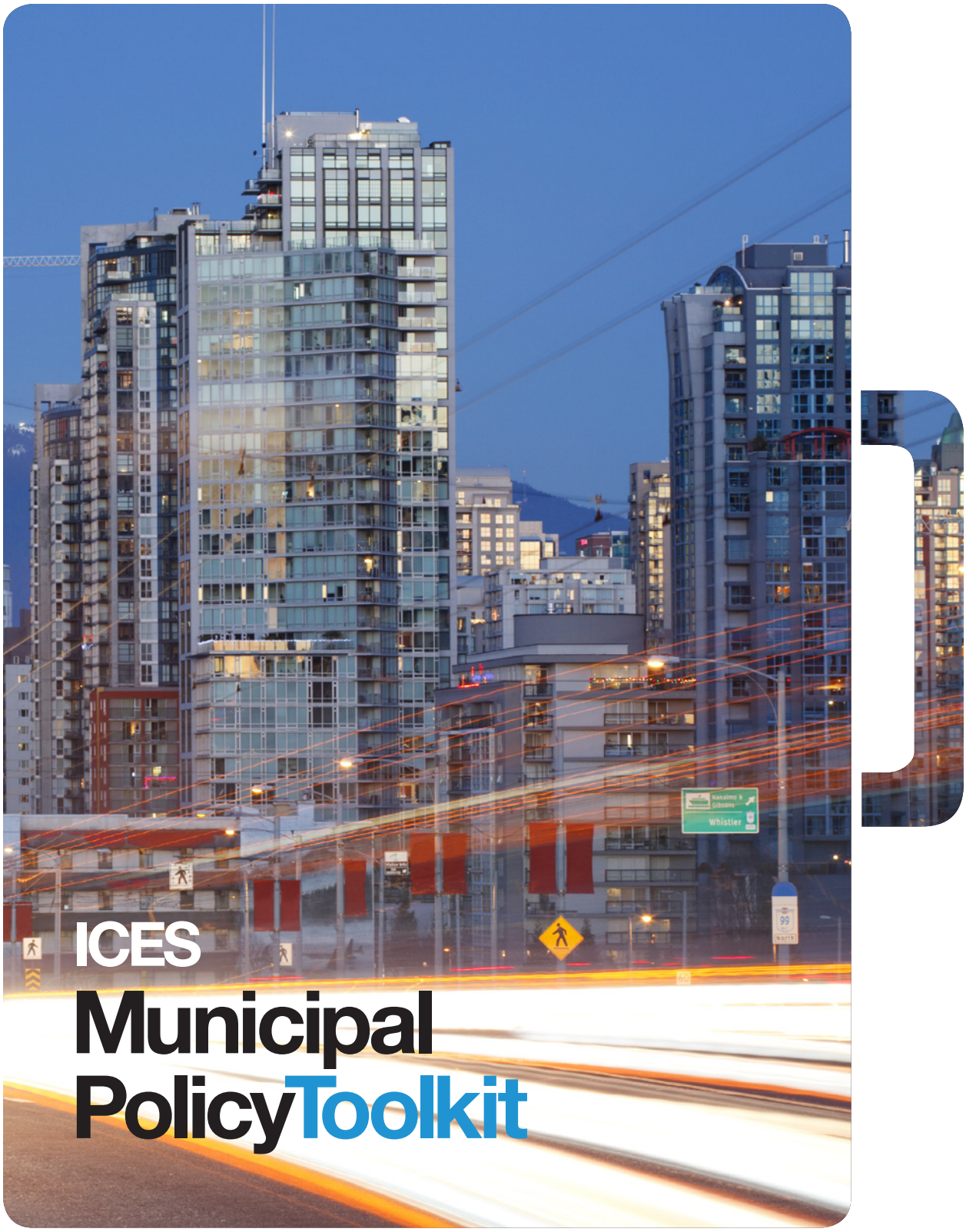
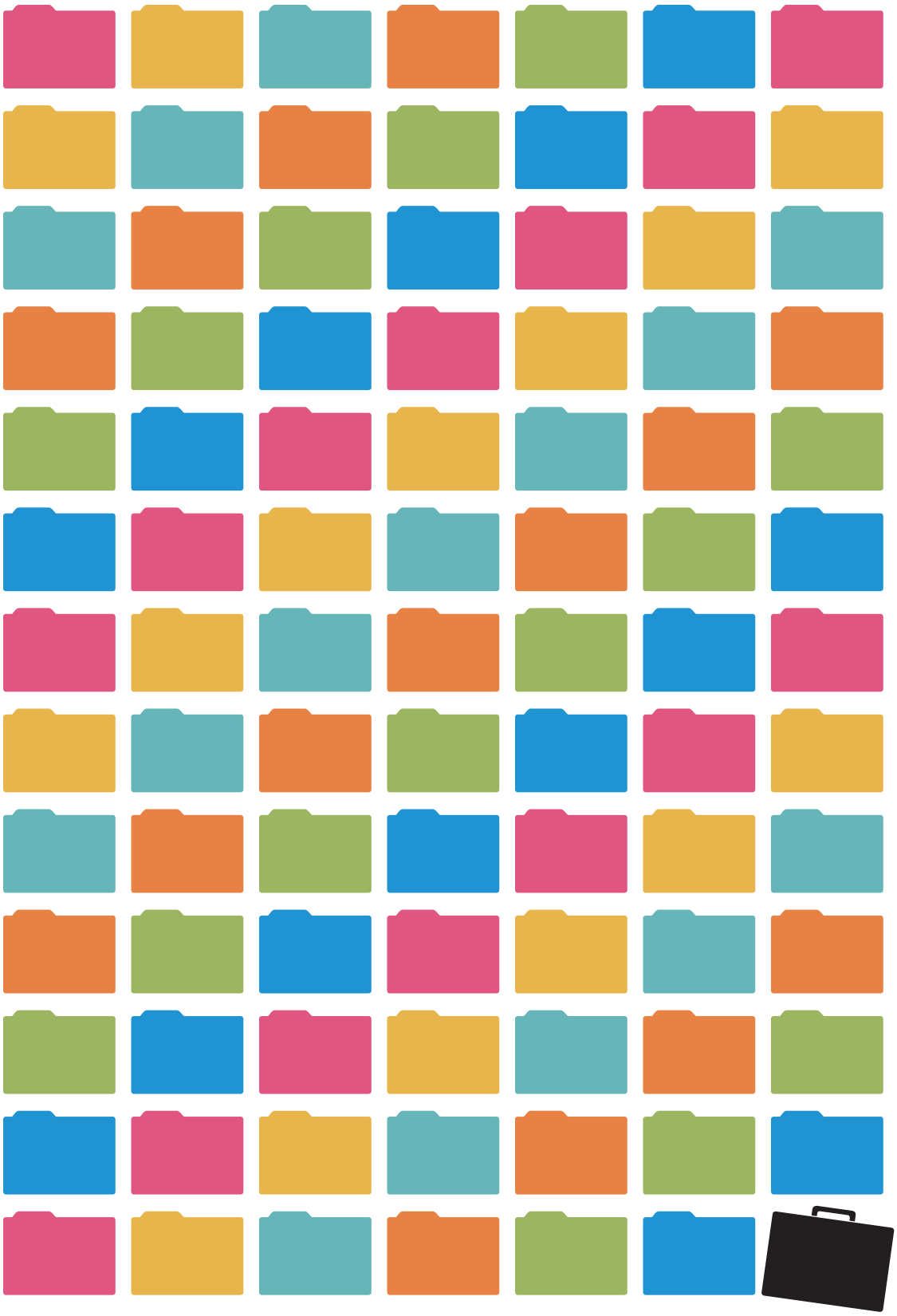



# ICES Municipal PolicyToolkit

September 2010



# Contents



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# Acknowledgements

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The text describing policy development and policy instrument selection has been adapted and reproduced with permission from the BC Ministry of Environment Land and Parks' *Stewardship Bylaws: A Guide for Local Government* and the Treasury Board of Canada Secretariat, respectively.

# Introduction

Currently, urban areas contribute to roughly 40 percent of Canada's energy consumption and greenhouse gas emissions. As urbanization progresses and Canada's population increases, this number is set to increase dramatically.
This creates an opportunity to address energy consumption while simultaneously improving the overall quality of life in Canadian communities –by facilitating and investing in Integrated Community Energy Solutions (ICES).
ICES takes advantage of cross-sectoral opportunities in the areas of land use, infrastructure, building, water and sanitation, transportation, and waste. The goal of ICES is to curb energy demand and reduce the associated environmental impacts, while increasing energy security, enhancing the quality of life and realizing financial benefits for Canadians.

While a variety of stakeholders influence the development and advancement of ICES, energy and emissions reduction decisions are strongly influenced by government policy choices. Upper-tier legislation and policy such as the Planning Act, the Provincial Policy Statement, the Building Code Act, the Green Energy and Economy Act, and the Places to Grow Act, are important in this regard. However, equally important are the choices made by local governments. These choices shape the development of communities and directly influence energy use. Land use planning and infrastructure choices require identifying and using the best policy and technology tools in our tool box. This toolkit has been created in order to aid these decisions and highlight the various ways in which ICES can be adopted in our communities.

# Value of Integrated Community Energy Solutions

Our communities are comprised of multiple sectors that tend to operate independently of one another. By integrating the activities and functions of these sectors, a community environment can operate as a system. In this way, it is possible to take advantage of cost savings as well as energy and emission reduction opportunities that cut across various sectors.

In Canada, QUEST (Quality Urban Energy Systems of Tomorrow) is a collaborative of key players from industry, the environment, all three levels of government, academia, and the consulting community that is encouraging government, industry and citizens to support integrated approaches to providing energy services in communities.

QUEST was initiated as a response to a growing concern that the approach to addressing energy issues in communities was becoming increasingly fragmented rather than integrated. The focus of QUEST is to have every community in Canada operating as an integrated energy system.

A recent study commissioned by QUEST demonstrated that it is possible to save money, create jobs, grow the economy and reduce Canada's greenhouse gas emissions (GHG) simultaneously. The study found that national urban emissions could be reduced by as much as 12 per cent by 2050 — over and above larger reduction targets that some cities and regions have set — by applying ICES. The study also found economic benefits could be achieved by applying ICES, such as reducing energy expenditures, increasing spending on labour and reducing direct capital spending on infrastructure.

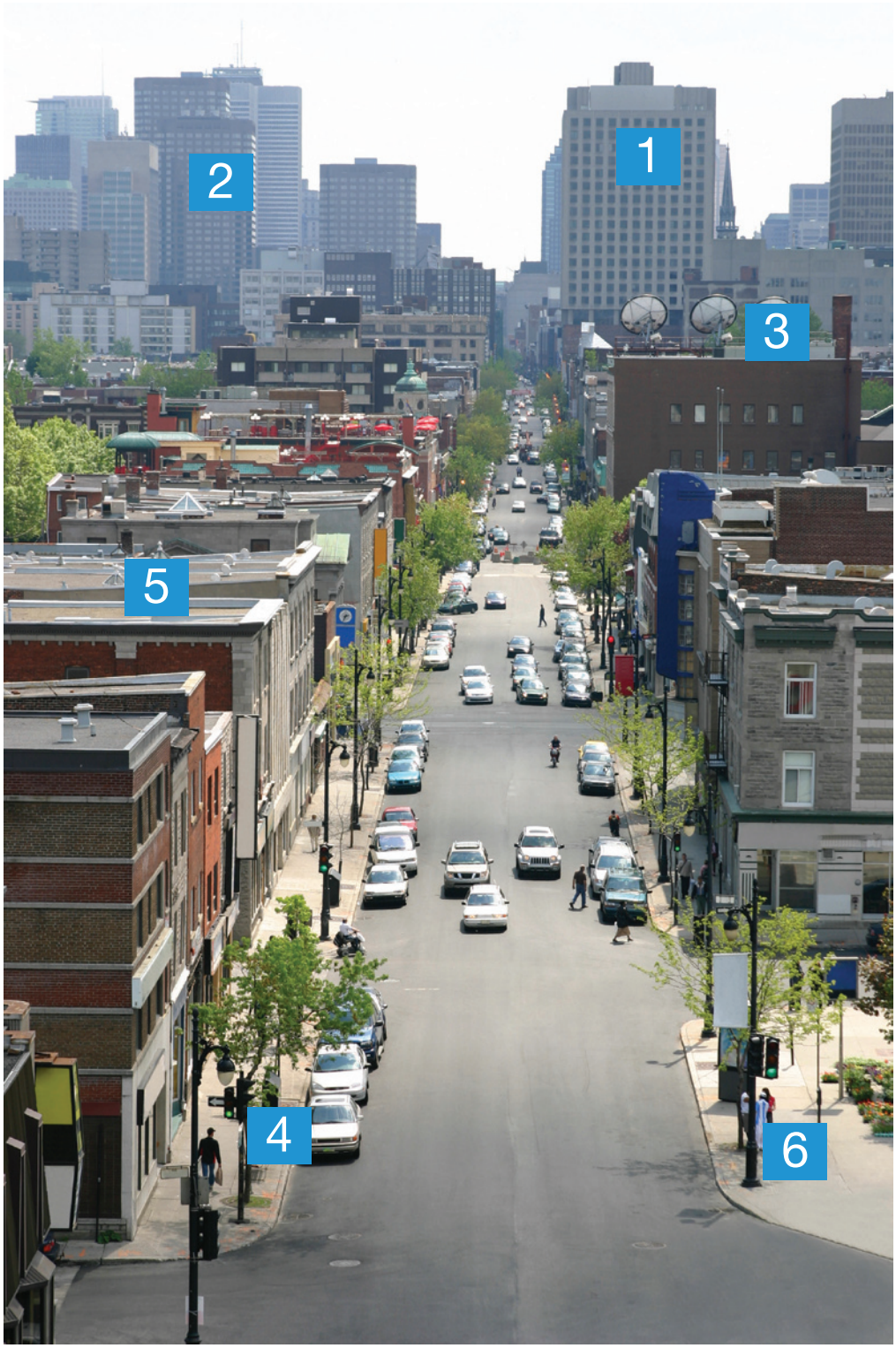
**Natural Resources Canada offers the following definition for ICES:**

ICES is an approach that offers holistic solutions for reducing GHG emissions and addressing climate change by evaluating how energy is supplied and consumed across sectors. ICES capitalizes on cross-cutting opportunities and synergies available at the community level by integrating physical components from multiple sectors, including energy supply and distribution; transportation; housing and buildings; industry; water, waste management and other local community services; and land use and community form.

In addition to lowering GHG emissions and reduced energy expenditures and associated energy costs, ICES provides a wide variety of other social, environmental and economic advantages. These can include improved accessibility, energy resiliency, air and water quality, job creation, and energy performance. Communities will also benefit from the potential to be considered more competitive and attractive for investment.

Reducing energy use and improving efficiency is a complex process. It requires collaboration and cooperation across different professions and sectors of society to ensure the successful adoption of ICES. Success also requires the participation of a variety of stakeholders in order to understand and incorporate different needs and requirements. Municipalities and local utilities can play an important leadership role in this regard.

ICES can be scaled to meet the needs of all types of communities, ranging from rural and small remote towns to medium-sized municipalities and large cities. ICES can apply to new developments, existing neighbourhoods and even whole regions. In every case, the potential results are the same: improved energy performance, a reduced carbon footprint, job creation, improved air quality, and improved quality of life.




QUEST has identified six principles that guide the implementation of ICES. These principles can be used in a variety of combinations and can be scaled up or down given the needs and abilities of a community:

**1) Improve efficiency**
First, reduce the energy input required for a given level of service (i.e. encourage the use of mixed land uses and energy efficient buildings);

**2) Optimize "exergy"**
Avoid using high-quality energy in low-quality applications;

**3) Manage heat**
Capture all feasible thermal energy and use it, rather than exhaust it;

**4) Reduce waste**
Use all available resources, such as landfill gas, gas pressure drops and municipal, agricultural, industrial and forestry wastes;

**5) Use renewable resources**
Tap into local biomass, geothermal, hydro, solar and wind energy; and

**6) Use grids strategically**
Optimize use of grid energy and as a resource to optimize the overall system and ensure reliability.

## Who Should Use the Toolkit

The purpose of this toolkit is to provide municipal and provincial staff members, councils, and policymakers in Ontario and elsewhere with the resources they need to achieve an ICES action in their community. It is hoped that this toolkit will help advance the wide-scale implementation of ICES, which in turn will reduce greenhouse gas emissions and increase energy efficiency across a variety of sectors and improve livability and quality of life in communities.

## What the Toolkit Contains

The toolkit contains seventeen case studies from communities across Canada and abroad. These case studies detail best practice examples of policies that can be used to advance ICES in a community. The communities profiled vary in size from towns to capital cities, and policies range from 'first-step' actions to more ambitious and comprehensive emissions reductions measures. These case studies have been grouped with respect to six broad categories where ICES actions can be achieved: land use, transportation, buildings, infrastructure, waste, and water. For each study, a section has been included to detail the various ways in which the policy could be applied in the Ontario context.

## Approach to Developing the Toolkit

In order to determine the structure, scope, and audience for the toolkit, interviews were conducted with toolkit creators and municipal policymakers across Canada. Based on this feedback, the toolkit contains information suitable for communities newly embarking on ICES actions as well as those communities that may be further along in the process. The toolkit also contains information specific to smaller communities who generally appear to use toolkits more than larger communities with a greater number of resources at their disposal.

Interviews were conducted with thirty municipal policymakers across Canada and abroad to identify policies that advance ICES. Specifically, the interviews determined the policy's creation process, including the drivers, champions, cost, opportunities, and obstacles. Municipalities were selected based on the need to profile municipalities of various size and locations both across Canada and internationally. In addition, these municipalities were selected according to the extent to which action had been taken, in policy form, to address energy efficiency or emissions reductions in any one of the six categories of land use, transportation, buildings, infrastructure, waste, and water. Policies were selected in order to achieve broad representation in each category.

# The Municipal Energy Challenge

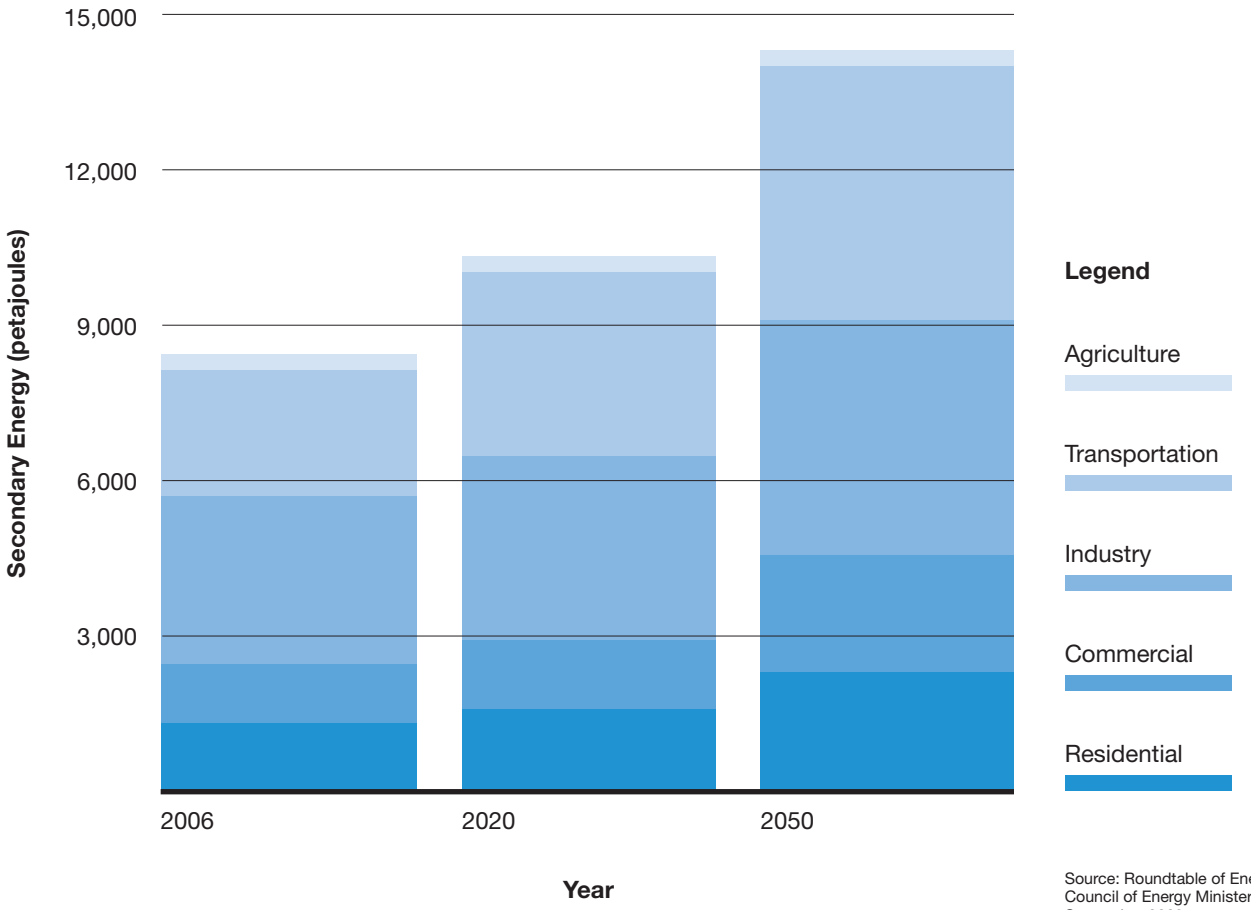
## Urban environments represent less than one percent of the earth's total surface, yet urban activities around the world generate close to 80 percent of all carbon dioxide ($CO_2$) emissions.

Over three-quarters of Canadians currently live near or within an urban environment, and it is estimated that by 2020 that number will increase to 85 percent or more. The current 80:20 ratio is the exact opposite of the urban-rural split over a century ago. By 2050, estimates place Canada's population close to 43 million people, further increasing a wide range of impacts on the natural and built enviroment.

For the 5400 communities in Canada, there is a common need essential for functioning – energy. Although communities in Canada vary greatly in size and location, they all need energy for transportation, heating, cooling and lighting, pumping water and treatment, as well as to power local industry and commerce. The energy profile of Canadian communities varies widely on a per capita basis. What is consistent is the energy use for homes and buildings as identified in the figure below. Over the last decade, urban energy demand has risen by nearly 20 percent.

What is becoming increasingly important to communities across Canada, regardless of their immediate access to fuel sources, is that inexpensive energy for use in space heating, cooling, transportation and electricity generation could be at a premium in the near future. At the same time, energy is also now considered an important component of municipal climate change evaluation and planning.  It is also now understood that within the lifecycle of buildings and urban form being developed today, changes will be required in how we heat, cool and power built spaces and transport people.

**Forecast Growth in Community Energy Use**




Source: Roundtable of Energy Ministers. Council of Energy Ministers: A Road Map to Action. September 2009.

ICES offers opportunities for communities to link a number of sectors, including waste, water, transportation, land use, buildings, infrastructure, and planning, in order to achieve energy savings, improve efficiency, and become a sustainability leader.

# Tools for Advancing ICES

Municipalities have authority over a variety of tools that can be used to facilitate the implementation of ICES. In order to ensure that a policy will have the desired effect it should be assessed for effectiveness, cost-effectiveness, feasibility and legality. Tips on choosing an appropriate policy tool can be found in the Appendices to this toolkit. The section below provides a brief description of the main municipal tools. The cases studies that follow look at the experiences of communities that have implemented a number of these tools.

**Planning**

Municipalities use planning as a way to coordinate a community's vision, goals, and strategies. Planning is particularly important for guiding a community's direction and decisions over the long-term. Without long-term plans to guide a community's decisions, planning can be short-sighted and more complex issues are often left unaddressed. Using an integrated planning process can foster cooperation and collaboration amongst stakeholders, creating an increased sense of community responsibility. These established commitments can also help to attract business investment and skilled workers to a community. Long-term planning is an essential component of advancing ICES, as many ICES initiatives require continuing commitment, cooperation, monitoring, and modification. ICES planning can be incorporated into a variety of commonly used plans by municipalities. For example, see Guelph Energy Density Mapping case study on page 25, the York Design Community Energy Plans on page 38 and Whistler's Carbon Tax Rebate Policy on Page 81.

**Official Plans**

Municipal official plans are documents that outline growth objectives and guide the future land use planning of a community. Energy-related policies can be included in an official plan in order to incorporate ICES into the community's future growth. Examples could include plans for GHG reductions, energy efficiency measures, renewable energy projects, and requirements for community energy planning. For more information, please see the Guelph Energy Density Mapping case study on page 25 and the York Region Community Energy Plans case study on page 81.

**Zoning By-laws**

Zoning by-laws state how land will be used in a community and outlines specific requirements for building use, density, height, size, and location. Zoning bylaws and amendments could be used to promote intensification, mixed-use communities, walkability, the preservation of historic buildings, renewable energy infrastructure, and better support for public transportation. For more information, please see the Portland 'Green Bundle' case study on page 99.

**Transit Policies**

Transit policies can be used to improve urban form and intensification, encourage people to adopt alternative forms of transportation, reduce travel distances and make public transportation a more viable option, particularly by improving access. These policies help achieve the objectives of ICES by reducing energy consumption, promoting active transportation and public transit infrastructure through improvements to urban form, and halting the negative effects of urban sprawl by promoting transit-oriented development. For more information on transit policies that promote ICES, please see the Amsterdam Mobility Policies case study on page 50.

**Site Plan Control**

Site plan control is a tool that municipalities can use to ensure that certain requirements are met before a site is developed. No development can occur in this area before the community reviews and approves the plans. Once they are approved, a site plan agreement is created that outlines the terms by which the developer must abide. By including design considerations in site plans, communities can promote ICES-related activities, such as incorporating stormwater retention systems or energy efficiency requirements. For more information, please see the Toronto Green Standard case study on page xx.

**Height and Density Bonusing**

Height and density bonusing is used in order to allow buildings to exceed the height and density of development permitted by existing zoning-bylaws in exchange for community benefits, the cost of which is borne by the developer. In order for municipalities to use this tool, bonusing policies must be detailed in their official plan. ICES could be advanced through this tool by encouraging such community benefits as intensification, mixed-use communities, and transit support and improvements.

**Development Permit Systems**

Development permit systems combine site plan control, zoning, and minor variance together in one application format, providing an expedited and simplified application process. They promote development by providing for faster timelines, eliminating potential duplication, incorporating flexibility for uses and development standards, and providing a 'one-stop' planning service. Before a municipality can issue development permits, the framework for the Development Permit Systems must be established in the municipal official plan. Council must amend the official plan to identify the DPS area, outline the vision and goals for the area, and provide the requirements for how the system will work. Development permit systems are a useful tool to promote ICES as they can include requirements for brownfield redevelopment, green roof installation, water conservation measures, street and lot layout that reduces energy consumption, transportation demand management, and installation of renewable energy systems.

**Local Improvement Charges**

Local improvement charges (LIC) are used when a municipality provides new services to one or more properties, such as sidewalk and curb installation or sewer and water infrastructure. The municipality pays for the improvements and arranges for the work to be carried out. An LIC is then assessed and assigned to each property that benefits from the improvement. A set portion of the cost is paid back in the form of an additional charge on top of the usual municipal tax over a set number of years by the owner of the property. LICs could potentially be used to finance energy efficiency improvements to a property. They are an attractive option for homeowners because the loan is attached to the property rather than the owner, providing an incentive for investing in more capital-intensive energy efficiency projects. LICs address several barriers to energy efficiency upgrades, including a hesitancy to accept long paybacks, a preference for low-cost improvements, lack of access to capital, and construction industry resistance.

**Plan of Subdivision**

A plan of subdivision is used when dividing land into two or more lots intended for separate ownership and outlines all the details and conditions required for development. The approval process includes considerations of where streets, parks, and dwellings will be located, as well as servicing issues related to storm and sanitary sewers and protection of natural features. A municipality could integrate ICES into the approval process by including considerations regarding walkability, the creation of compact neighbourhoods, the preservation of natural spaces for stormwater drainage, energy conservation through street and lot layout, and the construction of energy efficient homes. For more information, please see the Iqaluit Plateau Subdivision case study on page 63 and the East Gwillimbury Energy Star Standards case study on page 69.

**Protection of Settlement Area Boundaries**

Settlement area boundaries prevent development expansion into undeveloped areas. Should an application for expanding the boundary be denied, the decision cannot be appealed to the Ontario Municipal Board. Settlement area boundaries discourage low density and sprawl development, thus reducing infrastructure costs and greenhouse gas emissions. By encouraging the development of compact communities, energy savings are amassed through reduced vehicle dependence, brownfield redevelopment and intensification, and the maintenance of natural areas which can store carbon and act as a buffer against extreme weather.

**Congestion Charges**

Congestion charges are used in order to reduce traffic congestion on roads, particularly during periods of peak demand. Generally, there are four types of congestion charge systems: a cordon area around the city centre with charges for passing the cordon line; area-wide congestion pricing with charges for being inside an area; a city centre toll ring with toll collection surrounding the city; and corridor or single facility pricing where access to a lane or facility is priced. Congestion charges help promote energy savings, alternative forms of transportation, and provide revenue for investment in public transit. For more information on congestion charges, please see the London Congestion Charging case study on page 56.

**Parking Charges**

Parking charges refer to the price paid for using a parking space. Parking charges can provide a variety of benefits, including traffic reduction, increased turnover of spaces, reduced cruising for parking, and new revenue for the municipality. Parking charges are often used in tandem with an overall reduction in parking spaces, which leads to more compact development and promotes alternative forms of transportation. In turn, energy consumption and emissions are reduced. For more information on parking charges, please see the Amsterdam Mobility Policies case study on page 50.

**Community Improvement Plans (CIPs)**
Community improvement plans are created to target a designated area within a city for development or redevelopment. Because each community faces unique challenges and opportunities, there is no predetermined conception of what a community improvement plan should be or include. CIPs can provide incentives or loans to developers in order to affect the desired outcome, or they can include changes to land-use and zoning regulations. To encourage ICES, CIPs could target brownfield redevelopment, densification and intensification, increased support for public transit, or the development of alternative energy systems. For more information, please see the St. Catharines Community Improvement Plans for Brownfield Redevelopment case study on page 30.

**Minimum/Maximum Standards**
This tool is used to define minimum and maximum building heights and, consequently, the density of a lot area. This tool can be used to encourage intensification, walkability, public transit, and support renewable energy infrastructure. More information on standards can be found in the Toronto Green Standard case study on page 20.

**Secondary Suites**
A secondary suite is a separate living unit created within a single-family home. They include a separate entrance, kitchen, bathroom, and living area. A bylaw allowing secondary suites encourages neighbourhood intensification and makes public transit more feasible. For more information, see the Whitehorse Secondary Suites Case Study on page 74.

**Municipal Taxes**
There is significant competition for the capital available from municipal tax revenue, and energy efficiency often takes a back seat to more visible and immediate priorities such as policing, public transit, and other public services. Municipalities have an extremely large electricity bill, and reform of the property tax system to reflect marginal infrastructure building and maintenance costs could go a long way toward improving energy efficiency and operating costs while renewing out-dated infrastructure.

# Case Studies

## Land Use

## Transportation

## Buildings

## Infrastructure

## Waste

## Water & Sanitation

# Case Studies

| | Land Use | Transportation | Buildings | Infrastructure | Waste | Water & Sanitation |
|---|---|---|---|---|---|---|
| **City of Dawson Creek, BC** | | Green Fleet Policy | | | | |
| **City of Iqaluit, NU** | | | Green Building Standards for New Subdivisions | | | |
| **Stockholm, Sweden** | | | | | Strategic Waste Management Plan/ Waste Collection Fee | |
| **Whistler, BC** | | | | Carbon Tax Rebate Policy | | |
| **East Gwillimbury, ON** | | | Energy Star Standards for New Homes | | | |
| **Amsterdam, Netherlands** | | Transportation policy | | | | |
| **Victoria, BC** | | | | Tax Exemption Revitalization Bylaw | | |
| **City of Toronto ON** | | | | | | Wet Weather Flow Management Master Plan |
| **The City of North Vancouver, BC** | | | | Hydronic Heat Service Bylaw | | |
| **City of Toronto, ON** | Toronto Green Standard | | | | | |
| **Portland, Oregon** | | | | "Green Bundle" | | |
| **Guelph, ON** | Energy Density Mapping | | | | | |
| **Whitehorse, YT** | | | Secondary Suites | | | |
| **St. Catharines, ON** | Community Improvement Plans for Brownfield redevelopment and intensification | | | | | |
| **London, UK** | | CS14: Public Transport Streets and Walkways | | | | |
| **York Region, ON** | Mandatory CEPs | | | | | |
| **York Region, ON** | | | | | | Water conservation and efficiency |

# Land Use

Featured Case Studies

## Toronto's Green Standard

## Guelph's Energy Density Mapping

## St Catharines' Community Improvement Plans for Brownfield Redevelopment

## York Region's Mandatory CEPs

Land Use

# The Toronto Green Standard

TORONTO, ON

**Building upon the Toronto Green Building Standard, the City of Toronto created the Toronto Green Standard (TGS), making Tier 1 requirements mandatory effective January 2010 in order to achieve energy reliability and achieve climate change goals detailed in City's Climate Action Plan.**

## Community Profile

- Population of approximately 2.5 million people
- Toronto is part of the GTA consisting of the regions of Durham, Halton, Peel, and York with a population of 5.6 million people
- The City is bounded by the Humber River on the west, the Rouge River on the east and Lake Ontario to the south
- 49% of current residents were born outside of Canada, making Toronto a culturally diverse city

# Toronto Green Standard (TGS)

The Toronto Green Standard is a two-tiered set of performance measures for new development, organized by three building types, which came into effect January 31, 2010, requiring planning applications, including zoning by-law amendments, site plan approval and draft plan of subdivision to meet Tier 1 requirements. While initially voluntary, the TGS is now 2-tiered and Tier 1 requirements are mandatory while Tier 2, a higher level of performance, remain voluntary. These performance measures were instituted to addresses a number of issues, consistent with the Official Plan's broad policies, including air and water quality, greenhouse gas emissions, energy efficiency, solid waste and the natural environment.

If a developer chooses to exceed Tier 1 requirements by undertaking Tier 2 measures, they are eligible to apply for a 20% development charges (DC) refund, pursuant to the development charge by-law which was approved by council in February, 2009. Exempt from DC refunds are all industrial buildings. A TGS checklist and statistics template, found on the City of Toronto's website, are required as part of a complete development application. While the TGS comprises a checklist of required actions, in some cases, there are a few performance choice measures the applicant can choose over others. Applicants are asked to submit an Energy Report (either an energy model for large buildings or an energy checklist for smaller buildings) to demonstrate they have met the energy efficiency requirement.

**TGS Checklist Excerpt**

**Greenhouse Gas Emissions/ Energy Efficiency Section**
(For new Mid to High Rise Residential and Industrial, Commercial and Institutional Development)

Development Feature: Minimum Energy Performance:
• Minimize demand for energy through efficient building design and encourage renewable energy production

**Required for Tier 1:**
GHG 1.1 Design building (s) to achieve at least 25% efficiency improvement over the Model National Energy Code for Buildings (MNECB) or 13% over the Ontario Building Code.

**Required for Tier 2:**
GHG1.2 Design and construct building (s) to achieve at least 35% efficiency improvement over the MNECB.
GHG1.3 Install certified in-suite smart meters in all residential units.

# The Step-by-Step Process

» The City ensured their environmental planning framework and targets were up to date and relevant so that they could be implemented via the Toronto Green Standard
» The City of Toronto hired a consultant to document green building best practices world-wide, compiling data from 100 cities
» The performance measures were researched and compiled by City planners, basing many on existing practices or policies from various City divisions
» Legal services undertook a review of relevant legislation
» The City held focus groups and surveyed developers for their feedback early in the process of developing the standards
» The City based performance standard concepts on proven models including Leadership in Energy and Environmental Design (LEED)ratings, Green Globes Design assessment protocol and City of Toronto's performance standards
» Consultation across internal City divisions was undertaken in order to make the Green Standard comprehensive, functional and tailored to Toronto's unique circumstances
» The City conferred with their legal department to understand what the City could legally require within the current Ontario Building Code
» Initially, the TGS was voluntary but as of January 31, 2010, two tiers were created, with Tier 1 being mandatory through Planning Act application approval, while Tier 2 remains voluntary
» Training and capacity building on the Toronto Green Standard was implemented for the City's development review staff and capital project managers so that implementation of the Standard was seamless

# Drivers and Champions

**Primary Drivers**
Strategizing and implementing the City's Climate Change Action Plan, an aggressive environmental framework aimed at reducing Toronto's greenhouse gas emissions by 80 per cent by 2050 was the primary driver to creating the TGS.

**Secondary Drivers**
The preceding document, Making a Sustainable City Happen: The Toronto Green Development Standard of July 27th 2006 as well as the desire to implement the Natural Environment policies in Official Plan, operated as secondary drivers in to the TGS.

**Enablers**
Funding has played an important role and has included:
» The Federation of Canadian Municipalities (FCM) provided $200,000 in grants for studies including: the research on green standards from other cities around the world; a cost-benefit analysis of the TGS (with funding also from Ontario Centers of Excellence;) research on Green Skills Training; cost comparison of applying TGS of a city owned facility.
» Staff training support by FCM with a $10,000 grant.

**Champions**
The primary champion of the Carbon Neutral Operations Plan was Whistler's mayor, who directed staff to create an aggressive carbon neutral plan that would precede the Climate Action Charter's target by two years

# Jurisdictional Obstacles and Opportunities

**Opportunities**

» The City of Toronto's Official Plan, 2006 outlines and promotes sustainable development and various Smart Growth initiatives

**Obstacles**

» The City of Toronto attempted to have the Ontario Building Code amended for the City to provide for increased sustainability and energy reduction provisions, however, the Code was only amended to include a provision (s108) for the construction of green roofs
» Lack of strong tools from the province

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

» The City is built-out and property values are high so the developers want to build in Toronto
» Infilling is still occurring, with 12, 473 residential housing units completed in 2009 and 13, 450 in 2008
» Funding from the FCM, the Centre for Excellence and the City of Toronto
» Buildings, over 2000 square metres are automatically enrolled in the Better Buildings Partnership New Construction Program (BBP-NC) and receive a Design Assistance Incentive to offset the cost of modelling the building and creating the Energy Report
» Refunds of 20% in development charges are offered if a developer meets Tier 1 and 2 requirements
» The City has specialized divisions like the Energy Efficiency Office and access to research data from various nearby universities

**Obstacles**

» The City has a limited ability to finance incentive programs
» Difficult to enforce or verify energy efficiency or GHG reductions

# Outcome

A TGS Cost Benefit Analysis study predicted the following results if the TGS was implemented vs business as usual: A typical office building would reduce CO2e 300 tons per year and a typical condominium building would reduce CO2e 500 tons per year.

Since the TGS, Tier 1 is newly mandatory, results are limited however, the City has created a database in order to track which Green Standards are being implemented.

# Lessons Learned

» Surveying and holding focus groups with developers for their feedback early in the process is essential to positive and timely uptake of new requirements
» Defining a clear environmental planning framework and targets before setting standards and implementation measures is essential
» Consulting across internal divisions was instrumental in making the TGS comprehensive and functional
» Introduction of the Toronto Green Development Standard on a voluntary basis was important to acclimatize developers to the concept before requiring TGS Tier 1
» Training needs to accompany new policies and development requirements in order to familiarize practitioners with new standards
» Training budgets are integral when creating new rules and regulations

# Applicability across Ontario

The City of Toronto has special powers under the City of Toronto Act which enable the City to require green roofs under the Green Roof Bylaw, which is also a requirement in the Tier 1 checklist for some building types, however all municipalities in Ontario have the same legislative authority to require sustainable performance measures such as the TGS. It is an appropriate tool for both a single-tier and two-tier municipalities, however, the policy is better applied by a larger municipality (i.e. over 50,000 people), especially in high value neighbourhoods. Wide-scale implementation of higher building standards across the Province requires enabling provincial legislation to level the playing field amongst all municipalities.

A critical component of successful implementation of this approach is training and development of builders, developers, consulting engineers, architects and building inspectors. Inspection and monitoring are particularly important but have been inadequate in ensuring buildings meet intended standards.

# Similar tools used by other municipalities:

» LEED Canada for New Construction and Major Renovations 2009
» Green Globes
» Port Coquitlam: Sustainability Checklist
» City of New Westminster: Smart Growth Development Checklist
» Built Green Canada Checklist
» Penrith City, New South Wales, Australia: Sustainable Development Checklist
» State of Washington: The Evergreen Sustainable Development Standard
» BREEAM Checklists
» Greater London Authority, UK: London: Sustainability Checklist

# Further Information

sustainablecity@toronto.ca

**The Toronto Green Standard**
toronto.ca/greendevelopment

Land Use

# Energy Density Mapping

GUELPH, ON

**In 2007 Guelph created a Community Energy Plan launching the City into energy planning and mapping which will be a central focus of their new Official Plan, currently being updated.**

## Community Profile

- In 2007 Guelph was recognized as the fifth most sustainable city in Ontario
- Guelph has a current population of 115, 000 with an additional 18, 000 students during the academic year
- Guelph is one of Canada's fastest growing cities and is expected to grow by 2% per year to 180, 000 by 2031
- Downtown Guelph is situated above the intersection of the Speed and Eramosa rivers
- The population density of Guelph averages 310.1 people per square kilometre
- Guelph is situated within 100 km of 15 major Canadian post-secondary institutions

# Energy Density Mapping

Energy density mapping works to provide municipalities and utilities with a way to evaluate the existing location and quantity of energy use in a community. Using the mapping process municipalities are then able to evaluate and work to implement energy reduction strategies and renewable energy technologies that are appropriate for their residents, businesses and climates. This approach builds on accepted practices for the reduction in energy use in efficient ways such as through reduced demand for transportation, and space heating and cooling. The mapping process also incorporates the idea that maximizing the energy efficiency of the urban form requires integrating transportation issues, improving the orientation of the built environment, as well as ensuring "unavoidable" energy needs are met in the most effective way possible. Inputs to energy mapping work to maximize the amount of energy savings and reduction in greenhouse gas (GHG) emissions from strategically planned community intensification, re-urbanization and green field development. The mapping itself is the means by which these enhancements are communicated.

Energy mapping builds on the fundamental elements of a Community Energy Plan which Guelph created in 2007, by establishing energy and greenhouse gas reduction targets. The process contributes to the connection of land-use and built form to energy demand. This enables municipalities, local distribution companies (LDCs) and gas utilities to incorporate energy planning and actionable demand-side management (DSM) and energy supply activities to address local energy challenges.

In order to make energy a guiding focus, Guelph will be including the energy density mapping projections into their new Official Plan which is currently being updated, thereby making it a fundamental guiding policy for the City.

# The Step-by-Step Process

» In 2004, Guelph formed a Consortium comprised of  the City; Union Gas; Guelph Hydro; Business and industry representatives; the University of Guelph; school boards; and Chamber of Commerce; as well as Peter Garforth, international energy expert, to proactively engage with energy issues
» The City engaged in a best practice review of several European cities
» In 2006, the Community Energy Plan process was launched alongside other City and stakeholder programs including the City's Local Growth Management Strategy and Guelph Hydro's Conservation and Demand Management Plan
» The CEP was adopted by Council in 2007 (2007-2031) after 18 months of research and writing with the goals of using 50% less energy per capita and to achieve 60% less GHG emissions per capita
» The City has been actively working on community energy planning implementation strategies since 2007.
» As part of the implementation approach, the City undertook several initiatives to better institutionalize energy into decision-making activities, including the preparation of an Energy Density Map, beginning in 2009
» The Energy Density Map was a core activity to better link policy planning, such as the Official Plan, Secondary Plans and municipal decision making tools
» In 2009 Guelph hired a Community Energy Plan Program Manager
» Since incentive programs, legislation and elected officials are in constant flux, Guelph identified the need to embed the principles from the community energy plan and the projections from the energy density mapping exercise into a long term vision and legislative framework, deciding upon the Official Plan
» The25-year Community Energy Plan (CEP) was renamed the Community Energy Initiative on March 27, 2010, to signal the move towards implementation
» The Ontario Power Authority is funding research to analyze the implications of the recommendations in the draft Official Plan, including a review of the types of resources needed to improve zoning, for example
» Training and capacity building on the Toronto Green Standard was implemented for the City's development review staff and capital project managers so that implementation of the Standard was seamless

# Drivers and Champions

**Primary**
» Climate change
» Economic development, especially in regard to feed-in-tariff/"green" energy productionSecondary Drivers

**Secondary**
» The Community Energy Plan, 2007

**Enablers**
» $70, 000 funding through the Green Municipal Fund (GMF) offered by the Federation of Canadian Municipalities (FCM) for the CEP
» OPA funding

**Champions**
» The Mayor and Council have taken the lead (the Mayor's Task Force on Community Energy)
» The community
» Guelph hydro Inc., Union Gas, and the University of Guelph
» Guelph's Community Energy Manager

# Jurisdictional Obstacles and Opportunities

**Opportunities**

- Guelph's Official Plan is currently being updated, allowing seamless integration of the community energy plan principles and projections of the energy density mapping excercise
- the Places to Grow Act and the Green Energy Act
- The Province has begun addressing expansion of infrastructure to meet the challenges associated with growth as well as renewing aging infrastructure which provides opportunities for Guelph to plan for new projects within the scope of their Community Energy Plan and energy mapping projections
- A progressive Council
- Political will is present, supported by the community

**Obstacles**

- Much of the planning and energy related policy is provincial, outside of the jurisdiction of municipalities
- A municipality's ability to provide funding and financial incentives to people and businesses for integrating energy efficiency measures or for generating energy is very limited

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

- Guelph is becoming known as "green energy friendly" and is beginning to attract "green" businesses, including solar companies
- In spite of increasing population growth it is planned that overall fuel use required by the City of Guelph will decrease from the current total of 8,475 GWhe to 6,135 GWhe by 2031, reducing greenhouse gas emissions per capita from the current 16 tonnes to 7 tonnes

**Obstacles**

- Implementation of the recommended scenarios from the energy density mapping exercise will require large investments, over a long period of time however, the business-as-usual scenario will also require large investments
- This type of planning is cutting-edge so there were few examples to model from

# Outcome

It cost $157, 500 to complete the Community Energy Plan of which the Federation of Canadian Municipalities contributed $70, 000 through the Green Municipal Fund in addition to the significant in-kind contribution through community involvement and stakeholder engagement.  Due to this investment and energy planning exercise, Guelph is establishing itself as a "green energy friendly" economy, attracting solar company investment.

In the future, further feasibility studies will be undertaken to determine the potential for district energy systems downtown, at the University of Guelph and near the Guelph General Hospital, as a result of the Community Energy Plan and energy density mapping

# Lessons Learned

» An environmentally progressive community is instrumental to creating progressive plans and policy
» Educational programs are essential to new planning initiatives however, plans and policies should be accompanied by financial incentives and tools like the Green Municipal Fund
» Since urban form influences all aspects of energy use, energy should be a guiding direction of Official Plans
» Political will must be present
» Community buy-in has been integral to the energy planning process in Guelph, largely established through community outreach and workshops
» It is important to develop plans and policies which support long-range energy planning so that it is not modified year to year, but survives political turnover, which Guelph will address by making energy a overarching goal of their new Official Plan

# Applicability across Ontario

Energy mapping is an excellent tool to assess a municipality's energy use baseline and to model alternative scenarios. It can also be used to set goals and monitor the progress of GHG and energy reduction strategies. Obstacles associated with this tool include: the absence of a standardized approach or protocol for mapping; there is no uniformity of data type and quality amongst local distribution companies; and some utilities may not be able to share energy information because their information is subject to the Freedom of Information and Protection of Privacy Act.

This tool often requires GIS knowledge, input from engineers and planners, and spreadsheet and data management abilities, supplemented by information from local utilities. While applicable to both small and large municipalities, it is likely more easily utilized by a large municipality because they may have more access to relevant expertise or the resources to fund consultants.

Energy density mapping is cost effective in the longer term because it can result in energy savings. While highly administratively feasible, it would be more effective if it was aided by provincial legislation, providing a standardized protocol for the process and for the collection of data from utilities.

# Other municipalities using this type of tool

» Yarra Valley, Australia
» Calgary, Alberta

# Further Information

Environmental Services:
519-822-1260
guelph.ca/energy

Guelph's Community Energy Initiative:
http://guelph.ca/living.cfm?subCatID=1831&smocid=2407

Energy-efficiency, Conservation and Planning
http://www.guelph.ca/living.cfm?subCatID=1548&smocid=2127

Land Use

# Community Improvement Plans for Brownfield Redevelopment

ST. CATHARINES, ON

**Motivated to limit the effects of urban sprawl, improve existing neighbourhoods and remediate contaminated sites, the City of St. Catharines began promoting intensification and resuse of underutlizied properties, establishing 5 Community Improvement Project Areas, beginning in 2003.**

## Community Profile

» The population of St. Catharines is 137, 000 (as per the Growth Management Strategy)
» St. Catharines is the largest city in Canada's Niagara Region occupying a 97.11 square kilometre area of land
» The City is 19 kilometres from the State of New York, lying south of Lake Ontario, at the northern entrance of the Welland Canal

# Community Improvement Plan (CIP)

A community improvement plan focuses on the rehabilitation, development or redevelopment of a targeted area called the community improvement project area. According to Section 28(1) of the Planning Act, a community improvement project area (CIPA) is defined as "a municipality or an area within a municipality, the community improvement of which in the opinion of the council is desirable because of age, dilapidation, overcrowding, faulty arrangement, unsuitability of buildings or for any other environmental, social or community economic development reason". While not solely for the redevelopment of Brownfields, the CIP can be used for this purpose.

The City of St. Catharines Community Improvement Plan proposes a number of financial incentive programs to stimulate development/redevelopment initiatives in five (5) Community Improvement Project Areas (CIPA) (The Downtown, The Queenston Neighbourhood, Hartzel Road – Merritton, 583 Welland Avenue and Oakdale Moffatt). Community Improvement Plans allow a municipality to offer financial incentives to private property owners in order to encourage private sector rehabilitation activities that are identified as community priorities.

Although Section 106(1) of the Municipal Act, 2001 prohibits "bonusing" of manufacturing business or other industrial or commercial enterprise, an exception is made in Section 106(3) of the Municipal Act for municipalities exercising powers under Section 28(6) or (7) of the Planning Act. Section 28 of the Planning Act allows municipalities with provisions in their official plans relating to community improvement to designate by by-law a "community improvement project area". Once this is done, a municipality may prepare a "community improvement plan" for the community improvement project area. Additionally, section 365.1(2) and (3) of the Municipal Act enables municipalities to pass a by-law in order to provide tax assistance to an eligible property during the rehabilitation period and the development period and section 365.1 (1) allows a municipality with an approved CIP containing provisions for tax assistance to be permitted to provide it for municipal and education purposes.

In order to implement the improvements of a plan area, once a CIP has been approved, a municipality may:
a) acquire, hold, clear, grade or otherwise prepare land for community improvement (28(3));
b) construct, repair, rehabilitate or improve buildings on land acquired or held by it in the community improvement project area in conformity with the community improvement plan (28(6));
c) sell, lease, or otherwise dispose of any land and buildings acquired or held by it in the community improvement project area in conformity with the community improvement plan (28(6)); and,
d) make grants or loans to registered owners, assessed owners and tenants of lands and buildings within the community improvement project area, and to any person to whom such an owner or tenant has assigned the right to receive a grant or loan, to pay for the whole or any part of the cost of rehabilitating such lands and buildings in conformity with the community improvement plan (28(7)).

Funding to encourage private sector investment in redevelopment in CIPAs is accomplished via two streams in St. Catharines, one of which is through grant programs and the second is offered as property tax rebate programs. The grants are funded and contingent upon annual budget approval. The property tax rebate is offered in partnership with the Province, the Region and the City. Specific to Brownfield redevelopment is the Brownfield Financial Tax Assistance Program and the Brownfield Tax Increment Based Incentive Grant Program for sites within the Community Improvement Project Areas.

Available Financing:
The following grant and tax incentive programs will be available until December 31st, 2014 subject to Council Approval of the annual budget allocation for these programs. One relevant program specifically applicable to Brownfield sites has been expanded with a sample excerpt below.

**Policy Excerpt**

A) Residential Conversion and Intensification Grant Program
B) Residential Construction Grant Program
C) Facade Improvement Grant Program
D) Brownfield Financial Tax Assistance Program (BFTAP)
The BFTAP provides for the cancellation of the property taxes for the period immediately following the approval of the Brownfield Financial Tax Assistance Program By-law (BFTAP By-law) and continues during the Rehabilitation Period. The tax assistance will continue for the shortest of the following periods, up to three years or the period up to when the Owner advises the City that rehabilitation has been completed. The BFTAP applies only to an eligible Brownfield site and is subject to Ministry of Finance approval for the education portion. The amount of tax assistance provided will be determined during the application phase to ensure the value of the tax exemption does not exceed rehabilitation costs over the maximum three (3) year period.

The following items will be considered as "Eligible Expenditures" under the BFTAP:

- The cost of Phase I, Phase II Environmental Site Assessments or a Site Specific Risk Assessment [SSRA] (100%)
- The cost of environmental rehabilitation (100%)
- The cost of placing clean fill and grading (100%)
- The cost of obtaining a Record of Site Condition (100%)
- The cost of financing (interest charges) of preparing the studies and undertaking the rehabilitation (100%)
- The cost of the insurance premium to guarantee the rehabilitation will be completed (100%)
- Removal of waste materials (100%)
- Brownfield Tax Increment Based Incentive Grant Program (BTIGP)

F) Tax Increment Based Incentive Grant Program (TIGP)
G) Municipal Application and Permit Fees Refund Program
H) Oakdale Moffatt Financial Incentive Grant Programs

# The Step-by-Step Process

- Issue papers were presented at a meeting with the Downtown stakeholder groups (the Downtown Association, the Winner's Circle, the Chamber of Commerce and representatives from the development industry)
- Public charrettes were held for the Queenston and Hartzel Road - Merritton areas
- A public workshop was held for the neighbourhoods of the Oakdale Moffat area
- In order to address Brownfield redevelopment, amongst other general redevelopment goals, the City of St. Catharines, in May of 2003, revised its Official Plan Policies with the purpose of establishing a program of financial assistance in the CIPA and to coordinate private/public works to make the most efficient use of the public infrastructure
- The Community Improvement Project Areas were established in the following locations, on the following dates:
  - Queenston and Hartzel Road - Merritton areas, September 15, 2003
  - Downtown St. Catharines , March 8, 2004
  - 583 Welland Avenue, July 19, 2004
  - Oakdale Moffatt area, September 29, 2008
  - On November 10, 2008, Council approved amendments to the provisions of the Community Improvement Plan to update the incentives in light of three years experience implementing the program

# Drivers and Champions

**Primary**

The primary driver for facilitating Brownfield redevelopment through Community Improvement Plans was the desire to limit the effects of urban sprawl, protect the surrounding agricultural lands, and improve existing neighbourhoods, by municipal staff and Council.

**Secondary**

The use of a Community Improvement Plan for Brownfield redevelopment was chosen as the preferred option after a number of studies were undertaken which also helped launch it, including: the St. Catharines Task Force on Downtown Revitalization (1997), The Comprehensive Development Strategy (2002) and the Smart Growth Studies Reclaiming Ground (2003) and Reclaiming Ground in the Neighbourhoods of Oakdale Moffatt (2007). In addition to these studies, the Ministry of the Environment ordered the 10 acre site at 583 Welland Avenue to be remediated which also advanced the policy.

**Champions**

- Municipal staff
- City Council
- The private sector

# Jurisdictional Obstacles and Opportunities

**Opportunities**

- Brownfields Statute Law Amendment Act, 2001
- Budget Measures and Interim Appropriation Act, (Bill 187), 2007
- The Ministry of the Environment changes to regulations of contaminated sites (2009) which include prescriptive regulations to better protect people and the environment
- The Places to Grow Act and the Growth Plan for the Greater Golden Horseshoe, 2006 provide for increasing intensification of the existing built-up areas, with a focus on urban growth centres, intensification corridors, major transit station areas, Brownfield sites and Greyfields
- The 8 Financial Incentives introduced by City Council (listed earlier)
- CIPs require municipal Council Approval (previously required the approval by the Ministry of Municipal Affairs and Housing)
- The Minister of Finance may match the City's tax assistance provided to a property owner through the education portion of the property tax

**Obstacles**

- The Ontario Municipal Act, s.106 which prohibits a municipality from assisting businesses, industries or commercial enterprises through the granting of bonuses
- The Ministry of the Environment changes to regulations of contaminated sites (2009) which will implement the government reforms announced in 2007 and which are perceived by some in the development field as overly prescriptive

In 2007, the Ontario government passed the Budget Measures and Interim Appropriation Act, (Bill 187) which made amendments to a number of statutes, including a package of amendments designed to address identified barriers to Brownfield redevelopment, in particular those relating to liability, financing and the regulatory process. Liability reforms include an option for property owners, who did not cause the land contamination, to be protected by Records of Site Condition as long as contamination does not pass beyond the property boundary over specified levels, in addition to other protective conditions.

In December of 2009, amendments were made to Records of Site Condition to implement reforms announced by the Ontario Government in 2007. Most of these amendments will come into effect on July 1, 2011 and will provide more prescriptive legislation in order to protect public health and safety and the environment. While a positive set of amendments, the development industry has expressed concern that prescriptive regulation will make meeting the approvals more difficult.

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

- Health, safety, and visual quality improvements
- Increased property tax revenues for the City, Region and the Province
- May aid in urban sprawl reduction
- Increased economic development
- Redevelopment can increase the number of dwelling units while removing poorly maintained vacant and underutilized lots that are interspersed amongst otherwise “stable” communities
- The City provides timeline process charts in their Community Improvement Plan, 2009 document indicating the steps and number of working days involved in processing the TIGP, BTIGP and BFTAP programs and grants and related components which helps to inform the process

**Obstacles**

- Redeveloping a Brownfield site often requires specialized reports such as Environmental Assessments which may be costly and require time to compile
- Environmental insurance premiums
- Uncertainty regarding the length of time required to obtain various development approvals and the associated costs of addressing environmental legislation and standards

# Outcome

Brownfield redevelopment is a particularly important, not only for mitigating contamination, but also for the reuse of land, particularly where infrastructure already exists. Brownfield redevelopment may also encourage intensification of existing towns and cities, further supporting other ICES components such as public transit.

The primary challenge associated with Brownfield redevelopment, inclusive of practice, policy-making and financial granting is the need to facilitate a balance amongst encouraging the redevelopment practice while protecting the environment and public safety. New legislation, such as Bill 187 works to address this balance.

Moving forward, St. Catharine’s has established an administrative position with the responsibility of reviewing and recommending applications and allocation of funds. To date, three Brownfield sites have been remediated and are currently being redeveloped for residential development to consist of 159 street townhouse units, 40 townhouse apartment dwellings, 6 single detached dwelling units, 88 multiple attached townhouses, and 139 apartment units.

# Lessons Learned

- Understanding that directing growth into existing neighbourhoods, and promoting the intensification and reuse of vacant buildings and underutilized properties requires a more participatory role from the municipality
- It is important not to take a cookie-cutter approach but tailor CIPs for the local context
- Creating financing opportunities and incentives is critical to encourage private sector investment
- Action and support by higher levels of government can spur action at the municipal level

# Applicability across Ontario

This policy tool is useful in achieving its goals, working to create sufficient incentives to balance the risks of Brownfield redevelopment, thereby often times encouraging intensification and infilling where infrastructure and transit services already exist. This is consistent with the Places to Grow Act which encourages higher density communities where better value is offered for infrastructure investment. The Growth Plan indicates that tools for the revitalization of Brownfields or redevelopment of land will be offered as a way of operationalizing the Growth Plan. Tax increment equivalent financing (TIEF) can also be used in conjunction with other incentives offered in this policy case study and has been used in Ottawa to further incent redevelopment, creating long-term benefits for underutilized land.

Potential exists for community improvement plans to be used for the redevelopment/retrofitting of energy inefficient or intensive project areas in addition to a host of other community improvements. Part IV of the Planning Act enables CIPs in municipalities and through Bill 51, relevant amendments to the Planning Act have been made including the change to the definition for "community improvement." As of January 1, 2007, community improvement means:

> the planning or replanning, design or redesign, resubdivision, clearance, development or redevelopment, construction, reconstruction and rehabilitation, improvement of energy efficiency, or any of them, of a community improvement project area, and the provision of such residential, commercial, industrial, public, recreational, institutional, religious, charitable or other uses, buildings, structures, works, improvements or facilities, or spaces therefore, as may be appropriate or necessary; (Planning Act, Section 28 (1)).

Municipalities are now able to utilize CIPS for a range of projects including energy related improvements to structures and for energy programs within new developments.

Moving forward, CIPs should be considered in conjunction with energy mapping and energy plans to be effective, long term tools for energy reductions and GHG emissions reductions at the municipal level. Finally, a provincial protocol and clear standards pertaining to Brownfield redevelopment and for energy related CIP projects would support the widespread adoption of the process.

# Other Municipalities engaged in this type of practice

- City of Toronto: The Toronto Community Improvement Plan for Brownfield Remediation and Development of Prescribed Employment Uses
- Niagara Falls: Brownfield Community Improvement Plan
- City of Guelph: Brownfield Redevelopment Community Improvement Plan (CIP)
- Brownfields Renaissance Community Improvement Plan
- City of Kingston: Community Improvement Plan (Brownfields)
- City of Hamilton: Brownfield Redevelopment for Housing

# Further Information

Bryan Morris, Community Renewal Coordinator
905-688-5601 905-688-560 ext. 1723 bdmorris@stcatharines.ca

City of St. Catharines Community Improvement Plan: Office Consolidation, May 2009
http://www.stcatharines.ca/cityservices/citydepartments/planning/resources/2009_CIP_Plan.pdf

Community Improvement Plan Residential Conversion and Intensification Grant Program
http://www.stcatharines.ca/cityservices/citydepartments/planning/resources/Residential_Conversion_Intensification_Grant_09.pdf

Community Improvement Plan Residential Construction Grant Program
http://www.stcatharines.ca/cityservices/citydepartments/planning/resources/Residential_Construction_Grant_Program_09.pdf

Community Improvement Plan Façade Improvement Grant Program
http://www.stcatharines.ca/cityservices/citydepartments/planning/resources/Facade_Improvement_Grant_09.pdf

Community Improvement Plan Brownfield Financial Tax Assistance Program
http://www.stcatharines.ca/cityservices/citydepartments/planning/resources/Brownfield_Financial_Tax_Assistance_09.pdf

Community Improvement Plan Brownfield Tax Increment Based Incentive Grant Program
http://www.stcatharines.ca/cityservices/citydepartments/planning/resources/Brownfield_Tax_Increment_Based_Incentive_09.pdf

Community Improvement Plan Tax Increment Based Incentive Grant Program
http://www.stcatharines.ca/cityservices/citydepartments/planning/resources/Tax_Increment_Based_Incentive_09.pdf

Community Improvement Plan Municipal Application and Permit Fees Refund Program
http://www.stcatharines.ca/cityservices/citydepartments/planning/resources/Munic_Applic_Permit_Fee_Refund_09_revised.pdf

Community Improvement Plan Application for Financial Incentive Grant Programs
http://www.stcatharines.ca/cityservices/citydepartments/planning/resources/application_for_financial_incentive_grant_09_revised.pdf

Brownfields Marketplace
http://www.brownfieldsmarketplace.com/

Canadian Brownfields Network
http://www.canadianbrownfieldsnetwork.com/

Land Use

# Community Energy Plans

YORK REGION, ON

**As part of York Region's directive to develop in a sustainable manner and address an increasing region-wide energy demand, Community Energy Plans will be required in new growth areas and in the four Regional Centres, in the Region's lower-tier municipalities, as outlined in the new Official Plan, 2009.**

## Community Profile

- York Region is an upper-tier municipality with nine lower-tier municipalities within its jurisdiction including Aurora, East Gwillimbury, Georgina, King, Markham, Newmarket, Richmond Hill, Vaughan, and Whitchurch-Stouffville
- The population of York Region is over one million people living across a 1,776 square kilometre area running from Steeles Avenue in the south to Lake Simcoe and the Holland Marsh in the north
- By 2031 York Region is expected to grow to 1.5 million residents, create an additional 780,000 jobs, and build 510,000 homes
- Sixty-nine percent of York Region's land base is within the Oak Ridges Moraine and the Greenbelt

# Mandating Community Energy Plans (CEP)

The municipality of York Region has a new Official Plan (OP) which was adopted by Council on December 16, 2009 and which has been submitted to the Minister of Municipal Affairs and Housing for approval. The policies within the Plan will provide the strategic policy framework for lower-tier municipalities to create more detailed and refined planning policies. The new OP has an energy emphasis which is addressed in a number of areas. One of the most innovative policy directions in the new OP, as it relates to energy, is the requirement that the four Regional Centres, Markham, Newmarket, Richmond Hill and Vaughan, as well as new growth areas, create Community Energy Plans during the secondary plan process. York Region is the first to mandate this type of approach in order help communities reach goals of energy conservation, energy efficiency, and the reduction of greenhouse gas emissions. CEPs should detail the municipality's energy use requirements, establish a plan to reduce energy demand, consider alternative forms of energy generation, intensify within the growth centres near regional corridors, and improve building efficiencies and siting, for example.

**Policy Excerpt**

Relevant sections from the new OP, as they relate to community energy plans, are detailed below:

**Section 4.1: Supporting the York Region Economic Strategy:**
It is the policy of Council:
**14.** To work with local municipalities to leverage Community Energy Plans as a tool to promote economic development.

**Section 5.2: Sustainable Cities, Sustainable Communities:**
It is the policy of Council:
**13.** To encourage local municipalities to undertake municipal-wide Community Energy Plans. These plans will detail the municipality's energy use requirements and establish a plan to reduce energy demand and consider the use of alternative and renewable energy generation options and district energy systems, and will ensure that communities are designed to optimize passive solar gains.
**12.** That renewable energy systems and alternative energy systems shall be permitted throughout the Region in accordance with provincial and federal requirements, and that these permissions be incorporated into local official plans and zoning by-laws. Local municipalities shall specify in more detail where renewable and alternative technologies will be permitted.

**Section 5.4: Regional Centres and Corridors:**
It is the policy of Council:
**24.** That local municipalities shall develop Community Energy Plans for each Regional Centre.

**Section: 5.6 Building Complete, Vibrant Communities:**
It is the policy of Council:
**10.** That the local municipality shall develop a Community Energy Plan for each new community area to reduce community energy demands, optimize passive solar gains through design, and make use of renewable, on-site generation and district energy options including but not limited to solar, wind, water, biomass, and geothermal energy

# The Step-by-Step Process

**The Official Plan:**
To advise Committee and Council of regional issues, leading up to the Official Plan review, Regional staff compiled a number of reports and facilitated public engagement. Between 2004 and 2009 numerous reports in the realms of transportation, growth management, sustainable development, natural heritage and climate change were compiled and can be found at the end of this case study. In terms of the Official Plan adoption process, the following steps were taken:

» The York Region Official Plan, on December 2, 2009 was presented to the Planning and Economic Development Committee
» The Official Plan was adopted by Council on December 16, 2009
» The Adopted Official Plan for the Regional Municipality of York has been submitted to the Ministry of Municipal Affairs and Housing for approval

# Drivers and Champions

**Primary Drivers**
Increasing energy demand, especially in the summer, which has resulted in the OPA investigating "peaker plants" as a way of mitigating brown-outs, has prompted the Region to plan for energy in an integrated manner. Climate change and associated risks that may affect air quality, water, wastewater, transportation, and energy are also driving the community energy planning requirement as is the desire to encourage sustainable development and attract green industry.

**Secondary Drivers**
New Provincial and municipal planning legislation and initiatives have come into effect since the Regional Official Plan of 1994, which have also prompted changes to the way energy is planned, including:

Places to Grow: Growth Plan for the Greater Golden Horseshoe, Metrolinx Regional Transportation Plan: The Big Move, The Green Energy and Green Economy Act, 2009, The Provincial Policy Statement, 2005, watershed-based source protection planning requirements within the new Drinking Water Regulation under the Safe Drinking Water Act, 2003 and the Municipal Act, 2001

**Champions**
» The Long Range Strategic Planning Department at York Region
» The Regional Council
» Lower-tier municipalities

# Jurisdictional Obstacles and Opportunities

**Opportunities**

- Places to Grow: Growth Plan for the Greater Golden Horseshoe
- Metrolinx Regional Transportation Plan: The Big Move
- The Green Energy and Green Economy Act, 2009
- The Provincial Policy Statement, 2005
- the Safe Drinking Water Act, 2003
- the Municipal Act, 2001

**Obstacles**

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

- While CEPs are mandated for the 4 Regional Centres and new growth areas, York Region is investigating the potential for their wide-spread adoption, in the future
- The Town of east Gwillimbury has created a CEP although not mandated, indicating potential for other lower-tiers outside of the 4 Regional Centres and new growth areas to advance energy planning
- CEPS may promote economic development
- York Region is considering creating an awards program to showcase sustainable buildings and communities within the Region

**Obstacles**

- Localized energy production might be contested like the opposition experienced surrounding the discussion of “peaker plants”
- Mandating CEPs is a new practice which may take time and may require resources from lower-tier municipalities to come into conformity with the requirement

# Outcome

The Official Plan has been submitted to the Ministry of Municipal Affairs and Housing for approval so it is too early to comment on the outcome of CEP creation by the 4 Regional Centres and new growth areas.

# Lessons Learned

» Public consultation is a necessary part of the planning process, especially when creating an Official Plan which mirror the goals and objectives of the Regional community
» Effective coordination across departments and levels of government is essential to such a large scale planning exercise

# Applicability across Ontario

Community Energy Plans can be instituted by both upper and lower-tier municipalities and both small (less than 50,000) and large municipalities (more than 50,000). A CEP should be a long-term guiding document for a community, setting benchmarks and informing all municipal decisions. Utilized in conjunction with energy mapping, CEPs would be more effective, although this requires additional financial investment into the process, specialized expertise and staffing resources. The City of Guelph indicates that their CEP cost approximately $150 000 to $200 000 resulting from fees for local authority staff time, consultants and community education and outreach programs.

Having community support and buy-in is essential to the success of a CEP which can be garnered through education. While not specifically for CEP uptake, the City of Toronto educates community members and groups about energy efficiency, funding programs, and climate change initiatives through their City Animators as part of their Live Green program. Incremental integration is also important to the CEP process which York Region has addressed by mandating it at the Secondary Plan stage and by requiring it from the 4 Regional Centres and new growth areas only. Acknowledging that the process comprises a long-term timeframe due to the complex nature of integrating an energy focus within and across local law and administrative procedures as well as existing plans is imperative.

# Other municipalities using similar types of tools

Other municipalities are creating and using Community Energy Plans but no other Region has mandated it in their Official Plan. The following list includes municipalities who have adopted CEPs or an equivalent:
» Guelph, ON
» Yellowknife,NT
» East Gwillimbury, ON
» Dawson Creek, BC
» Saskatoon, SK
» Portland, Oregon, Climate Action Plan, 2009

# Further Information

The Regional Planning Department
905 830 4444 x 1526
futureyork@York.ca

York Region Official Plan: As Adopted by Council of the Regional Municipality of York, December 16, 2009
http://www.york.ca/NR/rdonlyres/pnzvguynrousdkawz7xt5laiojrjeilkufdatg2y5ltsi6zumlho3z2e6fmjqsan7etnwtv2yojvqyfafvtur52u4e/Dec+09+Adopted+ROP+-+for+web.pdf

A sample of the events and reports are presented below:

2004 to 2006
Transportation Master Plan Update - December 2005
- Growth Management Workplan Update and Public Engagement - December 2005
- York Region Residential Intensification Opportunities - December 2005
- York Region Sustainable Development Initiative - October 2005
- Places to Grow – Final Growth Plan for the Greater Golden Horseshoe – June 2006 - September 2006
- York Region "Towards a Sustainable Region" Symposium Feedback - May 2006
- Planning for Tomorrow - Sustainable Growth Management and Public Engagement Update - March 2006

2007
- York Region Vacant Employment Land Inventory - December 2007
- Best Practices for New Communities Discussion Paper - November 2007
- Fiscal and Economic Implications of the Regional Growth Management Strategy - November 2007
- Planning for Tomorrow Phase 2 Public Engagement and Consultation 2007 Summary - September 2007
- Sustainable Development through LEED TM - June 2007
- Protecting Areas of Employment - June 2007
- Pedestrian and Cycling Master Plan Study Update - June 2007
- Natural Heritage Discussion Paper - May 2007
- Planning For Tomorrow reports, presentations and public engagement Part 1,2,3,4,5- 2007
- Growth Management Strategy Options: Preliminary Report - March 2007
- York Region New Communities Workshop Feedback - February 2007
- York Region Natural Heritage Workshop Feedback - February 2007

2008
- Planning For Tomorrow Phase 3, Public Consultation and Engagement 2008 Summary – December 3, 2008
- Places to Grow: Final Urban Growth Centre Boundaries – December 3, 2008
- Preferred Growth Scenario Environmental Evaluation Addendum – December 3, 2008
- Visualizing the Look of Intensification in York Region: Preliminary Report - June 11, 2008
- Proposed Size and Location of Urban Growth Centres in the Greater Golden Horseshoe: Technical Paper Spring

2008 - April 30, 2008
- Regional Greenbelt Conformity Process - February 2008
- Proposed Final Built Boundary for the Growth Plan for the GGH Fall 2007 Technical Paper - January 2008
- Natural Heritage Paper Feedback and Strategic Directions - January 2008
- Climate Change Workshop and Discussion Paper - January 2008

2009
- York Region Official Plan - Recommendation to Adopt the Official Plan - December 2009
- Draft York Region Official Plan Statutory meeting - Context Report and Public Consultation Update - October 22, 2009
- Implementation of the Sustainable Home Incentive Program - September 2009
- York Region Draft Official Plan, Green Building Policies - September 2009
- York Region Agricultural/Rural Review - LEAR Study, Greenbelt Conformity - September 2009
- Places to Grow - Simcoe Area: A Strategic Vision for Growth - Environmental Bill of Rights, Registry Posting 010-6860, Regional Comments - September 2009
- Draft York Region Official Plan - June 25, 2009
- Updated Greenlands Systems Policy Directions - Regional Official Plan Update - April 23, 2009
- Land Budget and Urban Boundary Expansion - Regional Official Plan Update - April 23, 2009
- Criteria For Enhanced Centres and Corridors Policies - Regional Official Plan Update - April 23, 2009
- Draft Criteria For Building New Communities in York Region - March 26, 2009
- York Region 2031 Intensification Strategy - February 4, 2009
- Planning for Tomorrow 2009 Regional Official Plan Update WorkPlan - February 4, 2009
- Best Practices for New Communities Workshop Feedback - January 7, 2009 Planning Agenda

# Transportation

Featured Case Studies

## Dawson Creek's Green Fleet Policy

## Amsterdam's Transportation Policy

## London's CS14: Public Transport Streets and Walkways

Transportation

# Green Vehicle Policy

CITY OF DAWSON CREEK, ON

**Looking to reduce their rising fuel costs, the City instituted a life cycle costing tool as part of their green vehicle policy which helped them save $75,000 by taking into consideration emissions, efficiency, and operating cost in addition to initial cost when purchasing municipal vehicles.**

## Community Profile

- Located in the Peace River region of northeastern British Columbia
- Home to 11,000 residents
- A resource-based economy with a focus on the energy, agriculture and forestry sectors

# Green Vehicle Policy Profile

Dawson Creek's green vehicle policy was enacted in 2006 as part of the City's commitment to reduce emissions in municipal operations by 20% below 2006 levels by 2016. The distinguishing feature of this green vehicle policy is its life cycle costing tool. Life cycle costing is used to determine which vehicle is least costly after taking into account such considerations as capital costs, maintenance costs, resale costs, and fuel costs over a five-year period.  In addition to this, Dawson Creek included emissions as a consideration by adding $15 per tonne of greenhouse gases emitted over five years to the cost of a vehicle. The green vehicle policy also outlines directions for operating, monitoring, and evaluation.

**Green Vehicle Policy Excerpt**

The goals and objectives of this policy are:

- To reduce emissions from the municipal vehicle fleet to levels that are 20% below 2006 levels by 2016 by:
  - Reducing idling
    RAD
  - Reducing single occupancy trips
  - Purchasing more efficient vehicles and fuels
  - Right-sizing vehicles
- To consider the life cycle costs of municipal vehicle operations when purchasing vehicles.
- To maximize vehicle efficiency.
- To provide a framework for lessening the environmental impact of vehicle operations that can be expanded to the larger community.

# The Step-by-Step Process

» A baseline study recommended that Dawson Creek create a green vehicle policy
» Energy reduction targets in the city's Energy Plan had to be met in part through reductions in the municipal fleet
» City planners wrote a background discussion and developed an energy baseline
» The City hired the Pembina Institute to research green vehicle policies in other jurisdictions
» Planners held consultations with local mechanics and other employees involved in running the fleet
» A draft policy was developed in February 2006, the background report was finished by mid March, another draft policy was created in April, and it was adopted by council in May at a cost of $3,500

# Drivers and Champions

**Primary Drivers**
Dawson Creek was financially motivated to adopt the green vehicle policy. The City was spending $300,000 per year on fuel for their fleet and had been actively looking for ways to reduce this cost.

**Secondary Drivers**
In addition to this, a baseline study conducted for the City noted that the creation of a green vehicle policy would reduce energy consumption, and the City's Energy Plan noted that part of Dawson Creek's energy reduction targets could be met through energy reductions in the municipal fleet.

**Enablers**
Funding has played an important role and has included:
» The Federation of Canadian Municipalities (FCM) provided $200,000 in grants for studies including: the research on green standards from other cities around the world; a cost-benefit analysis of the TGS (with funding also from Ontario Centers of Excellence;) research on Green Skills Training; cost comparison of applying TGS of a city owned facility.
» Staff training support by FCM with a $10,000 grant.

**Champions**
Dawson Creek's Director of Corporate Planning and Sustainable Community Development

## Jurisdictional Obstacles and Opportunities

**Opportunities**

» Dawson Creek Energy Plan identified the need for emission reductions to be made within the municipal fleet

**Obstacles**

» New purchasing guidelines for vehicles conflicted with the City's existing purchasing policy, so policymakers had to redefine how purchases were made

## Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

» Fuel costs increasing, energy security a concern in Dawson Creek

**Obstacles**

» Opposition from local car dealers

Municipal staff were surprised when they began to encounter resistance from the community's local car dealers regarding the policy. At the time, the majority of the City's vehicles were supplied by the local Ford dealership. The car dealers believed that the City was going to purchase only hybrids in the future, which was an issue of concern because they were not licensed to sell Ford hybrids. Several councillors with connections to these car dealers announced that they would only support the policy if there was no mandatory requirement for the purchasing of hybrids.

## Outcome

Through instituting the green vehicle policy, Dawson Creek determined that the crew cab pickup trucks they traditionally purchased would cost them $55,000 over five years. Conversely, compact SUVs cost $37,000 over the same time period. By changing their purchasing preferences, they were able to save $15,000 per vehicle. The City purchased five compact SUVs, which resulted in an overall savings of $75,000 since the policy was enacted. These savings allowed the City to purchase two hybrid vehicles as well. The community was extremely supportive of the changes, and Dawson Creek hopes to apply the life cycle costing tool to other types of vehicles, such as the procurement of heavy equipment. However, because there is no data on the emissions that equipment emits, a life cycle costing tool to guide purchasing has been difficult to implement. Eventually, life cycle costing is to be extended to the overall purchasing policy, including paper, janitorial and building-related equipment.

## Lessons Learned

» Life cycle costing may not be applicable in all situations, such as when emissions data is difficult to measure
» Community consultation should be comprehensive in order to identifying concerns that may not have been identified at the municipal level
» A green vehicle policy is a relatively easy and effective way to reduce energy consumption and operating costs for a municipality

# Applicability across Ontario

There are many Ontario municipalities that already have a green vehicle policy in place. As this case study shows, they are extremely effective for both reducing a municipality's energy consumption and operating costs. In order to ease the adoption of this policy in other Ontario municipalities, it may be beneficial for an organization like the Association of Municipalities of Ontario or the Federation of Canadian Municipalities to present the merits of the policy at a conference.

Factoring a life cycle costing tool into a policy can be more challenging because it adds to the workload of a municipality's financing department by requiring the development of a pricing scheme that adds modelled cost to a product. For instance, life cycle costing in Dawson Creek required the addition of $15 to each tonne of greenhouse gases emitted by a vehicle, but this was only done in order to factor in the price of carbon; this added cost was not paid when the City purchased their vehicles. This abstract concept may be an obstacle for some municipalities as it may be confusing and create accounting difficulties. While life cycle costing is an effective means for encouraging sustainability in municipal operations, it may only be more widely adopted if it was mandated at the provincial level.

# Municipalities with a Green Vehicle Policy

» Brampton, ON
» Seattle, WA
» Guelph, ON
» Denver, CO
» Thunder Bay, ON

# Further Information

Kevin Henderson, Director of Operations
khenderson@dawsoncreek.ca

Green Vehicle Policy:
http://digitalwest.ca/sustainability/pdf/energy_baseline_report.pdf

Dawson Creek Community Profile:
http://communities.pembina.org/partners/dawson-creek

Transportation

# Amsterdam's Mobility Policies

AMSTERDAM, THE NETHERLANDS

**Faced with widespread opposition in the 1970s toward measures aimed at promoting vehicle use, Amsterdam City Council chose to actively pursue a combination of alternative transportation policies that have reduced vehicle reliance, greenhouse gas emissions, and congestion**

## Community Profile

- Located in the west of the Netherlands in Western Europe
- The country's largest city with a population of 770,000
- The cultural and financial centre of the Netherlands
- The 'Venice of the North', characterized by many medieval streets and canals

# Mobility Policy Profile

In order to understand the changes that have occurred in Amsterdam regarding transportation, it is necessary to examine the interaction between their parking, bicycle, and public transport policies.

**Parking**

Amsterdam's parking policy began to take shape during the 1970s when parking fees were first introduced. In 1992, a referendum was held to decide how far Amsterdam should go with reducing traffic in the city centre. Car use was at an all-time high and the narrow, winding streets of the city centre were causing significant traffic and congestion problems. Residents were asked to vote for either a continuation of the current traffic policy or for a more drastic reduction in car traffic. Those supporting the continuation of existing traffic measures felt that restrictions on car use would damage the economic vitality of the city. Conversely, there was a strong push from many residents to maintain the historic legacy of the city centre. When the vote was held, 53% of voters chose to reduce car traffic. However, the narrow margin by which the car reduction scenario won prompted City Council to adopt more cautious and incremental measures, such as improvements to bicycle lanes and reductions in speed limits. Eventually, a parking policy was adopted in 1995 that reduced the overall number of spaces available and dictated when they were available and at what price. In April 2002 the Parking is Maneuvering Policy was adopted, creating a further reduction in parking spaces, an annual increase in parking fees, and a parking system that guides motorists to parking lots and spaces in order to reduce congestion. The City of Amsterdam is the recipient of these parking fees, which go to fund parking enforcement and improvements to the main networks for cars, public transport and bicycles, including parking lots and parking and travel facilities. There are also incentive programs in place to encourage people to participate in car-sharing or use public transport; for instance, City Council is actively encouraging residents to surrender their parking permits by offering a -300 ($391 CDN) subsidy.  Amsterdam has been widely cited as having the highest parking fees in the world; currently it costs -60($80 CDN) to park one's car downtown during the work day.

**Bicycle**

Measures have been in place since 1978 to encourage bicycle use in Amsterdam, such as improving the 'Hoofdnet Fiets' bicycle path network, improving and expanding cycling facilities, and removing physical obstacles within the cycling infrastructure. Amsterdam's recently developed Long-Term Policy Plan for Bicycles lays out requirements and policies for encouraging bicycle use in the City. Among other things, the Plan requires more bicycle parking facilities, the continuation of bicycle theft prevention, the completion and improvement of Hoofdnet Fiets, the promotion of bicycle traffic safety, and encouraging more non-cyclists to use bicycles.

Many immigrants to Amsterdam who are unfamiliar with the Dutch bicycling culture may not choose or know how to cycle. The City offers cycling training courses for children and is about to launch support for a number of social organizations who offer lessons to adults.

Providing safe cycling routes is an essential part of promoting cycling in the City. The City has already constructed separate bike lanes and continues to do so along busy streets. Traffic regulations are also strictly enforced to prevent accidents. This strategy has resulted in Amsterdam having one of the lowest cyclist fatality rates in the world.

The City continues to maintain and expand Hoofdnet Fiets and bicycle parking facilities. A number of these parking facilities are now manned to deter thieves. Further to this, the Amsterdam Bicycle Processing Centre is combating theft by offering to engrave bicycles with a unique code. In the event they are stolen and recovered, they can easily be identified by the owner. Recovered bicycles are held at the Centre for three months, and if they are not claimed they are sold to bicycle dealers or employment projects.

The OV-Fiets program is a bicycle rental service for those who choose to cycle to or from public transport facilities. For -2.75 ($3.60 CDN) per day, residents can rent a bicycle from a train or metro station to complete the last part of their journey. This service is available in 17 different areas of the City and has been extremely successful. Many residents choose to cycle to a metro station, park their bicycle, and rent another one at their destination station. In this way, residents do not have to worry about transporting their bicycles on public transit.

**Public Transport**

Amsterdam City Council has actively promoted and made improvements to public transit in order to provide an alternative to the high cost of parking downtown. They have done this with a number of initiatives, including the development of five Park and Ride facilities near highways and public transport stations around the City. For roughly -6 ($8 CDN), motorists can park their car and receive five free tickets for public transport.

A new metro line running from the north to the south of the City is also being constructed. The -3 billion ($3.94 billion CDN) project will transport over 200,000 people daily and provide an alternative to crowded trams and buses during rush hour. Other projects being implemented include more reliable public transport at Park and Ride locations, extending service hours to 1:00 AM, increasing frequency in rush hour and maintaining longer rush hour service, improving the flow of trams and buses downtown, improving service to industrial areas, encouraging companies to offer their employees a reduced season ticket if they leave their car at home, offering free season tickets to new Amsterdam residents, and a pilot program to offer a three month public transport pass to Amsterdam residents who return their parking permit.

**Mobility Policies Excerpt**

The policies discussed in this case study are not available in English, but there is a wealth of information on Amsterdam's transportation plans and policies online; some of this has been included in the More Information section of the case study.

# Drivers and Champions

**Primary Drivers**

The decision for Amsterdam to reduce car use and promote non-motorized transport alternatives arose during the 1970s. It was during this time that car use in Amsterdam was becoming widespread and plans had been put forth by City Council to build highways through the city centre. Faced with widespread opposition and the desire to preserve Amsterdam's historic legacy, City Council decided to support the development of alternative forms of transportation.

**Enablers**

The decision to pursue alternative forms of transportation was eased in part through the widespread use of the bicycle in Amsterdam. There are a number of reasons that Amsterdammers choose to cycle. Over 75% of residents own a bicycle, making it an easily accessible mode of transportation for many. Furthermore, cycling in the city centre is often the quickest way to travel. Many people choose to cycle as part of their health regimen, and many find it more pleasant, less stressful, and cheaper than driving or taking public transport. Amsterdam's extensive cycling network and separated bike lanes makes cycling safe, and prohibitive parking fees make it a cost-effective alternative. Lastly, the topography of Amsterdam is flat, making cycling a relatively undemanding activity for people of all ages.

**Champions**

» Amsterdam City Council
» Citizen groups promoting alternative modes of transportation in the city centre

# Jurisdictional Obstacles and Opportunities

**Opportunities**

» The national government will be introducing a road tax whereby drivers will be paying per kilometer driven
» The revenues from parking fees now go to the City and are used to fund mobility projects
» Public transport in Amsterdam is heavily subsidized by the national and regional governments

**Obstacles**

» Amsterdam wanted to introduce higher road tariffs during peak hours but were prevented from doing so by the national government

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

» Cheap alternatives to driving are already in place

**Obstacles**

» Initial opposition to increases in already high parking tariffs

# Outcome

Amsterdam's transportation policies have greatly altered the character of the city. During the past 20 years, the number of car journeys made in Amsterdam dropped by 14%. Furthermore, the number of car journeys to and from the city centre plummeted from 58,900 in 1995 to 40,100 in 2007, a 32% decrease. This reduction in car traffic did not have the negative economic effects that many feared during the 1992 referendum, as prices in the city centre for office space and housing have continued to increase.

Currently, 38% of all journeys in Amsterdam are made by bicycle; in the city centre, this number jumps to 57%. Journeys made by car dropped from 41% in 1995 to 37% in 2007, while bicycle journeys increased from 34% to 38%. During the same period, public transport use remained relatively static, dropping from 25% to 24%. On the periphery however, public transport use increased from 27% in 1995 to 29% in 2006. The relatively low figures for public transport are due to Amsterdam's high rate of bicycle use. Nevertheless, 98% of all Amsterdam residents live within 300 metres of a bus or tram stop or metro station.

Amsterdam has done much to accommodate bicycle use. There are 1500 km of road within the City, 900 km of which have speed bumps and traffic calming zones with 30 km/hour speeds. These 30 km zones will be expanded to comprise 1200 km of Amsterdam's roads. The remaining 300 km of road are distributor roads with speed limits of 50 km/hour or higher. Roads with speeds higher than 50 km/hour are prohibited for cyclists. In all, the City has more than 400 km of separate cycle track and approximately 90% of Amsterdam is safely and comfortably accessible to cyclists.

Unfortunately, Amsterdam continues to experience high levels of bicycle theft. Although steps taken against theft have reduced the number of bicycles stolen annually from 16% in 2001 to 10% in 2005, each year over 50,000 bicycles are stolen. While Amsterdam's efforts to combat theft have seen results, the City hopes to reduce bicycle theft by 40% by the end of 2010.

# Lessons Learned

- Promoting alternative forms of transportation can boost a community's economy by making it a more attractive and accessible place to do business and to visit; it also has a number of ancillary benefits, such as cost savings for residents
- A community reliant primarily on automobile-based transportation is the least sustainable and vulnerable to spikes in oil prices
- Alternative transportation infrastructure must be in place before a municipality can place restrictions on car use
- Restrictions on car use can be a source of funding for alternative transportation projects
- Funding and subsidies from national and regional governments are an essential component of building alternative transportation networks

# Applicability across Ontario

In many ways, the transportation policies of Amsterdam are difficult to replicate in Canadian communities. Canada's northern climate, varied topography, and weather extremes pose challenges to promoting transportation alternatives. Canada's culture of car reliance makes behavior change extremely difficult, especially as many Canadian communities have been built almost exclusively for car use. For many communities, sprawling development makes public transport expensive and cycling prohibitive.

There are many aspects of Amsterdam's transportation policies that could be applied in Ontario; however, broad public support is needed. The success of Amsterdam's alternative transportation policies relied on widespread public support for change. Similarly, increased funding for public transportation or cycling infrastructure will only occur if there is public demand. This could be encouraged with outreach and public education programs that highlight its many benefits.

Amsterdam's transportation policies may not be applicable to an entire city or a rural municipality, but some municipalities may be able to implement changes in dense areas. Where dense development has taken place, cycling lanes could be created, speed limits could be reduced, and public transport could be increased. However, it is essential for alternatives to be in place before car restrictions can be implemented. These changes are also more easily implemented if they are included in initial community design. As such, transportation alternatives could be tied to downtown revitalization or brownfield redevelopment projects, in addition to greenfield developments.

In order to be integrated into the Ontario landscape, funding must be available for public transit. In Amsterdam, public transit is heavily subsidized by the regional and national government. As such, fares have remained low and continuous improvements have been made to accommodate increased ridership. Unlike Amsterdam, it is likely that many Ontarians would opt for public transit over cycling due to weather concerns, topography, and distance. If extensive public transit systems were in place, restrictions on car use could be established that could eventually fund alternative transport projects and reduce the number of cars on Ontario's roads.

# Municipalities with a Green Vehicle Policy

» Curtiba, Brazil
» Portland, OR
» Vancouver, BC
» Bogota, Colombia
» New York, NY

# Further Information

Amsterdam paves the way for cyclists:
http://amsterdam.nl/aspx/download.aspx?file=/contents/pages/66753/2008-10_brochure_uk.pdf

Cycling in Amsterdam – developments and policies:
http://www.velomondial.net/velomondiall2000/PDF/LANGENBE.PDF

World Transport Policy and Practice – Amsterdam cycling:
http://www.eco-logica.co.uk/pdf/wtpp13.3.pdf

Parking is Maneuvering:
http://www.imprint-eu.org/public/Papers/imprint3_Vanderschaaf.pdf

Transportation

# Congestion Charging

THE CITY OF LONDON, UK ("THE SQUARE MILE")

**The Greater London Authority, in an effort to address climate change, poor air quality, and vehicular congestion while encouraging the increased use of public transit, and other modes of transportation, introduced a Congestion Charge in 2003, which currently costs £8 per day.**

## Community Profile

- The City of London is a  lower tier under the Greater London Authority
- 9,000 residents reside in the City and 350,000 people commute into the City for work daily
- Offices make-up over 70% of all buildings and many of them are occupied by financial and business services
- 90% of commuters travel into the City by public transport
- The City is served by an extensive public transport network with 5 mainline rail termini, 15 underground stations and 53 bus routes which also link the City to the five London airports and the Channel Tunnel rail network

# The Congestion Profile

The Congestion Charge was introduced in February 2003 by the Greater London Authority (GLA) for London's central area at the rate of £5 per day. The Charge is a daily fee for driving into a certain part of central London which is in effect between 7:00am and 6:00 pm, Monday to Friday, allowing a driver to enter, leave and re-enter the Charging zone an unlimited amount of times per day. As of July 2005 the cost increased to £8 per day and in February 2007 the £8 charge was also applied to the recently established Western Extension Zone. The fee is charged to most people entering the zone, with some exemptions or discounts to local residents, alternative fuel vehicles, motorcycles and vehicles with nine or more seats, amongst others.

Signs indicate the boundaries of the charging zone with cameras installed to read license plates upon leaving the zone. The £8 fee can be paid in advance or before midnight on the day of travel, otherwise, next day payment costs £10. If the fee is not by midnight on the next charging day, a Penalty Charge Notice may be issued for £120. Payments can be made online, by mobile phone text message, at selected shops and gas stations, by phone or by mail.

The aim of the Charge is to: reduce traffic congestion; make journeys in and out of Central London quicker; encourage other, more sustainable forms of transportation and improve poor air quality. In addition, the revenue generated from the scheme, which was £137 million, in the 2007/2008 financial year (net revenue), is used to support improvements to transit in London.

The following map indicates the boundaries of the Congestion Charge Zone as well as the perimeters of Central London:

# Drivers and Champions

**Primary**

Congestion and air quality in London are the highest in the United Kingdom with road transport contributing to Particulate Matter (PM10) and oxides of Nitrogen (NOX). London has been designated an air quality management area and an Air Quality Action Plan, 2003 has been adopted to address this issue. The concerns associated with climate change also motivated the GLA to enact a Congestion Charge.

**Champions**

» The drive to be more sustainable comes from the Central government (similar to the Canadian Federal government), the Greater London Authority and the Mayor of London, Ken Livingstone
» The Strategic Transportation Team

# Jurisdictional Obstacles and Opportunities

**Opportunities**

- Federal government encourages active travel through various policy directives
- The Environment Act 1995 (England): provides foundations for a nation-wide system of local Air Quality Management
- The Environment Act, 1995 (England): Under Part IV local authorities are required to periodically carry out a review and assessment of air quality and identify areas where air quality is unlikely to meet objectives prescribed in the Air Quality (England) Regulations 2000
- The Mayor's Transport Strategy: Congestion charging is outlined as contributing directly to the achievement of four transport priorities: to reduce congestion; to make radical improvements to bus services; to improve journey time reliability for car users; to make the distribution of goods and services more efficient.
- the Core Strategy (the local development framework) which provides policy support for the Congestion Charge

**Obstacles**

- Is regarded as politically unfavorable

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

- Critical mass and mixed land use is present in Central London which can encourage and support alternative modes of transportation
- The high cost of running private cars deters use
- The City is looking to construct new bike parking facilities possibly where they now have excess car parking due to the success of the many alternative transport related initiatives instituted by the City
- All net revenue accumulated from Congestion Charging is invested in improving transportation systems in London

**Obstacles**

- Early resistance to the proposed charge

# Outcome

**Public and Political Response**

» Before implementation this plan was widely criticized by various interest groups, including politicians, motorist groups and some labor organizations.
» The congestion pricing program has since become accepted by the public.
» In 2004, Mayor Livingstone was reelected, largely on the success of the road pricing program and his plans to expand the pricing zone.
» London First, a business group whose members account for 22% of the city's GDP, supports the city's congestion charge.
» Overall satisfaction with the service provided by Transport for London (TfL) increased to 82 percent in 2007, and compliance with the requirements of the scheme at 96 percent.

**Monitoring & Reporting**

» Transport for London and various academic organizations established a five-year monitoring program to evaluate the transport, economic, social and environmental impacts of congestion charging, and have produced annual impacts monitoring reports up to 2008.
» It is estimated that congestion charging has been directly responsible for reductions inside the original charging zone of; 8 percent in road traffic emissions of oxides of nitrogen (NOX); 7 percent in emissions of fine particulate matter (PM10), and 16 percent in emissions of carbon dioxide (CO2). However, these reductions have diminished as congestion levels increased from 2006 onwards.
» External factors, such as major road construction via the Accelerated Utility Services Renewal Programme, and pollution resulting from sources other than vehicles, contribute to the increase in pollutants and/or congestion and so identification of a clear 'congestion charging effect' is difficult to determine. Thus, the impact of congestion charging is best assessed by looking at the position with and without the scheme, rather than comparing current circumstances with what happened before the scheme was introduced.

**Increased Transportation**

» In relation to the original central London charging zone, TfL's Fifth Annual Impacts Monitoring Report, 2008 found significant increases and improvement to bus network capacity and patronage. TfL estimated that congestion charging in central London was responsible for up to one-half of the bus patronage increases seen over the period 2002-2003.
» A surplus in car parking has resulted from the Congestion Charge and a deficit in the amount of bicycle parking has resulted.

**Safety**

» TfL estimated that the charging scheme had contributed to a reduction of between 40 and 70 collisions involving personal injury per year in the central London charging zone.

**Future Directions**

» The current Mayor of London, Boris Johnson, published the new Transport Strategy in 2010 which provides for several recommended changes to the Congestion Charge, a sample of which include:
» The Western Extension of the central London Congestion Charging zone will be removed
» An increase in the level of charge
» The introduction of an automated payment method

## Lessons Learned

» While politically and publically unpopular and controversial in the beginning, the majority of residents, commuters, businesses and politicians now support the charge which has been documented via surveys conducted by the City.

» Road charges are an effective way of reducing urban traffic congestion but must be used in combination with alternative transportation investments.

## Applicability across Ontario

Obstacles identified for this policy were the politically sensitive nature of implementing it as well as the considerable economic development challenges. Additionally, it would require long-term planning and timelines; a large amount of public consultation and education; and competing priorities may make it difficult to implement.

While significant public transit improvements would be required, considerable revenue would be generated from a Congestion Charge (and/or road tolling), Congestion Charge related fines, and increased transit ridership, with additional benefits associated with enhanced air quality and health implications. Creating more opportunities for public transit is also seen as being politically popular. This policy is most suitable to a large municipality or region like the GTA, for example. The City of Toronto Act includes provisions for road tolling within s.116 which outlines the following:

116. (1) The Lieutenant Governor in Council may make regulations providing for any matters which, in the opinion of the Lieutenant Governor in Council, are necessary or desirable for the purposes of section 41, including,
(a) requiring the City to obtain the approval of any person or body before designating, operating or maintaining a highway as a toll highway;
(b) providing for criteria which must be met before the City can designate, operate or maintain a highway as a toll highway;
(c) imposing conditions and limitations on the powers of the City to designate, operate or maintain a highway as a toll highway;
(d) granting the City additional powers with respect to the operation and maintenance of a toll highway, including powers with respect to the collection and enforcement of tolls imposed for the use of a toll highway;
(e) without limiting clause (d), providing that the provisions of the Capital Investment Plan Act, 1993 and the regulations under that Act which relate to toll highways apply to the City with such changes as are prescribed;
(f) establishing process requirements with respect to the designation, operation and maintenance of a highway as a toll highway, including requiring the City to provide notice to the Minister of Municipal Affairs and Housing or any other person or body of its intention to designate a highway as a toll highway;
(g) providing that the Minister of Municipal Affairs and Housing or any other person or body who receives notice under clause (f) may prohibit the City from making the designation even though the designation is otherwise authorized under the regulation. 2006, c. 11, Sched. A, s. 116 (1).

The Environmental Commissioner of Ontario (ECO), Gord Miller, supports road pricing either in the form of congestion charges or tolls documented in the report entitled Annual Greenhouse Gas Progress Report 2010: Broadening Ontario's Climate Change Policy Agenda. With the government's recent statement that it will withhold $4 billion in GTA transit funding and with an opportunity to address the largest source of GHG emissions (the transportation sector), road pricing appears to be a viable opportunity. While Metrolinx regional transit agency is planning and encouraging a modal shift (final plan expected June 2013), the ECO indicates that targets should be more challenging than what they are proposing. In addition, the ECO recommends encouraging a modal shift in a similar manner to London, England, by investing the funds associated with road pricing into public transportation.

# Further Information

Transport for London (TfL): Colin Shepherd
Email: colinshepherd@tfl.gov.uk

Transport for London: Congestion Charging
http://www.tfl.gov.uk/roadusers/congestioncharging/

# Buildings

Featured Case Studies

## Iqaluit's Green Building Standards for New Subdivisions

## East Guillimbury's Energy Star Standards for New Homes

## Whitehorse's Secondary Suites

Building

# Green Building Standards for New Subdivisions

PLATEAU SUBDIVISION - IQALUIT, NU

**In 2004, faced with a limited amount of developable land, rapidly growing population, and increasing costs to provide infrastructure services, Iqaluit's City Council enacted a policy that outlined rigorous green building standards for new subdivisions, despite opposition from a number of residents**

## Community Profile

- Nunavut's capital city, located at the mouth of Frobisher Bay on Baffin Island
- Population of 7,000, but its role as a government and administrative centre has sparked rapid population growth; predictions indicate there will be 13,000 residents by 2030
- It is Canada's fastest growing and youngest community with roughly 60 percent of the population under the age of 25
- Its Arctic location, rapid growth, and young population pose unique challenges for the city's infrastructure and have generated a strong demand for new housing stock
- Nunavut's energy is entirely supplied by imported fossil fuels and each community is powered by diesel generators; construction challenges, remote location, and small population render long distance high voltage grids unviable

# Green Building Standards for New Subdivisions Profile

Green building standards are increasingly being employed by municipalities as a way to reduce the environmental impact of new developments by taking into account such concerns as energy efficiency, types of construction materials, and water conservation. While some Canadian municipalities use green building standards rating systems, others have created their own standards. The Plateau Subdivision was the first subdivision in Iqaluit to incorporate green building standards developed by the City. To more effectively reduce the exposure of the subdivision to wind and to minimize snow-drifting, the subdivision was designed so that the main roads are oriented along the same axis as the dominant winds. As a result, less snow-plowing is needed and fewer emissions are produced. In order to bring down the overall footprint of the subdivision, the size for the minimum lot area was reduced. In addition to maximizing the use of the land, smaller lot sizes made the installation of infrastructure and the delivery of municipal services more efficient. Homes were fitted with low flush toilets, faucets, and showerheads, triple glazed windows for increased efficiency, and faced southward to take advantage of passive solar heating. Furthermore, a number of lots were allocated for the construction of R-2000 certified homes, a performance-based standard that reduces in-home energy use by 30%. The subdivision has approximately 300 units built in three phases: Phase 1, completed in 2005, cost $5.5 million, Phase 2, completed in 2007, cost $4.6 million, and Phase 3, which will be developed during the summer of 2010, is estimated at $5.9 million. Funding for the development of the subdivision came from the City's Land Development Fund; however, the majority of the amount was borrowed. The cost of developing the subdivision is recovered by the City through the leasing of the lots, as land is not sold in Nunavut.

**Green Building Standards for New Subdivisions Excerpt**

**Building Design**

- Wind exposed buildings should be designed to allow wind to flow underneath the building to avoid snow drifting directly against building faces (i.e. no solid skirting or enclosed storage below buildings). Exceptions may be granted by the Development Officer where the applicant can demonstrate through a snow study that downwind effects are minimized through site layout and building design.
- A wind study shall be required for all buildings three or more storeys in height, or with a length greater than 25m, or with a gross floor area greater than 500m2.
- Buildings shall be designed to respect and respond to the topography of the site. Stepping of the building to reduce massing and excessive pile height will be required.
- Residential units shall be encouraged to maximize solar exposure and views to the sea in active areas (such as the living room and kitchen). Passive areas in which light, views and heat are less important (such as storage areas, utility rooms, and bedrooms) should be located towards the building's northern facades. Avoid placement of accessory buildings in front of south-facing windows, where possible.
- All ground-oriented residential development shall incorporate wind lock entries (vestibules) into dwelling unit design to help prevent energy loss and to provide storage space, particularly to support land-based economy activities.
- Multi-family buildings may not use an interior corridor to double load units on either side of the corridor to ensure there are no north facing units. Common stair accesses will be encouraged.

**Building Systems**

- All windows installed must be ENERGY STAR ® qualified windows under the Natural Resources Canada (NRCan) EnerGuide Program.
- All buildings will use the following water saving devices:
  - o All toilets to be water-saver or ultra-low flush toilet units using 6 litres/flush (1.3 imp. gal./flush) or less.
  - o All showerheads to be low-flow showerheads using 9.8 litres/min. (2.2 imp. gal./min.) or less when tested at 551 kPa (80 psi).
  - o All washroom and kitchen faucets to use 8.3 litres/min. (1.8 imp. gal./min.) or less when tested at 413 kPa (60 psi).
- All buildings will use oil-fired water heaters instead of electric water heaters.
- All buildings will use Heat Recovery Ventilators (HRV) as a ventilation standard.
- No buildings shall be permitted to have electric baseboard heating as the primary heating system.
- Development may consider alternative servicing arrangements where feasible and subject to the approval of the Director of Engineering.

## The Step-by-Step Process

- Council initiated a feasibility study in order to determine the costs associated with incorporating sustainability principles into their development practices; this took roughly one year at a cost of $100,000
- As part of the feasibility study, forty people were invited to attend a three-day design charrette in order to define sustainability in an Arctic context
- Twenty participants were local stakeholders involved in the housing industry, including contractors, engineers, and architects, and twenty participants were government and building industry representatives from southern Canada with experience in designing sustainable communities
- Consultants were hired to develop a background report for charrette participants, including a housing needs assessment that concluded that the dwindling supply of housing lots and an increase in apartment building had created a need for new single family lots
- The charrette included a meeting with elders in order for participants to learn about how they lived on the land, the changes they had seen in their lives, and what would improve the quality of life for Arctic residents
- Following the results of the charrette and feasibility study, a team of consultants prepared a development scheme that illustrated how the subdivision could be developed following sustainable development principles
- These principles led to the development of building standards that were adopted by by-law

# Drivers and Champions

**Primary Drivers**

In 2004, city planners in Iqaluit recognized the need for a new subdivision in order to accommodate the rapidly growing population. However, they also recognized a number of issues facing this project. Planners and councillors felt that Iqaluit's viability as a city was threatened by the negative consequences of both urban sprawl and climate change. Despite the large amount of land available to Iqaluit, only a small portion of it is suitable for development. The issue of developable land was further affected by rising Arctic temperatures and changes in the permafrost upon which Iqaluit sits. Furthermore, the cost of running services to sprawling areas had become increasingly expensive.

**Champions**

» Iqaluit's planning department recognized these challenges and recommended to City Council that new developments incorporate sustainability principle.
» City Council felt that adopting sustainability principles regarding new subdivisions was both a prudent and long-term approach to city planning

# Jurisdictional Obstacles and Opportunities

**Opportunities**

» It was necessary to amend the general plan and zoning bylaw to include the new regulations for lot sizes, set backs, density and the new development standards

**Obstacles**

» None

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

» Housing Assessment indicated a need for a new subdivision
» Arctic location called attention to climate change issues, need for sustainable development
» Shortage of developable land at an affordable price in Iqaluit has necessitated more dense and sustainable development

**Obstacles**

» Many residents did not want smaller lot sizes
» Lack of R-2000 certified builders in the north
» Higher up-front cost of a R-2000 home

Despite support from City Council, many of Iqaluit's residents were displeased with the fact that the subdivision included reduced lot sizes, fewer single-family lots, and more medium density lots. In the past, homes in Iqaluit were typically been built on large, single-family lots to accommodate the unique northern lifestyle, such as providing ample space for winter vehicles and storing hunting and fishing gear. Even the majority of those that do not practice traditional activities preferred the model based on larger, single-family lots because they felt that it was more in keeping with a northern lifestyle.

To address the resistance the City faced when it opened discussions regarding the need to develop in a more sustainable way, it organized numerous community meetings. The meetings provided the opportunity for residents to voice their concerns and for city planners to submit planning ideas for residents to consider. Given the community's strong tradition of active participation in decision-making, they were well-attended by 40 to 60 individuals. The majority of residents did not support the new subdivision design.

In addition to community pushback, city planners encountered difficulties with implementing the R-2000 requirement because Iqaluit lacked contractors certified to build R-2000 homes, as well as people qualified to inspect them. Until the construction of the Plateau Subdivision, there had been little demand in northern Canada for building projects to be R-2000-certified. Consequently, northern contractors did not have the required skills and training to build R-2000 homes. In response to this, the City paid for their training.

Designating a number of single family lots for R-2000 homes was another point of contention between the City and residents. While councillors strongly supported the idea, the majority of residents were reluctant to pay 4-5% more than they would for a traditional home despite the demonstrated annual energy savings and payback of a few years. Seven lots were designated R-2000 in each of the first two phases. However, when discussing the development of the third phase in February 2010, Council increased the number of lots requiring R-2000 homes from seven to 28. This time, there was no resistance from the public.

## Outcome

Community opinion of the subdivision has changed drastically in the six years since construction first began. The majority of residents are now accepting and supportive of the new building requirements. In fact, the single family lots in all phases of the subdivision sold out immediately. Because of the high demand for single-family lots, they were disposed of by ballot. While there is still not an overwhelming demand for R-2000 homes today, they are no longer seen as a drawback. Local contractors, who were also initially resistant to embracing the concept of R-2000 homes, have warmed to the idea. City planners are embarking on the development scheme for a new subdivision in 2010 and plan to incorporate the lessons learned from the Plateau Subdivision.

## Lessons Learned

» Political will in the face of opposition drove the creation and implementation of this policy
» Stakeholder consultation was an essential part of identifying community-specific issues
» Holding public meetings and workshops promoted transparency and education, which in turned helped changed public opinion toward the policy
» Municipalities should budget for hiring consultants and providing skills training, especially in areas where local capacity to adopt the requirements of the policy may be lacking
» When reluctance to pay a higher upfront cost for energy efficient homes is encountered, it might be overcome with incentives or loan programs

## Applicability across Ontario

The foremost obstacle for Ontario municipalities in implementing a policy of this kind is the view that municipalities are unable to enact more stringent building standards than those included in the Ontario Building Code. There have been communities in Ontario that have chosen to enact stricter building standards despite this, and proponents argue that municipalities do, in fact, have the ability to do this without the validity of such a policy being called into question. For more information on this issue, see the East Gwillimbury Energy Star Policy case study on page xx.

Communities that chose to enact more stringent standards than the ones required in the OBC could experience significant pushback from developers unhappy with the resultant increase in building costs. The most effective way of combating this problem is for several leading communities to enact stricter standards and create pressure for reform of the OBC. Standards could be made voluntary at first, giving the industry time to adapt before they became mandatory. Incentive programs could be put in place if the cost of following regulations was too onerous for developers. However, some policymakers have noted that, regardless of an overhaul of the OBC, some communities may have problems with inadequate inspection and enforcement of building regulations.

## Municipalities with Green Building Policies

» San Jose, CA
» Canmore, AB
» Ottawa, ON
» Saanich, BC
» Toronto, ON

## Further Information

Michèle Bertol – Senior Director, Planning and Lands
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Plateau Subdivision Development Scheme:
http://www.city.iqaluit.nu.ca/i18n/english/pdf/Plateau%20Subdivision%20Development%20Scheme%20Oct%202004.pdf

Feasibility Study regarding the construction of the Plateau Subdivision:
http://www.city.iqaluit.nu.ca/i18n/english/pdf/Feasibility%20Study.pdf

Press Release and Backgrounder:
http://www.city.iqaluit.nu.ca/i18n/english/pdf/Pree%20release.pdf

Building

# Energy Star Policy for Residential Developments

EAST GWILLIMBURY, ON

**Stemming from concerns over energy costs, security, and sustainable development, in 2006 East Gwillimbury became the first municipality in Canada to require that all new residential developments meet Energy Star standards**

## Community Profile

- Located 30 minutes north of Toronto in York Region
- Population of 23,000
- Comprised of three villages with a combination of urban, semi urban, and rural areas
- Designated as a Growth Municipality under the Places to Grow Act – population projections indicate it will grow from 23,000 to 40,000 by 2016, and to 88,000 by 2031

# Energy Star Policy for Residential Developments Profile

In 2006, East Gwillimbury became the first municipality in Canada to require that all new residential developments meet Energy Star standards. According to Natural Resources Canada, Energy Star homes are roughly 30% more energy efficient than a home built to minimum Ontario Building Code standards. As part of the Energy Star requirements, upgrades may be made to a home's insulation, ventilation, windows, or heat, hot water, and air conditioning systems. The certification of homes is overseen by Natural Resources Canada's Office of Energy Efficiency.

In order to achieve full compliance, Council linked the policy to the subdivision approval process and its policy for the assignment of water and sewers servicing capacity. This requires a signed commitment from the developer to comply with the standards before they can proceed to plan registration and building permits. Before an occupancy permit is issued, the home must be Energy Star certified by an Energy Star qualified inspector. Once this process is complete, the inspector will issue an Energy Star label for the builder to attach to the home.

**Energy Star Policy for Residential Developments Excerpt**

**"That the Town of East Gwillimbury adopt a comprehensive policy requiring that all new residential development requiring either Site Plan or Subdivision approval under Sections 41 or 50 of the Planning Act, shall satisfy the requirement for Energy Star accreditation, and that such minimum standards be included in all ongoing and proposed initiatives (Official Plan, Design Criteria Manual, etc.)"**

# The Step-by-Step Process

» Council reviewed criteria and green building rating systems as part of the subdivision approval process
» After examining the various green building rating systems currently in use in Canada, they concluded that the Energy Star label had the most traction in the Ontario marketplace and was most relevant to East Gwillimbury's development because it targeted production housing
» Further to this, Council had focused discussions with both EnerQuality Corporation and Natural Resources Canada, who administers and promotes the Energy Star program in Ontario through the EnerQuality Corporation
» The Town, in conjunction with representatives from EnerQuality Corporation, worked with local builders to provide education and training to build homes to the Energy Star standard
» Council linked the policy to the subdivision approval process to ensure compliance

# Drivers and Champions

**Primary Drivers**
In 2005, East Gwillimbury was identified as a growth area in Ontario's Places to Grow Act, the province's framework for designating growth areas in the Greater Golden Horseshoe. Based on this designation, East Gwillimbury's population is expected to almost double by 2016. This forecasted growth, combined with Town Councillors' concerns about energy security stemming from the August 2003 blackout and rising energy costs, generated interest in developing sustainably.

**Secondary Drivers**
Council saw an opportunity to act after town planners began work on a detailed planning area in order to place architectural design requirements on housing in high visibility neighbourhoods. Council felt that building requirements should not be limited to the exterior of a house and decided that energy efficiency requirements should be attached to all new residential developments.

**Champions**
East Gwillimbury's mayor and council

# Jurisdictional Obstacles and Opportunities

**Opportunities**

» East Gwillimbury's jurisdiction over servicing capacity enabled them to link the policy to the subdivision approval process

**Obstacles**

» Differing views on whether energy conservations standards more stringent than those in the Ontario Building Code are subject to challenge

The foremost obstacle to instituting stricter municipal building standards than those included in the Ontario Building Code is the view that their validity could be challenged. However, others believe that municipalities are able to enact stricter standards due to recent changes to the Municipal Act and the decisions by the Supreme Court of Canada and the Ontario Court of Appeal in CropLife v. Hudson and CropLife v. Toronto respectively. Proponents of this view believe that municipalities would be able to enact stricter standards, provided they do not directly conflict with the Ontario Building Code. For further discussion on this topic, please see the Regulatory and Program Landscape in Ontario on page xx.

In terms of opportunities, Councillors were able to link the policy to the subdivision approval process because they control how the municipality assigns servicing capacity. As a result, they were able to set up the criteria under which they chose to approve servicing for developers. This review process also ensures compliance with the policy.

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

» Rapid growth in areas of population and employment
» Mayor and Council eager to encourage sustainable development
» Canada Mortgage and Housing Corporation gives a 10% refund on its mortgage loan insurance premium to homeowners who purchase or build an energy efficient home
» Interest from homebuyers regarding energy efficient housing

**Obstacles**

» Initial resistance from developers and builders concerned about competition with others using the lower Ontario Building Code standards
» The cost of building in East Gwillimbury is higher than in other communities
» Building industry not necessarily equipped to deliver Energy Star home construction

Upon enacting the new standards, the Town experienced some initial resistance from developers who would have to spend roughly $5-7,000 more in building costs in order to comply. The Town attempted to counter this by providing skills training and assuring developers that the new standards would apply equitably to all developers in the community. This, combined with the fact that the Ontario Building Code will be upgrading its building standards by 2012, contributed to the widespread acceptance of the policy.

# Outcome

East Gwillimbury has achieved success with the implementation of the Energy Star policy. Although they are projected to grow over the next 10 years, the Town estimates that energy costs will be reduced and 14,000 fewer tonnes of greenhouse gas emissions will be emitted relative to the Ontario Building Code standards. Consequently, homebuyers interested in energy efficient housing have begun to recognize the Town as a green leader and preferred place to locate. East Gwillimbury has also been recognized as a green leader by other municipalities; within the Region of York, the Town of Newmarket and the City of Vaughan have both adopted policies similar to the Energy Star policy.

# Lessons Learned

» Political will was an important driver for adopting the Energy Star policy
» In order to develop capacity to build Energy Star homes, the Town had to budget for training and consulting purposes
» Educating and providing training to local builders and developers encouraged them to become voluntary leaders in their field and garnered support for the policy
» The perceived conflict between enacting stricter standards than those required in the Ontario Building Code has become a significant issue that has discouraged many municipalities enacting their own standards for energy efficiency

# Applicability across Ontario

Municipalities have a strong case for implementing stringent building standards. The Provincial Policy Statement states that there is a need to consider energy planning in new development. The PPS guides the development of Municipal Official Plans, which in turn informs policy development at the municipal level. In this way, municipalities can justify the inclusion of stringent building standards for new developments in their community. Furthermore, appellate Courts are likely to find the municipal requirements to be valid and the Building Code to be the minimum standard as long as builders are able to comply with both the municipal requirements and the Building Code. The challenge to implementing this type of policy remains the view that its validity could be contested. Policymakers or councillors may be reluctant to 'test the waters', but this concern will likely abate as more municipalities create policies like this one.

# Municipalities with a Green Building Policy

» Banff, AB
» Toronto, ON
» Moncton, NB
» Kingston, ON
» Portland, OR

# Further Information

Dan Stone, Manager of Policy Planning
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(905)-478-4282 ext.3806

Planning Report – Staged Implementation of Strategic Energy Initiatives:
http://www.eastgwillimbury.ca/Assets/Town+Hall/Branches/Development+and+Legal+Services/DLS+Report+2006-24.pdf

Building

# Zoning to Allow Secondary Suites

WHITEHORSE, YT

**In an effort to maintain Whitehorse's vibrant downtown, maintain 50% of land for park space and address a vacancy rate of 2%, the City further solidified their secondary suite policies in the new Official Community Plan (OCP), 2010, building upon provisions in the previous OCP and Zoning Code.**

## Community Profile

- As of June 2008, the population of Whitehorse was 24,890
- Whitehorse is a contemporary city and the government and business centre for the Yukon
- Tourism has become a major source of economic growth for Whitehorse
- Whitehorse is located above the 60th parallel, experiencing 5.5 hours of daylight on the shortest day in the winter and 21 hours of sunlight on the longest day in the summer

# Secondary Suites

Zoning is a key regulation for creating mixed uses and for intensifying development, as identified in the Official Plan or Official Community Plan of a municipality. Zoning can include regulations for secondary suites which are self-contained units within another residential building, often located in the basement or ground floor of a residence or in detached accessory buildings. In Whitehorse, secondary suites provide affordable housing options while retaining the character of existing neigbhourhoods and they facilitate a critical density in order to support public transit as well as local services and shops. In this way, secondary suites can contribute to energy efficiency by utilizing available infrastructure and by consuming less land as well as achieving GHG emission reductions via access to connected public transit.

**Official Community Plan (OCP) Excerpts:**

The 2010 Official Community Plan, as it relates to Secondary Suites has been slightly modified from the 2002 OCP, which will now allow for secondary suites in detached accessory buildings.

2010 OCP draft: Objective 11:

11.4 Secondary Suites
1. Secondary suites may be permitted in single-detached and duplex dwellings that are contained on separately-titled lots. Zoning shall determine minimum lot size, parking and other regulations.(2002 OCP Policy 7.3.1; Proposed Change 21)
2. It is recognized that some secondary suites are illegal due to local zoning regulations and/or building code infractions. The City may consider legalizing existing secondary suites on a case by- case basis if the buildings are brought up to National Building Code standards. This may include consultation with neighbouring residents. (2002 OCP Policy 7.3.2; Proposed Change 58)
3. Secondary suites located in detached accessory buildings are permitted in all Residential designations. Minimum lot size, maximum suite size, parking, and other regulations, shall be determined through zoning.(2002 OCP Policy 7.3.3; Proposed Change 21)

# The Step-by-Step Process

» In the late1990's the City embarked upon a 5 year campaign to legalize Secondary Suites and to encourage their adoption in new developments.
» In 1997, secondary suites became a defined use.
» In 2002, policy statements were included in the Official Community Plan, specifically permitting secondary suites, however generally excluding secondary suites in detached accessory buildings.
» In 2004 The City of Whitehorse introduced their Local Action Plan (LAP) to Reduce Energy and Greenhouse Gas Emissions for City Operations and the Community in which 12 actions were proposed, one being to remove disincentives for developing secondary suites in existing homes by:
» Reviewing the zoning bylaws that restrict the development of secondary suites
» Removing Development Cost Charge (DCC) Fee of $1,500 that is currently required to subdivide and create secondary suites.
» In 2006, Consolidations of the City of Whitehorse Zoning Bylaw 2006-01 addressed Secondary Suites as a method of intensifying.
» The City of Whitehorse Downtown Plan 2007, builds upon the OCP and governs the City's zoning regulations downtown. Section 3.1, highlights the need to maintain and build upon the established residential communities downtown, recommending a range of housing types, to a wide range of incomes.
» The 2010 Official Community Plan has been released in draft form and includes a number of policy statements regarding secondary suites which have been upgraded from the 2002 OCP.

# Drivers and Champions

**Primary:**
The City of Whitehorse is trying to retain their well functioning, vibrant downtown while pursuing the OCP requirement of maintaining 50% of Whitehorse as park space. In addition to these drivers, the City has a residential unit vacancy rate of 2% which motivates them to provide additional housing options downtown.

**Secondary:**
Since Whitehorse can experience less than 6 hours of sunlight during the winter months, "shadow effect" is a problem which is addressed by building 4 story buildings or under, thereby further illustrating the need for secondary suites and intensification in general.

**Champions:**
» The City planning staff operated as a facilitator for secondary suite zoning
» The Council was supportive
» The Yukon Conservation Society, the Downtown Urban Gardeners Society, and other community groups
» "Collaborative planning" has been the overarching model for the City of Whitehorse since 2006 so the community was engaged and involved throughout the various processes and for the new OCP 2010

# Jurisdictional Obstacles and Opportunities

**Opportunities**

- 90% of the land is owned by Yukon government so there is a lot of control over land development
- Commitment by Whitehorse to decrease rural residential settlement
- The City is well serviced by public transit and could be improved with increased population density
- Complete communities are being pursued by the City
- The City acknowledges the difficulty and costs associated with retrofitting existing homes to create legal secondary suites so they are allowing many of them to be grandfathered in as non-conforming uses and removing the DCC fee associated with them

**Obstacles**

- 
- Under the Yukon Quartz Mining Act, mineral exploration staking still occurs throughout the City, making development and planning difficult

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

- The downtown of Whitehorse is compacted or bounded by Schwatka Lake to the East, further encouraging dense development
- The City is vibrant, historical and comprises a mix of uses, making it a desirable place to live

**Obstacles**

- 
- Some Whitehorse residents prefer a small scale, small town built form and since “shadow effect” is prevalent throughout the winter, the City has a 4 story building height limit
- Whitehorse is recognized as a wilderness city and so, planning staff have experienced some opposition to changing that ideology by infilling
- While there is a willingness to adopt the building standards for secondary suites, the expertise is taking time to develop
- Parking issues arise as intensification increases but can be overcome by zoning provisions to require additional parking space

# Outcome

Public support, regardless of a dominant cultural ideology associated with a wilderness ethic, has advanced the policy support for secondary suites. Not only do they offer a range of housing types to a range of incomes, they help to intensify the downtown so that residents are using the infrastructure already available as well as supporting public transit in order to reduce personal vehicle use. The campaign to encourage secondary suites and the policy provisions to support them have been successful and now most building applications incorporate a secondary suite.

# Lessons Learned

» Community buy-in has been integral to the process of intensifying and changing the way new homes are built, acknowledged by the City which now operates guided by a collaborative planning approach

# Applicability across Ontario

Some municipalities allow secondary suites but often, they are permitted in selected neighbourhoods only. Regardless, many secondary suites are created illegally or are not declared so that homeowners can forgo costs associated with secondary suites such as bringing the suite up to code or to avoid paying income tax on rental revenue.

In 1994, Ontario Municipalities were required by the Province to permit secondary suites “as-of-right” in all single and semi-detached housing in accordance with all building, fire and property standards however in 1995 the Act was rescinded. Now, each individual municipality is able to determine if secondary suites will be permitted. Toronto, in 1999, approved secondary suites as-of-right in all single and semi-detached housing as a way of intensifying and to meet growing demands for housing. Rental vacancy rates in Toronto around this time were .9% but rose up to 3.9% in 2003, the latest documented date. The City intends to establish a “healthy” vacancy rate of 2.5% which is encouraged by Canada Mortgage and Housing Corporation (CMHC). With the population of the Greater Toronto Area forecast to grow by 2.6 million people by 2031 and driven by a commitment to sustainable development, secondary suites may be a progressive tool to address these goals.

In municipalities where secondary suites are generally not permitted, such as low density areas in Brampton and London, Ontario, special zoning bylaws have been developed, and used on a case by case basis.

In order to encourage secondary suite development or to create incentive for bringing secondary suites in to alignment with the Building Code, governments may provide interest-free loans and forgivable grants. One example is the Ontario Residential Rehabilitation Assistance Program (RRAP) provided by the Canada Mortgage and Housing Corporation (CMHC) which provides funds for the creation of secondary suites for the use by low-income seniors and disabled adults, for example. The City of Toronto delivers RRAP funding to eligible property owners subject to available funding.

A sample of the Revised Draft of the City of Toronto's New Zoning By-law, May 10, 2010 regarding Secondary Suites, is provided below:

Chapter 150: Specific Use Regulations (150.10 Secondary Suite)

**Secondary Suite - Number Permitted in a Detached House or Semi-Detached House:**

» Within a detached house or semi-detached house, each dwelling unit may have a maximum of one secondary suite.

**Secondary Suite - Number Permitted in a Townhouse in an R Zone:**

» In a R Zone, a dwelling unit in a townhouse may have a maximum of one secondary suite.

**Secondary Suite - Number Permitted in a Detached House in an R Zone Other Than R(u2):**

» Despite 150.10.20 (1), in an R zone other than R(u2), a building originally constructed as a detached house may be converted to contain 2 or more secondary suites, if the conversion does not result in any change to the lot.

**Secondary Suite - Permission in a Legal Non-conforming Detached House or Semi-Detached House:**

» A secondary suite is permitted within an existing legal non-conforming detached house or semi-detached house, if:
  » all applicable secondary suite regulations are met; and
  » there is no expansion or enlargement of the non-conforming use.

# Other municipalities using this type of tool:

» The City of North Vancouver, British Columbia
» The City of Vancouver, British Columbia
» The City of Toronto, Ontario
» Langley, British Columbia

# Further Information

Whitehorse Long Range Planning
planning.services@whitehorse.ca
(867) 668-8346

City of Toronto (RRAP)
Housing Improvement Programs
416 392-2489
rrap@toronto.ca

Planning and Growth Management Committee
e-mail: pgmc@toronto.ca

City of Whitehorse: Local Action Plan for Climate Change
http://www.city.whitehorse.yk.ca/index.asp?Type=B_BASIC&SEC={4107BA9A-F21B-4308-B0B7-F2C168ADBCC0}

Proposed Zoning Bylaw: Secondary Suite, City of Toronto
http://www.toronto.ca/zoning/bylaw/ZBL_NewProvision_Chapter150_10.htm

# Infrastructure

Featured Case Studies

## Whistler's Carbon Tax Rebate Policy

## Victoria's Tax Exemption Revitalization Bylaw

## Portland's "Green Bundle"

Infrastructure

# Carbon Neutral Operations Plan/Carbon Tax Rebate Policy

WHISTLER, BC

After signing the British Columbia Climate Action Charter in 2007, the Resort Municipality of Whistler (RMOW) pledged to become carbon neutral in its operations by 2010. This goal will be achieved through a Carbon Tax Rebate Policy, which helps fund emission reduction projects across corporate operations.

## Community Profile

- Located in the Coast Mountains roughly 120 km north of Vancouver
- 10,000 residents and over 2 million visitors annually
- Community depends on stable snow and weather patterns for tourism revenue
- Host of the 2010 Olympic and Paralympic Winter Games

# Carbon Neutral Operations Plan/Carbon Tax Rebate Policy Profile

Whistler's Carbon Neutral Operations Plan was developed to help meet the requirements of the British Columbia Climate Action Charter. Upon signing the Climate Action Charter in 2007, Whistler voluntarily committed themselves to becoming climate neutral in their operations by 2012. Whistler took their commitment one step further by pledging carbon neutrality by 2010. In order to achieve this, Whistler measures greenhouse gas emissions from their municipal operations and reduces them to net zero. This is done through a combination of in-house emissions reductions and the purchasing of third party-verified, high quality carbon offsets. Of these offsets, fifty percent are purchased from the Pacific Carbon Trust, a provincial Crown corporation that certifies and purchases offsets in BC, and the remaining fifty percent are Gold Standard certified offsets from overseas projects. In addition to this, the Carbon Neutral Operations Plan requires Whistler to maintain a detailed inventory of energy use for each municipal department.

An integral part of Whistler's Carbon Neutral Operations Plan is the Carbon Tax Rebate Policy. This policy serves to distribute the municipal government's carbon tax annual rebate from the Climate Action Revenue Incentive Program (CARIP), which was established in 2008 after the Government of British Columbia announced it would refund the costs of the newly enacted provincial carbon tax to municipalities that had signed the Climate Action Charter. As one of the first municipalities to sign the Charter, RMOW receives an annual CARIP rebate equal to its annual direct corporate expenditures on the carbon tax. In Whistler, the CARIP rebate is distributed through their Climate Action Innovation Fund, which provides funding for emissions reductions projects. The policy dictates that fifty percent of the CARIP rebate finance emission reduction activities in municipal operations, while the remaining fifty percent be distributed to non-profit organizations that work to build emission reduction capacity in Whistler's commercial sector.

**Carbon Tax Rebate Policy Excerpt**

3.1. The RMOW will only deploy CARIP funds to initiatives that will predictably reduce RMOW corporate and/or the Whistler commercial sector's greenhouse gas emissions.

3.2. The RMOW will ensure that CARIP funds are not deployed to purchase fossil fuels, to directly offset the ongoing annual costs of carbon taxation, or to purchase of carbon offsets.

3.2.1. 50% of the annual CARIP rebate will be directed to support emission reduction initiatives internal to RMOW operations.

3.2.2. 50% of the annual CARIP rebate will be directed to non-profit organizations or societies based within the municipality in order to support initiatives that seek to build emission reduction capacity in the commercial sector of the Whistler community.

# The Step-by-Step Process

» Whistler signs the BC Climate Action Charter, committing themselves to achieve carbon neutrality in their operations by 2012
» Province of BC agrees to refund the carbon tax to municipalities
» RMOW staff and Council decide to formally direct carbon tax rebates to provide funds for emission reduction projects both internally and within the community
» Staff given mandate from Whistler's mayor to write a plan with aggressive targets that exceed those outlined in the BC Climate Action Charter
» Because the policy was an internal one and did not require broad public consultation, it was completed and sent to council for approval within two to three months

# Drivers and Champions

**Primary Drivers**
The signing of the Climate Action Charter drove the creation of the carbon Neutral Operations Plan by requiring its signatories to be carbon neutral in their municipal operations. Further to this, the BC CARIP led to the creation of Whistler's Carbon Tax Rebate Policy by refunding the cost of the carbon tax to any municipality that signed the Climate Action Charter.

**Champions**
The primary champion of the Carbon Neutral Operations Plan was Whistler's mayor, who directed staff to create an aggressive carbon neutral plan that would precede the Climate Action Charter's target by two years.

# Jurisdictional Obstacles and Opportunities

**Opportunities**

- BC Climate Action Charter
- BC Carbon Tax
- Green Communities Act, 2008 (Bill 27)
- Greenhouse Gas Reduction Targets Act
- BC Climate Action Plan

**Obstacles**

- Political challenges associated with offset purchases

Besides the opportunities provided by the BC Climate Action Charter and provincial carbon tax, there are three other pieces of provincial legislation that promote and support emissions reduction initiatives in the province. The Green Communities Act, enacted in 2008, requires local governments in BC to include greenhouse gas emission targets, policies, and actions in their Official Community Plans and Regional Growth Strategies. Under this legislation, local governments are also able to use development permits to promote energy and water conservation and the reduction of greenhouse gases, and encourage alternative transportation options for off-street parking.

In addition to this, the Greenhouse Gas Reduction Targets Act requires all Public Sector Organizations (the provincial Public Service, Universities and Colleges, and Health Authorities) to become carbon neutral in operations by 2010. This piece of legislation compliments the BC Climate Action Plan, which outlines strategies and initiatives to reduce emissions 33% below 2007 levels by 2020.

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

- Hosting Olympic Winter Games gave Whistler the chance to showcase its sustainability initiatives
- Pacific Carbon Trust allows Whistler to purchase local offsets

**Obstacles**

- Difficulties remain in accurately measuring emissions data
- Desire expressed by some residents to keep carbon tax money in the community rather than purchasing carbon offsets in other countries

Obstacles still remain regarding the public opinion of carbon offsets. This is due to issues such as the perceived lack of credibility regarding offset purchases, problems with double counting emissions reductions, and the fact that money is leaving local jurisdiction. While third party-verified reductions that are credibly registered can eliminate first two problems, some are still reluctant to spend local funds on foreign projects. While reductions and money spent locally is generally much lower, politically it can be seen as a safer decision than sending the money elsewhere.

# Outcome

Because the Carbon Neutral Operations Plan has only recently been enacted, it is difficult to measure the results. If Whistler meets the goals outlined in the plan, they will reduce their carbon emissions by 10 percent in 2010, 20 percent in 2013, and 30 percent in 2015. Several projects are currently underway to help the municipality meet these goals, including a $900,000 upgrade to the Meadow Park Sports Centre. This project includes the installation of a ground source heat pump and a solar hot system. Other carbon reduction projects in Whistler include the Cheakamus Crossing Neighbourhood, where the heat from wastewater provides space and water heating and reduces greenhouse gas emissions by 90 to 95 percent,  the Austrian Passive House, where interior temperature is maintained without active heating and cooling systems through the use of super insulation, thick walls and windows, solar retention, ground heat and other technology, Town Centre lighting upgrades, and the Whistler Public Library, constructed with a Green Municipal Fund loan to achieve LEED gold.

Whistler will also begin purchasing carbon offsets in 2010. Currently, there are 2,200 tonnes of emissions from Whistler's municipal operations, which will result in $50,000 spent in offsets. This expense is expected to decrease over time as emissions from municipal operations are reduced. If Whistler meets their targets, the annual cost will decrease to $45,000 by 2013 and $38,000 by 2015.

# Lessons Learned

» The cost savings achieved by RMOW were only highlighted through the use of a carbon tax, which made projects and investments with a high emissions rate more expensive
» The tool has proven popular with RMOW because Councillors have realized that investments in emission reduction projects have a high rate of return
» While regulations and voluntary agreements at the provincial level helped spur the creation of this policy, RMOW was eager to be a leader and had the ability to showcase their achievements during the 2010 Winter Olympics

# Applicability across Ontario

Ontario Premier Dalton McGuinty has frequently stated that the province will not pursue a carbon tax. The carbon tax proposed by Stephane Dion and the federal Liberal Party in 2008 was widely cited as a reason for their election loss. It would seem that this issue has few political champions ; as such, the applicability of this policy to Ontario municipalities is limited. However, the mechanics of the policy can still be applied by the municipality themselves. For instance, Whistler taxed its own municipal operations by $25 per tonne of greenhouse gases emitted, on top of the $30 per tonne tax implemented by the provincial government. With a $55 per tonne tax in place, Whistler's internal business and investment cycles were altered to pursue energy conservation and efficiency measures as they provided a greater return on investment.

While Ontario municipalities would not be receiving a provincial carbon tax rebate, they could apply a tax to their own operations and use that money to fund internal emission reduction initiatives. This may be an unpopular choice as it creates more work for the financing department and difficulties remain in measuring carbon emissions in municipal operations. Furthermore, municipalities may find that their economic linkages to other areas may make this policy impractical and could put them at an economic disadvantage. Ontario is a member of the Western Climate Initiative and an Observer to the Regional Greenhouse Gas Initiative, both of which are regional cap and trade programs. It is possible that membership in these programs may restrict the ability of Ontario municipalities to implement their own carbon policies.

However, a carbon tax does not have to be an essential component of a municipality's carbon neutral operations plan. In achieving carbon neutrality in municipal operations by 2020, Austin, TX has not mentioned that it will tax its carbon emissions.

# Municipalities with a Carbon Neutral Operations Policy

» Brisbane, Australia
» Vail, CO
» Sydney, Australia
» Austin, TX
» The 177 BC municipalities that have signed the BC Climate Action Charter are required to be carbon neutral in their operations by 2012. Signatories include Saanich, Dawson Creek, Kamloops, and Vancouver.

# Further Information

Ted Battiston, Manager of Sustainability Initiatives:
tbattiston@whistler.ca

Carbon Neutral Operations Plan:
http://www.whistler.ca/images/stories/PDF/Toward%20Sustainability/Carbon%20Neutral%20Plan%20Public%20Release.pdf

Carbon Neutral Operations Plan Report to Council:
http://www.whistler.ca/images/stories/PDF/Toward%20Sustainability/Carbon%20Neutral%20Plan%20Admin%20Report%20FINAL.pdf

Carbon Tax Rebate Policy:
http://www.whistler.ca//images/carippolicyweb.pdf
Carbon Tax Rebate Policy Administrative Report to Council:
http://www.whistler.ca//images/caripadminreportfinal.pdf

Infrastructure

# Revitalization Tax Exemption (Green Power Facilities) Bylaw

VICTORIA, BC

As Victoria looks to attract business and revitalize their downtown, they are encouraging the development of renewable energy by requiring landowners to develop a green power facility in order to qualify for a revitalization tax exemption.

## Community Profile

- British Columbia's capital city, located on the southern tip of Vancouver Island
- City population of 78,000; regional population of roughly 340,000
- The City's economic development strategy involves attracting high technology investment
- There is significant demand for residential and larger floor plate and flex office space in the downtown area

# Revitalization Tax Exemption Bylaw Profile

In June 2009, Victoria City Council passed a bylaw that provides property tax exemptions to promote the revitalization of lands within the City. As part of the exemption, owners are required to build and operate a green power facility that supplies energy to new developments on the land. Under this policy, an owner can be exempted from paying municipal property taxes for a maximum period of ten years. An owner can be eligible for the exemption only if the green power facility remains in operation on the land for the term of the exemption, the green power facility provides services to the recipients for at least six months of the year, and if all other terms and conditions of the bylaw are met. According to definitions in the bylaw, a green power facility is one that produces energy to be used for cooling, heating or electricity through green power technology and supplies that energy to at least two separate buildings, each of which has achieved a LEED certification of silver or better, or has been constructed according to principles of energy efficiency and environmental sustainability that are substantially equivalent to a LEED certification of silver or better. This green power can be biomass gasification thermal or electrical generation systems, geothermal heat or power generation systems, solar thermal or photovoltaic systems, wind turbine electrical generation systems, or wastewater heat recovery systems.

**TGS Checklist Excerpt**

**Program**

A revitalization tax exemption program is established under this Bylaw in order to:

a) encourage the redevelopment of lands within the City according to principles of sustainability;

b) support the use of environmentally sustainable building construction methods and materials, and environmentally sustainable building heating, cooling or energy systems in connection with the redevelopment of lands in the City; and

c) reduce greenhouse gas emissions produced through the generation of energy for heating, cooling or the generation of electricity for new developments within the City.

The tax exemption program applies to eligible land and improvements commencing upon the completion, and the start-up of operation of a green power facility on the eligible land.

**Tax Exemption**

The eligible land and improvements may be exempted from municipal property taxes during the term in an amount, or to the extent, that is the lesser of:

a) the total capital cost, and

b) the total of the municipal property taxes payable in respect of the eligible land and improvements if a revitalization tax exemption under this Bylaw were not available.

For certainty, no further revitalization tax exemption is available once the total of all revitalization tax exemptions received is equal to the total capital costs incurred by the owner in developing the green power facility.

**Term**

The term of the revitalization tax exemption for eligible land is a maximum of 10 years.

# The Step-by-Step Process

» The idea for the bylaw emerged from discussions with a former developer for Dockside Green
» Council decided to extend the bylaw to the entire City to encourage economic revitalization and the development of green district energy
» It reinforced the goals and direction of Victoria's Official Community Plan and other policies the City supports
» The City posted a public notice when the bylaw was proposed and held a Council meeting to receive public comments
» The development of the bylaw, posting of the public notice, and Council meeting took about six months

# Drivers and Champions

**Primary Drivers**

Due to an energy mapping study undertaken by the City, Council was aware of the need to reduce energy consumption in the downtown core. Victoria had already undertaken a large-scale project to reduce greenhouse gas emissions and promote sustainability with the Dockside Green development, a mixed-use community located on a former brownfield site in Victoria's Inner Harbour. However, because Dockside Green was built on publicly owned land, the City hoped to replicate its success by offering incentives to developers to redevelop privately owned land. Victoria has also been engaged in attracting high technology to the region, which recently overtook tourism as the City's top performing economic sector. As a result, the City wanted to provide an economic incentive for sustainability businesses to locate in Victoria, in addition to capital risk investors and end users such as Microsoft.

**Secondary Drivers**

The Government of British Columbia drove the creation of the bylaw with the Green Communities Act, which requires that all municipalities amend their Official Plans to include greenhouse gas reduction targets by May 31st, 2010.

**Champions**

» City Council was the primary champion of the bylaw because it fit with the City's economic development strategy, which involves downtown intensification and renewal to support the creation of residential and office space
» The Government of British Columbia

# Jurisdictional Obstacles and Opportunities

**Opportunities**

» The Green Communities Act (Bill 27)
» Community Charter

**Obstacles**

» BC Building Code

Because of the statutory powers attributed to Victoria by the Community Charter, the City was able to use Section 226 to enter into a community revitalization agreement. Section 226 provides authority to exempt from municipal property value taxes property in a designated revitalization area. Furthermore, this helped the city avoid the issue of providing assistance to businesses because the authority to provide a revitalization tax exemption is not subject to Section 25 of the Community Charter (prohibition against assistance to business).

The BC Building Code has remained an obstacle to retrofitting existing buildings due to the fire code, green building code and seismic upgrade requirements when significant renovations are undertaken. This is a considerable problem for Victoria as its downtown has a number of heritage buildings that are difficult to renovate. Victoria has been internationally acknowledged as a heritage tourism destination and as such, the preservation of heritage buildings is a key component of the City's economic vitality.

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

» The bylaw increased the value of the land, which benefits the City economically
» The City's economic development strategy involved attracting high-tech business and revitalizing the downtown

**Obstacles**

» Municipalities competing to attract development and business could potentially undercut one another

# Outcome

The Revitalization Tax Exemption Bylaw has become a significant component of Victoria's economic development strategy and the Victoria Sustainability Framework, which builds on existing planning documents to provide a comprehensive vision for long-term community planning and the greening of municipal operations.

Since it was enacted in June 2009, several developers have made inquires on how to apply for the exemption and negotiations have commenced. In addition, the City has achieved provincial profile for promoting green district energy. Currently, the City is set to embark on a formal economic development strategy that will outline the connection between the bylaw and Victoria's economic development.

# Lessons Learned

» By tying the requirement for green power facilities to their revitalization bylaws, the City has achieved dual goals of promoting revitalization and securing a renewable energy supply
» The success of the policy is due in part to its ability to reinforce the City's existing policies, particularly their economic development strategy
» Providing incentives to the private sector is one strategy communities can use to revitalize their downtowns and attract investment

# Applicability across Ontario

While this policy may be more attractive due to its voluntary nature, councillors might object to the lower tax revenue that would accrue to the municipality. However, municipalities interested in revitalizing their downtown areas and attracting innovate businesses may overlook this loss of revenue. It could also be assumed that attracting innovative business may generate higher tax revenue in the future.

This policy is being driven primarily by the aggressive greenhouse gas reduction policies that the Government of British Columbia has implemented. As such, Ontario municipalities may not have the same impetus to adopt it. However, a policy encouraging the development of green energy systems could be integrated with the Ontario Green Energy Act. For instance, Section 62.0.2 of the Green Energy Act exempts renewable energy generation projects from a number of sections in the Planning Act, including those dealing with official plans, zoning by-laws, demolition control areas, and development permit systems. The GEA also amends the Electricity Act to allow a municipality to generate up to 10 MW of electricity with a renewable energy generation facility. Previously, municipalities could only generate electricity using an independent corporation. The overhead cost of doing this restricted energy generation to Ontario's largest municipalities. The ability to generate electricity from renewable sources without the creation of an independent corporation will allow municipalities to increase their revenue through participation in the Ontario Power Authority's (OPA) Feed-in Tariff (FIT) program and selling electricity onto the grid. It would be up to policymakers to determine how a municipal policy encouraging the development of green energy systems could benefit from the incentives provided through the Green Energy Act.

Despite the compatibility of this policy with the Green Energy Act, Ontario municipalities face restrictions on offering tax exemptions that are not currently faced in British Columbia. In 2003, the Province of British Columbia enacted the Community Charter, a piece of legislation designed to establish a full set of principles for municipal-provincial relations. Among other things, the Charter was designed to give BC municipalities new options for generating revenue. As part of this, these municipalities are able to provide tax exemptions to businesses in a revitalization area.  As it stands currently, neither the Planning Act nor Municipal Act allows for tax assistance that exceeds the cost of rehabilitating a property. Section 110 of the Municipal Act lists bonusing options for corporations providing services to municipalities, but only when the corporation is wholly owned by the municipality. Similarly, Section 28 of the Planning Act allows for grants and loans to people in a community improvement area, but only cancels taxes while the property is being rehabilitated. Recently, amendments have been proposed that would allow for assistance to be extended to include construction and energy efficiency measures. It would seem that while the Green Energy Act provides a more streamlined process for developing and encouraging renewable energy projects, municipalities in Ontario have less latitude in being able to provide incentives to business.

# Municipalities with Bylaws that Encourage Green Energy Development within the City

» Seattle, WA
» San Francisco, CA
» Denver, CO
» Toronto, ON
» Stratford, PEI

# Further Information

Revitalization Tax Exemption (Green Power Facilities) Bylaw:
http://www.victoria.ca/common/pdfs/bylaw09-040.pdf

Infrastructure

# Hydronic Heat Energy Service Bylaw, 2004, Bylaw No. 7575

THE CITY OF NORTH VANCOUVER, BRITISH COLOMBIA

**The City of North Vancouver successfully enacted a Hydronic Heat Energy Service Bylaw in 2004 to encourage mandatory connection to the District Energy system in the Lower Lonsdale Neighbourhood.**

## Community Profile

- Population of 47,733 people, with a mobile and diverse population and capacity for 23, 000 jobs
- The City is 12 square kilometers and is located near the North Shore Mountains, bounded by Burrard Inlet to the south, and the District of North Vancouver to the north.
- The City surrounds the historic Mission Reserve of the Squamish Nation along the City's western waterfront
- Due to the density of population, land size, and employment capacity, the City produces low levels of GHG emissions per capita, when compared against other municipalities in the region

# Hydronic Heat Energy Service Bylaws:

The Hydronic Heat Energy Service Bylaw was enacted in 2004 to provide hydronic heat energy for space heating and hot water to a variety of building types (i.e. multi-family residences, commercial, institutional and industrial) and mandatory connection of new buildings over 1000 square metres in size unless it is too costly for the City to connect them.

**Policy Excerpt**

2. AGREEMENT TO PROVIDE SERVICE
2.1 Service Agreement - The agreement for Service between a Customer and the Service Provider will be
(a) the oral or written application of the Customer that has been approved by the Service Provider and that is deemed to include the General Terms and Conditions, or
(b) a Service Agreement signed by the Customer.
2.2 Customer Status - A Person becomes a Customer of the Service Provider when the Service Provider
(a) approves the Person's application for Service, or
(b) provides Service to the Person.
2.3 Service Connections

Subject to the following, the Service Provider will serve each parcel of land with one Service Connection. Additional Service Connections may be provided at the sole discretion of the Service Provider. In the case of buildings which have been subdivided by way of strata plan all strata lots and common property will be served by one Service Connection and the Customer will be the Strata Corporation.

# The Step-by-Step Process

- In the early 1990's the City of North Vancouver embarked upon waterfront and urban core renewal with council requiring planners to address energy efficiency and green house gasses (GHG) reductions, normally approached at the provincial level
- The Federation of Canadian Municipalities and Councillors from the City of North Vancouver toured various European cities, researching district energy (DE) systems resulting in the promotion of these systems in Canada
- The City of North Vancouver's engineering department and outside consultants undertook a DE feasibility study in the early 1990's as part of the re-servicing strategy for the mixed-use Lower Lonsdale neighbourhood
- In the initial absence of enough load to justify a large central facility, City engineers chose a model of several interconnected mini plants
- The City sought legal advice regarding the manner in which to organize the service and decided to create a private utility called the Lonsdale Energy Corporation (LEC) (At this time the utility is wholly-owned by the City and the City also fulfills the role of regulator)
- The City of North Vancouver's council supported this direction and were able to utilize their power to provide any service they deemed necessary or desirable, pursuant to s 8(2) of the Community Charter
- The City and the LEC coordinated across various departments including the local utilities, Strata Condo corporation, consulting engineers, engineers of the City, planners, and the local public
- City staff approached Council to discuss the need to require people to connect to the system, leading to the creation of a provision in the Hydronic Heat Energy Service Bylaw mandating connection to the DE system of new and retrofitted buildings over a certain size in designated DE service areas
- Financial modeling was initiated and continues on an ongoing basis today in order to set rates. LEC set the rates which must be authorized by the City as regulator of LEC
- On-going technical and investigative studies are undertaken in order to understand changing technology

# Drivers and Champions

**Primary**
The City's desire to reduce energy costs, meet GHG reduction targets established in the Local Action Plan, created after the City joined the federal Partners for Climate Protection Program in 1997, and a desire to be energy secure were drivers to create the Hydronic Heat Energy Service Bylaw. In addition, the City's commitment to the Climate Action Charter, a Provincial priority, which requires the City to be carbon neutral by 2012 and a strong desire to move away from inefficient electric baseboard heating also motivated this policy direction.

**Secondary**
The City's ongoing commitment to sustainability via their 100 Year Sustainability Vision (2009) continues to drive the Hydronic Heat Energy Service Bylaw and sustainability in general.

**Enablers**
Funding

» $2 million grant from the FCMs Green Municipal Fund
» $1 million from the Provincial Gas Tax
» $2 million from the City of North Vancouver
» Private funders via a capital lease mechanism
» $2 million in a low interest loan from the FCM, available after $8million eligible costs spending

Champions

» Council championed the bylaw with the support of City staff
» The Federation of Canadian Municipalities

# Jurisdictional Obstacles and Opportunities

**Opportunities**

- The City owned some Lower Lonsdale land so initially, during the rezoning process connection to the LEC was required like any other municipal infrastructure request via the signing of a heat service contract
- The PST Act amended in 2006 to exempt The PST on residential heat
- The HST, as of July 2010, will build on the 2006 PST Act amendment for more market equalization of the LEC, passing on savings between 4-5% to consumers
- Mandating connection to the system has not yet been tested by the courts

**Obstacles**

- The current Provincial Sales Tax reduces the LEC's competitiveness
- If the City of North Vancouver wanted to sell energy across jurisdictional boundaries, the BC Utilities Commission may have to approve the pricing which would be a more involved process than having the City Council approve and set rates within the City of North Vancouver
- Hybrid utility service models may be subject to requirements that do not apply to traditional utilities such as having to pay PST on natural gas purchases

As a net commercial entity, LEC had to pay provincial sales tax (PST) on the purchase of fuel from suppliers. LEC was also required to charge PST to customers benefiting from the thermal services provided by the LEC. Under provincial regulations, however, utilities such as BC Hydro and Terasen Gas do not have to charge PST to residential customers. The tax requirement placed the LEC at a competitive disadvantage. LEC and the City of North Vancouver have been successful at partly resolving the issue. Following an amendment of BC's Social Service Tax Act and Regulations, PST is no longer charged on heat sold to residential customers. However, PST is still required to be paid on natural gas purchases and LEC is continuing its work to have this requirement removed.

When the HST comes into effect in July 2010, the provincial portion of the HST on gas and equipment purchased by LEC will be refunded by an input tax credit. LEC residential consumers will see an energy cost savings of approximately 4-5%, thereby putting the LEC on a more level playing field with other energy providers.

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

**Obstacles**

- After the cost to users was moderated and continues to be moderated, public acceptance increases
- Realized an opportunity to educate consulting engineers and developers through guidelines they created
- Originally, they did not have enough load to undertake a large plant so they constructed a smaller mini-plant configuration to get started
- Mini-plants are suitable where large tracts of land are scarce
- Funding from the FCM, Federal and Provincial Government, private sector and Municipal government
- Cost to users was initially set substantially higher than traditional systems but reviewed retroactively when the financial model was refined
- The LEC has had to be involved in the review of in-building systems with developers and their engineers as well as in certain cases with Strata's (the council of condominiums) managers

While the LEC did not anticipate their involvement in retrofitting some initial building systems or educating consulting engineers, they have been successful in their training and see a phase-out of this role in the near future. In this effort, the LEC now reviews building designs and drawings ahead of time; takes securities from developers for 18 months, in order to observe one heating season to ensure the system is working properly; and instituted a monitoring component which has increased the quality of systems in the receiving buildings. Another major obstacle to the success of this project was the initial high cost to consumers however, this is equalizing as the LEC has reviewed its financial model using fewer boilers than they anticipated. The move to a harmonized sales tax will moderate costs further. Additionally, the financial model considers that as the LEC adds more consumers to their system they can diversify their load and operate on an economy of scale.

# Outcome

- • 1650 residential units as well as various commercial premises are currently connected and by the end of 2010 the LEC hopes to serve more than 20 buildings, totaling two million square feet of building area
- 12 months, ending December 31, 2009, the Lower Lonsdale system is operating at an 83.6% system efficiency
- For the Lower Lonsdale neighbourhood, 15% less gas is consumed compared to standalone in-house boiler system
- The City of North Vancouver and LEC is seen as an innovative leader, conducting tours of their facilities and consulting with other municipalities interested in DE systems
- The acceptance of the DE system has allowed the LEC to diversify, adding renewables to their portfolio including a 120 solar panel project, funded in part from the Canada-BC Municipal Rural Infrastructure Fund and Eco-Energy
- The mini-plant, DE configuration offers heating security because if one plant fails, the system is flexible and other plants can provide for customers
- The system is designed to be flexible and can be adapted to a variety of fuel types including renewables
- The City of North Vancouver's DE system has achieved nitrous oxide emission reductions by 64% and carbon dioxide emission reductions by 21% relative to conventional heating practices
- Cost Reductions will be achieved with the new HST
- Total system cost $8,133,800 (2003 budget)
- Production capacity 8MW

While it is mandatory for new or retrofitted buildings to connect to the system, recently, existing buildings are asking to connect, including BC Housing

# Lessons Learned

- Start somewhere: The initial financial model did not recommend one large DE plant so the City of North Vancouver decided on several small mini-plants in order to get started which additionally allowed for remote monitoring and increased system flexibility
- Adapt and be flexible. The LEC needed to adapt their strategy to include retrofitting buildings, educating engineers and developers, and collecting securities in order to achieve success of the system
- Energy planning is possible at the municipal level although normally handled at the provincial level
- In this case the City initially owned some of the Lower Lonsdale land so they were able to control the redevelopment

# Applicability across Ontario

Ontario municipalities currently have not enacted a bylaw like the Hydronic Heat Service Bylaw like the one in the City of North Vancouver. The City of North Vancouver, in addition to their Local Government Act, which is equivalent to the Municipal Act in Ontario, has a Community Charter, both of which were utilized to advance the Hydronic Heat Service Bylaw. This Charter allows the City to provide any service that the council considers necessary or desirable which may, by bylaw, regulate, prohibit, and impose requirements relative to other municipal services. In this instance, the City utilized section 8(2) and 8(3) to establish energy services and to require connection to the service. While the Province of Ontario does not have a Community Charter, the Municipal Act (s10.(1)) indicates that "A single-tier municipality may provide any service or thing that the municipality considers necessary or desirable for the public" (the Municipal Act, 2001).

In Ontario, this type of system and agreement scheme could be more readily implemented in Ontario if a municipality owned the land to be serviced and if the development was infill requiring new servicing or done within a new Greenfield context.

# A list of other municipalities using this type of tool

» City of Revelstoke: Clearview Heights Local Service Area Bylaw
» Regional District of North Okanagan: Lake Fringe Sanitary Sewer Local Service Establishment Bylaw

# Further Information

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bthemens@cnv.org
www.cnv.org
www.LonsdaleEnergy.ca

The City of North Vancouver Hydronic Heat Energy Service Bylaw, 2004, No. 7575
http://www.cnv.org/c//DATA/1/84/CNV%20HYDRONIC%20HEAT%20ENERGY%20SERVICE%20BYLAW%207575,%202004.PDF

The Ministry of Community and Rural Development: Community Charter
http://www.cd.gov.bc.ca/lgd/gov_structure/community_charter/services_regulatory/local_area_services.htm

City of North Vancouver 2009 Community Profile Release 1 – Data Inventory, 2009
http://www.cnv.org/c//data/3/254/Community%20Profile%202009%20-%20Release%201%20-%20Data%20Inventory.pdf

The City of North Vancouver: Lonsdale Energy Corporation
lonsdaleenergy.ca

Infrastructure

# Regulatory Improvement Code Amendment Package 5 (RICAP 5) The “Green Bundle”

PORTLAND, OREGON

In February of 2010, the City of Portland Oregon approved a “Green Bundle” of Zoning Code amendments as part of their Regulatory Improvement Code Amendment Package review, advancing renewable energy infrastructure and energy production within the City, in an effort to address climate change and energy security.

## Community Profile

- The population of Portland, Oregon is approximately 582, 000
- The City occupies a 143 square mile area
- Portland is surrounded by an urban growth boundary established in 1973
- The Willamette River runs through the City
- The City lies in the Willamette Valley and is bounded by Mount Tabor, Mount Saint Helens, and Mount Hood
- Portland is well known for their innovative land-use and transit-oriented planning approaches

# Regulatory Improvement Code Amendment Package 5 (RICAP 5): The "Green Bundle"

The City of Portland, Oregon maintains an ongoing database of community suggestions to improve the City's minor development regulations. On a yearly basis, the database is used to identify code amendment priorities which are packaged and presented to Council for approval. The "Green Bundle" amendments to zoning, which are part of the fifth iteration of RICAP, will advance renewable energy/ green technology infrastructure and energy production within the City of Portland while maintaining the value and character of affected buildings and surrounding properties. The amendments in the "Green Bundle" aim to:

» Remove regulatory barriers to green energy technologies and building techniques;
» Incorporate standards that limit potential negative external impacts of such technologies; and/or
» Clarify existing language that is currently ambiguous. Many green technologies are currently not addressed in the zoning code. As a result, there is currently confusion regarding what standards apply to the associated equipment.

More specifically, the "Green Bundle" advances renewable energy infrastructure and production in the following areas:

**RICAP Excerpt**

District and Utility Energy Systems:
Amendment Statement: Clarify that smaller alternative energy producing systems are considered an accessory use, not a primary manufacturing use or basic utility use

The related amendment allows sites in zones that do not normally allow manufacturing (i.e. residential) to have renewable energy (solar, wind, geothermanl, hydro and biological resources) production, for immediate consumption, to be sold back to the grid or to allow energy to be used in a DE system

Rainwater Collection and Stormwater Management:

Amendment Statement: Exempt eco-roofs (green roofs) from Design Review and some Historic Reviews

Amendment Statement: Allow use of FAR (floor area ratio) bonus' for both eco-roofs and roof-top gardens

Amendment Statement: Create standards for water collection cisterns

This amendment creates setback standards for cisterns in lieu of Discretionary Review

Solar Energy Systems:

Amendment Statement: Exempt roof-mounted solar panels from maximum height standard

Amendment Statement: Exempt ground-mounted solar panels from maximum standard

Conditional uses like schools or hospitals in residential zones are exempt

from Discretionary Conditional Use Review for adding ground-mounted solar panels

Amendment Statement: Exempt roof-mounted solar panels from Design Review and some Historic Reviews; Create standards for solar energy systems for projects subject to the Community Design Standards

This amendment exempts solar panels from Historic Design Review in some instances but does not apply to properties that are also Historic or Conservation Landmarks

Wind Energy Systems:

Amendment Statement: Create standards for wind energy systems

This amendment creates definitions and setback, height, mounting, and noise standards for both small and utility scale wind energy systems

Amendment Statement: Exempt small wind energy turbines from Design Review in the design overlay zone

The City has adopted a set of standards for small scale wind turbines and uses the Small Wind Certification Council to verifty compliance with American Wind Energy Association standards in order to place wind turbines in residential or commercial zones and thus bypass height restrictions

Non-conforming Upgrades:

Amendment Statement: Allow money spent on investments in efficient or renewable energy to substitute for money required to be spent on Non-Conforming Upgrades, when required

Amendment Statement: Discount energy efficiency improvements from value of alternations

These new amendments will help to address legislation that has thwarted the successful integration of renewable energy projects in an urban setting and allow for a Streamlined Review Process for some renewable energy developments.  While the RICAP annual review process has provided an economical and democratic method of updating Portland's zoning, it was put on hold this year due to budget cuts.

# The Step-by-Step Process

- The Regulatory Improvement Request database was contributed to by the public via letters and calls, and by requests from City staff
- Items in the database were ranked by the Bureau of Development Services and the Planning Bureau (now the Bureau of Planning and Sustainability) based on several pre-determined criteria and the most important items were placed at the top of the list
- The item selection process included consultation with the Regulatory Improvement Stakeholder Advisory Team (includes representatives from several neighbourhood and business groups and City bureaus along with developers, amongst others), which has helped advise the Planning Bureau on Regulatory Improvement since 2004
- A Commission meets every year to review submitted zoning amendment requests which are preliminarily edited by planning staff to 10 suggestions while the commission typically chooses 5 to address
- After the Commission chose 5 items, the City dedicated 3 to 4 months of research to determine the feasibility of the amendments
- A Proposed Workplan for RICAP 5 was created on August 6, 2008
- The public was notified of their ability to comment on the Proposed Worlkplan at a hearing before the Planning Commision, sent July 31st to approximately 600 individuals and organizations with an expressed interest in legislative projects and the RICAP as well as staff from several City bureaus
- The Portland Planning Commission held a public hearing for this project on August 26th, 2008 at which time, members of the public were able to recommend additions or deletions of items to the proposed RICAP 5 Workplan
- The RICAP 5 Proposed Workplan was approved by the Planning Commission at a public hearing on August 26, 2008
- The RICAP 5 Proposed Draft was made available and a public briefing occurred on August 11th, 2009
- The Planning Commission held a public hearing on the RICAP 5 Proposed Draft on August 25
- The proposed Draft of RICAP 5 was adopted on October 27, 2009
- The City Council scheduled a hearing for February 11, 2010 at which time the amendments were passed
- There will be a few months waiting period before the amendments are put into effect which allows Portland's planners an opportunity to prepare educational material and prepare their internal processes for the change

# Drivers and Champions

**Primary**

The primary drivers, prompting Portland to pursue RICAP 5 were to diversify energy sources and reduce dependence on foreign sources of energy, in order to decrease the emissions of climate-changing greenhouse gases and to be energy secure. In addition to this, small start-up wind and solar companies were encouraging the amendments.

**Secondary**

In 2009, the Bureau of Planning and the Office of Sustainability merged (now called the Bureau of Planning and Sustainability) and wanted to mark the new partnership with a new direction, in addition to the desire to set targets for renewable, locally sourced energy production and so encouraged the amendments within the "Green Bundle" to be adopted. This was supported by Council who collectively wanted to update and improve the City's land-use regulations that hinder desirable development and the Climate Action Plan of 2009 which prompted changes to the Zoning Code.

**Enablers**

Financing which enables RICAP comes from the Bureau of Planning and Sustainability budget and entails staffing as few as 2 positions.

**Champions**

» Mayor, Sam Adams promoted RICAP 5
» The City's Council was supportive
» The Bureau of Planning and Sustainability championed it
» The public who submitted their suggestions to the Regulatory Improvement Request database

# Jurisdictional Obstacles and Opportunities

**Opportunities**

» While converting waste to energy is not yet being pursued provisions have been made for it in the Zoning Code, for future developments
» The "Green Bundle" zoning amendments provide a Streamlined Review Process which is more time and cost effective compared to Discretionary Review

**Obstacles**

» The streamlined Review Process is not entirely applicable in national historic districts
» Fire codes which are mandated at the national level are prohibitive to installing solar panels on roofs but this is being addressed between the City and the State
» The State regulates waste disposal so biogass and composting facilities need state permits which can be costly and can take time to acquire

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

- Larger cities often have staff for ongoing code improvements but an ongoing database can be used by smaller cities to track, evaluate and prioritize changes efficiently
- Portland is leading by example and hoping to create momentum as a test area of innovation
- Financial incentives will stem from the Streamlined Review Process resulting from RICAP 5 amendments which will no longer require, in most instances, a Design Review and public hearing process which typically costs between $3,000 - $8,000
- The ongoing RICAP database connects Portland municipal staff to the local community

**Obstacles**

- 
- The RICAP program has been suspended until further notice in light of the economic downturn and subsequent budget cuts
- The public expressed concerns of decentralized energy and potential accompanying noise, visual intrusions, and impacts on wildlife in residential zones
- Historic preservation groups expressed concerns regarding the potential threat that energy infrastructure might have on historic buildings
- There was a limited amount of data to rely upon in terms of renewable energy integration in an urban context outside of a few European studies
- Portland is known for extensive public involvement and participation which is thought to be positive but which has delayed renewable energy applications in the past
- Distributed, localized energy production may incite strong opposition for select technologies which may make the application of this policy politically sensitive.

# Outcome

Since RICAP 5 is new, the outcomes are limited however when the numerous wind turbine projects are permitted after the amendment package waiting period is over, a monitoring component will be instituted. The monitoring will be implemented in order to observe impacts, especially in light of concerns often associated with wind turbines such as noise, visual disruption and affects on wildlife like birds

# Lessons Learned

- This type of process requires willingness on the part of City Councillors to fund ongoing projects, on an ongoing basis
- Working across silos is particularly important for this project especially since Portland has a municipal structure made up of a City Council of 5 who each have a portfolio of responsibility with the mayor acting as the budget manager. In this structure, there is no one city manager per se so collaboration is essential.
- Collaboration within the Municipal office is also important and occurs via Portland's Technical Advisory Committee (made up of: the Transportation Department, Environmental Services, the Parks Department, the Bureau of Development Services, the Bureau of Planning and Sustainability, and any other affected public agency)
- Showcasing good examples is complimentary to progressive policy, which Portland does via the Case Studies section of their website and by providing walking tours of best examples related to green building and renewable energy

# Applicability across Ontario

For this policy program to be effective for the Ontario context, an implementation framework or training component would be necessary. Allocating funds is also a significant driver of this type of policy. While it was noted that this policy effectively led to the creation of electricity capacity, potential exists for its broader application including the inclusion of thermal systems, conservation/ efficiency measures or even district energy, for example.

The Ontario Provincial Policy Statement provides for alternative energy systems and renewable energy systems to be permitted in settlement areas, rural areas and prime agricultural areas in accordance with provincial and federal requirements, pursuant to s.1.8.3. In addition, renewable energy projects are encouraged by Ontario's Green Energy Act. This Act requires different types of approvals for different scales and project types with larger ones requiring a Renewable Energy Approval (REA) and the associated support structures of small projects requiring municipal building permits. An REA is facilitated by the Provincial government in place of the Environmental Assessment Act and in most cases, the Planning Act process, often with limited municipal and community input and consultation. Community input was an important component during the creation process of the Green Bundle however it is similar to the Green Energy Act in the manner in which it quickens the approvals process for renewable energy projects in most instances. Another significant difference is that the Green Bundle is instituted by the municipal level of government, not by the Province, which is the case in Ontario.

The City of Toronto amended their zoning bylaw in 2008 to permit energy production and distribution using renewable energy devices and co-generation devices on every property, subject to the zone regulations in order to encourage broader use of renewables within the City. The following is a sample of what is allowable in terms of solar energy devices:

Under the new zoning bylaw requirements:
For zones that allow dwelling units:

» when a solar energy device is located on a building, it is subject to the zoning requirements for the building on which the device is located; and,
» when not located on a building, it is subject to the zoning requirements for an accessory or ancillary building or structure on a lot in the zone in which the device is located.
» For zones that do NOT allow dwelling units:
» all parts of the solar energy device are subject to the zoning requirements for the main or principal building on the lot where the device is located.

# Other Municipalities Using this Type of Tool

» City of Toronto, ON: BY-LAW No. 218-2008
» Town of Stratford, P.E.I. : Wind Energy Policy (2008) & Zoning and Subdivision Control (Development) Bylaw on Wind Energy (2009)
» Seattle, Washington: Seattle Green Factor

# Further Information

Bureau of Planning and Sustainability
bps@portlandoregon.gov
Phone: 503-823-7700 & 503-823-7222

Highlights of RICAP 5:
http://www.portlandonline.com/bps/index.cfm?c=48212&a=278545

Regulatory Improvement Code Amendment Package 5 (RICAP 5):
http://www.portlandonline.com/bps/index.cfm?c=48212&a=278472

City of Portland Bureau of Planning and Sustainability Case Studies:
http://www.portlandonline.com/bps/index.cfm?c=48817

Renewable Energy Generation and Distribution Flyer, City of Toronto
http://www.toronto.ca/building/pdf/renewable_energy_flyer.pdf

# Waste

Featured Case Studies

## Stockholm's Strategic Waste Management Plan/ Waste Collection Fee

Waste

# Stockholm Strategic Waste Management Plan

STOCKHOLM, SWEDEN

Through adopting a progressive waste management strategy in response to environmental concerns and limited land availability, Stockholm has achieved high rates of recycling and the elimination of household waste from landfills.

## Community Profile

- Sweden's capital city, located on the southeastern coast by the Baltic Sea
- City population of 776,000; regional population of 2 million
- Sweden's largest city and its administrative, economic, and transportation centre
- A strong tradition of progressive environmentalism

# Strategic Waste Management Plan Profile

The Strategic Waste Management Plan for the City of Stockholm, currently in its fifth iteration, was first created in 1988 in response to national legislation that requires municipalities to oversee the collection and treatment of domestic household waste. The Plan contains a number of bylaws regarding Stockholm's waste management, including where, when, and how the City treats and collects waste, the duties of citizens in preparing their waste for collection, and a waste collection fee.

Stockholm is renowned for its high rates of waste diversion and recycling. Currently, more than 90% of Stockholm's waste is used for energy recovery or recycling; of this, roughly 25% is recycled, 73.5% is incinerated, and 1.5% is biologically treated as biogas and fertilizer. To achieve this, Stockholm residents participate in an ambitious recycling program that requires the following materials to be cleaned and sorted: plastics, coloured glass, clear glass, newspapers, paper and cardboard, and food waste. While food and non-recyclable waste is collected from homes or apartment buildings on a weekly or bi-weekly basis, residents are responsible for the disposal of their recyclable material. Apartment buildings in Stockholm are required to have waste rooms with separate bins for each type of recyclable, while homeowners must take their recyclables to one of 250 designated recycling collection points around the city. For bulky, electronic, or hazardous waste, individuals can take their waste to one of five recycling facilities where these items can be disposed of free of charge. These items can be collected from households or apartments for a fee. Hazardous waste can be disposed of at a hazardous waste collection point, or people can visit a mobile hazardous collection point where trucks make scheduled stops to collect hazardous and electronic waste. The remaining waste is used for energy recovery at the Högdalen plant in southern Stockholm, which produces both heating and electricity. The residual slag can be recycled and the ashes are landfilled.

Stockholm's waste management is funded by a waste collection fee. The fee is outlined in the waste tariff, which is passed by Stockholm City Council. As part of the waste collection fee, every owner of a home or apartment building has an individual agreement with the City regarding the handling of waste, which is collected in exchange for a fee. Apartment tenants pay the fee through their monthly rent payments, while homeowners receive a bi-annual bill. The amount of the fee depends on the size of the garbage can placed out for collection and the frequency of pickup; a larger can or more frequent collection will merit a larger fee. Cans come in three standardized sizes and are available for purchase from the City. The fee applies regardless of whether the can is full or not. For a family of four placing waste out for collection every second week, the fee could amount to 1,725 Swedish kronor (SEK) per year (approx. $240 CDN).

**Strategic Waste Management Plan Excerpt**

The Waste Management Plan is not available in English, but the Swedish version has been included as a link in the More Information section of this case study.

# The Step-by-Step Process

» The entire process for the creation of the first Waste Management Plan, developed in 1988, took roughly two or three years to create:
» In-depth discussions held with politicians and the City departments working with waste took roughly one year
» Broad public consultation took place for roughly six months to one year
» The draft plan was rewritten to incorporate input
» City Council debated the contents of the plan before approving it
» Creating each subsequent iteration of the plan took less time because the initial research and statistics had already been collected

# Drivers and Champions

**Primary Drivers**
The creation of the plan was driven by Sweden's strong tradition of progressive waste management and environmental planning. Increasing awareness of problems with landfilling, limited land availability, and pollution during the 1960s and 70s resulted in the creation of a number of environmental agencies, campaigns, and policies. Waste management was a large part of this movement – for instance, the requirement for all home or apartment building owners to have a formal agreement with the City regarding waste collection has been in place since 1972.

**Secondary Drivers**
Stockholm's Waste Management Administration (Trafikkontoret - avd för Avfall) made the decision to create the first Strategic Waste Management Plan in 1988 because they wanted to plan for the future. Shortly after in May 1990, the Swedish government passed a comprehensive Waste Bill that required, amongst other things, an increase in recycling, an expansion of producer responsibility requirements, and a provision for all municipalities to develop a waste management plan.

# Jurisdictional Obstacles and Opportunities

**Opportunities**

- Waste Bill
- Eco-Cycle Bill/ Producer Responsibility
- Landfill Tax
- Prohibition on Landfilling Combustible and Organic Waste
- Waste Incineration Tax

**Obstacles**

- none

The Swedish government has played an active role in the way Stockholm manages waste. In addition to the requirement for all Swedish municipalities to have a waste management plan, the Eco-Cycle Bill of 1993 requires all producers to collect and recycle their packaging. Statistics show that there is a high rate of compliance – the recovery rate for all of Sweden in 2009 was 76.7%. Requiring producers to dispose of their waste has resulted in an overall reduction of waste and an increase in recycling.

The Landfill Tax, enacted in January 2000, applies to all material entering a landfill. Conversely, material removed from a landfill qualifies for a deduction. The current tax is 435 SEK per tonne ($60 CDN). The tax has resulted in a considerable reduction in the amount of waste landfilled. Additionally, Sweden banned the landfilling of combustible waste in 2002; this ban was extended to organic waste in 2005.

On July 1, 2006, a tax was imposed on the fossil fuel component of incinerated waste in order to provide an incentive for removing waste unsuitable for incineration and encouraging biological treatment of waste, such as composting or anaerobic disgestion. Currently, waste incineration facilities with only heat generation pay 444 SEK ($62 CDN) per tonne of waste, while facilities that generate power as well pay a lower rate.

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

- The majority of Stockholm's residents comply with recycling and waste regulations
- Illegal dumping has not been an issue

**Obstacles**

- Problems with overflow/contamination at recycling points
- Practical problems regarding the interpretation of the legislation

Overall, City officials have found high rates of compliance with Stockholm's waste and recycling policies. Levels of cross-contamination in waste streams are low, and illegal dumping has not been a problem. However, some problems have been encountered at the City's recycling collection points. Occasionally, overflow at these sites has prompted residents to leave their recycling at the base of the collection bins, which is unsightly and can attract vermin or impede foot traffic on the sidewalks where they are located. In 2006, residents protested when FTI, the recycling collection company, hired so-called 'garbage spies' to prevent people from incorrectly recycling and contaminating the bins. These 'spies' took pictures of the offenders and a number of people were brought to court over the charges. The resultant public backlash and Swedish Data Inspection Board ruling that the photo-taking was a violation of Sweden's Personal Data Law put an end to the practice.

Problems have also been encountered as the Waste Management Plan was being put into practice. For instance, part of the Plan required the City to collect data regarding the total amount of waste going to the City's treatment plants. While legislators assumed that City officials would collect this data from local industry, the City found this impractical because there are over 25,000 companies in Stockholm, many of whom would not have that data as their garbage is collected by private contractors. In this case, it would have been more sensible for the legislation to require that waste treatment plants collect this data.

# Outcome

Stockholm's Waste Management Plan, combined with Swedish waste legislation, has resulted in high rates of material recovery. As mentioned above, more than 90% of Stockholm's waste is used for energy recovery or recycling. Consequently, no household waste in Stockholm is landfilled. In 2007, the total amount of waste per capita was 597 kg/person/year in Stockholm, considerably lower than any of their North American counterparts. Furthermore, the City is actively expanding its food waste collection in order to produce more biogas and fertilizer.

# Lessons Learned

» The strong environmental culture promoted in Sweden through education and awareness campaigns has encouraged a high rate of compliance for recycling, despite the fact that recycling materials must be separated and taken to collection points by residents
» If people are required to bring waste to collection points, facilities should be easily accessible and bins should be clearly marked; regular and frequent collection may be required in order to prevent overflow
» The success of Stockholm's recycling program is in part due to Sweden's producer responsibility laws, which eliminates the pressure on municipalities to finance recycling collection
» Pro-active investment in waste infrastructure has resulted in less energy-intensive methods of waste disposal, such as vacuum waste disposal systems – this has reduced the need for collection by truck

# Applicability across Ontario

The strong opposition to incineration in Ontario may not render it a politically or economically feasible option for many Ontario communities, particularly when considering concerns regarding the placement of the facilities, perceived health risks, and the upfront capital costs. However, the equally strong opposition to the creation of new landfills in Ontario also remains an issue. Due to these obstacles, it may be feasible for Ontario communities to consider implementing a garbage levy. This has already been done in Toronto where, like Stockholm, fees are charged annually to households based on the size of the bin put out for collection. Charging fees for waste collection promotes recycling and waste diversion. However, for this to be even more effective, the Province of Ontario could replicate Sweden's landfill tax and producer responsibility laws, promoting high rates of waste diversion and reducing the financial pressure on municipalities who currently fund recycling collection and processing. Nevertheless, enacting any one of these policies may not enough to achieve the kinds of reductions necessary to extend the life of landfills currently operating in Ontario once the export of waste to Michigan is banned. Like Sweden, a combination of ambitious waste management policies will likely achieve the best results.

# Similar tools used by other municipalities:

» Oslo, Norway
» Copenhagen, Denmark
» Sao Paulo, Brazil
» Toronto, ON

# Further Information

Strategic Waste Management Plan for the City of Stockholm (Swedish):
http://miljobarometern.stockholm.se/content/docs/gc/6/Stockholm%20The%20Strategic%20Waste%20Management%20Plan%20.pdf

Waste Management in Stockholm Backgrounder:
http://international.stockholm.se/PageFiles/135878/Waste%20management%20in%20Stockholm.pdf

Government of Sweden – Policy Instruments for Sustainable Waste Management:
http://www.naturvardsverket.se/en/In-English/Menu/Products-and-waste/Waste/Objectives-strategies-and-results/Policy-instruments-for-sustainable-waste-management/

City of Stockholm website – Waste Management and Production:
http://miljobarometern.stockholm.se/sub.asp?mp=GC&mo=1&dm=6

Stockholm's Application for the European Green Capital Award:
http://international.stockholm.se/PageFiles/145186/application_european_green_capital.pdf

# Water & Sanitation

Featured Case Studies

## Toronto's Wet Weather Flow Management Master Plan

## York Region's Water Conservatioin and Efficiency

Water & Sanitation

# Wet Weather Flow Management Master Plan

TORONTO, ON

In response to concerns over water pollution and basement flooding, the City of Toronto implemented the Wet Weather Flow Management Master Plan in 2003; this $1 billion, 25-year plan reduces the adverse effects of stormwater by focusing on source controls rather than costly, end-of-pipe solutions.

## Community Profile

- Located on the northwest shore of Lake Ontario
- City population of over 2.5 million, regional population of 5.5 million
- Largest municipality in Canada
- Part of the densely populated Golden Horseshoe area, home to 25% of Canada's population

# Wet Weather Flow Management Master Plan Profile

The City of Toronto's Wet Weather Flow Management Master Plan was created in 2003 in order to address the City's runoff generated from wet weather. The plan is designed to be implemented over a 25-year period and will cost approximately $1.047 billion, or $42 million per year. Operational and maintenance costs to implement the capital projects are an estimated $16 million annually.

**The plan has thirteen key objectives under four broad categories:**

**Water quality**
» meet guidelines for water and sediment quality
» virtually eliminate toxics through pollution prevention
» improve water quality in rivers and the lake for beaches that are healthy for swimming
» improve aesthetics

**Water quantity**
» preserve and re-establish a natural hydrologic cycle
» reduce erosion impacts on habitats and property
» eliminate or minimize threats to life and property from flooding

**Natural areas and wildlife**
» protect, enhance and restore natural features (eg., wetlands) and functions
» achieve healthy aquatic communities
» reduce fish contamination

**Sewer system**
» eliminate discharges of sanitary sewage
» reduce infiltration and inflow to sanitary sewers
» reduce basement flooding

The City recognized the importance of managing stormwater on a watershed basis, as all of the City's creeks and rivers pass through six watersheds that originate in neighbouring municipalities. The activities of these neighbouring municipalities impact the work that the City does, so cooperation with the Toronto and Region Conservation Authority, in additional to other municipalities, was highlighted as a priority.

The City followed a hierarchical approach to stormwater management. They began by attempting to manage stormwater at the source, which entails reducing stormwater before it enters the drainage system. Initiatives that fall under this category include the City's mandatory downspout disconnect program, tree planting, maintaining vegetated ditches and swales, and the green roof incentive program. Following this, the City implemented a series of conveyance controls, which manage stormwater flow as it travels through the City's drainage system. To this end, the City has been maintaining the existing ditch network, separating combined sewer overflow (CSO) systems, and installing percolated pipes that allow the stormwater to seep into the ground. Lastly, the City implemented end-of-pipe controls in order to minimize pollution entering Toronto's waterways. Examples of end-of-pipe controls include wetlands, ponds, tanks, or tunnels. Specifically, the plan calls for the building of 180 ponds/wetlands, 16 CSO facilities, 507 stormwater facilities, and 4 CSO treatment facilities.

Another important component of the plan was its public education program. This was developed to help residents better understand stormwater issues and garner support for wet weather projects, particularly source controls. The program began in 2000 as the plan was being developed. During this time, a survey was taken to determine people's awareness of stormwater issues and their relation to lake quality. It was determined that there was little awareness of these issues. Following this, the City embarked on a public

education campaign using a number of television, radio, and print advertisements. These focused on increasing public understanding of stormwater issues and used messages to target individual behavior change (i.e. disconnecting downspouts). The survey was repeated in 2004 and it was found that the campaign had been successful in generating awareness around stormwater pollution. In addition, more residents now view the prevention of stormwater pollution as an individual responsibility.

**Wet Weather Flow Management Master Plan Excerpt**

3.1 VISION
Wet Weather Flow will be managed on a Watershed basis in a manner that recognizes rainwater and snowmelt as a resource to be utilized to improve the health of Toronto's Watercourses and the near shore zones of Lake Ontario and enhance the natural environment of Toronto's Watersheds.

3.2 PRINCIPLES
(1) Recognize rainwater and snowmelt as a valuable resource. Manage rainwater where it falls, on the lots and streets of our City, before it enters a sewer.
(2) Manage wet weather flow on a watershed basis using an Ecosystem Approach.
(3) Implement a hierarchy of Wet Weather Flow practices starting with "at source", then "conveyance", and finally "end-of-pipe" solutions.
(4) Inform and Educate Toronto's communities about Wet Weather Flow issues and involve the public in developing solutions.

3.3 GOAL
Reduce and ultimately eliminate the adverse effects of Wet Weather Flow on the built and natural environment in a timely and sustainable manner, and achieve a measurable improvement in Ecosystem health of the Watersheds.

# The Step-by-Step Process

» In 1995, Metro Council adopted a report that endorsed the undertaking of the WWFMMP
» In 1996/97, Metropolitan Toronto embarked on the background research for the WWFMMP (consultants and engineers are hired)
» The City of Toronto is created by amalgamation in 1998; input is gathered from the former municipalities
» Plan development was presented to Council in early 2000
» Engineering and plan evaluation took place from 2000 to 2003
» A steering committee was created for the formation of the plan and comprised varying interests, including representatives from the Ministry of Natural Resources, the Ministry of Environment, local conservation authorities, watershed interest groups, and internal departments that had an interest in the plan
» Broad public consultation took place
» The plan was adopted by Council in 2003; it is a 25-year plan with a budget of $1 billion

# Drivers and Champions

**Primary Drivers**
There were a number of issues and events that drove the creation of the WWFMMP. In 1987, the International Joint Commission, an independent trans-boundary council established in 1909 to assist governments in finding solutions to problems in the Great Lakes Region, identified Toronto as an Area of Concern due to what they referred to as 'The Impairment of Beneficial Uses' – namely, polluted beaches, negative impacts on aquatic life, and contaminated sediment. The IJC identified the City as the principal pollution source, in part due to the use of old combined sewer overflow systems that occasionally discharged raw sewage to Toronto's rivers and Lake Ontario. As a result, a Remedial Action Plan was prepared for restoring these beneficial uses. The WWFMMP built on the Remedial Action Plan, and this, along with the negative media surrounding Toronto's beaches, contributed to the development of the WWFMMP.

In 1997, the Province of Ontario released CSO Control Procedure F-5-5, which required all municipalities to develop standards for water pollution. The former municipalities which now comprise the City of Toronto (Scarborough, Etobicoke, York, East York, North York, and Toronto) had begun developing their own stormwater management plans in the 1980s, and consequently there was no overarching coordination amongst their approaches. When these municipalities were amalgamated to create the City of Toronto in 1998, the City integrated these plans and began to developed the WWFMMP.

**Secondary Drivers**
Toronto actively worked toward developing their master plan in the early 1990s as there was a keen drive by Council at this time to improve environmental conditions across the City. In particular, the WWFMMP arose from the Environmental Assessment Advisory Committee report of 1994 regarding the City of Toronto's proposed Western Beaches Storage Tunnel. That report identified the need for planning on a watershed basis to restore beneficial uses within the watersheds.

The ancillary benefits provided by the plan were another driver for its development. For instance, some areas of the City occasionally experience problems with basement flooding. While the WWFMMP was designed to improve water quality, it was recognized that it would also be useful in addressing problems with water quantity.

# Jurisdictional Obstacles and Opportunities

**Opportunities**

- Ontario CSO Control Procedure F-5-5 (1997): Determination of Treatment Requirements for Municipal and Private Combined and Partially Separated Sewer Systems
- Municipalities have jurisdiction over water treatment and management

**Obstacles**

- Lack of coordination, no regulatory requirement for municipalities/regions to harmonize their strategies

Although many municipalities began developing their own stormwater treatment plans in the late 1980s and early 1990s, there was a general lack of coordination and plans were developed independently. This created difficulties in harmonizing water management strategies in order to address overarching problems. While the City of Toronto worked with the Toronto and Region Conservation authority in order to manage water on a watershed basis, this lack of coordination remained a problem for the City as municipalities located upstream did not have to address their runoff. Furthermore, the absence of provincial legislation requiring a cooperative response to stormwater management meant that no municipality was required to coordinate their efforts with others.

This problem was somewhat addressed in 1997, when the Province of Ontario implemented the Ontario CSO Control Procedure (F-5-5). This procedure requires that all sewage must be contained during dry weather and that 90% of the wet weather flows must be contained and treated during the warm months of the year. This means that 10% of the dilute sewage is permitted to be released from overflows, typically during major storms. There are other requirements necessary to satisfy F-5-5, including compliance with bacterial standards at beaches 95% of the time, and the need for a municipality to develop a Pollution Prevention and Control Plan. Nevertheless, this legislation did not require municipalities to develop a harmonized approach in dealing with these issues.

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

- Lack of existing regulatory framework gave Toronto flexibility in how they addressed stormwater management

**Obstacles**

- No prior models to follow

# Outcome

Since 2003, a number of projects have been undertaken to improve Toronto's water quality, such as a large-scale waterfront cleanup and the replacement of combined sewer overflow systems. The WWFMMP was done through a municipal class environmental assessment, which identified the projects that need to be completed. Once the City identified these projects, background work needed to be done before construction could take place. For instance, once the need for a tank or tunnel system was identified, further study was required before construction could begin. Part of this background work entails site identification and, following this, public consultation. The feedback gathered through public consultation contributes to the ultimate design of the facility. As it stands currently, many projects are in their design phase, while a number are nearing their construction phase.

Basement flooding was one of the first projects to be undertaken after the plan was created. Originally, the City budgeted $55 million for this issue, to be addressed over five years. However, these plans changed during an extremely heavy rainstorm that hit Toronto on August 19th, 2005. Considered the worst storm since Hurricane Hazel struck in 1954, it dumped 153 mm of rainfall on the City in a two to three-hour period, causing flash flooding, sewer backups, road damage, and basement flooding in the north of the City. In all, the City received 4,000 basement flooding complaints. This was disconcerting as the majority of these complaints came from residents in areas with new infrastructure and separate sewer and stormwater systems. Consequently, the City realized that the new drainage installed was not capable of offering the higher service standard required in order to prepare for more intense and frequent storms resulting from climate change. As part of their climate change adaptation strategy, Council approved a ten-year capital program that increased the budget for basement flooding to $680 million.

A number of policies and plans have been enacted by the City as a result of the WWFMMP. For example, the City will soon have a bylaw that makes it mandatory for residents of CSO and flooding areas to disconnect their downspout from the sewer system. This bylaw will affect over 350,000 properties. Furthermore, stormwater control requirements have become part of the Toronto Green Standard (see Toronto Green Standard Case Study). A Green Roof Incentive Pilot Program has now been formalized as policy, contributing to the City's stormwater diversion goals. Toronto Water is also working with their colleagues in transportation, forestry, and planning in regards to sustainable sidewalk design. Plans are being designed for tree pits on city streets to have mechanisms for intercepting and storing stormwater. This will benefit urban trees as they currently do not have suitable conditions to mature.

Other recent stormwater initiatives undertaken by the City include guidelines for the greening of surface parking lots, a rainwater harvesting pilot project at the Allstream Centre that services the building's irrigation system and toilets, doubling the City's tree canopy, and working with the transportation division to equip the City's street sweeping fleet with vacuums to prevent road dust from being swept into the sewer system and contaminating water.

Overall, the City has experienced a number of successes with the plan. One of the most striking is the improved quality at Toronto's beaches. In 2005, the City applied to the Blue Flag Programme, a voluntary eco-label recognizing beach water quality. In order to qualify, applicants must meet a series of strict criteria regarding environmental education, water quality, and environmental management. The City received four certifications in 2005 and is expecting to receive its ninth in 2010.

# Lessons Learned

» Toronto saved money by implementing a hierarchical approach that first targets source controls before resorting to more costly 'end of pipe' solutions
» Stormwater can only be comprehensively managed through a watershed basis; this requires cooperation from neighbouring municipalities and regions
» Public education was vital for meeting the objectives of the stormwater management plan
» The City was able to achieve some of their objectives by actively working with other City departments
» Municipalities should prepare for more frequent and intense flooding problems by proactively installing controls

# Applicability across Ontario

For many Ontario municipalities, managing their stormwater is a politically and economically feasible activity. Many municipalities already have water treatment facilities and supporting infrastructure in place. However, Toronto's size means they have more administrative and economic capability to create larger end-of-pipe solutions and maintain these operations. Overall, a comprehensive plan like the one Toronto has created may be more feasible for larger municipalities who have similar resources and administrative capacity. Nevertheless, smaller municipalities with fewer resources could still adopt a number of strategies that Toronto has employed. Downspout disconnect programs, maintenance of vegetated ditches, rain gardens, and requirements for developers to manage a building's stormwater are all practical and easily implemented solutions. Municipalities that invest in treating and reusing stormwater are also experiencing energy savings. The treatment and pumping of water is an energy intensive activity, and reducing water consumption will reduce energy costs incurred through the operation of drainage and treatment systems.

# Municipalities with water conservation policies

» Malibu, CA
» Tucson, AZ
» Guelph, ON
» Melbourne, Australia

# Further Information

About Toronto's WWFMMP:
http://www.toronto.ca/water/protecting_quality/wwfmmp/about.htm

The 25-year Plan:
http://www.toronto.ca/water/protecting_quality/wwfmmp/25year_plan.htm

Toronto Wet Weather Flow Management Policy:
http://www.toronto.ca/water/protecting_quality/wwfmmp_guidelines/pdf/wwfmmp_policy.pdf

Water & Sanitation

# Water Policy

YORK REGION, ON

**Water and wastewater facilities represent approximately two-thirds of York Region's total electricity consumption. Large amounts of energy are required for source extraction, water treatment, distribution, wastewater treatment, collection and end use pumping. Aggressive water conservation policy, plans and programs have been instituted to address expansive costs associated with new water infrastructure, to address energy savings as well as to reduce greenhouse gasses (GHG).**

## Community Profile

» York Region is an upper-tier municipality with nine lower-tier municipalities within its jurisdiction including Aurora, East Gwillimbury, Georgina, King, Markham, Newmarket, Richmond Hill, Vaughan, and Whitchurch-Stouffville

» The population of York Region is over one million people living across a 1,776 square kilometre area running from Steeles Avenue in the south to Lake Simcoe and the Holland Marsh in the north

» By 2031 York Region is expected to grow to 1.5 million residents, create an additional 780,000 jobs, and build 510,000 homes

» Sixty-nine percent of York Region's land base is within the Oak Ridges Moraine and the Greater Golden Horseshoe Greenbelt

# Water Policy

The York Region Official Plan (OP), adopted by Council in 1994 under Section 17 of the Planning Act entails a number of policies which advance water conservation and efficiency which have been complemented by a number of successful strategies including the Water for Tomorrow Program. In December of 2009, the Region adopted their updated Official Plan and are awaiting final approval by the Minister of Municipal Affairs and Housing. This new Official Plan builds upon the progressive water policies of the 1994 OP but since these new policies have yet to be implemented, operationalized, and monitored, the 1994 OP water policy, and the plans and programs instituted between the 1994 OP and the 2009 OP will be the main focus of this case study.

Section 6.7 of the 1994 Official Plan section entitled "Water and Sewer Strategies" includes 22 "Policy of Council" Statements regarding water. Water efficiency is a particularly important consideration in York Region because unlike other regions in the Greater Toronto Area, the Region does not have direct access to a major body of water on which to establish major water supply and sewage treatment facilities. York Region therefore relies on agreements with the City of Toronto, and the Regions of Durham and Peel to provide the safe and effective delivery of water and wastewater services to the Urban Area. In addition, the objective of the Region is not to supply major urbanized areas with water from groundwater resources which is largely used for agricultural, rural and recreational uses.

Since the Region has and continues to experience continued development and growth, in conjunction with limited readily available water resources, water efficiency and conservation have played a central role in the Region's OP which has also been integrated into the new Official Plan. The new OP, 2009, specifically has adopted a "conservation-first approach" to servicing the needs of residents as a cost-effective, less energy intensive alternative to more costly capital projects. The following selection of policy excerpt samples are taken from both the 1994 and 2009 Official Plans.

**Policy Excerpt**

York Region Official Plan 1994
Section 6.7 (1994 OP):
It is the policy of Council:
16. To pursue, in cooperation with area municipalities, water conservation and demand reduction strategies designed to improve the efficiency of the Region's systems.
York Region Official Plan 2009:
Water is cross-referenced in the 2009 OP, most notably in section 7.1 Reducing the Demand for Services: Water Conservation and Efficiency, section 7.3 Water and Wastewater Servicing, section 8.2 Monitoring and Measuring Success, and section 8.3 The Planning Process. Samples of policies within section 7.1 and 7.3 are provided below.
Section 7.1: Reducing the Demand for Services: Water Conservation and Efficiency (2009 OP)
It is the policy of Council:
19. To develop a long term, innovative strategy for water conservation and efficiency.
20. To update and implement the York Region 10-Year Water Efficiency Master Plan to ensure long term water efficiency, conservation, cost savings, and public education.
21. To investigate full cost pricing of water, in co-operation with local municipalities, to encourage water conservation and facilitate system improvements.
22. To pursue with local municipalities and conservation authorities the implementation of water efficiency innovations such as water reuse systems, rainwater harvesting and innovative stormwater management.
23. To investigate innovative wastewater treatment technologies and approaches including grey water reuse, naturalized wastewater treatment and

water recycling in residential, commercial, institutional and industrial uses.
24. To reduce the amount of water used in the Region's construction projects.
Section 7.3: Water and Wastewater Servicing (2009 OP)
It is the policy of Council:
4. That the provision of water and wastewater servicing within communities be co-ordinated with land use planning approvals to:
a. achieve complete communities;
b. achieve balanced communities with residential and employment opportunities;
c. assist in the sequencing of growth within communities;
d. achieve intensification targets;
e. promote energy efficient green buildings; and,
f. capitalize on intensification and more compact development opportunities as they arise.
24. To work with local municipalities to reduce the amount of inflow and infiltration in both local and Regional wastewater systems.
27. To incorporate energy-recovery systems into water and wastewater facilities where possible in order to reduce the health and environmental impacts of greenhouse gas and other emissions on air quality.
28. That water and wastewater facilities will be designed and operated to reduce energy use and, where possible, energy recovery.
30. That the planning and design of water and wastewater infrastructure will consider potential impacts from climate change.
33. To work with local municipalities to engage the public on water resource use reduction and conservation, pollution prevention and awareness of lifestyle decisions that can reduce carbon footprints.

# The Step-by-Step Process

» The step by step process outlines the evolution of water planning in general between the 1994 OP and the 2009 OP including the creation of relevant programs and legislation. All of these components have led to the list of progressive water policies throughout the 2009 OP.
» Public consultation was a central component to all of the following plans, studies, and programs, for example, the Water Efficiency Master Plan Update hosted public consultation and engagement sessions throughout the study period from November 2006 to June 2008 with the notice of completion and included consultation with First Nations and Metis as well as a with a Technical Advisory Committee.

**The 1994 York Region OP:**

» The OP has evolved from 1994 to 2008, incorporating major Provincially legislated Plans such as the Oak Ridges Conservation Plan, 2002, the Greenbelt Plan, 2005, and Places to Grow- The Growth Plan for the Greater Golden Horseshoe, 2006, as well as approvals of deferred or referred policies and designations by the Ministry of Municipal Affairs and Housing and/or the Ontario Municipal Board since the original approval.

**Relevant Plans, Legislation & Programs:**

» The Water Efficiency Master Plan was adopted in 1997, updated in 2004 and then again in April 2007 with new recommendations including a 10-year strategy for water efficiency and conservation programs in York Region
» The Wastewater Master Plan was completed in 1997 and updated in 2002 to provide a focused, cost effective plan to implement water efficiency programs within the Region
» The new Water and Wastewater Mater Plan Update, 2009 was created as a long-term planning blueprint incorporating the Water Efficiency Master Plan's expected water savings, reducing per capita water usage and to meet new legislation affecting York Region such as the Oak Ridges Moraine Conservation Plan, 2002 and the Clean Water Act, 2006, for example.
» The Sustainable Strategy, 2007
» The Water for Tomorrow program, started in 1998, a comprehensive water efficiency program designed to promote the importance of water conservation through education
» In 2006 York Region adopted the requirement that all new Regional facilities be constructed to a minimum level of "LEED® Silver as a way of addressing water effieicney
» The Region has initiated a series of Building Energy Feasibility Studies (BEFS) that target energy and water savings in existing Regional facilities.
» The Water for Tomorrow initiative supports local municipal Summer Water Conservation By-laws, providing educational material, and facilitates the water efficient toilet rebate program
» York Region instigated a leak detection initiative to ensure that treated water is not lost or wasted through leaks in the water system
» York's Sustainable Housing Incentive Program incorporates water management guidelines
» York Region and Local Municipality Inflow and Infiltration Reduction Program
» York Region Greening Strategy
» Summer Water Conservation Bylaw
» Outdoor Water-Use Bylaws

# Drivers and Champions

**Primary**

Water and wastewater facilities represent approximately two-thirds of York Region's total electricity consumption and York Region is forecast to grow to 1.5 million by 2031, further straining water supply and related infrastructure. Complicating this further, is the fact that unlike other regions in the Greater Toronto Area, the Region of York does not have direct access to a major body of water on which to establish major water supply and sewage treatment facilities.

**Secondary**

Provincial legislation such as the Oak Ridges Moraine Conservation Act, 2001, the Greenbelt Act, 2005 and the Places to Grow Act, 2005, have and will continue to link and advance planning, energy and water issues.

**Champions**

» Municipal staff, including the Long-Range Planning Department
» Lower-tier municipalities
» Regional Council

# Jurisdictional Obstacles and Opportunities

**Opportunities**

- Obstacles
- the Oak Ridges Moraine Conservation Act, 2001
- the Greenbelt Act, 2005
- the Places to Grow Act, 2005
- the Safe Drinking Water Act, 2007 which outlines new requirements for financial plans which all municipalities will be required to prepare as early as July 2010 to ensure long-term water system sustainability (Theresa, I can't find the provision to include stormwater management)
- (Theresa: I couldn't find the appropriate information you noted about the annex agreement in regard to the OWRA)
- The Permit to Take Water (PTTW) Program, 2005 run by the Ministry of the Environment and under the Water Taking and Transfer Regulation, require all permit applicants to document the conservation practices they have undertaken and will be undertaking throughout the life of their permit
- The Safeguarding and Sustaining Ontario's Water Act, 2007
- The Provincial Policy Statement (s1.6.2) encourages the use of existing infrastructure and public service facilities before developing new infrastructure and facilities
- The Provincial Policy Statement (s1.6.4.2) encourages intensification and redevelopment within settlement areas on existing municipal sewage services and municipal water services

**Obstacles**

# Non-Jurisdictional Obstacles and Opportunities

**Opportunities**

- The Region's holistic commitment to water conservation and efficiency

**Obstacles**

- The Region has experienced a substantial amount of growth which will continue to put pressure on water services

# Outcome

The 2009 OP has a number of progressive water policies which incorporates the momentum gained from preceeding studies, programs and enabling policy

» The Water for Tomorrow Program has had the following successes since 1998:
» Over 20-million litres of water savings per day (enough to supply a town of 70,000 people)
» Reduction of 21,367 tonnes per year of greenhouse gas emissions
» Over 350,000 water-efficient fixtures installed
» Over 1,800 kilometres of municipal watermains tested for leakage, resulting in the savings of more than eight million litres of water per day or 2,000,000 kWh/year or $119,000/year (2008 data)
» Over 8,000 water-efficient landscape audits completed
» Over 37,000 students have attended the annual York Children's Water Festival
» Recognized for Excellence by: Ontario Water Works Association, Water Environmental Federation, Federation of Canadian Municipalities, Sustainable Communities, and the World Water Forum, Kyoto, Japan

# Lessons Learned

» External motivation to conserve water, in this case the lack of readily available water resources, helps to support the case for water policy
» It is important to incorporate plans across departments which occurred with the Wastewater Master Plan Update, which integrated with other regional initiatives like the Transportation Master Plan Update and the region's Planning for Tomorrow growth management efforts
» Addressing water issues requires a holistic approach which should include educational programming
» York Region has successfully and scientifically investigated the link between energy and water which allows them to monitor and quantify energy and GHGs saved, supporting the case for water conservation and efficiency
» This strategy is best implemented at an upper-tier level but buy-in at a lower-tier level is important in order to achieve wide-scale implementation of a conservation ethic

# Applicability across Ontario

There is often difficulty experienced with associating water resources and the energy cost for deliverability, avoided infrastructure costs and treatment however, increasingly municipalities are linking water conservation, for instance, with reduced electricity use and GHG emissions. This is being communicated to the public in many municipalities, largely within a demand-side management model consisting of educational programs and through conservation programs funded by local utilities.

One of the largest difficulties associated with water reduction and efficiency policies is that they can decrease water-use revenues for a municipality, depending on how water prices are set. In order to avoid disincentives to water conservation, prices need to be set appropriately. Additionally, water conservation and efficiency efforts, which do not manifest in a physical initiative (like solar panels which have the added benefit of generating revenue, for example) are generally less popular and may lose out in a competition for municipal resources.

Both lower-tier and upper-tier municipalities can apply the types of policy and programs listed within this case study as the approach can be scaled.

# Further Information

Water for Tomorrow
1 888 967 5426
www.waterfortomorrow.ca

Waste Water Master Plan
http://www.york.waterwastewatermasterplan.ca/files/York%20Region%20Water%20and%20Wastewater%20Master%20Plan%20Final%20Report%20Nov%2023-09.pdf

Water for Tomorrow
http://www.waterfortomorrow.ca/en/aboutus/index.asp

York Region Official Plan 1994
http://www.york.ca/NR/rdonlyres/hl6j6wjq5qk4itaavaktk7op2h7zkdxyyrxhzv2dfjlwasmajaooje5lmiz6iyiwsq2xbsty2buwz7re633nsqq5le/ROP+June+1_2008.pdf

York Region Official Plan 2009
http://www.york.ca/NR/rdonlyres/pnzvguynrousdkawz7xt5laiojrjeilkufdatg2y5ltsi6zumlho3z2e6fmjqsan7etnwtv2yojvqyfafvtur52u4e/Dec+09+Adopted+ROP+-+for+web.pdf

Water Efficiency Master Plan Update 2007
http://www.waterfortomorrow.ca/en/aboutus/resources/YorkRegionWEMPFinalReportwithAppendicesApril272007.pdf

# Appendices

## How to Select Policy Instruments

## How to Create a Policy

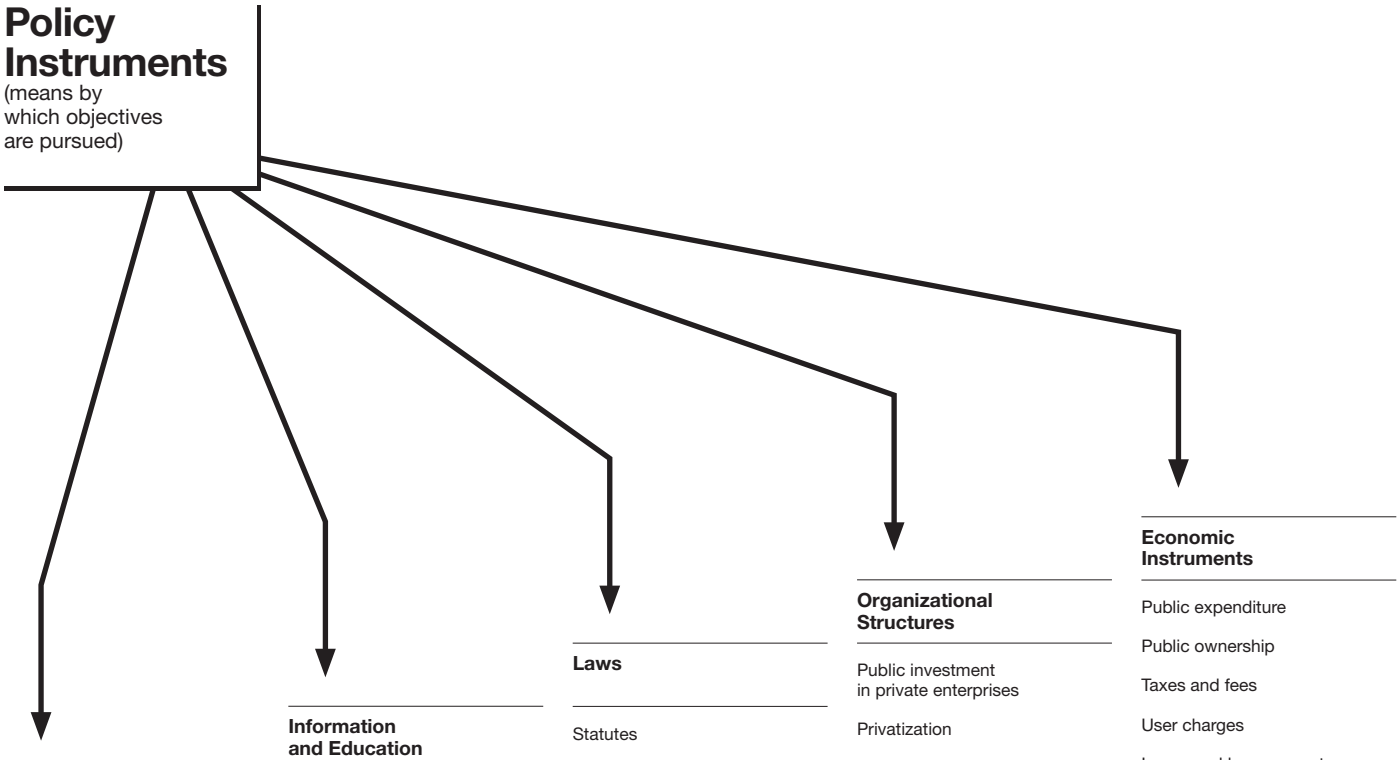
## Government Incentive Programs and ICES

## Ontario's Legislative and Policy Framework for Land Use Planning and ICES Advancement

# Appendix A

## How to Select Policy Instruments

There are a number of tools that policymakers have at their disposal in order to influence energy policy and the adoption of ICES. In general, policy instruments range from less coercive, such as voluntary agreements and moral suasion, to mandatory instruments such as 'command and control' regulation. The choice of policy instrument to use in addressing an issue varies according to a number of factors, such as the nature and source of demands for change, economic and social considerations, government platform, jurisdictional and legal issues, cost, evidence of effectiveness, political feasibility, and administrative capability. The table below offers a list of policy instruments grouped into several broad categories.




Adapted from http://www.tc.gc.ca/civilaviation/publications/tp185/3-08/regulations.htm

Policymakers are not limited to choosing one type of policy to promote ICES – they should actively consider all options and decide what type of instrument could best advance the adoption of ICES in their community. The Treasury Board of Canada Secretariat has developed a framework for choosing policy instruments entitled, Framework for Assessing, Selecting and Implementing Instruments for Government Action (Instrument Choice). The steps, adapted from a presentation by John Giraldez, are outlined below.

**1. Identify and set problem**
What are the main economic, social and/or environmental manifestations of the problem? What have been the historical trends? What are the future risks?

What is the causal chain between these issues? Is it possible to identify a root cause or factors? If so, what are they?

Assess the importance of the risks, based on probability and consequence

What issues are considered most important (in terms of stated government policy/ objectives, international obligations and in the view of various stakeholders)?

**2. Set objective**
Does the Government have to intervene? What are the consequences of not intervening?

What are the ultimate goals and desired outcomes? Which ones are likely to be achievable at a reasonable cost?

**3. Identify potential points for intervention**
What changes in technology or behaviour are needed to achieve the goals? Which are likely to have the greatest impact? Which are likely to be easiest to achieve?

What is the sequence of events that determine the outcomes?

At what point in this sequence are changes likely to be most effective?

**4. Identify factors/institutions having an effect on objectives**
Is the issue one where government can act alone, where external actors can act alone with some influence from government, or is the issue one where a mixed governance approach is required, that is government and external actors need to act together?

What external actors operate in the same fields?

Are the external actors potential collaborators? What is their potential contribution to addressing the problem?

Can new actors be found?

If creating new markets, can new actors be encouraged to play a role such as in trading permits?

**5. Consider and select instruments**
Create an inventory of instruments

Establish criteria for evaluating instruments

I.E. cost, efficacy, political feasibility and administrative feasibility

**6. Set performance indicators**
Ultimate Goals, Desired Outcome

Intermediate Goals, Desired Outcome

Immediate Changes in Behaviour/Technology

**7. Implementation**
What are the gaps between the current approach and selected instruments? What tools and capabilities are needed to close the gap?

What resources are needed?

How will performance indicators be monitored? How will data be gathered? How will effectiveness be evaluated?

What will be the plan?

These steps offer a useful process to follow when deciding what policy instrument could best address energy efficiency and conservation issues in a community. However, choosing a policy instrument is only part of the process. In order to institutionalize the instrument and incorporate it as a part of a community's official strategy toward adopting ICES, it is necessary to formalize it as a written policy.

# Appendix B

## How to Create a Policy

Local governments are at the forefront of advancing ICES because decisions regarding land use planning, building, and taxation are all made and require leadership at the community level. Because decisions need to be made at all stages of ICES planning, development, and implementation, the policies developed to support ICES will be more complex and require cooperation and consultation both across departments and with multiple stakeholder groups. Effective policies will encourage local authorities and other decision-makers to integrate energy, land use, transportation, and infrastructure considerations.

It is recognized that the creation and implementation of effective policy is a very challenging and complex process. The process involves gathering evidence and data, undertaking financial and policy analysis, building a business case to convince counsel and the community and building a network of support. To help with this complex process, a recommended policy development process is presented in point form below (adapted from the BC Ministry of Environment Land and Parks' Stewardship Bylaws: A Guide for Local Government, Pg 8-10).

**1. Complete policy development**
work with the Council / Board and the public to refine a policy approach using:

- workshops with staff and politicians
- public focus groups, including stakeholders. Involve the 'regulated' group early in the process, and continuously throughout the development. Avoid over-regulation or unintended consequences. Be sure to understand the broad impacts of policies, not only in terms of intended outcomes, but also in terms of effects on other sectors. Failure to do so could result in undermining goals when those affected react to not being consulted or considered
- discussions with adjacent local governments, to consider standardization of definitions, wording and procedures
- non-government organizations, especially in discussing what role they might play in informing the public about the need for the policy, or in monitoring the effectiveness of and reporting infractions under the policy

**2. Assemble relevant enabling legislation and regulations**
- Check for the most recent versions
- Policies will likely be guided by more than one Act
- Review what is enabled and the limits to local government authority
- Seek legal interpretation of court decisions which may enable or limit applications

**3. Identify the purpose and context**
- Identify changes necessary to other local government policies
- Clarify relationships with other agencies

**4. Determine the policy structure**

» Different combinations of policies and policy instruments are possible
» Titles have no legal effect, and therefore wide variation in the naming of policies is possible

**5. Write a detailed purpose for each section**

» The preamble at the beginning of the policy is not essential, but can be important to the court in The event of a legal challenge particularly if the remainder of the policy is vague

**6. Write key clauses of the policy in draft**

» Check back with enabling legislation
» Cross reference with other policies to look for potential conflicts or duplication, or conversely, for buttressing strategies whereby complementary policies or senior government regulations / guidelines work to reinforce one another
» Refine and discuss with other staff, committees and stakeholders

(If creating a bylaw, follow Steps 7 and 8. If not, continue on to Step 9)

**7. Write bylaw enforcement provisions**

» Check the Offence Act
» Check ticketing provisions of the Municipal Act, and regulations
» Review with enforcement staff - there must be a commitment to making the bylaws work through enforcement

**8. Write bylaw filter and exception clauses**

» What cases might be excused from the bylaw?
» At what threshold should certain actions occur?

**9. Write definitions**

» Definitions need only be added for what is not already defined in enabling legislation, or when there is some vagueness of meaning
» Check the Municipal Act Interpretation section
» Check the Interpretation Act
» Check the dictionary for vague meanings
» Review the policy for simplicity and plain English - try to eliminate jargon or unnecessary complexity

**10. Review the draft with staff, committees, stakeholders, legal counsel and refine**

**11. Review the draft with Council or the Board and refine: An additional stakeholder review may also be warranted**

**12. Proceed to the formal approval process**

# Appendix C

## Government Incentive Programs and ICES

There are a number of government incentive programs at the federal, provincial, and municipal level that encourage the adoption of renewable energy technologies and energy efficiency measures. While the following list is by no means comprehensive, it illustrates several programs that have helped municipalities move forward with ICES initiatives.

**Green Municipal Fund**
Established with a $550 million endowment from the Government of Canada and managed by the Federation of Canadian Municipalities, the Green Municipal Fund delivers grants and below-market loans to municipal initiatives across Canada that benefit the environment, local economies, and quality of life. Loans and grants are given to support sustainable community plans, feasibility studies and field tests, and capital projects. In addition to this, the GMF provides education and training to help municipalities share expertise and strengthen their ability to meet and surpass their sustainability goals.

Application and eligibility requirements differ depending on whether the municipality is applying for funds to support sustainable community plans, feasibility studies and field tests, or capital projects. If applying for funds for sustainable community plans, feasibility studies, or field tests, only municipal governments or corporations owned by a municipal government applying in partnership with a municipality can apply. If applying for a sustainable community plan, municipal governments must pass a council resolution committing to establish a vision and targets in the plan. If applying for a feasibility study or field test, the municipal council must have adopted a sustainable community plan or sector plan that includes sector-specific goals or targets. Specific prerequisites apply for some sectors and subsectors. Applicants can apply at any time of the year. Applications are rated by a Peer Review Committee, then reviewed by the GMF Council which makes a recommendation to the FCM National Board of Directors. It takes from six to nine months from the time an Intent to Apply is accepted to when the FCM board makes a final decision on the full Detailed Application.

For capital projects, GMF offers below-market loans, usually in combination with grants, to implement capital projects in one of five sectors: brownfields, energy, transportation, waste, and water.

GMF can provide financing for up to 80% of costs to a maximum of $4 million in loans combined with $400,000 in grants. Brownfield projects are eligible for below-market loans only, with no funding limit. For municipal governments, GMF offers interest rates 1.5% lower than then Government of Canada bond rate for the equivalent term.

http://www.sustainablecommunities.fcm.ca/Home/

**Government of Canada Gas Tax Fund**

The Gas Tax Fund is a predictable, long-term source of funding for Canadian communities that is used to support investment in sustainable infrastructure, such as public transit, drinking water, wastewater infrastructure, green energy, solid waste management, and local roads and bridges. Municipalities are able to pool, bank, or borrow against this funding, which provides financial flexibility and provides communities with the ability to undertake long-term planning. From 2007-2014, municipalities will receive $11.8 billion or roughly $2 billion per year in gas tax funding. It was recently announced in Budget 2008 that the Gas Tax Fund would become a permanent measure.

http://www.infc.gc.ca/ip-pi/gtf-fte/gtf-fte-eng.html

**Feed-in Tariff for Renewable Energy**

Ontario's Feed-in Tariff (FIT) program provides a guaranteed pricing structure for producers of renewable electricity. It offers stable prices under long-term contracts for energy generated from renewable sources, including biomass, biogas, landfill gas, wind, solar photovoltaic, and water. It was created by the Green Energy and Green Economy Act, 2009, and is implemented by the Ontario Power Authority. The program is divided into two streams – FIT and microFIT. The FIT Program is for renewable energy projects that can generate more than 10 kilowatts of electricity. Smaller projects at a home or small business that generate 10 kilowatts or less fall under the microFIT Program. Prices paid for renewable energy generation under FIT and microFIT vary by energy source and prices are set at a level intended to enable project owners to recover the costs of the projects, as well as to earn a reasonable return on their investment over the term of the contract. Under both programs, participants have a 20-year contract, except for waterpower which has a 40-year contract. Domestic content requirements for both FIT and microFIT projects are intended to help support the creation of 50,000 new green jobs in Ontario as demand grows for technologies such as solar panels, wind turbines, biomass and waterpower generation equipment, and for Ontarians who can design, build, install, operate and maintain these technologies.

http://fit.powerauthority.on.ca/

**Clean Energy Fund Program**

Through the Government of Canada's Economic Action Plan, the Clean Energy Fund is providing nearly $795 million in funding over five years to projects that advance clean energy technologies. Specifically, The Clean Energy Fund is investing in large-scale carbon capture and storage demonstration projects and smaller-scale demonstration projects of renewable and alternative energy technologies. In January 2010, 19 successful projects were announced in response to a call for proposals under the Renewable and Clean Energy portion of the Fund. Up to $146 million will be invested over five years in these projects to support renewable, clean energy and smart grid demonstrations in all regions of the country. Examples of these projects include a tidal energy project in the Bay of Fundy, a study to determine the northern application of a geothermal energy project in Yellowknife, and a biomass-based central heating demonstration in Québec City.

http://www.nrcan.gc.ca/eneene/science/ceffep-eng.php

# Appendix D

## Ontario's Legislative and Policy Framework for Land Use Planning and ICES Advancement

- The Planning Act, 1990
- The Provincial Policy Statement, 2005
- The Green Energy and Green Economy Act "The Green Energy Act", 2009
- The Places to Grow Act (Lake Simcoe Protection Act), 2005
- The Municipal Act, 2001
- The Environmental Assessment Act, 1990
- The Development Charges Act, 1997
- The City of Toronto Act, 2006
- The Ontario Water Resources Act (OWRA), 1990
- The Safe Water Drinking Act, 2002
- The Water Opportunities Act
- The Building Code Act, 1992

Currently, the Federal government enables energy and greenhouse gas emission reductions primarily through research and development and most recently have begun investigating an emissions cap and trade system, while the Provincial-Territorial governments provide legislative frameworks for local government as well as regulation of the energy sector. Municipal governments who are the primary shareholders of electric local distribution companies are not directly responsible for creating large-scale energy policy. However, they can be actively engaged in energy decisions or ICES development through the use of zoning, policy, investment and infrastructure and will increasingly play an integral role addressing energy issues through their role as land development managers, under guiding provincial legislation and policy.

Increasingly, municipalities are being given enhanced powers and responsibilities to govern their jurisdiction which is an apparent trend throughout many of the following pieces of legislation discussed in this section. Worth mentioning as evidence of this trend, is the landmark 2001 Hudson case regarding the Ontario Building Code. In 2001, the Supreme Court of Canada upheld the power of municipal governments to enact pesticide restrictions in order to protect the health of their citizens and their environment. This precedent-setting case is important to municipalities across Canada because it suggests that municipalities, short of outright conflict with a provincial statute or where the provincial statute expressly states its paramountcy over bylaws, a municipal bylaw which enacts a stricter standard than provincial or federal legislation will probably be upheld. This is encouraging for municipalities who wish to advance ICES but who need to create bylaws which are stricter than provincial or federal legislation. This has often been the case for some case study examples in this toolkit especially those imposing standards above the Ontario Building Code.

The preceding pieces of legislation detailed in this section highlight the framework, as well as opportunities and obstacles that Municipal government work within and which may advance or hinder integrated community energy planning.

# The Planning Act

Land-use planning in Ontario is informed by the legislative framework provided by the Planning Act which outlines rules including how "land uses may be controlled and who may control them." (MMAH) Generally, the legislation is intended to convey provincial interest in planning issues and decisions through the release of policy statements which planning authorities must "be consistent with". More specifically, the Act is intended to promote a sustainable economy and environment, create a fair and efficient planning process, coordinate a variety of interests and allow accountability and local autonomy on behalf of individual municipalities. The Act provides: a variety of tools to facilitate planning practices; local autonomy (natural person powers); rights and participation avenues to local citizens including appeal methods; and the ability for municipalities to prepare their own official plans and planning policies, amongst others.

In an effort to reduce urban sprawl, preserve natural heritage, protect natural resources and to build better communities, several reforms have been made to Ontario's land-use planning system. Most notably, the Planning Act was amended with the Strong Communities Act, 2004 (Bill 26), creating a more accountable and transparent planning process and the Planning and Conservation Land Statute Law Amendment Act, 2006 (Bill 51) which provides many updates including the ability to address energy considerations within Community Improvement Plans ( s. 28) In addition to these two amendments, the Greater Golden Horseshoe Greenbelt and associated protective legislation and long range regional plans have been created. A sample of changes to the PA that may facilitate ICES advancement include:

**Official Plans:** Municipalities must now update their official plan every five years and update the accompanying zoning by-law within three years (s. 26)

**The Complete Application:** Municipalities can mandate additional information when a planning application is submitted (s.18)

**Involving Residents in Local Planning:** The Planning Act now provides increased opportunities for public participation and input for local decisions

**Well-Designed and Greener Neighbourhoods:** Through the site plan control process, municipalities are now able to:

» consider the supply, efficiency and conservation of energy of a subdivision proposal (s.51 (24l)).
» create a community improvement financial incentive program to include construction and energy-related uses (s.28 (1)).
» include requirements for walkability improvements to subdivision proposals (s.51 (25b)).

**Development Permit System (DPS):** This is a new planning tool designed to streamline development while protecting natural heritage, encouraging community participation, and energy conservation.

**The Ontario Municipal Board (OMB):** The OMB is now required to "have regard" for local planning decisions, amongst other changes to better align their role in land use planning matters (s.2.1).

# The Provincial Policy Statement, 2005 (PPS)

The Minister of Municipal Affairs and Housing (MMAH), under the Planning Act, issues statements related to land use planning that are of provincial interest. While the MMAH is primarily responsible for the PPS, under the one-window planning system, a variety of other ministries support it including, the Ministry of Natural Resources, the Ministry of the Environment, the Ministry of Transportation, and the Ministry of Energy and Infrastructure, for example. The PPS contains broad policy directions to municipalities and other decision-makers that are of provincial interest, promoting a policy-led planning system. The three major policy sections of the PPS are: Building Strong Communities, Wise Use and Management of Resources, and Protecting Public Health and Safety.

Broadly, the PPS outlines the wise management and use of land through the encouragement of appropriate density and the protection of natural resources for long-term prosperity, environmental health and social well-being. Specifically, the PPS addresses energy in the following policy statements:

**1.8.1:** Planning authorities shall support energy efficiency as well as improved air quality through land use and development patterns

**1.8.2:** Increased energy supply should be promoted including renewable and alternative energy systems

**1.8.3:** Alternative and renewable energy systems shall be permitted in settlement areas, rural areas and prime agricultural areas

**1.7.1:** Supporting long-term economic prosperity by providing opportunities for increased energy generation, supply and conservation

The current PPS came into effect in March 2005 and in accordance with the Planning Act, is undergoing its 5 year review by the Minister of Municipal Affairs and Housing. The purpose of the review is to determine if the current policies are working effectively and whether or not there are new policy areas or issues that the Province should consider in order to adequately provide effective land use planning direction.

The Province is also developing a performance monitoring framework and set of indicators for the PPS in order to assess the effectiveness of the policies and key policy areas: Building Strong Communities, Wise Use and Management of Resources, and Protecting Public Health and Safety. While municipalities are encouraged to establish performance indicators to assist monitoring the implementation of the PPS policies in their official plans, it is not mandatory.

In 2009, the Provincial Policy Statement 2005: Discussion Paper for a Proposed Performance Monitoring Frameworks and Draft Indicators was posted to the Environmental Registry for a 63 day comment period. The following are some relevant examples of the types of PPS policies and corresponding indicators the Province is proposing for performance monitoring:

# Category 1: Building Strong Communities

(Healthy, Active, Liveable and Prosperous Communities)

| Sub-Category | Policy Objective | Indicator |
|---|---|---|
| Housing | Planning authorities shall identify and promote opportunities for intensification and redevelopment, and promote compact form.<br><br>Planning authorities shall provide for an appropriate range of housing types and densities to meet the projected requirements of current and future residents.<br><br>PPS, 2005 Policies: 1.1.3.3, 1.8.1 a), 1.4.1, 1.4.3 | Change in housing structure types (expressed as a percentage of total occupied private dwellings) across a range of housing structure categories<br><br>(Single-detached house; Semi-detached house; Row house Apartment; Detached duplex; Apartment less than 5 storeys; Apartment 5 or more storeys and Other single-attached house)<br><br>* Census Data |
| Energy and Air Quality | Planning authorities shall support energy efficiency and improved air quality through land use and development patterns which promote compact form.<br><br>PPS, 2005 Policy: 1.8.1 a) | 1. Change in the average lot size from year to year<br><br>2. Change in the average size of new lots from year to year<br><br>* Parcel Data |

# Category 2: Providing and Maintaining Infrastructure and Public Service Facilities

| Sub-Category | Policy Objective | Indicator |
|---|---|---|
| Sewage and Water | Planning for sewage and water services shall direct and accommodate expected growth in a manner that promotes the efficient use of existing municipal sewage services and municipal water services.<br><br><=”” sewage=””>Municipal sewage services and water services are the preferred form of servicing for settlement areas.<br><br>PPS, 2005 Policies: 1.6.4.1 a) 1. and 1.6.4.2 | Change in the percentage of population (dwellings) serviced by both municipal sewage services and municipal water services<br><br>(Focus on settlement areas of less than 10,000 population)<br><br>*Census Data, Municipal Property Assessment Corporation (MPAC) Data, Ministry of Environment Data (Certificate of Assessment or Drinking Water System Data) |
| Transportation and Transit | Provide multi-modal transportation systems.<br><br>PPS, 2005 Policies: 1.6.5.1, 1.7.1 d) | 1. Yearly trends in transit ridership for surveyed municipalities in Ontario<br><br>* The Summary of Canadian Transit Statistics from the Canadian Urban Transit Association<br><br>2. Change in the percent of the labour force that commutes to work in a car, truck, or van as a driver / passenger<br><br>3.Change in the percent of transit mode share<br><br>* Census Data, Transportation Tomorrow Survey<br><br>4. Ontario highway performance during morning rush hours<br><br>* Central Region Travel Time Survey |

# Category 3: Wise Use and Management of Resources

| Sub-Category | Policy Objective | Indicator |
|---|---|---|
| Water | Planning authorities shall protect, improve or restore the quality and quantity of water by:<br>» identifying surface water features, ground water features, hydrologic functions and natural heritage features and areas which are necessary for the ecological and hydrological integrity of the watershed;<br>» implementing necessary restrictions on development and site alteration to protect all municipal drinking water supplies and designated vulnerable areas;<br>» implementing necessary restrictions on development and site alteration to protect, improve, or restore vulnerable surface and ground water, sensitive surface water features and sensitive ground water features and their hydrologic functions;<br>» promoting efficient and sustainable use of water resources, including practices for water conservation and sustaining water quality.<br>PPS, 2005 Policy 2.2.1c), d) 1., d) 2. and f) | 1. Change in the number of municipal official plans identifying sensitive surface and groundwater features and areas and including policies to protect these features and areas.<br>*Source Water Protection Program under Clean Water Act, Official Plans<br>2. Change in the number of vulnerable areas adopted by municipal council resolution for use in the Ontario Drinking Water Stewardship Program (ODWSP) under the Clean Water Act<br>3. Change in the number of vulnerable areas identified in provincially approved assessment reports under the Clean Water Act<br>*Source Water Protection Program under Clean Water Act<br>4. Change in the number of municipal official plans having incorporated key findings and recommendations from provincially approved Source Protection Plans under the Clean Water Act<br>*Source Water Protection Program under Clean Water Act, Official Plans (Some Clean Water Act related indicators are being proposed here as potential indicators for the future) |
| Energy and Air Quality | Planning authorities shall support energy efficiency and improved air quality through land use and development patterns which promote compact form.<br>PPS, 2005 Policy: 1.8.1 a) | 1. Change in the average lot size from year to year<br>2. Change in the average size of new lots from year to year<br>* Parcel Data |

# The Environmental Assessment Act (EAA), 1997

Environmental assessments apply to large scale, public sector (provincial, municipal or public bodies such as Metrolinx) infrastructure projects (i.e. public roads and highways, transit facilities, waste management facilities or water and wastewater works, resource management and flood protection works) and generally do not apply to the private sector, unless they are designated by regulation. All types of waste management, natural gas, transmission and waterpower projects are subject to the EAA under their respective pieces of legislation: the Waste Management Projects Regulation, the Electricity Projects Regulation, the Class EA for Minor Transmission Facilities and the Class EA for WaterPower Projects. The Environmental Assessment Act was introduced in 1997, most notably to create an opportunity for proponents to consult with persons who may have an interest in a proposed project. While administered by the ministry of the Environment, the Environmental Commissioner of Ontario is responsible for posting information pertaining to EAs, especially as it relates to the Environmental Bill of Rights. Comments resulting from consultation and public participation are received by the Ministry of the Environment and considered before making a decision regarding a proposed project.

EAs are required in advance of other approvals under other relevant pieces of legislation such as the Clean Water Act or Environmental Protection Act but are exempted for Federal projects which operate under the Canadian Environmental Assessment Act (CEAA). The federal EA process is applicable whenever a federal authority has a decision-making responsibility for a given project. In 2004, the federal Minister of the Environment and the provincial Minister of the Environment agreed on environmental assessment cooperation which is outlined in the Canada-Ontario Agreement.

Ontario's environmental assessment program has four program areas including: Environmental Assessments (prepared for large scale projects that may pose significant environmental risk), Streamlined EAs or Class EAs (applicable for more routine projects requiring an EA), Declaration Orders (DO) (The Minister of the Environment can make a DO to change or remove some of the EAA requirements), and Designation Regulations/ Voluntary Agreements (The Minister can recommend that a regulation be made requiring a proponent who may not be subject to the EAA, to comply with it). There are currently 10 approved Class Environmental Assessments in Ontario pertaining to a variety of projects and activities, one relevant example being the Municipal Engineers' class EA for sewer and water projects.

The Environmental Assessment Act and process are important tools used to encourage environmental sustainability by identifying potential negative environmental effects that could occur from a proposed infrastructure project as well as mitigation measures in light of potential environmental disturbance, where applicable. While it is intended to provide transparency to the public, projects approved under the Act are no longer required to be posted to the Environmental Bill of Rights (EBR) website under s.32 of the EBR. In the 2001/2002 annual Environmental Commissioner of Ontario report, it was concluded that the EAA alone is deficient compared to the EBR process for public participation. This Act is relevant to the advancement of ICES because of its application to transit facilities, waste management facilities and water and wastewater works. Public participation is essential to ensure the environment and communities have proper consideration while advancing ICES to ensure support of the movement to reduce energy use and GHGs.

# The Green Energy and Green Economy Act "The Green Energy Act"

The Green Energy Act was introduced in 2009, initiated by a commitment to encourage alternative modes of power generation to facilitate the closure of coal fired plants in Ontario and to support the emerging green economy. The Act eliminates several local approval requirements that might have limited the development of renewable energy projects. For instance, previously, renewable energy projects have been limited by zoning and site planning requirements (height restrictions and setbacks no longer apply) and nuisance by-laws which previously limited renewable projects for non-health and safety reasons. The Ministry of the Environment is now the body responsible for issuing the Renewable Energy Approval (REA) which is one of the approvals necessary for most renewable energy projects. This Province-led approvals framework exempts most renewable energy developments from the Environmental Assessment Act process and, in most cases, the Planning Act process.

In addition to enabling large renewable energy projects, the Green Energy Act allows a municipal corporation, board, or service board to operate a generation facility under 10 MW. The feed-in tariff program which offers long-term contracts for energy generated from renewable sources, is also enabled by the Green Energy and Green Economy Act which the Ontario Power Authority implements. In order for these programs to be successful, this Act will give Cabinet the power to make regulations governing the smart grid and its implementation.

The authority for regulations requiring public agencies to prepare energy conservation and demand management plans is also prescribed in the Green Energy Act (s.6). Energy conservation and demand management plans must include:

**1.** A summary of annual energy consumption for each of the public agency's operations.

**2.** A description and a forecast of the expected results of current and proposed activities and measures to conserve the energy consumed by the public agency's operations and to otherwise reduce the amount of energy consumed by the public agency, including by employing such energy conservation and demand management methods as may be prescribed.

**3.** A summary of the progress and achievements in energy conservation and other reductions described in point 2 since the previous plan.

**4.** Such additional information as may be prescribed.

Some municipalities have welcomed this Act and the Province's intervention to facilitate and plan for large-scale, renewable energy projects. While the Act does streamline the approvals process it remains to be seen whether the GEA limits municipalities' ability to plan in an integrated capacity.

In addition to its emphasis on renewable energy, the Green Energy Act also encourages conservation, and imposes mandatory conservation targets on electric local distraction companies across the province.

# The Municipal Act, 2001

The Municipal Act is a consolidated statute which is a governing framework outlining the extent of powers and duties, internal organization and structure of Ontario Municipalities. The Municipal Act was amended in 2007 by the Municipal Statute Law Amendment Act, 2006 (Bill 130) which was created to provide local governments with increased powers and flexibility as well as creating a stronger relationship between the province and municipalities. The amendments to the Municipal Act, 2001 provides municipalities with many of the powers and duties given to the City of Toronto under the City of Toronto Act, 2006. Specifically, relevant changes include:

- The "notwithstanding" clause of the 1998 draft has been eliminated which previously gave the Minister the ability to overwrite the Municipal Act legislation
- Municipal government has been recognized as a responsible and accountable governing body
- The Act recognizes the importance of discussion and engagement between the provincial and municipal levels of government recognizing the memorandum of understanding (MOU) between the province and the Association of Municipalities of Ontario (AMO) in the legislation (s.3 (1)).
- There is also new access to a broader range of investment instruments, which means that smaller municipalities can take advantage of these instruments through a municipal pooling agency (Part XIII)
- Municipalities have been allotted "natural person powers" which allows a municipality the same powers of a person in order to conduct day-to-day business without the need for specific legislative authority (s.9).
- A single-tier municipality may provide any service or thing that the municipality considers necessary or desirable for the public (s.10 (1)).
- Municipal governments now have broader powers to pass bylaws.
  Single-tier municipalities are now able to pass by-laws within ten spheres of jurisdiction, relevant ones include (s.10 (2)):
  - Transportation systems, other than highways
  - Waste Management
  - Public utilities
  - Drainage and flood control, except storm sewers
  - Structures, including fences and signs
  - Economic development services (including the ability to offer financial incentives within a community improvement plan (CIP)

In addition to new provisions, there are a number of others which can provide municipalities with the means to advance ICES. While municipalities are not directly allowed to give grants to any person, group or body, they are able, in some instances to allow tax exemptions, development charge exemptions and financial incentives within a CIP. Additionally, local improvement charges may be applied allowing a municipality the authority to undertake a local improvement and to pass bylaws to allocate all or part of the total cost of the improvement to the lands benefiting from it.

These financial incentives allow some flexibility to encourage ICES projects and development like in the case of Brownfield redevelopment via CIPs, however, generally, financial incentives are limited.

Energy conservation is addressed under the Natural Environment section of the Act and specifically in terms of allowing for municipalities to "provide, arrange for or participate in an energy conservation program" to encourage the reduction of all energy types including (s.147 (1)):

**(a)** the improvement of an energy system in a building;
**(b)** the substitution of one form of energy for another form of energy;
**(c)** the improvement of the capacity of a building to retain heat;
**(d)** the reduction of energy use through more efficient use of energy; and
**(e)** the shifting of electrical loads from times of high demand to times of low demand.

The previous powers, in conjunction with new powers allowing for increased autonomy including the ten new spheres of jurisdiction, enable municipalities to better plan for and implement municipal services for their communities.

# The City of Toronto Act, 2006

» The City of Toronto Act was passed in 2006 and came into force on January 1, 2007 in order to give Canada's 6th largest government, the City of Toronto, the proper tools and flexibility to govern itself. New broad powers and opportunities stemming from this Act include:
» Pass by-laws that promote the economic, social and environmental well-being of the City, protect the health, safety and well-being of its people and authorize any service the City considers necessary or desirable (s.8).
» Delegate powers and service responsibilities to boards and establish City corporations. For instance, the City can establish City boards and change board procedures and powers. It can create corporations, nominate a person to act as a director or officer, and even acquire an interest in a corporation. There is also the opportunity to delegate decisions on local matters, which would strengthen the individual and neighbourhood voices (s. 141).
» Establish new revenue tools to support City priorities and goals, such as improving our environment. These new revenue tools do not address the City's long-term fiscal imbalance. However, the Act supports the stronger inter-government relations and agreements needed to achieve financial sustainability (Part X).
» Exercise major planning powers to shape how Toronto's land is developed. Examples include the authority to control the density and height of development (s.113 (1)), regulate and reject the demolition of residential rental properties (s. 111) and to have a say on external design features.
» Have a stronger voice when talking to the provincial or federal governments about programs and issues that affect Toronto. For the first time, the City of Toronto can enter into an agreement with a government without having to go to the province for permission (s. 144 (1)) (http://www.toronto.ca/governingtoronto/index.htm).

Mayor of Toronto, David Miller, has advocated for the role of municipalities in the fight against climate change, recognizing that more than 50% of the country's greenhouse gas emissions are influenced by decisions made by municipal governments. The City of Toronto Act can be used to address energy efficiency and greenhouse gas emissions through the extra powers given to the City which include the ability to create new incentives and taxes to help meet climate change, air quality and environmental objectives.

# Ontario Water Resources Act (OWRA), 1990

The Ontario Water Resources Act was instituted in 1990 to enable "conservation, protection and management of Ontario's waters and for their efficient and sustainable use, in order to promote Ontario's long-term environmental, social and economic well-being."(OWRA, 1990, 2007, c. 12, s. 1 (1)).

Energy is not expressly detailed in this Act, however water and energy use are mutually reinforcing. Energy is expended during the pumping, purifying, moving and heating of water which in turn leads to greenhouse gas emissions. While water costs in Canada do not encourage water conservation, within the provisions for water taking permits, conservation and efficiency are addressed. The Director may include terms and conditions in a permit (s. 34.1 (9)):

**(e)** governing the monitoring and reporting of,
**(i)** the amount of water taken under the permit, including amounts of water that are returned after use,

**(h)** governing the use and conservation of water taken under the permit, including requiring the holder,
**(i)** to implement specified measures to promote the efficient use of the water or reduce the loss of water through consumptive use,
**(ii)** to ensure that an audit is conducted by a specified person or body in order to evaluate whether the water is being used efficiently, and to provide the results of the audit to the Director, to other persons or both, or
**(iii)** to prepare a water conservation plan and submit it to the Director, to amend the plan if required by the Director, and to implement the plan;

**(i)** requiring the holder to restrict the amount of water taken under the permit, in the circumstances specified in the permit;

In addition to these conditions of water taking, under section 76 the Lieutenant Governor in Council may make regulations establishing and governing charges to promote the conservation, protection and management of Ontario's waters and their efficient and sustainable use via the preparation of water conservation plans and any other measures to promote the efficient use of water (s. 34.1 (9 h iii)).

# Safe Water Drinking Act, 2002

In 2007, the Ministry of the Environment (MOE) included a Financial Plan regulation for municipal residential water systems under the Safe Drinking Water Act (SDWA). This regulation will require all municipal drinking water systems to prepare Financial Plans which undertake "full-cost accounting" as early as July 2010 to ensure that drinking water systems are financed sustainably (s.30). This will help determine the full or true cost associated with operating a particular drinking water system, which should include the projected long-term costs of repairing, improving and building new infrastructure. While this will be required in order to obtain a Drinking Water License, it is also anticipated that it will make municipalities more aware of the true cost associated with investment and infrastructure costs, and may provide a more informed basis for setting water rates.

This new regulation should help municipalities realize the full or true costs of operating, maintaining and building water systems. Full-cost recovery strategies are recommended as well as full-cost pricing, to be recovered by customer water charges, utilizing the user-pays principle. Currently most consumers are not charged the full cost for their water services which are highly subsidized. Municipalities can help encourage water conservation through this new regulation by charging volume-based rates.

A sample of requirements for financial plans of new systems includes (s.2):

… the following requirements are prescribed for financial plans that are required by subsection 1 (1) to satisfy the requirements of this section:

**1.** The financial plans must be approved by a resolution that indicates that the drinking water system is financially viable and that is passed by,

**i.** the council of the municipality, if the owner of the drinking water system is a municipality, or

**ii.** the governing body of the owner, if the owner of the drinking water system has a governing body and is not a municipality.

**2.** The financial plans,
- **i.** must include a statement that the financial impacts of the drinking water system have been considered, and
- **ii.** must apply for a period of at least six years.

**3.** The first year to which the financial plan must apply is the year in which the drinking water system is expected to first serve the public.

**4.** For each year in which the financial plans apply, the financial plans must include details of the proposed or projected financial operations of the drinking water system itemized by,
- **i.** total revenues, further itemized by water rates, user charges and other revenues,
- **ii.** total expenses, further itemized by amortization expenses, interest expenses and other expenses,
- **iii.** annual surplus or deficit, and
- **iv.** accumulated surplus or deficit.

**5.** The owner of the drinking water system must,

**i.** make the financial plans available, on request, to members of the public who are served by the drinking water system without charge,

**ii.** make the financial plans available to members of the public without charge through publication on the Internet, if the owner maintains a website on the Internet, and

**iii.** provide notice advising the public of the availability of the financial plans under subparagraphs i and ii, if applicable, in a manner that, in the opinion of the owner, will bring the notice to the attention of members of the public who are served by the drinking water system.

**6.** The owner of the drinking water system must give a copy of the financial plans to the Ministry of Municipal Affairs and Housing. O. Reg. 453/07, s. 2.

# Proposed Water Opportunities and Water Conservation Act, 2010 (Bill 72)

On May 18, 2010, Bill 72 was introduced and received first reading. If this Bill is passed by the Legislature, the Act would:

**(a)** foster innovative water, wastewater and stormwater technologies and services in the private and public sectors;
**(b)** create opportunities for economic development and clean-technology jobs in Ontario; and
**(c)** conserve and sustain water resources for present and future generations.

The proposed Act would facilitate government leadership by allowing the Minister of the Environment to set aspirational water conservation targets as well as the ability to establish performance indicators and targets for municipal water, wastewater and stormwater services. Additionally, the Act will include a regulation-making authority to require:

- municipal water sustainability plans
- water conservation plans by public agencies
- an asset management plan
- a financial plan
- strategies for maintaining and improving water, wastewater and stormwater services
- a risk assessment plan
- prescribed information on or with municipal water bills to promote transparency

Finally, the Water Opportunities and Water Conservation Act, 2010 would amend existing legislation, including the Building Code Act, 1992, in order to consider water conservation and would include an enhanced mandate for the Building Code Energy Advisory Council to include water conservation. In addition to this, the Act would transfer regulation-making authority for water efficiency standards from the Green Energy Act, 2009 to the Ontario Water Resources Act, 1990. The Bill would also amend the Green Energy Act, 2009 to include the guiding principles for the Government of Ontario to consider the efficient and wise use of water when constructing, acquiring, operating and managing government facilities.

# The Places to Grow Act, 2005 & the Growth Plan for the Greater Golden Horseshoe, 2006

The Places to Grow Act for the Greater Golden Horseshoe (GGH) area was introduced in 2005 and the subsequent 25 year Growth Plan for the Greater Horseshoe in 2006 to initiate growth management, support economic growth, protect the environment and increase the quality of life for communities. It is a regional plan which provides growth targets and supports growth management that is in line with Smart Growth Principles, outlining the importance of mixed-use communities which should be complemented by alternative modes and public forms of transportation, over single car use. This Plan and Act build upon, and work in conjunction with, other key government initiatives such as the Greenbelt Plan, the PPS, and works within the existing planning framework of municipalities (the Planning Act and the Municipal Act) to provide growth management policy direction. In addition, it was developed to aid governments in identifying areas requiring infrastructure investment. Under ReNew Ontario (a 5 year infrastructure investment plan) and Move Ontario (a Trust to span up to 10 years, introduced in March 2006), more than $8.3 billion is being invested to improve infrastructure in the GGH. Specifically, in 2005-2006, the government invested more than $340 million in environmental and clean water initiatives which included water and wastewater funding as well as $192 million for local transit initiatives across 110 communities.

There is a need for regional scale, integrated planning especially for the GGH area as it is the fastest growing urban region in Canada and is expecting 3.7 million more people and 1.8 million more jobs by 2031. In addition, historical patterns of growth in the region have been unsustainable. Increases in pollution from long commuting trips, agricultural land and greenspace conversion, and decreasing quality of community life due to the lack of mixed use neighbourhood design, are the demonstrated outcomes. In order to support and create a better region as a whole, the Places to Grow initiative and the Growth Plan for the Greater Golden Horseshoe will (s.6):

- Revitalize downtowns to become vibrant and convenient centres
- Create complete communities that offer more options for living, working, shopping and Playing
- Provide greater choice in housing types to meet the needs of people at all stages of life
- Curb sprawl and protect farmlands and greenspaces by dedicating growth areas and encouraging and phasing-in intensification within existing urban areas
- Reduce traffic gridlock by improving access to a greater range of transportation choices, requiring this range of choices to be integrated in existing neighbourhoods and planned for in new subdivision developments

The initiative statements are integrated across the Growth Plan's four major sections including: Where and How to Grow, Infrastructure to Support Growth, Protecting What is Valuable and Implementation. Within each section, many ICES principles are addressed, including: endorsing Smart Growth principles, improving efficiency, reducing waste and using renewable resources. Within the Protecting What is Valuable, there is an initiative to foster a culture of conservation. More specifically, relevant excerpts include:

1. Municipalities will develop and implement official plan policies and other strategies in support of the following conservation objectives (s. 4.2.4 of the Growth Plan):

a) Water conservation, including –
   i. water demand management, for the efficient use of water
   ii. water recycling to maximize the reuse and recycling of water.

b) Energy conservation, including –
   i. energy conservation for municipally owned facilities
   ii. identification of opportunities for alternative energy generation and distribution
   iii. energy demand management to reduce energy consumption
   iv. land-use patterns and urban design standards that encourage and support energy-efficient buildings and opportunities for cogeneration.

c) Air quality protection, including reduction in emissions from municipal and residential sources.

d) Integrated waste management, including –
   i. enhanced waste reduction, composting, and recycling initiatives and the identification of new opportunities for source reduction, reuse, and diversion where appropriate
   ii. a comprehensive plan with integrated approaches to waste management, including reduction, reuse, recycling, composting, diversion, and the disposal of residual waste
   iii. promotion of reuse and recycling of construction materials
   iv. consideration of waste management initiatives within the context of long term regional planning, and in collaboration with neighbouring municipalities.

One of the main guiding principles of the plan is the importance of collaboration across all sectors including government, non-governmental organizations, the private sector, and Ontario citizens, across jurisdictional boundaries, for this type of multi-faceted plan to be operationalized.

# Development Charges Act (DCA), 1997

Financing infrastructure and services resulting from the development of new communities is almost entirely within the jurisdictional responsibility of local municipalities. The Development Charges Act enables municipalities to enact a development charge by-law, in order to charge some types of new development, in an attempt to offset increased capital costs associated with servicing a new area.

Development charges may be used to finance some of the following services (s.5 (5)):

» water supply services
» waste water services
» storm water drainage
» electrical power services

Development charges, while typically used to pay for new capital costs, can be used to encourage energy efficiency and GHG reductions. The City of Toronto provides for development charge refunds of 20%, as of May 1, 2009, for Site Plan applications that meet both Tier 1 and 2 of their Toronto Green Standard. While this is successfully encouraging the goal of energy and GHG reductions, it could be supplemented by DCA reforms suggested by the Association of Municipalities of Ontario, for example, to support intensification which may have the effect of further advancing Integrated Community Energy Solutions.

# The Building Code Act, 1992

The Building Code Act establishes the regulatory framework for the construction, renovation and change of use of buildings, authorizing technical standards, administrative procedures, enforcement powers and mechanisms for dispute appeals and new product and system approvals (http://www.obc.mah.gov.on.ca/Page3124.aspx).

The Building Code provides a prescriptive set of detailed technical and administrative provisions regulated under the Building Code Act. More specifically, the Building Code details guidelines related to: health and safety, fire protection, structural sufficiency, accessibility, energy and water conservation and environmental integrity with respect to buildings, including on-site sewage systems.

In December of 2009, the Building Code Act was amended by the Good Government Act, 2009 and the Building Code was amended by Ontario Regulation 503/09. Relevant changes include:

» The City of Toronto Act, 2006 which was included in a list of applicable law and which allows the for the construction of green roofs.
» New technical standards made to include consideration for low-flow toilets, solar domestic hot water systems, water and sewer services and alternatives to the EnerGuide 80 energy efficiency standard for houses.

Some municipal lawyers are concerned that municipalities which pass by-laws calling for more stringent energy conservation measures in buildings than are embedded within the Ontario Building Code are subject to a challenge as to their validity. Others are of the view that municipalities have this power as a result of changes to the Municipal Act in 2001 and 2005, and as a result of the decisions by the Supreme Court of Canada and the Ontario Court of Appeal in CropLife v. Hudson and CropLife v. Toronto respectively, so long as the additional requirements are not in direct conflict with the Building Code requirements. In other words if builders and others can comply with both the municipal requirements and the building code, then on matters such as this, appellate Courts are likely to find the municipal requirements to be valid and the Building Code to be the minimum standard. Specifically, Courts have given the following reasons when distinguishing Hudson:

» Where dual compliance is simply not possible
» Where there is actual conflict between the provincial and the municipal laws
» Where the provincial regulation expressly intends to prevail over municipal bylaws
» Where a bylaw tries to change, rather than enhance, a provincial regulation
» Where a bylaw is enacted under a municipal power which is not the appropriate power for the bylaw in question

When the aforementioned issues are not relevant to a particular case, municipalities should be able to create bylaws which exceed minimum standards, like in the case of the Building Code.

The Green Energy and Economic Act created a OBC Strategic Advisory Committee to provide guidance to the MMAH on the development of the energy provisions of the Building Code in the short and long term.