Acting Today to Change Tomorrow

Rural Municipality of La Broquerie, Manitoba

Climate Change Local Action Plan

For Greenhouse Gas Reduction

2016

Éco-Ouest
Eco-West

Foreword

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Eco-West: *Leading the Way to Sustainable Communities and a Greener World.*

During the last few decades, the world has seen an unprecedented rate of acceleration in climate change and the effects of this game-changing evolution are already being felt on a daily basis in communities everywhere in Canada and elsewhere across the globe.

Average annual mean temperatures are on the rise due to an increase in greenhouse gas (GHG) emissions by factories that emit too many pollutants into the atmosphere or because there are too many vehicles on the road that are not equipped with the latest emissions technologies. Landfill areas are becoming a major source of concern as they expand, reach capacity and become toxic to the point of no longer being usable. Bodies of water have been rendered useless either as a source of potable water and/or are no longer viable as areas of recreation due to a rapid rise in the levels of eco-damaging nutrients found there.

Since 2008, our mandate at Eco-West has been to understand the impacts of these and other causes of climate change on our world. And so for the past half dozen years, we have been working towards enhancing the growth and prosperity of Western Canada's municipalities through the planning and implementation of more progressive, eco-friendly communities and infrastructures.

At Eco-West, we actively seek to establish partnerships with various stakeholders from all three levels of government, private enterprise as well as local residents, with a view of creating a dynamic for initiatives that deal with issues having to do with energy, the economy as well as the environment in general. This is accomplished by demonstrating that alternatives do exist to the conventional solutions that are commonly applied to the production and utilization of energy.

As such, our green team of consultants is always striving to implement innovative and cost-effective projects that improve local and regional practices in the areas of waste management, wastewater treatment, waste to value-added technologies, composting, recycling and transportation.

We do this by working with stakeholders to create local action plans that have been tailored to the specific needs of each community, region or district, and zeroing in on initiatives that are achievable in the short as well as the long run. We also assist municipalities in obtaining the funding to make their various projects come to life and help them to move forward along the road that leads to successful project completion.

The framework that we use to create local action plans that focus on climate change issues is the Federation of Canadian Municipalities' Partners for Climate Protection (PCP) program. This includes the conducting of a municipal inventory of GHG emissions and establishing a target for the reduction of these emissions, which in turn leads to the development of a Climate Change Local Action Plan (CCLAP) that shows how a municipality will be able to achieve its goals in this area.

With that strategic document in hand and as members of the PCP program, communities can take matters into their own hands and put the wheels in motion that will enable them to implement change by tackling climate change issues head-on.

At Eco-West, we believe that the time to just talk about climate change has passed, and we are committed to working with municipalities and other interested parties to bring about real change in our communities, and to make them better, cleaner and safer places in which to live and play.

The time has come to take action and turn back the tide against climate change. Together we can make a difference.

Yours truly,

Dany Robidoux
Director, Eco-West

Message from the Reeve

The effects of climate change are already affecting municipalities all over Canada.

As providers of basic municipal services such as roads, snow clearing, waste management, emergency services, and other community services, our facilities, operations and budgets are directly affected by these changes and present important challenges in the improvement of municipal buildings, operations and infrastructure.

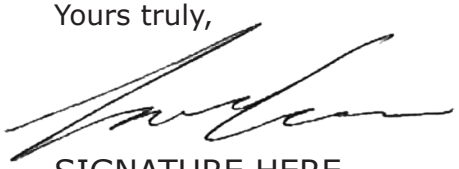
In 2012, we were approached by the CDEM's Green Projects Team (now known as Eco-West) to participate in a project to measure our greenhouse gas emissions and create a plan to help us navigate the potential impacts of climate change within our community.

Over the past four years, we worked alongside the Eco-West team through a comprehensive process, which included consulting with community stakeholders to create a practical, community-supported, action plan that is presented in this document. This plan represents real concrete actions that we can undertake to reduce emissions and save money but also provides us with a practical method for making a difference in our community.

Some projects are already underway. More will likely be undertaken in the future. This plan recognizes that local residents, businesses, institutions and municipalities all have a role to play as we "think globally and act locally" to help better position our community and protect our environment to ensure our quality of life.

On behalf of the RM of La Broquerie, I would like to thank the many community members who were involved at the various stages of the development of this plan for their contributions.

Yours truly,



SIGNATURE HERE

Lewis Weiss

Reeve

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Project Background

What is this document?

In an effort to develop a Climate Change Local Action Plan (CCLAP), The Rural Municipality (RM) of La Broquerie has partnered with the Conseil de développement économique des municipalités bilingues du Manitoba (CDEM/Eco-West) to reach the three milestones of the Partners for Climate Protection (PCP) program of the Federation of Canadian Municipalities (FCM).

MILESTONE 1: Creating a GHG emissions inventory and forecast

MILESTONE 2: Setting an emissions reduction target

MILESTONE 3: Developing a local action plan (LAP)

This document is the LAP that represents the results of that four-year process. The RM of La Broquerie has completed Milestone 1 and has proceeded concurrently with Milestones 2 and 3 in collaboration with the municipal government and the people of La Broquerie, in a participatory process.

The municipality must now move forward by formally adopting this LAP in order to further develop, approve and implement potential programs identified in this plan. In doing so, they will demonstrate leadership and provide a positive example of a motivated, sustainable municipality that is taking action against climate change.

Terms and acronyms

CCLAP	Climate Change Local Action Plan (as an overall process)
CO2	Carbon Dioxide
FCM	Federation of Canadian Municipalities
GHG	Greenhouse Gas
ICLEI	International Council for Local Environmental Initiatives
LAP	Local Action Plan (for Greenhouse Gas Emission Reduction)
MATs	Measures, Actions and Technologies
PCP	Partners for Climate Protection Program
RM	Rural Municipality

Note: Literary and online references are identified by a superscript number that appears at the end of the source name or quotation. References and image credits are listed sequentially in the Appendix.

Prepared by:

SCATLIFF + MILLER + MURRAY
visionary urban design + landscapes

www.scatliff.ca

How to use this document

While climate change is a challenge often viewed on a global scale, solutions are also needed at national, provincial, and local levels.

Acting Today to Change Tomorrow: Climate Change Local Action Plan For Greenhouse Gas Reduction has been developed as a resource tool to assist the RM of La Broquerie in reducing GHG emissions in their community.

The recommended actions represent the ideas and issues that were brought forward through this process. It is a living document that will require regular review to measure and evaluate progress to ensure that the goals and recommended action plans become a reality.

Throughout this report you will see several graphic cues or 'pull outs' that provide additional but relevant information on the subject matter. These may be presented as quotes, Fast Facts, 'Did You Knows', or Easy Wins to help you get started on reducing your GHG emissions right away!

For example . . .

Be Enviro - Aware!

Whenever possible, make environmentally-conscious purchasing decisions such as water and energy efficient fixtures and appliances, fuel-efficient or hybrid vehicles and phosphate-free products, soaps, and detergents. Look for environmentally preferable logos and labels like the EcoLogo® and the It's Lake Friendly! logo.

Take action now!

We can reduce emissions by:

- Substituting non-carbon forms of energy (renewable energy) for fossil fuels.
- Reducing energy consumption through energy conservation and efficiency.

Possible energy strategies include:

- Stimulating the retrofit of buildings and processes to conserve energy.
- Promoting energy-efficient, new construction of buildings.
- Promoting energy-efficient modes of transportation together with energy-efficient and alternative fuel vehicles.
- Promoting and installing renewable forms of energy generation.
- Designing our communities to reduce energy consumption and increasingly using community energy systems.

Possible non-energy strategies include:

- Reducing emissions from solid waste through further diversion and alternative treatment of residual waste (including energy from waste).
- Planting trees and reforming agricultural practices to sequester carbon.
- Increasing local food production and use.[1]

Project Description

Climate Change Local Action Plan (CCLAP) Goals & Mission

The CCLAP project aims to offer participants as much support as possible to assist in the completion of their GHG emission inventories and local action plans.

Step 1: ***Project resources required for the development of an inventory and a climate change local action plan***

Eco-West/CDEM will partner with specialists and experts and request the assistance of the Federation of Canadian Municipalities (FCM) in the various technical and specific projects to be carried out.

Step 2: ***Development of knowledge and expertise to address environmental and climatic issues in Manitoba***

Eco-West/CDEM would like to take these issues and transform them into opportunities for participants. The development of local action plans will allow municipalities to identify structuring projects enabling them to face environmental challenges and generate significant socio-economic impacts. For instance, these potential impacts could result from the introduction of high-performance and innovative equipment that is better suited to local or regional needs, thereby reducing energy consumption and its related expenses, or even locally producing renewable energy to be distributed or sold locally (i.e. geothermal, solar thermal, solar photovoltaic, biomass heating systems, etc.).

Step 3: ***Projects funded by the FCM and in part by participating municipalities***

To benefit from supplementary FCM assistance for the funding of inventories, participating municipalities must be or become members of the FCM's Partners for Climate Protection (PCP) program. Membership is free and requires only the adoption of a resolution by municipal council. Members will complete the first three (3) milestones of the PCP program in the context of the CCLAP project.

The intent of the project is to duplicate the production of quality inventories and action plans at the lowest possible cost in order to enable the following actions:

- Identify innovative model projects for participating municipalities
- Establish the preliminary design of green projects that can more easily be adopted by the population and funded by different levels of government and the FCM's Green Municipal Fund (GMF)
- Improve and enrich local and regional knowledge and expertise with the help of specialised contractors and firms in order to create innovative infrastructures tailored to the needs of local and regional populations

Through the execution of the project, Eco-West/CDEM will establish partnerships and collaborate with institutional partners in Manitoba to improve and safeguard provincial knowledge and expertise.

Context and background

The Partners for Climate Protection

Climate change is a global issue, yet addressing it will require countless local actions worldwide. In Canada, the Federation of Canadian Municipalities (FCM) has developed the Partners for Climate Protection (PCP) Program to guide municipal governments towards reducing GHG emissions. The PCP program defines a process for municipal governments to quantify their GHG emissions and then to develop and implement action plans that can achieve emissions reductions.

PCP membership covers all provinces and territories and accounts for more than 80% of the Canadian population. Since the program's inception in 1994, over 250 municipalities have joined PCP, making a public commitment to reducing emissions.

PCP is the Canadian component of the ICLEI's Cities for Climate Protection network, which involves more than 1,100 communities worldwide. PCP is a partnership between the Federation of Canadian Municipalities and ICLEI — Local Governments for Sustainability. PCP membership is free for municipalities. Since cost is not an obstacle, municipalities of all sizes can empower themselves to take action against climate change.

The program empowers municipalities to take action against climate change through a five-milestones process.

This process guides members in creating GHG inventories, setting realistic and achievable GHG reduction targets, developing local action plans, and implementing plans using concrete actions to reduce emissions. Benefits of PCP membership include:

- Obtaining the means to fight against climate change
- Asserting the need for joint authority and global action on climate change
- Becoming a positive example for your community and other Canadian municipalities
- Sharing your knowledge and experience on how to reduce GHG emissions
- Benefitting from Green Municipal Fund (GMF) program services offered to municipalities such as grants and loans

The PCP program consists of five milestones:

Milestone One

Creating a Greenhouse Gas Emissions Inventory and Forecast.

Milestone Two

Setting an Emissions Reduction Target.

Milestone Three

Developing a Local Action Plan that sets out how emissions and energy use in municipal operations and the community will be reduced.

Milestone Four

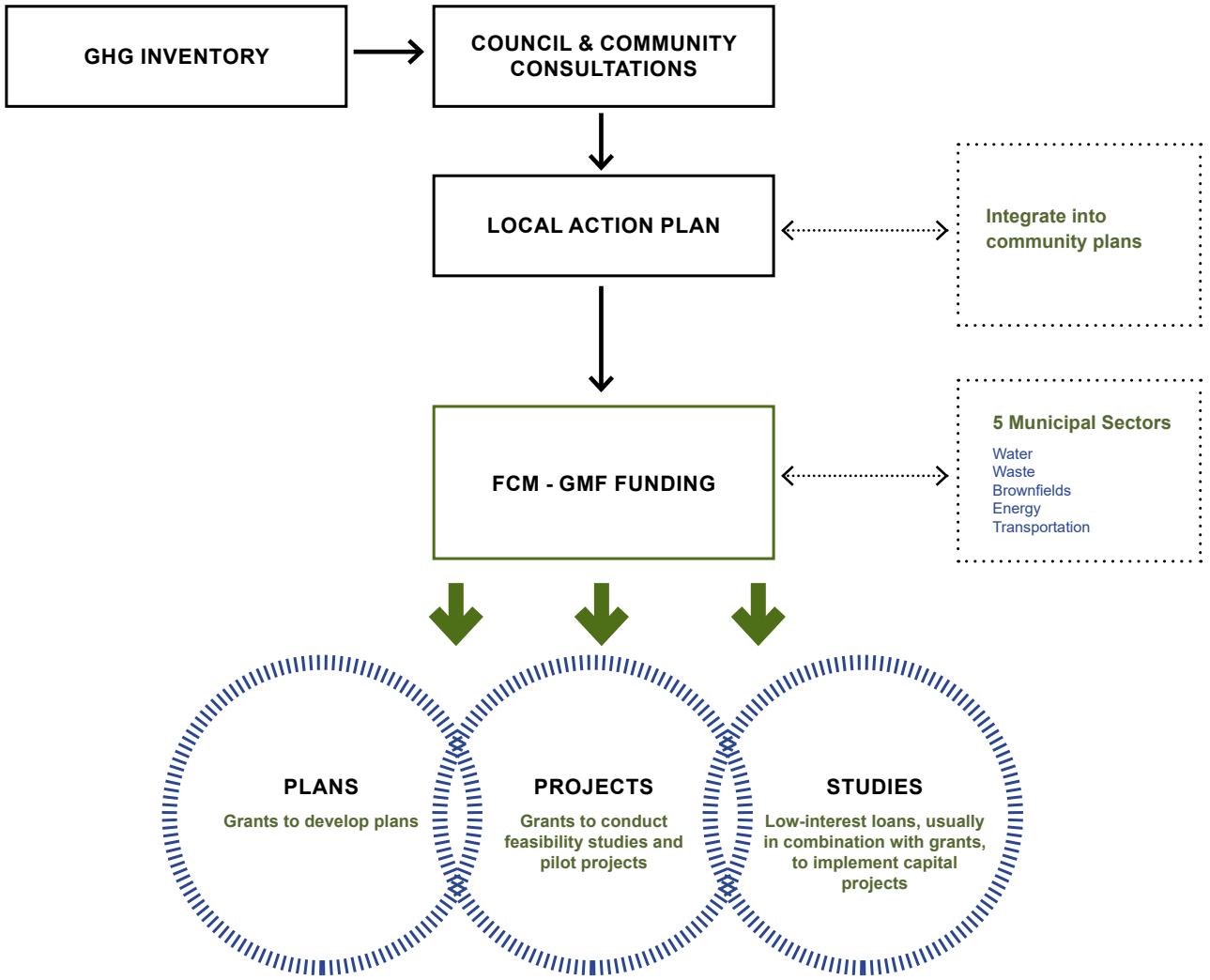
Implementing the Local Action Plan.

Milestone Five

Monitoring Progress and Reporting Results.

Eco-West - Partners for Climate Change Protection Flow

Process Chart



The Need

for community action on climate change

The climate is changing

Weather records confirm that temperatures and weather patterns around the world, and here in Manitoba, are changing.

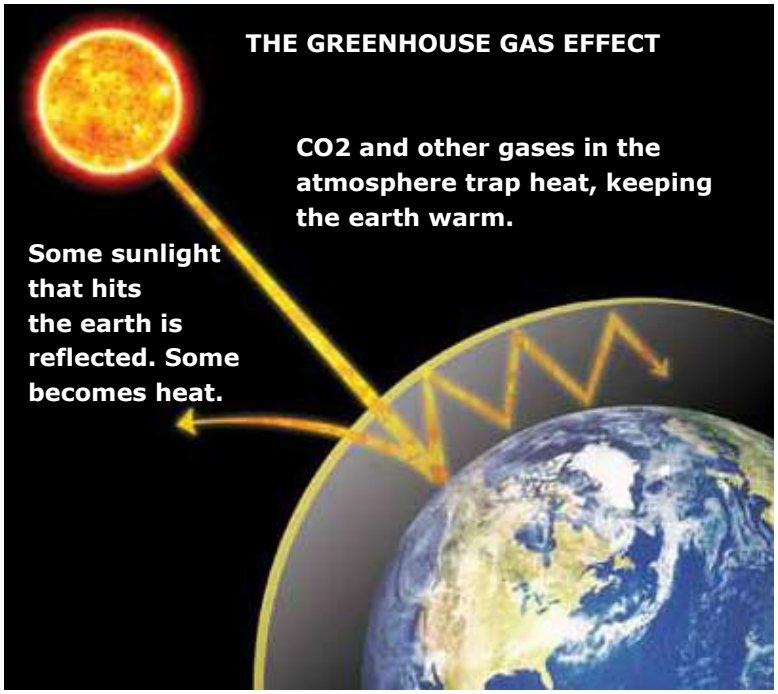
Scientific sources state that the average global temperature has risen almost 1°C over the last 50 years, and in Canada it has risen 1.5°C over the last 64 years.[2]

While that may not seem like a big change given the daily and seasonal variations in weather, it is quite a significant change in average temperature. Along with the increase in temperatures, communities from the different regions of Canada are already confronted with additional effects of climate change. Some face more severe droughts, while others face more violent storms and floods. The longer, colder winters and hotter summers increase damage to municipal infrastructure. All of these impacts cost cities and municipalities millions of dollars, and communities will expect that adaptation measures be implemented.

According to the Intergovernmental Panel on Climate Change (IPCC), warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. The atmosphere and ocean have warmed, the amounts of snow and ice have diminished, sea levels have risen, and the concentrations of greenhouse gases have increased. Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system (which could cause significant damage to our environment, economy and society). Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions.[3]

What is causing climate change?

The greatest contributor to human-caused climate change is carbon dioxide created by the burning of fossil fuels: coal, oil and natural gas. Currently fossil fuels constitute about 86% of energy supply worldwide.[4] Other gases, such as methane, water vapour, ozone, nitrous oxide and chlorofluorocarbons, and other sources such as forest fires, deforestation, agricultural and industrial practices also contribute to the increase of GHGs in the atmosphere. These gases trap heat in the atmosphere through the Greenhouse Effect.[5]



What are the implications?

Canada's infrastructure deficit is significant, and the continued effects of climate change will no doubt increase this deficit by shortening asset-replacement cycles. In its report "Paying the Price": the Economic Impacts of Climate Change for Canada, published in 2011, the National Round Table on the Environment and the Economy suggested that the economic impact on Canada could reach $5 billion per year by 2020, and between $21 and $43 billion per year by 2050.

These issues present important challenges in the improvement of municipal buildings and infrastructure, as well as local communities.

What can be done? The LAP

An inventory of emissions is the first step in the creation of a local action plan (LAP). It brings together data on community and municipal energy use and solid waste generation in order to estimate GHG emissions in a given year. The LAP is a strategic document that outlines how the municipality will achieve its GHG emissions reduction objectives.

The LAP covers municipal operations and the community and provides a preliminary description of the proposed measures, actions and technologies (MATs) and, in its first phase, estimates the environmental and economic advantages expected to be derived from the application of the MATs. The proposed MATs will also take into account the potential environmental consequences of climatic damage. The LAP puts forward various tools (geomatics) considered useful in the selection and development of measures to be taken.

What is the municipal role?

Municipal governments have an important role to play in the use of a new corporate planning method that is consistent with the trend toward sustainability when faced with climate change. Through planning and the implementation of a green economy infrastructure, small municipalities can guarantee sustainable economic development, which will also lead to the growth and prosperity of their communities.

- Ensures environmental sustainability
- Ensures economic sustainability

In this way, municipalities that participate in greening their local economies by inventorying greenhouse gas emissions and creating local action plans to address climate change will create opportunities to commercialize clean technologies, attract foreign direct investments and train a qualified workforce.

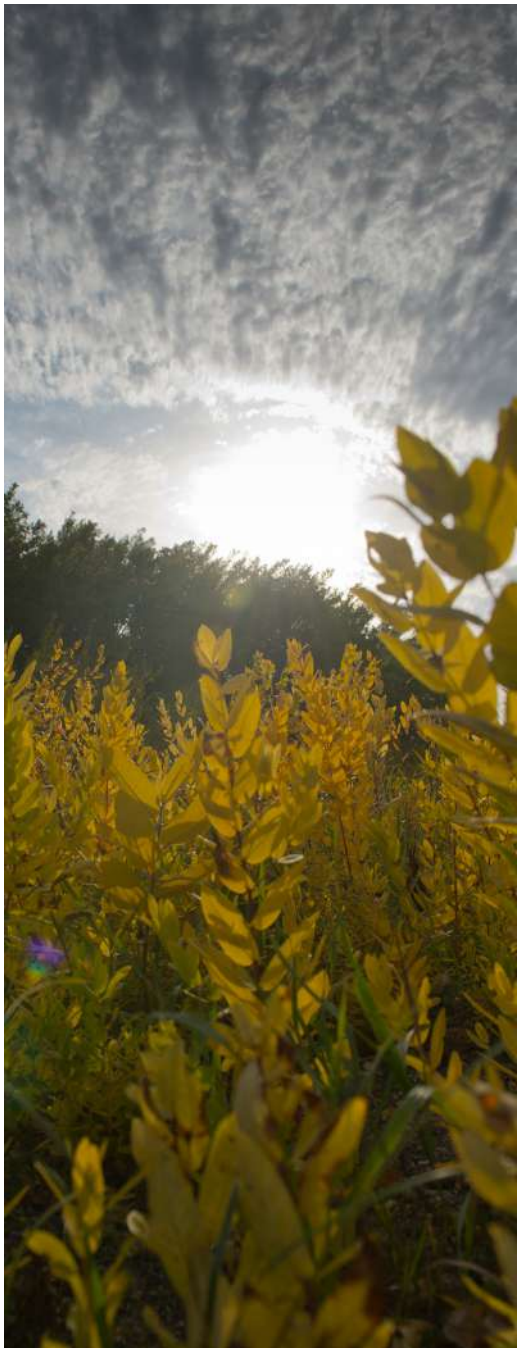
The INVENTORY can identify emissions sources based on the types of energy used, the sectors involved (transportation, building, water treatment plants, residual materials management, etc.), and the equipment being utilized. An inventory serves as a management tool to:

- Save money: The inventory helps to track the dollars spent on energy. That which can be measured can be managed. An inventory highlights opportunities to invest in energy efficient upgrades.
- Provide useful information: Inventorying significant sources of GHG emissions helps municipalities to establish adequate measures to reduce emissions and create an efficient LAP.

Helping municipalities face challenges

Faced with the challenges posed by climate change and economic development, municipal populations and governments must tackle many threats and challenges:

- Revising infrastructure and equipment needs
- Revising sustainability and adaptation strategies to take into account the environmental and economic vulnerability of lands under municipal authority
- Municipalities' limited resources and financial capabilities



Why should the communities in the RM of La Broquerie act?

By positioning the RM of La Broquerie as a leader in tackling climate change, they have the opportunity to influence other villages, towns and municipalities to do the same.

To combat climate change and ensure the economic viability of municipalities, or in other words, to reduce the causes of climate change and protect against its impacts, it is suggested that local governments employ the following strategies:

- Identify the source of emissions and evaluate the quantity of GHG emissions produced by municipalities (Inventory)
- Select measures and take actions to reduce GHG emissions produced by municipalities, both directly and indirectly (Local Action Plan)
- Become better established and better developed by planning for serious events linked to climate change (flooding, drought, erosion, etc.) and selecting methods to protect against these impacts

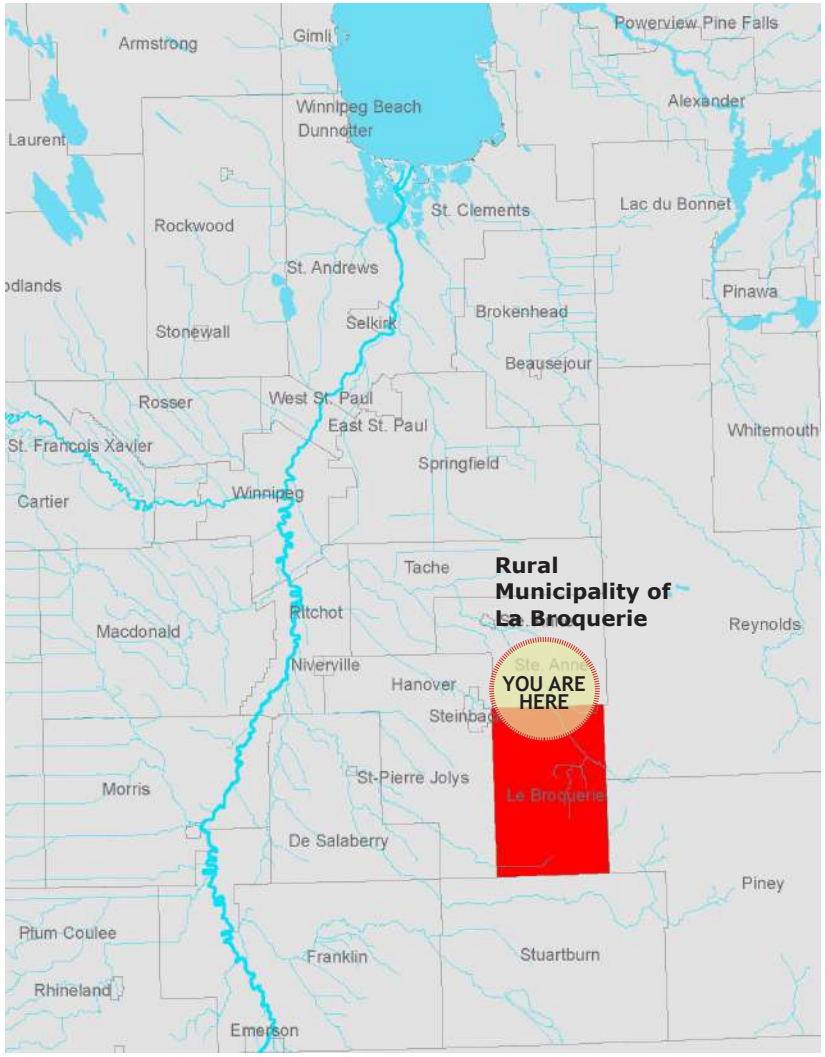
Because of their roles and responsibilities, municipalities must act as leaders to chart the way forward and make a difference so that these strategies can be integrated by all civil society stakeholders.

RM of La Broquerie

community at a glance

Local Context

The Rural Municipality of La Broquerie is located in the middle of south-eastern Manitoba, 12 km southeast of the city of Steinbach and 70 km southeast of Winnipeg.



Community Profile

The area was first settled in 1877 and founded as a community, in 1883 by French Canadian pioneers. The community maintains a strong French Canadian culture and heritage. There is also a large Mennonite presence.

There are no separately incorporated towns or villages within the RM. The largest community with urban services is the Town of La Broquerie, with about 900 people located at the northern edge of the rural municipality. The smaller community of Marchand lies on the eastern edge, while the still smaller Zhoda is near the southern edge. The RM's main economic base is agriculture – primarily pork production, but also beef, poultry and dairy farming. There is an increasing amount of rural residential in the north. Forest industry, mineral water sources and tourism have provided diversification. Tourism has been stimulated by the opening of La Vérendrye golf course, the annual festival Fête de la Saint-Jean-Baptiste in June in the community of La Broquerie, and Loggings Days in Marchand. Sandilands Provincial Park is also nearby.

La Broquerie is one of Manitoba's fastest growing RM's. During a time when many of Manitoba's rural communities have experienced decline, La Broquerie's peaceful country setting and vibrant community life have helped attract new people and new business to the community. It has also helped encourage many young people to stay, live and work there. The result is a dynamic and youthful community where the average age is 28.8 years, nearly 10 years below the provincial average (2006 census).[6]

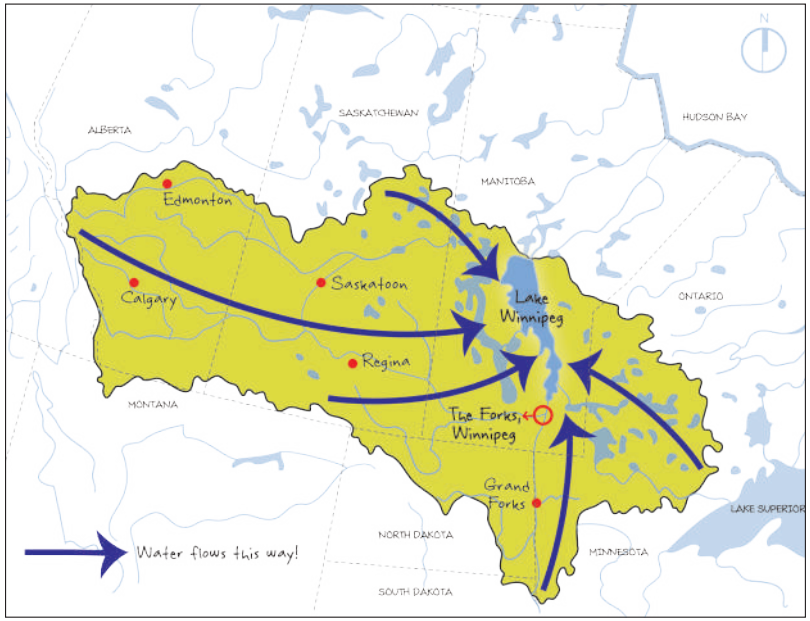
Potential Climate Change Challenges in the RM of La Broquerie

Lake Winnipeg's watershed is 1,000,000 square kilometres in area and stretches west to the Rockies, east to near the shores of Lake Superior, and south to Minnesota and South Dakota.

The RM of La Broquerie is part of Lake Winnipeg's watershed; with the Seine River and its tributaries flowing through its north-eastern quarter and some smaller creeks in the south-west. Protecting riparian areas and wetlands in the RM from encroachment and pollution – mainly from agricultural activities in the south and urban development in the north, is a concern.

Excess nutrients from urbanization, agriculture and economic development in the Lake Winnipeg watershed are impairing its water quality and, in spite of its size, Lake Winnipeg is susceptible to the impacts of climate change. The essential message about Lake Winnipeg and climate change is simple: All life on earth is inseparably linked and inter-dependent. There is a link between the microscopic plankton in Lake Winnipeg and your automobile exhaust (Alex Salki, Research Biologist).[7]

Our water resources are valuable for health reasons as a source of clean drinking water and recreation and for economic reasons including tourism and fisheries. As a society and as individuals, we have a responsibility to protect the health of our waterways for future generations.



Lake Winnipeg Watershed

Hoo-hoo hoome sweet home!

Did you know?

The RM contains the Watson P. Davidson Wildlife Management Area in its southeast corner. It was created in 1961 as the first Wildlife Management Area in Manitoba. It protects a diversity of habitat, which is primarily aspen forest, interspersed with small bogs lined with spruce, tamarack and white cedar. It is excellent habitat for big game. The WMA protects important breeding and migration habitat for several northern forest owls including the great gray owl, Manitoba's provincial bird and largest owl. It is also home to the small northern saw-whet owl and the boreal owl. Many species of neo-tropical birds, upland game birds, and deer can also be found, along with the occasional moose feeding in the wetlands.

Official Plans - Development Plan

The ***Rural Municipality of La Broquerie Development Plan, Schedule 'A' of By-Law 20-2011***, is very detailed and comprehensive. The Plan establishes Principal Centre and Rural Residential Area strategies to concentrate and control development preserving the majority of the RM for agricultural use while also grouping similar types of development together to avoid conflicts.

It outlines policies for agricultural areas, recreation, transportation, environmental conservation, heritage resources, mineral resources, utilities/municipal services and hazard lands. The section on development management policies covers sustainable and complete communities, Marchand transition infrastructure, regional partnerships and municipal finance.

The Plan guides action, describes tools for managing development including zoning by-laws subdivision regulations, building regulations, public works programs and development agreements, and sets forth policies for implementation including by means of secondary plans, concept plans and performance monitoring.

There are a number of policies and a community vision favouring greenhouse gas reduction reflected in the Development Plan. For example, some specific policies in the Plan support climate protection by: encouraging active transportation, including safe walking and bicycling routes; preserving forests, wetlands and riparian areas; considering amendments to the Zoning By-law to allow for the possibility of Wind farms, residential wind turbines, geothermal systems, and sustainable technologies; and Sustainable and Complete Community Policies that promote well interconnected, complete, compact and self-sufficient, mixed-use communities to reduce energy use and adapt to and combat climate change.

Implementation of the Development Plan is to be achieved in part, through regional cooperation and partnerships, especially with the adjacent City of Steinbach and adjoining municipalities.

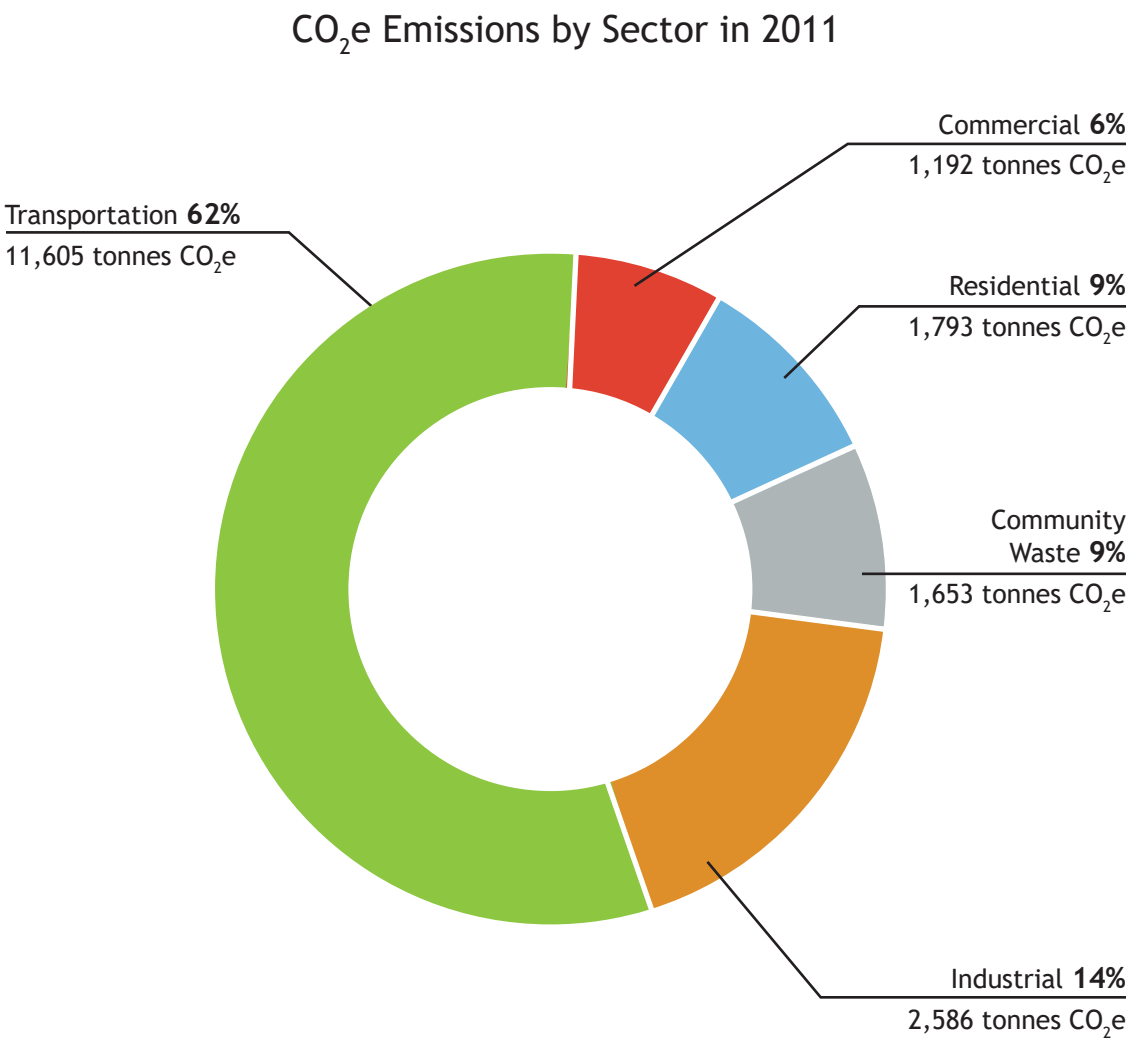
What are the RM of La Broquerie's GHG emissions, and where do they come from?

Community emissions

In 2013, Eco-West completed a community wide GHG emissions inventory for the RM of La Broquerie. Eco-West compiled energy usage data and traffic counts from 2011 as the base year as it coincided with the most recent Canadian Census. Additional data was obtained from 2006 to coincide with the previous census to plot the change in GHG emissions over the five years. Emissions were also projected forward to 2021 with a business-as-usual (BAU) scenario as well as with two different emission reduction targets.

Most of the GHG emissions for the RM of La Broquerie result directly from the burning of fossil fuels (e.g. natural gas, gasoline and diesel) for heat or transportation. Energy consumption in the form of electricity usage has a relatively minor effect on GHG emissions in the community given the general cleanliness of Manitoba Hydro's hydroelectric power generation. A portion of GHG emissions come from methane released by landfill sites.

A breakdown of the community GHG emissions by sector is shown adjacent.



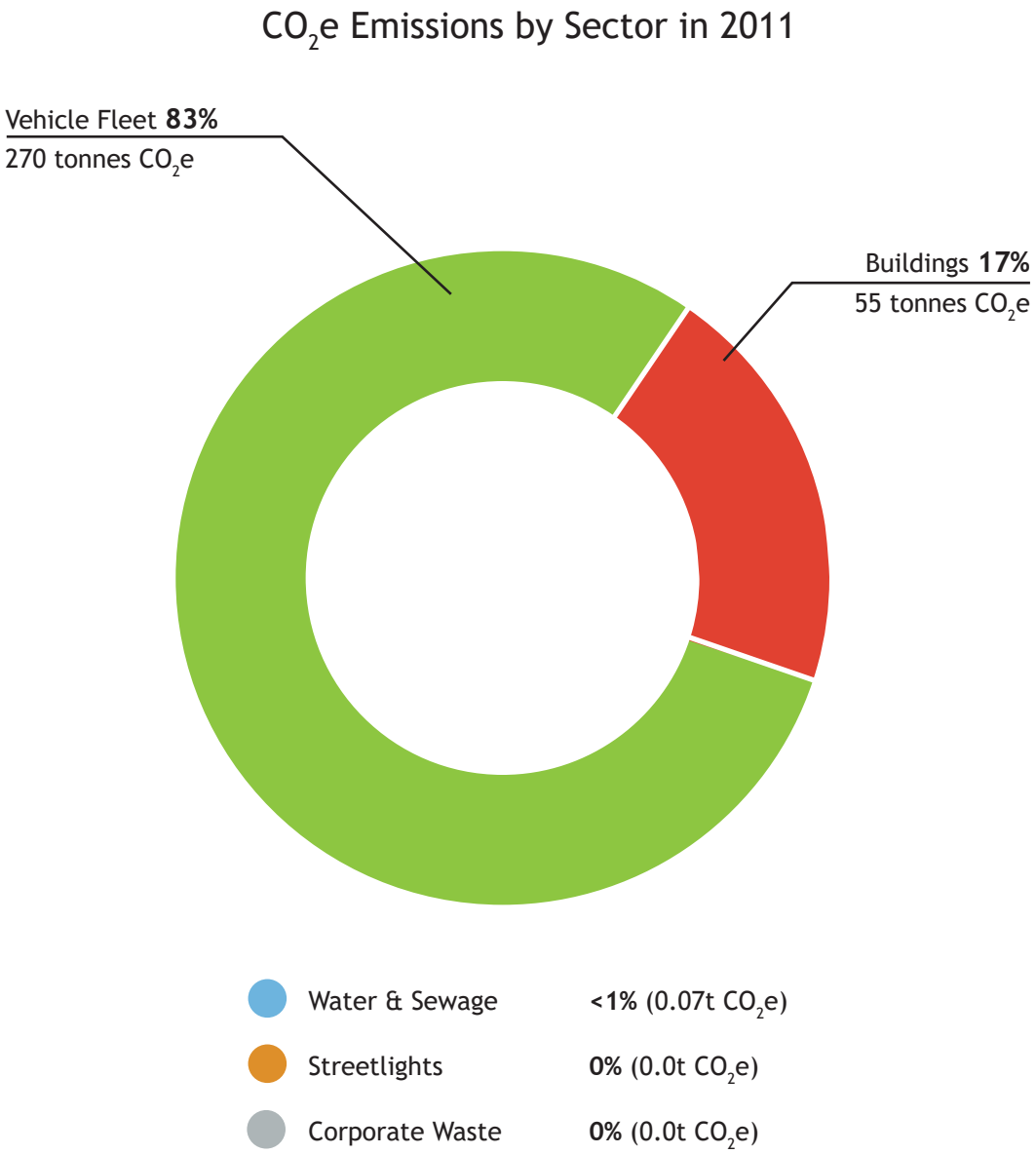
What are the RM of La Broquerie's GHG emissions, and where do they come from?

Corporate emissions

In addition to the community wide GHG emissions inventory, a detailed corporate inventory was completed for the municipal operations of the RM of La Broquerie. As with the community emissions, the bulk of the municipal GHG emissions resulted from burning fossil fuels for heat and transportation. This is reflected in the majority of the emissions being attributed to the Buildings and Vehicle Fleet sectors as the Water and Sewage and Streetlight sectors rely largely on electricity produced through hydroelectric power generation.

A breakdown of the corporate GHG emissions by sector is shown adjacent.

The full Emissions Inventory Report is available in the Appendix.



What has been the process to produce a LAP?

Municipal and Community Consultations

Eco-West held a Municipal Committee workshop and visioning session to present and discuss their Greenhouse Gas Emissions Inventory for the RM of La Broquerie. The community was engaged through a mail-in survey.

In both exercises, participants were directed to 'brainstorm' actionable ideas based on the following categories:

- New Developments
- Buildings / Energy
- Water
- Vehicles and Equipment (Municipal only)
- Waste
- Transportation
- IT Infrastructure
- Natural Disaster Mitigation

The categories were used to focus participants' ideas, and are represented as thematic icons within the Action Plan Goals.

Municipal and Community Sessions

Municipal Committee for the RM of La Broquerie

The event was held on October 6, 2014.

Community Consultation conducted by mail-in surveys

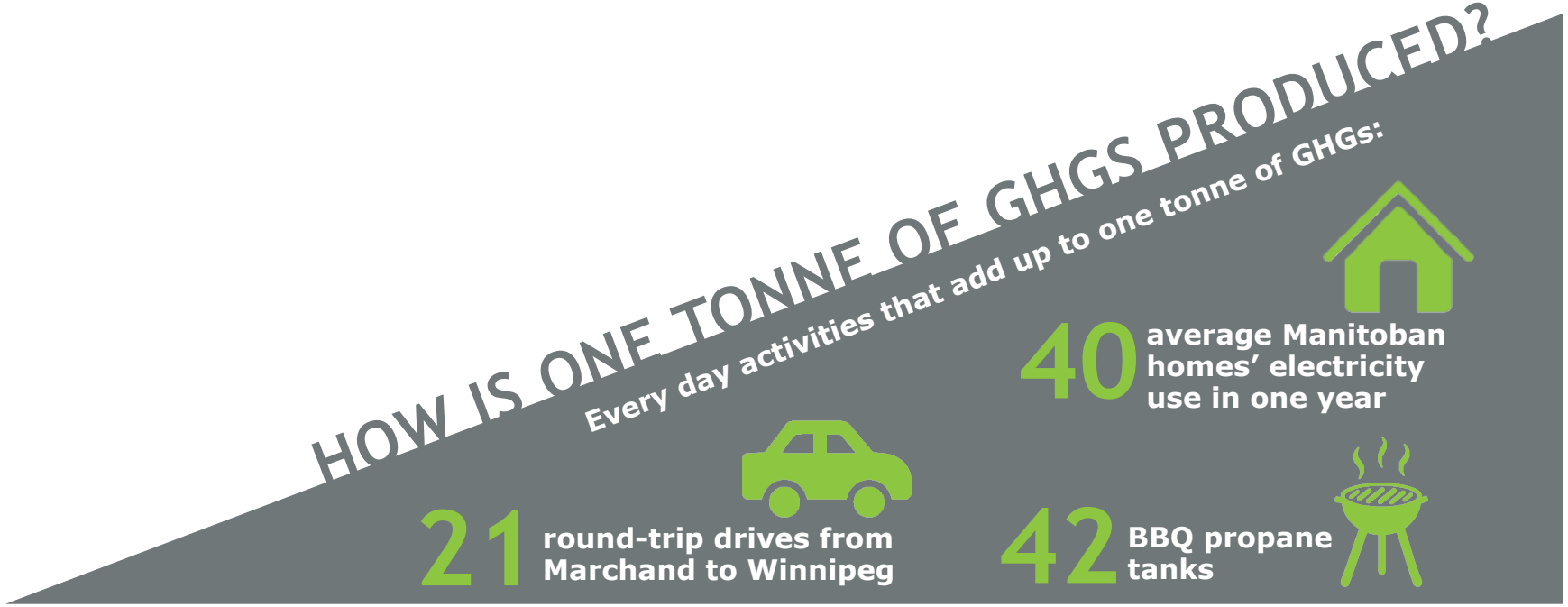
See Appendices - Community Survey Responses

Vision statement

*By participating in the Climate Change Local Action Plan process, within the context of a concerted regional project initially led by CDEM's Green Projects Team (now known as Eco-West), the **Rural Municipality of La Broquerie** has positioned itself as a community leader in the area of climate change action and the reduction of greenhouse gas emissions in order to help navigate the potential long-term impacts of climate change.*

Corporate and community targets

*The Rural Municipality of La Broquerie commits to reducing its greenhouse gas emissions to **20%** below 2011 levels for **municipal operations** within **10** years, and to reduce its greenhouse gas emissions to **6%** below 2011 levels in the **community** within **10** years.*



Potential Programs

goal-based action plans

Greenhouse Gas Reduction Action Plans

This set of potential programs represents initiatives identified and endorsed by stakeholders and community representatives in the RM of La Broquerie.

Together, these 8 Goals constitute a Climate Change Local Action Plan (LAP) that can be characterized as:

- Ambitious
- Strategic
- High-leverage
- Effective in reducing GHG emissions
- Attractive to the La Broquerie communities by producing environmental, economic and social benefits

It is important to recognize that each program within the plan will require subsequent development and individual approval by Council before being implemented in the years ahead. Not all of these potential programs will necessarily be approved and launched.

What is Green Building?

Green building is the practice of increasing the efficiency with which buildings use resources — energy, water, and materials — while reducing building impacts on human health and the environment, through better siting, design, construction, operation, maintenance, and removal — the complete building life cycle.[8]

It takes a village - get started now!

Easy wins at home include:

- Have an energy audit conducted for your home and implement the recommendations (such as home energy retrofits and the installation of residential renewable energy systems)
- Compost kitchen and garden organic waste to build soil
- Use native trees, plants, ornamental grasses, and ground covers to replace lawn
- Capture run-off in a rain barrel and use it for all your outdoor watering needs (such as lawn, garden, car washing)

Easy wins at work include:

- Participate in workplace and community-based carpools
- Implement an anti-idling program to reduce emissions from municipal fleet vehicles
- Turn off lights and get rid of phantom loads by using a power bar and shutting it off when equipment (computers, monitors etc.) is not in use
- Buy sustainable and/or recyclable supplies

Easy wins in the community include:

- Walk and bike to get around – help increase demand for pedestrian and bike-friendly infrastructure!
- Support local Council in making decisions consistent with corporate policies and sustainability

Easy wins for the municipality include:

- Implement high performance buildings energy retrofits and the installation of renewable energy systems; develop guidelines for green buildings and sites
- Purchase alternative fuel for corporate fleets
- Initiate a Streetlight Replacement Program (such as replacing mercury vapour lamps)

Action Plan Legend

Goal	Goals are general statements of desired ends to be incorporated into the future direction strategies of the community.
Objective	Objectives are more specific statements of the general goals. Objectives require detailed action plans.
Action	Actions are quantifiable and time sensitive; they are taken to achieve the objective.
Step	The tasks undertaken to fulfill the Action.

Indicator	A measure to determine the success of the Action.
Time Frame	Indication for when the Action will be undertaken: Short-term: within one to two years (**ST**) Medium-term: within two to five years (**MT**) Long-term: beyond five years (LT) Continuous: ongoing (**C**)
Responsibility	Indicates the person, department, or group who will lead implementation of the Action.

Take action!
Assign responsibility for each Action within the LAP.

Thematic icons


New Developments


Water


Waste


IT Infrastructure


Buildings / Energy


Vehicles / Equipment


Transportation


Natural Disaster Mitigation

Goal 1: Reduce community waste

Seek to reduce the average waste per household in the RM of La Broquerie

Objective:

Expand the awareness, education and capacity for recycling and solid waste diversion

Action 1A:

Review community recycling strategy to determine possible additional steps such as improved recycling depots and/or community pick up

Steps:

- Review best practices in recycling programs from other municipalities
- Consult with the public on what services they would like
- Determine best steps for moving forward in the community

☑ Reduction in the amount of waste produced per household in the RM

ST

Did you know?

In an effort to encourage waste reduction, many Canadian municipalities have set bag limits on weekly curbside waste pick-up. Pre-paid bag tags allow for any additional bags.

Goal 1: Reduce community waste

Seek to reduce the average waste per household in the RM of La Broquerie

Objective:

Expand the awareness, education and capacity for recycling and solid waste diversion

Action 1B:

Review community organics strategy to determine possible additional steps such as community compost/ yard waste drop off sites, and/or organics pick up

Steps:

- Review best practices in yard waste and organics programs from other municipalities
- Consult with the public on what services they would like
- Determine best steps for moving forward in the community

Reduction in the amount of waste produced per household in the RM

ST

Did you know?

As a consumer society it is important to practice the 6 "Rs" related to waste reduction; Rethink, Refuse, Reduce, Reuse, Repair and Recycle in that order. Recycling should be the last step in reducing the amount of waste sent to the landfills each year.

What is "Zero Waste?"

Zero waste is a philosophy related to the redesign of our resource-use system. It strives towards maximum waste reduction through the most efficient use of natural resources and materials and the maximizing of recycling. The term waste is replaced with resource. A growing number of municipalities across Canada are adopting the philosophy of Zero Waste.[9]

Goal 1: Reduce community waste

Seek to reduce the average waste per household in the RM of La Broquerie

Objective:

Expand the awareness, education and capacity for recycling and solid waste diversion

Action 1C:

Encourage recycling education through municipal communication tools and conduct compost and gardening workshops in the RM for local residents

Steps:

- Initiate dialogue with compost education programs such as those offered through the Green Action Centre
- Invite residents to education workshops

- ✓ Number of residents educated on proper composting techniques
- ✓ Reduction in the amount of waste produced per household in the RM

ST

Ecological literacy

The ability to understand the natural systems that make life on earth possible. An ecologically literate society would be a sustainable society that does not destroy the natural environment on which it depends.[10]

Goal 2: Sustainably operate the municipal operations of La Broquerie

RM to become a leader for the community for GHG emission reduction, energy and water use reduction, and waste reduction

Objective:

Be a leader in energy conservation in all municipal buildings

Did you know?

Buildings generate about 35 per cent all of greenhouse gases, 35 per cent of landfill waste comes from construction and demolition activities, and up to 70 per cent of municipal water is consumed in and around buildings.[11]

Action 2A:

Conduct regular energy audits of all corporate facilities

Steps:

- Track all energy usage information for all corporate facilities
- Annual review of all energy usage including calculations of GHG emissions
- Create annual report to Council and community on energy use, GHG emissions, targets reached, and projects underway

Annual reports presented to Council for information

ST

Action 2B:

Investigate possible solutions for new energy efficient retrofits to municipal buildings/ facilities

Steps:

- Municipal staff to determine potential buildings/ facilities requiring retrofits and budget/plan for new improvements

Number of new energy efficient retrofits completed

LT

Goal 2: Sustainably operate the municipal operations of La Broquerie

RM to become a leader for the community for GHG emission reduction, energy and water use reduction, and waste reduction

Objective:

Ensure municipal operations run efficiently for both cost reductions as well as environmental impacts

Action 2C:

Adopt "green" purchasing policy for all new fleet vehicles and equipment, as well as for supplies, products and practices

Steps:

- Review existing purchasing policies
- Revise policies to include reviewing new technologies and products that reduce GHG emissions and produce cost savings

- ☑ Decreased GHG emissions from fleet vehicles, equipment and supplies
- ☑ Decreased costs for fuel and maintenance of fleet and equipment
- MT

Muscle power. . .

Encourage use of tools that don't require power at all like hand saws and push mowers.

Good practices make perfect!

- **Use organic fertilizers and repellents in lieu of chemicals**
- **Never pour paints, solvents, pesticides, or other chemicals down the drain, storm sewer, or on the ground**
- **Minimize packaging by buying products in bulk**
- **Use phosphate-free products, soaps, and detergent. Look for products with fair trade and/or environmentally preferable logos and labels**

Goal 3: Sustainably manage water

Be proactive in educating the public on ways to reduce treated water consumption and minimize water runoff

Objective:

Reduce the risk of droughts and reliance on watering landscapes

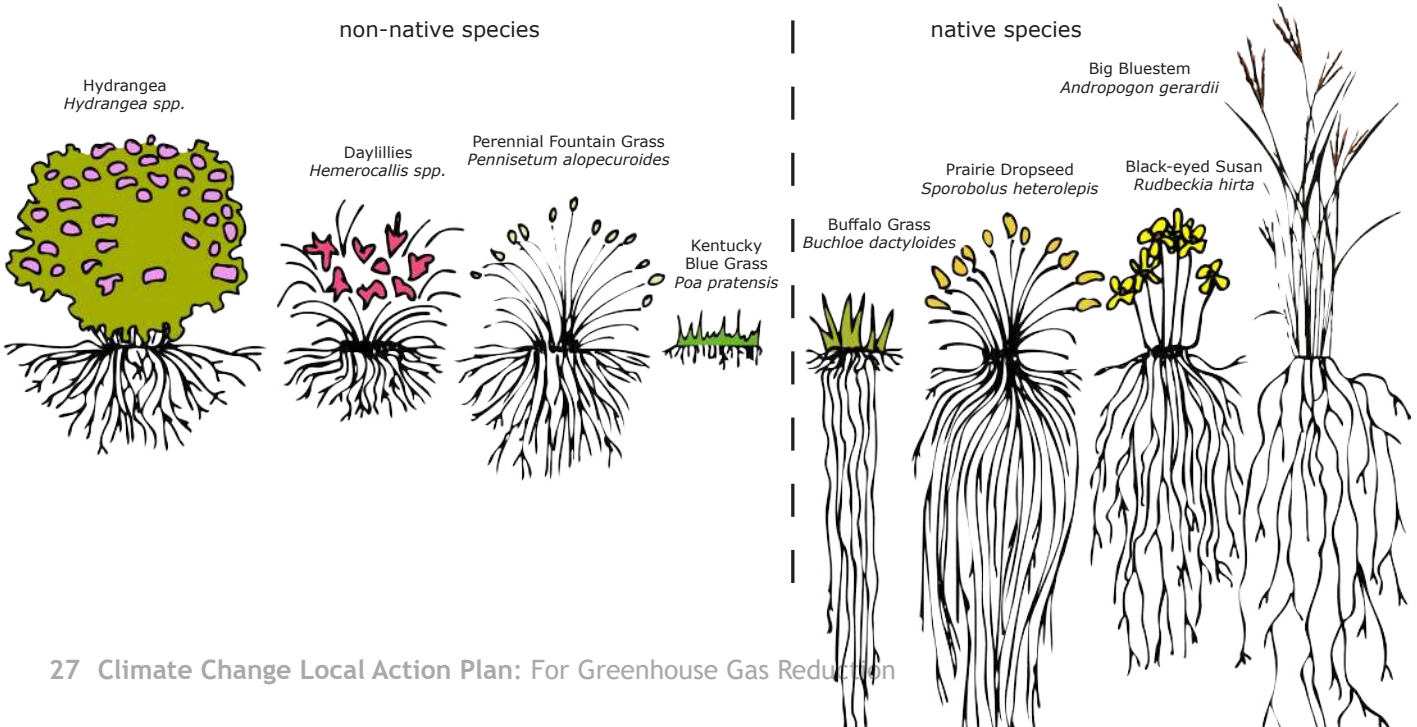
Action 3A:

Plant native species in the RM

Steps:

- RM to review approved plant species for all public reserve and right of way planting
- Create education materials (or direct to existing sources) for general public on appropriate plants to use in home landscape that require less water

- ☑ Decrease in treated water usage
- ☑ Decrease acres of land requiring re-seeding/re-sodding
- ST



Native plants have much deeper root systems than non-native species. These long roots give native species the advantage when it comes to competing for, absorbing, and retaining water and nutrients. These "super" roots also filter excessive nutrients such as nitrogen and phosphorous from stormwater runoff before it reaches rivers and lakes.

Goal 3: Sustainably manage water

Be proactive in educating the public on ways to reduce treated water consumption and minimize water runoff

Objective:

Reduce the amount of stormwater runoff into Red River basin while maintaining water retention in case of drought

Action 3B:

Conduct feasibility study for the development of naturalized wetland stormwater retention facilities (particularly for water retention in case of drought situation, and for educational and recreational opportunities)

Steps:

- Hire consultant or allocate internal staff to conduct feasibility study

MT

- ☑ Study completion with recommendations for areas where naturalized wetland stormwater retention facilities could be built including estimates for amount of runoff prevented from entering Red River basin
- ☑ Drafted plan for water retention in case of drought

The constructed natural wetlands in Royalwood subdivision (Winnipeg, Manitoba) have replaced standard stormwater retention ponds. Not only are they an environmentally sound solution to water retention, but they also serve as a beautiful focal point and unique recreational and educational resource.

Bio-swale, Seven Oaks subdivision, Winnipeg, Manitoba. Bio-retention systems are designed to mimic processes that occur in the natural environment by filtering and storing runoff water from rainstorms and snow melt, rather than letting it be flushed through the stormwater sewer system.

Goal 3: Sustainably manage water

Be proactive in educating the public on ways to reduce treated water consumption and minimize water runoff

Objective:

Encourage water conservation programs

Action 3C:

Provide public education for programs such as Water Smart and Lake Friendly

Steps:

- Promote Water Smart and Lake Friendly programs through municipal communications such as on the website and in community newsletters

Reduction in community water usage

ST

Rain! Rain! Come again!

Personalize your design by incorporating edging material, stones, or a feature item such as boulders or a sculpture

When designing a RAIN GARDEN, the most technical considerations are that. . .

- **water must infiltrate and not stand in the bed for more than two days**
- **water should not create drainage problems on your property or neighbouring ones**
- **local municipalities may require permits for grading projects**

Many communities hold rain barrel design competitions, events and fundraisers – a great way to promote water recycling while enhancing artistic abilities!

Did you know?

Non-potable, captured water can be used for: watering plants, flushing toilets, or custodial and maintenance purposes.

Goal 3: Sustainably manage water

Be proactive in educating the public on ways to reduce treated water consumption and minimize water runoff

Objective:

Identify new source of water to service the RM

Action 3D:

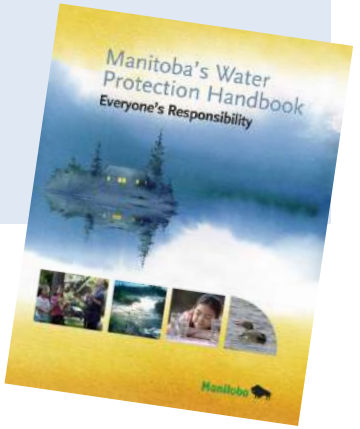
Invest in feasibility, planning and engineering studies for a new water source and distribution system

Identification of water source and plan for implementation

LT

Steps:

- Hire consultant or allocate internal staff to conduct feasibility study



Manitoba's Water Protection Handbook is for all Manitobans living and working in urban and rural areas with an interest in keeping our waters clean.

www.gov.mb.ca/waterstewardship/reports/water_protection_handbook.pdf

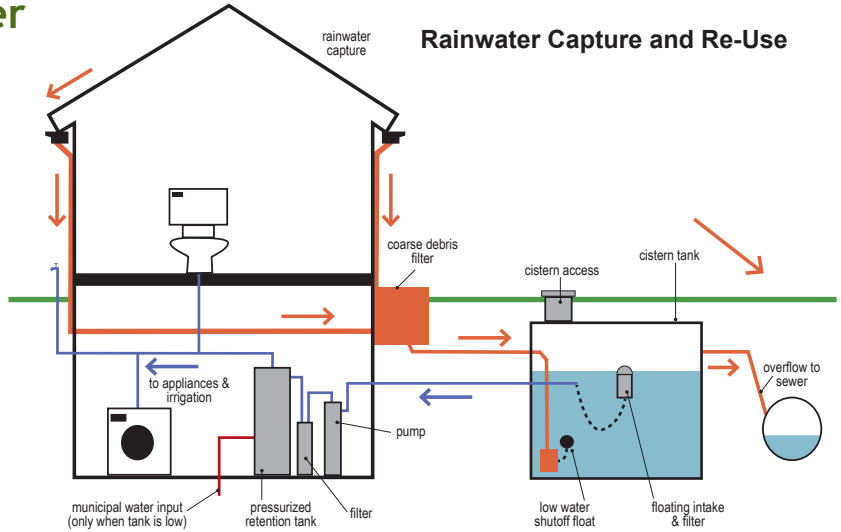
Take it one 'flush' further

Grey Water Capture and Re-Use

- water from bath and laundry is rerouted to a grey water system for filtration and disinfection and can then be used to replace potable water for flushing toilets

Rainwater Capture and Re-Use

- rain barrels and cisterns store water for irrigation, flushing toilets, and laundry



Goal 4: Sustainably grow the Rural Municipality of La Broquerie

Continue to grow the communities of La Broquerie without creating additional increases in GHG emissions

Objective:

Ensure new developments are planned / built with best practices in sustainable development

Action 4A:

Develop an Open Space Strategy for new developments

Council adopted policy

MT

Steps:

- Hire consultant or allocate internal staff to develop a policy for creating enhanced open spaces in new developments

A Manual for Conservation Subdivision Design explains how to design rural subdivisions that protect open space, woodlands, natural areas, wildlife habitats, and wetlands.

www.gov.mb.ca/ia/land_use_dev/manualforconservationsubdivisiondesign.html

Action 4B:

Develop a best practices list for new development planning and provide to potential developers

Development of best practices guide

MT

Steps:

- Review standard development agreements
- Review policies for new developments
- Develop best practices guide to supplement existing planning documents

Goal 4: Sustainably grow the Rural Municipality of La Broquerie

Continue to grow the communities of La Broquerie without creating additional increases in GHG emissions

Objective:

Ensure new developments are planned / built with best practices in sustainable development

Action 4C:

Investigate the potential for district heating systems in new, large-scale developments

Steps:

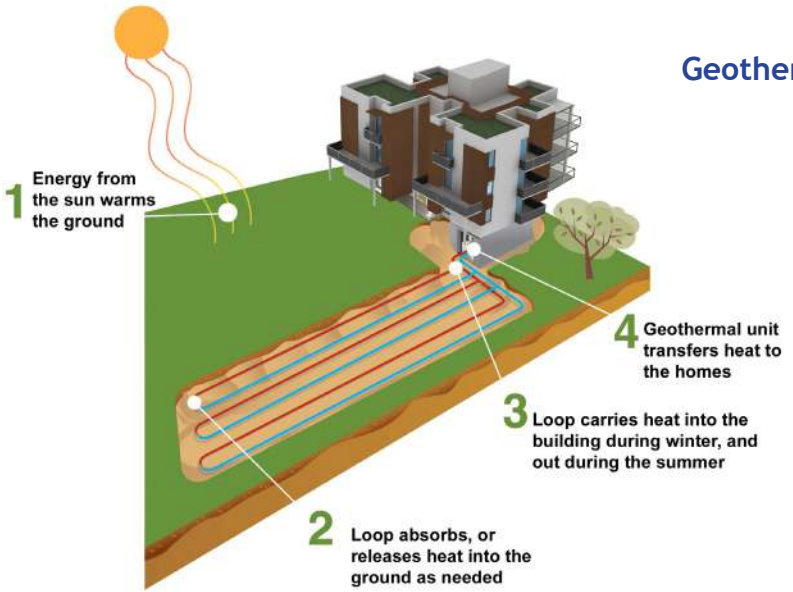
- Work with Manitoba Hydro to develop district heating systems

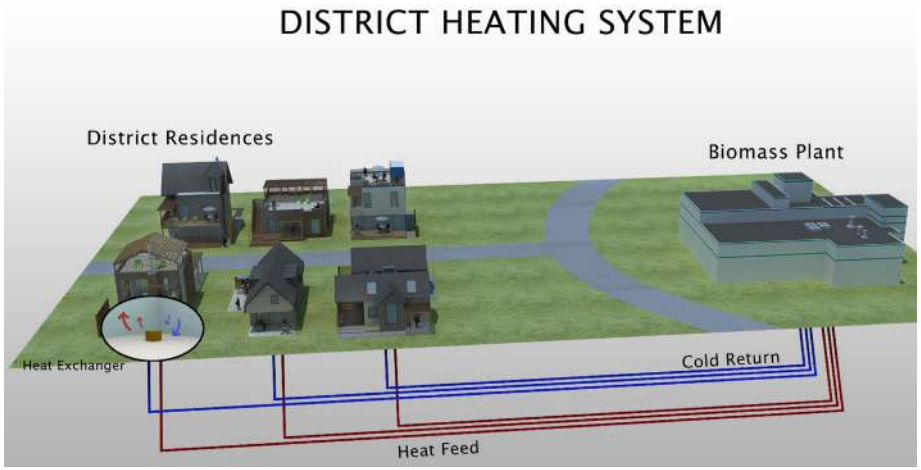
Creation of a district heating system

LT

Hot topics!

Geothermal and district heating systems!





Goal 4: Sustainably grow the Rural Municipality of La Broquerie

Continue to grow the communities of La Broquerie without creating additional increases in GHG emissions

Objective:

Promote development projects that seek to reduce or mitigate GHG emissions as a result of development

Action 4D:

Promote plantings that are designed for carbon sequestration

Steps:

- Review current zoning requirements and standard development agreements
- Determine if changes can be made to encourage developers to include carbon sequestration projects as part of development

☑ Acres of carbon sequestration planting

☑ Tonnes of carbon being stored

MT

Fast facts

In addition to carbon sequestration, native plants offer a more sustainable solution because they:

- **attract birds, mammals, and insects**
- **filter more pollutants and require less fertilizer, pesticides, and irrigation**
- **use less potable water**
- **reduce water costs**
- **protect water sources for future generations**

One generation plants the trees, another gets the shade.

(Old Chinese Proverb)

Rain garden, École communautaire Aurèle-Lemoine, St. Laurent, Manitoba

Goal 4: Sustainably grow the Rural Municipality of La Broquerie

Continue to grow the communities of La Broquerie without creating additional increases in GHG emissions

Objective:

Promote development projects that seek to reduce or mitigate GHG emissions as a result of development

Action 4E:

Promote all new building construction to have high efficiency furnaces, low flow toilets and high R-value insulation

Steps:

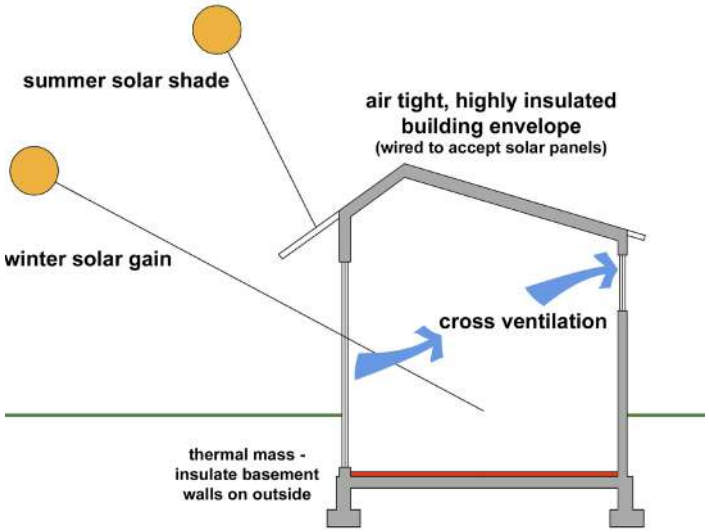
- Review the standards for new building construction
- Review standard development agreements
- Determine if changes can be made to enforce or encourage more energy efficient building design in new developments

Percentage of new building construction with higher energy efficiency ratings

MT

Use less energy

As much as possible, use passive techniques for home heating and cooling. Manually adjust your thermostat or invest in a 'smart' programmable thermostat to avoid temperature extremes in winter (heating) and summer (air conditioning).



Climate Resilient Architecture

Features like screened-in-porches, attached sunrooms and greenhouses, more glazing on east and south exposures, and vegetated roofs may help to "Future Proof" against the predicted increase in frequency and severity of weather events as a result of climate change.

Goal 5: Encourage sustainable living practices in La Broquerie

Promote lifestyles that are sustainable: environmentally, economically, and socially in the RM of La Broquerie

Objective:

Offer educational programming on sustainable living topics that seek to reduce or mitigate GHG emissions

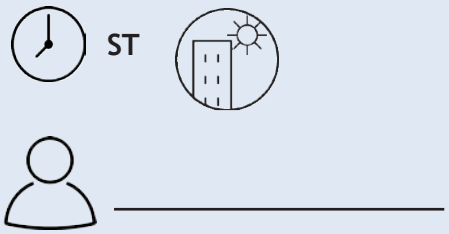
Action 5A:

Provide Sustainable Living Education workshops and programs on emerging and adaptive products, practices and technologies in the RM for local residents

Steps:

- Research potential topics and initiate dialogue with similar edcuation programs and providers (for example, with Fort Whyte Alive)
- Include educational information on the RM website and in RM publications
- Invite residents to education workshops

- ☑ Number of residents educated on sustainable living topics
- ☑ Number of "hits" on the RM website



GOOGLE the green

Hot Topics! Check out. . .

- **double-stud and airtight construction, grey-water heat recovery, rainwater capture, biopower, electric and/or district geothermal heating, solar design and net-zero construction, stormwater management, (green roofs, rain gardens, bioswales) etc.**

Goal 5: Encourage sustainable living practices in La Broquerie

Promote development that is sustainable: environmentally, economically, and socially in the RM of La Broquerie

Objective:

Promote projects that contribute to the development of the local economy and food system

Action 5B:

Investigate the possibility of a community greenhouse

Steps:

- Hire consultant or allocate internal staff to conduct feasibility study
- Identification of greenhouse location and plan for implementation

- ✓ Study completion with recommendations for location of greenhouse
- ✓ Construction of greenhouse and implentation of community food programming
- ✓ Amount of local food and goods produced

LT

A Community Food Centre. . .

could include: a greenhouse; Farmer's Market; artisan bakery; shared kitchen and canning facilities; freezers; root cellars; compost facilities; and educational programming, outreach, commercial endeavours and apprenticeships and sweat equity programs.

From farm to fork!

Transporting food is very costly and produces significant greenhouse gas emissions. When we buy local food, we contribute directly to our local economy. Local food production and processing creates jobs, encourages value added processing, and retains the value of our agricultural land base. Local food systems also encourage community involvement, support equitable food distribution, and connect urban and rural issues.[12]

Goal 6: Improve air quality

Seek to improve air quality and reduce GHG emissions through a reduction in the number of motor vehicle kilometres travelled

Objective:

Reduce reliance on automobiles through the promotion of active modes of travel

Action 6A:

Upgrade existing walking pathways and trails and construct new ones

Steps:

- Upgrade existing paths in need of repair and plan and construct new walking paths

Number of kilometres of pathway upgraded and/or constructed

LT

Action 6B:

Develop Active Transportation Plan for the RM of La Broquerie

Steps:

- Hire consultant or allocate internal staff for production of plan

Production of Active Transportation Plan

LT

Goal 6: Improve air quality

Seek to improve air quality and reduce GHG emissions through a reduction in the number of motor vehicle kilometres travelled

Objective:

Reduce reliance on automobiles through the promotion of active modes of travel

Action 6C:

Collaborate with the Capital Region on developing the Regional Transportation Master Plan as well as a Capital Region bus service

Steps:

- Advocate for Regional Transportation Master Plan to include measures that would reduce motor vehicle kilometres travelled (i.e. bike routes)
- Advocate for a regional bus service in the Capital Region

☑ Regional Transportation Master Plan

☑ Creation of Regional bus service

LT

Every time I see an adult on a bicycle, I no longer despair for the future of the human race.

(H.G. Wells)

Goal 6: Improve air quality

Seek to improve air quality and reduce GHG emissions through a reduction in the number of motor vehicle kilometres travelled

Objective:

Reduce reliance on automobiles through the promotion of active modes of travel

Action 6D:

Provide parking stalls for car pools

Use of car pool parking spots once installed

ST

Steps:

- Conduct community review (may include community survey or key stakeholder interviews) to determine best locations for car pool parking spots
- Install signage for carpool stalls
- Educate public on car pool parking stall locations
- Promote car pool rider matching through community news

Walk to work, even if it's four miles. Ride a bike to work. Drive a different way.

(Nolan Bushnell)

Take it one 'kilometre' further

Bike parking and Bikeshares!

Goal 6: Improve air quality

Seek to improve air quality and reduce GHG emissions through a reduction in the number of motor vehicle kilometres travelled

Objective:

Promote alternate fuel motor vehicles and alternative fuels

Don't be idle. . .

Create IDLE FREE ZONES!

Action 6E:

Install an electric car charging station

Steps:

- Determine best location for car charging station and install electric charging station and signage
- Promote electric car charging station

Number of cars using electric car charging station

MT

Action 6F:

Investigate hydrogen fuel cells and other alternative fuels for fleet vehicles and other transportation

Steps:

- Conduct investigation into alternative fuelled vehicles on the market to determine costs and appropriateness for municipal operations

Recommendations on use of alternative fuels for fleet vehicles

MT

Goal 7: Reduce energy consumption & reliance on traditional sources of energy

Seek to reduce energy consumption

Objective:

Promote sustainable retrofit measures for existing facilities

Action 7A:

Promote Power Smart Programs

Steps:

- Include educational information on Manitoba Hydro Power Smart Programs on the RM website and in RM publications

Increase of reported Power Smart Program usage

ST

ENERGY STAR

Did you know?

Sealing a house to reduce air leakage is often the least expensive way of achieving significant savings on your heating bill.

(Manitoba Hydro)

Goal 7: Reduce energy consumption & reliance on traditional sources of energy

Seek to reduce energy consumption

Objective:

Promote sustainable retrofit measures for existing facilities

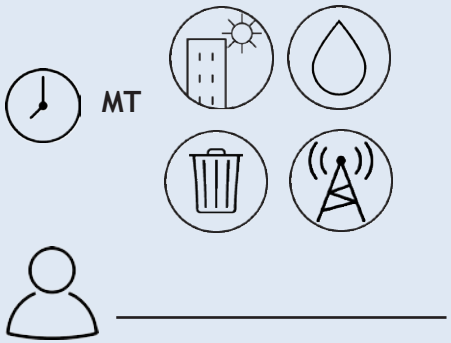
Action 7B:

Provide a "Welcome Bag" to new residents / businesses in the RM that includes Power Smart information and tools for energy reduction (e.g. LED light bulb, low-flow shower head, yard waste compost bags, etc.)

Steps:

- Determine contents of Welcome Bag
- Seek partnerships / sponsorships to provide content for bags
- Distribute bags to new residents / businesses after they establish their contact information with the RM

- ☑ Number of Welcome Bags handed out
- ☑ Survey recipients to determine use of Welcome Bag materials



Community Based Social Marketing. . .

is based upon research that demonstrates behaviour change is most effectively achieved through initiatives delivered at the community level which focus on removing barriers to an activity while simultaneously enhancing the activity's benefits.[13]

Goal 7: Reduce energy consumption & reliance on traditional sources of energy

Seek to reduce energy consumption

Objective:

Promote sustainable retrofit measures for existing facilities

Action 7C:

Assist local businesses and residents with building retrofits / grants / emission reduction plans

Steps:

- Research programs for assisting homeowners and businesses with building retrofits
- Provide information to residents on existing grant programs for building improvements

- Amount of building retrofit projects that include GHG reduction measures
- Dollars received from grant programs for building retrofits

ST

The green goods

Encourage sustainable building materials, finishes, processes and products with "low embodied energy" *(the total energy required to manufacture and transport a product)*.

- **sprayfoam or cellulose insulation, pine beetle wood, straw bales, carbon negative cement, local masonry and products, composting toilets etc.**

Straw bale construction

Goal 7: Reduce energy consumption & reliance on traditional sources of energy

Seek to reduce energy consumption

Objective:

Promote development of Alternative Sources of Energy

Action 7D:

Seek alternative energy sources such as wind and solar for community energy needs

Steps:

- Conduct research into installation of small scale renewable energy generators for community usage

Amount of energy sourced from renewable sources

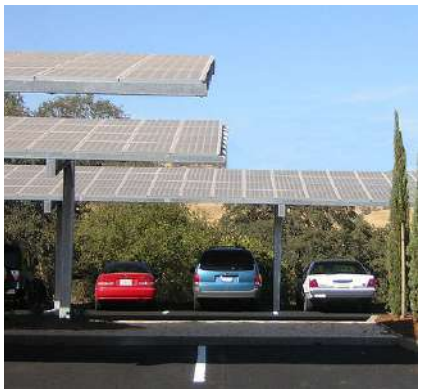
LT

Did you know?

The cleanest and cheapest unit of energy is the one you don't use!

Light the way one step further!

Indoor/outdoor motion sensor lighting, solar parking panels and heating for an outdoor pool!



Hudson Hope, BC

Goal 7: Reduce energy consumption & reliance on traditional sources of energy

Seek to reduce energy consumption

Objective:

Promote development of alternative sources of energy

Action 7E:

Develop Biomass energy opportunities

Steps:

- Work with Manitoba Hydro to develop Biomass conversion technologies and to develop a Biomass Network

- ✓ Increase in use of Biomass fuels
- ✓ Creation of new Biomass conversion technologies
- ✓ Development of a Biomass Co-Op or "Network"

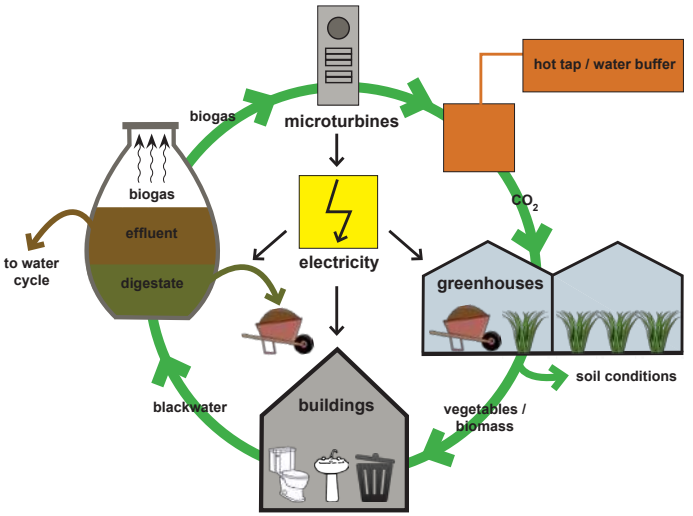
LT

GO BIOPOWER!

Biomass energy can greatly reduce greenhouse gas emissions! Although burning biomass releases a similar amount of carbon dioxide as burning fossil fuels; fossil fuels release carbon dioxide captured by photosynthesis millions of years ago—an essentially "new" greenhouse gas. Whereas Biomass releases carbon dioxide that is largely balanced by the carbon dioxide captured in its own growth.[14] However, in order to remain advantageous, the carbon emissions lifecycle of biopower should also be compared to the fossil fuels it's displacing and other low carbon solutions it's competing with.[15]

What is Biomass?

Biomass is organic material which has stored sunlight in the form of chemical energy. Biomass fuels include wood, food crops, grassy and woody plants, residues from agriculture or forestry, oil-rich algae, and the organic component of municipal and industrial wastes. Even methane fumes from landfills can be used as a biomass energy source.[16]



For example, Bio-Digesters in a community greenhouse convert agricultural wastes to energy for buildings.

Goal 8: Improve communication infrastructure in the RM of La Broquerie

Objective:

Help encourage new technology investment in the community

Action 8A:

Lobby for better cell phone coverage and internet access within the RM

Steps:

- Council and RM staff to continue to work with communication services providers

LT

- ☑ Greater cell phone coverage within the RM
- ☑ More homes/businesses with high-speed internet
- ☑ Opportunity for residents to **tele-commute** *("work from home'" or "remote work" arrangements can greatly reduce the carbon footprint and fuel usage)*

Action 8B:

Conduct a study to develop a plan for Emergency Response Services in order to implement the best available practices and policies to improve emergency preparedness and the delivery of emergency services in the region

Steps:

- Hire consultant or allocate internal staff for production of plan

☑ Production of Emergency Services Plan

MT

Emergency preparedness. . .

In rural communities, residents are often spread out over long distances. This separation presents a challenge in the rapid dispersal of information and in alerting community members of impending emergencies or natural disasters such as tornadoes, flash floods, school and highway closures, etc. For this reason, rural communities in particular should consider investments in new notification systems that may include email blasts, text messaging services and social media alerts.

DON'T BE THE LAST TO KNOW!

Sign up for Community Alerts and Emergency Messaging!

Local Benefits & Impacts

environmental, economic & social

Types of Benefits

Local benefits serve as motivation for action. . .

"What does this mean to me, my family, my job or business, my community?"

The topic of global climate change can be rather abstract for some people. The setting of greenhouse gas reduction targets helps to create a tangible, overarching goal that unites and aligns the diverse motivations and agendas of the residents, businesses, institutions, community organizations and municipal government. However, this is not enough to enable and motivate stakeholders to act: the overarching goal must be translated to local benefits. One of the key principles in the PCP Program is to emphasize local benefits.

Economic Benefits

- Energy and operating cost savings in all sectors
- Physical asset renewal in municipal operations and private sector
- Improved municipal service delivery
- Reduced healthcare costs
- Increased productivity and employee morale
- Greater support for local businesses - significant multiplier effects
- New local business opportunities in sustainable development sector
- Local job creation in new "green" businesses and services

Environmental Benefits

- Improved air quality
- More green space and trees in the community
- Improved health of natural ecosystems
- Reduced "urban heat island effect"
- Better indoor living and working environments (e.g. improved lighting, better indoor air quality, reduced noise, increased comfort)

Social Benefits

- Improved health of residents
- Reduced traffic congestion
- Increased community investment and services
- Opportunity for the municipal government to show leadership and influence other community stakeholders to take action
- Greater sense of community; enhanced quality of life

Estimated impacts of the Community Climate Change Local Action Plan

KEY

- ↓ = amount of GHG reduction
- $ = cost
- = amount of positive environmental impact
- = amount of positive economic impact
- = amount of positive social impact

ACTIONS		GHG REDUCTION	COST	BENEFITS		
				Environmental	Economic	Social
GOAL 1: Reduce community waste						
Action 1A	Review community recycling strategy to determine possible additional steps such as improved recycling depots and/or community pick up	↓ ↓ ↓	$			
Action 1B	Review community organics strategy to determine possible additional steps such as community compost/yard waste drop off sites, and/or organics pick up	↓ ↓ ↓	$			
Action 1C	Encourage recycling education through municipal communication tools and conduct compost and gardening workshops in the RM for local residents	↓ ↓ ↓	$			
GOAL 2: Sustainably operate the municipal operations of La Broquerie						
Action 2A	Conduct regular energy audits of all corporate facilities	↓ ↓	$ $			
Action 2B	Investigate possible solutions for new energy efficient retrofits to municipal buildings/facilities	↓ ↓	$ $ $			
Action 2C	Adopt "green" purchasing policy for all new fleet vehicles and equipment, as well as for supplies, products and practices	↓ ↓ ↓	$ $ $			
GOAL 3: Sustainably manage water						
Action 3A	Plant native species in the RM	↓ ↓ ↓	$ $			
Action 3B	Conduct feasibility study for the development of naturalized wetland stormwater retention facilities	↓ ↓	$ $ $			
Action 3C	Provide public education for programs such as Water Smart and Lake Friendly	↓	$			
Action 3D	Invest in feasibility, planning and engineering studies for a new water source and distribution system	↓ ↓ ↓	$ $ $ $			
GOAL 4: Sustainably grow the Rural Municipality of La Broquerie						
Action 4A	Develop an Open Space Strategy for new developments	↓ ↓	$ $ $			
Action 4B	Develop a best practices list for new development planning and provide to potential developers	↓ ↓ ↓	$ $			
Action 4C	Investigate the potential for district heating systems in new, large-scale developments	↓ ↓ ↓ ↓	$ $ $ $			
Action 4D	Promote plantings that are designed for carbon sequestration	↓ ↓ ↓	$ $			
Action 4E	Promote all new building construction to have high efficiency furnaces, low flow toilets and high R-value insulation	↓ ↓ ↓	$ $			

Estimated impacts of the Community Climate Change Local Action Plan

ACTIONS		GHG REDUCTION	COST	BENEFITS		
				Environmental	Economic	Social
GOAL 5: Encourage sustainable living practices in La Broquerie						
Action 5A	Provide Sustainable Living Education workshops and programs on emerging and adaptive products, practices and technologies in the RM for local residents	↓ ↓ ↓	$			
Action 5B	Investigate the possibility of a community greenhouse	↓ ↓	$ $			
GOAL 6: Improve air quality						
Action 6A	Upgrade existing walking pathways and trails and construct new ones	↓ ↓	$ $			
Action 6B	Develop Active Transportation Plan for the RM of La Broquerie	↓ ↓ ↓	$ $			
Action 6C	Collaborate with the Capital Region on developing the Regional Transportation Master Plan as well as a Capital Region bus service	↓ ↓ ↓	$ $			
Action 6D	Provide parking stalls for car pools	↓ ↓	$ $			
Action 6E	Install an electric car charging station	↓ ↓	$ $			
Action 6F	Investigate hydrogen fuel cells and other alternative fuels for fleet vehicles and other transportation	↓ ↓ ↓	$ $			
GOAL 7: Reduce energy consumption & reliance on traditional sources of energy						
Action 7A	Promote Power Smart Programs	↓ ↓ ↓ ↓	$ $			
Action 7B	Provide a "Welcome Bag" to new residents / businesses in the RM that includes Power Smart information and tools for energy reduction (e.g. LED light bulb, low-flow shower head, yard waste compost bags, etc.)	↓ ↓	$			
Action 7C	Assist local businesses and residents with building retrofits / grants / emission reduction plans	↓ ↓ ↓	$ $			
Action 7D	Seek alternative energy sources such as wind and solar for community energy needs	↓ ↓ ↓	$ $ $			
Action 7E	Develop Biomass energy opportunities	↓ ↓ ↓ ↓	$ $ $ $			
GOAL 8: Improve communication infrastructure in the RM of La Broquerie						
Action 6A	Lobby for better cell phone coverage and internet access within the RM	↓	$ $			
Action 8B	Conduct a study to develop a plan for Emergency Response Services in order to implement the best available practices and policies to improve emergency preparedness and the delivery of emergency services in the region	↓	$ $			

Next Steps
getting started

Conclusion

This report confirms that the Rural Municipality of La Broquerie has completed the 3rd milestone of the Partners for Climate Protection (PCP) program.

With this Climate Change Local Action Plan received by council on May 25, 2016, the Rural Municipality of La Broquerie now has a report that can be described as comprehensive, effective, and achievable.

The next step for Eco-West and the Rural Municipality of La Broquerie will be to engage participating stakeholders in implementing the initiatives that have been identified in this report, and to seek all available sources of funding in order to make these projects come to fruition with sustainable results.

The timelines for many of these activities will vary, as some programs may take only a matter of months to fine-tune and launch while others may require more time and resources to fully develop and reach the point of approval. Once launched, some programs could take years to fully implement.

As the community is developing and implementing these projects, best practices for additional project concepts that could be added to this plan should be identified. Moreover, technologies, policies, economic/legal drivers and climate conditions will inevitably change in the years ahead. New opportunities and obligations arising from this changing environment may require a revision of this report in the short term and create a "second generation" of initiatives in the longer term.

Appendices

references

emissions inventory

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Images

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Eco logo (pg. 3)
www.ecologo.org

Lake friendly logo (pg. 3)
www.lakefriendly.ca

Earth/Sun GHG (pg. 8)
www.durham.ca/climatechange

RM of La Broquerie sign (pg. 11)
www.labroquerie.com

RM images (pg. 17)
www.labroquerie.com

Green building logo (pg. 20)
www.cagbc.org

Tags (pg. 22)
stalbert.ca

Bag with tag (pg. 22)
sinmcoe.ca

Compost garden (pg. 23)
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Composter (pg. 24)
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Rain Barrel art (pg. 29)
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St. Laurent rain Garden, Denise Allard, École communautaire Aurèle-Lemoine (pg. 33)

Double-stud wall (pg. 35)
www.riverdalenetzero.ca/PRESENTATIONS/Riverdale_NetZero_energy_home_--_presentation.pdf

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Straw bale construction (pg. 43)
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Solar panel parking lot (pg. 44)
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Solar heated swimming pool (pg. 44)
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Community builders (pg. 48)
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Rural Municipality of La Broquerie Greenhouse Gas (GHG) Emissions Inventory

Since 2012, CDEM has worked with various municipalities in order to provide GHG emissions information for their jurisdiction.

The tables below indicate the source of GHG emissions and the amount that is generated within your territory in 2008 and 2011, both at the Community and the Corporate levels.

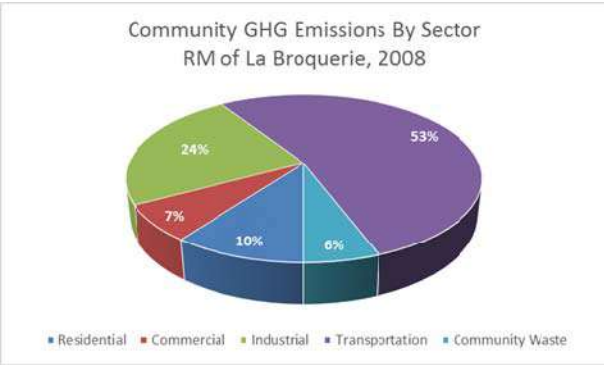
- Community Inventory: This inventory includes residential, institutional, commercial and industrial, as well as transportation and solid waste data.
- Corporate Inventory: This inventory includes data on all municipal government installations, including the buildings, the street lighting, water and sewage, the municipal fleet and solid waste within the community and / or the municipal government.

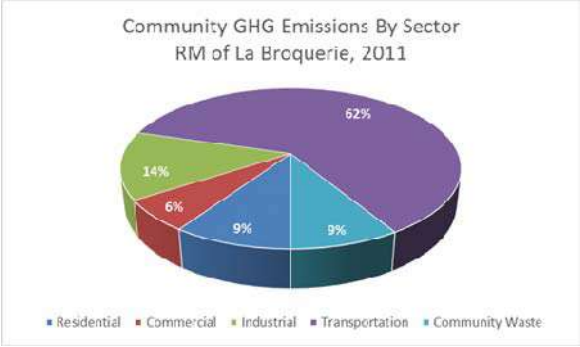
1. RM of La Broquerie Community Emissions Inventory for 2008 and 2011

eCO2 Emissions, by Sector, in 2008 & 2011

Sector	Energy (GJ)	2008
Residential	141 014,66	2 054,15
Commercial	48 756,67	1 412,17
Industrial	181 885,27	4 808,54
Transportation	154 752,92	10 790,13
Community Waste	-	1 163
Total	526 409,52	20228,27

Sector	Energy (GJ)	2011
Residential	160 774,83	1 793,71
Commercial	45 002,09	1 191,94
Industrial	105 410,37	2 585,58
Transportation	166 434,31	11 604,62
Community Waste		1 653
Total	477 621,59	18 28,40





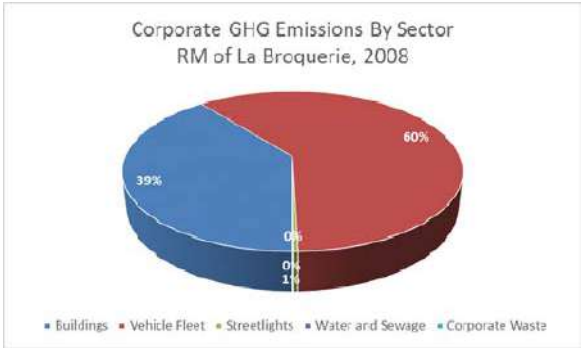
Rural Municipality of La Broquerie Greenhouse Gas (GHG) Emissions Inventory

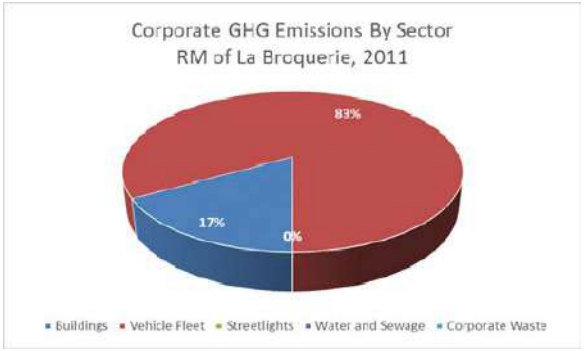
2. RM of La Broquerie Corporate Emissions Inventory for 2008 and 2011

eCO2 Emissions, by Sector, in 2008 & 2011

Sector	Energy (GJ)	2008
Buildings	3 523,62	133,36
Vehicle Fleet	2 929,73	204,83
Streetlights	350,68	1,17
Water and Sewage	84,23	0,28
Corporate Waste	-	0,00
Total	6 888,25	339,64

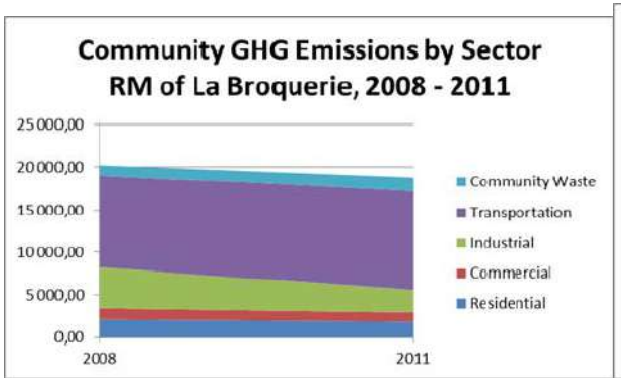
Sector	Energy (GJ)	2011
Buildings	1 561,49	54,643207
Vehicle Fleet	3 850,59	269,663326
Streetlights	0,00	0
Water and Sewage	132,74	0,073744
Corporate Waste		0
Total	5 544,83	324,38

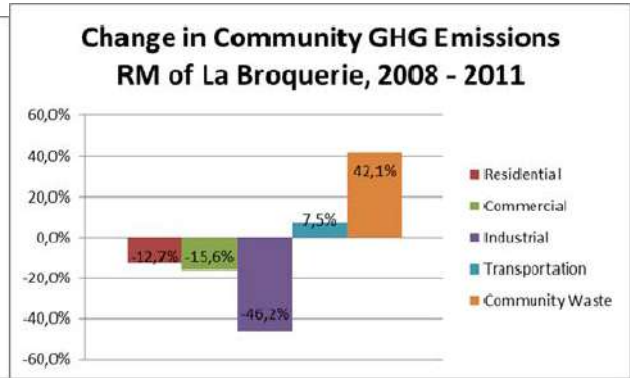




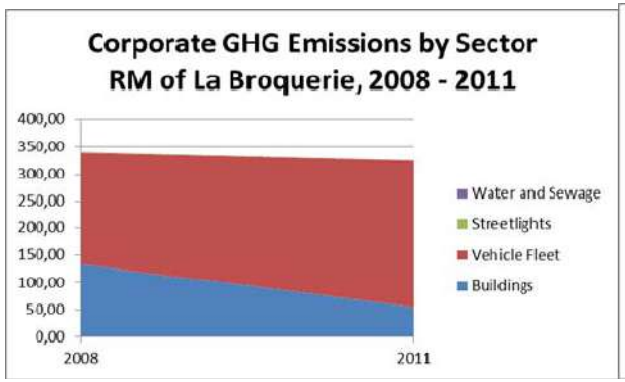
Rural Municipality of La Broquerie Greenhouse Gas (GHG) Emissions Inventory

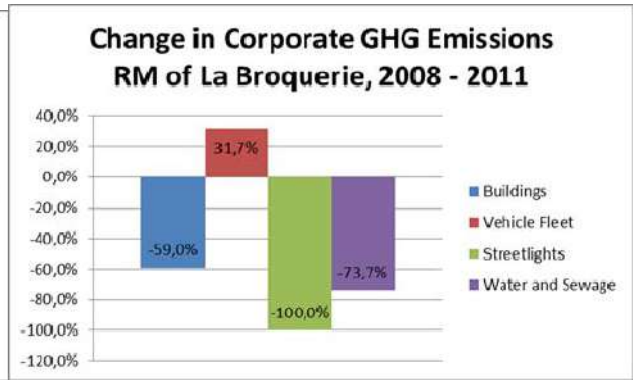
3. RM of La Broquerie Preliminary Observations





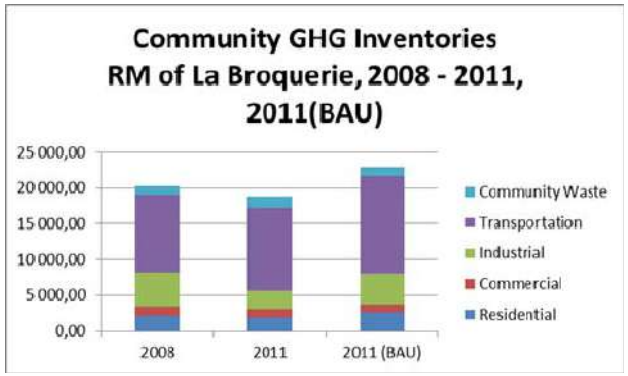
As demonstrated in the tables above, there has only been a slight decrease in total GHG emissions as a whole within the community. However, there has been a significant decrease in the Industrial sector. This decrease was partly offset by an important increase in the Community Waste sector.

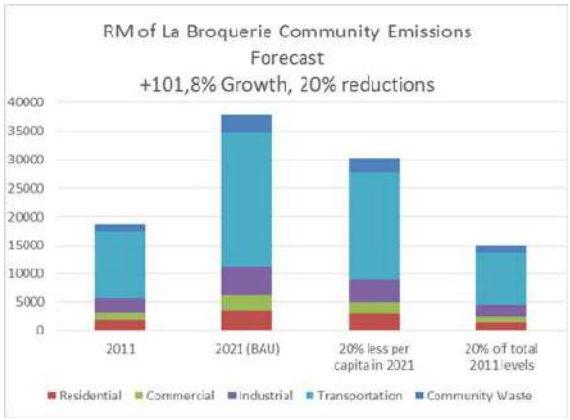




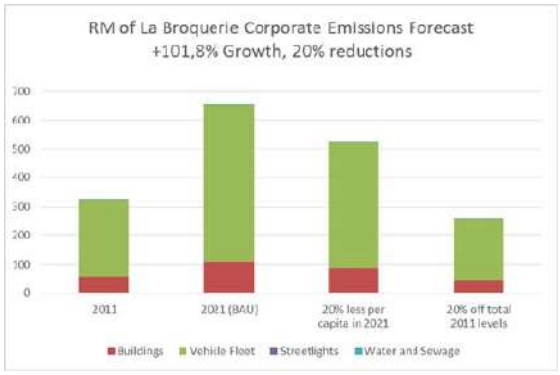
At the Corporate level, overall GHG emissions have remained stable. There was a significant reduction in both the Buildings and Water and Sewage sectors. However, it is important to note that data on Streetlights was not available.

Rural Municipality of La Broquerie Greenhouse Gas (GHG) Emissions Inventory



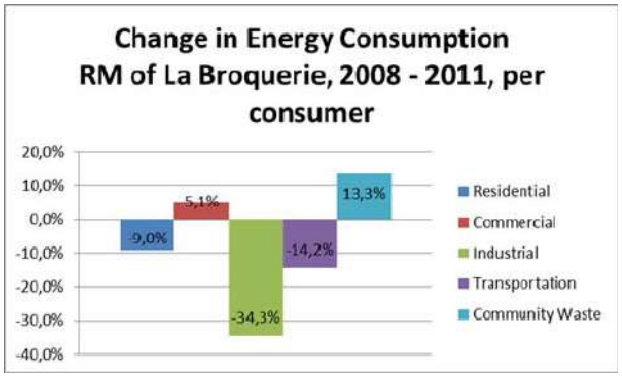


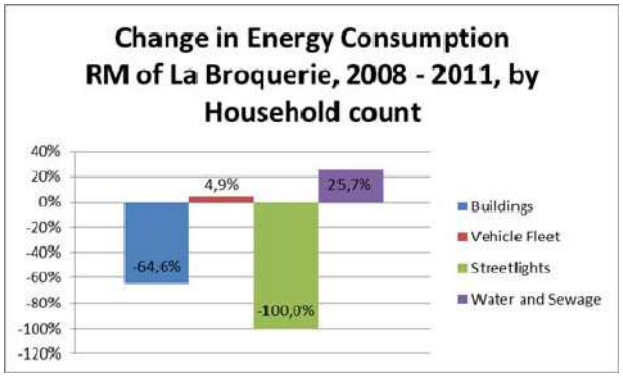
The table on the left (above) indicates that actual Community GHG emissions levels are slightly lower than projected "Busines as usual" levels. The table on the right demontrates a continued increase in GHG emissions with "Business as usual" for 2021. A 20% decrease off 2011 levels would require a per capita emissions reduction of more than 50%.



The table on the left (above)indicates that actual Corporate GHG emissions are significantly lower than projected "Business as usual" levels. With the table on the right, it is noted that there will be a continued increase in emissions by 2021.

Rural Municipality of La Broquerie Greenhouse Gas (GHG) Emissions Inventory

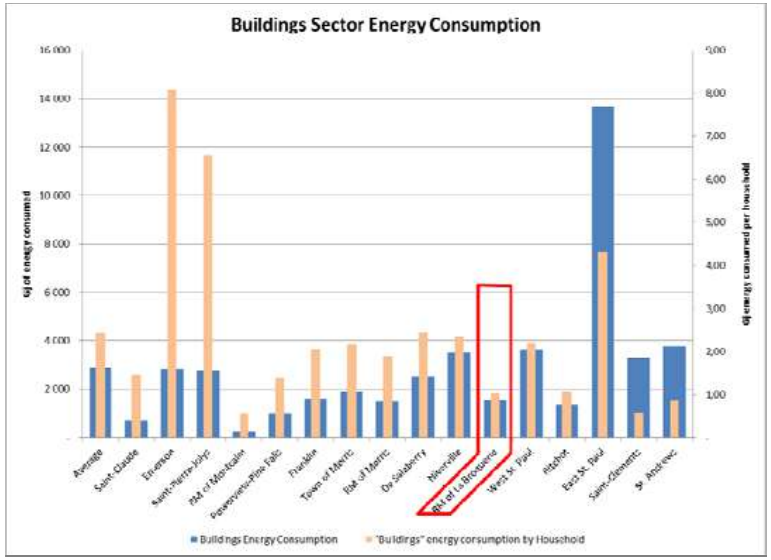




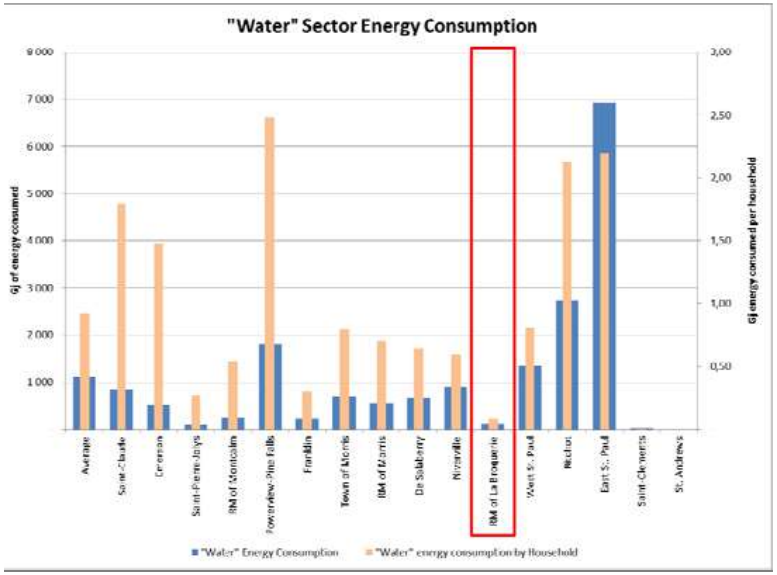
The graph on the left (above) demonstrates that there has been a slight rise in energy consumption per consumer in Commercial and Community Waste sectors. The graph on the right shows that per household consumption of energy for the corporate operations (a measure of the efficiency of service offerings for the community) has increased for the Water and Sewage sector (likely from an increase in population) while the Buildings sector has decreased significantly. Data on Streetlights was not available.

Rural Municipality of La Broquerie Greenhouse Gas (GHG) Emissions Inventory

4. RM of La Broquerie Comparative Observations

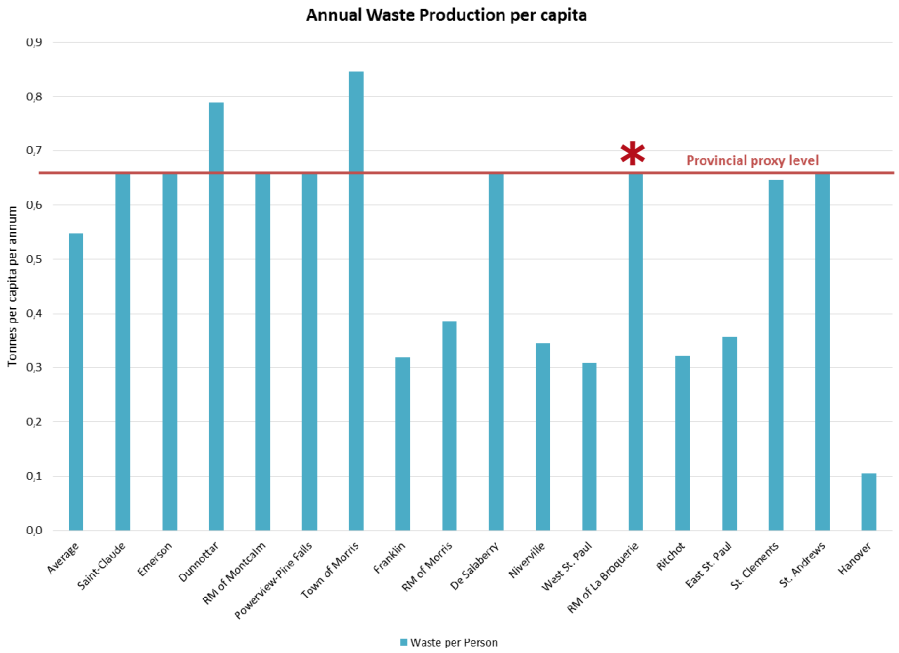


The above table shows the energy consumption of the Buildings sector of municipal operations for the RM divided by the number of households it serves. The RM is currently better than average in comparison to the other local participating communities.

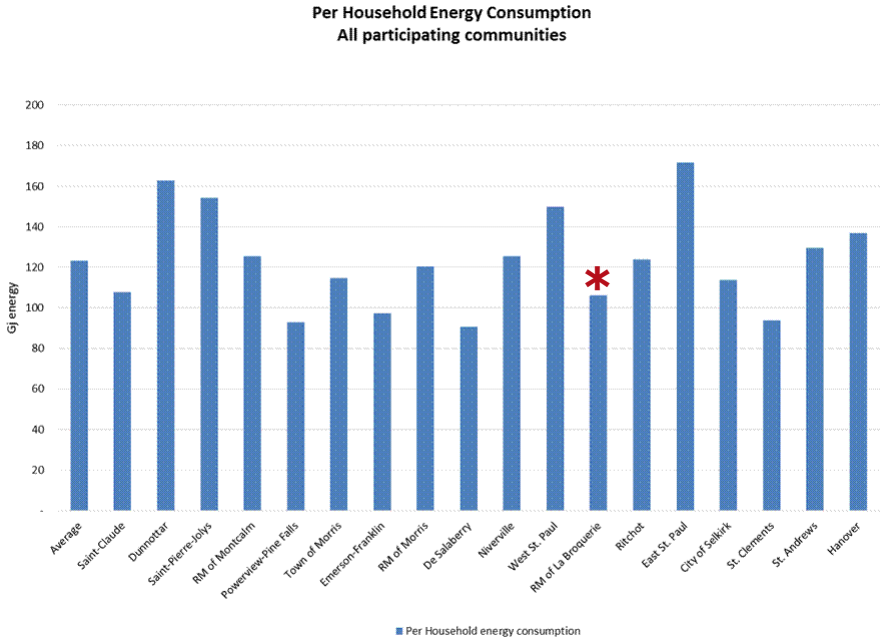


The above table shows the energy consumption of the Water sector of municipal operations for the RM divided by the number of households it serves. The RM is currently much better than average in comparison to the other local participating communities.

Rural Municipality of La Broquerie Greenhouse Gas (GHG) Emissions Inventory

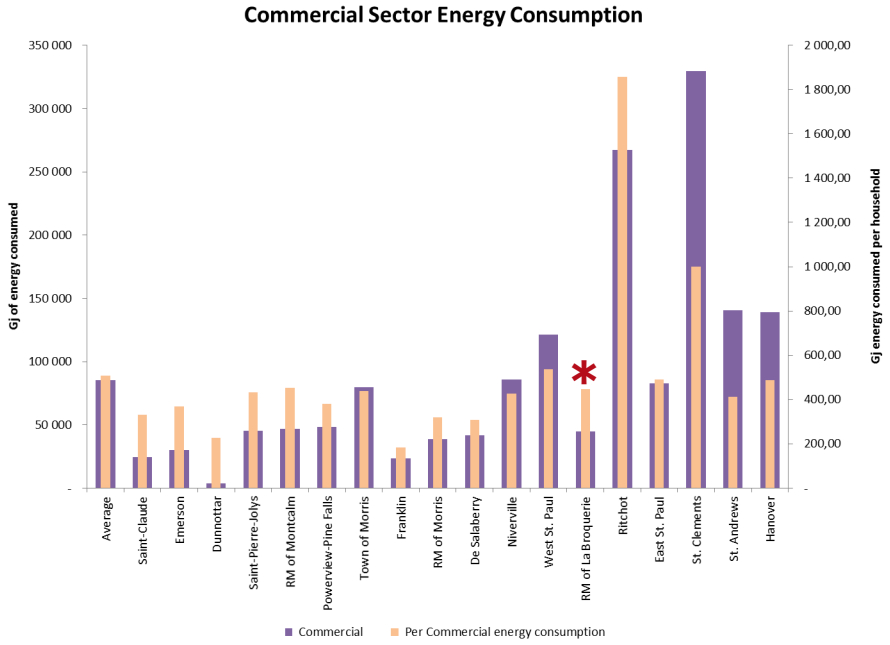


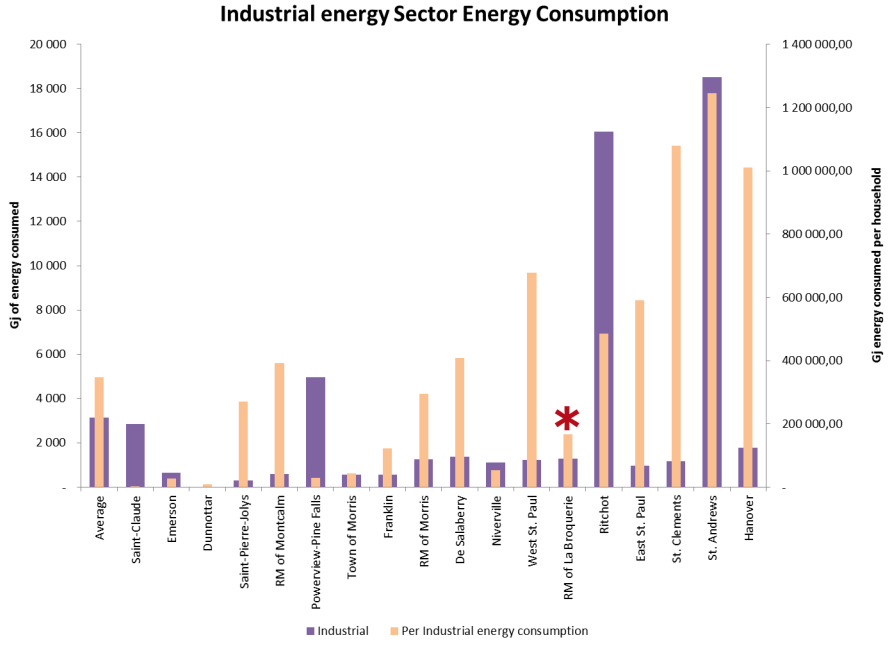
Because the RM does not measure their waste, the amount representated here for waste per person was calculated using using the provincial proxy to estimate community waste (the red line).



The graph above shows the per household residential energy consumption for the RM is below the average for the local participating communities.

Rural Municipality of La Broquerie Greenhouse Gas (GHG) Emissions Inventory





RM of La Broquerie – community consultation questionnaire answers

New Development

- AT paths
- RM policy to add biking/walking lane to all streets and roadways
- New sources of energy: wood stove, solar panel, biomass
- Residential district heating
- New building materials other than wood and energy efficient housing alternatives
- Building permits cost reduction rebate for energy star or other rated homes
- Better planned new residential developments
- Correctly zoned windows for new builds, according to climate
- Eco-town – section of housing promoting green living (solar, bio heating, central garden/greenspace)
- Local greenhouses – attached to schools, eat fresh programs (lunch program)
- Solar, wind electricity systems
- Power smart homes, geo-thermal, solar, wind, electro-magnetic gravity
- RM should only use cost saving bulbs
- All building should be energy efficient, schools, arena and offices
- Green spaces for all new developments: play structures, parks, walking/biking paths, splash parks, continued access to ag building for ice surface
- LED lighting for new and retro-fitting for old buildings
- Net zero homes should be promoted through grants
- Incentives to builders that use southern exposures to advantage light
- protocol or parameters for what is sustainable or environmentally friendly purchases that reduce or mitigate GHG
- district heating with forest byproduct
- reduce permit costs for eco-friendly homes
- natural vegetation conservation during development
- minimum recreation green space with solar lamps
- mandatory parks with trails, do not cut down trees
- only cut down trees as necessary
- infill housing
- south facing buildings
- renewable energy : solar, wind, geothermal, biomass
- air exchangers for heating (European technology)
- straw bale housing, limit concrete
- reduce use of agricultural land for residential

Buildings/Energy

- solar to light RM facilities, xmas lights, street lights
- solar heated greenhouse, partnership with schools
- biomass, hydro electricity (maybe), wind power
- district heating
- provide more information on power smart incentives
- LED retrofits and smart sensors to all public buildings
- Local electric/heat generating stations using solar and biomass
- Biomass heating for public buildings and new residential communities
- Solar power grants
- District heating for commercial building (arena, schools, churches)
- Biomass boilers with resources from Sandilands forest
- District heating
- District heating for residential and commercial
- Biomass
- Encourage energy savings hints such as lowering thermostats by 1 degree during the day and 3 degrees at night
- Financial incentives for installation of solar energy units in residential and commercial
- Incentives for using green building products
- Incentives for using local products and contractors to reduce gas consumption ie. Lower travel costs
- Biomass on wood waste and central heating unit to produce heat energy to residential and commercial buildings
- Air/ground source heat pumps
- Biomass heating
- Drain water heat recovery
- Energy audits
- District heating for schools, residential and also new developments
- LED lighting in municipal offices, smart sensors
- Local electric generating stations: solar, biomass for disaster mitigation service interruption
- District heating through biomass
- Mandatory use or replacement of lose flush toilets, fawcets, heaters, lights, bulbs, etc.
- Limit to use of only eco friendly products, including cleaners, paper, napkins, no Styrofoam, for all events and municipal buildings
- Bigger yard for the apartment building

Waste

- recycling pick-up throughout RM
- organic waste pick-up
- workshops and demonstrations how to compost

***Note: In some instances, survey responses have been translated, paraphrased, and categorized for summarization purposes.*

- use was as a biomass source of energy
- composting organics
- gasification
- recycling services in rural areas with organic depots
- reimbursements for recyclables
- organic waste to produce fertilizers (residential pick-up and schools)
- recycling in Marchand
- compost pick-up
- support existing biomass/composting site a few miles from La Broquerie (Overton Environmental in Giroux)
- transfer stations instead of landfills
- encourage recycling, like refund for cans
- more promotional ads on recycling and re-using
- expand recycling bins into rural areas
- recycling services – free outside of town
- garbage pick-up outside of town
- incentives for recycling efforts
- repeat La Broquerie clean-up day (heavy recruiting with all organizations)
- reduce packaging
- composting depot
- free-cycle station
- encourage people not to consume and not to use packaged materials, not to use plastic bags
- garbage bag limits
- rural service
- more recycling depots
- reimbursements for recyclables
- organic waste pick-up service for schools and residences
- municipal residential recycling pick-up
- reward or charge for garbage
- education campaign on waste
- municipal compost with pick-up
- recycling centre in La Broquerie
- explore the model in Lac Du Bonnet: limit garbage bags, free recycling and re-use program
- community compost with community garden
- special garbage bins for cigarettes
- composting
- methane recapturing
-

Water

- low flush toilets in public facilities
- municipal policy to increase well sharing in properties 2 acres and larger
- RM policy to look at septic field size relation to size of property
- Central water retention where water could be a beach for families and a skating spot
- Increase awareness of water quality issues
- Low flow toilets
- Incentives for composting toilets
- Town water should be installed in the town of La Broquerie before a disaster happens
- Water retention pond/lake – flood control and recreational use (2 and 1)
- Lake used for school education (paddling, swimming lessons, biology class, beach for tourists, ice rink with toboggan hill/zip lining)
- Splash park
- Efficient shower heads, low flush toilets
- Water retention system on the seine river, used for recreation
- Damn the seine river at certain points in order to increase water retention
- Run-off water should be flowing into a recycling tank instead of into the lagoon
- Mandatory low-flush toilet sin new homes and buildings
- Financial incentives for replacement of old toilets
- Improve gray water disposal and/or re-using purposes
- Water retention projections to mitigate drought issues
- Rain-water collection for gardens
- Tariffs on watering your lawn from municipal water
- Natural sewage treatment systems (like Village of Dunnottar)
- Carbon sequestration
- Low flush toilets
- Compostable toilets
- Riverbank projects with residents and orgs
- Incentives to expand buffers
- Automatic turn off fawcets
- Water fountains with special pipes to fill water bottles to reduce plastic bottle use at the arena
- Micro turbines for energie recapturing in water basins
- Composting toilets
- Reducing irrigation by using compost on the land (carbon sequestration)

Transportation

- bike rental/borrowing options
- promote/incentives for electric and hybrid, add charging stations
- bike and hike trails
- bike park stations
- public transportation
- alternatives – cyclovias between main towns and small towns
- alcohol as a source of energy (biofuel)

- trails
- incentives for carpools to Winnipeg
- electric chargnin stations and RM fleet electric vehicles
- rural trails network
- pave gravel roads, close gravel roads that are barely used and relocate
- AT trails
- bike allowance on the roads
- gravel instead of c base
- bike routes (paved or not)
- rent a car/share a car program
- rent a bike (trail heads rentals)
- public awareness to reduce the consumption of fossil fuels
- electric cars
- carpool incentives
- transportation business like Uber, share a ride, etc.
- work with the major employers to reduce emissions
- more carpooling-dollar incentives
- local buses to transport workers to major areas – Steinbach and Winnipeg
- students in high school should be taxed for using private vehicles instead of buses
- promote and encourage by marketing alternative modes of transportation
- create and promote trails and walkways for pedestrians, cyclists and others
- incentives for shared transportation
- electric vehicles
- bio-diesel vehicles
- hydrogen fuel cells
- EV charging stations
- Electric municipal fleet
- Walking paths
- Trails connecting communities
- Bike racks
- Limitations on ATV use (days or times, routes or areas)
- Bike rental program
- Horse and buggy
- Light rail

IT Infrastructure

- increase internet availability
- storm ready system (wind storms, thunderstorms warnings, etc)
- Help local companies go paperless
- Cell antennas for rural areas
- Emergency alerts by email, internet general
- Use already existing fiber optics infrastructure to increase cell and internet capacity
- Improve cell service
- Upgraded cell service for Marchand area
- Advertise municipal social media to all residents
- Discuss with politicians the importance of cell and internet infrastructure to include all rural areas of the municipality
- Promote and make the LaBroquerie website a “go-to” for the whole community classifieds, want ads, etc.
- More local weather stations
- A public community action plan detailing who, what, where in case of emergencies with plan accessible on website
- GHG emissions and climate Change awareness needs to be much more present in social media platforms
- More office jobs could have a weekly work @ home day
- Skype meetings/video conference calls
- Increase fiber optics to boost sell services and internet capability
- Fibre optics already in the ground but need incentives to reach residences
- Recylcing centre for lightbulbs and batteries like at Ikea

Natural disaster mitigation

- fire- hold workshop, training for home owners to learn how to protect their own property or decrease the chances of fire on their properties
- water drainage education for home owner to help decrease basement flooding
- workshop on proper drainage of properties; ways to improve
- re-incorporate bogs as water retention zones
- emergency alerts
- disaster response volunteers
- having a pool of names and skills of people in the community who could either provide training or be help in a disaster relief
- water retention projects on the seine river or tributaries to hold back spring waters for droughts, could be used for recreation as well
- obtaining proper info (lidar) on the entire RM and surrounding areas tp see exactly how the water is travelling
- system in place for train derailments, safe grounds and efficient evacuation
- retention lake for floods
- train wrecks and fires should be the focus
- key players to kend a hand in the case of a natural disaters (farmers, businesses, mechanics, trades people)
- a public plan (in 3 languages) explaining exactly what to do if something should happen
- drought water retention also used for recreation
- education campaign including clear plans

Other

- Fort Whyte sort of centre in the RM to provide a place for wild animals, fowl and fish species; pass (self directed) or active means to learn about these elements
- Use straw bail construction concept to build a structure in the community as an interactive means to learn how to do it; this would incorporate other passive forms of energy production or creation; this building could be used by local school and others to learn about sustainable living options
- Cyclovia between Steinbach and LaBroquerie and good trails
- Local food production – greenhouse – tied to schools, training, agricultural degrees, water retention, communities based co-op
- Bike/walkways everywhere linking Marchand to La Broquerie to Steinbach
- Offgrid living (solar and wind)
- Greenhouse in conjunction with district heating project
- Use of existing train line for transportation or energy creation
- Continuous program to plan 2,000 trees per year on the required areas eg: town limits
- Create greenhouse projects in schools (develop trades/local produce/job opportunities)
- Local farmers market, bi-monthly featuring local music, food producers/arts and crafts
- Community greenhouse
- Food should have a carbon footprint label beside the nutritional info table
- Incentives for reusable containers for schools and residences
- Local food production: greenhouse
- Trades training through schools on sustainable/local food production
- Communication/education/awareness on climate change