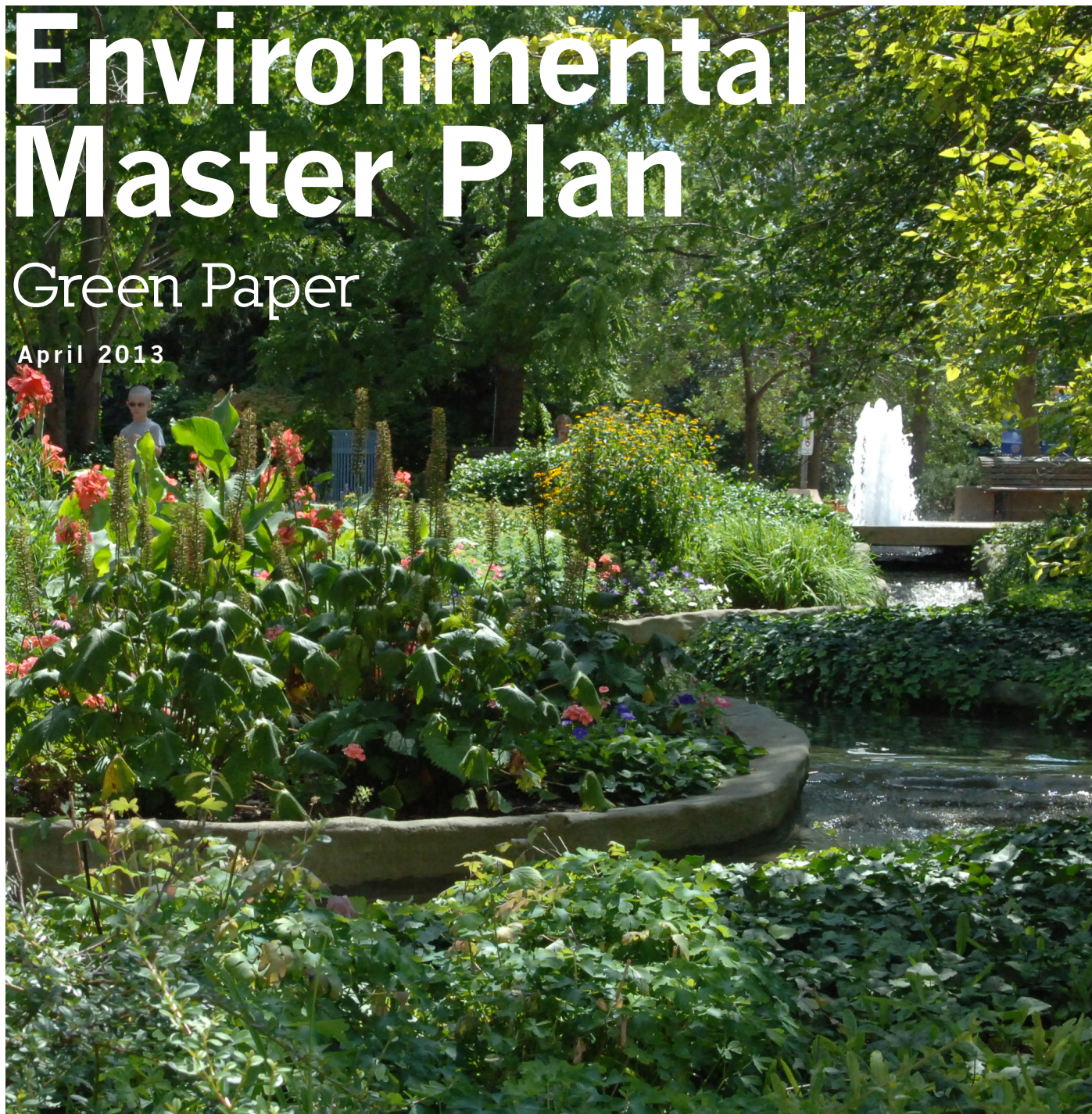


Brampton Grow Green

Environmental Master Plan

Green Paper

April 2013




City-building
for our future



THRIVING



GROWING



SERVING



PRESERVING



ENGAGING

These icons represent the five Strategic Priorities that are the foundation of the City of Brampton Strategic Plan: City-building for Our Future



brampton.ca

BRAMPTON
Flower City



**URBAN
STRATEGIES
INC .**



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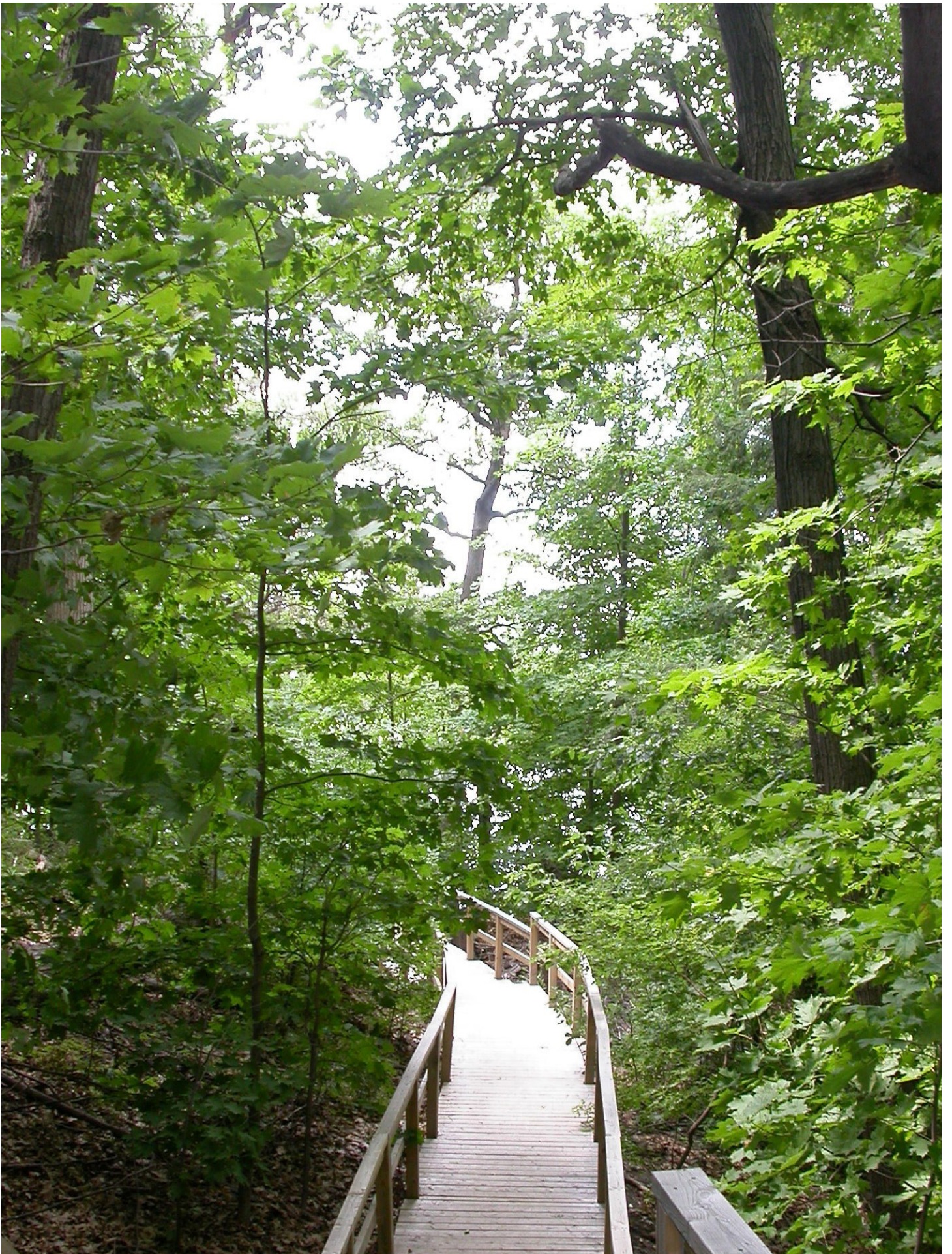
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Chapter 1

Introduction

What is Brampton Grow Green?

Environmental Master Plan

Today's rapid growth and development of communities, within and beyond the Greater Toronto Area and throughout Canada, requires municipalities to take a fresh look at their future by envisioning, planning and implementing actions to secure their long-term well-being and a higher quality of life for all. Brampton Grow Green, the city's first Environmental Master Plan in combination the City of Brampton Strategic Plan, Official Plan and Growth Management Program will outline Brampton's long-term integrated community sustainability plan that builds on existing planning tools and provides a framework that emphasizes the following:

Long-term thinking – planning for the future to become resilient in the face of changing circumstances

Broad in scope – considering the communities' environmental, economic and social and/or cultural sustainability

Integration – coordinating efforts to enhance community sustainability through linkages between corporate planning and operations, partnerships, conservation organizations, etc.

Collaboration – engaging community members and other partners to support community sustainability (e.g. other levels of government, conservation agencies, Non-Government Organizations (NGOs), residents, private sector)

Public engagement and education – enhancing public input and involvement into planning and operational processes

Implementation – putting plans into action

Monitoring and evaluation – setting targets and tracking results to celebrate progress and focus efforts on areas that need the most improvement

More than 100 years ago, Brampton was known as the Flowertown of Canada, renowned for the quality and excellence of its roses. Today, as Brampton grows into a cosmopolitan and diverse city, that commitment to quality and excellence remains unchanged. As Brampton looks to the future through its renewed Strategic Plan, a plan that will outline the City's evolution, growth and development over the next two decades, the programs and decisions made today will help distinguish Brampton as the Flower City of Canada, a great place to live, work and play.

The City of Brampton is currently implementing numerous initiatives that are enhancing the City's environmental sustainability. From community programs and transit improvements, to resource and infrastructure management, Brampton has approximately 175 ongoing initiatives that protect, restore and improve the environmental performance of the City's communities, natural systems and open spaces, air, water and energy resources, transportation networks, buildings and facilities.

The purpose of Brampton Grow Green is to understand from an environmental sustainability perspective, what the City does well, identify gaps and opportunities to change its operations and service delivery, and to establish **sustainable directions**, including standards, actions and targets that will conserve and improve upon the environmental qualities of the City's built and natural landscapes. By evaluating the City's best practices, Brampton Grow Green will identify the ways and means to improve the City's environmental performance, including setting targets, tracking results, monitoring and evaluation in such areas as:

- Municipal operations, programs and services
- Land use planning and built form
- Natural heritage system and urban green space

- Transportation and movement systems
- Water, energy and waste
- Education and outreach
- Community stewardship and private sustainability.

The EMP is intended to bring corporate cohesion to the City's many ongoing environmental initiatives, programs and activities from across all City departments, operations and services. It is not intended to duplicate or replace the work and value of the other strategic documents, studies and programs. It will add an **environmental sustainability** layer to the City's growth and decision-making, complementing and supplementing other municipal initiatives by **focusing on actions** not addressed by those plans and programs.

Brampton Grow Green will establish an **integrated approach to community sustainability**, translating environmental goals and objectives into responsible, achievable and, measurable tasks, actions and benchmarks for City operations and influence the city's land use development and growth management program. The EMP will also help guide environmental initiatives throughout the Brampton community as a whole, and inspire future commitments, partnerships and investment. Through engaging multiple stakeholders including municipal staff, conservation agencies, stakeholders and the public at-large through a variety of strategic consultation activities, the EMP will be build awareness and encourage participation amongst the broader community.

The Environmental Master Plan will be both a key input into the City's Strategic Plan as well as receiving input from the community consultation that the Strategic Plan and Official Plan will be undertaking in 2013.

The Green Paper

This document, the Green Paper, in combination with a Background Report finalized in the Spring of 2012, will form the foundation of the Environmental Master Plan. In its current form, the Green Paper will be used as the key public consultation document as Brampton Grow Green is integrated into the City's Strategic Planning process. Following public consultation, Brampton Grow Green will be finalized through the preparation of an Integrated Implementation Action Plan that will include both Priority Indicators and short and long-term actions.

The Green Paper is divided into four main sections:

The first section (**Chapter 1**) describes the project process, consultation events and how the document is to be used.

The second section (**Chapter 2**) identifies the vision, guiding principles that were established as part of the Environmental Master Plan process.

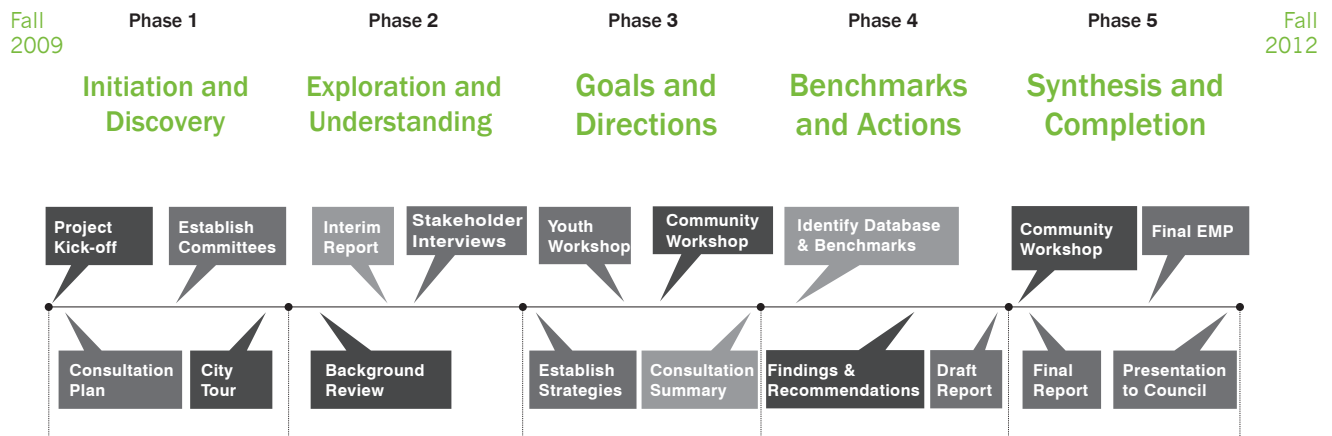
The third section (**Chapter 3**) presents the Environmental Performance Framework and Priority Indicators which will be a key tool to help Brampton measure its progress towards achieving its environmental goals.

The final section of the Green Paper (**Chapter 4**) focuses on implementation and presents six strategies that recommend refinements to City-wide organization and decision making. Each strategy is described in detail and includes precedents and actions intended to direct the implementation of Brampton Grow Green.

What was the project process?

Phases

The EMP process is being undertaken in 5 phases, as illustrated and described below. The project team met with an interdepartmental steering committee and an interagency technical advisory committee at regular intervals throughout the process. As well, the progress of the EMP has been reviewed with the City's Senior Management Committee (Chief Administrative Officer and departmental commissioners) and the Brampton Environmental Planning Advisory Committee (BEPAC).



Phase 1: Initiation & Discovery

Following a tour of the City, the project team reviewed dozens of documents and reports in order to understand how Brampton practices and implements environmental sustainability in land use planning, corporate operations and community education and engagement, and to identify gaps and opportunities where more progress could be made.

Phase 2: Exploration & Understanding

The purpose of Phase 2 was to develop an in-depth understanding of the key issues facing Brampton through an overview of relevant policy, current conditions, policy and initiatives related to the environment.

Phase 3: Goals & Directions

Phase 3 established goals and objectives that related to each of the six core components of Brampton Grow Green and identified 28 indicators that would help Brampton track its progress to achieving its environmental sustainability goals

Phase 4: Benchmarks & Actions

During Phase 4, achievable targets and timeframes for monitoring each of the indicators were established. The 28 indicators were distilled into 8 Priority Indicators to provide an initial focus for EMP implementation.

Phase 5: Synthesis & Completion

The Green Paper will be used as the basis for public consultation and form the backbone of the final Environmental Master Plan. With the completion of the Strategic Plan's consultation activities a final EMP will be developed and form a pillars of the City's new Strategic Plan.

Consultation Events

Ongoing consultation has been integral to the formulation of the EMP and has occurred at various stages throughout the project's process. Consultation events have offered an opportunity to guide and provide feedback on the creation of the plan. For a detailed description of the consultation process, including the notes and outcomes from each event, please see the Background Report.

Event	Purpose and Structure
Internal Stakeholder Interviews November 4, 2009	A series of small group interviews with approximately thirty (30) City of Brampton, Region of Peel and Conservation Authorities staff helped to develop a more complete picture of Brampton, allowing the Consultant Team to gain a fuller understanding of current initiatives and critical environmental issues facing Brampton.
Growth Management Focus Group November 27, 2009	Approximately thirty-five (35) Managers and Directors from the City, Region and Conservation Authorities were asked to further contribute to Brampton Grow Green by attending a ½ day focus group to identify the sustainability implications and challenges of the scale and distribution of proposed development, the phasing of growth and the provision of servicing infrastructure.
City Operations Focus Group December 17, 2009	About thirty-five (35) City, Region and Conservation Authority senior staff were brought together for a ½ day focus group discussion to explore the opportunities and challenges in operationalizing City initiatives, projects and services in a manner that will enhance the environmental performance of Brampton.
External Stakeholder Interviews February and May 2010	Two sets of small group interviews were held with representatives from eighteen (18) external stakeholder groups to identify strategic initiatives being undertaken by contractors and outside agencies including, business associations, environmental groups, and private vendors.
Mayor's Youth Team Meeting June 28, 2010	A discussion with over twenty (20) members of the Mayor's Youth Team explored student perspectives on current initiatives and critical environmental issues facing Brampton, as well as longer term aspirations for the city's future.
Internal Stakeholder Workshop June 28, 2012	Over thirty (30) City, Region and Conservation Authority senior staff were brought together for a full day workshop to explore the targets, actions, and potential partners for the Environmental Performance Framework.



How will this document be used?

The Green Paper consolidates input and direction from the Brampton Grow Green process to date and provides draft recommendations for the key components that will comprise the final EMP.

The Green Paper includes the following sections, which will together provide Brampton with a framework of clear environmental targets and straightforward strategies for achieving them.

1. The **vision** and **guiding principles** reflect the direction of the Environmental Master Plan and serve as the foundation for the Green Paper.

2. The Environmental Performance Framework presents the following information:

- a description of each of the six **core components** (People, Air, Water, Land, Energy and Waste) and how each component impacts the environment;
- a description of each core component's goals and objectives and a sample of current environmental initiatives Brampton is already undertaking that support these goals;
- a description of each **priority indicator** (a quantitative measure of environmental performance within a core component);
- a description of each **metric**: metrics have been established for both the Brampton community as a whole (Community metric) and the City of Brampton as a corporation (City metric), allowing Brampton to track community-wide progress and offering the City an opportunity to 'lead by example';

- the current **baseline**, which illustrates where Brampton is in 2013 - if a baseline does not exist for a particular metric a key action for 2014 will be to establish a baseline;
- the **target performance**, which describes where Brampton wants to be in 2016 and 2021;
- a list of potential **actions** that are intended to facilitate the implementation of the EMP and guide Brampton towards achieving its targets;
- possible **City departments** that might lead the implementation of each indicator. And,
- potential **partners** that may help support each of the various actions.

3. The implementation section offers six corporate strategies to help the City of Brampton implement the Environmental Master Plan more effectively. Each strategy consists of:

- a description of the strategy;
- examples of how other municipalities have implemented similar strategies; and,
- a list of recommended actions and potential partners to help implement each strategy.



Chapter 2

Vision, Guiding Principles, Core Components, Indicators & Metrics

Brampton Grow Green Vision & Guiding Principles

Vision

Brampton is a community that will conserve, enhance and balance our natural and built environments to create a healthy, sustainable city. We will carry out our responsibilities to meet the needs of the present community without compromising the ability of future generations to meet their own needs.

Guiding Principles

Leadership

We will be innovative, lead by example, and advocate environmental sustainability within and beyond our community. Best practices from around the globe will guide our operations and shape our policies and plans.

Responsibility

We will integrate community and natural systems sustainability into everything we do. We will learn of trends and initiatives beyond our community to better anticipate Brampton's environmental needs and concerns.

Balance

We will achieve our environmental goals within a balanced environmental, social, cultural and fiscal agenda that considers the direct and indirect costs of our actions and inactions.

Accountability

We will be open in our decision-making and actions, and we will monitor, evaluate and report our environmental progress.

Stewardship

We will inform, educate, engage and participate with the community to protect, conserve and enhance our natural and built environments.

Partnership

We recognize the need for, and value of, partnerships with other levels of government, conservation agencies, conservation groups, stakeholders and the community, to deliver and implement environmental programs and activities to improve and benefit the health and diversity of our natural and built environments.

Core components, indicators and metrics

Core Components

Building on the City's current environmental initiatives, Brampton Grow Green will establish a clear set of future environmental sustainability actions that will provide the greatest positive impact on the environment. Six Core Components have been identified under which indicators, metrics, targets, benchmarks, actions and directions will be organized, as the EMP Environmental Performance Framework:

Air Water Land
People Energy Waste

The first three components, air, water and land, are core elements of the environment that sustain a city. Measures to reduce the City's impact upon these resources will have a strong influence on Brampton's quality of life and its ability to attract and retain businesses and residents, and its overall environmental performance.

The remaining three elements, people, energy and waste, are key areas where environmentally-focused actions that are directed to the city's urban functions and operations, have the potential to effect the conservation of its air, water and land resources, and consequently, its environmental performance.







Measuring Environmental Performance

In the process of creating the EMP, precedents for measuring sustainability in terms of indicators and metrics were collected from municipalities throughout Canada, the United States and internationally. An initial candidate list of 24 indicators and metrics was developed and reviewed through a cost/benefit prioritization matrix to determine a recommended short list of eight priority indicators and metrics from which the City can begin to measure its current baseline and determine progress over time in environmental sustainability. *The full list of indicators and metrics, as well as the prioritization matrix, can be found in the Technical Appendix.*

The criteria used to prioritize the indicators and metrics included:

- Can the metric be scaled for both the City and the community?
- Is the metric reliable?
- Does the metric build on existing initiatives?
- Will the metric help effect environmental change in the short-term?
- Does the metric affect a large percentage of the population?
- Is there a significant resource cost/environmental benefit ratio for achieving the target?
- Is the data collection feasible and a reasonable cost/resource?

The following diagram illustrates the relationship between the six Core Components and the eight Priority Indicators and related metrics that will be used to assess the City’s environmental performance. The core components are functionally and programmatically interrelated and, from an environmental impact perspective, need to be considered as a system.

Core Component	Indicator	Metric
 People	Engagement	Participation in Environmental Activities
 Air	GHG Emissions Transportation	GHG Emissions Trips/Capita
 Water	Water Consumption	Potable Water Demand
 Land	Urban Tree Canopy Built Environment	Trees Planted Density
 Energy	Energy Demand	Building Energy Intensity
 Waste	Solid Waste	Waste Diversion Rate

When appropriate, the priority indicators have a community metric and a City metric, allowing the method of measurement to address the scale and context of either Brampton-wide initiatives or internal City operations and activities, respectively. In some instances, the metrics have targets or baselines that have yet to be determined (TBD) and the establishment of the target should be an initial action of the City. The Environmental Performance Framework explains each of the core components, priority indicators and metrics in detail.

Chapter 3

Environmental Performance Framework

Environmental Performance Framework: Priority Metrics

Cities and communities are facing a broad range of known environmental issues, impacts and trends, some of which are beyond their direct control, but nonetheless are impacting their environmental health including climate change, land pollution, air pollution, water pollution, water consumption, biodiversity health, and productive land area loss. The City of Brampton is the second fastest growing community in Canada (between 2006 to 2011), the third largest city in the Greater Toronto Area, and the ninth largest city in the country (according to the 2011 census). The potential consequences of this growth to the environment, if managed poorly, will put great stress on the city's natural heritage systems including its air and water quality, resource needs and energy requirements.

The City recognizes it must now operate and grow differently in the coming decades by integrating environmental sustainability into everything it does to achieve a balanced natural and built environment. Municipal operations and community activities must focus on conserving and maintaining environmental resources. The City's reputation will be significantly linked to its environmental performance, and by moving towards carbon neutral operations, zero waste and environmental net gains, the City's bottom line will improve its ability to be a livable community, and to attract and retain traditional and 'green' businesses.

How to Measure Progress

This section presents the Priority Indicators, and draft metrics and targets that will be monitored and used to assess Brampton's environmental performance.

Draft targets and timelines are presented for each of the metrics. The targets are based on a City of Brampton baseline (i.e. where we are now), if known. They have been carefully selected based on: research of industry standards and other municipality experience; and expert advice from all City departments. The metrics, leverage where possible, data already being collected or that can be easily collected by the City. Targets have generally been defined for 2016 and 2021. Public consultation is required to ensure that these represent the wants and needs of the City and community members, and will be integrated with the City's Strategic Planning exercise.

Where a baseline is unknown, targets will be set once the baseline has been determined. More challenging targets are associated with indicators and metrics that are of significant importance to Brampton or related to environmental issues, including federal and/or provincial legislation.

Setting environmental targets and measuring progress is still a new process for many municipalities. Often there is not enough data to definitively say that a specific strategy aimed at achieving a target will be successful. Monitoring and measuring performance provides feedback on the progress made towards achieving the target. It gives an indication of the effectiveness of the actions implemented to date and what future actions should be planned for. In some cases, more detailed analysis and measuring may be required to answer these questions.

It is important to maintain perspective with respect to targets and timelines as some metrics will be affected by events out of the City's control. Reporting should include feedback on actions or conditions within the City's control, conditions over which the City has influence but no control, and conditions over which the City has no control.

Reporting on what is measured and monitored creates a dialogue between Council, municipal departments, and the public. Providing information that the community can easily access increases engagement, generates new ideas and instills ownership for Brampton's environmental future. Reports should be made on an annual basis externally and perhaps as frequent as once a quarter internally.

The EMP will require periodic updating (about every 5 years) to reflect how the community is changing, reflect Brampton's environmental priorities, and update the information learned from the measuring and monitoring process.

The following pages detail each of the six Core Component including: goals and objectives that correspond to each core component; a sample of Brampton's current environmental initiatives for each component; priority indicators; community and city metrics and targets; and a sample of proposed initial and future actions that could be undertaken.

NOTE

A complete Canvas of Environmental Initiatives, which lists all the current environmental initiatives, programs and activities of the City of Brampton and its partners can be found in the Background Report.

The complete list of priority indicators, metrics and actions which formed the draft Environmental Performance Framework, as well as the matrix used to prioritize the metrics and actions can be found in the Technical Appendix. The Technical Appendix also contains the full list of actions that will help Brampton achieve its Goals.

PEOPLE



Goal : Invest in PEOPLE to create a healthy, liveable and safe community

Advance the awareness and engagement of the Brampton community in healthy lifestyles, environmental stewardship and the green economy to manage choices that impact the built and natural environment.

Why is this important?

People are a fundamental element of the earth and its natural systems. To survive, humans need land, clean water and air, and energy. However, by our very nature and daily activities, including how we live, work and play, we are vast consumers of these resources, and compound our consumption through the creation of waste and impacts to these resources. These impacts also affect public health. As stewards of the environment, we need to reduce our consumption, waste and impacts so that we do not exceed the carrying capacity of the environment, seek to protect, restore and enhance the natural environment, and improve the health of the built environment.

Objectives

1. Foster active, healthy lifestyles
2. Engage Brampton's stakeholders, community and public in establishing environmental directions, priorities and networks
3. Track, monitor and share data on the City's environmental performance
4. Increase stewardship resources and opportunities to conserve and enhance Brampton's environmental assets
5. Increase awareness of link between city structure and environmental and human health
6. Promote a 'culture of conservation' and green economic development

PEOPLE



What is Brampton doing?

- Urban Design Awards
- Spring and Harvest Clean-Ups
- Commissioners Green Challenge
- Community Gardens
- CVC Conservation Youth Corp and Branch Out
- TRCA Etobicoke-Mimico Coalition and Humber River Alliance
- Brampton Environmental Planning Advisory Committee
- Adopt-a-Park program
- Blue Education Stewardship Programs
- Corporate and Community Environmental Education Programs

INDICATOR Participation in Environmental Activities

How is it measured?

Community Metric:
Number of Participants/year

City Metric:
Number of Participants/year

Why use this Metric?

To monitor the number of participants (City staff or Brampton residents) in environmental initiatives and/or programs.

Brampton Councilors, residents, businesses, community organizations and municipal staff are the City's greatest resource to achieving a healthy, liveable city. Increasing the number of participants in environmental programs and activities in the community, including those of the City's conservation partners (Region of Peel and Conservation Authorities), and through corporate programs and activities, will foster environmental awareness and actions, and encourages greater engagement with other environmental initiatives within our private and public lives. Brampton's community engagement will need to recognize the cultural diversity of the city, including developing a variety of opportunities to motivate residents, businesses and stakeholders.



PEOPLE

Community Metric: Number of participants/year

Proposed Initial Actions (2013)

- Develop a community environmental engagement strategy
- Develop a series of awareness and education campaigns (graphic information brochures) for each of the EMP core components
- Expand the role of the Brampton Clean City Committee and Brampton Environmental Planning Advisory Committee to act as an EMP community resource.
- Develop a comprehensive website that includes a database of environmental resources, services, activities and events

Future Actions (beyond 2013)

- Consider annual environmental recognition/incentives for businesses, institutions and citizens
- Expand partnership with Region of Peel, schools and community centres to educate youth
- Expand partnership with conservation authorities, NGOs, community organizations, corporations and institutions to involve youth and the Brampton community in conservation initiatives
- Establish a Community Sustainability Centre (e.g. drop-in centre offering lectures, demonstrations etc.) and/or Program to showcase at the City's recreational facilities 'Community Hubs'.

Who are potential Community Partners?

- Schools
- Businesses
- Community Organizations
- Conservation Authorities
- NGOs
- Region of Peel

Where is Brampton now?

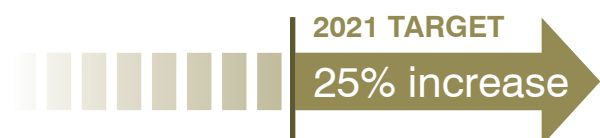
Baseline	
2013: (2011 Data)	
Youth:	
School Programs:	17,500
Stewardship Programs:	131,000
Summer Camps:	23,000
Business:	
Partners in Project Green:	TBD
Community:	
Clean City Activities:	393,000
Tree Planting:	TBD
CVC:	2,583

Where is Brampton going?

Increase from the baseline by:



Increase from 2016 by:



PEOPLE



City Metric: Number of participants/year

Proposed Initial Actions (2013)

- Establish a corporate environmental committee with representatives from each City Department
- Establish a corporate 'environmental engagement strategy' to educate internal staff about each of the EMP core components
- Develop a series of awareness and education campaigns (graphic information brochures) for each of the EMP core components
- Establish an events calendar and incentives to encourage staff contribution to the environment (e.g. Bike to Work Day, Commissioner's Challenge, Earth Day, etc.)

Future Actions (beyond 2013)

- Create an internal portal specifically for environmental issues; supplement with bulletins, emails and posters
- Create an Environmental Office (potentially located in City Hall), that could be an internal and external 'storefront' responsible for communications and showcasing pilot projects

Who are supporting City Departments?

- Buildings & Property Management
- Economic Development & Communications
- Planning, Design and Development
- Community Services
- Finance & Information Services
- Works & Transportation

Where is Brampton now?

Baseline	
2013: (2011 Data)	
Commissioner's Spring Challenge: 1,278	
Smart Commute:	94
Spring/Harvest Clean-up:	TBD
Ride/Bike/Walk/Transit to work:	TBD

Where is Brampton going?

Increase from the baseline by:

2016 TARGET

25% increase

Increase from 2016 by:

2021 TARGET

25% increase

AIR



Goal: Reduce impacts on AIR quality

Improve air quality to reduce human health impacts and limit contributions to climate change

Why is this important?

Clean air is fundamental to life. Air pollution damages ecosystems and negatively affects human health. Poor air quality in cities is increasingly being recognized as contributing to respiratory diseases, including increased levels of asthma, particularly amongst children and the elderly. As the City and the GTA grows, levels of contaminants are expected to rise and health risks will increase. Improving Brampton's current air quality will be a challenge, i.e. population growth will result in increased demand for City and Regional services, etc.

Objectives

1. Decrease corporate and community emissions caused by vehicles, buildings and operations
2. Create walkable, bike and transit supportive urban environments
3. Enhance natural areas and increase the urban tree canopy
4. Develop a strategy to support active transportation and traffic demand management

AIR



What is Brampton doing?

- BRT Strategic Implementation Plan (ZÜM)
- Smart Commute Brampton-Caledon
- Employee Transit Pass Agreement
- Green Fleet Plan
- Pathways Master Plan
- Active Transportation Plan (ROP)
- Walk to Work/School Day
- Anti-Idling Policy and Bylaw, and Communications Plan
- Sustainable Update for the City of Brampton Air Quality
- Open Air Burning Strategy
- Corporate Building and Facility Emissions Monitoring

INDICATOR GHG Emissions

How is it measured?

Community Metric:

Tonnes CO₂e (CO₂eq) per capita/year

City Metric:

Total tonnes CO₂e (CO₂eq) per capita/year

Why use this Metric?

To monitor the reduction in green house gas (GHG) emissions.

The measurement of green house gas emissions is a widely used measurement of some of the key contributors to climate change, which harms environmental and human health. GHG emissions result mainly from the generation of the fossil fuel-based energy consumed by the operation of buildings and facilities, and can be measured either for municipal buildings or for buildings city-wide. The City will have to meet requirements under the Green Energy Act, and as a partner in the implementation of the Peel Climate Change Strategy will need to establish both corporate and community GHG inventories and targets to reduce our GHG emissions.

¹ CO₂eq means carbon dioxide equivalent, and is a measure to compare the emissions from various greenhouse gases based upon their global warming potential.

AIR



Community Metric: GHG emissions per capita/year

Proposed Initial Actions (2013)

- Implement the Peel Climate Change Strategy (PCCS)
- Work with PCCS Municipal Partners to develop a community Greenhouse Gas emissions inventory and set targets
- Implement the County Court Sustainable Neighbourhood Retrofit Action Plan (SNAP) in the County Court community
- Educate major business leaders on energy conservation techniques
- Educate about air quality including the pollution effects of lawn mowers and other gas powered tools, the sources and health impacts of and solutions to poor outdoor air quality (part of an ongoing series of environmental awareness campaigns)

Future Actions (beyond 2013)

- Establish guidelines, targets and regulatory tools for residential energy efficiency standards for new development and redevelopment
- Expand SNAP to other neighbourhoods across the city
- Assess incentives/financing support for implementation of sustainable standards for design and construction of new private sector buildings or retrofits of existing buildings
- Work with Region of Peel to implement and support active transportation
- Work with PCCS Municipal Partners to identify areas of reduced air quality, monitor and identify actions to address sources of pollution / implement an air monitoring network

Who are potential Community Partners?

- Utility companies
- Schools
- Partners in Project Green
- Federal and Provincial Governments
- Developers (e.g. Mt. Pleasant Village)
- Region of Peel & PCCS Partners
- GO Transit
- Conservation Authorities
- Clean Air Partnership

Where is Brampton now?

Baseline

2013:
Determine baseline

Where is Brampton going?

Set targets for 2016 and 2021

AIR



City Metric: Total tonnes CO₂e/year

Proposed Initial Actions (2013)

- Create a corporate GHG emissions inventory and set targets
- Undertake energy audits for all municipal buildings and facilities
- Develop a comprehensive education program designed to encourage GHG reduction in building and facilities, associated with water use, landscaping, etc.
- Use green procurement for more efficient, lower emission small engines (e.g. landscaping machinery, lawnmowers, leaf blowers, etc.)
- Complete the City's Green Fleet Plan, i.e. continue right-sizing vehicles and 'greening' the municipal fleet with biodiesel and hybrid vehicles;

Future Actions (beyond 2013)

- Develop a GHG emissions reduction plan for City buildings, facilities and operations
- Implement energy efficient retrofits for existing City buildings and facilities
- Identify opportunities for alternative and renewable power, and district energy systems
- Implement city-wide electric vehicle plug-in stations
- Encourage local procurement (buy regionally made materials)
- Create flexibility with parking and/or transit passes

Who are supporting City Departments?

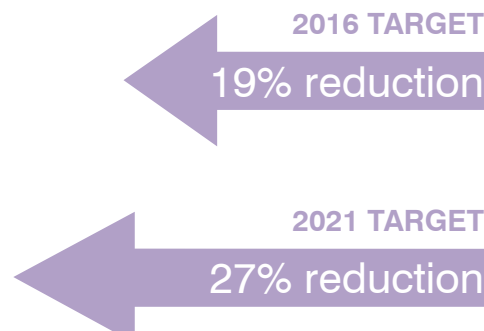
- Buildings & Property Management
- Community Services
- Works & Transportation
- Planning, Design & Development

Where is Brampton now?

Baseline	
2013: (2010 Data)	
2010 Corporate:	
Buildings:	13,610 tonnes eCO ₂
Fleet Vehicles:	22,809 tonnes eCO ₂
Street Lighting:	3,704 tonnes eCO ₂
Total:	40,123 tonnes eCO₂

Where is Brampton going?

Reduction from the baseline by:



AIR



INDICATOR Transportation - Community

Vehicles contribute to air and water pollution through vehicle exhaust. Environment Canada reports that emissions associated with transportation are the largest source of nitrogen oxide and the third largest sources of volatile organic compounds (VOC). In addition, infrastructure such as roads and parking contribute to storm water runoff, heat island effect and occupy land that could be set aside as green or living space. Reducing automobile use and encouraging alternatives such as transit, cycling and walking will promote healthy lifestyles, reduce GHG emissions, mitigate negative impacts on water, and preserve land area.

How is it measured?

Community Metric:

Number of transit trips per capita/year

Why use this Metric?

To measure the total number of transit trips taken in the year divided by the City's population.

Public transportation not only reduces personal vehicle trips and associated GHG emissions, but provides opportunities for social interactions and encouraging vibrant communities. Brampton currently provides local and regional transit service via Brampton Rapid Transit (BRT).

AIR



Community Metric: Number of trips per capita/year

Proposed Initial Actions (2013)

- Develop an education campaign about transportation including the impact of automobile use on air quality and the environment and the cost savings associated with transit use
- Ensure transit website data is “real-time”, comprehensive, graphic and easy to use
- Create a mobile application, mobile friendly website, etc. that relies on ‘real time’ data
- Implement a Bus Pass program for local business employees
- Regularly produce and distribute marketing and communication materials relating to transit service
- Establish transit oriented community design standards in the City’s Sustainable Community Development Guidelines

Who are potential Community Partners?

- Smart Commute
- Region of Peel
- Developers
- Transit Agencies
- AutoShare
- Federal and Provincial Governments

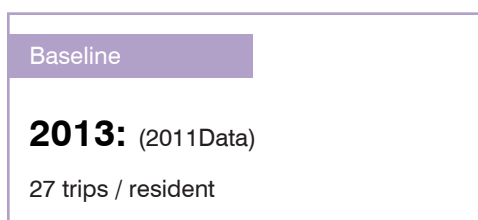
Future Actions (beyond 2013)

- Prioritize transit uses on highways and roads by means of transit traffic light control, reserved lanes on highways, etc.)
- Implement HOV lanes on heavily travelled roads with frequent transit service
- Encourage use of corporate transit passes
- Create a transit pass for post-secondary students to encourage a new generation of public transit users
- Continue to update and implement policies to encourage mixed-use and live/work around transit centres and to support new transit oriented communities
- Institute a Cycling Committee and invest in cycling infrastructure to become a Bicycle Friendly Community

Who are supporting City Departments?

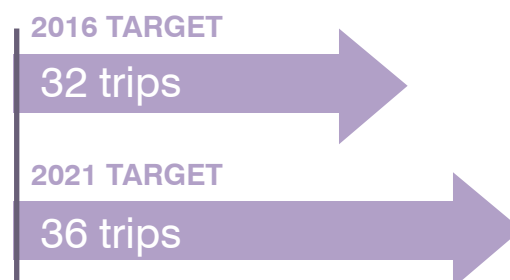
- Works & Transportation

Where is Brampton now?



Where is Brampton going?

Increase from the baseline to:



WATER



Goal: Protect and respect WATER as a non-renewable, life critical resource

Conserve water, and manage rainfall and snowmelt as a resource to improve the quality and quantity of water returned to the environment to limit disruption to water flows and contamination of water sources and habitats.

Why is this important?

Access to clean potable water needs to be recognized as a limited resource. Brampton's potable water is provided by the Region of Peel and drawn from Lake Ontario that is fed by the numerous rivers and creeks that traverse the most urbanized and heavily populated region of Ontario, the Greater Toronto and Golden Horseshoe Area. Lake Ontario and the 5 river systems that run through Brampton provide the City with a diverse natural heritage system, drinking water for our residents and water for household and commercial use, recreation, sewage treatment and many other functions. New integrated water management approaches that encompass the economic, social and environmental benefits of water conservation and water quality protection are critical to address this vital resource.

Objectives

1. Protect and enhance water quality
2. Reduce consumption of potable water
3. Increase use of captured or recycled site water
4. Reduce and manage surface runoff as stormwater

WATER



What is Brampton doing?

- Stormwater Management Master Plan
- Functional Servicing Report Terms of Reference
- Low Impact Development Stormwater Management Planning and Design Guideline (TRCA|CVC)
- Water Efficiency Plan (ROP for Potable Water)
- Water Smart Peel (ROP)
- Peel Children's Groundwater Festival (ROP|CVC|TRCA)
- Peel Channels Remediation Strategy
- Liveable Peel: Ensuring Sustainable Watersheds in 2051 (ROP)
- Greening our Watersheds: Revitalization Strategies for the Etobicoke and Mimico Creeks 2002 (TRCA)
- Humber River Watershed Plan (TRCA)

INDICATOR Water Consumption: Community

How is it measured?

Community Metric:

Potable water demand (litre/capita/day)

Why use this Metric?

To monitor the amount of potable water being consumed.

Potable water is provided by the Region of Peel, and as a metered resource paid through the tax bill, is a readily available measurement for the water consumed by both municipal buildings and facilities and the community. Reducing potable water use helps to conserve water resources that support the Lake Ontario ecosystem, decrease chemicals used for water treatment, and reduce energy used (and associated GHG emissions) required for water treatment and distribution. Utilizing rainwater and snowmelt as a resource, and better managing stormwater runoff before it enters the natural water systems will help to protect and maintain our potable water.

WATER



Community Metric: Water Consumption

Proposed Initial Actions (2013)

- Work with the Region of Peel to review water and wastewater rate structures to draw attention to the value of water
- Work with the Region of Peel to expand current education about potable water including the impact of water use on the watershed, the costs of treating water including energy use, and lawn water regulations
- Support the Region of Peel Water Smart Peel Program to educate and assist Industrial, Commercial and Institutional (ICI) customers with indoor/outdoor water audits, and to reduce their consumption
- Develop a rain water capture program, including removing restrictions on rain-barrel installation and education about cost savings. Encourage 'naturescaping', the planting of native species to reduce watering requirements

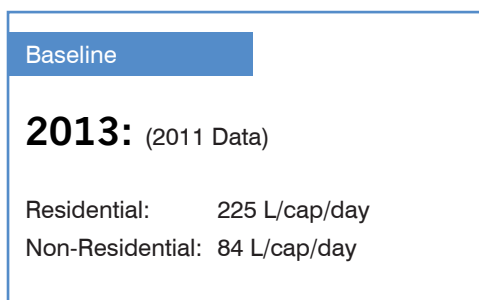
Future Actions (beyond 2013)

- Develop requirement for internal and external water conservation for all new development. Implement planning policies and standards that require Low Impact Development measures
- Provide incentives for residents and businesses to divert stormwater and snow melt runoff for private on-site usage including irrigation
- Work with the Region of Peel to develop public information on water efficiency
- Work with the Region of Peel to develop and implement guidelines, targets and regulatory tools for residential water efficiency
- Work with the Region of Peel to develop Wastewater Flow Reduction Programs
- Work with the Region of Peel to implement universal water metering and volume-based pricing system

Who are potential Community Partners?

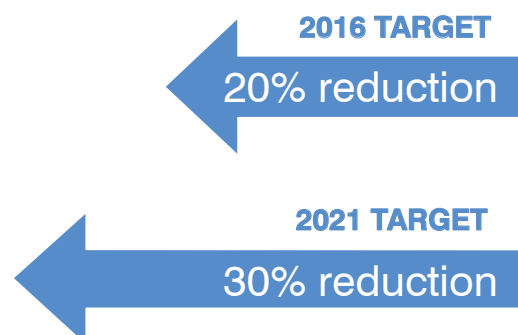
- Schools
- Community Groups
- Businesses
- Region of Peel
- CVC
- TRCA

Where is Brampton now?



Where is Brampton going?

Reduction from the baseline by:



WATER



INDICATOR Water Consumption: City

How is it measured?

City Metric:

Potable water demand (m³/m²)

Why use this Metric?

To monitor the amount of potable water being consumed.

Reducing potable water for City facilities helps to conserve water resources that support the Lake Ontario ecosystem, decrease chemicals used for water treatment, and reduce energy used (and associated GHG emissions) required for water treatment and distribution. The City of Brampton uses water for its municipal buildings and facilities (e.g. swimming pools, rinks, etc.) as well as for irrigation of public lands. Auditing water consumption for municipal buildings and facilities and changing the landscaping requirements for parks and open spaces will significantly contribute to a reduction in water consumption.

WATER



City Metric: Water Consumption

Proposed Initial Actions (2013)

- Prepare a Stormwater Management Retrofit and Enhancement Study
- Develop a comprehensive education program about potable water demand and use
- Undertake water audits and develop a Water Conservation Plan for each municipal buildings, facilities and operations for potable water
- Conform with Green Energy Act requirements to track and report water use
- Prepare an integrated water management strategy to direct the utilization of rainwater and snowmelt runoff as a resource for City buildings, facilities and operations
- Update current landscape requirements for City lands to naturescape buildings, parks, boulevards, view vistas, etc to plant alternative or native plant species to reduce watering requirements

Future Actions (beyond 2013)

- Install grey water systems on municipal facilities (composting toilets; on-site treatment in public buildings)
- Install computerized central controls for conservation on parks irrigation systems
- Install on-site rain water collection and usage systems on public lands
- Install and/or retrofit low-flow fixtures and other water conserving technology in new and existing City buildings and facilities
- Implement wastewater demonstration projects in City building and facilities (i.e. LID, greywater recycling, green roofs)
- Develop turf management plans that reduce reliance on irrigation

Who are supporting City Departments?

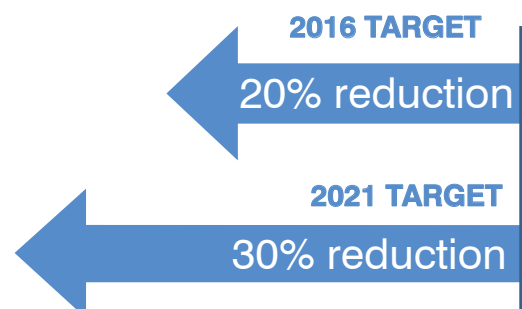
- Buildings & Property Management
- Planning, Design & Development
- Community Services
- Works & Transportation

Where is Brampton now?

Baseline
2013: (2011Data)
Building 1.1m ³ /m ²
Irrigation 15,910m ³

Where is Brampton going?

Reduction from the baseline by:



LAND



Goal: Manage LAND to sustain the natural environment

Conserve, enhance and use land efficiently to foster healthy communities and ensure diverse, functioning natural heritage systems.

Why is this important?

Natural heritage lands and urban forest coverage provide a range of ecological functions that sustain Brampton's quality of life, and the broader health of the natural environment. While we use land in cities for housing, transportation, industry and recreation, we also need land to provide for food production and support vegetation for animal habitats and CO² absorption. The protection, management and enhancement of Brampton's natural heritage system and the use of land to build the city must be balanced if Brampton is to continue to enjoy a healthy, livable community.

Objectives

1. Protect, restore and enhance natural features, functions and linkages
2. Limit and manage the environmental impact of new development
3. Promote native species, increase urban tree canopy and enhance habitat to support natural community health, linkages and biodiversity, absorb CO², and reduce the heat island effect
4. Increase densities and sustainability of urban communities to take advantage of and improve existing and planned infrastructure
5. Plan for walkable and age-friendly communities
6. Increase local food production and use

LAND



What is Brampton doing?

- Valleyland Naturalization Program
- Growth Management Program
- Natural Heritage and Environmental Management Strategy
- Sustainable Community Development Guidelines
- Parks, Cultural and Recreation Master Plan
- Subdivision Design Manual
- Street and Park Tree Replacement Program
- Brampton Urban Forest Technical Study
- Brampton Invasive Species Management Program
- Woodlot Conservation and Tree Preservation Bylaw

INDICATOR Urban Tree Canopy

How is it measured?

Community Metric:

Number of Trees Planted/year

City Metric:

Number of Trees Planted on City Land/
year

Why use this Metric?

To assess and monitor the total number of trees planted per year on either City-owned lands or city-wide.

Trees are natural infrastructure and provide many environmental and public health benefits including natural system biodiversity and habitat, mitigate climate change and improve local air quality, reduce urban heat island and decrease residential energy costs. Trees also increase property values and reduce noise impacts, and provide for stormwater management and erosion protection for lakes and streams. Extending from street trees to backyards and parks, forests and valleys, trees contribute to safe, walkable and beautiful communities that reduce stress and create stronger community connections between people and the natural environment. The City and community should strive to plant more trees annually than which are lost due to death, injury, invasive species or development.

LAND



Community Metric: Number of trees planted/year

Proposed Initial Actions (2013)

- Implement the Peel Urban Forest Strategy and support the Peel Urban Forest Working Group
- Develop a comprehensive education program for residents and ICI about 'naturescaping', i.e. planting native tree and shrubs on private property including the benefits of using native species, the impacts of non-native species, CO² absorption and reducing energy costs
- Support the Conservation Authorities 'green yard' and 'green corporate grounds' programs
- Update Official Plan policies to identify mitigation for removal of tableland vegetation and urban canopy to facilitate development
- Provide advice for private homeowners to plant native trees/shrubs in front and rear yards

Future Actions (beyond 2013)

- Review and update Woodlot Conservation and Tree Protection bylaws and requirements, including removal of trees within 2 metre buffer of buildings, mitigation requirements for loss of trees, etc.
- Update municipal standards and guidelines to increase tree planting on existing commercial, industrial and institutional sites
- Update Boulevard Maintenance, Grass and Weed Cutting, and Property Standards bylaws to ensure that they do not unduly restrict naturalization efforts on public and private lands
- Encourage native planting on private property and streets by providing private home owners with trees
- Work with Conservation Authorities to establish an annual private tree planting program
- Partner with community associations, ICI sectors and School Boards to plant trees on their properties, including greening parking lots

Who are potential Community Partners?

- Development Industry
- Private landowners
- CVC
- Region of Peel
- TRCA
- School Boards
- Golf Courses
- Trans Canada Pipeline and Ontario Hydro

Where is Brampton now?

Baseline

2013: (2011 Data)

Determine baseline and set targets for 2016 and 2021

Where is Brampton going?

Establish targets

LAND



City Metric: Number of trees planted/year

Proposed Initial Actions (2013)

- Implement the recommendations of the Brampton Urban Forest Study
- Develop a Natural Heritage and Environmental Management Strategy
- Develop a range of tree canopy targets for the city
- Support the Emerald Ash Borer Management Program through annual funding and staff resources
- Develop Invasive Species Management Strategy
- Develop a strategy to prioritize naturalization of public and private lands, including efforts of the City, Conservation Authorities, Region of Peel, provincial ministries, and community groups

Future Actions (beyond 2013)

- Update the Brampton Urban Forest Study every ten years, including an urban forest canopy assessment and recommendations for urban forest improvements
- Expand the Valleyland Naturalization Program to include open space and parkland
- Develop naturalization plans for City Parks, boulevards and road right-of-ways
- Develop a Native Species Plant List to stabilize, vegetate and naturalize city-owned properties, including trees, shrubs and groundcover; species diversity, size and age; and planting requirements including soil volumes
- Implement trenching for street trees
- Locate and design trails in natural areas and parks to minimize loss of vegetation and use porous material for pathways in parks

Who are supporting City Departments?

- Community Services
- Planning, Design & Development
- Works & Transportation

Where is Brampton now?

Baseline

2013: (2011 Data)

- 1000 trees or shrubs/year (Valley Naturalization Strategy)
- 1000 trees/year planted by Scouts
- 800 parkland trees

Where is Brampton going?

Establish targets

LAND



INDICATOR Built Environment

How is it measured?

Community Metric:

Density (People and jobs/hectare)

Why use this Metric?

Measuring the built form density using a combined housing and employment metric across different areas of the city, (i.e. greenfields, urban growth centres and within the 2006 built boundary as required by the Growth Plan, 2006), will allow an understanding of the degree to which Brampton's development pattern is creating complete, compact communities. Moving forward compact neighbourhoods with increased densities will support sustainable infrastructure including existing services (transit, energy and water), sufficient market for a range of ICI services, and the wise use of land as a resource. The benefits also include reducing green house gas emissions through reduced vehicle use, preserving natural heritage systems, and creating rich and diverse urban environments.

LAND



Community Metric: Density

Proposed Initial Actions (2013)

- Implement the Sustainable Community Development Guidelines for new development, including redevelopment, infill and intensification
- Develop a tool to measure the sustainability of new development
- Educate the community about urban growth including illustrating the benefits of creating denser and transit-oriented communities
- Ensure conformity with Growth Plan density targets
- Monitor success of Community Improvement Plan for the downtown core

Future Actions (beyond 2013)

- Revise policies, standards and guidelines to remove barriers to innovative sustainable development and community forms
- Develop vision and sustainable design framework for Urban Growth Centre
- Work with senior governments to reduce barriers for development of brownfield sites
- Partner with private land owners and developers and use public reinvestment and incentives to attract and accommodate growth in existing neighbourhoods

Who are potential Community Partners?

- Development industry
- Private land owners
- CVC
- TRCA
- Region of Peel

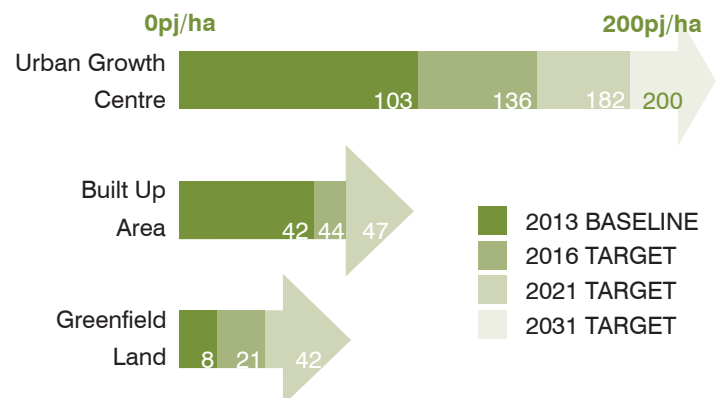
Who are supporting City Departments?

- Planning, Design & Development

Where is Brampton now?

Baseline	
2013: (2011Data)	
Urban Growth Centre:	103 pj/ha
Built Up Area:	42 pj/ha
Greenfield Land:	8 pj/ha

Where is Brampton going?



ENERGY



Goal: Reduce ENERGY consumption and manage the impact of energy usage on our environment

Reduce energy use, particularly from non-renewable sources, to limit greenhouse gas emissions, preserve natural habitats and resources, and increase energy security.

Why is this important?

Energy powers our cities, our homes and our businesses. We use substantial amounts of energy that is expensive to generate and transmit, and has significant environmental impact to natural systems, and public and community health, including air, water and thermal pollution. However, energy conservation and the use of renewable and alternative energy sources offers the greatest opportunity to reduce green house gas emissions to improve air quality and mitigate climate change, conserve resources, limit environmental effects to biologically productive lands and habitats, and support community resiliency by decreasing stress on aging energy infrastructure and reducing dependence on non-renewable fossil-fuels.

Objectives

1. Manage the demand for energy
2. Improve energy efficiency and performance of new and existing buildings and operations
3. Increase the use of renewable energy, both in terms of on-site generation and as a portion of demand for municipal facilities

ENERGY



What is Brampton doing?

- Solar Panels/Geothermal heating at Fire Stations
- Sustainable Neighbourhood Retrofit Action Plan
- LEED Buildings – 2 fire stations (Gold)
- Updating electricity & gas procurement strategy
- Brampton Clean City Education Program
- Energy conservation audits
- Municipal Building Retrofit Program
- PCCS Community and Corporate GHG Emissions Inventory
- Energy Consumption Annual Report

INDICATOR Energy Demand

How is it measured?

Community Metric:

Building energy intensity by sector (low-rise residential, multi-unit residential, office): equivalent megawatt-hours/capita (per person of the total City population)

City Metric:

Building energy intensity: equivalent kilowatt-hours/m² of floor area

Why use this Metric?

To measure the energy intensity of buildings, including energy utilized for heating, cooling, lighting and appliance/machinery use. Building energy intensity is the ratio of total building energy use to total building floor area .

Buildings account for approximately 30% of Canada's energy use and 50% of GHG emissions. Reducing the energy used by buildings and facilities provides one of the best ways to decrease GHG emissions and minimize negative environmental effects including climate change, while reducing reliance on fossil fuels. Building energy reduction also translates into cost savings for the City and community members. In 2013, the Ministry of Energy will require municipalities report on the energy use and GHG emissions of their corporate buildings, facilities and operations and in 2014 municipalities will be required to set energy reduction targets for corporate buildings, facilities and operations.

ENERGY



Community Metric: Building energy intensity by sector

Proposed Initial Actions (2013)

- Work with PCCS municipal partners to undertake community energy mapping and develop an integrated community energy plan to establish roles and responsibilities in Brampton's energy community and create a road map for advancing selected energy strategies
- Educate about energy consumption and reduction including the harmful effects of GHG emissions and the potential savings of energy efficient appliances and retrofits
- Promote urban forms that support reduced energy consumption and the use of renewable energy

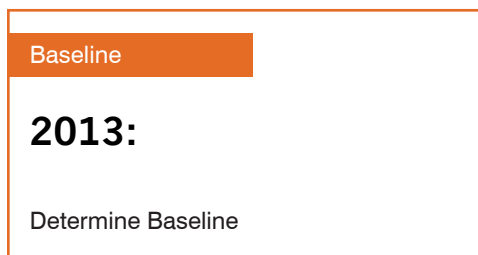
Future Actions (beyond 2013)

- Explore district energy opportunities for Downtown Brampton, Urban Growth Centre and high-density neighbourhoods
- Encourage and provide incentives for energy-efficient retrofits
- Increase collaboration with Pearson Eco-Business Zone - Partners in Project Green (PPG)
- Partner with the Region of Peel and utility companies to aid with energy conservation (e.g. provide energy efficient appliances to low income households)
- Explore innovative homeowner retrofit funding options, including Local Improvement Charges

Who are potential Community Partners?

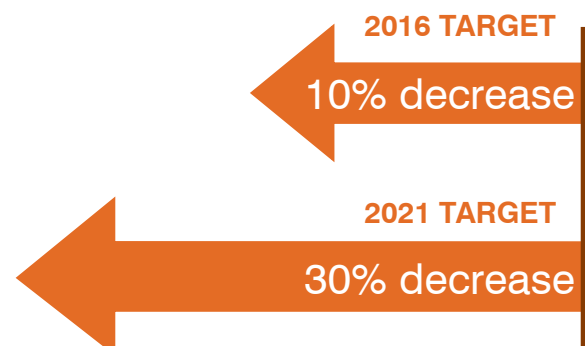
- Region of Peel
- Private businesses
- Ontario Power Authority
- Enbridge and Hydro One Brampton
- Canadian Urban Institute (CUI - education and outreach)
- Quality Urban Energy Systems of Tomorrow (Quest)

Where is Brampton now?



Where is Brampton going?

Decrease from the baseline by:





ENERGY

City Metric: Building energy intensity

Proposed Initial Actions (2013)

- Develop a comprehensive education program for City staff about energy consumption and reduction
- Develop a comprehensive energy management strategy for City buildings and facilities
- Undertake energy audits and develop an Energy Conservation Plan for each municipal building and facility
- Conform with the Green Energy Act requirements to track and report energy use
- Continue to expand the City's use of renewable and alternative energy sources, such as geothermal, solar, wind

Future Actions (beyond 2013)

- Mandate that all new municipal buildings and facilities must adhere to a green standard
- Create an Energy Retrofit Program for all municipal buildings and facilities
- Research and invest in green energy (Fuel Cell Demonstration Project and Green Energy Procurement)

Who are supporting City Departments?

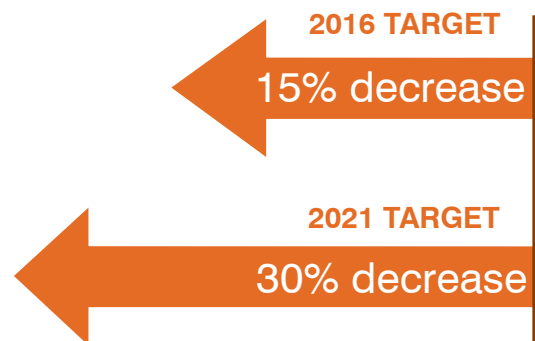
- Buildings & Property Management
- Works & Transportation
- Community Services

Where is Brampton now?

Baseline	
2013: (2010 Data)	
Corporate:	222 ekWh/m ²
Works:	231 ekWh/m ²
Recreation:	391 ekWh/m ²
Parks:	323 ekWh/m ²
Transit:	763 ekWh/m ²
Fire:	320 ekWh/m ²

Where is Brampton going?

Decrease from the baseline by:



WASTE



Goal: Reduce and manage the material considered WASTE

Reduce waste generation to limit greenhouse gas emissions, preserve habitats and resources and decrease management costs.

Why is this important?

Waste management is the responsibility of the Region of Peel, and Brampton can do more to support and promote reduction, reuse and recycling within the community and through its corporate buildings and facilities, and operations and land management programs. Solid and organic waste in landfills takes up a significant amount of land, contributes to GHG emissions that impact air quality (both off-gases and transportation costs), and which can impact our water resources as a result of landfill leachate. Waste reduction, recycling and reuse can help to preserve our resources, lessen pollution and decrease management costs.

Objectives

1. Consider waste as a resource for the input stream
2. Decrease consumption and increase recycling of organic and non-organic materials
3. Promote on-site waste management strategies: construction waste, household, institutional, energy
4. Increase community awareness of waste management strategies to rethink, reduce, reuse, recycle and repair
5. Foster partnerships with business and industry to demonstrate waste management strategies

WASTE



What is Brampton doing?

- Fall Leaf Vacuum Program
- Long-term Waste Resource Management Strategy (ROP)
- Incineration and Waste Transfer and Disposal Study
- Peel Organics Composting Program (ROP)
- Hazardous Waste Registration
- Community Recycling Centres - Municipal Hazardous or Special Waste Collection (ROP)
- Brampton Clean City Committee

INDICATOR Solid Waste

How is it measured?

Community Metric:

Waste diversion rate (percent diverted from landfill/year)

City Metric:

Waste diversion rate (percent diverted from landfill/year)

Why use this Metric?

To measure the annual waste diversion rate, or the percentage of total materials diverted from landfill through recycling, reuse and composting.

As Brampton grows, more waste will be generated by the community and the City through its corporate buildings, facilities and operations, and more GHG emissions will be released. Ideally, sending waste to landfill should be a last resort after reduction, reuse and recycling options have been implemented. Waste diversion efforts will be increasingly important as the city builds out to its 2031 target and beyond.

WASTE



Community Metric: Waste diversion rate

Proposed Initial Actions (2013)

- Work with Region of Peel to educate about waste reduction and diversion including the environmental and economic costs of waste disposal and the range of materials that can be recycled
- Work with Region of Peel to review and expand the range of recyclable materials for collection
- Work with Region of Peel to identify the most commonly used hazardous products and recommend alternatives
- Expand education on waste diversion i.e. reduce, reuse, recycle through school programs and at municipal buildings and facilities
- Request that the Region of Peel begin to track Brampton specific waste and recycling figures

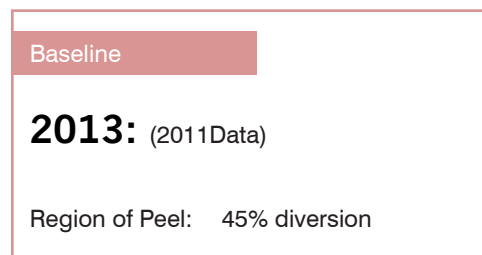
Future Actions (beyond 2013)

- Work with Region of Peel to expand recycling collection services and organic waste program for multi-residential buildings, commercial, institutional and industrial uses
- Work with Region of Peel to implement a recycling program for construction and demolition materials, in partnership with private sector
- Work with Region of Peel to develop extended producer responsibility programs
- Work with Region of Peel to handle all hazardous waste materials (e.g. batteries)

Who are potential Community Partners?

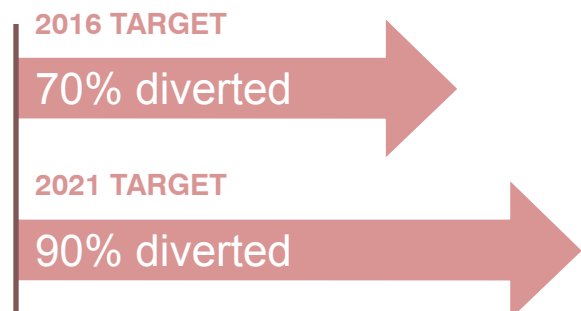
- Region of Peel
- Clean Air Council
- Developers and property owners / managers
- Municipal vendors and service suppliers (i.e. packaging, food, etc.)

Where is Brampton now?



Where is Brampton going?

Percent diverted:





WASTE

City Metric: Waste diversion rate

Proposed Initial Actions (2013)

- Develop a Waste Management Strategy to implement and promote waste reduction, reuse and recycling for all City buildings, facilities, streets and parks
- Undertake waste audits and develop a Waste Reduction Plan for each municipal building and facility, including targets and tracking/monitoring
- Develop standard City procurement practices and procedures to minimize waste generation for City operations, including service suppliers
- Develop a comprehensive education program designed to encourage solid waste diversion

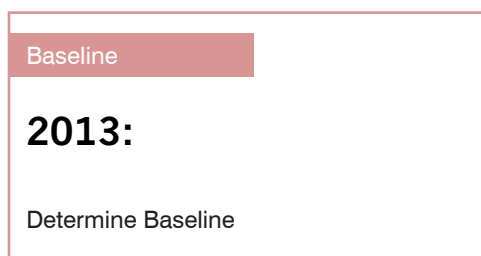
Future Actions (beyond 2013)

- Ensure that packaging is returned to material suppliers
- Reuse and recycle City construction material
- Provide recycling bins in all city buildings, facilities, streets and parks
- Develop strategies to track, manage, collect and safely dispose of all toxic materials used within City of Brampton buildings, facilities and operations

Who are supporting City Departments?

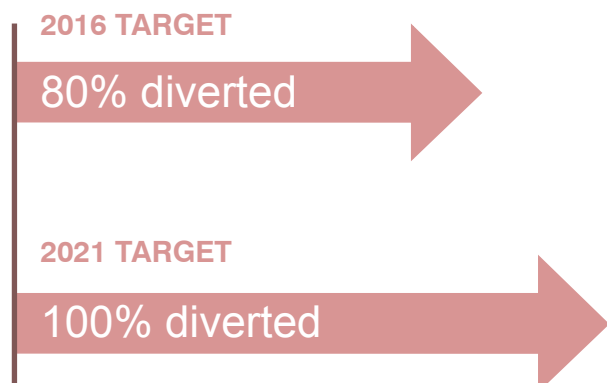
- Buildings & Property Management
- Community Services
- Finance & Information Services
- Works and Transportation

Where is Brampton now?



Where is Brampton going?

Percent diverted:







Chapter 4

Implementation

Getting there

Implementing the Environmental Master Plan

Achieving the goals of the Environmental Master Plan will be a long-term commitment for the City and the community and achieving progress towards sustainability targets will occur over many years. It will require Brampton and its stakeholders, businesses and residents to think, act and make decisions differently, by integrating environmental sustainability into their decision making process.

To foster a strong, green corporate direction the City should integrate its environmental commitments within the Strategic Planning process and should commit financial and human resources to improving and communicating environmental performance. As an organization it is important for the City to:

- Develop Awareness of the EMP among front line City staff,
- Link Resources to EMP objectives
- Provide Incentives for management to achieve the EMP targets.

Implementation of the EMP will require more than just City action. It must be a collaborative effort between the City and partners who are members of the Brampton community. The City's role with these partners will be as a leader, demonstrating progressive sustainability actions and standards in areas within their jurisdiction, and as a facilitator, providing support and access to environmental resources in areas beyond their direct control.

Many organizations can play a role in helping to advance the vision and goals of Brampton Grow Green. The City should broaden its partnership base to include businesses and industries, which may support EMP goals for reasons such as operational savings. The City should engage colleges and/or universities that may be interested in research related to the targets of the EMP.

In addition, developing and expanding partnerships with other levels of government including Region of Peel would provide direct assistance with obtaining data, resources as well as with achieving targets, as many of the recommended actions are within the Region of Peel's control. Partnerships with Conservation Authorities and neighbouring municipalities could help Brampton witness greater geographic influence of its EMP, as this cooperation could address environmental impacts on a systems basis, given that the natural and built environments stretch far beyond municipal boundaries.

The success of the EMP will be measured by its ability to change people's behaviours to lessen the environmental impacts of everyday activities. The broader the base of people who can relate to the Brampton Grow Green Plan's environmental targets and who personally identify with the Plan, the greater the possibilities of success. Widespread acceptance of Brampton Grow Green and an understanding of the benefits of change will be critical to long term implementation and will help inspire people, residents and staff, to achieve Brampton's environmental goals.

While taking specific actions, developing programs and policies and seeking partners are an important element of Brampton Grow Green, these must be directed by a clear City commitment to leadership, resources, structural change, education and communication. Several broad strategies are recommended below that will help shape how Brampton is structured and operates as a corporation and community leader. Many are based on precedents from other cities that are committed to improving their environmental performance. In the long term, these strategies are intended to formally change the decision making process of Council, operating departments, City staff,

residents, businesses and institutions, with an environment first approach.

Where formal regulation is not possible, the strategies include tools designed to influence public behaviours. Strategies are organized as follows:

1. Define and assign municipal sustainability resources
2. Establish data collection and performance monitoring methods
3. Educate and promote awareness
4. Align city wide policies and standards
5. Detail a budgeting and decision making framework
6. Manage municipal operations and procurement practices

To receive the most benefit these strategies must be acted upon in a comprehensive manner, although recognizing issues of limited municipal resources, considerable momentum can be achieved through the strategic implementation of one or more of these strategies.

1. Define and assign municipal sustainability resources

Description

How the City's departments and offices are organized, with emphasis on positioning sustainability to effectively implement environmental initiatives. The way in which environmental initiatives are positioned within the City structure can have a large impact on how collaboration between departments takes place, the corporate awareness of environmental initiatives and performance, and the public messaging about the priority of environmental sustainability within the City.

Municipal sustainability resources refer to the organizational configuration and composition of city departments and their associated divisions. A city department is typically responsible for specific tasks, goals and responsibilities relevant to their departmental mandate and function. In terms of directing, influencing or monitoring environmental sustainability and related initiatives, there are various ways in which environmental leadership and responsibility can be reflected in a municipality's resources and structure to best achieve environmental results, including:

- As one arm or division within a designated Planning or Environmental Services Department;
- As a stand-alone Office of Sustainability which operates as a distinct department and reports directly to the CAO;
- As a high profile office located in the Chief Administrative Officer's (CAO) office;
- Create a corporate environmental team to coordinate the decentralized delivery of environmental programs within every department.

While additional resources for environmental initiatives would be beneficial, Brampton must first address challenges associated with its organizational structure that inhibit interdepartmental discourse and exchange.

An environmental office staffed with representatives from all City departments would be a logical step in opening up dialogue between departments that may not frequently communicate. As well, both a Sustainability Office and the City's various departments must be given the discretion to explore environmental solutions. Municipal staff members need to be empowered to adapt City services and activities, as required, as a response to environmental issues and requirements. Without a formal process for sustainable decision-making and the clear authority to undertake actions, targets will remain largely unmet.

Precedents

Seattle, WA: Office of Sustainability and Environment is a distinct Office under Administration

Portland, OR: Bureau of Planning and Sustainable Development is part of Mayor's portfolio

Pickering, ON: One of five Departments of the Office of the Chief Administrative Officer (Administration, Sustainability, Corporate Service, Emergency Services, Planning and Development)

Markham, ON: Sustainability Office is an Office within the Chief Administrative Officer's portfolio

Baltimore, MD: Office of Sustainability is part of the Planning Department

Toronto, ON: Environment Office is an Office under a Deputy City Manager's portfolio (along with Planning, Solid Waste, Water, etc.)

Edmonton, AB: Office of the Environment is located within the Office of the City Manager

Recommended actions

Internal

- Create a Brampton Grow Green Office, as a separate department or within an existing department or the CAO's office, to champion the environment throughout the Corporation of the City of Brampton.
- Structure the Office to function as a single point to reposition environmental initiatives to reflect the interdepartmental nature of EMP implementation, and to communicate, educate, monitor and report the City's environmental performance.
- Resource the Office with permanent positions, part time positions and/or secondments from each of the City's departments to create an interdepartmental Office.
- Identify lead/support departments responsible for each metric and facilitate interdepartmental collaboration through joint training sessions for the execution of municipal projects, programs and initiatives.
- Utilize technology and establish smart approaches to accessing and sharing environmental data, information and successes between departments.

External

- Establish a Sustainability Centre/Environmental Learning Centre reporting directly to the Grow Green Office, to champion the environment to Brampton residents, business and stakeholders.
- Develop a Mandate for the Centre to support improvements to the environmental performance of communities across the city and to manage the external implementation of the EMP.
- Locate the publicly accessible Centre centrally within the city, ideally in a building constructed with green development standards.

Potential partners

- All City departments
- Region of Peel
- Environmental Groups - NGOs

2. Establish data collection and performance monitoring methods

Description

How the City manages, tracks, measures and reports on its environmental performance.

While environmental programs and initiatives are a step forward for many municipalities that want to demonstrate and improve their commitment to the environment, the impact of these programs cannot be known without baseline data collection, ongoing monitoring and a refinement of the environmental framework and strategies over time to ensure their effectiveness. Quantitative tracking of environmental metrics determines whether a City is making progress towards its environmental goals which can be used as powerful evidence to support an environmental initiative.

Performance benchmarking is a key element of Brampton Grow Green. Performance benchmarking involves choosing metrics that are important to the city, then establishing performance targets for each (based on a knowledge of current performance and precedents), and finally, monitoring actual performance over time.

The EMP has developed a draft Environmental Performance Framework that identifies operational metrics to define the city's current performance and evaluate potential EMP targets against best in class precedents. In addition, the Framework identifies sample actions to improve the city's performance.

The Green Paper provides a Draft Priority Action Plan, provided in the Technical Appendices, that identifies for each Core Component, priority indicators, targets and initial and future actions, that will be used to direct the City's immediate actions that will help achieve its priority targets.

A complete list of actions for all six Core Components will be finalized in the EMP's Long Term Action Plan.

Precedents

Oakville, ON: Uses an environmental reporting program based on indicators as part of Environmental Strategic Plan. The State of the Environment Report provides a summary of key environmental indicators of interest to the public, along with useful tips and suggestions for making a positive impact on the environment.

Pickering, ON: Tracks 32 indicators of sustainability with the help of community partners. The indicators are grouped into five areas: Healthy Environment; Healthy Economy; Healthy Society; Responsible Development and Responsible Consumption. The first set of measurements represents a "baseline" against which they can compare future measurements. The Measuring Sustainability Report is a "living document" that will be revised as new information becomes available.

Richmond, BC: Publishes a State of the Environment Report at 3 year intervals to monitor and assess environmental progress.

Recommended actions

- Identify departmental and corporate responsibilities for performance monitoring of Corporate and Community Actions, including data management and reporting.
- Establish protocols for data collection, analysis and reporting for each of the EMP Priority Performance Targets.
- Prepare a Sustainable Brampton Report that describes and shares the status of the City's corporate and community environmental performance.
- Engage a third party environmental auditor to review data collection, analysis and reporting protocols, and annual environmental performance results. Develop an awareness and communications campaign to celebrate successes publicly through the Canvas of Environmental Initiatives, media releases or environment focused public events and awards.
- Host an Environmental Summit in conjunction with the Brampton Environmental Planning Advisory Committee to share and learn best practices being implemented at home and aboard Potential partners.

Potential partners

- All City departments
- Brampton Environmental Planning Advisory Committee
- Brampton Clean City Committee
- Region of Peel
- Provincial Government
- Conservation Authorities
- Post-secondary institutions (to assist with obtaining and measuring data)

3. Educate and promote awareness

Description

How the City communicates environmental strategies within and beyond the Corporation.

Communication of environmental imperatives, goals, policies and actions within the corporation as well as to the general public, including residents, private corporations, non-profit organizations, stakeholders and other levels of government, will be an important element of the EMP's success. Internal and external education must focus on engaging stakeholders and building support to undertaking environmental actions. The public and City staff must understand what it is they are expected to do, what supports are in place to assist them and what the benefits are expected from their actions. Communications should include a range of topics including:

- Promoting environmental initiatives;
- Explaining current benchmarks and future targets;
- Detailing the municipal and individual environmental, financial and social costs of action and inaction;
- Explaining individual, site and city-wide sustainable solutions;
- Advance existing partnerships and seek to establish partnerships with other stakeholders and between groups;
- Engaging Brampton committees, including Brampton Environmental Planning Advisory Committee (BEPAC) and Brampton Clean City Committee (BCCC), and,
- Providing platforms for knowledge exchange to obtain feedback from the community and key stakeholders through surveys, forums or community workshops.

Tracking and reporting should also be a core strategy of EMP implementation to build a strong constituency of support. A commitment to regular annual reporting on actions undertaken and targets achieved, such as a 'State of the Environment' report for the City and the community of Brampton, is recommended to monitor progress, to keep people informed and to celebrate success and key milestones.

All education and reporting materials should be made available in multiple languages and formats to engage as many of Brampton's residents as possible. Reports, brochures and training kits should exist as physical documents but should also be publicly accessible on the City's website and widely distributed electronically. Posters advertising Brampton Grow Green and the supporting resources available should be prominently displayed in all public facilities.

Precedents

Toronto, ON: The Executive Environment Team provides strategic leadership on environmental sustainability issues for the City of Toronto. It is chaired by the Deputy City Manager and includes senior managers from all City Divisions, Agencies, Boards and Commissions with responsibility for significant environmental initiatives.

Calgary, AB: Mayor's Environment Expo which showcases City environmental initiatives and incorporates local environmental organizations and businesses.

Hammarby Sjöstad, Stockholm, Sweden: An environmental information centre provides lectures on sustainable city planning and teaches citizens and visitors how to live more sustainably. The centre also serves as a testing ground for new technology with the aim to achieve a good indoor climate with low energy consumption.

Recommended actions

Management

- Create a Municipal Green Team to lead interdepartmental training of city staff, and integration/coordination of implementation of EMP actions with existing initiatives, programs and activities, including budget planning.
- Municipal Green Team to develop a corporate campaign to promote the environment and environmental performance as 'second nature' for departmental decision-making on environmental objectives, municipal procedures, budget processes, reporting mechanisms and inter-departmental coordination.

City Awareness and Education

- Work with the City's departments to ensure consistency of messages and to provide ideas for how to best communicate with staff about EMP strategies, targets and advancement towards goals. Develop a communications strategy to keep Council and staff informed of environmental progress of the City and the community and the success of the EMP.

Community Awareness and Education

- Develop a community awareness and education campaign to promote the environment and environmental performance as 'second nature' to residents, businesses, community groups and stakeholders as part of personal and organizational decision making (e.g. public bulletins via range of social media networks that address specific actions of EMP core components (air quality, water and energy conservation, waste reduction, native plant species, etc.), highlighting standard practices today, environmental impacts, alternatives and potential cost savings.

- Have the Green Team develop a city-wide environmental awareness and education campaign (seminars, printed materials, demonstrations, youth/school outreach).

Commercial Awareness and Education

- Develop a Sustainability Recognition program to celebrate citizen and business sustainability leaders. For example, Green Business Leader, potentially as an extension of the City's Outstanding Business Achievement Awards, to recognize outstanding sustainable environmental contributions from Brampton's commercial, industrial and institutional sectors.

Potential partners

- Economic Development & Corporate Communications
- BEPAC
- Mayor's Youth Team
- School Boards
- Conservation Authorities

4. Align city wide policies and standards

Description

How the City's policies, regulations, guidelines and standards are drafted and prioritized to influence sustainable city building and environmental performance.

Comprehensive, integrated environmental policies, regulations, guidelines and standards that are mandated by the City are necessary to achieve positive environmental outcomes. Policies, regulations and guidelines should provide clear direction to staff charged with implementing environmental services, programs and activities so that municipal standards and procedures work to achieve the intended outcomes.. City wide policies, bylaws and guidelines, such as approaches to sustainable community design or anti-idling measures, engineering standards, affect non-internal operations and formally direct the actions of people within the municipal jurisdiction of Brampton, and include the development of private land, the use of infrastructure or the access of City services, such as transit.

The development and updating of city-wide policies, regulations, guidelines and standards connected to the implementation of Brampton Grow Green will reinforce the goals, targets and actions of the EMP and will establish the City's commitment to the importance of environmental performance.

Precedents

Toronto, ON: Green development standards are comprised of a set of performance measures with supporting guidelines for different types of development

Recommended actions

Strategic

- Incorporate sustainability as a part of the foundation of the Strategic Plan on which the City's social, financial, environment, governance and cultural pillars are built, and upon which all City plans and initiatives are based.
- Amend the Official Plan to ensure that all policies reflect sustainability in the social, cultural, environmental and financial responsibilities of the City as a corporation and a planning authority.
- Implement by-laws, regulations, fees or incentive programs to improve individual and private/non-profit sector environmental performance, with emphasis on prioritized metrics and targets.
- Update Master Plans and other operational documents to reflect the environmental targets of the EMP.
- Work with other levels of government to address environmental issues that may originate outside of Brampton's boundaries but have impacts within the city.

Land Use and Built Form

- Build on newer policies, guidelines and standards, such as the Mount Pleasant Secondary Plan and the Development Design Guidelines to create Sustainable Community Development Guidelines that include a mix of uses, minimum development densities and minimum height requirements.

Natural Environment

- Offer incentives to developers, such as increased density permissions during the development application process, in exchange for land preservation or transfer to the City.

Transportation

- Develop road standards and cross-sections for road right-of-ways that more efficiently use land, encourage transit and active transportation, incorporate Low Impact Development Measures, and support the establishment of street trees with appropriate soil volumes.

Infrastructure

- Consider on-site stormwater management, placing limits/additional charges on household waste and recycling for multi-unit dwellings.

Potential partners

- Chief Administrative Office
- Corporate Services
- Planning, Design & Development
- Region of Peel
- Utility companies

5. Detail a budgeting and decision making framework

Description

How the City commits capital and staff resources to sustainable initiatives and how the City imbeds environmental principles into decision making.

Brampton's strategic planning and budget provides a framework for the allocation of funds throughout a fiscal year, reflecting the City's overall direction, vision and objectives as determined by the City and its residents. Generally, the emphasis of a budget will change with time as new issues gain importance and priorities are re-assessed. How Brampton budgets for and makes decisions about environmental initiatives and programs is key to the implementation of the EMP, as well as environmental policies and practices. Implementation of the EMP will require a commitment of resources, both capital and staff, and institutional resources. In addition, the EMP can open up access to external resources such as provincial and federal funding sources, staff internships, and partnerships. Providing such support to the EMP will assist with its long-term success.

It is unlikely that a comprehensive Environmental Master Plan will have much success until environmental funding becomes a priority and is entrenched within the City's budget and day-to-day business. In addition to overall Capital and Operations budget planning, the decision-making framework of each city department needs to closely consider the EMP's environmental framework, directions and priorities, as well as the environmental cost of its actions and inactions. If the long-term returns on investment of environmental solutions and the long-term costs of the status quo are not factored into the budgeting process, less environmentally sustainable options will invariably be selected as they frequently have a lower short-term cost.

Precedents

Calgary, AB: Requirement for departments to demonstrate how work plans achieve Triple Bottom Line objectives.

Seattle, WA: \$1.4 million dedicated funding to Office of Sustainability for specific initiatives in the budgeting cycle.

Recommended actions

- Allocate a portion of the City's annual budget to implementation of the EMP, with an allocation of funds for municipal staff and funding for pilot projects.
- Initiate a True Cost Accounting approach to decision making in all City Departments; the environmental cost of options [GHG emissions; water pollution, etc.] and inactions should be directly included in budgeting and reporting.
- Tie budgets to environmental performance; projects that make a contribution to the environment should rank higher on the priority list.
- Explore external funding opportunities and partners to help supplement the municipal resources and budget for environmental initiatives.
- Consider a financial contribution to offset additional emissions associated with a selected option, if the preferred environmental option is not pursued.

Potential partners

- Corporate Services
- Finance & Information Services
- David Suzuki Foundation
- The Federation of Canadian Municipalities Green Municipal Fund
- NRCAN
- Canada Green Communities
- Post-secondary institutions (e.g. York University) to assist with external funding for implementation

6. Manage municipal operations and procurement practices

Description

How environmental practices are incorporated into planning and operation of City buildings, facilities and the services provided by, and to, the City of Brampton.

Municipal operations refer to the manner in which the City, as a corporation, functions at the individual staff and department level with regard to the implementation of policies, regulations, and program responsibilities, including defined protocols and actions. Important questions for Brampton and its implementation of the EMP are:

- Does staff have sufficient training and expertise to implement environmental directions?
- How are inputs and outputs managed (i.e.: fuel, energy, and waste)?
- Does a range of waste management options exist in all facilities, sites and parks?

Managing municipal operations to reflect environmental priorities/policies has become a way for cities to entrench and implement environmental initiatives into day-to-day practices.

Municipal procurement is defined as the acquisition of goods, services and works and can range from the purchasing of office supplies or the procurement of food to funding complex, large-scale municipal contracts such the building of a recreation facility. Through procurement practices, cities are becoming increasingly focused on how environmentally sustainable their contractors, suppliers and service providers provide services and manage their internal operations.

Green procurement is the acquisition of products and services that reduce environmental impacts, prevent pollution, are energy efficient, have minimal packaging,

are fair and socially just, eliminate risks to human health and natural resources and are economical (not necessarily lowest cost but in terms of value). Green procurement strategies require an assessment process that evaluates the environmental consequences of the acquisition at various life cycle stages.

Precedents

Edmonton, AB: Municipal buildings are constructed to a minimum LEED Silver standard

Guelph, ON, Markham, ON and Calgary, AB: Have developed Community Energy Plans

Portland, OR, Pickering, ON, Calgary, AB, and Oakville, ON: Have implemented elements of sustainable procurement. Pickering uses G.I.P.P.E.R. - Governments Incorporating Procurement Policies to Eliminate Refuse

Markham, ON: 25% of municipal food is purchased from local sources

Recommended actions

Facilities

- Adopt retrofit practices and processes for the operation and maintenance of existing public buildings and create environmental performance guidelines/standards for the construction and operation of new city buildings and facilities, i.e. LEED Silver.
- Require project management to consider long-term maintenance and environmental performance during the development and finalization of capital budgets for new facilities.

Natural Environment

- Emphasize naturoscaping and fusion landscaping in the Flower City Strategy for public buildings, parks, neighbourhood gateways, boulevards and buffers.
- Conserve biodiversity of the natural heritage system through local and regional ecosystem connections.
- Develop an Integrated Management Program to protect, maintain and restore ecological health of natural communities and urban tree canopy affected by pests and invasive species.
- Develop a Greenland Securement Program to identify and encourage conservation of privately-owned land within the natural heritage system.

Transportation

- Develop a comprehensive transportation demand management program for employees which encourages behavioural shifts to using public transit, carpooling, car sharing and cycling to commute to work, attend corporate events and business meetings, and perform site visits.
- Develop green parking standards at City facilities that prioritize bicycle parking and parking for small cars or shared vehicles, and support increased parking levies for higher emissions vehicles.

- Complete streets guidelines or alternative road standards that prioritize and accommodate all forms of transportation.

Infrastructure

- Install on-site renewable energy infrastructure, such as solar, wind or geothermal, or purchase energy from off-site renewable sources, where feasible
- Promoting and incenting alternative forms of energy supply on private properties.

Procurement/Purchase of Services

- Follow the practices of the G.I.P.P.E.R.'s (Governments Incorporating Procurement Policies to Eliminate Refuse) Guide to Environmental Purchasing that provides recommendations and guidance to City staff at all levels for environmentally responsible procurement.
- Develop a code of sustainable qualifications that vendors/contractors are encouraged to meet when managing their operations or providing services to the City.
- Require contracts with professional service providers to demonstrate an internal responsibility to sustainability and, through product delivery, how they are reducing environmental impacts.
- Develop an assessment protocol that evaluates the environmental consequences of an acquisition at various life cycle stages. Consider life cycle costing for products and demonstrate how they meet the City's environmental performance goals.

Potential partners

- Finance & Information Services
- Local business and vendors