

BACK TO THE FUTURE TOWN OF ANNAPOLIS ROYAL FINAL REPORT TO COUNCIL

As at January 20, 2009

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1.0 CONSERVATION

1.1 Energy Conservation

According to Nova Scotia Power Inc.¹, energy efficiency and conservation (demand side management) is just as important as renewable or greener electrical generation. There is a long list of things the Town and its residents and businesses can do to reduce energy consumption. For example, anti-idling rules for town vehicles, changing to CFL's, electronic thermostats, Christmas LED lights, and rules on lighting consumption in municipal offices. Conservation and Energy Efficiency also result in less fossil fuels being used, and that is the end objective.

On August 18, 2008, the Town adopted its first energy management policy ([see Tab 10](#)). As at October 29, 2008, the Annapolis Royal Historic Gardens was considering adopting a similar policy.

On March 5, 2007, the Town held an anti-idling campaign, and 39 people signed up.

Recommendation 1: That the Town consider the adoption of Jasper's Idling Control By-law ([see Tab 4](#)).

On August 26, 2008, NSPI agreed to assist Annapolis Royal and other towns in applying for government funding to develop and implement in-field pilot of LED Roadway Lighting products². It is estimated that the LED lights will reduce energy consumption for street lights by 52%³.

Recommendation 2: That the Town consider adopting a policy on energy management for Town-owned buildings ([see Tab 10](#)).

A policy was adopted by Town Council on August 18, 2008.

In 2008, the Town redrafted its procurement policy to include buying locally and requiring the purchase of only energy efficient products labeled Energy Star ([Tab 5](#)).

Recommendation 3: That the Town adopt the revised procurement policy.

On September 5, 2008, Dalhousie University's Eco Efficiency Centre completed an Environmental and Energy Review of the Annapolis Legion Social Centre ([see Tab 16](#)). On November 18, 2008, a group of graduate students from Dalhousie University produced a Short Term Report: Suggestions for Improving and Executing Short Term Energy Savings for the Annapolis Royal Legion ([see Tab 16](#)). This report has since been

¹ Glennie Langille, October 28, 2008

² Letter from Vice President, Commercial to President, LED Roadway Lighting dated August 26, 2008

³ Letter from LED Roadway Lighting dated July 29, 2008.

delivered to the Legion and it is the Town's understanding that most of the recommendations have been accepted and are being acted upon.

1.2 Water Conservation

Water is a finite resource, yet most people are not aware of the fact. The Province is working on the development of a draft Water Resource Management Strategy.⁴

The Town was recently the focus of a major paper presented to the Faculty of Graduate Studies of the University of Guelph, Ontario. The paper was called *An Analysis of the Efficacy of Rain Gardens for the Protection of Water Resources in Annapolis Royal, NS*. The Town is participating with several other partners in a grant application to EcoAction called *Managing Water Resources in a Climate Changed World: An Annapolis Pilot Project proposed by the Clean Annapolis River Project (CARP)*. The application would require the Town to make contributions toward the creation of an Annapolis rain water garden (essentially, an on site rain water collection area with water resistant plantings) and a streetscape rainwater collection program (for example, a barrel and spigot system). The Town would also be expected to work with CARP to support the homeowner and public communications components of this initiative.

Recommendation 4: That the Town consider the adoption of a water conservation by-law based on the City of Victoria's by-law ([see Tab 8](#)).

In April 2008, Heather Chisholm wrote a research paper analyzing the efficacy of rain gardens for the protection of water resources in Annapolis Royal ([see Tab 6](#)). It was determined that rain gardens may help to protect water resources in Annapolis Royal thereby serving to increase the Town's adaptive capacity, and therefore should be pursued if site conditions in the Town are deemed suitable⁵.

Recommendation 5: That the Historic Gardens be asked to head up a demonstration project to illustrate the benefits of rain gardens to residents and visitors.

Recommendation 6: That a rain garden be incorporated into the plans for a holding pond for fire protection within the new Fortier Mills development.

The Town has also allocated \$7,500.00 in fiscal year 2008-2009 to assist the Annapolis Royal Historic Gardens in finding an alternative to the use of potable water for irrigation.

1.3 Water Quality

⁴ E-mail message from Stephen Feist, Service Nova Scotia and Municipal Relations, January 6, 2009

⁵ page ii of Abstract

In 2007, the Town made public statements to the effect that the Province should require environmental assessments for smaller quarry operations. On September 15, 2008, Town Council supported a motion to request that the Province of Nova Scotia enact legislation to ensure that the moratorium on uranium mining not be lifted and that uranium mining no longer be permitted in the Province of Nova Scotia.

In 2008, the Town also participated in discussions about the Canadian Shellfish Sanitation Program. It should be noted that the Town has a natural wastewater filtration system that provides tertiary waste treatment and that is fully compliant with provincial environmental requirements.

On October 15, 2008, the Town was invited to provide a panelist for Headwaters & Headlands to the Ocean: Exploring Collaborations for our Coastal and Water Futures organized by Clean Annapolis River Project, Ecology Action Centre and others at Dalhousie University. The Town used the opportunity to outline municipal water conservation and water quality concerns.

1.4 Clean Air

Earlier in 2008, the Town considered whether or not to revert one way streets back to two way streets for purposes of energy conservation and climate protection. The Town invited public comments and the response was overwhelmingly in favour of maintaining the one way street in question.

As at time of writing, the Town is considering a ban on certain items or products which contain polybrominated diphenyl ethers (PBDEs). The Town is also beginning discussions with the Historic Gardens and the Clean Annapolis River Project on the use of pesticides for cosmetic purposes.

Recommendation 7: That the Town consider amending the Procurement Policy to include GREEN printing (non Volatile Organic Compounds).

2.0 RENEWABLE ENERGY

2.1 Energy Audit

In July 2008, Clean Annapolis River Project (CARP) completed an energy conservation pilot project⁶ ([see Tab 1](#)). The report stated that total GHG (Green House Gas) production by non-transportation sources in the community of Annapolis Royal for 2006 and 2007 was 78% electrical, 21.5% furnace oil and .01% propane.

⁶ Annapolis Royal Energy Conservation Pilot Project Report by Stephen Hawboldt, Clean Annapolis River Project, July 2008

In 2008, CARP became an agent for EnerGuide under license to the Office of Energy Efficiency. Since CARP is a not-for-profit organization, and therefore not subject to HST, this means a 13% price edge for energy retrofit assistance.

As at September 19, 2008, 23 buildings within the Town had either undergone an energy audit and/or partially converted to renewable energy ([see Tab 7](#)). The Town continues to track all buildings for either energy audits or conversion to renewable energy.

Document Review:

Nova Scotia C Newsletter, Jan/Feb 2006 EnerGuide for Existing Buildings

2.2 Renewable Energy

The following renewable energy sources were reviewed during the course of this study:

2.2.1 Biomass

The Annapolis Digby Economic Development Agency produced a Wood Chip and Wood Pellet Plant Feasibility Study in September 2008 ([see Tab 17](#)).

Advantages	Disadvantages
Biomass is a clean, renewable heat source.	There is currently no biomass plant in the area and it will take time to establish an industry in the area.
There is an opportunity to create new industry for the area with well documented spinoff benefits.	There is limited space in Town for storage of wood pellets.
Conversion from oil furnace to pellet furnace has a relatively short payback period.	

Recommendation 8: That the Town work with the Annapolis Digby Economic Development Agency to develop a biomass industry for the region.

Recommendation 9: That the Town consider offering itself as a host site for any required main or peripheral facilities.

2.2.2 Solar

At least two homeowners in Annapolis Royal have installed solar panels (near the corner of St Anthony and St George Street). The Annapolis Heritage Association is also considering the installation of solar panels one of the oldest building in Town, the Sinclair Inn, and/or the mid-Victorian O’Dell House Museum, as a demonstration project.



Granville Skylights 1901, Halifax 1

Advantages	Disadvantages
Solar panels are very effective for heating water.	There are aesthetic considerations for the National Historic District that should be taken into account.

Recommendation 10: That the following *Standards and Guidelines for the Conservation of Historic Places in Canada*⁷ be followed:

Alterations/Additions for the New Use

Recommended

Installing mechanical and service equipment on the roof such as air conditioning, transformers or solar collectors when required for the new use so that they are inconspicuous from the public right-of-way and do not damage or obscure character-defining elements, or undermine the heritage value. (emphasis added)

Designing additions to roofs such as residential, office or storage spaces; elevator housing; decks and terraces; or dormers or skylights when required by the new

⁷ Page 22 Buildings and Roofs

use so that they are inconspicuous from the public right-of way and do not damage or obscure character-defining elements, or undermine the heritage value.

Not Recommended

Introducing a new roof feature that is incompatible in size, scale, material, style and colour.

Creating a false historical appearance because the replaced feature is based on insufficient physical and documentary evidence.

Installing mechanical or service equipment which damages or obscures character-defining elements; or is conspicuous from the public right-of-way.

Radically changing a character-defining roof shape or damaging or destroying character-defining roofing material as a result of incompatible design or improper installation techniques.

Recommendation 11: That guidelines be developed for the installation of solar panels on designated heritage buildings with the advice and guidance of AHS.

2.2.3 Photovoltaics

This option was not studied.

2.2.4 Fuel Cell Technology

This option was not studied.

2.2.5 Tidal Power

The Town of Annapolis Royal is host to the first tidal power station in North America. On June 26, 2008, the Province of Nova Scotia announced that it has committed \$2 million for research to ensure tidal devices face close scrutiny before going into the water, and to better understand the tidal resource in the Bay of Fundy.⁸

Advantages	Disadvantages
There is the potential for tidal power enhancements in the future depending what comes out of the current pilot project in the New Minas Basin.	None perceived at this time.

⁸ Province of Nova Scotia Press release dated June 26, 2008, 2:08PM

2.2.6 Wind Energy

A proposal for on site renewable energy generation for business was presented to the Town by Scotia Windfields Inc. in September 2008 ([see Tab 14](#)).

Advantages	Disadvantages
Fewer than four large windmills could provide most of the Town's electrical needs and eliminate 78% of the Town's GHG footprint.	The industry has failed to address issues around noise.
Grants are available to help finance capital cost.	The current regulatory system would preclude the Town from obtaining energy from a wind farm outside the Town. Regulatory reform would be required.
The move to wind energy would be in keeping with Nova Scotia Power Inc.'s renewable energy goals.	

On November 19, and 20, 2008, public meetings were held to explore future energy options, among other things (see [Tabs 18](#) and [19](#)). The results of both public meetings are currently before Town Council for review and consideration.

Recommendation 12: That the Town pursue regulatory reform to enable production of electricity from renewable sources for the Town offsite.

Recommendation 13: That the Town seriously consider the input received from the November 20, 2008 public meeting and hold further consultations regarding the feasibility of wind energy within the Town limits.

Recommendation 14: That the Town pursue funding from Green Funds and the provincial and federal government for the capital costs in building wind infrastructure.

2.2.7 Geothermal

At least one home owner has installed geothermal (lateral versus vertical installation) with good results.

Advantages	Disadvantages
This single technology can provide all the heating, cooling and hot water needs for every building in the Town.	
Conversion for homes with forced air	Conversion for homes with electric heat is

and/or hot water systems has a relatively short payback period.	expensive.
This technology can eliminate all GHGs associated with heating and cooling buildings and heating hot water.	

Recommendation 15: That the Town consider converting all Town-owned buildings to geothermal in partnership with any adjacent public buildings (eg. Parks Canada).

The above recommendation was actively pursued. While geothermal presents a good energy solution for Parks Canada, a report by Hatch Mott MacDonald indicates that this is not a viable solution for Town owned buildings ([see Tab 15](#)).

2.2.8 Other

In 2008, the City of Toronto developed a by-law to permit the production and distribution of energy from specific renewable and green energy sources ([see Tab 3](#)).

Recommendation 16: That the Town establish a by-law similar to the City of Toronto’s with respect to renewable and green energy production and distribution.

3.0 CLIMATE CHANGE ADAPTATION AND MITIGATION

In 2007, Birch Hill GeoSolutions completed a Climate Change Impacts and Adaptations for Land Use Planners toolkit ([see Tab 12](#)) for Natural Resources Canada. As a result of that work, a levee was recommended for Annapolis Royal ([see Tab 12](#)).

In November 2007, Tam Hill of Birch Hill GeoSolutions took part in a UNSM conference session on “Adapting to Climate Change: Strategies for Nova Scotia Municipalities” based on the work she completed earlier that year.

On March 4, 2008, at the invitation of the International Local Governments for Sustainability, the Town provided its comments on the Draft Green House Gas Emissions Protocol dated January 28, 2008. On April 2, 2008, the Town was invited to make a presentation at the New England Governors’/Eastern Canadian Premiers Adaptation Workshop on April 2, 2008 in St John’s, Newfoundland.

Levee Construction

Advantages	Disadvantages
The Town realizes it is at risk of storm surge. The problem is compounded by subsidence of the Nova Scotia landmass.	High cost of building a levee
The evidence would appear to suggest that construction of a levee to protect against 5.4 meter flood is less than the cost of repairs as a result of flood damage.	
Protection of significant heritage resources	

Recommendation 17: That the Town determine the order of magnitude costs for building a levee along with all of the required drainage systems.

As at time of writing, Hatch Mott MacDonald are working on order of magnitude costs for the Town.

Recommendation 18: That the Town seek financial assistance from Green Funds as well as the federal and provincial government to assist with the cost of a levee.

In October 2007, the Nova Scotia Invasive Species Working Group prepared a report on Incorporating Alien Invasive Species into Municipal Planning ([see Tab 11](#)). Since then, Clean Annapolis River Project has instituted a glossy buckthorn eradication program within the Town and signage has been installed to this effect along the French Basin Trail.

Recommendation 19: That the Town consider adoption of an alien invasive species eradication policy in consultation with Clean Annapolis River Project.

In 2008, the Town completed Milestone 1 of FCM's Partners for Climate Change program ([see Tab 21](#)).

Document Review:

1869 Saxby Gale, Wikipedia, April 1, 2008

LIDAR Mapping of Coastal Communities to assess the risk of flooding from storm surge and sea-level rise from climate change, COGS and AGRG, 1998?

Climate Change Concerns in the Annapolis Valley, Nova Scotia, Annapolis Valley Climate Change Policy Response Pilot Project Final Report, Clean Annapolis River Project, March 2004

Strategic Framework for Climate Change Risk Management (Adaptation) in Nova Scotia, Needs Assessment Survey, Climate Change Atlantic, March 2007

Coastal Flooding Tools, Climate Change Impacts and Adaptations for Land Use Planners, Birch Hill GeoSolutions, 2007

Climate Change Impacts and Adaptations for Land Use Planners for Natural Resources Canada by Birch Hill GeoSolutions, 2007

Draft International Local Government GHG Emissions Analysis Protocol, January 28, 2008

Background Study for Integrated Community Sustainability Plans, Annapolis Valley Municipalities, Jacques Whitford, February 12, 2008

4.0 BROWNFIELD IDENTIFICATION AND REMEDIATION

In 2008, the Town identified 12 potential brownfield sites within its borders. Freedom of Information requests were filed for all 12 properties and the Town received environmental reports on two properties. The Town subsequently had a preliminary environmental assessment completed for one of its own properties at 144 Victoria Street ([see Tab 20](#)). That report was completed and has been forwarded to the Town's solicitors to determine whether or not the previous owner may still have some responsibility for environmental clean-up.

Recommendation 20: That the Town consider a Community Improvement Plan for all identified brownfield sites in the Town using the

City of Kingston's 2006 Community Improvement Plan as an example ([see Tab 13](#)).

5.0 CONSTRUCTION

Recommendation 21: That developers be actively encouraged to make any development a green development.

Document Review

Municipal Green Building Toolkit, Canada Green Building Council, May 31, 2007

The Water Soft Path (WSP) Scenario Builder, by Tony Mass and Katherine Zaletnik

Soft Energy Path, Wikipedia, August 5, 2008

6.0 SOLID WASTE

On June 5, 2008, the Town published its first Solid Waste Material Management By-law ([see Tab 2](#)) which incorporates the features of its highly successful Zero Waste Program. The Town's diversion rate currently stands at 73%, one of the highest diversion rates in Canada.

In 2008, the Town also adopted a clear bag program for garbage and coordinated the implementation of the program with its neighbours through Valley Waste.

Recommendation 22: That the Town consider enacting a by-law for the establishment of multi-use plastic shopping bags similar to by-laws adopted in other parts of the country ([see Tab 9](#)).

Recommendation 23: That the Town continue to explore various options to further divert waste from the landfill.

Document Review:

Zero Waste Program, Kamikatsu Island, Japan

6.0 SUSTAINABILITY

Annapolis Royal has a population of 268 persons per square kilometer and 155 dwelling units per square kilometer. This compares favourably with Halifax (65 and 28) and Nova Scotia (17 and 7.6). However, the Town needs a population of at least 1,000 for

sustainability.⁹ This has been recently underlined by the recently announced drop in assessment for the Town's biggest rate payer, Nova Scotia Power Inc.

The new Fortier Mills subdivision has the potential to increase the tax base by an estimated \$40,000 over the next 5 years. There is the potential for:

- an assisted living facility on Town owned land (interest has been expressed by a developer).
- an apartment hotel by the Sea Cadets' boat launch (as per John Hockin tourism report)
- a voluntary boundary extension and a second subdivision to be developed on County land adjacent to the Robertson property off Highway 201
- development of vacant lands in Town
- an opportunity for co-location of the County, the Town, the Legion, the Library, and the Fire Department at a local school threatened with possible closure
- valuable land to be released for sale and development if all or part of the above-mentioned co-location were to happen
- remediation of brownfields within the Town for future development

Recommendation 25: That the Town consider setting a population target of 1,000 people by a particular date to be determined by Town Council after public consultation.

Recommendation 26: That the Town accelerate all development opportunities within the Town.

⁹ Report by Planner Roger Sturtevant, Annapolis District Planning Commission, September 18, 2006