



CORPORATE PHILOSOPHY

The Halifax Regional Municipality (HRM) is committed to becoming a healthy, sustainable, and vibrant community. Halifax Regional Council has identified environmental, social and economic sustainability as an overarching priority. Coordinating this is HRM's dedicated team in the Sustainable Environment Management Office who transcend all facets of municipal operations. This demonstrated commitment to sustainability has garnered national recognition. In 2009 and 2010, Corporate Knights ranked HRM as the #1 and #2 sustainable medium-sized city in Canada, respectively. HRM has adopted a philosophical approach to sustainability, encompassing a variety of projects, that are reproducible and provide measurable benefits to other levels of government, citizens and the environment.

The Halifax Regional Municipality is a leader in green initiatives and constantly strives to be bold and set the bar higher with respect to sustainability. Sustainability initiatives have been underway in the region for many years, beginning over a decade ago when HRM took the lead to be the first Canadian Municipality to enact a pesticide by-law banning the use of cosmetic pesticides. HRM has been recognized internationally for our highly successful recycling/green cart program - one of the most comprehensive solid waste systems in Canada. As one of the first cities in Canada to become a member of the Federation of Canadian Municipalities (FCM) Partners for Climate Protection Program, HRM has established a Corporate Greenhouse Gas Emission Reduction Plan that targets a 20% reduction in 2002 Greenhouse Gas levels by 2012. New targets and commitments are now being developed for 2020 and 2050.

Not only does HRM's corporate sustainability philosophy improve the local environment, it realizes significant cost savings thus having a double benefit for residents. Over the last 5 years almost \$7 million has been invested in energy efficiency initiatives which have resulted in savings of over \$1.2 million. This gives an ROI (overall return on investment) on HRM taxpayer dollars of 18.75%. HRM's GHG reduction plan is working on all levels, economic, social and environmental.



POLICY FRAMEWORK

HRM has complementary policy in place in addition to the GHG reduction strategies. These policies include a Clean Air Strategy, Climate SMART (climate change mitigation and adaptation plan), a comprehensive Community Energy Plan and a 25 Year Regional Plan - HRM's sustainable land use planning document which models a 10% reduction in regional GHG's, mainly from cars. In some cases, like the Regional Plan, extensive public consultation was employed to maximize the impact for citizens.

In 2004 HRM launched the Climate SMART initiative. This was a partnership including all levels of government and the private sector and was the first initiative of its kind at the municipal level that integrates and mainstreams greenhouse gas emission reduction and climate change impacts and adaptation considerations into its overall corporate-decision making process. The Climate SMART program included the development of tools to be used by the municipality, developers and the community including a Risk Management Strategy for HRM, A Developers Guide to Risk Management and a Community Action Guide for Climate Change. HRM is often invited to present about its Climate SMART initiative to local, national and international conferences which deal with climate change adaptation and mitigation.

STRONG PARTNERSHIPS

Climate SMART is reinforcing HRM's leadership on climate change priorities on the ground, and helping fulfil Nova Scotia's commitment to address Climate Change priorities. It has created a truly enabling environment to leverage Federal-Provincial funding for integrated climate change actions. A major initiative that came from Climate SMART is the collection of valuable Light Detection And Ranging (LiDAR) data around Halifax Harbour. From this data a Digital Elevation Model (DEM) was created. This DEM is being used in HRM applications such as watershed planning, floodplain analysis, 3-D modelling, transportation and infrastructure planning for example. Of particular relevance is the recent use of LiDAR data to forecast future sea level rise and storm surge events on the shoreline areas of the Halifax Harbour as a result of climate change.

HRM partnered with Natural Resources Canada (NRCan), the Province of Nova Scotia, the Halifax Port Authority, the Waterfront Development Corporation, Dalhousie University and the Applied Geomatics Research Group to complete this LiDAR project. The findings show how Harbour front properties could be affected by storm surges and sea level rise by 2100. HRM is continuing to build on this work through the support of a number of projects under the Atlantic Regional Adaptation Collaborate (RAC) including further modeling of Wave Run-up and Seiche to more accurately depict potential impacts. This project is another timely and relevant area in which HRM has been asked to provide its guidance and experience to other coastal communities, both national and international. This technology is easily replicated and many jurisdictions have enquired how best to employ it to map and model impacts related to climate change in their communities.

Many of the successful energy efficiency initiatives undertaken by HRM demonstrate innovative & collaborative leadership. The Alderney 5 Energy Project is an excellent example of bold leadership and innovative thinking. This \$3.6 million energy-efficiency retrofit of five municipal buildings on the Dartmouth, Nova Scotia waterfront is the first large-scale application of geothermal seasonal cold-energy storage anywhere in the world. The geothermal borehole system uses a patented heat exchanger design that is 300% more efficient than traditional U-tube designs. The revolutionary cooling system eliminates the need for supplementary cooling systems using compressors or cooling towers by harvesting cold energy from seawater during winter months to chill an underground rock mass and then using the stored thermal energy to meet air conditioning needs in warmer months by using 100% renewable energy.

Project construction was funded through a partnership between the Halifax Regional Municipality (HRM), the Provincial government and the Federal government's Technology Early Action Measures (TEAM) program. It is expected the Alderney 5 Energy Project will save \$350,000 per year in energy costs, avoid \$800,000 in future replacement costs and significantly reduce maintenance with the new heating and cooling systems. The execution of this project has not been smooth but the key players have seen the far reaching benefits of this technology and have pushed the project to fruition.



INTERNAL INITIATIVES - LEADING BY EXAMPLE

Building on the Regional Plan, HRM continues to develop a sustainability filter against which all corporate decisions will be weighed, including those of procurement, capital works, municipal operations and community planning. This filter is undergoing an extensive testing, evaluation and review process with several pilot projects currently underway.

HRM's sustainability policy innovation continues with the revision of procurement requirements to embed sustainability criteria into procedures by directing that the Halifax Regional Municipality shall include consideration of environmental, economic and social factors in procurement processes and decisions. The implementation of a Green Vehicle Filter and Life Cycle evaluation template are prime examples. The Green Filter has recently been applied to cleaning supplies and fleet services:

i) Cleaning Supplies - In 2007, a significant opportunity to green the cleaning supplies HRM uses was identified. Procurement staff undertook a commodity and market analysis and recognized that not only was there an opportunity to integrate greener supplies, but a progressive solution would also reduce total long term costs to HRM. By consolidating cleaning supplies, involving multiple stakeholders, and adopting more strategic procurement HRM has greatly enhanced the environmental impact related to facility maintenance.

ii) Green Fleet Filter for Fleet Services - In 2009, Regional Council approved a Green Vehicle Filter to assist with Greening the Fleet efforts at HRM. This common sense filter, with a supplemental SUV justification process, is helping specify vehicles based on performance needs and enabling staff to solicit for the most appropriate vehicle. By using this filter, Fleet Services Management and Procurement staff are working together to reduce the environmental footprint of vehicle selections. A Life Cycle Evaluation Methodology incorporates fuel efficiency and emissions in the valuation process.

All Business Units within the organization are contributing resourceful ideas to meet GHG reduction targets. The HRM Corporate Smart Car Program (Commuter trip reduction) began in 2009, as part of the Commuter Options Program with the purchase of three Smart Cars. This initiative works with staff to encourage the use of sustainable modes of transportation for commuting to work. The intent is for staff to choose more sustainable modes of transportation for commuting when they have the option of using the Smart cars to attend work-related meetings during the workday. HRM anticipates over the next few years there will be a reduction in personal local expense claims as well as a reduction in greenhouse gas emissions through the use of fuel efficient cars.

Metro Transit worked on a BioFuel test and trial for a number of years with the Municipal Metro Transit Fleet before identifying a technological solution to reduce fuel consumption on HRM buses. The EMP miniHybrid Thermal kit is a retrofit of the bus cooling systems that enables a 10 to 20% fuel consumption reduction. To date fleet services has installed four of these units for data gathering purposes. The results look promising and will enable a long term investment that reduces fuel costs and GHG emissions having both an economic and social impact for the organization.



GREEN INFRASTRUCTURE - BUILDING FOR THE FUTURE

A number of factors, such as Federal stimulus funds, aging infrastructure assets, and HRM chosen to host the 2011 Canada Games, have contributed to a recent flurry of new building activity in the Municipality. Two years ago Regional Council passed a recommendation that all new buildings constructed by HRM achieve a LEED Silver rating. As a result the Municipality is currently building some of the most energy efficient projects in Canada. The 4-pad Arena in Bedford will have an ice heating recovery system. The Canada Games Centre will have one of the largest solar installations in the country. A retrofit of Centennial Pool will use heat recovery from dehumidification, solar and district energy linking the facility with the main Police Station across the street. A retrofit of the Sackville Sports Stadium will see the heat recovery from the ice making in the arena used to warm the pool. HRM has built and operates more geothermal buildings than anyone in Atlantic Canada using over 150 boreholes.

LED street and traffic lights are lighting HRM's way to a greener future. In 2009, 285 energy-efficiency, light emitting diode (LED) streetlights were installed in HRM as a pilot project. These streetlights are not only energy efficient, but have the added bonus of being made right here in Nova Scotia, therefore strengthening local economic development. The new lights use 60% less energy than conventional streetlights. LED streetlights have a 20 year lifespan versus five years for conventional lights, potentially reducing maintenance costs by 75%. With 40,000 conventional streetlights in HRM costing more than \$5 million a year to operate, the switch to LED lights will lead to big savings. LED traffic lights have also been installed at 250 intersections in HRM. In addition to using 80% less energy than conventional traffic lights, LED lights have a much longer lifespan drastically reducing maintenance hours. It is anticipated individual lights will need replacement every 15-20 years versus every 2-3 years.



CONCLUSION: HRM AS LEADER AND PARTNER

Most of the energy efficiency initiatives undertaken by HRM could easily be replicated by other jurisdictions. HRM is held up as a precedent-setter for policy change, such as the sustainability filter or the sustainability funding mechanism where savings realized from energy efficiency projects are returned to fund future energy efficiency initiatives. Currently HRM's funding reserve is half a million dollars per year and growing. Many municipalities around Nova Scotia look to HRM for policy setting and have integrated community sustainability plans based on our Regional plan framework. Our leadership role in climate change and environmental policy is also recognized by the Provincial government, with whom HRM works closely as implementation of province-wide environmental goals continues.