



OFFICIAL PLAN REVIEW
ISSUES PAPER 3

COMMUNITY SUSTAINABILITY

County of Prince Edward
Planning Department
January 2012

OPEN PAGE

CONTENTS

Summary...p 5

Introduction...p 7

Section 1 Why Sustainability Matters

- 1.1 Defining Sustainability...p 8
- 1.2 Federal Sustainability Actions...p 9
 - 1.2.1 Gas Tax Revenue Sharing...p 9
 - 1.2.2 Green Municipal Fund...p 9
 - 1.2.3 Green Infrastructure Fund...p 10
 - 1.2.4 Federal Sustainable Development Strategy...p 11
- 1.3 Provincial Sustainability Actions...p 11
 - 1.3.1 Provincial Policy Statement...p 11
 - 1.3.2 Green Energy and Green Economy Act...p 11
 - 1.3.3 Annual Energy Conservation and Demand Plans...p 13
- 1.4 Local Sustainability Actions...p 14
 - 1.4.1 Making the Case for Sustainability...p 14
 - 1.4.2 Role of Official Plans...p 15
 - 1.4.3 Role of Community Sustainability Plans...p 16
 - 1.4.4 Municipal Sustainability Projects...p 16
 - 1.4.5 Prince Edward County...p 18

Section 2 Community Sustainability Plans

- 2.1 Where to Start...p 23
- 2.2 Policy and Implementation Tools...p 24
 - 2.2.1 Planning...p 24
 - 2.2.2 Corporate Policy...p 24
 - 2.2.3 Natural Features Protection...p 25
 - 2.2.4 Air Quality and Greenhouse Gas...p 26
 - 2.2.5 Brownfields...p 26
 - 2.2.6 Energy Conservation...p 27
 - 2.2.7 Renewable Energy...p 27
 - 2.2.8 Sustainable Building...p 27
 - 2.2.9 Transportation...p 28
 - 2.2.10 Waste...p 29
 - 2.2.11 Waste Management...p 29
 - 2.2.12 Wastewater and Sewage Management...p 30
 - 2.2.13 Water Conservation...p 30
- 2.3 Federal Gas Tax Funded Projects...p 31
- 2.4 Sustainable Community Successes...p 33
 - 2.4.1 Annapolis Royal...p 33
 - 2.4.2 Lennox and Addington...p 34
 - 2.4.3 Tweed...p 34

Section 3 Policy Context

- 3.1 Prince Edward County Official Plan, 1993...p 35
- 3.2 Provincial Policy...p 37

- 3.2.1 Planning Act...p 37
- 3.2.2 Provincial Policy Statement...p 37
- 3.2.3 Ministry of Municipal Affairs and Housing...p 39

Section 4 Community Sustainability Issues

- Issue 1: No Integrated Sustainability Planning in Prince Edward...p 43
- Issue 2: Environmental Impacts...p 43
- Issue 3: Financial/Fiscal/Economic Challenges...p 43
- Issue 4: Governance Limitations...p 45
- Issue 5: Social Concerns...p 46
- Issue 6: Land Development...p 47
- Issue 7: Liability...p 47
- Issue 8: Greenwashing...p 48
- Issue 9: Wind Energy Development Impacts...p 48

Section 5 Next Steps...p 49

Appendices

- Appendix A Official Plan Review...p 50
- Appendix B Renewable Energy Approval Process...p 52
- Appendix C MOE Bibliography for Renewable Energy Approval Process...p 54

Endnotes...p 63

SUMMARY

This paper contributes to the County of Prince Edward's Official Plan Review by assessing the role of sustainability in current government legislation, policies and programs in terms of the issues this raises for planning in the County. Sustainability has become a widely used term in both the public and private sectors. The paper makes clear that it is not just a buzz word, but derives from the belief that *development must meet our present requirements without compromising the ability of future generations to meet their own needs*. This belief is rooted in the environmental damage and resource depletion that continues to occur on a global scale.

Prince Edward County's 1993 Official Plan brought home this concept by defining "sustainable development" as stated above, and by providing an array of complementary policies. The overarching issue identified in this paper is that despite the Official Plan, there has been little direct municipal action in the area of sustainability. Related to this issue is a broad set of issues that result from the Official Plan's ad hoc approach to sustainability as compared to current integrated approaches.

One strong incentive for local governments to get involved in sustainability is the allocation of federal and provincial monies to related programs like the Green Infrastructure Fund and the Federal Gas Tax Agreement. Under the latter, a municipality receives per capita funds on the expectation that it demonstrates, through its planning instruments, that it has reflected and integrated social, cultural, environmental and economic sustainability. Meeting this kind of expectation could prove challenging for Prince Edward County in the future.

Municipalities across Ontario are adopting new official plans that have integrated social, cultural, environmental and economic policies because it makes good sense. Guiding the four systems so that they function in mutually supportive ways rather than work against one another helps build a sustainable community. For example, land development should benefit the local economy, contribute to social needs, support cultural values, and do no damage to the environment.

This seems like a tall order given our experience with generic sprawl over the past few decades, but the evidence indicates that if we do not aim high enough, a good quality of life cannot be sustained. Furthermore, evidence shows that communities who set themselves apart by enhancing their quality of life and quality of place have a competitive advantage when it comes to attracting the right kind of growth with its attendant benefits.

The 1993 Official Plan's shortcomings with regard to integrated sustainability policies should be addressed in the Official Plan Review. This is identified as Issue 1 in the following summary table. The experiences of many Canadian municipalities have highlighted a set of issues that can guide a sustainability initiative. The most important of these are identified as Issues 2 to 8. Issue 9 relates to a matter of major concern in the County, that is, the impact of large scale wind energy projects on various aspects of community sustainability, including human health and the local economy. In a sense, Issue 9 is a testament to the importance of integrated sustainability planning.

Sustainability Planning Issues	
Issue 1	No Integrated Sustainability Planning in Prince Edward County
Facts	<ul style="list-style-type: none"> • Current federal and provincial legislation, regulation, policy and funding call for sustainability planning at the local level and are expected to continue to do so. • Rural municipalities compete for economic development and migrants to avoid decline. Increasingly they are using sustainability plans to gain competitive advantage.
Issue 2	Environmental Impacts
Facts	<ul style="list-style-type: none"> • Water and land ecosystems are fragmented, altered or lost. • Global climate change, biodiversity decline and resource depletion have universal impacts.
Issue 3	Financial/Fiscal/Economic Challenges
Facts	<ul style="list-style-type: none"> • Infrastructure deficits are common due to infrastructure aging and maxed out capacity. • Revenue squeezes are the norm due to rising costs and limitations on taxation and service fees. • Funding for affordable housing is very limited. • Changes in the agricultural sector are stressing rural communities. • Developers' financial interests in low growth communities may override broader community interests. • Municipalities are in competition for new residents, tourists and economic development.
Issue 4	Governance Limitations
Facts	<ul style="list-style-type: none"> • Municipal authority is defined and limited by the Provincial government through the Municipal Act, Planning Act, Green Energy Act, Building Code Act, Provincial Policy Statement, etc. • Often there is waning municipal will to resolve social, cultural and environmental issues in the face of development pressure.
Issue 5	Social Concerns
Facts	<ul style="list-style-type: none"> • Increasingly science links public health to environmental and socio-economic factors. • Low population growth and changing demographics (e.g. aging) create many challenges. • The public resists changes in status quo that facilitate sustainability (e.g. increased density).
Issue 6	Land Development
Facts	<ul style="list-style-type: none"> • Small developers lack experience with non-conventional forms of development that support sustainability. • Sprawl along country roads impacts cultural heritage, land economics, and the natural environment.
Issue 7	Liability
Facts	<ul style="list-style-type: none"> • Some brownfield development has risk and liability regarding contamination, particularly former industrial sites.
Issue 8	Greenwashing
Facts	<ul style="list-style-type: none"> • Some organizations create the appearance of environmental consciousness but conduct business as usual.
Issue 9	Wind Energy Development Impacts
Facts	<ul style="list-style-type: none"> • There are information gaps on the impacts on health, local economy, and wildlife. • Renewable energy projects are exempt from most municipal approvals.

INTRODUCTION

Community Sustainability is the third in a series of discussion papers that will contribute to Prince Edward County's Official Plan Review ("OPR"), a process that is required under the *Planning Act*. The OPR began in 2010 with the preparation of new secondary plans for Picton-Hallowell and Wellington. The second phase began in 2011 with the preparation of a new Official Plan for the entire municipality. More information on the OPR is provided in Appendix A to this paper.

The first task of OPR Phase 2 calls for the production of discussion papers which identify key planning issues that will need to be considered in the development of new Official Plan policies. Thus far, two discussion papers have been published: *Vision 2031* and *Growth 2031*. They are available from the Planning Department or online, as detailed in Appendix A. Forthcoming discussion papers will focus on economy, settlements, housing, cultural resources, rural areas, shore land, environment, infrastructure, and other planning elements of municipal concern.

In accordance with Council's OPR Public Consultation Plan, all of the discussion papers will be widely circulated to invite feedback from stakeholder groups and community members. This input will be important in the coming policy development stage.

Community Sustainability makes a contribution to the discussion of OPR issues by reviewing why sustainability has become a central principle in community planning across Canada, and by exploring how sustainability can guide the analysis of key planning issues that affect Prince Edward County. Sections 1 and 2 address these questions by reviewing why sustainability matters and how it can be applied in municipal planning. Section 3 identifies sustainability related policies in the current Prince Edward County Official Plan (1993) and the Provincial Policy Statement (2005), while Section 4 identifies sustainability issues of relevance to Prince Edward County. Finally, Section 5 outlines the next steps in the OPR process.

Section 1 Why Sustainability Matters

1.1 Defining Sustainability

For the past few decades, the concept of sustainability has been interpreted and applied in many different ways. The most common approach derives from the definition of “sustainable development” provided in the UN sponsored report, *Our Common Future* (World Commission on Environment and Development, 1987):

Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

The definition, with its origin in the problematic impacts of development on the natural environment, quickly gained global acceptance, as evidenced by its inclusion in the 1993 Prince Edward County Official Plan:

The County adopts the principle of sustainable development through land use planning to ensure a high quality of life for County residents, to maintain the desirability of the County to visitors and investors and to avoid the costly environmental mistakes that have been made in the past.

(Part III, s. 1.1.1)

Communities around the world have embraced the principle of sustainable development. In Canada it drives new ways to plan which engage individuals and stakeholders from all sectors of community life. Working together are progressive minded residents, business leaders, academics, social service providers, and government officials. At the core of their initiatives is the commitment to achieve a good quality of life without damage to the environment and with the remediation of damage that has already been caused.

In developing formal community sustainability plans, ways to achieve this goal usually relate to four inter-related systems that together create our experience of community life: the environment, the economy, and the social and cultural systems.

In essence, a sustainable community can be described as one that provides a good quality of life through a vibrant economy that meets our social needs (e.g. health care, affordable housing), reflects our cultural values (e.g. heritage architecture, civic engagement), and conserves the natural environment (e.g. clean air, clean water, and clean energy).

Senior levels of government have used the concept of sustainable development largely in relation to conservation of the natural environment through measures that achieve cleaner air, cleaner water, and lower greenhouse gas emissions.

1.2 Federal Sustainability Actions

Budget 2005 delivered long-term, predictable funding as part of the Government of Canada's commitment to a "New Deal for Cities and Communities." Under the New Deal, federal, provincial, territorial and municipal governments are expected to work together with other stakeholders to develop long-term strategies for improving our communities. Budget 2005 committed the Government to several funding programs, including gas tax revenue sharing and the Green Municipal Fund.

1.2.1 Gas Tax Revenue Sharing

The Federal Gas Tax Agreement, 2005, allocates funds on a per capita basis to all municipalities for investment in eligible, environmentally sustainable municipal infrastructure that achieves cleaner air, cleaner water and/or lower greenhouse gases; in return, municipalities are required to demonstrate progress towards sustainable community planning.¹ The impact of FGT funding on communities is discussed further in section 2.3 of this paper.

1.2.2 Green Municipal Fund

The GMF provides grants, low-interest loans and innovative financing to increase investment in infrastructure projects that deliver cleaner air, water and soil, and climate protection. Administered by the Federation of Canadian Municipalities, the GMF has six project sectors that qualify for funding:

- **Planning**
This sector includes the preparation of official plans, neighbourhood plans, and economic development plans.
- **Brownfields**
The environmental objective of this sector is to bring contaminated sites back into productive use and reduce the need for greenfield development, that is, sites that have not been developed previously.
- **Energy**
The environmental objective is to reduce energy consumption. Eligible capital projects are classified into three types: energy-efficient facilities, energy recovery/district energy, and net zero systems.
- **Transportation**
The environmental objective is to reduce fuel consumption for transportation.
- **Waste**
The environmental objective is to reduce waste sent to landfill.
- **Water**
The environmental objective is to protect watersheds.

GMF projects in the planning sector usually involve the preparation of community sustainability plans. Municipal governments undertaking these projects must meet a series of milestones throughout the process. They include establishing a sustainability vision, analyzing current conditions, developing sustainability goals and targets, developing an implementation plan, reporting on the initiative, consulting

with the public and stakeholders throughout the process, and obtaining municipal council approval for the plan.

Many Ontario municipalities have received GMF funding. Prince Edward County has not applied. Below are examples of the range of sustainability projects undertaken by smaller municipalities like Prince Edward (populations between 15,000 and 30,000).

Green Municipal Fund Projects	
Greater Napanee	Long-range Waste Disposal and Diversion Plan
Brockville	Brownfield Community Improvement Plan
Brockville	Cogeneration from Wastewater Treatment
Frontenac County	Integrated Community Sustainability Plan
East Gwillimbury	Community Energy Plan
Collingwood	Sustainable Community Plan
Stratford	Sustainable Community Development Milestones
Port Colbourne	Brownfield Redevelopment Strategy and CIP
Port Colbourne	Waterfront Revitalization Strategy
Uxbridge Township	Energy Conservation Study for Arena and Pool

As of December 1, 2011, new funding applications were being accepted for capital projects in the energy, transportation, waste and water sectors, as well as for plans, feasibility studies and field tests. These opportunities should be explored by Prince Edward County.

1.2.3 Green Infrastructure Fund²

Budget 2009 introduced Canada's "Economic Action Plan," which included the Green Infrastructure Fund. The GIF targets projects that will improve the quality of the environment and lead to a more sustainable economy. Like the Green Municipal Fund, the GIF supports projects that promote cleaner air, cleaner water, and reduced greenhouse gas emissions.

Project categories include new or rehabilitation projects to provide: wastewater infrastructure, green energy generation and transmission infrastructure, solid waste infrastructure, and carbon transmission and storage infrastructure. The majority of funding has been already been allocated, and as of July 2011, Infrastructure Canada had received sufficient proposals for the remaining funds. Eight approved projects in Ontario are:

Green Infrastructure Fund Projects in Ontario	
Kirkland Lake	New Wastewater Treatment Plant
Hamilton	Upgrades to Wastewater Treatment
Red Rock	New Treatment Plant
Owen Sound	Measures to clean up Georgian Bay
South Dundas	Cost-Saving Design for Upgraded Wastewater Treatment
Cornwall	Measures to clean up the Saint Lawrence River
Halton	Measures to meet increasing Wastewater Treatment demand
Timmons	Upgrades to Wastewater Treatment

1.2.4 Federal Sustainable Development Strategy, 2010

The FSDS fulfills the requirements of the *Federal Sustainable Development Act, 2008*, by establishing a framework for sustainable development planning and reporting at the federal level. Goals include:

- Addressing climate change and air quality
- Maintaining water quality and availability
- Protecting nature through wildlife conservation, ecosystem/habitat conservation and protection, and biological resources
- Shrinking the environmental footprint, beginning with government, by greening government operations

These sustainability goals are also reflected in Ontario provincial policy and legislation.

1.3 Provincial Sustainability Actions

1.3.1 Ontario Provincial Policy Statement, 2005

The PPS sets out many policies related to sustainable planning and development, as presented in section 3.2.2 of this discussion paper. All municipal government policies must be consistent with the PPS, therefore the Official Plan Review for Prince Edward County must ensure that sustainability is appropriately addressed in the new Official Plan.

1.3.2 Green Energy and Green Economy Act, 2009

The GEGEA is enabling legislation that established the *Green Energy Act, 2009* as well as a set of changes to other legislation to enable and support the Feed-in Tariff (FIT) Program and to introduce the provincially led Renewable Energy Approval (REA) process.

The *Green Energy Act, 2009* encourages the development of renewable energy projects, establishes the Renewable Energy Facilitator and the Renewable Energy Facilitation Office to assist renewable energy projects in coming online, and enables a suite of conservation initiatives.

This legislation commits the Ontario Government to:

- Fostering renewable energy production, removing barriers to renewable energy projects, and promoting a green economy
- Ensuring energy conservation and efficiency in government and the broader public sector (including municipalities)
- Promoting and expanding energy conservation by all Ontarians
- Encouraging all Ontarians to use energy efficiently

Key elements of the legislation and related measures include:

- Opportunities for municipalities, First Nations and Métis communities to build, own and operate their own renewable energy projects
- New programs for municipalities, communities and Aboriginal groups to ensure some project costs associated with community renewable energy

projects can be recovered

Renewable Energy Approvals Regulation 359/09

REA is the key regulation setting out the environmental standards which most renewable energy projects must meet under the *Environmental Protection Act*. It applies to most wind, solar PV and bio-energy projects that are above specific sizes.

The REA process is outlined in Appendix B. Six of the 14 steps relate to consultation between the developer and the local community, that is, the public, municipal stakeholders, and the municipality. One of these steps gives the municipality the opportunity to provide the developer with information about a) natural heritage features and water bodies near the project location and b) cultural heritage and archaeological records. A subsequent step gives the municipality the opportunity to review all draft reports and studies prepared by the developer.

Ontario Regulation 15/10

This designates priority renewable energy projects and sources under the *Green Energy Act*. Most municipal by-laws no longer apply to the extent that they would prevent or restrict the designated projects or sources. Designated are:

- Roof or wall mounted solar photovoltaic (PV);
- Roof or wall mounted solar thermal systems that heat air;
- Roof or wall mounted solar thermal water systems that heat water; and
- Ground source heat pumps.

The regulation does provide that certain local and provincial restrictions related to health, safety, heritage, and the environment will continue to be in effect, including, for example, local by-laws preserving trees or cultural heritage properties, and a number of provincial laws such as the *Building Code Act, 1992* and the *Endangered Species Act, 2007*.

Municipal by-laws, other than by-laws under the *Planning Act*, continue to apply to renewable energy projects or sources which are not designated by Ontario Regulation 15/10 under the GEA.

Of particular interest to local governments are the GEGEA's amendments to the *Planning Act*, *Environmental Protection Act*, and *Building Code Act*, as outlined following.

Planning Act Amendments

The GEGEA exempts renewable energy undertakings (defined as renewable energy generation facilities, projects, testing facilities or testing projects) from the following local planning instruments:

- Official Plans
- Demolition Control By-laws
- By-laws or Orders passed under Part V, including zoning, site plan, holding and interim control by-laws
- Development Permit System By-laws

- Subdivision control and part-lot control under section 50 if the lease for the project is for a period of 50 years or less

Renewable energy projects that propose the creation of new lots, or require land leases longer than 50 years, continue to be subject to the land division process under the *Planning Act*. Furthermore, site plan and other agreements existing prior to the GEA continue to apply until they are subject to a Renewable Energy Approval.

Environmental Protection Act Amendments

The EPA amendments enable the above discussed Ontario Regulation 359/09 for Renewable Energy Approval (REA), and set out the conditions under which an appeal of a REA decision will be considered. Importantly, the amendment extends existing appeal rights to persons who would not otherwise be entitled to a hearing so that they may, on specified grounds, require a hearing by the Environmental Review Tribunal in respect of a MOE decision on a renewable energy approval. The appeal must be made within 15 days of the issuance of the decision notice.

Building Code Act Amendments

Subsection 34 (5) of the *Building Code Act, 1992* lists, among the purposes of the building code (the regulations made under section 34), the establishment of standards for "conservation". The subsection is amended to clarify that this includes energy and water conservation.

A new subsection 34 (6) requires the Minister of Municipal Affairs and Housing to initiate reviews of the building code with reference to standards for energy conservation, at five-year intervals.

A new section 34.1 requires the Minister to establish the Building Code Energy Advisory Council, whose mandate is to advise the Minister on the building code with reference to standards for energy conservation.

1.3.3 Annual Energy Conservation and Demand Management Plans

Ontario Regulation 397/11 under the *Green Energy Act* requires public agencies, including municipalities, hospitals and school boards, to prepare, publish, make available to the public and implement energy conservation and demand management plans or joints plans. Such a plan has two parts:

1. A summary of the public agency's annual energy consumption and greenhouse gas emissions for its operations. In the case of a municipality, these include administrative offices and council chambers, public libraries, cultural facilities, recreation facilities, community centres, arenas, fire/police/ambulance stations, storage/maintenance facilities for equipment and vehicles, and water and wastewater treatment facilities.
2. A description of previous, current and proposed measures for conserving and otherwise reducing the amount of energy consumed by the agency's operations and for managing the agency's demand for energy, including a

forecast of the expected results of current and proposed measures. This includes a description of any ground source energy and solar energy harnessed by technology operated by the agency, and any plan to use such technology in the future.

The agency's summary must be submitted to the Minister, published on its website and made available to the public on or before July 1, 2013, and each year thereafter.

1.4 Local Actions

Sustainability has become a grass roots movement with many interpretations and applications. The totality of initiatives taken by community members, stakeholder groups, and municipal governments is much broader in scope than senior government initiatives. Local government actions include policies, procedures, guidelines, standards, and capital projects in the following areas:

- air quality
- alternative energy
- energy conservation
- water, wastewater and waste
- land use
- local food
- economic development
- natural heritage
- culture
- urban design
- social equity
- transportation

1.4.1 Making the Case for Sustainability

The Association of Municipalities of Ontario (AMO) has identified five areas of municipal responsibility that benefit from sustainability planning and implementation.³

Traditional

Compliance with environmental and other planning regulations has been a longstanding motivator, and a new generation of sustainability-related legislation/regulation to address greenhouse gas emissions will require ongoing engagement in this particular area. Also, voluntary sustainability planning is being undertaken by some municipalities in order to:

- address serious, interrelated problems such as polluted air and water, loss of industry and jobs, a shrinking tax base, decaying infrastructure, etc.;
- build on the benefits achieved from start-up projects; and
- avoid costly problems from developing in the future by planning now.

Financial

To be eligible for some important federal and/or provincial municipal infrastructure funding programs, municipalities are required to demonstrate sustainability planning efforts (e.g. Green Municipal Fund). AMO believes it is reasonable to expect that

many future funding programs will require evidence of some form of community sustainability planning. Furthermore, AMO points out that there are significant cost savings accruing to a municipality's bottom line from sustainability planning and programming initiatives.

Economic

According to AMO, emerging research shows the most successful communities of the future may be those that have placed strategic, high-priority emphasis on quality-of-life conditions. Rural centres can maintain or reacquire vitality if they appeal to a workforce who, by virtue of technology, does not need or want to be in a large urban area. Those rural centres that provide a good quality of life, as embodied by sustainability principles, can successfully compete for this type of workforce.

Environmental

As stated by AMO, to the extent that we deplete our natural resources at a greater rate than we can replace or renew them, we are on a path that threatens our planet's survival. Climate change, water and air quality degradation, depletion of non-renewable resources, and unsustainable use of our renewable resources all hold potentially disastrous consequences to community health and economic and social welfare. A sustainable environment is the foundation that supports our economies and our ability to live healthy lives. AMO asserts:

Just as shareholders demand good corporate oversight when they invest in a corporation, residents are increasingly looking to their municipal governments for responsible governance that goes beyond bottom line considerations into more intangible, quality of life variables. At some point, communities and leadership recognize that the pursuit of sustainability is simply the right thing to do.

Cultural

AMO points out that cultural heritage can be a more elusive sustainability goal and yet, achievement of cultural heritage preservation and an emphasis on cultural expression can have very positive impacts on the achievement of social, economic and environmental goals.

1.4.2 Role of Official Plans

Under the Ontario *Planning Act*, a municipal official plan is mandated to address how land is used, as well as the impacts of such use on the economic, social and environmental systems. As the developers and administrators of official plans, municipal planning departments are the one part of local government that is responsible for overseeing a long-term community vision and ensuring that policies and plans that originate in other parts of the government fit together as a whole and move the community toward its vision. Consequently, many municipalities are incorporating sustainability goals and implementation tools in their Official Plans. Some examples of smaller municipalities that have taken such action are:

Official Plans with Sustainability Policies
Aurora, Blue Mountains, Caledon, Deep River, Grimsby, Haliburton, Kawartha Lakes, Muskoka, North Bay, Orangeville, Peterborough, Quinte West, Sarnia, Wasaga Beach, etc.

1.4.3 Role of Community Sustainability Plans

The broadest initiatives in the economic, social and environmental aspects of sustainability involve the implementation of community goals through plans and programs that require action not only by government, but by citizens, NGOs, and businesses. Many communities are organizing themselves to develop wide scope sustainability plans that complement their Official Plans. Some examples are:

Community Sustainability Plans
Counties of Frontenac, Huron, Lanark, and Lennox & Addington; North Durham, Brockville, Caledon, Collingwood, Kawartha Lakes, Kingston, Markham, Red Lake, Sioux Lookout, Sudbury, Timmins, Tweed, etc.

1.4.4 Municipal Sustainability Projects

AMO has developed 24 case studies that draw out municipal best practices in sustainability planning and implementation.⁴ Seven case studies that demonstrate a range of approaches are summarized following.

Town of Caledon

Greenest Town Award

Caledon received this award because of a number of its progressive environmental initiatives, among them, purchase of green electrical power, countryside planning, the Healthy Horticultural Landscapes Bylaw, strong community involvement, membership in the Partners for Climate Protection Program, and the addition to staff of an Environmental Progress Officer. Some other Town initiatives are:

- Development Charge Discounts for new “green” commercial and industrial buildings that incorporate LEED (Leadership in Energy and Environmental Design) certification.
- Cogeneration installation (combined heat and power generation) at the Caledon Centre for Recreation and Wellness, the Town’s largest recreation facility. This will result in a reduction of about 539 tons of carbon dioxide per year--equivalent to removing 92 cars from the road.

Town of Markham

No Catch to Conserve

Under this pilot program, 24 Markham small businesses received up to \$1,000 in energy efficiency upgrades, which will result in a combined energy savings for these businesses of approximately 117,359 kWh annually or \$10,562 in cost savings. The success of this pilot led the Province, through the Ontario Power Authority, to launch a province-wide program that combines awareness building, the dissemination of practical information about energy conservation, and encourages small businesses to implement specific measures to help reduce their electricity costs and help Ontario better manage its summer peak.

Town of Orangeville

Melding Heritage Protection with Economic, Environmental and Social Sustainability Interests

Since 1995 a façade improvement grant program has been in effect in Orangeville's downtown core. The Town pays 50% of improvements up to \$10,000 if the building and renovations are deemed to have historical significance. Over the past nine years, 39 projects have been completed, representing an investment of \$270,000 in government funds, which has leveraged \$450,000 in private sector funds for a total of some \$720,000.

In 2002 the downtown became a Heritage Conservation District. Heritage enhancements have made the area more attractive as a place to live. Residential densification encourages people to walk to local shops rather than drive. Store vacancies are rare and more transit options are created. More activity means more safety, and there is greater community pride in Orangeville's heritage. These actions are accompanied by many other sustainability-related initiatives including: energy efficiency measures such as high efficiency street and signal lighting and tree planting.

Town of The Blue Mountains

Growth and its Challenges to Long-Term Sustainability

The town has extraordinary recreational assets, including skiing, the Bruce Trail, the Georgian Trail, and the many water-related recreational and tourism activities provided by Georgian Bay. These strengths have resulted in significant population and economic growth, a trend that is projected to continue as people from urban areas retire and look for either temporary or permanent residence in The Blue Mountains.

In addition to tourism, growth has been driven by agriculture (especially apple orchards and organic farming) and by boutique shopping. Each year over 1 million people come to the area for tourism/recreation/work opportunities. This tremendous growth presents a number of challenges to long-term sustainability:

- The economic base is largely service-driven. Tourism and related industries have supported a low/minimum wage labour force, some of it seasonal. Much of the permanent population is near retirement. Thus, the Town needs to attract younger families and higher wage industries, however, there is a shortage of healthcare providers and affordable housing. While the Town would like to have its workforce living locally, these shortages are adversely affecting that goal.
- The considerable tourism-driven development that is expected to continue could alter the rural quality of life enjoyed by longstanding residents. Cultural sustainability will depend on the careful management of such development.

Integrated Community Sustainability Plan (ICSP)

The Town is taking a proactive and highly participatory approach to developing an ICSP. Driven by the CAO, funding for the plan was obtained from the Green Municipal Fund, and following the Sudbury model, staff and Council are reaching out

to stakeholders throughout the community to invite them to participate in the planning process. A consultant has been engaged to facilitate group meetings and write the ICSP, but it will be the community participants who will generate the plan's goals, objectives, actions and indicators. So far, over 20 organizations have signed up.

Township of Woolwich

Embedding Sustainability into Day-To-Day Decision-Making

Council adopted nine Guiding Principles for sustainable development and integrated them into the Official Plan. They personalize what sustainable development means in the Township's context:

1. Build a feeling of community
2. Promote a strong voice for all residents
3. Support farming
4. Support local business
5. Treat waste as a resource
6. Improve the quality of the environment
7. Provide for people's basic needs
8. Honour the past
9. Safeguard the future

When any decisions are made at Council, the extent to which these Guiding Principles will be achieved must be addressed. In this way, the Township has embedded sustainability into day-to-day decision making.

County of Frontenac

Community Energy Projects

Frontenac was one of the first municipalities in Ontario to decide to develop an ICSP according to the Federal Gas Tax criteria. One related project is the Green Energy Task Force, which is mandated to provide opportunities to citizens, farmers, businesses, and local governments of Frontenac County to be involved in and invest in the green economy, particularly through the development of community energy projects such as solar rooftop installations under the Ontario MicroFIT program.

Town of Grimsby

Municipal Energy Plant

The Town of Grimsby is approaching sustainability in part by building a one MW bio-gas energy facility that will use agricultural waste to generate electricity for the town and for sale to the grid at FIT rates. It is anticipated that Grimsby Energy Inc. will make a positive contribution to municipal revenues.

1.4.5 Prince Edward County

In Prince Edward, actions that support a sustainable community mostly originate with individuals, interest groups and businesses who have a "green" perspective and a commitment to apply it on a day-to-day basis. One familiar face of sustainability is

renewable energy production in the form of solar panels glinting from roofs and fields, and domestic wind turbines animating the odd rural property. Less obvious are geothermal systems and green building materials going into custom homes.

Sustainability is also evident in our growing attention to local food and wine production as, for example, promoted by *Harvestin' the County*, *Taste the County*, and *Wassail*. The popular *Arts Trail* exemplifies the community's vibrant culture, as do many other initiatives arising from an abundance of resident artists, artisans and heritage enthusiasts.

These activities are reflections of what the County's Economic Development Office has termed the *creative rural economy*. Over the past ten years this concept has been shaped by the EDO with the help of Queens University, Ryerson University, and diverse community stakeholders. At its core are diversity and quality of place—both essentials for building a community that has long term sustainability.

Although Prince Edward does not have a formal sustainability plan, the Official Plan Review, to which this issues paper contributes, provides the opportunity to develop municipal policies that will nurture, integrate and promote sustainability over the long term. As with all policy initiatives, it is essential to include implementation tools that will help the County achieve its goals and measure progress along the way.

At present, municipal sustainability actions are ad hoc and limited. Some recent departmental initiatives are:

- Encourage the development of a long term plan for septic systems to be brought up to meet current standards for shore lands and concentrated rural areas (Planning & Building)
- Promote the planting of native trees, i.e. tree replacement policy for all municipal departments; encourage developers to include tree planting in site plans; promote the conservation seedling program, etc. (Recreation, Parks & Culture)
- Install solar panels in skate board park (Recreation, Parks & Culture)
- Investigate technology to divert landfill waste, e.g. composting, gasification, etc. (Public Works)
- Develop building recommendations for affordable green energy, e.g. lighting, low flush toilets, high efficiency appliances, etc. (Planning & Building)
- Develop a strategy that will promote and encourage new low energy recreation infrastructure with community groups, partners and volunteers to serve all ages and physical abilities with an emphasis on minimizing costs and environmental impacts (Recreation, Parks & Culture)
- Develop an energy management and maintenance strategy for existing facilities (Recreation, Parks & Culture)
- On-going local food initiatives (Economic Development Office)
- Community Improvement Plan (Economic Development Office)
- Labour force capacity building pilot project – green skills for building trades (conceptual stage, working with community partners to develop for Winter 2012 – Economic Development Office)

Two initiatives that highlight important municipal sustainability challenges are the Strategic Energy Plan and Council's resolution for a Provincial moratorium on industrial wind turbines.

Strategic Energy Plan, December 2009

The Strategic Energy Plan was prepared by Energy Solutions at the initiative of the Department of Recreation, Parks and Culture. The Plan recommends energy conservation objectives for municipal buildings and includes a high-level five-year plan for funding and implementation. The conservation objectives are:

1	Reduce the annual energy costs associated with the operation of the County facilities by 7% compared to the 2008 baseline year, by December 31, 2014. <u>This cost savings amounts to an estimated \$77,000/year.</u>
2	Reduce the amount of greenhouse gas emissions attributable to the operation of the seven Category #1 municipal facilities by 670 tonnes/year (expressed as CO ₂), by December 31, 2014.

Other cited benefits of implementing the Plan are:

- Potential future value of this greenhouse gas reduction of approximately \$13,000 in proposed cap-and-trade markets (based on \$20/tonne).
- Improved occupant comfort and enjoyment of the County facilities:
 - The use of improved building HVAC controls would improve the level of occupant comfort, winter and summer.
 - Brighter ice surfaces and improved ice quality at the arenas.
- The future potential opportunity of capturing a new revenue stream for the County, via participation in the Province of Ontario's Feed-in Tariff (FIT) Program, whereby the Province pays for new sources of renewable energy. Such participation can take the form of the County being a power generator using solar photovoltaic panels, or of the County merely leasing building rooftop space to privately-held agencies which would themselves provide and operate the power generation equipment.

To implement the Strategic Energy Plan, the consultant recommends that the Municipality create the position of Energy Coordinator to guide and oversee all aspects of the energy management topic and opportunity for the County.

No action has been taken on the Strategic Energy Plan. As discussed in section 1.3.3, Ontario Regulation 397/11 requires that every municipality prepare and implement an annual Energy Conservation and Demand Management Plan, therefore energy planning will need to be addressed by the Municipality in the immediate future.

Council Resolution for a Moratorium on Industrial Wind Turbines

The provincial policy to facilitate alternative energy production through the *Green Energy Act* has met with resistance in many rural municipalities when it involves industrial wind turbines ("IWTs"). Currently such development is the most controversial land use issue in Prince Edward County. Over the past few years, stakeholder groups and community members have argued the pros and cons of IWTs in the local media, at public meetings, and before Council.

On February 8, 2011, Council approved a resolution that requests the Provincial Government to implement a moratorium on IWTs until the completion of independent health studies and a full environmental study to determine the possible impact, related costs to the Municipality, and the effect on property values. The resolution also calls for the restoration of some municipal authority over setbacks and other such measures as deemed necessary. The resolution is set out in Motion 2011-97:

WHEREAS the Council of the County of Prince Edward has concerns over the Green Energy Act in relation to its application to industrial wind turbines;

AND WHEREAS the Council of the County of Prince Edward is dissatisfied with the Province of Ontario removing industrial wind turbine approvals and overall decision-making approvals from the Municipal Governments;

AND WHEREAS the Council of the County of Prince Edward is dissatisfied with regulations imposed by the Province of Ontario on the erection and operation of industrial wind turbines with respect to land use planning and the impact on **building economically viable and sustainable communities** [emphasis added];

AND WHEREAS the Council of the County of Prince Edward is concerned with the conflicting information regarding the health effects of industrial wind turbines on citizens living in close proximity to these structures;

AND WHEREAS the potential health effects is proven to be destructive and divisive to the social and cultural fabric of our rural urban communities;

NOW THEREFORE BE IT RESOLVED THAT the County of the County of Prince Edward requests the Ontario Provincial Government to implement a moratorium on industrial wind turbines until independent health studies have been completed and a full environmental study be done to determine the possible impact, and all related potential costs that will be incurred by the Municipality and the effect on property values in the affected areas and the introduction of legislation that some powers to deal with these wind turbines be restored to allow municipalities to set appropriate setbacks specific to their jurisdictions and to implement such other measures as they deem necessary;

AND FURTHER THAT a copy of this resolution be sent to the Premier of Ontario, the Member of Provincial Parliament for Prince Edward-Hastings, the leader of the Official Opposition, to such other provincial cabinet ministers that may be deemed appropriate; and

THAT a copy be forwarded to the Association of Municipalities of Ontario for their support and for distribution to AMO member municipalities seeking their approval and encouraging them to pass similar resolutions.

The most recent provincial action relevant to local concerns about IWTs is the publication of **Renewable Energy Development: A Guide For Municipalities**.⁵ The Guide gives an overview of the regulatory process and addresses some key community concerns, including impacts on health and property values, as well as benefits for the economy and the environment.

Health Concerns

The Guide states: "The MOE is committed to ensuring that its rules regarding wind farms continue to reflect current science as is the case with all other environmental standards set by MOE." Accordingly, the MOE has hired an independent consultant to develop a procedure for measuring audible noise from wind turbines. It is believed that this will enhance the MOE's ability to ensure operating wind farms comply with provincial requirements. MOE also has hired an independent consultant to review Low Frequency Noise (LFN) impacts from wind turbines, and to develop recommendations regarding low frequency noise. The Guide states: "The government is committed to protecting the health of Ontarians. Should new information come to light, the province will review its policies and make any necessary changes."

Property Values

The Guide states: "At this time, the Municipal Property Assessment Corporation (MPAC) is not altering property assessments as a result of wind energy projects because there is not enough property sales data available in Ontario to determine the impacts of renewable energy projects. The Ministry of Energy is monitoring the situation. Note that a prominent US-based study published by the US Department of Energy (DOE) December 2009 found no statistically significant impacts of wind energy projects on nearby property values. See <http://eetd.lbl.gov/ea/ems/reports/lbnl-2829e.pdf>."

Economy and Environment

Regarding Council's resolution with respect to the impact of IWTs on "building economically viable and sustainable communities," the Guide addresses economic benefits only in a general way, although it emphasizes that renewable energy provides local jobs, "especially during the development cycle of the projects." This reference to temporary construction jobs does little to address Council's concern about long term economic viability and sustainability. Regarding environmental impacts, the Guide only speaks to the benefit of eliminating coal-fired electricity generation by replacing coal with new cleaner sources of energy.

2.0 Community Sustainability Plans

As discussed earlier, community sustainability plans commonly view the environment as a system within which our society functions, as expressed by interrelated economic, social and cultural systems. Their primary goal is to ensure that the four systems operate in harmony, and that a change initiated in one system does not adversely impact the others. The most common source of disharmony has been economic development and land use change occurring at the expense of our natural environment. However, there are many other actions that can have negative impacts throughout the systems. Sustainability plans not only seek harmony, but recognize that the systems have limits which must be acknowledged if they are to support future generations.

2.1 Where to Start

A widely referenced source for local sustainability planning is the book, *Toward Sustainable Communities, Resources for Citizens and Their Governments*, by Mark Roseland.⁶ The author outlines nine “Sustainable Community Building Blocks” which can be used to develop a plan around the four sustainability systems (environment, economy, social, and cultural). The building blocks are summarized as follows:

Building Blocks for a Sustainable Community		
	Building Block	Scope
1	Greening the City	urban green space, agriculture and aquatic systems
2	Water and Sewage	supply and demand, water quality and sewage treatment, and integrated resource planning
3	Waste Reduction and Recycling	source reduction, reuse, recycling and recovery, and composting
4	Energy Efficiency and Renewables	energy efficiency, environmentally responsible energy supply, and community planning and management issues
5	Atmospheric Change and Air Quality	local air quality, climate change, ozone layer depletion and economic benefits of addressing atmospheric change
6	Transportation Planning and Traffic	true costs of driving, technical fixes, and reducing automobile dependency
7	Land Use and Urban Form	land use and transportation, density and housing, the costs of sprawl, changing the pattern of growth, new urbanism, and social benefits of compact communities
8	Housing and Community Development	affordable housing, community improvement plans, health and wellness programs, local food supplies, civic engagement, etc.
9	Community Economic Development	development redefined, environmental responsibility, and rethinking economic development

2.2 Policy and Implementation Tools

All of the foregoing “building blocks” can be addressed by official plan policies, but they will have little effect unless they are implemented. The Canadian Federation of Municipalities has compiled a collection of policies and implementation by-laws for thirteen areas in which local governments are taking action to advance community sustainability.⁷ Following are examples in each area. They show that there are many ways to progress toward becoming a sustainable community.

2.2.1 Planning

Tool	Purpose	Municipality
Revitalization Tax Exemption Bylaw	Provides a tax exemption program to encourage revitalization of the municipality’s downtown area.	Chilliwack, BC
Sustainable Neighbourhood Plan	Provides a policy framework to facilitate and coordinate sustainable development, regardless of land ownership or when development takes place. Establishes guidelines and a policy context for neighbourhood planning, and provides a framework within which adjacent landowners can work cooperatively to implement the plan.	Dawson Creek, BC
Development Permit Area Guidelines	Promotes sustainability through the development of a compact community, energy-efficient building practices, protection of natural features and ecologically significant areas, and other elements.	Maple Ridge, BC
Eco-Industrial District Zone	Establishes an area for the development of an industrial park demonstrating innovation and high levels of environmental and economic performance.	Hinton, AB
Sustainability Criteria	Ensure that all new development fosters sustainability in these categories: economic and commercial development; environmental management; neighborhood design; community services; transportation and infrastructure; and stakeholder involvement.	Stony Plain, AB
Growth Management Strategy on Servicing Allocation	Identifies eligibility criteria for servicing allocation applications, and the evaluation process for development applications. Eligibility criteria address sustainability considerations, including sustainable and innovative community and building design; supportive, higher-order transit development; mixed-use developments that provide for live-work communities; and developments that enhance the vitality of the downtown area.	Richmond Hill, ON

2.2.2 Corporate Policy

Tool	Purpose	Municipality
Environmental Purchasing Policy	Assists municipal staff in selecting products and services that promote a healthy environment, and to foster demand for products that promote environmental sustainability.	Richmond, BC
Sustainable Procurement Policy	Ensures that purchasing decisions for goods, services and construction support regional sustainability initiatives and uphold a commitment to embed sustainability in all	Vancouver, BC

	practices. The policy has three main components — economic, environmental and social — and applies to all competitive processes.	
Environmental Policy	Promotes the development of an environmentally sustainable community and environmental stewardship of all city operations, products and services.	Edmonton, AB
Environmental Policy	Aims to design, build, and operate all city facilities with minimal environmental impact by incorporating principles of energy efficiency, water conservation, waste minimization, pollution prevention, and the use of resource-efficient materials.	Saskatoon, SASK
Purchasing Bylaw	Requires municipal staff to include environmental characteristics, where feasible, in all contracts and tender specifications for goods and services. Suppliers may be required to prove compliance with environmental legislation, and to provide an environmental policy statement or complete an environmental practices questionnaire.	Caledon, ON
Environmental Sustainability Policy	Promotes environmental initiatives designed to establish Oakville as a sustainable community	Oakville, ON
Environmental Policy	Acknowledges the importance of environmental protection in decision-making and management practices. The policy sets objectives in eight different sectors: administrative management, water, air, soil, protection of forest cover and green areas, waste management, nuisances and noise, and development.	l'Ange-Gardien, QUE
Purchasing Policy	Ensures that public funds are spent in accordance with sound management principles, while building on the pillars of sustainable development	Rivière-du-Loup, QUE
Industrial Bylaw	Provides assistance in the form of tax credits for eligible industrial and semi-industrial companies, and supports their establishment in the city's industrial park and other designated areas, within a sustainable development framework	Rivière-du-Loup, QUE

2.2.3 Natural Features Protection

Tool	Purpose	Municipality
Topsoil Preservation Bylaw	Protects and conserves topsoil, and regulates the alteration of property within the city through a permit process.	Burlington, ON
Woodlands Conservation Bylaw	Regulates or prohibits the destruction and removal of trees in woodland areas, and promotes good forestry management practices.	Caledon, ON
Tree Bylaw	Maintains important tree cover in the city by controlling the removal of trees and promoting good forestry and arboricultural practices to sustain healthy woodlands and urban forest. Also details possible exemptions, instances where a permit is required to remove a tree, permit fees, and a list of distinctive tree species.	Kingston, ON
Salt Management Plan	Details an operational and procedural framework for minimizing the amount of road salt penetrating the environment during winter maintenance operations.	Richmond Hill, ON

	Commits to preserving the town's natural environment and enhancing the community's health and safety by reducing the negative effects associated with road salt on fresh water lakes and natural watercourses, and the premature deterioration of municipal infrastructure.	
Bylaw to Protect Lakes from Invasive Species	Aims to prevent the contamination of Saint-Donat's lakes by invasive foreign species. Requires all watercraft users travelling on municipal waterways to obtain a licence to have access to the lakes. This licence includes an electronic file, a washing or user certificate, and one sticker per boat. The certificate attests that the watercraft was washed at a station recognized by the municipality.	Saint-Donat, QUE

2.2.4 Air Quality and Greenhouse Gas

Tool	Purpose	Municipality
Idling Control Bylaw	Prohibits unnecessary idling of vehicles for more than one minute.	Burlington, ON
Idling Control Bylaw	Prohibits idling for more than two consecutive minutes.	London, ON Newmarket, ON
Idling Control Bylaw	Limits idling to a maximum of three minutes.	Markham, ON Ottawa, ON
Idling Control Bylaw	Prohibits idling for no more than five consecutive minutes.	Pickering, ON

2.2.5 Brownfields

Tool	Purpose	Municipality
Development Charges Bylaw	Provides a credit against development charges for remediation within the Brownfield Sites Community Improvement Project Area. The development charge payable is reduced by an amount equal to the cost of the remediation required for the proposed use of the lands.	Brantford, ON
Brownfields Community Improvement Plan	Guides the redevelopment of brownfield sites in its downtown and surrounding areas. Offers financial incentives to help private-sector proponents overcome the financial barriers to investing in these sites.	North Bay, ON
Fill Bylaw	Prohibits or regulates the placement and removal of fill, the storage and removal of topsoil, and the alteration of the grade of land on all town properties. Plays a significant role in the protection of environmentally significant lands, such as wetlands and valleys.	Caledon, ON
Dumping, Fill & Site Alteration Bylaw	Regulates the disposal of fill, the removal of topsoil, and the alteration of the grade of land.	Richmond Hill, ON
Note: A brownfield is defined as an abandoned, vacant, derelict or underutilized commercial, industrial or institutional property where past actions have resulted in actual or perceived contamination or threat to public health and safety and where there is active potential for redevelopment.		

2.2.6 Energy Conservation

Tool	Purpose	Municipality
Light Pollution Bylaw	Regulates the installation, illumination levels, hours of operation, and replacement of existing outdoor lighting fixtures and more. Ensures a comfortable, safe, and well-lit public and private realm for the town.	Richmond Hill, ON
Policy on Energy Management for Town-Owned Buildings	Minimizes energy consumption in all town-owned buildings, and to minimize the municipal environmental footprint. Detail practices to identify and eliminate unnecessary energy-related expenses. These practices are related to lighting and other electrical systems, windows and doors, town-owned vehicles, waste management, heating, and active transportation.	Annapolis Royal, NS
Building and Plumbing Bylaw	Outlines minimum energy conservation standards for new construction. These standards are related to thermal insulation values and heat recovery ventilators, and apply to all heated residential, commercial or industrial buildings.	Whitehorse, YK

2.2.7 Renewable Energy

Tool	Purpose	Municipality
Solar Demonstration Project Borrowing Bylaw	Borrows for a solar demonstration project.	Jasper, AB
Renewable Energy Production and Distribution Zoning Bylaw	Permits the use of renewable energy and cogeneration devices in all zones and the distribution of energy produced. Details requirements for the location and use of renewable energy devices on city properties.	Toronto, ON
Wind Energy Policy	Encourages and regulates the installation of wind energy systems on town properties.	Stratford, PEI
Wind Energy Zoning and Subdivision Control Bylaw	Sets provisions for establishing small on-site wind energy systems within town boundaries. Requires lots to be at least one acre (0.4 hectares) in size and limits turbine capacity to five kilowatts.	Stratford, PEI

2.2.8 Sustainable Building

Tool	Purpose	Municipality
Green Building Strategy Bylaw	Establishes criteria for housing components such as windows, light fixtures, energy use display meters, hot water tanks, gas-fuelled fireplaces, toilets, heat recovery ventilators, and EnerGuide rating system audits.	Vancouver, BC
Sustainable Building Policy	Requires that all new municipal buildings meet or exceed LEED® Silver certification.	Banff, AB
Green Building Policy	Requires applicants for development or building permits to achieve third-party certification (Built Green™ certification with minimum bronze standard for residential development; Leadership in Energy and	Canmore, AB

	Environmental Design (LEED®) certification for commercial or residential construction; R-2000 certification; or other third-party certification satisfactory to the Town of Canmore) or to comply with the Town of Canmore Green Building Checklist.	
Sustainable Building Policy	Ensures that city facilities are designed, developed and operated to demonstrate leadership in environmental conservation, protection, improvement and sustainability.	Calgary, AB
Residential Energy Star Policy	Requires that all new residential developments requiring either site plan or subdivision approval be built according to Energy Star guidelines.	East Gwillimbury, ON
Municipal Green Building Policy	Requires new municipal buildings to achieve a minimum LEED® Silver certification and a minimum energy efficiency level of 42 per cent, and all major retrofits to undertake a feasibility assessment to achieve LEED® certification and an energy efficiency level of 33 per cent better than the Model National Energy Code.	Kingston, ON
Building Bylaw	Requires all single-family, two-family and multi-family residential buildings to achieve a minimum score on the EnerGuide for New Houses rating system and requiring that all industrial, commercial and institutional buildings comply with a minimum energy-efficient building standard that is 25 per cent higher than the minimum requirements of the National Model Energy Code of Canada for Buildings.	Yellowknife, YK

2.2.9 Transportation

Tool	Purpose	Municipality
Green Vehicle Policy	Guides municipal vehicle purchasing decisions and operating practices to help reduce energy consumption.	Dawson Creek, BC
Zero Emission Vehicle Bylaw	Permits the operation of neighbourhood zero-emission Vehicles.	Tofino, BC
Electric-Powered Vehicle Bylaw	Authorizes the use of low-speed electric-powered vehicles on public highways.	Oak Bay, BC
Green Fleet Strategy	Aims to decrease the emission of greenhouse gases and smog-forming air pollutants, and to improve fleet fuel efficiency.	Burlington, ON
Pedestrian Charter	Focuses on creating healthy, efficient and sustainable communities where people choose to walk.	Burlington, ON
Cycling Master Plan	Provides guidance for the City to create a network of on-road bike lanes and off-road multi-use paths.	Burlington, ON
Municipal Green Fleet Policy	Helps the city achieve its greenhouse gas reduction target of 10 per cent by 2014.	Kingston, ON
Cycling Master Plan	Provides direction on creating an integrated cycling network of on- and off-road routes to connect communities and destinations.	Mississauga, ON
Pedestrian and Cycling Master Plan	Sets out short- and long-term actions that will increase walking and cycling in the community, including the creation of approximately 75 kilometres of signed-only bike routes, 57 kilometres of signed bike routes with edge lines or sharrows, and 13 kilometres of bike lanes on roadways.	Richmond Hill, ON

Green Fleet Plan	Aims to reduce CO ₂ emissions from its central vehicle fleet by approximately 15,000 tonnes (11 per cent) per year.	Toronto, ON
Bylaw 67-2003	Ensures the availability of public transportation throughout the town.	Rimouski, QUE

2.2.10 Waste

Tool	Purpose	Municipality
Zero Waste Strategy Report	Articulates the City's waste management and prevention measures.	Burlington, ON
Grass Clipping Diversion Program	Promotes the diversion of grass clippings from landfill and bans grass clippings from curbside garbage collection. Disposal options available to residents include backyard composting, grasscycling, biweekly yard waste collection, or drop-off at the region's small vehicle transfer stations.	Waterloo, ON
Garage Sales Bylaw	Promotes garage sales as a concrete way to recycle, reuse and reduce the amount of waste going to landfill by offering used items a second life.	Rivière-du-Loup, QUE
Solid Waste-Material Management Bylaw	Provides information on waste prohibition, separation and collection, and details fines and penalties — all key components of the town's Zero Waste Program.	Annapolis Royal, NS
Subsidy Grant	Grants a \$25 subsidy to any resident who purchases a domestic composting bin for the purpose of backyard composting.	Carigan, QUE
Restrict the Sale of Bottled Water Plan	Restricts the sale and distribution of bottled water in city facilities.	Burlington, ON
Single-Use Bottled Water Policy	Restricts the sale of single-use bottled water at city-owned facilities where there is easy access to tap water.	Kingston, ON
Plastic Retail Shopping Bags Bylaw	Requires retailers to charge a minimum of five cents for each plastic retail shopping bag requested by customers or, if plastic shopping bags are not offered, to provide a free alternative such as paper bags or cardboard boxes.	Toronto, ON
Multi-use Plastic Shopping Bags By-law	Prohibits retailers from giving away or selling plastic shopping bags intended for a single use.	Annapolis Royal, NS

2.2.11 Waste Management

Tool	Purpose	Municipality
Storm Sewer Discharge Bylaw	Prohibits, regulates and inspects the discharge of any gaseous, liquid or solid matter into land drainage works, private branch sewers and connections to any sewer, sewer system or sewage works for domestic or industrial use.	Burlington, ON
Backflow Prevention Bylaw	Aims to prevent backflow from unprotected cross-connections in area plumbing systems. Targets high-hazard users such as industrial, commercial, multi-residential and institutional properties, and makes owners responsible for identifying all cross-connections in their buildings.	Waterloo, ON
Politique	Aims to protect aquatic ecosystems and groundwater.	Rivière-du-

gestion d'eau	Includes measures to ensure responsible water use, to improve control over wastewater discharge, and to account for the importance of water in the socio-economic development of the city and region.	Loup, QUE
Water Policy	Targets drinking water consumption, water quality management, and aquatic and shoreline ecosystem conservation, as well as the promotion of tourist and recreational aquatic activities. Addresses watering habits, rainwater harvesting, the presence of a buffer zone along shorelines, and the reduction of pollution caused by motor boats, among other items.	Terrebonne, QUE
Sustainable Water Management Policy	Covers four main activities: management of drinking water consumption, continued cleanup and improvement of wastewater management, protection of water quality and water systems, and promotion of tourist and recreational aquatic activities. Includes proposed measures and an implementation plan for each activity.	Thetford Mines, QUE

2.2.12 Wastewater and Sewage Management

Tool	Purpose	Municipality
Subdivision and Development Bylaw	Incorporates low-impact development standards for roads and stormwater management, as well as alternatives for impervious surfaces.	Lantzville, BC
Source Control Requirement in Sewage Bylaw	Regulates the type of effluent dumped into the wastewater treatment system to reduce noxious odours produced by the dumping of chemicals or sewage from septic tanks into the system, and to address other concerns related to industrial effluent. The new requirement has achieved these objectives.	Revelstoke, BC
Sewers Bylaw Amendment	Requires dental offices to install amalgam separators that remove 95 per cent of the mercury contained in dental waste, preventing it from entering the sewer system.	Edmonton, AB
Water and Wastewater Rates Bylaw	Applies monthly water and wastewater service rates for all water treated and distributed, and for all wastewater received, treated and disposed of by the city. Wastewater rates are calculated based on 100 per cent of the metered water supply to each property.	Kingston, ON
Règlement concernant la vidange des fosses septiques	Regulates the frequency of septic tank cleaning and the implementation of quality control standards. Aims to better protect the environment, and imposes a minimum fine of \$300 for the first infraction.	Montcalm, QUE
Règlement concernant la vidange des fosses septiques	Aims to develop and regulate septic tank services. With the exception of residences or commercial buildings inaccessible by land, the bylaw stipulates that the township will check sludge and scum depth annually to determine cleaning frequency.	Township of Orford, QUE

2.2.13 Water Conservation

Tool	Purpose	Municipality
Waterworks Bylaw	Protects the city's waterworks system by restricting lawn watering to either odd- or even-numbered days according to the property address number. All commercial and residential customers who receive city	Kamloops, BC

	water must comply with the restrictions, in effect from May 1 to August 31 of each year. Bylaw infractions incur a fine of \$100 for a first offense and \$200 for each subsequent offence.	
Water Conservation Bylaw	Details mandatory water conservation procedures. The procedures are prescribed in Schedule A of the bylaw and are implemented in four incremental stages as municipal water shortages increase. Fines for bylaw infractions range from \$100 to \$1,000.	Tofino, BC
Water Utility Bylaw	Requires all residential customers in Calgary to use water meters for billing purposes by 2014 and requires all new homes and commercial construction, including renovations that require a plumbing permit, to install low water-use fixtures. Incorporates elements of the previous municipal Water Meter Bylaw (2002) and Low Water-Use Fixture Bylaw (2005), and includes a list of meter rates and fees.	Calgary, AB
Low-Flow Fixtures Bylaw	Requires the installation of low-flow plumbing fixtures in all new residential, commercial, industrial or institutional construction and renovations.	Okotoks, AB
Toilet Rebate	Offers a \$50 rebate to residents who replace 13-litre per flush (or greater) toilets with a low-flush model.	Strathcona, AB
Watering Restrictions By-law	Imposes annual restrictions for external water use from June 15 to September 15. Restrictions apply to water use outside any building in all areas served by city water. Residents may use outdoor water on either odd- or even-numbered calendar days according to the property address number, but can apply for an exemption permit under certain conditions.	Kingston, ON
Water Use Conservation Bylaw	Restricts water use from June 15 to September 30 each year to conserve water in the hot, dry summer months. Violators are subject to a minimum penalty of \$300.	Richmond Hill, ON
Drinking Water Bylaw	Places restrictions on lawn-watering, bans the washing of driveways with drinking water, and bans the use of drinking water to melt snow or ice. Watering is also prohibited during rainfall and all automatic watering systems must be shut off. All industrial and commercial buildings that use water to conduct business must install water meters.	Mont-Tremblant, QUE
Drinking Water Bylaw	Bans the unnecessary use of drinking water for lawn watering, washing parking lots or driveways, filling pools and ponds, and other activities. Bylaw infractions are subject to fines between \$150 and \$4,000.	City of Québec, QUE
Water Meter Bylaw	Requires specific buildings and offices to install water meters to measure water consumption. Aims to implement better water management and water conservation measures.	Sorel-Tracy, QUE

2.3 Federal Gas Tax Funded Projects

As discussed in section 1.2.1, Federal Gas Tax funding is provided to all Canadian municipalities for environmentally sustainable municipal infrastructure. Municipalities, other than those in Ontario, are obligated to prepare Integrated Community Sustainability Plans (ICSPs) in order to receive FGT funds. In Ontario the obligation is

satisfied, at a minimum, by an approved Official Plan.

The Association of Municipalities of Ontario advises that many municipalities have gone beyond the existence of an Official Plan in order to meet the underlying expectations of the FGT fund. As set out in Schedule G of the FGT Agreement, a municipality should demonstrate through its existing planning instruments and processes or through the creation of new planning documents that it has:

- a coordinated approach to community sustainability (e.g. linkage amongst various plans, planning and financial tools that contribute to sustainability objectives);
- reflected and integrated social, cultural, environmental and economic sustainability;
- collaborated with other municipalities, where appropriate, to achieve sustainability objectives; and
- engaged residents in determining a long-term vision for the municipality.

AMO states that if an Official Plan and/or other initiatives fulfill these criteria, then the municipality has met the spirit of the FGT Agreement.⁸ As evidenced in this paper, many municipalities have exceeded the minimum requirement of an Official Plan by developing other sustainability-related planning instruments that include Integrated Community Sustainability Plans, Economic Development Strategies, and Environmental Management Plans, and/or by following a learn-by-doing approach in undertaking projects or programs supportive of sustainability.⁹

While a wide range of projects are eligible under the FGT Agreement, they are almost all related to municipal infrastructure, with primary linkages to environmental goals. Only projects that involve capacity building have the wider scope reflected in Schedule G. The seven eligible project categories are:

Gas Tax Agreement Funding Categories		
	Project Category	Examples
1	Capacity Building	collaboration/partnerships, knowledge, integration/planning/policy
2	Water Infrastructure	drinking water supply; drinking water purification and treatment systems; drinking water distribution systems; water metering systems.
3	Wastewater Infrastructure	wastewater systems including sanitary and combined sewer systems; and separate storm water systems
4	Solid Waste Management	waste diversion; material recovery facilities; organics management; collection depots; waste disposal landfills; thermal treatment and landfill gas recuperation
5	Community Energy Systems	i) cogeneration or combined heat and power projects (where heat and power are produced through a single process); ii) district heating and cooling projects where heat (or cooling) is distributed to more than one building
6	Public Transit Infrastructure	rapid transit, transit buses, Intelligent Transport System and Transit Priority capital investments,

		ITS technologies, capital investments, such as transit queue-jumpers and High Occupancy Vehicle (HOV) lanes, para transit, and active transportation infrastructure (e.g. bike lanes)
7	Vehicular and Active Transportation Infrastructure	local roads, bridges and tunnels; bike lanes

To date, Prince Edward County has used its GTA funds for road works under project category 7.

2.4 Sustainable Community Successes

2.4.1 Annapolis Royal

The Federation of Canadian Municipalities has identified four exemplary sustainability initiatives in its report, *Sustainable Community Planning in Canada: Status & Best Practices*.¹⁰ Perhaps of most relevance to Prince Edward County is the approach taken by the rural, costal town of Annapolis Royal, Nova Scotia. It demonstrates what a small municipality with limited funds can accomplish with broad-based community support and determination. The reasons cited for Annapolis Royal’s exemplary status are that the Municipality:

- is being creative and continuously pushing the standard for sustainability; and
- has developed an integrated land use, waste, water, energy and brownfield sustainability plan.

Key elements of the Municipality’s plan and experience are:

Approach and Integration
<ul style="list-style-type: none"> • Integrated Community Sustainability Planning Approach • Zero waste program that uses food/waste digesters and composting units to divert 60% of the town’s solid waste • Tertiary waste water system whose product supports a specially designed wetland • Brownfield remediation and land development plan • Community energy systems that will use renewable energy • Energy efficiency plan for town buildings

Best Practices Used
<ul style="list-style-type: none"> • Increasing water rates to promote conservation Land-use bylaws to prevent development in environmentally sensitive areas and to promote infill housing developments • Public consultations that consisted of household, business and day user surveys, open houses and town meetings, and newspaper coverage

How Key Barriers Were Overcome
<ul style="list-style-type: none"> • Partnerships with academics, NGOs, utilities, private and public organizations for technical knowledge and funds

- Lobbied Nova Scotia Power to begin paying taxes to the town for the Annapolis Tidal Power Station

Other Reasons for Success
<ul style="list-style-type: none"> • Community push to be environmentally sustainable • Strong sense of community and desire to be independent from outside forces and governments

2.4.2 Lennox and Addington

A formal Sustainability Plan for Lennox and Addington County was finalized in March 2010.¹¹ However, over several years prior, a learn-by-doing approach moved the County forward with nearly 30 sustainability-related initiatives. The new Plan identifies some 60 opportunities to further advance the County’s economic, environmental and socio-cultural sustainability, and its work plan includes 100 projects, prioritized and sequenced over ten years. The Plan contains a section summarizing some of the financing/funding options available to enable the County to capitalize on these opportunities.

2.4.3 Tweed

In July 2010, the Municipality approved an Integrated Community Sustainability Plan (ICSP) for its rural areas, six hamlets, and the Village of Tweed. The ICSP follows the structure used by many communities for planning funds available under the Federal Gas Tax rebate program. It proposes 123 actions identified by community members in the planning process. They are categorized under the four sustainability systems as shown following:

Environmental	Economic	Social	Cultural
General	General	General	General
Water	Commercial/ Retail	Municipal Council	Arts
Land/ Ecosystems	Tourism	Policing & Security	Heritage
Air	Agriculture	Community Facilities & Services	Sports & Recreation
Energy	Resource-Based /Light Industry	Youth	Youth
Solid Waste/ Wastewater		Social Activities	Other
		Housing	
		Health & Wellness	

The ICSP has a template for reporting and tracking each priority action. Its implementation strategy involves ongoing assessment of the Plan’s progress as well as communication and marketing to keep the public engaged.

Section 3 POLICY CONTEXT

This section outlines key sustainability policies in the 1993 Prince Edward County Official Plan and in Ontario Government planning legislation and policy statements. They relate to the four sustainability systems and their interrelationships.

3.1 Prince Edward County Official Plan, 1993

Part I Introduction

The Introduction to the Official Plan recognizes the principle of sustainable development in accordance with the 1987 World Commission on Environment and Development:

Sustainable Development

Means development that meets the requirements of the present without compromising the ability of future generations to meet their own needs. (section 3.17)

Part I goes on to identify eight plans and studies related to sustainable development, two of which deal with the environment and six, with water:

1. Environmental Evaluation (3.4)
2. Environmental Impact Study (3.5)
3. Hydrogeological Study (3.8)
4. Serving Options Investigation (3.13)
5. Shoreland Management Plan (3.14)
6. Storm Water Management Study (3.15)
7. Subwatershed Plan (3.16)
8. Watershed Plan (3.19)

Part II A Vision For Prince Edward County

This part of the Official Plan presents detailed vision statements for Prince Edward, including one which links environmental sustainability with economic growth.

2.2 Environmental Resources

2.2.1 As a result of increased environmental awareness and the desire for linking economic growth with environmental sustainability, the management and preservation of the County's natural resources will play a prominent role in the evolution of the community.

Part III General Development Strategies

Part III presents general development strategies which link management of the environment and resources with quality of life. Certain terms and phrases within the policy statements have been italicized to flag sustainability elements.

1.0 Environmental/Resource Management

1.1 General Strategies

1.1.1 The County adopts the principle of *sustainable development* through land use planning to ensure a *high quality of life* for County residents, to maintain the desirability of the County to visitors and investors and to avoid the costly environmental mistakes that have been made in the past. A primary planning principle is to *avoid further damaging any component of an ecosystem* that could result in the need for remedial works.

1.1.2 In planning to protect and manage environmental resources, the County will apply the *ecosystem approach*, which takes into account an area's relationship to the surrounding environment and its links with other resources. The ecosystem approach recognizes the reliance of communities in Prince Edward County and all aspects of the County's economy - agriculture, tourism and business - on a healthy environment including clean air, land and water, renewable and non-renewable resources and natural areas and wildlife. The environmental features are also an essential component of the County's landscape and identity, providing an important "sense of place" to residents and visitors.

1.1.3 Council will encourage the *participation and cooperation of other public authorities, private individuals and organizations* in protecting and restoring the environmental resources in the County. The integrity of the County's natural ecosystem needs to be maintained by preventing unacceptable levels of *pollution* of the air, land, surface and ground water. In this regard, Council recognizes that the Official Plan alone cannot guarantee the environmental health of the community, that *private stewardship of land, incentive programs, community based actions, and public education* will go even further in the proper management of the environment.

1.1.4 The environmental and resource management strategies will address ecosystem objectives. *Environmentally Sensitive Areas* are shown on Schedule 'A' and policies to manage these areas are provided. Reforestation strategies are encouraged as a vital resource management tool. This Plan supports the Bay of Quinte Remedial Action Plan and the undertaking of remedial works to restore the Bay water quality. The environmental quality of inland lakes is to be addressed through a *Lake Management Plan process*.

1.1.5 The Plan recognizes *environmental constraints* on Schedule 'B' such as aggregate reserves and escarpments. These areas require special review considerations as described in the Plan policies. Strategies for "*solid waste management*" and *energy conservation* are also provided to direct the future actions of the County and its citizens regarding these issues.

1.1.6 Schedule 'E' of the Official Plan describes all wetlands, organic soils and areas prone to flooding, erosion or poor drainage as *Environmental Protection areas*. The Plan also addresses concerns about the quality of *ground water supplies* and *storm water management*.

Examples of other sustainability policies in Part III are:

3.1.4 ...Growth permitted by the Plan shall be monitored and reviewed on a regular basis to ensure that it is *environmentally sustainable* and that it is achieved in a fiscally and socially sound manner.

3.6.2 Vital, well operated and maintained institutions and community facilities such as hospitals, schools, day care facilities, the home for the aged, nursing homes and community centres provide services that are essential in maintaining a high *quality of life* and attracting future economic development to the County.

Other policies in Part III related to cultural heritage and community improvement plans also fall within the scope of sustainability planning.

3.2 Provincial Policy

3.2.1 Planning Act

Section 2 of the Act sets out planning matters of provincial interest which the council of a municipality, in carrying out its responsibilities under the Act, shall have regard for. Many of these relate to building sustainable communities:

- protection of ecological systems, including natural areas, features and functions;
- conservation and management of natural resources;
- promotion of development that is designed to be sustainable, to support public transit and be oriented to pedestrians;
- supply, efficient use and conservation of energy and water;
- adequate provision and efficient use of communications, transportation, sewage and water services and waste management systems;
- minimization of waste;
- conservation of features of significant architectural, cultural, historical, archaeological or scientific interest; and
- adequate provision of employment opportunities.

3.2.2 Provincial Policy Statement, 2005

The PPS provides policy direction on matters relating to land use planning that are of provincial interest. It is issued under the authority of Section 3 of the *Planning Act* and applies to all applications, matters or proceedings commenced on or after March 1, 2005. The PPS begins with a statement of purpose that recognizes planning for sustainable communities:

- provide policy direction on matters of provincial interest related to land use planning and development;
- set the policy foundation for regulating the development and use of land;
- support the provincial goal to enhance the quality of life for the citizens of Ontario; and
- provide for appropriate development while protecting resources of provincial interest, public health and safety, and the quality of the natural environment.

Policies of particular relevance to sustainability are many and varied. Examples of key directives related to the four systems of community sustainability are present in the following two pages.

Environment
<p>1.6.4.1 Planning for <i>sewage and water services</i> shall:</p> <p>...</p> <p>b) ensure that these systems are provided in a manner that:</p> <ol style="list-style-type: none">1. can be sustained by the water resources upon which such services rely; <p>...</p> <ol style="list-style-type: none">3. protects human health and the natural environment;c) promote water conservation and water use efficiency;
<p>1.8.1 Planning authorities shall support energy efficiency and improved air quality through land use and development patterns which:</p> <ol style="list-style-type: none">a) promote compact form and a structure of nodes and corridors;b) promote the use of public transit and other alternative transportation modes...;c) focus major employment, commercial and other travel-intensive land uses on sites which are well served by public transit where this exists or is to be developed, or designing these to facilitate the establishment of public transit in the future;d) improve the mix of employment and housing uses to shorten commute journeys and decrease transportation congestion; ande) promote design and orientation which maximize the use of alternative or renewable energy, such as solar and wind energy, and the mitigating effects of vegetation.
<p>1.8.2 Increased energy supply should be promoted by providing opportunities for energy generation facilities to accommodate current and projected needs, and the use of <i>renewable energy systems</i> and <i>alternative energy systems</i>, where feasible.</p>
<p>1.8.3 <i>Alternative energy systems</i> and <i>renewable energy systems</i> shall be permitted in <i>settlement areas</i>, <i>rural areas</i> and <i>prime agricultural areas</i> in accordance with <i>provincial and federal requirements</i>. In <i>rural areas</i> and <i>prime agricultural areas</i>, these systems should be designed and constructed to minimize impacts on agricultural operations.</p>
<p>1.1.2 The diversity and connectivity of natural features in an area, and the long-term <i>ecological function</i> and biodiversity of <i>natural heritage systems</i>, should be maintained, restored or, where possible, improved, recognizing linkages between and among <i>natural heritage features and areas</i>, <i>surface water features</i> and <i>ground water features</i>.</p>

Economy
<p>1.7.1 Long-term economic prosperity should be supported by:</p> <ol style="list-style-type: none">a) optimizing the long-term availability and use of land, resources, infrastructure and public service facilities;b) maintaining and, where possible, enhancing the vitality and viability of downtowns and mainstreets;c) promoting the redevelopment of <i>brownfield sites</i>;d) providing for an efficient, cost-effective, reliable <i>multi-modal transportation system</i>...;

- e) planning so that major facilities (such as...sewage treatment facilities, waste management systems...) and sensitive land uses are appropriately designed, buffered and/or separated from each other to prevent adverse effects from odour, noise and other contaminants, and minimize risk to public health and safety;
- f) providing opportunities for sustainable tourism development;
- g) promoting the sustainability of the agri-food sector by protecting agricultural resources and minimizing land use conflicts; and
- h) providing opportunities for increased energy generation, supply and conservation, including *alternative energy systems* and *renewable energy systems*.

Social

1.4.3 Planning authorities shall provide for an appropriate range of housing types and densities to meet projected requirements of current and future residents of the regional market area by:

- a) establishing and implementing minimum targets for the provision of housing which is affordable to low and moderate income households. ...
- b) permitting and facilitating: 1.all forms of housing required to meet the social, health and well-being requirements of current and future residents, including special needs requirements;
- ...

1.7.1 Long-term economic prosperity should be supported by:

- ...
- b)maintaining and, where possible, enhancing the vitality and viability of downtowns and main streets;
- ...

Culture

2.6.1 Significant built heritage resources and significant cultural heritage landscapes shall be conserved.

3.2.3 Ministry of Municipal Affairs and Housing

The Ministry with primary responsibility for the *Planning Act* and the Provincial Policy Statement is Municipal Affairs and Housing. According to MMAH, encouraging energy efficiency, conservation and a new, clean supply represents an important part of the government's commitment to building strong, healthy and sustainable communities.¹² MMAH points to Policy 1.7 and 1.8 of the PPS for policy direction to planning authorities on how Ontario's energy goals can be achieved:¹³

- Supporting long-term economic prosperity by providing opportunities for increased energy generation, supply and conservation (1.7.1)
- Supporting energy efficiency through land use and development patterns that promote compact form, a structure of nodes and corridors, and a mix of employment and housing uses to shorten commutes and decrease transportation congestion (1.8.1)

- Promoting increased energy supply by providing opportunities for energy generation facilities to accommodate present and future needs, including alternative and renewable energy systems where feasible (1.8.2)
- Permitting alternative and renewable energy systems throughout Ontario in settlement, rural and prime agricultural areas (1.8.3)

MMAH elaborates on the foregoing statements as presented in the remainder of this subsection.¹⁴

Energy Efficiency Supports Efficient Growth

Planning the physical pattern and distribution of land use in our communities is a fundamental component of energy consumption and efficiency. Land use practices that separate employment, retail and residential uses from one another have contributed to inefficient development.

Energy efficiency and conservation can also be achieved in the design of individual developments. For example, site and/or building design can support conservation through building orientation and construction materials. Landscaping techniques that use trees and plants to act as wind and sun barriers can also improve energy efficiency and conservation.

The Provincial Policy Statement, 2005 promotes efficient development patterns that optimize the use of land and public investment in infrastructure and public service facilities. The statement also provides for a mix of housing, employment, parks and open spaces, and transportation choices that facilitate pedestrian mobility and other modes of travel.

Taking Action...

- Encourage mixed use and transit supportive development using official plan policies to provide a variety of transportation choices
- Support lot organization and building orientation using official plan policies and subdivision review to take advantage of passive solar heating/cooling
- Incorporate site planning and community design standards that promote transit use, grid-like street design and energy efficient development patterns
- Promote sensitive, adaptive reuse of heritage buildings and recycling of existing building materials
- Promote efficient land use planning by accommodating growth through intensification and redevelopment in designated growth areas

Promoting Increased Energy Supply

For Ontario to stay competitive in the global economy, demands for energy must be addressed. The challenge for planning authorities is to encourage new and innovative ways of producing clean, renewable energy which meet community needs, reduce dependence on coal-fired plants and enhance air quality in Ontario.

New development and energy infrastructure should be planned simultaneously. Planning authorities should also plan and work in consultation with their local energy distributors, with agencies such as the Ontario Power Authority (which has the responsibility for electricity system planning), with the Ministry of Environment and

other regulatory agencies, and project proponents, to ensure proper environmental review.

At the local level, there is a selection of energy supply strategies that should be considered by planners, engineers and developers. Examples include: district energy systems, co-generation of heat and power, wind energy, solar power, net metering, heat pumps and heat/power from landfills and sewage facilities.

District Energy in Ontario

District energy systems are multi-building energy systems that can provide one or more of the following energy services: heating, cooling and electricity. In a district energy co-generation system, the thermal energy available after producing electricity is distributed locally to a series of buildings. This maximizes the use of energy contained in generation fuel and is more efficient and environmentally friendly than separate generation for heating and cooling.

District energy systems have proven to be an effective energy management tool in energy planning for Canadian communities of all sizes. District energy systems can increase employment and economic development.

Taking Action...

- Establish a municipal energy infrastructure plan
- Incorporate official plan policies that support co-generation, district energy plans and shared energy services
- Encourage proponents to include alternative and renewable energy solutions
- Engage the community to help create ideas for energy supply and conservation
- Introduce green building rating systems such as Leadership in Energy and Environmental Design (LEED) - Canada Standards. Municipalities could adopt LEED or an equivalent certification system for new and existing municipal buildings

Alternative and Renewable Energy for My Community

The Ontario government is encouraging the development of new alternative and renewable supplies of energy through an array of incentives, such as entering into long-term energy supply contracts, a Standard Offer Program which sets a fixed price for small renewable energy projects, reduced tax rates, tax holidays, tax rebates and tax write-offs, net metering, emissions reduction trading, technology and project development funds, policies that support the use of Crown land and resources, and agricultural biomass, in renewable energy projects.

Benefits of Alternative and Renewable Energy Sources

- a more sustainable source of energy
- an energy source unaffected by global price fluctuations
- a reduction in the amount of harmful emissions and impacts on climate change
- an increase in employment opportunities and alternative sources of income
- an improved quality of life for all citizens of Ontario
- a reduced need to import energy from abroad

Taking Action...

- Facilitate alternative and renewable energy production and distribution through official plan policies and zoning by-laws
- Explore opportunities for energy conservation and generation
- Identify potential sites for alternative and renewable energy generation in official plans

4. COMMUNITY SUSTAINABILITY ISSUES

ISSUE 1: NO INTEGRATED SUSTAINABILITY PLANNING in PRINCE EDWARD

The preceding sections of this paper show that the Municipality's overarching sustainability issue is a lack of integrated planning and implementation. While the 1993 Official Plan contains some commendable sustainability policies, their functionality falls short of the approach taken by many municipalities today. Failure to monitor progress and report regularly on measurable results has created the impression that local government has little formal commitment to creating a sustainable community.

The Official Plan Review provides the opportunity to include integrated sustainability policies and implementation tools in the County's new Official Plan. The well documented experiences of other municipalities provide valuable insight into the kinds of issues that should be addressed in developing an approach that works for Prince Edward. Reporting by the Federation of Canadian Municipalities has been used as the basis for many of the sustainability issues and concerns listed under Issues 2 to 8.¹⁵ Issue 9 deals with the Province's sustainability initiative in the area of renewable energy development as it has been experienced in Prince Edward County to date.

ISSUE 2: ENVIRONMENTAL IMPACTS

- **Water quality** – impacted by pollutants
- **Water ecosystems** – fragmented, altered or lost
- **Land ecosystems** – fragmented, altered or lost
- **Wildlife** – impacted by loss of habitat
- **Global climate change** – excessive levels of greenhouse gas emissions
- **Global biodiversity decline** – impacted by air, water and land issues
- **Global resource depletion**
Rises in fuel and food prices remind us that we must learn to live with fewer operating resources, such as less water and energy, and less capital resources that go into building our homes, home furnishings and appliances, vehicles, public infrastructure, etc. However, municipalities face pressure to allow individuals to continue making higher-impact, consumer-driven lifestyle choices, such as multiple family car culture and large single detached houses. This contributes greatly to resource depletion and is a challenge to sustainable community planning.

ISSUE 3: FINANCIAL/FISCAL/ECONOMIC CHALLENGES

- **Infrastructure deficit**
The infrastructure deficit of Canadian municipalities has reached \$123 billion and Canada has used up 79 percent of the service life of its public infrastructure. Local governments face pressures to build transit facilities, drinking water and sewage systems, and extend urban road networks. Deteriorating infrastructure entails massive loss of potable water, substandard sewage treatment, congested roads, inefficient transit systems, and other consequences with important environmental, health, social and economic dimensions. Sustainable community planning may entail a higher level of infrastructure investment in the short term (e.g., transit expenditures or setting up a composting service); however, it can

help address the infrastructure squeeze by achieving long-term savings through better management of growth (e.g., by reducing demand for expanded facilities). Effective policy integration and good long-term planning can save resources and money.

- **Revenue squeeze**

Municipalities in Canada are increasingly caught in a financial vice. On the one hand, provincial governments are transferring greater responsibilities (e.g., for transit operations, social services, affordable housing, environmental planning, and infrastructure provision) to municipalities, but increased financial transfers do not often accompany these responsibilities. On the other hand, raising property taxes is seen as regressive and ratepayers have made it clear that they are not willing to tolerate ever increasing property taxes. These combined trends are forcing municipal governments to increase their use of alternative revenue sources, such as new taxes, user fees, private public partnerships, and development charges. While these new approaches to revenue generation provide access to funds in the short-term, they cannot provide the level of funds needed for progressive sustainable community planning and implementation.

- **Funding assigned to development details rather than high-level planning**

One of the key challenges of sustainable community planning is that, typically, most provincial funding is for materials, goods and tangible services as opposed to broad planning processes. This means that the money is funnelled much more to the details rather than the key strategic moves for a community.

- **Lack of funding and other incentives for new affordable housing**

The responsibility for funding affordable housing was shifted from the federal to municipal governments in the 1990s. This has contributed to a lack of affordable housing in many areas. Furthermore, municipalities impose zoning restrictions on manufactured and mobile housing, group housing, and rooming houses, and often zone only small amounts of land for multi-family and small-lot housing. This lack of appropriate funding to ensure inclusive residential development limits the effectiveness of sustainable community planning in many municipalities.

- **Changing structure of the agricultural sector**

A key issue faced by rural municipalities is the changing structure of the agricultural sector. Small family-owned farms have been declining, and farmers are increasingly tenants rather than owners of farmland. As a result, the social structure of rural farming communities is changing. Furthermore, ever-increasing mechanization means that still fewer people are working on farms, leading to depopulation of farming communities in favour of migration to cities. These trends complicate efforts for sustainable community planning in rural communities.

- **Developers' financial influence**

In stagnant and slow-growth communities, any development may be welcomed in the name of short-term economic development, even if these developments do not fit with the community's long-term interests.

ISSUE 4: GOVERNANCE LIMITATIONS

- **Municipal powers**

Municipalities cannot, on their own, create sustainable communities without the assistance of upper levels of government due to the fact that they are limited in their legal powers and the financial resources available to them to affect growth and development. The Provincial government sets the context of municipal planning through the Planning Act and the Provincial Policy Statement, environmental standards, transportation standards, the building code, and other means. Furthermore, the revenue sources of municipalities are limited: local governments collect only a small portion of total government tax revenues in Canada. Provincial and federal spending (e.g. on highways, transit, or airports) has a major impact on development patterns and economic well-being. In developing and implementing sustainable community plans within this context, the challenge for municipalities is to cooperate extensively with senior levels of government to ensure that long-term plans can be effectively implemented.

- **Municipal staff resource availability**

Municipal offices are often over-stretched and cannot take on anything innovative. Sustainable community planning initiatives that are driven by another organization, but which include municipalities as key partners, can still be very successful.

- **Capacity-building in smaller centres**

There appears to be little capacity building for sustainable community planning in smaller centres. Election cycles bring in new leaders that might have very little exposure to sustainable community planning and any efforts to educate them are lost with the next election round. In addition, smaller centres have much higher development and implementation costs for sustainable community planning relative to their size, due to the economies of scale.

- **Lack of political will in face of development pressure**

Regardless of economic, social, and environmental goals of community plans, municipal and sometimes provincial political will can wane when faced with pressure from land developers. This is a significant challenge for sustainable community planning, especially in the implementation phase, when developer pressure can be the fiercest.

- **Lack of political will to prevent undesirable development patterns**

Provincial and municipal governments can lack political will to create a system of rates and charges that would ensure new development is not subsidized by existing areas, or to ensure the true economic, social, and environmental costs of infrastructure services are borne by new developments rather than by other ratepayers. This ends up severely limiting the financial and sustainability impacts of sustainable community plans.

ISSUE 5: SOCIAL CONCERNS

- **Human health issues**

Health issues are increasingly linked to community planning processes due largely to new research. For example recent studies have focused on the link between urban design (including street design, the location and design of physical activity areas, and the mix of land uses) and physical activity levels (and

body weight) in children and others. Other overlaps between urban planning and public health concerns include the quality of drinking water and soil contamination. Sustainable community planning offers an opportunity for public health officials and urban planners to ally themselves on strategies that intersect their domains. Public health issues related to environmental health and socio-economic determinants may continue to be a driver of change in the coming years.

- **Low population growth or decline**

While rapid growth in metropolitan areas can stress administrative planning capacity and environmental carrying capacity, economic and population decline in presents another set of issues to a community undertaking sustainable community planning. Outside major metropolitan regions in Canada, growth may be modest or even negative, as it is in many small towns. Under these conditions, planners cannot rely on development activity and the tax revenue it brings in to address sustainability concerns.

- **Lack of public support for changes in development patterns**

There is a lack of strong popular support for major changes to the form of development in many communities, particularly those in which the negative externalities associated with unsustainable development (congestion, air pollution, commute times, infrastructure costs, housing prices, etc) are not strongly felt, such as smaller municipalities where traffic still flows freely, land prices are low, and the air is clean relative to large cities. This lack of a fundamental value shift is a huge challenge for sustainable community planning since it is difficult to succeed when people do not understand or accept that intensification is the link between amenities, affordability and liveability.

- **Lack of public follow-through and support**

Citizens may not consistently connect their desired principles to their actions (e.g. supporting the motherhood statements like "housing for all" and then protesting higher density development down the street). The wider public, which is often only passively involved in strategic planning initiatives, may become highly active when "the rubber hits the road" and oppose elements of a sustainability plan when implementation decisions are on the immediate agenda. Within planning departments, there is rarely a culture of monitoring and reporting on progress towards planning goals to help overcome these sources of implementation friction. To address these issues, sustainable community planning must be conducted with the maximum "buy-in" of all stakeholders and should be framed within a monitoring and reporting system.

- **Lack of follow-through support from stakeholders**

Sustainable community plans may achieve full or majority stakeholder agreement during *development* of their plans, but later fail in meeting their goals due to loss of stakeholder buy-in during *implementation*. A popular analysis of this problem is that communications strategies are too weak and do not sufficiently educate and engage stakeholders (e.g., planners, city/town council, developers, businesses, and the public) continuously in the plan as it unfolds.

- **Ethic of volunteerism and community self-help**

This is a double-edged sword. On the one hand, it can help mobilize people to solve collective problems through considerable self-sacrifice, such as in the case of the impressive system of privately- created greenways that lace the banks of

the Bow and Elbow Rivers in Calgary. On the other hand, it can express itself as a suspicion of government intervention and a preference for voluntary solutions that many not be as effective from a sustainable community planning point of view.

- **Lack of integration of employment planning in transportation and land use planning**

In almost all municipalities, there is difficulty or lack of sufficient integrated planning in defining where key activity nodes should be, how to get the appropriate jobs into them, and then how to plan the land and build the infrastructure to support the viability of these centres. This limits the effectiveness of the land use, density, and transportation aspects of SCP.

ISSUE 6: LAND DEVELOPMENT

- **Land reserves**

Many communities have land reserves, meaning land that is approved for development far in advance of actually needing it. These development assignments prevent innovative land use alternatives and, thus, are considerable challenges to sustainable community planning.

- **Inexperience**

Small community developers' lack of awareness and inexperience with non-conventional forms of development remain important obstacles to sustainable community planning in smaller centres.

- **Sprawl**

One of the key challenges of sustainable community planning is urban sprawl, be it in large tracts near metropolitan areas or along country roads in rural municipalities. Between 1971 and 1996, the urban population of Canada grew by 37%, while the amount of urbanized land grew by 77%. Much of the land being converted to urban uses is prime agricultural land, but urbanization is also an important cause of deforestation and wetland destruction.

Urban sprawl is a multi-faceted issue that arises from a wide range of causes. Many of these causes can be addressed through sustainable community planning, e.g., by integrating land use and transportation goals, setting growth boundaries, providing for ample intensification opportunities, and planning mixed-use "complete" communities. However, sprawl has causes outside the purview of community planning, such as the rising cost of living, falling household sizes (i.e., fewer people per household), increasing social isolation, changing patterns or retail investment, the lending practices of financial institutions, and federal and provincial investment and tax policies. These forces may work to undermine sustainable community planning efforts, particularly during implementation.

ISSUE 7: LIABILITY

- **Brownfield development**

Although much headway has been made in recent years, the risk and liability involved in remediating and redeveloping brownfields remain challenges to sustainable community planning, especially in regard to large former industrial sites.

ISSUE 8: GREENWASHING

- **Greenwashing** refers to an organization creating a façade or false screen of environmental concern over a plan, program, product or service, with the intention of gathering extra support from the environmentally conscious. Some official plans are labeled as “Smart Growth” but actually promote business-as-usual in terms of car use, urban sprawl, large expansions of road and highway networks, and a minimum increase in transit services. This false advertising damages the potential of honest, legitimately progressive plans and hinders their support through the bad reputation created by this greenwashing. This is a particular challenge for sustainable community planning in communities that have fallen victim to greenwashed plans in the past.

ISSUE 9: WIND ENERGY DEVELOPMENT IMPACTS

Section 1.4.5 sets out Council’s resolution requesting the Provincial Government to implement a moratorium on industrial wind turbines in Prince Edward County. The issues central to this request pose a challenge to achieving a sustainable community. While the benefit of renewable energy is indisputable in terms of green house gas reduction, the potential impact of wind energy projects on host communities raises a number of issues. Some are addressed in the large volume of published material devoted to the industry, however, many reports and studies reviewed for this paper are inconclusive in their findings or inconsistent with the findings in other literature (e.g. effective setbacks, health effects).

When the Ministry of Environment developed the Renewable Energy Approval regulation, Ministry staff reviewed 122 studies from around the world, dating from 1996 to 2009 (see Appendix C for MOE Bibliography). Some 73 of these studies dealt with health matters, including 52 which focused on noise. Only one addressed impacts on property values in Canada, just two addressed wildlife impacts, and one looked at “landscape integration”. A review of the bibliography suggests that none was dedicated to local economic or cultural impacts.

These data gaps and the mixed messages coming from existing literature no doubt contribute to much of the unease within the community around this form of renewable energy. Until the issues are appropriately addressed by the Province, as called for in Council’s resolution, IWTs will likely remain controversial.

Section 5 NEXT STEPS and LEARNING MORE

Once all of the different aspects of long range planning for the County have been addressed through Issues Papers, the next step will be to hold public open houses to obtain community feedback on the issues that have been identified.

Following the open houses, the Planning Department will, in consultation with stakeholders, develop options for dealing with the issues, and then present these options to Council for consideration at a public meeting. This part of the Official Plan Review is expected to extend through the early part of 2012.

The progress of the project can be followed on the County's web site at www.pecounty.on.ca > click on "Official Plan Review". If you have questions or comments about *Issues Paper 3: Community Sustainability* or any other aspect of the project, please contact:

Bernard Shalka, Official Plan Review Coordinator
613-476-2148 ext 351 / bshalka@pecounty.on.ca

APPENDIX A

Overview: County of Prince Edward Official Plan Review

WHAT is the Official Plan?

The "OP" is Prince Edward County's blueprint for the near and distant future. It contains policies that guide how, when and where physical change takes place in the County. The way land and buildings should be developed, used and serviced are determined by the OP. Also, because physical change affects social, economic and cultural aspects of community life, the OP ensures that these interrelationships are managed in ways that protect and enhance the qualities that make our County a special place.

WHY review the Official Plan?

The current OP is nearly 20 years old and much has changed since its adoption by County Council in 1993, including the amalgamation of ten local governments into a single tier municipality in 1998. While there have been various amendments over the years, many policies do not reflect existing conditions and challenges.

Also, the Province requires municipalities to review their official plans every five years to ensure that they are up to date and consistent with the Provincial Policy Statement (2005). The "PPS" includes policies that promote efficient development patterns, long term economic prosperity, the wise use of resources such as water, agriculture, natural heritage and cultural heritage, as well as policies that protect public health and safety in regard to natural hazards like flooding and human-made hazards like contaminated sites.

HOW will the Official Plan be reviewed?

The Official Plan Review began in January 2010 with the Secondary Plans project. This initiative involves the preparation of new plans for the County's two largest settlements--Picton-Hallowell and Wellington. The project schedule and progress to date can be reviewed on the Secondary Plans webpage at www.pecounty.on.ca. Project completion is targeted for mid-2012.

The second phase of the Official Plan Review began in January 2011 with Council's approval of a Work Plan and a Participation Plan for the comprehensive review and update of OP policies that apply across the County. The progress of the second phase can be followed on the Official Plan Review webpage at ww.pecounty.on.ca. Project completion is targeted for mid-2013.

It's Important That You Get involved!

The Official Plan is your plan, so participation in its renewal is critical if it is to serve you well in the years ahead.

How to Participate:

Complete the survey located in the right sidebar of the Official Plan Review webpage. Follow the planning process on FaceBook (Plan Picton-Hallowell and Plan Wellington) and Twitter (PECPlans).

Monitor the planning process online, through the local media, and from notices that will be posted in libraries, community centres, recreation facilities, and County buildings.

Attend upcoming open houses and public meetings where you can get answers, express concerns, and share ideas.

Review project reports and other materials hot off the press. Get them at the Planning Department (the Edward Building, Main Street Picton) and online at www.pecounty.on.ca > under "What's New" click "Official Plan Review" or "Secondary Plans".

For more information:

Contact Bernard Shalka, Official Plan Review Co-ordinator:

- Email bshalka@pecounty.on.ca
- Phone 613-476-2148 ext. 351

APPENDIX B

Renewable Energy Approval Process

Source: *Renewable Energy Development: A Guide for Municipalities*. The Renewable Energy Facilitation Office, Ministry of Energy. Excerpt from pp. 6 to 8.

Available Online at <http://www.energy.gov.on.ca/en/renewable-energy-facilitation-office/resources-and-contacts-2/>

Developing a renewable energy project under the Renewable Energy Approval from start to finish

Step One Pre-REA Planning

- a) Developer finds potential project location and creates initial project plan.
- b) Developer is encouraged to contact local stakeholders, including municipalities, and discuss the planned project to get feedback on the proposal.
- c) Developer finalizes location.
- d) Developer applies for FIT contract.
- e) If the project meets the necessary requirements, including available capacity, a FIT contract is offered.
- f) Developer accepts FIT contract.
- g) Developer finalizes grid connection plans with the applicable distributor/transmitter.

Step Two Developer provides copy of draft Project Description Report to MOE and obtains list of Aboriginal communities to be consulted throughout the REA process.

Step Three Developer initiates REA consultation process and provides notification of the project and of an initial public meeting to **municipal stakeholders**, Aboriginal communities the general public at least 30 days in advance of initial public meeting. Developer begins Aboriginal consultation process. **Developer provides municipal consultation form and draft Project Description Report to the municipality at least 30 days before initial public meeting**, and draft Project Description Report online and in paper copies to the public and Aboriginal communities.

Step Four Developer initiates any other relevant approval processes (e.g. federal approvals, MNR Species at Risk work, etc.)

Step Five Developer holds first public meeting at least 30 days after providing notice.

Step Six Developer, taking feedback from initial meeting into account, begins refining project plans and doing studies to ensure that the project meets health, environmental and safety standards.

Developer contacts the municipality (and others) to gather information about a) natural heritage features and water bodies near the project location and b) cultural heritage and archaeological records (developers are strongly

encouraged to initiate this contact as early as possible in the development process, ideally at Step Two).

Consultation with all stakeholders continues on an ongoing basis throughout the project design process.

Step Seven Wind project developers may publish a draft site plan by providing notification of the proposed turbine layout to **municipal stakeholders**, Aboriginal communities and the general public.

Step Eight Developer provides a copy of **all draft reports and studies** (except the Consultation Report) to the **municipality** at least 90 days in advance of the final public meeting.

Step Nine Developer provides copies of all draft reports, studies and MNR and MTC confirmation letters (except the Consultation Report) online and in paper copies for public review at least 60 days in advance of the final public meeting.

Step Ten Developer holds final public meeting and will, if necessary, revise its draft reports in preparation for making its application for the REA.

Step Eleven REA application is submitted and, if complete, accepted by the MOE.

Step Twelve MOE commences technical review and posts notice of the application on the EBR for additional comment for a period of 30 days. Within 10 days of the EBR notice, the developer must post all application materials on its website until MOE makes its decision. The developer must also publish notice of its application in a newspaper.

Step Thirteen MOE provides REA decision to developer – if approved, with any conditions that may apply. The applicant or a third party may appeal the REA decision to the Environmental Review Tribunal within 15 days of the issuance of the decision notice.

Step Fourteen Post-REA Approval

- a) Developer receives notice to proceed from OPA.
- b) Developer obtains all other necessary regulatory and electrical approvals.
- c) Developer obtains building permit from **municipality**.
- d) Developer constructs project.
- e) Project starts commercial operation.

APPENDIX C

Bibliography of Studies Reviewed by MOE in Developing Renewable Energy Approval

These are studies that were collected by Ministry staff, that were available around the world, and which were provided to the Ministry throughout the REA consultation process. MOE states: The ministry has a process in place to review emerging scientific and engineering studies, which will ensure we continue to keep up to date on the latest available research.

Source:

http://www.ene.gov.on.ca/stdprodconsume/groups/lr/@ene/documents/nativedocs/stdprod_085127.pdf

11th International Meeting on Low Frequency Noise and Vibration and its Control, van den Berg, G.P., Maastricht, The Netherlands, 30 Aug. to 1 Sept. 2004

http://www.viewsofscotland.org/library/docs/LF_turbine_sound_Van_Den_Berg_Sep04.pdf

A New Electromagnetic Exposure Metric: High Frequency Voltage Transients Associated With Increased Cancer Incidence in Teachers in a California School, Milham, S., and Morgan, L.L., American Journal of Industrial Medicine, 2008

A New Explanation for Wind Turbine Whoosh - Wind Shear, Monitoring Reports, William Palmer P. Eng., paper presented at Third International Wind Turbine Noise Conference at Aalborg, Denmark, 2009

http://amherstislandwindinfo.com/palmer_wtn_conference_2009.pdf

A Review of Published research on Low Frequency Noise and Its Effects, Dr. Leventhall, G., et.al., Report prepared for Defra (U.K. Department for Environment, Food and Rural Affairs), May 2003.

http://westminsterresearch.wmin.ac.uk/4141/1/Benton_2003.pdf

Addressing Concerns with Wind Turbines and Human Health, Canadian Wind Energy Association (CanWEA), Apr. 2009

<http://www.canwea.ca/pdf/CanWEA%20-%20Addressing%20concerns%20with%20wind%20turbines%20and%20human%20health.pdf>

Acoustic Ecology Institute Special Report: Wind Energy Noise Impacts, The Acoustic Ecology Institute, June 2009

Additional Information Requirements for Wind Turbines (Environmental Impact Assessment requirements), Government of New Brunswick

<http://www.gnb.ca/0009/0377/0002/0001/0014-e.pdf>

Alberta Utilities Commission Rule 012 (Noise Control), Alberta Utilities Commission, March 2009

<http://www.auc.ab.ca/acts-regulations-and-auc-rules/rules/Documents/Rule012.pdf>

Amplitude Modulation of Wind Turbine Noise: A Review of Evidence, Bowdler, D., published in Institute of Acoustics Bulletin Vol. 33 no. 4, July/August 2008

<http://www.dickbowdler.co.uk/wp-content/uploads/2010/03/AM-of-Wind-Turbines.pdf>

Arran Lake Wetlands Complex: a study of a sensitive wildlife habitat under threat, Stelling, K., The Friends of Arran Lake, Oct. 2008

http://www.gwag.ca/media/pdf/Arran_Lake_REPORT.pdf

Article R1334-33 in France's Code of Public Health (Code de la santé publique), The Government of French Republic, 2006

<http://www.legifrance.gouv.fr/.affichCodeArticle.do?idArticle=LEGIAARTI000006910540&cidTexte=LEGITEXT000006072665&dateTexte=20090929&fastPos=3&fastReqId=151755942&oldAction=rechCodeArticle>

Assessing the Environmental Capacity for On-Shore Wind Energy Development, Consultation on Proposed Approach to Natural England Guidance (Wind Energy Guidance Consultation), Natural England, 2009

http://www.naturalengland.org.uk/Images/windenergy-consultation_tcm6-12082.pdf

Baseline Environmental Sound Levels for Wind Turbine Projects, Hessler, G.F., and Hessler, D.M., Hymarket, Virginia, published in Sound and Vibration, November 2006

<http://www.sandv.com/downloads/0611hess.pdf>

British Columbia Land Use Operational Policy for Wind Power Projects, BC Ministry of Agriculture and Lands

http://www.agf.gov.bc.ca/clad/tenure_programs/programs/windpower/index.html

Calculating the Real Cost of Industrial Wind Power: An information update for Ontario electricity consumers, Stelling, K., Friends of Arran Lake Wind Action Group, 2007

http://docs.wind-watch.org/wind_cost_report.pdf

California Guidelines for Reducing Impacts to Birds and Bats from Wind Energy Development: Commission Final Report, California Energy Commission, Oct. 2007

<http://www.energy.ca.gov/2007publications/CEC-700-2007-008/CEC-700-2007-008-CMF.PDF>

Contemporary Problems in Appropriate Technology: Residential Wind Turbines and Noise Emissions, Hodgson, E.V.F 2004

<http://www.wind.appstate.edu/reports/ResidentialWindTurbinesandNoiseEmissions.pdf>

Context and Opinion related to the Health Effects of Noise Generated by Wind Turbines, Agence Francaise de Securite Sanitaire de l'environnement et du Travail, 2006

<http://www.canwea.ca/pdf/talkwind/Afsett%20-%20Context%20and%20opinion%20related%20to%20health%20effects%20of%20noise%20generated%20by%20WT.pdf>

Denmark's Wind Planning Circular, available in Danish at:

http://www.blst.dk/Landsplan/Vindmoeller/Cirkulaere_og_vejledning_om_vindmoeller/

Deputation to the Ontario Standing Committee on General Government Regarding Bill C-150, Dr. McMurtry, R., April 22, 2009

Dirty Electricity Elevates Blood Sugar Among Electrically Sensitive Diabetics and May Explain Brittle Diabetes, Havas, M., published in Electromagnetic Biology and Medicine, Vol. 27, pages 135-146, 2008

Development of Regulatory Requirements for Wind Turbines in Alberta, DeGagne, D.C., and A. Lewis, A., Alberta Energy and Utilities Board, published in the Journal of the Canadian Acoustical Association, Vol.34, no. 2, June 2006

Dirty Electricity and invisible pollutant in schools, Havas, M., published in OSSTF/FEESO Education Forum Vol. 32, Issue 3, Fall 2006

Draft Model Wind Ordinance for Wisconsin, State of Wisconsin, Feb. 2007

Draft standard DZ6808 v.2.5, New Zealand Standards, Feb. 2000

[http://www.standards.co.nz/web-shop/?action=viewDraft&draftId= DZ6808&mod=drafts](http://www.standards.co.nz/web-shop/?action=viewDraft&draftId=DZ6808&mod=drafts)

Effect of the wind profile at night on wind turbine sound. van den Berg, G.P., published in the Journal of Sound and Vibration, Vol. 277, no.4, 2004

Electromagnetic Hypersensitivity: Biological Effects of Dirty Electricity with Emphasis on Diabetes and Multiple Sclerosis, Havas, M., published in Electromagnetic Biology and Medicine, Vol. 35, pages 259-268, 2006.

http://www.next-up.org/pdf/Magda_Havas_EHS_Biological_Effets_Electricity_Emphasis_Diabetes_Multiple_Sclerosis.pdf

Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), Government of Australia

Environmental Noise from Wind Turbines, Howe, B., HGC Engineering, submitted to Ontario Ministry of the Environment for March 11th 2009 Technical Workshop on Renewable Energy Technologies

Environmental Planning and Assessment Act 1979, New South Wales, Australia

First International Meeting on Wind Turbine Noise: Perspectives for Control, Berlin, Germany, 17-18 October 2005

http://www.iag.uni-stuttgart.de/luftfahrzeugaerodynamik/paper/wind_turbine_noise_10_2005_paper_lutz.pdf

Going Green for Less: Cost-Effective Alternative Energy Sources, Samson, R., Stamler, S.B., C.D. Howe Institute, Feb. 2009

Government statement regarding the findings of the Salford University report into Aerodynamic Modulation of Wind Turbine Noise, Government of the United Kingdom, 2007

Guidelines for Community Noise, WHO Report, edited by Berglund et al., 2000

Guide De L'étude D'impact Sur L'environnement Des Parcs Eoliens (Guide To The Study Of Environmental Impact Of Wind Farms), French Ministry of Ecology and Sustainable Development and Agency for Environment and Energy Management, 2004

http://www.ecologie.gouv.fr/IMG/pdf/Guide_eolien.pdf

Health, Safety and Nuisance Concerns Associated with Wind Energy Development, report prepared by Jacques Whitford for Epcor Utilities Inc., Nov. 2006

Human response to Wind Turbine Noise, perception, annoyance and moderating factors, Pedersen E, Occupational and Environmental Medicine, Department of Public Health and Community Medicine, the Sahlgrenska Acedemy, Göteborgs Universitet, Göteborg, 2007

IEC 61400-11. Wind Turbine Generator Systems Part 11: Acoustic Noise Measurement Techniques, International Electrotechnical Commission, 2002

Impact of Wind Farms on the Value of Residential Property and Agricultural Land: An RICS Survey, Royal Institute of Chartered Surveyors

Infrasound from Wind turbines: Fact, Fiction or Deception, Dr. Leventhall, G., Canadian Acoustics, Vol. 34 No. 2, 2006 https://www.cleanenergycouncil.org.au/cec/technologies/wind/turbinefactsheets/mainColumnParagraphs/0/text_files/file1/06-06Leventhall-Infras-WT-CanAcoustics2.pdf

ISO 9613-2 International Standard: Acoustics - Attenuation of sound during propagation outdoors, International Organization for Standardization

http://www.iso.org/iso/catalogue_detail.htm?csnumber=20649

Less for More: The Rube Goldberg Nature of Industrial Wind Development, Boone, J., Dec. 2006

<http://www.stopillwind.org/downloads/LessForMore.pdf>

Letter to Delaware Public Service Commission (Regarding PSC Docket 07-20), Kempton, W., and Levy, J., May 2007

Literature Search on the Potential Health Impacts Associated with Wind-to-Energy Turbine Operations: Summary Report, Ohio Department of Health, March 2008

<http://www.odh.ohio.gov/ASSETS/C43A4CD6C24B4F8493CB32D-525FB7C27/Wind%20Turbine%20SUMMARY%20REPORT.pdf>

Location, Location, Location: An investigation into wind farms and noise, Stewart, J., the UK Noise Association, July 2006

<http://www.countryguardian.net/Location.pdf>

Microseismic and Infrasound Monitoring of Low Frequency Noise and Vibrations from Windfarms, Styles, P., et. al., Keele University, Applied and Environmental Geophysics Research Group, July, 2005

Minnesota Administrative Rules Chapter 7854, Site Permit: Large Wind Energy System, State of Minnesota, Public Utilities Commission

<https://www.revisor.leg.state.mn.us/rules/?id=7854>

MN PUC Order: Establishing General Permit Standards, Minnesota, Public Utilities Commission, 2008 <http://energyfacilities.puc.state.mn.us/documents/19302/PUC%20Order%20Standards%20and%20Setbacks.pdf>

<http://www.gnb.ca/0085/pdf/NBwindEnergy.pdf>

Model Wind Turbine Provisions and Best Practices for New Brunswick Municipalities, Rural Communities and Unincorporated Areas, New Brunswick Department of Energy, 2008 (prepared by Jacques Whitford)

<http://www.gnb.ca/0085/pdf/NBwindEnergy.pdf>

Landscape Integration and Harmonization Assessment Guide: Wind Farm Siting Project on Public Land, Quebec Ministry of Natural Resources and Fauna, 2008

<http://www.mrnf.gouv.qc.ca/english/publications/territory/program/eolien.pdf>

New Zealand Standard Proposal, Wind Farm Noise, Standards New Zealand, Sept 2009

Night Noise Guidelines for Europe; World Health Organization, 2009

Nocebo-Dysthymia Effect, Dahlstroem, W., Helix Synergy Inc., July 2009

Noise Radiation from Wind Turbines Installed Near Homes: Effects on Health with an annotated review of the research and related issues, Frey, B., and Hadden, P., 2007

Occupational and Community Noise: Fact Sheet No 258, World Health Organization, 2001

http://www.who.int/peh/Occupational_health/OCHweb/OSHPages/OSHDocuments/Factsheets/noise.pdf

Ontario Study Report, James, R.R., E-coustic Solutions, prepared for The Alliance to Protect Prince Edward County (APPEC)

Peer Review of "Recommendations for Risk Assessments of Ice Throw and Blade Failure in Ontario," Senes Consultants Limited, prepared for Ontario Ministry of the Environment, July 2009

Perception and annoyance due to wind turbine noise: A dose-response relationship, Pedersen E., and Waye, K.P., published in the Journal of Acoustic Society of America Vol. 116 No. 6, pages 3460- 3470, Dec. 2004

<http://www.mfe.govt.nz/rma/call-in-turitea/submissions/186changeappendix6.pdf>

Permitting Setback Requirements for Wind Turbines in California, Public Interest Energy Research Interim Project Report, Prepared by California Wind Energy Collaborative for California Energy Commission, Nov. 2006

<http://www.energy.ca.gov/2005publications/CEC-500-2005-184/CEC-500-2005-184.PDF>

Permitting Setbacks for Wind Turbines in California, a report by the Public Interest Energy Research PIER program of the California Energy Commission, 2006

http://www.energy.ca.gov/pier/project_reports/CEC-500-2005-184.html

Power quality affects teacher wellbeing and student behaviour in three Minnesota Schools, Havas, M., and Olstad, A., the Science of the Total Environment, 2008

Planning Policy Statement 22: Renewable Energy, UK Department of Communities and Local Government, 2004 <http://www.communities.gov.uk/documents/planningandbuilding/pdf/147444.pdf>

Power Quality and Ground Current Issues to consider in addition to Noise and Infra-Sound, Havas, M., submitted to Ontario Ministry of the Environment for March 11th 2009 Technical Workshop on Renewable Energy Technologies

Pre-Filed Testimony of Jerry G. Lilly before the State of Washington Energy Facility Site Evaluation Council

Presentation to the Main Medical Association: Dr. Michael A. Nissenbaum, Case Series

Procedure for the assessment of low frequency noise complaints, Dr. Moorhouse, A., Dr. Waddington, D., and Dr. Adams, M., Acoustic Research Centre, University of Salford, United Kingdom, February 2005

<http://www.defra.gov.uk/environment/quality/noise/research/low-frequency/documents/nanr45-procedure.pdf>

Proceedings Wind Turbine Noise, Second International Conference on Wind Turbine Noise, Lyon, September 20-21, 2007

Public health effects of wind turbines, Minnesota State Department of Health, May 2009

<http://www.health.state.mn.us/divs/eh/hazardous/topics/windturbines.pdf>

Public Health Impacts of Wind Turbines, Minnesota Department of Health, Environmental Health Division, in response to request from Minnesota Department of Commerce, Office of Energy Security, May, 2009

<http://energyfacilities.puc.state.mn.us/documents/Public%20Health%20Impacts%20of%20Wind%20Turbines,%205.22.09%20Revised.pdf>

Recommendations for Risk Assessments of Ice Throw and Blade Failure in Ontario, prepared for CanWEA, Garrad Hassan Canada Inc., May 2007

Regional Decree 135/1989 Technical conditions to be met by issuing activities noises or vibrations, prepared by Navarra for Departamento de Medio Ambiente, Ordenación del Territorio y Vivienda, available in Spanish

<http://www.navarra.es/NR/rdonlyres/720868A7-3313-407D-A3E1-EE076384EC90/64825/D.PDF>

Renewable Energy Essentials: Wind, International Energy Agency, 2008

Repercussions of the Operation of Wind Turbines on Human Health, National Academy of Medicine of France, March 2006

Riverside County General Plan: Noise Element (Chapter 7), the County of Riverside Transportation and Land Management Agency, California, 2003

<http://www.rctlma.org/genplan/content/gp.aspx>

Research into Aerodynamic Modulation of Wind Turbine Noise: Final Report, Dr. Moorhouse, A., et. al., 2007

<http://www.berr.gov.uk/files/file40570.pdf>

Response to noise from modern wind farms in the Netherlands, Pedersen, E., van der Berg, F., Bakker, R., and Bouma J., published in Acoustical Society of America, Vol. 126, No.2 pages 634-643, 2009

Risk Analysis of Ice Throw from Wind Turbines, Sifert et al., paper presented at BOREAS 6, April 9-11, 2003, Pyha, Finland

<http://www.njwind.com/lempster/pdf/SEC%20Docs/24.%20Risk%20Analysis%20of%20Ice%20Throw%20-%20Seifert%20-%202003%20and%201998%20Papers.pdf>

Royal Decree 1367/2007, regarding noise zoning, quality targets and noise, Government of Spain, Department of Energy, 2007

<http://www.boe.es/boe/dias/2007/10/23/pdfs/A42952-42973.pdf>

Self reporting survey of Ontario individuals reporting adverse health effects from exposure to industrial wind turbines, Wind Vigilance for Ontario Victims, WindVOiCe

Setbacks to Wind Turbines in Ontario: An Engineering Justification Based on Public Safety Risk and Ontario Noise Regulations, William Palmer, Aug. 2006

Simple guidelines for siting wind turbines to prevent health risks, Kamperman, G.W., and James, R.R., July 2008

<http://www.wind-watch.org/documents/wp-content/uploads/simple-guidelines-for-siting-wind-turbines-to-prevent-health-risks.pdf>

Sleep disturbance and wind turbine noise, Dr. Hanning, C., on behalf of the Stop Swinford Wind Farm Action Group, June 2009

<http://www.wind-watch.org/documents/wp-content/uploads/Hanning-sleep-disturbance-wind-turbine-noise.pdf>

Some health aspects of wind driven industrial turbines, Archives and Collections Society, Picton, Ontario, March 2004

http://www.aandc.org/research/wind_community_health.html

Statement from Dr. David Manley

Développement durable de l'énergie éolienne: Considérations en matière de sécurité publique (Sustainable Development of Wind Energy: Consideration of Public Security), Government of Quebec http://www.mamrot.gouv.qc.ca/pub/amenagement_territoire/orientations_gouvernementales/eoliennes_f04_considerations_securite.pdf

Technical directive for wind turbine setback. Hydro One

Technical Instruction for the Protection Against Noise, German Standard, 1998, available in German

<http://www.dflid.de/Link.php?URL=Archiv/TALaerm/TALaerm.htm>

The assessment and rating of noise from wind farms, UK Department for Business, Enterprise and Regulatory Reform, 1996

<http://www.berr.gov.uk/energy/sources/renewables/explained/wind/onshore-offshore/page21743.html>

The California Environmental Quality Act (CEQA), State of California

<http://ceres.ca.gov/ceqa/>

The Effect of Wind Development on Local Property Values, Sterzinger, G., Beck, F., and Kostiuk, D., Renewable Energy Policy Project, May 2003

The Health Impact of Wind Turbines: A Review of the Current White, Grey, and Published Literature, Chatham-Kent Public Health Unit, June 2008

<http://www.wind-works.org/LargeTurbines/Health%20and%20Wind%20by%20CK%20Health%20Unit.pdf>

The measurement of low frequency noise at three UK wind farms, McKenzie, H., 2006

<http://webarchive.nationalarchives.gov.uk/20091002233416/http://www.berr.gov.uk/files/file31270.pdf>

The New Brunswick Developer's Guide to Renewable Energy, Government of New Brunswick http://www.gnb.ca/0085/pdf/Developers_Guide_E.pdf

The Sounds of High Winds: the effect of atmospheric stability on wind turbine sound and microphone noise. van den Berg, G.P., Doctoral dissertation, University of Groningen, Netherlands, May 2006.

Towers, Turbines, Power Lines, and Buildings: Steps being taken by the U.S. Fish and Wildlife Service to Avoid or Minimize Take of Migratory Birds at These Structures, Manville, A. M., Proceedings 4th International Partners in Flight Conference, McAllen, TX. February 2008.

Tuning and sensitivity of the human vestibular system to low frequency vibration. Todd et al., published in Neuroscience Letters Vol. 444, 2008, pages 36-41.

West Saxony Regional Plan (2008) found in German at <http://www.rpv-west Sachsen.de>

What is the impact of wind farms on house prices?, Findings in Built and Rural Environments. Royal Institution of Chartered Surveyors, March 2007

WI AB 256/SB 185, Uniform Siting Standards for Small Wind Farms, State of Wisconsin, 2009 <http://www.wmc.org/governmentaffairs/display.cfm?ID=269>

Wind Chill: Why wind energy will not fill the UK's energy gap. Lodge, T., Centre for Policy Studies, 2008

Wind Energy Guide, French Environment and Energy Management Agency (ADEME)

Wind Energy Policy in Denmark: 25 Years of Success – What Now? Krohn, S., Danish Wind Industry Association, Feb. 2002 [http://guidedtour.windpower.org/media\(493,1033\)/Wind_energy_policy_in_Denmark%3A_25_years_of_success_-_what_now%3F.pdf](http://guidedtour.windpower.org/media(493,1033)/Wind_energy_policy_in_Denmark%3A_25_years_of_success_-_what_now%3F.pdf)

Wind Farms Environmental Noise Guidelines, South Australia, Environmental protection Act, July 2009

Wind Farm Industry Policy Statement, Ministry of Environment, Heritage and the Arts of New South Wales, Australia. July 2009.

Wind Power in Denmark: technology, policies and results, Sept. 1999

Wind Siting Act, Statue 216F, State of Minnesota

<https://www.revisor.leg.state.mn.us/statutes/?id=216F>

Wind Turbine Acoustic Noise, A White Paper, Dr. Rodgers, A., Renewable Energy Research Laboratory Department of Mechanical and Industrial Engineering, University of Massachusetts at Amherst, June 2002 amended January 2006

<http://www.minutemanwind.com/pdf/Understanding%20Wind%20Turbine%20Acoustic%20Noise.pdf>

Wind Turbine Facilities Noise Issues, Acoustic Consulting Report, prepared for the Ontario Ministry of Environment by Dr. Ramakrishnan, R., (Lead Acoustician), December 28 2007.

Wind Turbine Fire Protection Guidelines, Innisfil Alternative Energy Ad Hoc Advisory Committee, July 2008

Wind turbine noise, annoyance and self-reported health and well-being in different living environments, Pedersen E, and Waye. K.P., 2007

<http://oem.bmj.com/content/64/7/480.abstract>

Wind Turbine Syndrome: Testimony before the New York State Legislature Energy Committee, Dr. Pierpont, N., MD, PhD, March, 2006

<http://www.windturbinesyndrome.com>

Wind Turbines: Low level noise sources interfering with restoration? Pedersen E., and Waye, K.P. K., Environmental Research Letters 3, January-March 2008

Wind Turbines and Environmental Assessment. Ray Copes, R., and Rideout, K., presented to Western Medical Officers of Health Meeting June 23, 2009, Banff, AB., National Collaborating Centre for Environmental Health

http://www.ncceh.ca/files/Western_MOH_2009_Wind_Turbines.pdf

Wind Turbines and Industrial Sources, Keith, S., et al., presented to Health Canada, Consumer and Clinical Radiation Protection Bureau, March 11, 2009

Wind Turbines and Infrasound, Howe, B., HGC Engineering, submitted to CanWEA, November 2006

http://canwea.ca/images/uploads/File/CanWEA_Wind_Turbine_Sound_Study_-_Final.pdf

Wind Turbines and Sound: Review and Best Practice Guidelines. HGC Engineering. Submitted to CanWEA, February 2007

Wind Turbines Make Waves: Why do some resident near wind turbines get sick? Dr. Havas, M., Trent University. Presentation to Florence, Ontario Township Council, Nov. 2008

Wind Turbines, Noise and Health, Dr. Harry, A., Feb 2007

WINDFARM perception: Visual and Acoustic Impact of Wind Turbine Farms on Residents; Final report; Frits van den Berg, F., Petersen, E., Bouma, J., and Bakker R., University of Gothenburg, June 3, 2008

http://www.ontario-sea.org/Storage/32/2348_Visual_and_acoustic_impact_of__wind_turbine_farms_on_residents.pdf

World Wind Energy Report 2008, World Wind Energy Association, 2008.

Environmental Impacts of Wind-Energy Projects, National Research Council (NRC), Washington D.C., 2007
Safe Environs Program, Health Canada Environmental Assessment Nova Scotia. August 6, 2009

Endnotes

- ¹ Association of Municipalities of Ontario. 2008. *A Sustainability Planning Toolkit for Municipalities in Ontario*. Prepared for the AMO by Blackstone Corporation Resource Management & Tourism Consultants Inc. in association with R.J. Burnside & Associates Ltd. Available online at http://www.amo.on.ca/AM/Template.cfm?Section=Integrated_Community_Sustainability_Plan&Template=/CM/ContentDisplay.cfm&ContentID=150880. Accessed July 26, 2011.
- ² Infrastructure Canada. Green Infrastructure Fund (GIF). Available online at <http://www.buildingcanada-chantierscanada.gc.ca/creating-creation/gif-fiv-eng.html>. Accessed July 26, 2011.
- ³ Available online at http://www.amo.on.ca/AM/Template.cfm?Section=Integrated_Community_Sustainability_Plan&Template=/CM/ContentDisplay.cfm&ContentID=150880. Accessed September 5, 2011.
- ⁴ Available online at <http://www.amo.on.ca/Content/NavigationMenu/SustainableMunicipalities/FederalGasTax/IntegratedCommunitySustainabilityPlan/default.htm>. Accessed August 11, 2011.
- ⁵ Ministry of Energy, August 2011. *Renewable Energy Development: A Guide For Municipalities*. Available online at http://www.mei.gov.on.ca/en/pdf/ON9126_MEI_Guidance_Brochure9.pdf. Accessed September 7, 2011.
- ⁶ Mark Roseland. *Toward Sustainable Communities, Resources For Citizens and Their Governments*. Revised Edition 2005 (Gabriola Island: New Society Publishers) pp. 43-184.
- ⁷ Available online at http://gmf.fcm.ca/Capacity_Building/Municipal-sustainable-bylaw-collection/default.asp. Accessed July 15, 2011.
- ⁸ Association of Municipalities of Ontario. 2008. *Op. cit.* Introduction.
- ⁹ Association of Municipalities of Ontario. 2008. *Op. cit.* Introduction.
- ¹⁰ Federation of Canadian Municipalities. *Sustainable Community Planning in Canada: Status & Best Practices*. Revised March 2009. Prepared by Marbek Resource Consultants in association with Dr. Ray Tomalty, Co-operative Research and Policy Services (CORPS). Available at http://gmf.fcm.ca/files/Capacity_Building-Planning/Planning_Sector_EN.pdf. Accessed August 11, 2011.
- ¹¹ County of Lennox and Addington. *A Sustainability Plan*. March 2010. Prepared by Natural Capital Resources Inc. in collaboration with TriEdge & Associates. Accessed online at <http://www.lennox-addington.on.ca>.
- ¹² Ministry of Municipal Affairs and Housing, Provincial Planning Policy Branch. 2007. ISBN 1-4249-0172-3 (HTML)· ISBN 1-4249-0173-1 (PDF)· Available online at <http://www.mah.gov.on.ca/AssetFactory.aspx?did=4709>. Accessed August 11, 2011.
- ¹³ *Ibid.*
- ¹⁴ *Ibid.*
- ¹⁵ Federation of Canadian Municipalities, *op. cit.*