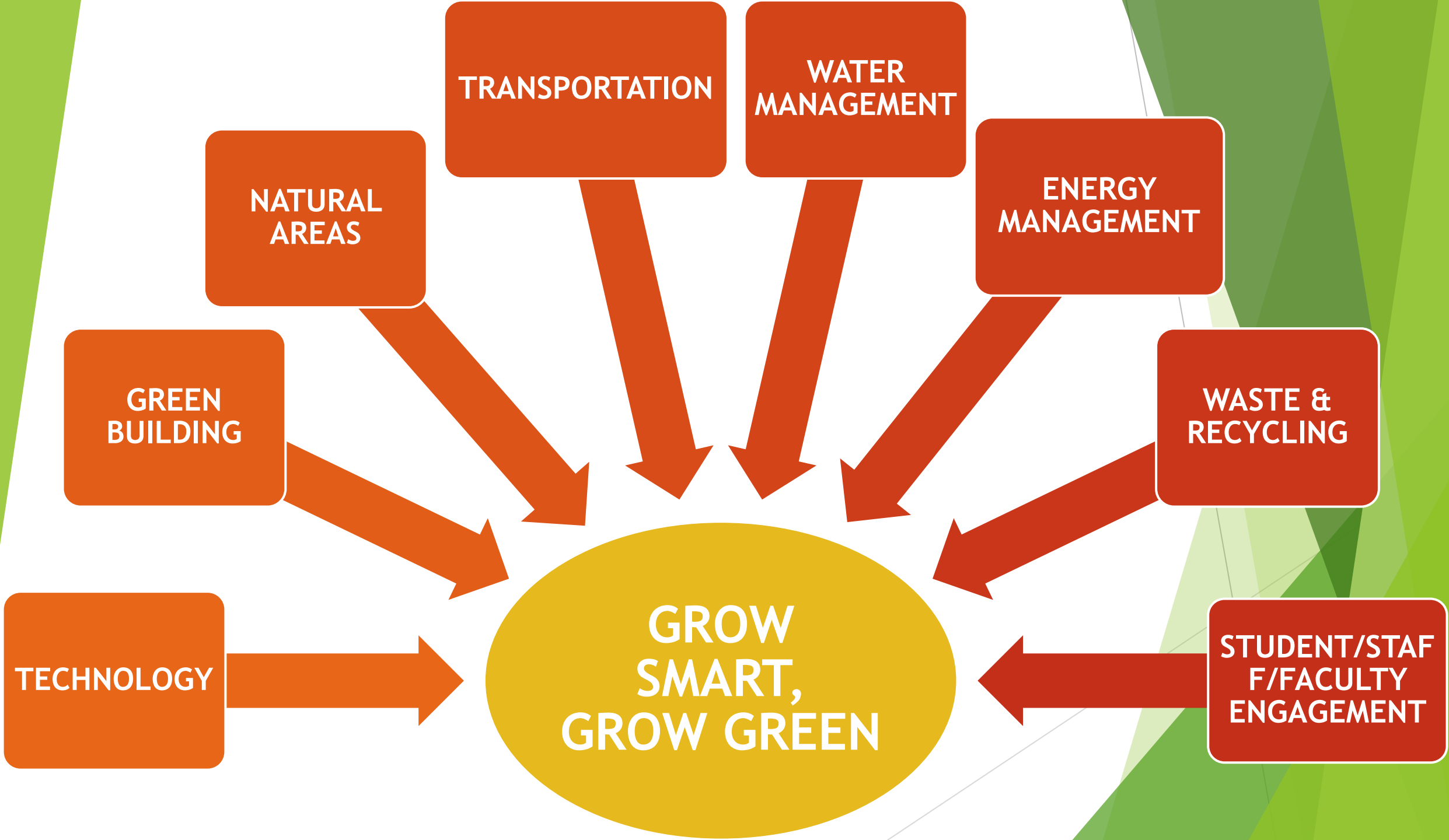
Fifteen Years of Change



Driving Change: Motivators

- ▶ Campus Development & Master Plan
- ▶ Environmental Responsibility
- ▶ City of Mississauga - Initiatives like “Smart City”





Green Building

- ▶ Minimum LEED Silver Design
 - ▶ Sustainable site development
 - ▶ Water savings
 - ▶ Energy efficiency
 - ▶ Materials selection
 - ▶ Indoor environmental quality
- ▶ LEED silver
 - ▶ HMALC
 - ▶ Instructional Building
 - ▶ Deerfield Hall
 - ▶ Innovation Complex
 - ▶ North Building (minimum target)
 - ▶ New Science Building (target)
- ▶ LEED Gold
 - ▶ Health Sciences Complex
 - ▶ Davis Building 3rd floor renovation



Natural Areas

- ▶ 21 sites removed from mowing - **planted** with native plantation
- ▶ Invasive species removal
- ▶ Ongoing monitoring of health of planted areas

Geothermal & Solar

- ▶ Instructional Centre 100% heated and cooled by geothermal system
- ▶ Significant energy savings compared to conventional building
- ▶ 40% cost savings and 43% energy savings
- ▶ Only uses a small amount of electricity to run the pumps
- ▶ Building uses no natural gas

- ▶ 2 solar arrays:
 - ▶ Davis building (2005)
 - ▶ Instructional Centre (2011)
 - ▶ Installed when building was built
 - ▶ Panels tilted at 45° angle to sun
 - ▶ Panels double as sun shades



Water Management

- ▶ Rainwater collection systems
- ▶ Reduction of water use in Central Utilities Plant
- ▶ Bottled water ban
- ▶ Storm-water Pond

Energy Management & Savings

- ▶ Green & White Roofs
- ▶ Replacement of T-12 fluorescents
- ▶ Central Plant boiler and chiller upgrades
- ▶ Lab renovations + low-flow fume hoods
- ▶ Outdoor lighting conversion to LEDs
- ▶ Cooling tower replacement
- ▶ Campus sub metering



Leveraging Grants & Incentives

- ▶ Strategic Investment Fund (SIF)
- ▶ Greenhouse Gas Reduction Projects
- ▶ Low Carbon Economy Fund
 - ▶ Applied for \$6.3 million

A graphic with a light blue background. In the center, there is a white rounded rectangle with a green border. Inside the rectangle, the text reads: "The Low Carbon Economy Challenge" in bold green font, followed by "Supporting innovative ideas that grow the economy and take action on climate change" in a smaller green font. A green leaf icon is in the top right corner of the rectangle. Below the rectangle, there is an illustration of a cityscape with orange and blue buildings, a worker in a yellow hard hat, and a snow-capped mountain in the distance. The Canada wordmark is in the bottom right corner.

The Low Carbon Economy Challenge

Supporting innovative ideas that grow the economy and take action on climate change

Canada

Energy Initiative Challenges

- ▶ Difficult to reduce GHGs when campus constantly growing
- ▶ Absolute cuts in emissions needed to mitigate climate change
- ▶ Funding
 - ▶ Multiple sources of funding
 - ▶ Hard to predict how energy prices will behave in future
 - ▶ Massive capital investments needed
 - ▶ Renewables still expensive compared to traditional sources of energy
 - ▶ Simple payback does not always tell the whole story
 - ▶ Capital funding vs. ongoing operating costs

Transportation

- ▶ U-pass allows students unlimited travel on MiWay
- ▶ Shuttle bus between UTM, St. George, Sheridan campuses & Brampton
- ▶ Best spots reserved for carpools
- ▶ Parking rebates for fuel-efficient vehicles
- ▶ **BikeShare**
 - ▶ Free, 48-hour bike rentals and DIY repairs
 - ▶ Volunteers & staff learn valuable skills



Annual community bike ride

- ▶ Most popular ride... 5 years running
- ▶ Partnership between **BikeShare** and **Mississauga Cycling Advisory Committee**
- ▶ 15 km length 50-100 participants yearly
- ▶ Raise awareness across campus and city on green initiatives



CCT parking LED retrofit

- ▶ Replacement of old, inefficient lights with more efficient LED lights
- ▶ Less staff time to change burnt-out lights
- ▶ Brighter, safer & more pleasant lighting
- ▶ Enhanced student experience!



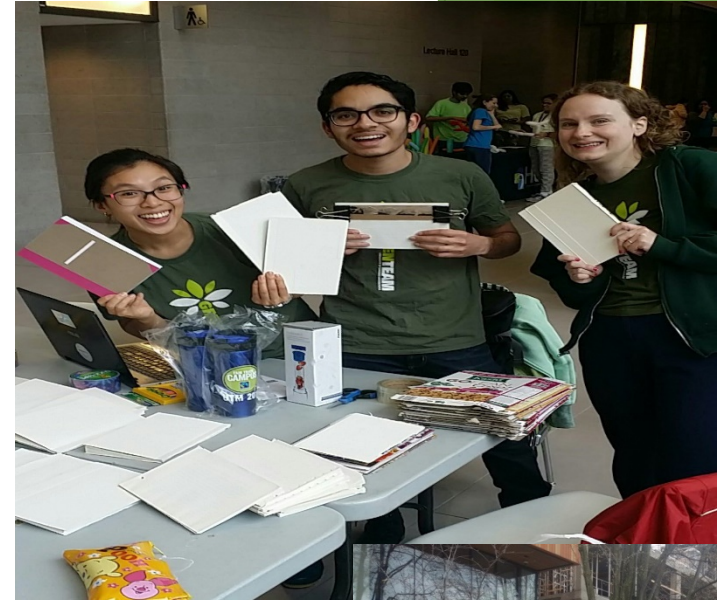
Community Engagement

Student

- ▶ Green Team work-study positions
- ▶ Green Ambassadors volunteer group
- ▶ Participation at O-week fair, Exam Jam
- ▶ Outreach to student body
 - ▶ Waste sorting game, eco-Jeopardy
 - ▶ Tours of Central Utilities Plant

Staff & Faculty

- ▶ Staff and faculty are welcome to attend all our events
- ▶ **People Power Challenge**
- ▶ **Earth Day** litter clean-up
- ▶ **Dish service** for department events
 - ▶ Free - we supply and pick up reusable plates



Repair Café

- ▶ People can bring broken items to be fixed
- ▶ Keeps useful items out of landfill, encourages repair culture, discourages throw-away mindset
- ▶ Clothing, small appliances, electronics, jewelry
- ▶ Held twice per year



Zero Waste Market



Food Services Initiatives

Pre-consumer

- ▶ **Organic Waste Reduction** -
 - ▶ Waste Station installed in OPH in 2016 resulting in 50% food waste reduction.
 - ▶ Waste Station installed in Davis in 2017.
- ▶ **Waste Diversion** - The goal for this year is to be above 66% (national average for office building).
- ▶ **Staff Training**

Waste Audit

- ▶ Current diversion rate for UTM Retail Services is 59% based upon the data collected during the two day audit from March 26th-28th.

Total Waste Generated = Materials Disposed (Waste) + Materials Reused + Materials Recycled

The Recycling Council of Ontario has stated the national diversion rate for Office Buildings is 66%. The Ontario average for Office Buildings is 56%.



Sustainability Initiatives

- ▶ Vertical Farming
- ▶ UTM Bee Program
- ▶ The Elimination of Plastic Straw Use
- ▶ Fair Trade Commitment



I&ITS Initiatives

- ▶ E-Waste Changes
- ▶ Classroom Technology Upgrades
- ▶ UTM Data Centre footprint reduction
- ▶ Printing Devices
- ▶ Thin Client Technology

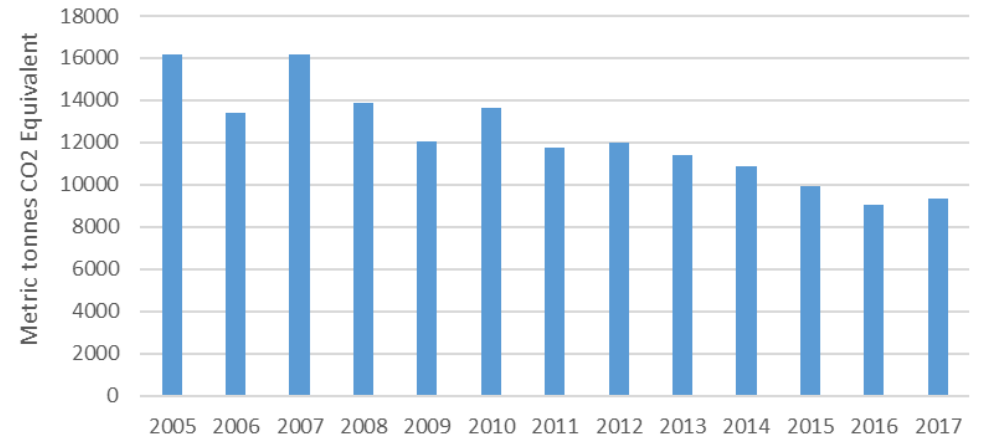
In Conclusion

- ▶ 42% decrease in GHG below 2005 levels
- ▶ Equivalent to:
 - ▶ Taking 1,456 cars off the road for a year
 - ▶ 176,204 trees growing for 10 years

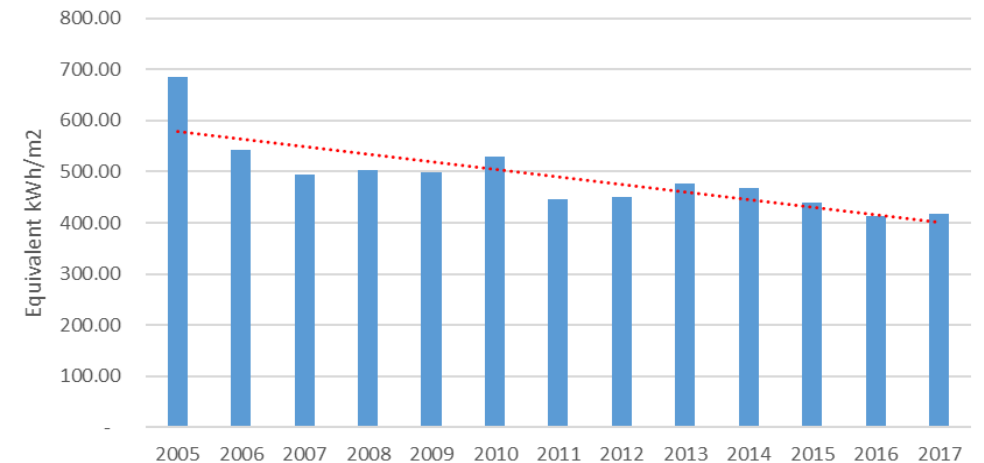


- ▶ Campus has grown by 58% since 2005 (buildings gross area)
- ▶ Improved buildings energy performance by 39% to support quality learning and research environment.
- ▶ ***Sustainability Initiatives in all areas of our operations!***

UTM Greenhouse Gas Emissions



Energy Use Intensity



*Energy Use Intensity is a very commonly used metric for building energy performance, defined as the energy consumption per unit conditioned floor area.