

# Acting Today to Change Tomorrow

Rural Municipality of East St. Paul, Manitoba

## Climate Change Local Action Plan

For Greenhouse Gas Reduction  
2017



## Foreword



Éco-Ouest  
Eco-West

### *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,

A handwritten signature in black ink, appearing to read 'Dany Robidoux', with a stylized flourish at the end.

**Dany Robidoux**  
Director, Eco-West

## Message from the Mayor



Dear East St. Paul residents,

The effects of climate change are affecting municipalities all over Canada. As your provider of municipal services such as 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 what is now known as Eco-West Canada 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 few years, the municipality 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.

Once approved by council, various projects will be identified and prioritized for implementation. This plan recognizes that local residents, businesses, institutions and the municipality 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 East St. Paul Council and staff, I would like to thank and acknowledge the contributions of the many community members who were involved with the development of this plan.

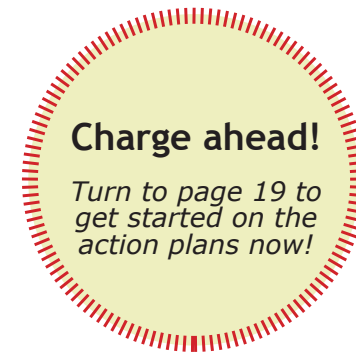
Yours truly,

**Shelley Hart**

Mayor, East St. Paul

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A photograph of a forest path. The path is a dirt road that curves through a dense forest of tall, thin trees. Sunlight filters through the leaves, creating dappled light on the ground. In the background, several people are walking along the path, though they are out of focus. The overall atmosphere is peaceful and natural.

# Project Background

## What is this document?

In an effort to develop a Climate Change Local Action Plan (CCLAP), The Rural Municipality (RM) of East St. Paul 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 East St. Paul has completed Milestone 1 and has proceeded concurrently with Milestones 2 and 3 in collaboration with the municipal government and the people of East St. Paul, 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

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

*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](http://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 East St. Paul 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.



### **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.<sup>1</sup>



## 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**

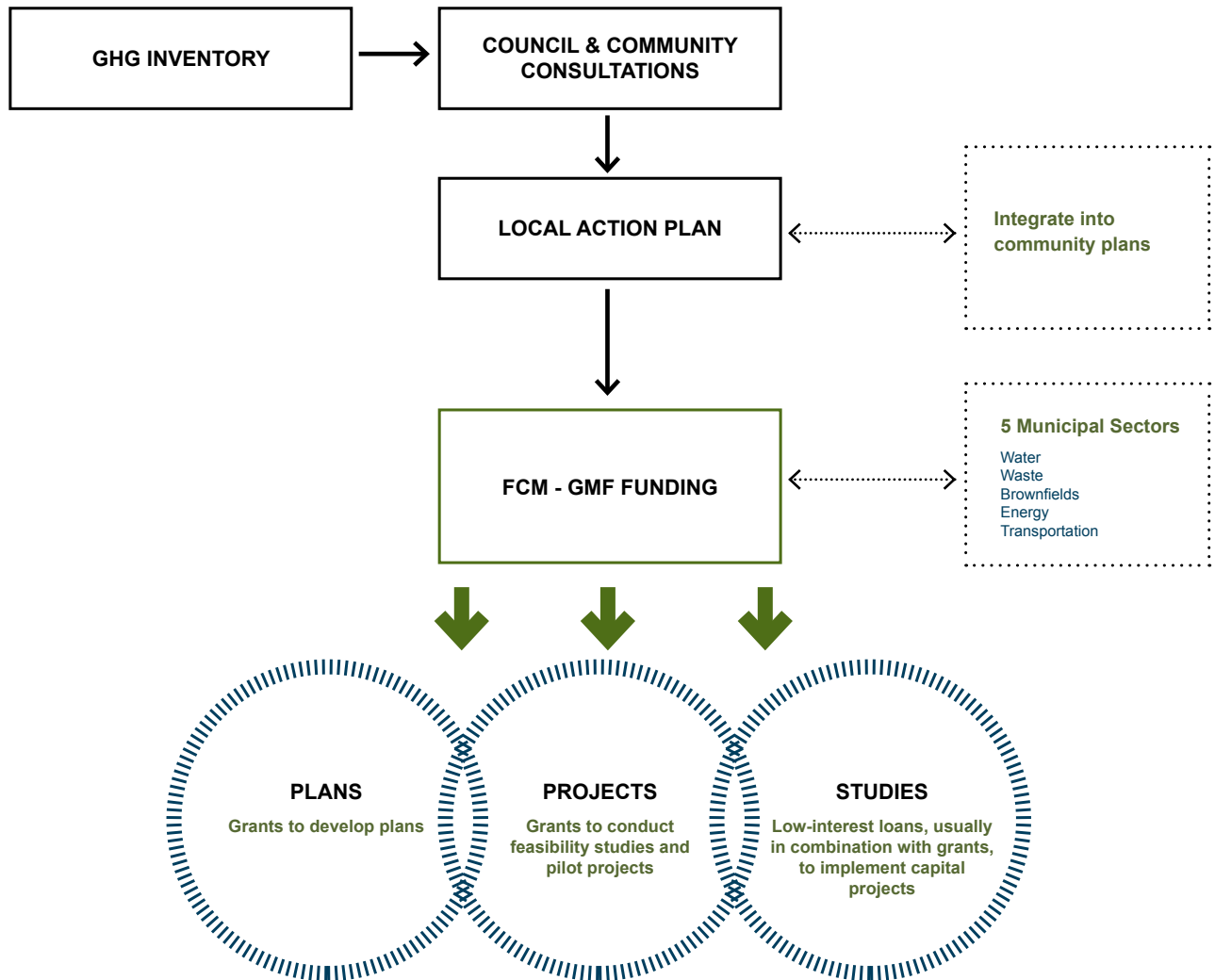
Implementing the Local Action Plan.

### **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.

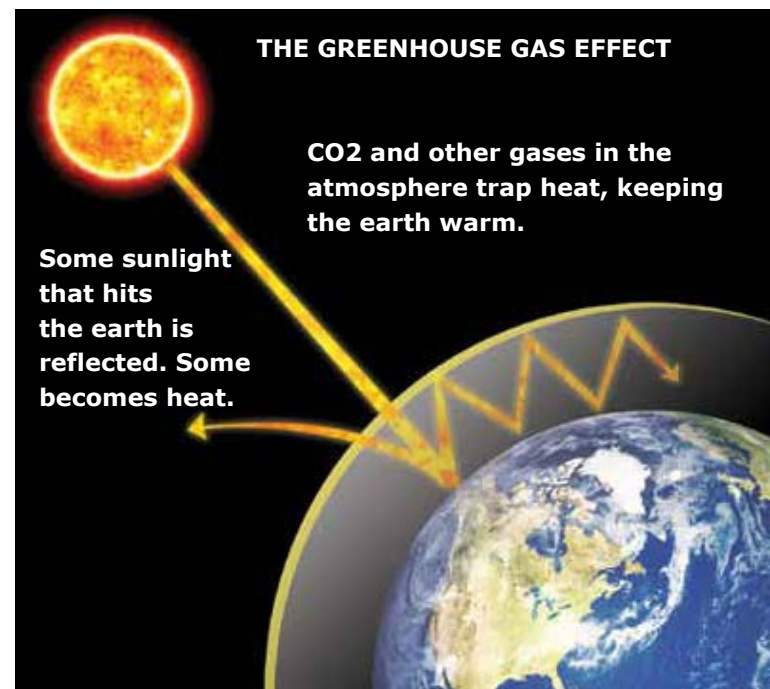
Scientific sources state that the average global temperature has risen almost 1°C over the last 50 years, and in Canada it has risen 1.5°C over the last 64 years.<sup>2</sup>

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.<sup>3</sup>

## 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.<sup>4</sup> 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.<sup>5</sup>



## 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

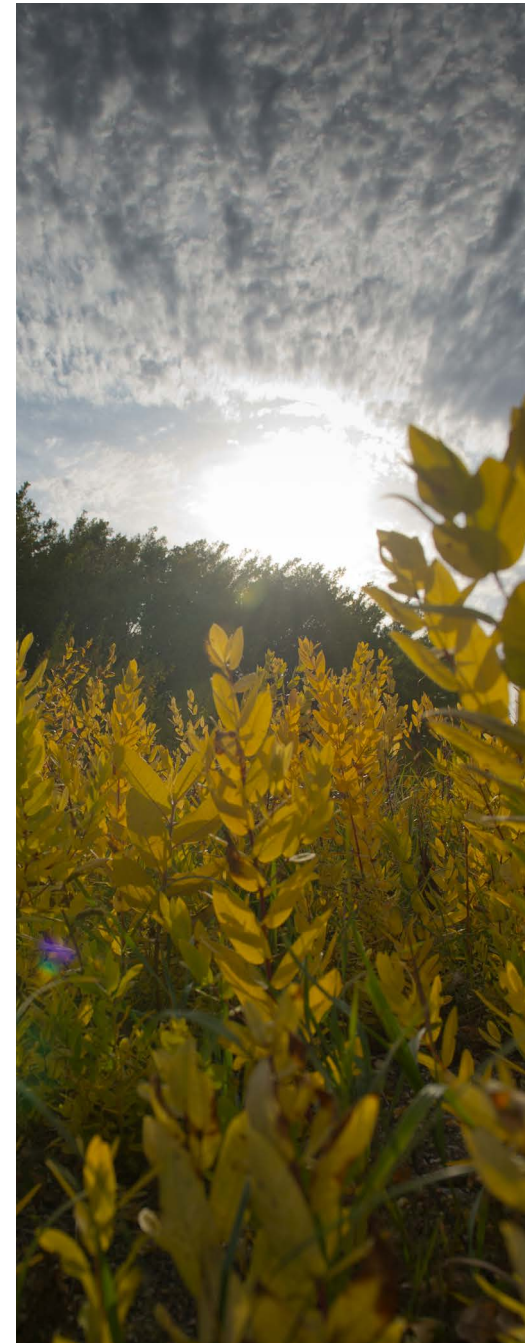
## Why should the communities in the RM of East St. Paul act?

By positioning the RM of East St. Paul 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.



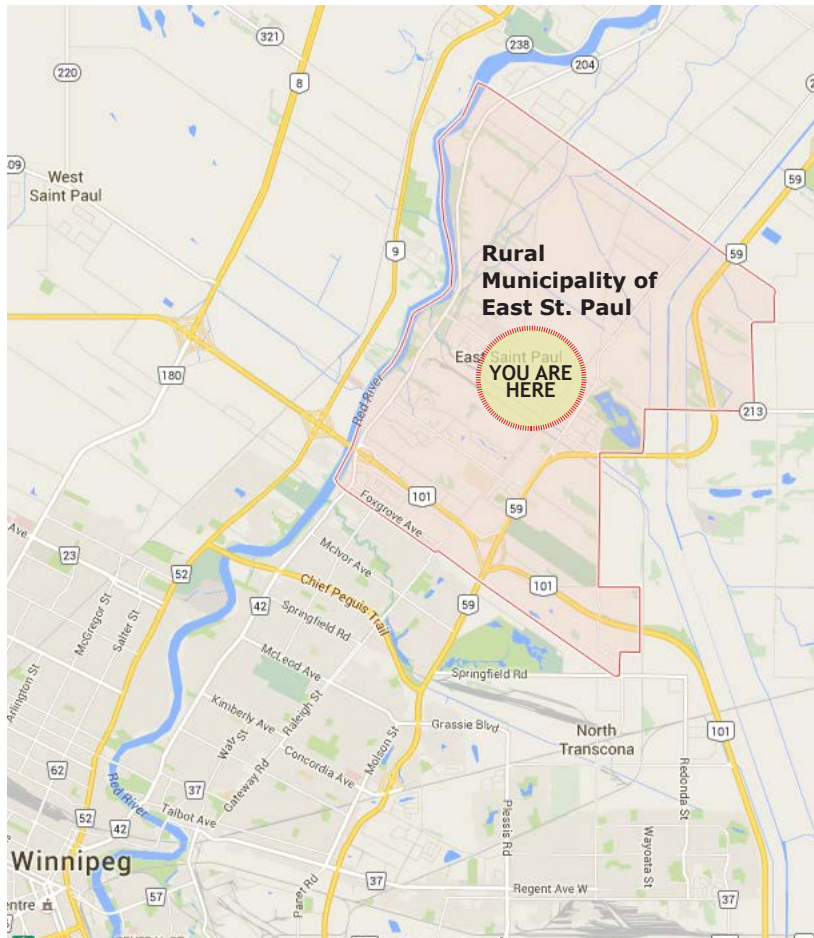


# **RM of East St. Paul** **community at a glance**



## Local Context

The RM of East St. Paul is located northeast and adjacent to the City of Winnipeg. The Municipality encompasses 42 square kilometers within the boundaries of the Red River to the west, the RM of St. Clements to the north; just east of the Floodway; and Winnipeg to the south. The population of the RM of East St. Paul is 9,372 (2016 census).



## Community Profile

East St. Paul is a distinctive rural community with urban advantages dedicated to maintaining a safe environment with a superior level of public service. It includes communities such as Birds Hill, Glengarry Park, North Hill Place, Silver Fox Estates, Whidbey Harbour, Highland Park, Pritchard Farm Properties, Country Villas, Countryside Crossing and By the Park. With quick access to three major highways, residents are within an hour's drive of the Whiteshell, Grand Beach, and Winnipeg Beach.



East St. Paul has always been a very diverse and lively community where agriculture and market gardening have always been a mainstay of the community. Vegetable stands, though fewer in number today, were a lure for city folks on a Sunday drive on Henderson Highway. As the community continues to grow, so does the business community with professional and consumer services, a grocery store, a post office, eateries, automotive services and contractors, banking facilities, insurance agency, catering and gift shops all available within the community.<sup>6</sup>

## Potential Climate Change Challenges in the RM of East St. Paul

Manitobans have been weathering major floods since the early 1800s. In the past 60 years, the floods in 1950, 1997, 2009 and 2011 have caused substantial damage, especially along the Red River and Assiniboine River basins.<sup>7</sup> The risk of flooding in the spring is predicted to continue, while there also exists the possibility of greater flood risk with increasing climate variability.<sup>8</sup>

The RM of East St. Paul is part of the area that was once the bottom of ancient Lake Agassiz, formed during the Wisconsin glaciation. Flooding is a significant issue as the terrain is largely flat. The Red River flows from south to north, and as melting usually occurs in the upstream areas first, water then backs up and overflows as the river encounters the still frozen northern portions. Flooding becomes especially severe when ice jams occur.

Manitoba's flood fighting efforts have improved greatly and have significantly reduced the amount of damage spring flooding can cause. The Red River Floodway is an artificial flood control waterway channel 47 km long which, during flood periods, takes part of the Red River's flow around the City of Winnipeg, and portions east of the city, and discharges it back into the Red River below the dam at Lockport. East St. Paul has received funding for permanent flood protection. A \$2 million grant provided funding for a project which began in February 2017, building a permanent dike along Bottomley Creek in the Highland Park Community.



### *Bird's Hill Gold*

In 1882, the Canadian Pacific Railway's main line came right through the town site to facilitate the transportation of gravel. The gravel was known as "Bird's Hill Gold" and the pits provided a place of recreation as many swimmers used the clean, cool water for swimming. Homes built in the Silver Fox Estates now circle part of one of the oldest pits.

**Did you know?**

## Official Plans - Development Plan

### ***Development Plan***

East St. Paul is currently guided by their own Development Plan but work is underway to include them in the Selkirk and District Development Plan.

As per the existing Development Plan By Law No. 2007-14, the RM of East St. Paul is committed to sustainable principles such as:

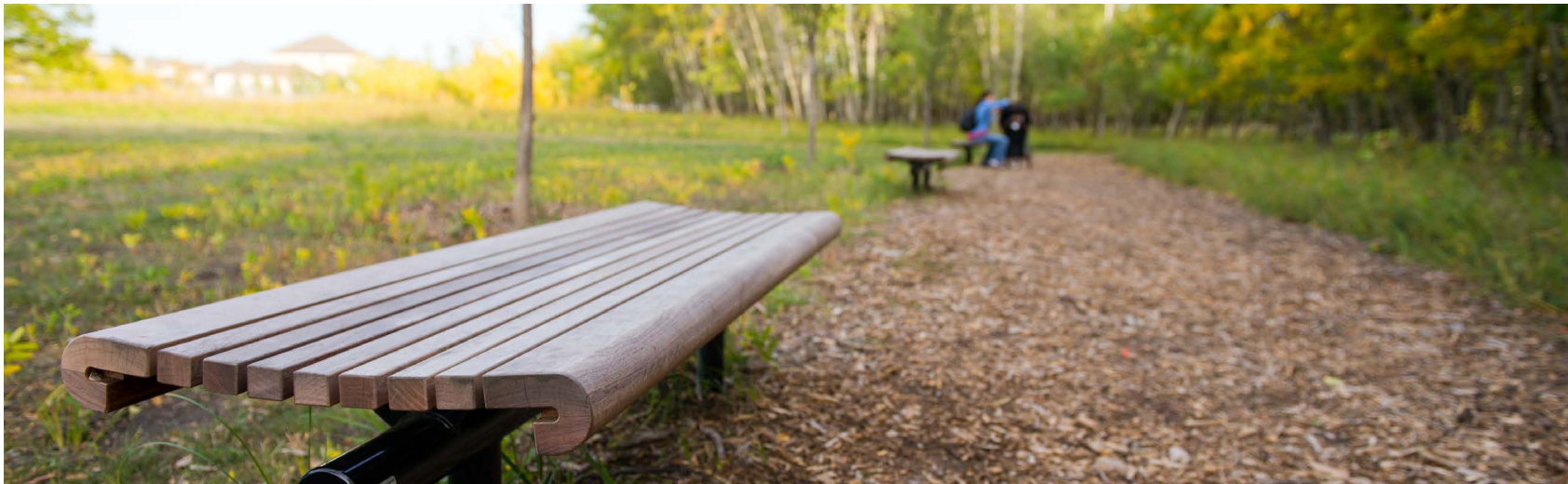
- *"Actively seeking and encouraging new development in the community that is consistent with the principles of sustainable development"*
- *"Integrating the components of sustainable development into the planning process in order to ensure that economic decisions properly address environmental impacts"*

Specific objectives within the Plan include:

- *"To promote and incorporate the concepts of environment and sustainable development within all aspects of municipal decision making and government."*
- *"To promote the principle of thinking globally and acting locally."*

The current Climate Change Local Action Plan seeks to build off of the goals and objectives identified within the Development Plan.

There are no secondary plans used within the RM.



# What are the RM of East St. Paul's GHG emissions, and where do they come from?

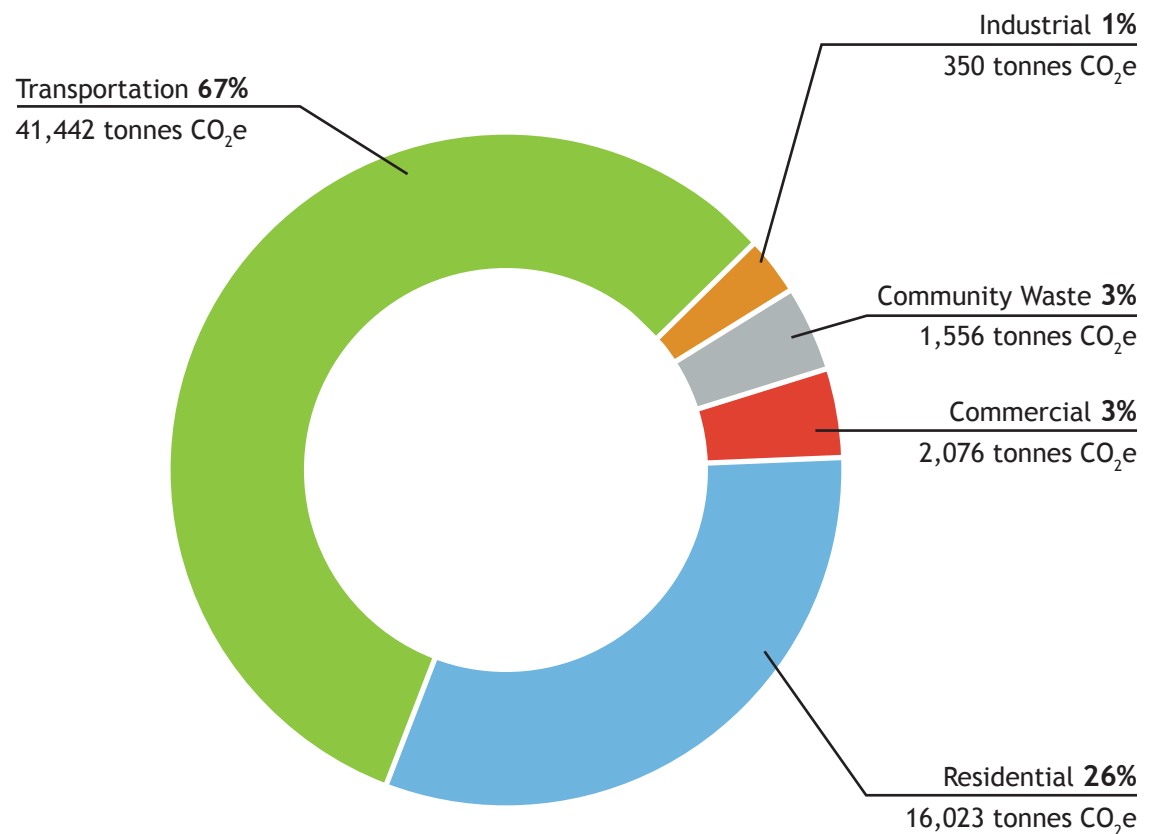
## Community at large emissions

In 2013, Eco-West completed a community wide GHG emissions inventory for the RM of East St. Paul. 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 East St. Paul 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 small portion of GHG emissions come from methane released by landfill sites.

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

CO<sub>2</sub>e Emissions by Sector in 2011



# What are the RM of East St. Paul's GHG emissions, and where do they come from?

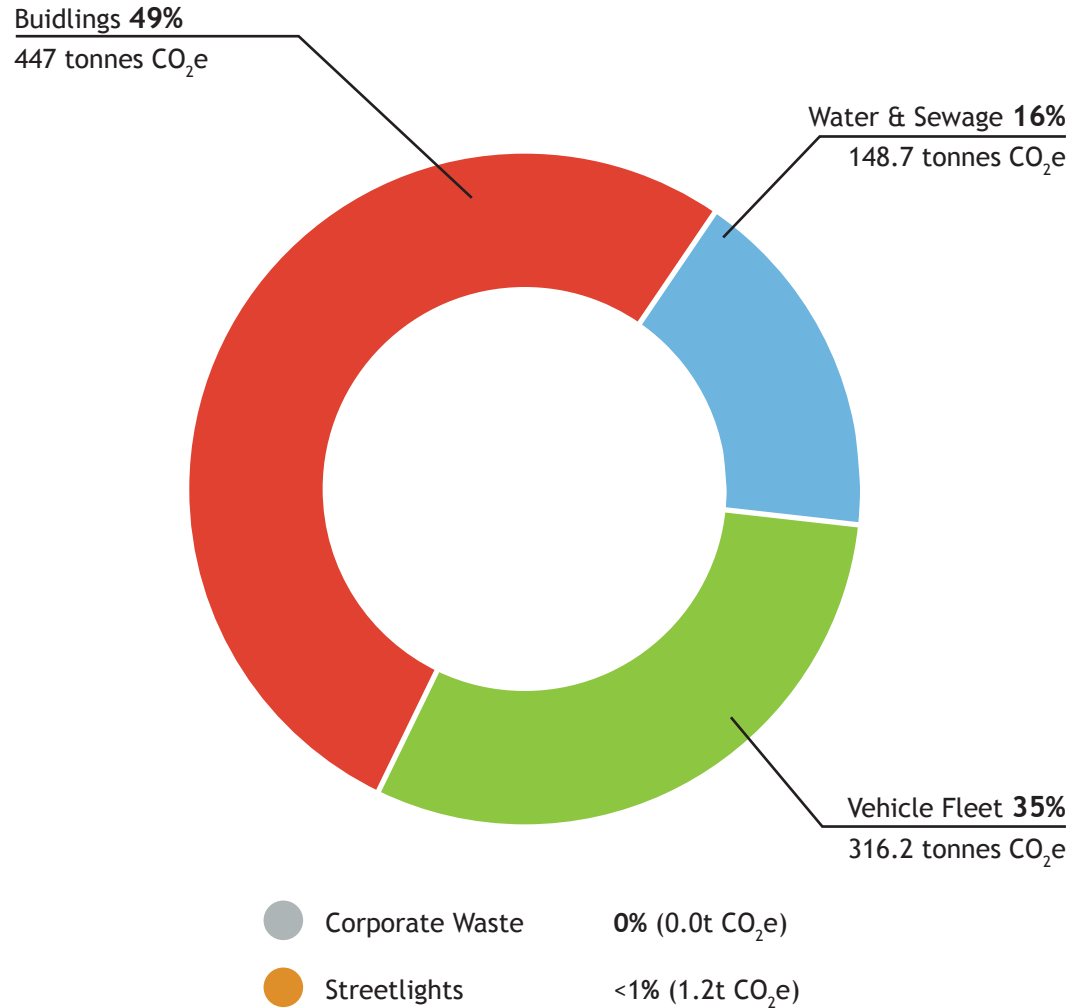
## Corporate (municipal operations emissions)

In addition to the community wide GHG emissions inventory, a detailed corporate inventory was completed for the municipal operations of the RM of East St. Paul. 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.

CO<sub>2</sub>e Emissions by Sector in 2011



# What has been the process to produce a LAP?

## Municipal and Community Consultations

Eco-West held two separate workshop/visioning sessions to present and discuss their Greenhouse Gas Emissions Inventory for the RM of East St. Paul.

A visioning exercise was then facilitated in each session. 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 East St. Paul

The event was held on October 24, 2013.

*The update meeting was held on October 1, 2015.*

#### Community Committee for the RM of East St. Paul

The event was held on February 1, 2017 with 18 participants.



## 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 East St. Paul** 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 East St. Paul 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**.

# HOW IS ONE TONNE OF GHGS PRODUCED?

Every day activities that add up to one tonne of GHGs:

**57** round-trip drives from East St. Paul to Winnipeg



**40** average Manitoban homes' electricity use in one year



**42** BBQ propane tanks



A photograph of a park-like setting. In the foreground, there is a field of tall, golden-brown grass. In the middle ground, a paved path curves to the right, where two people are walking away from the camera. One person is wearing a white long-sleeved shirt and dark pants, and the other is wearing a grey and black long-sleeved shirt and dark pants. There is a blue stroller between them. The background features several green trees and a clear blue sky. A portion of a house is visible on the left side of the frame.

# Potential Programs

## goal-based action plans



## Greenhouse Gas Reduction Action Plans

This section will identify a set of potential programs that represent initiatives identified and endorsed by stakeholders and community representatives in the RM of East St. Paul.

Together, these 7 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 East St. Paul 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.<sup>9</sup>



## 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.

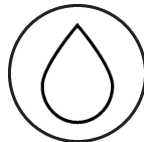
**Take action!**

*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: 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 1A:

**Develop and promote Active Transportation Plan for the RM of East St Paul**

### Steps:

- Hire consultant or allocate internal staff for production of plan



Production of Active Transportation Plan



LT



\_\_\_\_\_

### Action 1B:

**Provide additional bike parking**

### Steps:

- Install new bike parking racks near commercial and recreational destinations



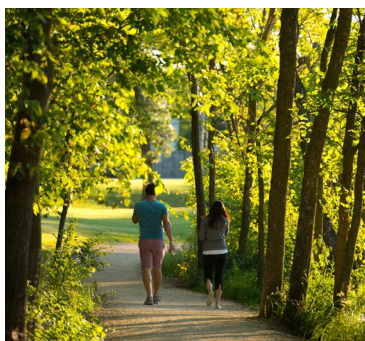
Number of bike parking racks installed



ST



\_\_\_\_\_



# Goal 1: 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 1C:

### Provide parking stalls for car pools

### Steps:

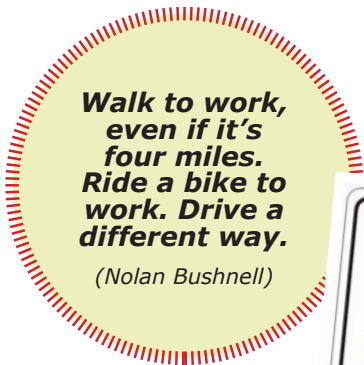
- Conduct community review (may include community survey or key stakeholder interviews) to determine best locations for car pool parking spots
- Install signage for carpool stalls
- Educate public on car pool parking stall locations
- Promote car pool rider matching through community news



Use of car pool parking spots once installed



ST



## Take it one 'kilometre' further

### Bike parking and Bikeshares!



## Goal 1: 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*

### Action 1D:

**Install an electric car charging station**

### Steps:

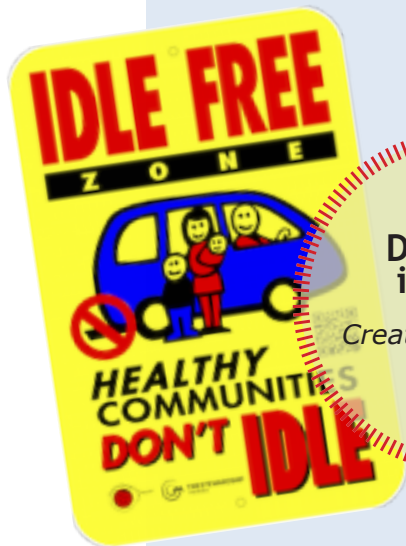
- Determine best location for car charging station and install electric charging station and signage
- Promote electric car charging station



Number of cars using electric car charging station



MT



Don't be idle. . .

Create IDLE FREE ZONES!

## Goal 2: Reduce community waste

Seek to reduce the average waste per household in the RM of East St Paul

### Objective:

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

### Action 2A:

**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 2: Reduce community waste

Seek to reduce the average waste per household in the RM of East St Paul

### Objective:

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

### Action 2B:

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



### 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.<sup>10</sup>



## Goal 2: Reduce community waste

Seek to reduce the average waste per household in the RM of East St Paul

### Objective:

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

### Action 2C:

**Encourage recycling education through municipal communication tools and conduct compost and gardening workshops in the RM for local residents. Promote local businesses that offer product recycling through municipal communications**

### Steps:

- Initiate dialogue with compost education programs such as those offered through the Green Action Centre
- Invite residents to education workshops
- Connect with local businesses that offer recycling options



Number of residents educated on proper composting techniques



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



ST



### Did you know?

*While some recycling bins state that they are for "beverage containers only" any recyclable material may be placed in these bins. Treat these containers like you would your recycling container at home.*



## Goal 2: Reduce community waste

Seek to reduce the average waste per household in the RM of East St Paul

### Objective:

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

### Action 2D:

Consider initializing a municipally sponsored `Swap Shack` or organizing a `giveaway weekend` to promote product reuse.

### Steps:

- Review best practices in product reuse programs from other municipalities
- Develop pilot project to encourage residents to give away or donate products that still may have a use rather than throw them in the garbage



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.<sup>7</sup>



# Goal 3: Reduce energy consumption & reliance on traditional sources of energy

Seek to reduce energy consumption

## Objective:

*Promote sustainable retrofit measures for existing facilities*



## Action 3A:

### 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



### 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 3: Reduce energy consumption & reliance on traditional sources of energy

Seek to reduce energy consumption

## Objective:

Promote sustainable retrofit measures for existing facilities

## Action 3B:

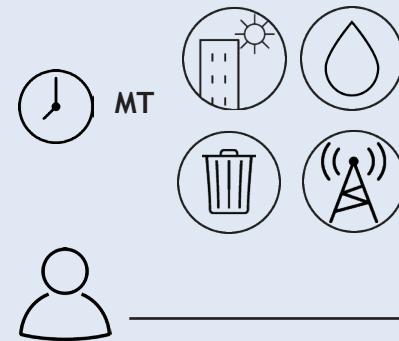
Provide a “Welcome Bag” to new residents / businesses in the RM that includes Power Smart information and tools for energy reduction (e.g. LED light bulb, low-flow shower head, yard waste compost bags, etc.)

## 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.<sup>13</sup>

# Goal 3: Reduce energy consumption & reliance on traditional sources of energy

Seek to reduce energy consumption

## Objective:

*Promote sustainable retrofit measures for existing facilities*

## Action 3C:

**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
- Considering providing municipal incentives and/or promoting businesses that achieve greenhouse gas reduction goals



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 4: Encourage sustainable living practices in East St Paul

Promote lifestyles that are sustainable: environmentally, economically, and socially in the RM of East St Paul

### Objective:

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

### Action 4A:

**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 education programs and providers (for example, with Fort Whyte Alive)
- Include educational information on the RM website and in RM publications. Consider a “living green’ page on the RM Website.
- Invite residents to education workshops



Number of residents educated on sustainable living topics



Number of “hits” on the RM website



ST



## 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: 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 5A:

**Plant native species in the RM and promote xeriscaping practices to all residents and businesses**

### 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



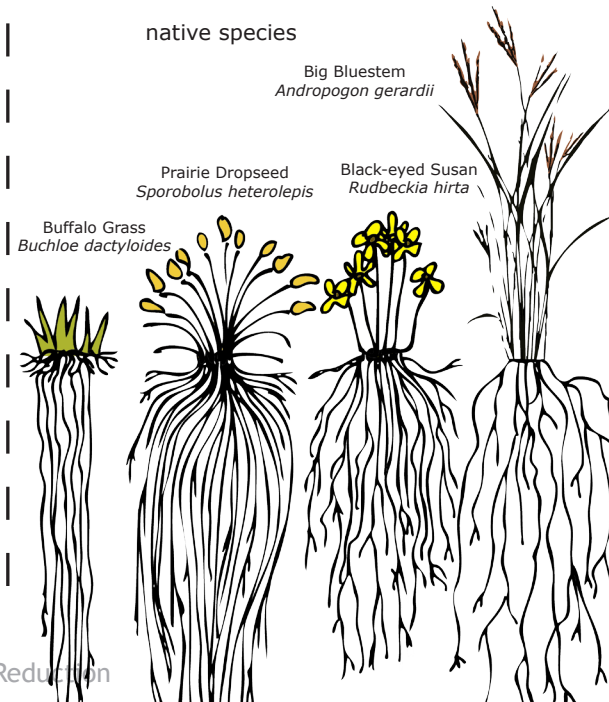
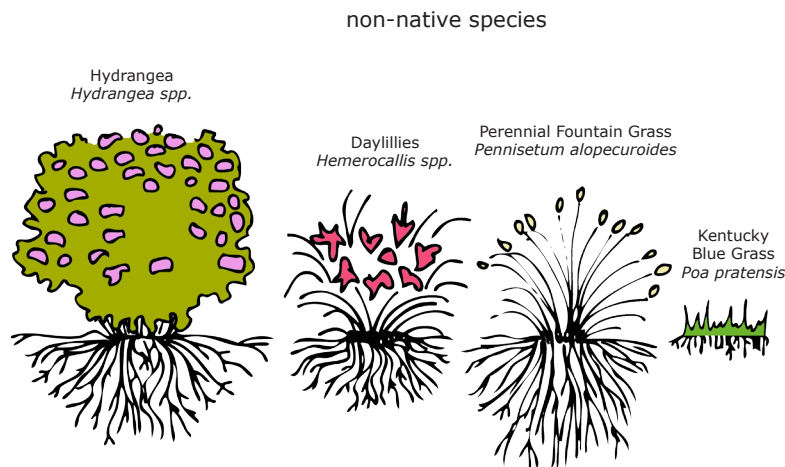
Decrease in treated water usage



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 5: 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 5B:

Provide public education for programs such as Lake Friendly

### Steps:

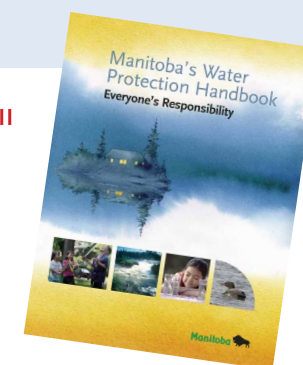
- Promote Lake Friendly programs through municipal communications such as on the website and in community newsletters



Reduction in community water usage



ST



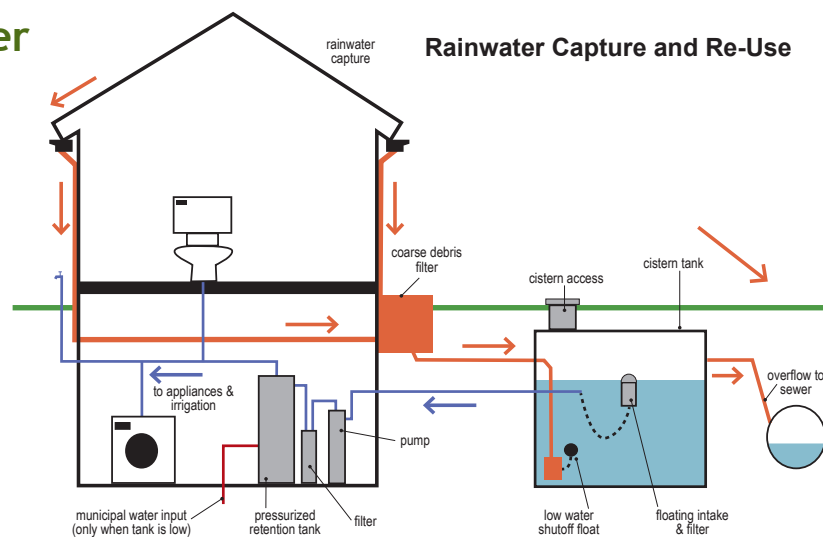
## Take it one 'flush' further

### 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



**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](http://www.gov.mb.ca/waterstewardship/reports/water_protection_handbook.pdf)

## Goal 5: 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 5C:

**Initiate a discount rain barrel program**

### Steps:

- Review successful rain barrel programs from other municipalities such as Winnipeg
- Allocate budget for creation of similar program in the Town



Number of rain barrels sold to public



MT



*A rain barrel offers a great opportunity to help educate students, neighbours, or your community about water conservation.*



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

### FAST FACTS

Non-potable, captured water can be used for

- watering plants
- flushing toilets
- custodial and maintenance purposes



# Goal 6: Improve communication infrastructure in the RM of East St Paul

## Objective:

*Help encourage new technology investment in the community*

## Action 6A:

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:

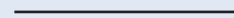
- Hire consultant or allocate internal staff for production of plan



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!



# Goal 7: Sustainably operate the municipal operations of East St. Paul

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.<sup>11</sup>*

## Action 7A:

**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 7B:

**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 7: Sustainably operate the municipal operations of East St. Paul

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*



### Muscle power. . .

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

### Action 7C:

**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



### 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



**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

**KEY**

↓ = amount of GHG reduction      🌿 = amount of positive environmental impact

💰 = cost      💰 = amount of positive economic impact

♡ = amount of positive social impact

## Estimated impacts of the Community Climate Change Local Action Plan

ACTIONS		GHG REDUCTION	COST	BENEFITS		
				Environmental	Economic	Social
<b>GOAL 1: Improve air quality</b>						
<b>Action 1A</b>	Develop and promote Active Transportation Plan for the RM of East St. Paul	↓↓↓	\$\$	🌿🌿🌿	💰💰	♡♡♡
<b>Action 1B</b>	Provide additional bike parking	↓↓	\$	🌿	💰	♡♡♡
<b>Action 1C</b>	Provide parking stalls for car pools	↓↓	\$\$	🌿🌿	💰	♡♡
<b>Action 1D</b>	Install an electric car charging station	↓↓	\$\$	🌿🌿	💰	♡
<b>GOAL 2: Reduce community waste</b>						
<b>Action 2A</b>	Review community recycling strategy to determine possible additional steps such as improved recycling depots and/or community pick up	↓↓↓	\$	🌿🌿🌿	💰	♡♡
<b>Action 2B</b>	Review community organics strategy to determine possible additional steps such as community compost/yard waste drop off sites, and/or organics pick up	↓↓↓	\$	🌿🌿🌿	💰	♡♡
<b>Action 2C</b>	Encourage recycling education through municipal communication tools and conduct compost and gardening workshops in the RM for local residents. Promote local businesses that offer product recycling through municipal communications	↓↓↓	\$	🌿🌿🌿	💰💰	♡♡♡♡
<b>Action 2D</b>	Consider initializing a municipality sponsored "Swap Shack" or organizing a "Giveaway Weekend" to promote product reuse	↓	\$	🌿🌿	💰💰	♡♡♡
<b>GOAL 3: Reduce energy consumption &amp; reliance on traditional sources of energy</b>						
<b>Action 3A</b>	Promote Power Smart programs	↓↓↓↓	\$\$	🌿🌿🌿🌿	💰💰	♡
<b>Action 3B</b>	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.)	↓↓	\$	🌿🌿	💰💰	♡♡♡
<b>Action 3C</b>	Assist local businesses and residents with building retrofits / grants / emission reduction plans	↓↓↓	\$\$	🌿🌿🌿🌿	💰💰💰	♡

## Estimated impacts of the Community Climate Change Local Action Plan

ACTIONS		GHG REDUCTION	COST	BENEFITS		
				Environmental	Economic	Social
<b>GOAL 4: Encourage sustainable living practices in East St. Paul</b>						
<b>Action 4A</b>	Provide Sustainable Living Education workshops and programs on emerging and adaptive products, practices and technologies in the RM for local residents	↓ ↓ ↓	\$	🌿 🌿 🌿	💰 💰 💰	♡ ♡ ♡ ♡
<b>GOAL 5: Sustainably Manage Water</b>						
<b>Action 5A</b>	Plant native species in the RM and promote xeriscaping practices to all residents and businesses	↓ ↓ ↓	\$ \$	🌿 🌿 🌿 🌿	💰 💰 💰	♡ ♡ ♡
<b>Action 5B</b>	Provide public education for programs such as Lake Friendly	↓	\$	🌿 🌿 🌿	💰	♡
<b>Action 5D</b>	Initiate a discount rain barrel program	↓	\$	🌿 🌿	💰	♡
<b>GOAL 6: Improve communication infrastructure in the RM of East St. Paul</b>						
<b>Action 6A</b>	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	↓	\$ \$	🌿 🌿 🌿	💰 💰 💰	♡ ♡ ♡ ♡
<b>GOAL 7: Sustainably operate the municipal operations of East St Paul</b>						
<b>Action 7A</b>	Conduct regular energy audits of all corporate facilities	↓ ↓	\$ \$	🌿 🌿	💰 💰	♡
<b>Action 7B</b>	Investigate possible solutions for new energy efficient retrofits to municipal buildings/facilities	↓ ↓	\$ \$ \$	🌿 🌿 🌿	💰 💰	♡
<b>Action 7C</b>	Adopt "green" purchasing policy for all new fleet vehicles and equipment, as well as for supplies, products and practices	↓ ↓ ↓	\$ \$ \$	🌿 🌿 🌿	💰 💰	♡

An aerial photograph of a field with rows of young green plants in dark soil. The plants are arranged in neat, parallel lines that recede into the distance. The lighting is bright, casting shadows that emphasize the texture of the soil and the vibrant green of the seedlings.

# **Next Steps**

**getting started**



## Conclusion

*This report confirms that the Rural Municipality of East St. Paul has completed the 3rd milestone of the Partners for Climate Protection (PCP) program.*

*With this Climate Change Local Action Plan received by council on August 22, 2017, the Rural Municipality of East St. Paul now has a report that can be described as comprehensive, effective, and achievable.*

*The next step for Eco-West and the Rural Municipality of East St. Paul 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.



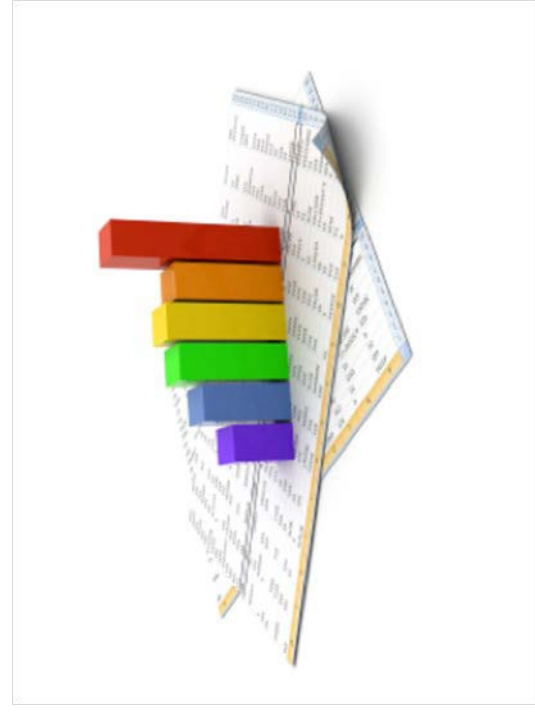
# **Appendices**

**emissions inventory**  
**references**



RM of  
East St. Paul

June 30, 2017



## Greenhouse Gas (GHG) Emissions Inventory



This report is an inventory of GHG emissions that were generated within your territory in 2011 and 2015 both at the Corporate and the Community levels.

**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.

**Community Inventory:** This inventory includes residential, institutional, commercial and industrial, as well as transportation and solid waste data.

Notice to Reader : This document was prepared by Eco-West Canada Inc. (EWC) for the Municipality pursuant to the terms of our engagement agreement with the Client. The materials, observations and recommendations in this report reflect best judgement of EWC considering the information available to it at the time of preparation. The contents of this report are based on information and materials provided by the Client, as well as community consultations and interviews conducted in the process and so its accuracy and completeness is dependent on the same. This document may not be relied upon by any person or entity other than the Client, and EWC hereby expressly disclaims any and all responsibility or liability to any person or entity other than the Client in connection with their use of this document.

# Why an energy and emission inventory?

Energy consumption is an important management factor for municipalities. Each unit of energy, whether litres of fuel, kilowatts of electricity or the more abstract gigajoule (GJ), costs something to purchase and use. Knowing how much is being used, and where, gives municipalities a chance to manage energy consumption costs and to look for efficiencies.

Energy consumption has side effects, and one important side effect is Greenhouse gas emissions (GHGs). Measuring and reducing GHGs allow municipalities potential access to carbon credits and funding opportunities, as well as the altruistic goal of impacting climate change.

The Federation of Canadian Municipalities (FCM) has, in association with ICLEI, produced a protocol for monitoring and reporting energy consumption and emissions called the Partners for Climate Protection Protocol (PCP). This protocol will be phased out in the coming years in favour of the Global Protocol for Community Scale Greenhouse Gas Emissions (GPC) protocol. Eco-West has prepared all data to be compatible with both protocols.

The PCP protocol, presented in this document, measures GHGs from two facets of municipal life: Corporate, or Municipal Operations, and Community.

## Corporate Energy Consumption and Emissions

The Corporate inventory includes all consumption and emissions brought about by the operations of the municipal corporation. This includes the heating and powering of all Buildings and Water infrastructure, all Streetlights (though Manitoba Hydro has near-exclusive control over this sector), and the Vehicle Fleet. Depending on the energy mix of the sector and where electricity comes from the impacts of these sectors can vary considerably. In Manitoba, where electricity is generated by hydro electric dams the GHG impact is nearly 0, while in Alberta or the East Coast the emissions rates per kilowatt hour are significant. Usually, however, the major impact for rural municipalities is found in the Vehicle Fleet sector, where fossil fuels are burnt for energy.

## Community Energy Consumption and Emissions

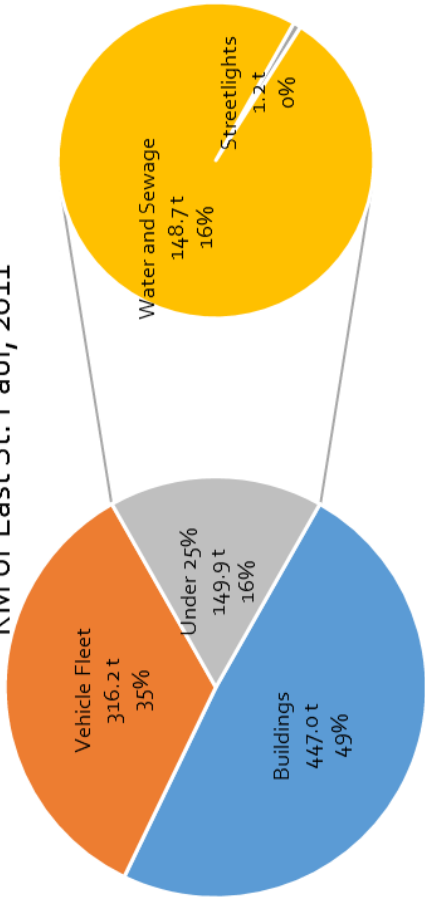
The Community inventory includes all consumption and emission brought about by the citizens of the municipality and its neighbours going about their daily lives. This includes the heating and powering of the Residential, Commercial and Industrial sectors, as well as vehicle Transportation sector and all Community waste. Again, depending on the energy mix of the sector and where electricity comes from the impacts of these sectors can vary considerably. In Manitoba, where electricity is generated by hydro electric dams the GHG impact is nearly 0, while in Alberta or the East Coast the emissions rates per kilowatt hour are significant. Usually, however, the major impact for rural municipalities is found in the Transportation sector, where fossil fuels are burnt for energy.

# 2015 data

Energy Sources in eCO<sub>2</sub> (t): Electricity, Natural Gas, Diesel, Gasoline, Propane, Waste

Total 2015  
eCO<sub>2</sub> (t): 913 t

## Corporate Municipal Operations GHG Emissions By Sector RM of East St. Paul, 2011



Sector	2006		2011	
	Energy GJ	Emissions tonnes	Energy GJ	Emissions tonnes
Buildings	12 454	420,7 t	13 647	447,0 t
Vehicle Fleet	4 218	297,1 t	4 475	316,2 t
Streetlights	1 129	3,8 t	1 200	1,2 t
Water and Sewage	4 689	82,8 t	6 959	148,7 t
<b>Total</b>	<b>22 489</b>	<b>804,4</b>	<b>26 282</b>	<b>913,1</b>

## Municipal Energy Use and Emissions, All Accounts RM of East St. Paul, 2011



## Corporate Municipal Operations Emissions

The Corporate Emissions in the RM of East St. Paul are based on Buildings, Vehicle Fleet, Streetlights and Water & Sewage. almost six times the average, for the reasons stated.

The Water sector in East St. Paul includes a number of lift stations and treatment facilities. These use a mix of electricity and natural gas and serve a sizeable population, and so are relatively dirty, in terms of greenhouse gases (GHGs).

Streetlights account for essentially 0% emissions because they exclusively use relatively green hydro electricity.

On average for rural Manitoba municipalities the Vehicle Fleet sector is 84% of all emissions, with the Buildings sector accounting for 14%. In the RM of East St. Paul this is 35% and 49%, respectively. The unusually large impact of the Buildings sector can be mostly attributed to the inclusion of the Arena & Banquet Hall in the inventory; typically municipalities do not include arenas as they are run by arms-length boards. Inclusion makes for a more complete and honest picture.

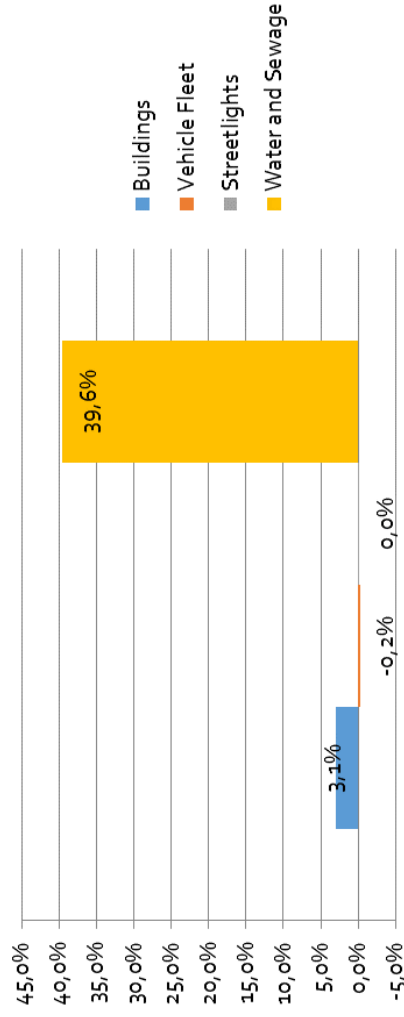
Per household emissions from the Vehicle Fleet sector are below the rural average. Per household emissions for the Buildings sector are

## + Preliminary Observations: Corporate

East St. Paul experienced modest population growth between 2011 and 2015 (3.6%). The Buildings sector was the major consumer of energy and emitter of GHGs, but the Water sector was surprisingly high as well.

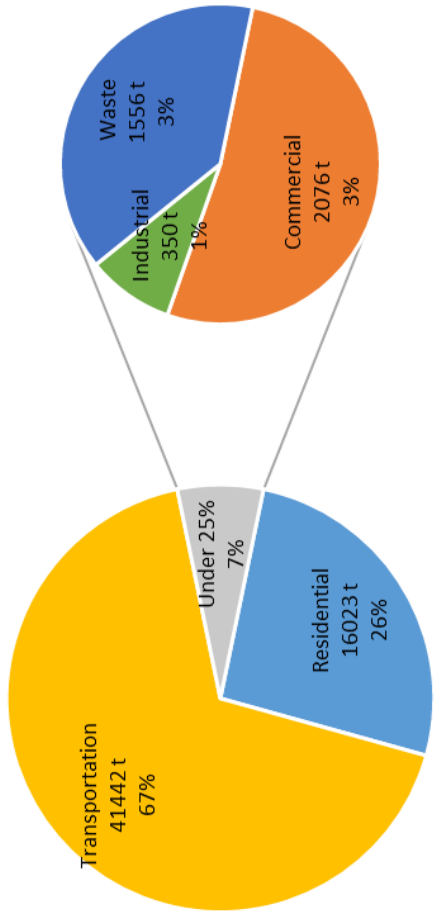
In general, municipal operations is emitting slightly more GHGs than would have been the case if per household emissions had been constant from 2006. This is because of a significant increase in per household emissions for the Water sector (4.0%) and a very small increase in Buildings sector.

Change in Energy Consumption  
RM of East St. Paul, 2006 - 2011, by  
Household count



# 2015 data

## Community GHG Emissions By Sector RM of East St. Paul, 2011

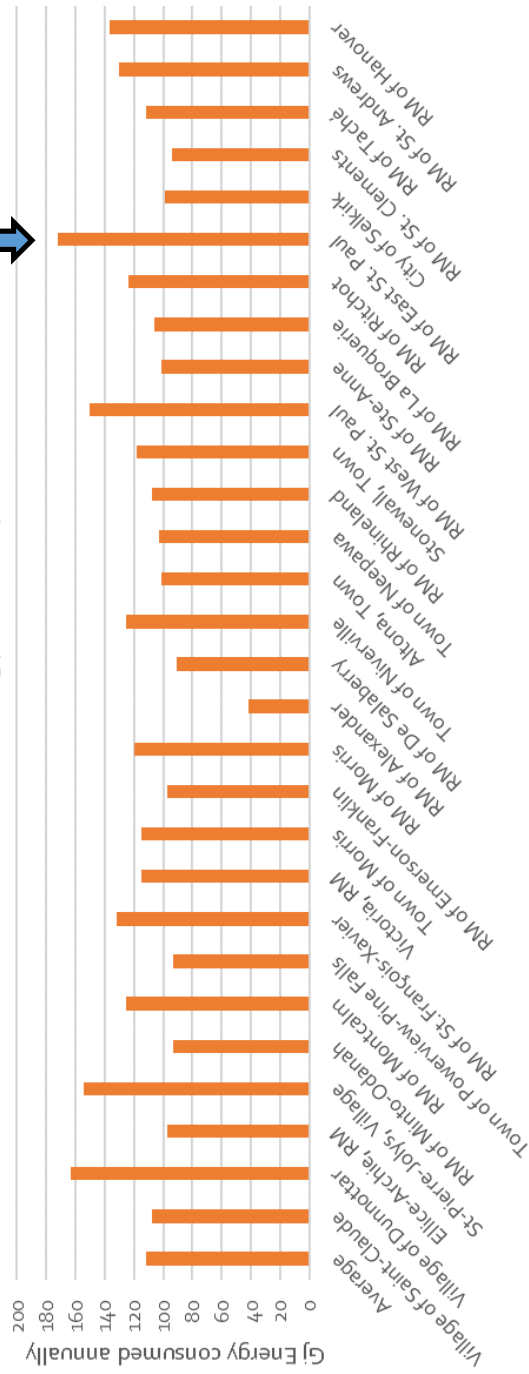


Energy Sources in eCO<sub>2</sub> (t): Electricity, Natural Gas, Diesel, Gasoline, Propane, Waste

Total 2015 eCO<sub>2</sub> (t): 61,448 t

Sector	2006		2011	
	Energy GJ	Emissions tonnes	Energy GJ	Emissions tonnes
Residential	517 274	16440 t	541 888	16023 t
Commercial	76 711	1993 t	82 909	2076 t
Industrial	13 463	273 t	13 587	350 t
Transportation	553 352	38788 t	591 224	41442 t
Waste	5764	2776 t	3 230	1556 t
<b>Total</b>	<b>1 160 799</b>	<b>60 270</b>	<b>1 229 608</b>	<b>61 448</b>

## Per Household energy consumption





## Community Emissions

Community Emissions comprise Residential, Commercial, Industrial, Transportation and Waste sectors. The Waste sector, naturally, does not have an accompanying energy consumption component, as all GHGs generated are through the process of waste putrefying in the landfill.

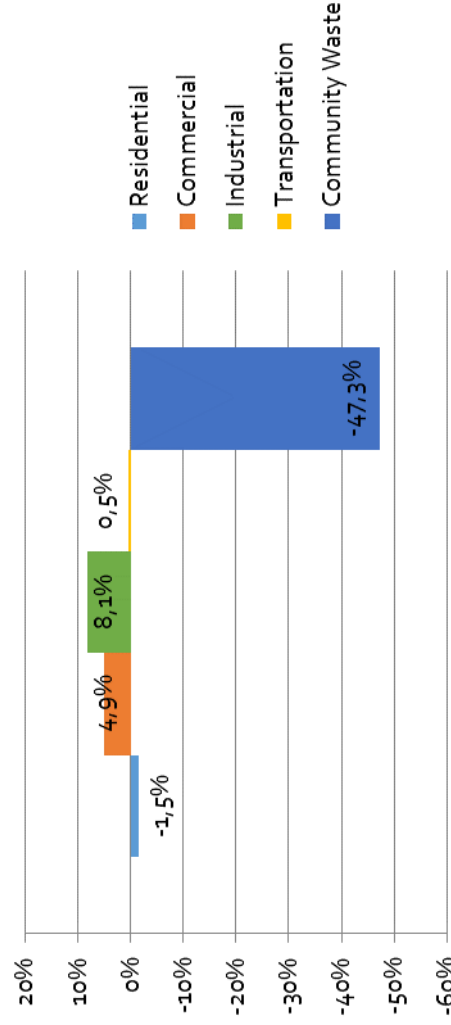
Typically for rural municipalities Transportation accounts for around 75% of all emissions, with the RM of East St. Paul below this at 67%, though this proportion may be misleading, as the Transportation sector is difficult to accurately gauge, and may be still lower, as the current method of estimation includes traffic on sections of the Perimeter highway .

Interestingly for East St. Paul, the proportions for Residential, Commercial and Industrial are unusual. They represent 26%, 3% and

1%, respectively, while the average for rural communities is 7%, 5% and 4%. This seems to reflect that the RM is more of bedroom community, whose population is travelling into Winnipeg for most commercial activities, potentially including employment.

In terms of per-consumer changes since 2011, there has been very little change. Residential energy consumption is down a small amount, while per Industrial and Commercial consumer energy use has increased a small amount. The biggest change is in the Waste sector. In 2006 the RM did not weigh waste and so used a proxy value to determine weights. Assuming the same per capita waste production since 2006, weighing waste saved the RM \$12 205 in WRARS levy, and an estimated \$42 715 in straight tipping fees (at 35\$/tonne).

## Per Consumer Change in Consumption/Waste RM of East St. Paul, 2006-2011



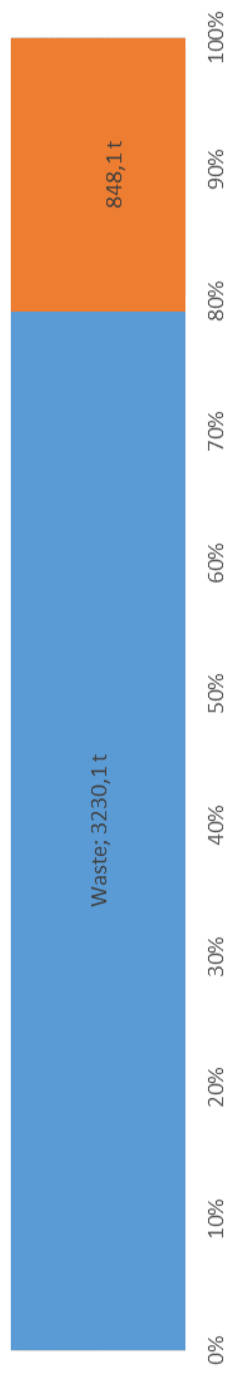
## + Preliminary Observations: Community

The two tables opposite demonstrate a modest increase in total GHG emissions within the community, though with only one sector, Waste, reporting a significant change per consumer. This is due to the switch from estimating waste (at a very high per capita rate) to weighing actual waste produced by the community.

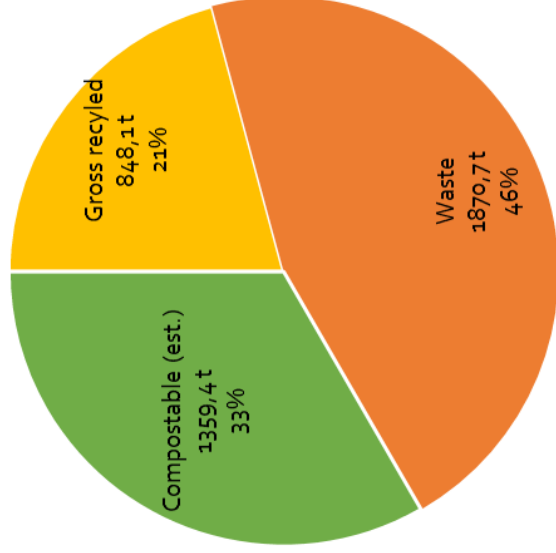
For the other sectors, changes are very small. Residential energy consumption is among the highest of the Eco-West communities, so a small decrease from one year to the next is not difficult to fathom. Commercial and Industrial (which include agricultural pursuits) decreased slightly in efficiency, but not substantially.

## + Waste Appendix

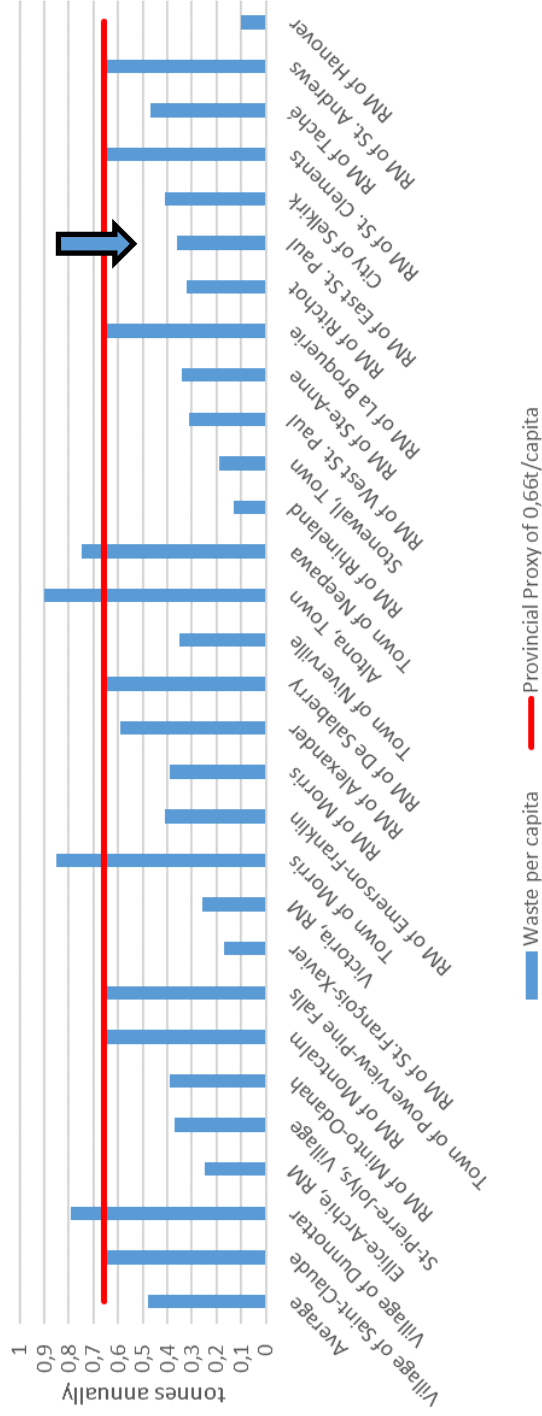
In Brief: East St. Paul's per capita waste production is well below the average for the study area, and just above 50% the proxy rate used by the province. Since East St. Paul also has a relatively strong recycling rate, there may be opportunities for building on program strengths.



## Waste Stream Breakdown



Annual Waste Production per capita



Waste per capita as reported to Eco-West Canada

## Waste Analysis

As In 2015 the RM of East St. Paul reported to Eco-West Canada landfilled waste of 3230 tonnes, or about 360 kg per person per year. This amount of waste is well below the provincial proxy amount of 660 kgs per person per year. This is below the average Waste rate in the Eco-West study.

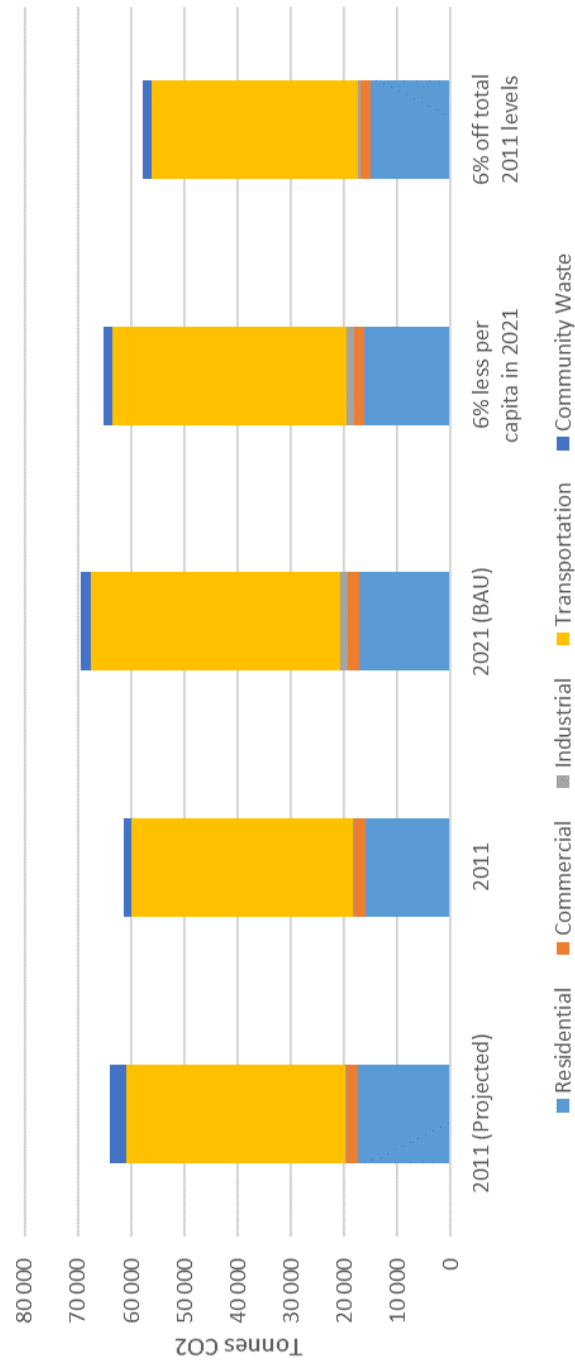
East St. Paul recycled 848 tonnes of material in 2011. This is a high proportion of the total waste stream (30%) and the per capita rate of 93.8 kg per capita is much higher than the 65.5 kg per capita rate of the Winnipeg Area peer group.

There remains a significant proportion of the waste stream that is compostable. Composting might allow a significant reduction in landfilling for the municipality, while reducing a prime source of GHG: methane from decomposition.

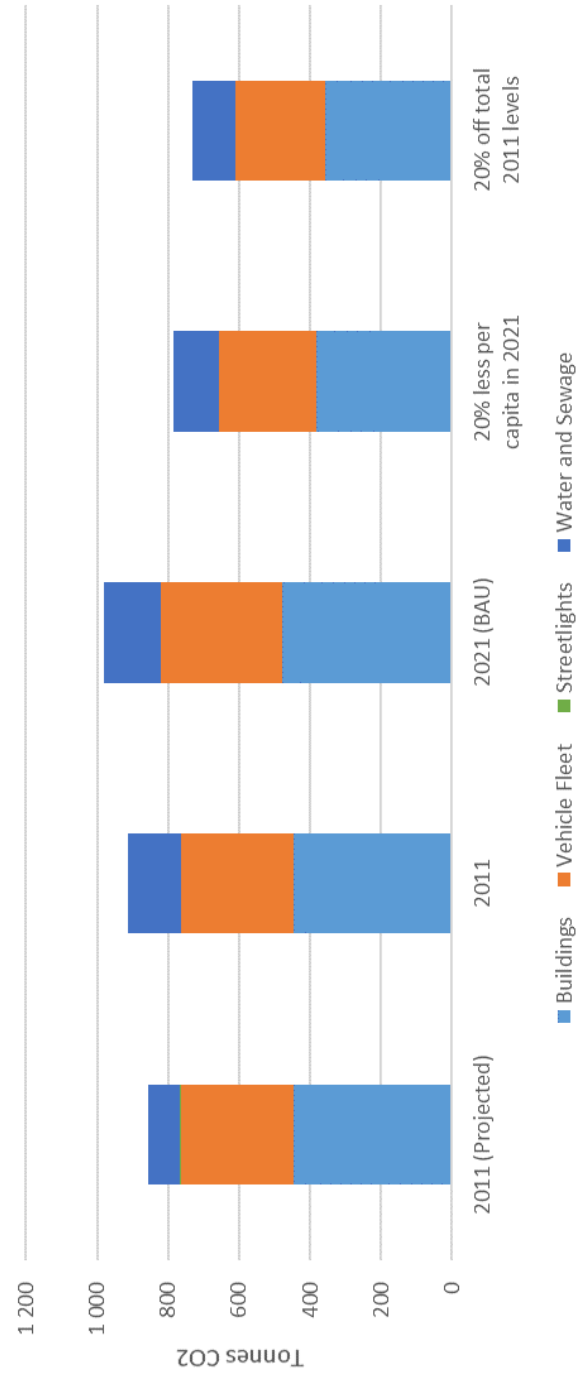
# + Business-as-Usual and Emissions Projections

In Brief: In a period of province-beating growth East St. Paul's emissions grew, but slower than projected rates. For the Community-at-large measures aimed at efficiency in the RCI sectors would help most. For the municipality improving the Building infrastructure.

RM of East St. Paul Community Emissions Forecast  
+7,3% Growth, 6% reductions



RM of East St. Paul Corporate Municipal Operations Forecast  
+0,7% Growth, 20% reductions



# East St. Paul Past, Present and Future

In 2015 East St. Paul reported 913 tonnes of CO<sup>2</sup> or equivalent emissions for Corporate municipal operations, and 61 448 tonnes for Community operations. To determine whether this describes an improvement since 2006 a forecast was made for 2011 using data from 2006, and scaled up by the growth or decline of the relevant sectors. For the Corporate inventory, and the Residential, Transportation and Community Waste sectors of the Community inventory this was scaled on the increase in households in the community , and by Commercial and Industrial Hydro clients for those sectors.

## Community

Compared to the projection, the Community at large is emitting 3% fewer GHGs than would have been expected — approximately 2 088 tonnes less, the equivalent of 441 cars driven for a year. The major decrease came from the Waste sector, where weighing the waste now gives an accurate reflection of the impact of waste, and the Residential sector, which has gotten more efficient since 2006.

Going into the future, if no changes are made and assuming growth remains constant for the next ten years, emissions will continue to grow. A commitment to a 6% per capita decrease in emissions would save 4 099 tonnes of CO<sup>2</sup> annually, removing the equivalent of 866 cars from the road. A much more ambitious target of 6% off unmodified 2015 levels would mean removing more than double that; 10 563 tonnes annually, the equivalent of 2 231 cars.

It's difficult to guess where programs would be the most successful to target reductions. Transportation has the largest impact but is also the hardest to impact without major intervention, in addition to being difficult to measure. Transportation's impact may be alleviated by measures aimed at increasing car pooling, increasing active transportation within The RM or any of a host of measures that are also significant for improving liveability of a town. Residential measures could include encouraging the development of smaller, more efficient homes, etc.

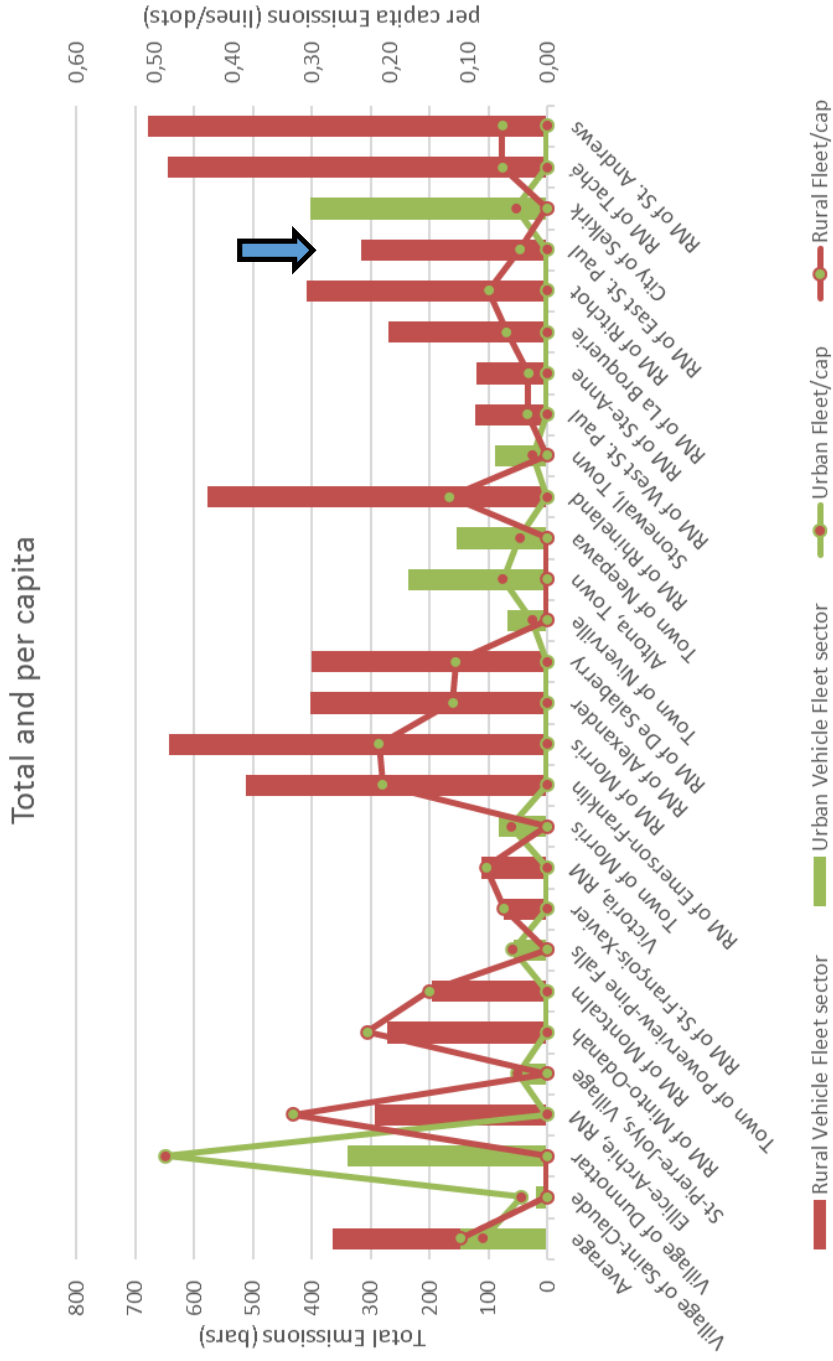
## Corporate

For the municipality, the Building sector is the major consumer of energy and emitter of GHGs. Efficiency measures aimed at improving the supporting infrastructure may have the largest impacts, and with consumption concentrated in the Arena, as it is, an upgrade of those systems may be the most impactful, though it is best not to lose sight of the easier efficiency improvements that may be available (improved insulation in municipal buildings, energy efficient light fixtures, etc.).

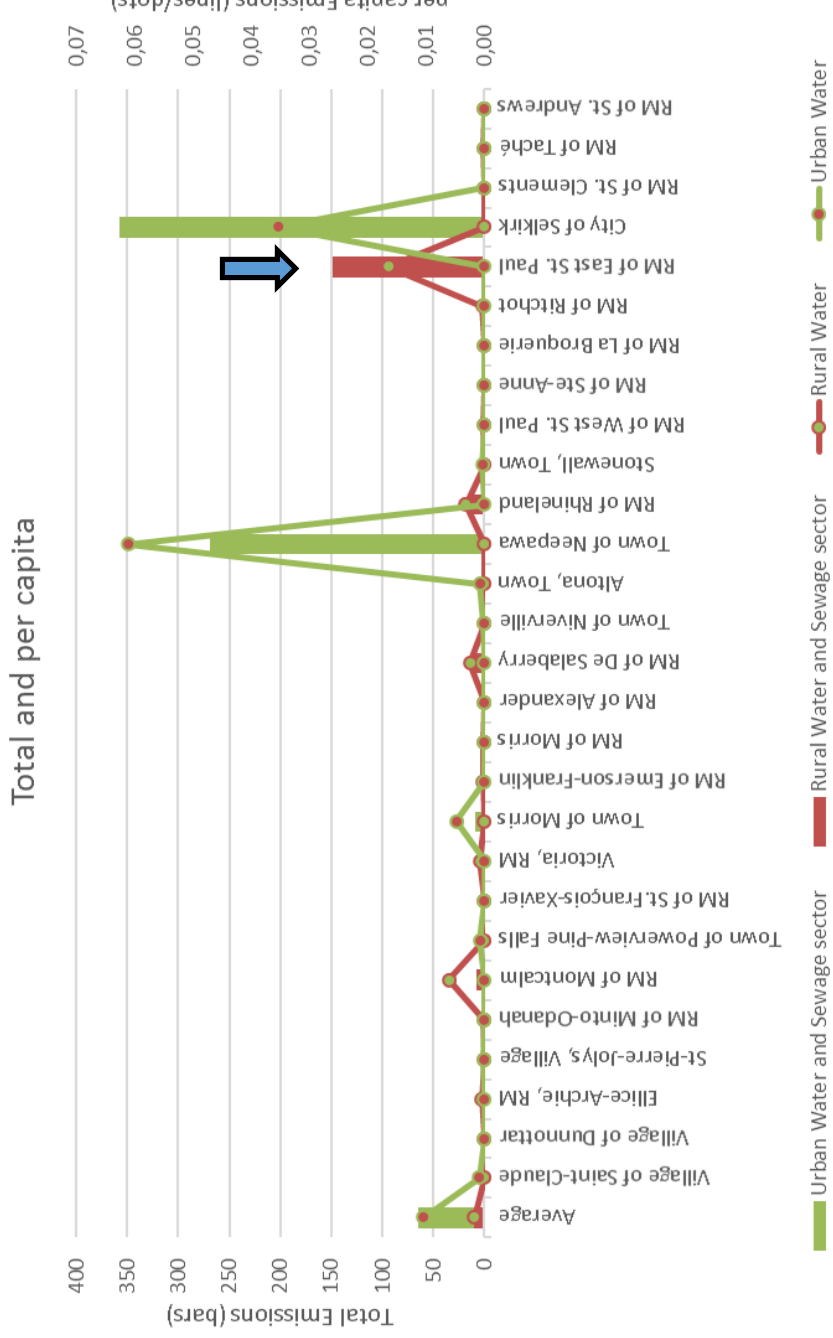
If the RM committed to a 20% decrease in per capita emissions from 2015 levels, it could save an estimated \$85 000 annually (in 2015 dollars) and the equivalent of 44 cars off the road. The more ambitious goal of realizing 20% off current 2015 (total) levels could result in a savings of \$123 500 and 64 cars.

# Appendix—Transportation & Vehicles Graphs

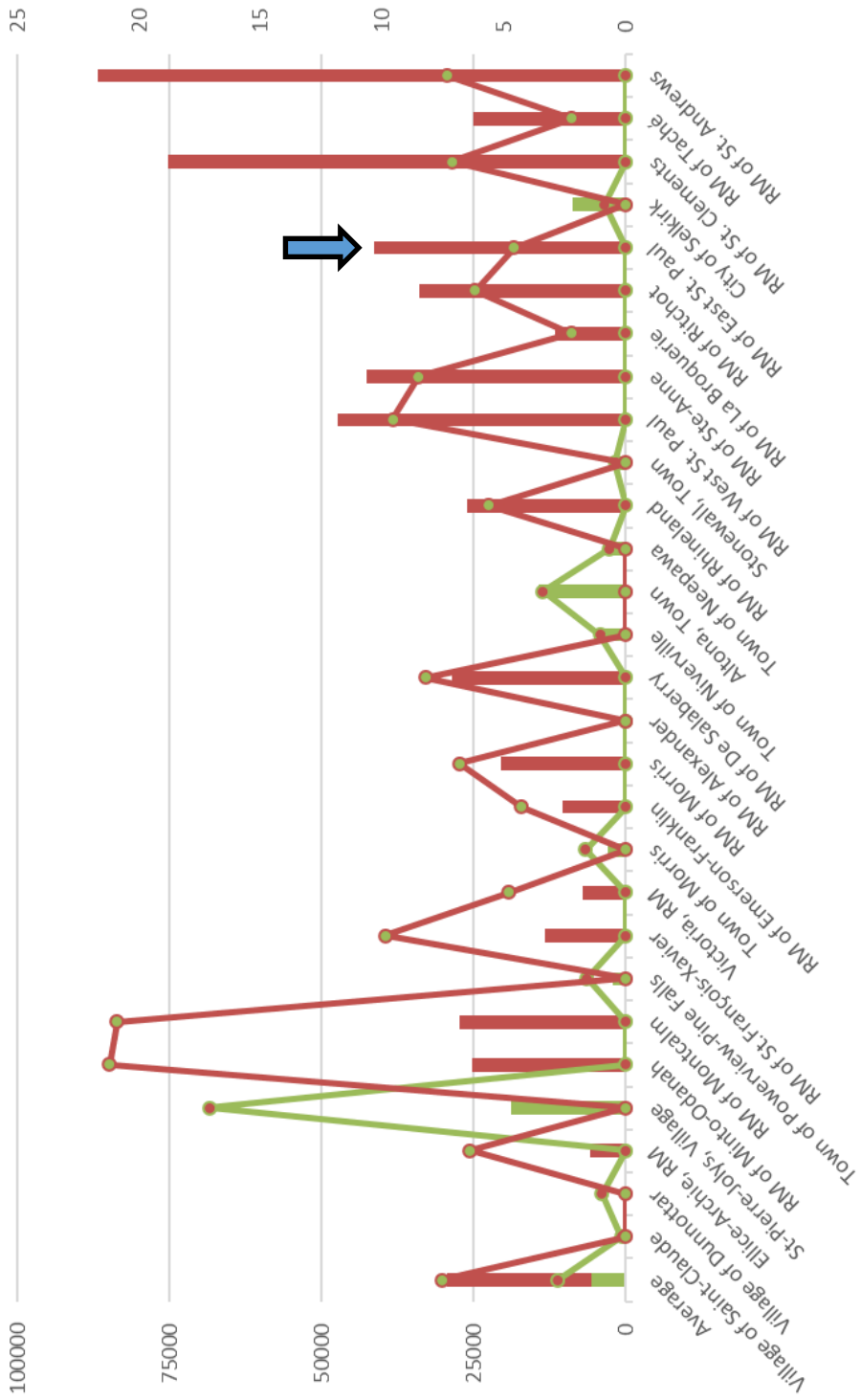
## Urban/Rural Vehicle Fleet Emissions



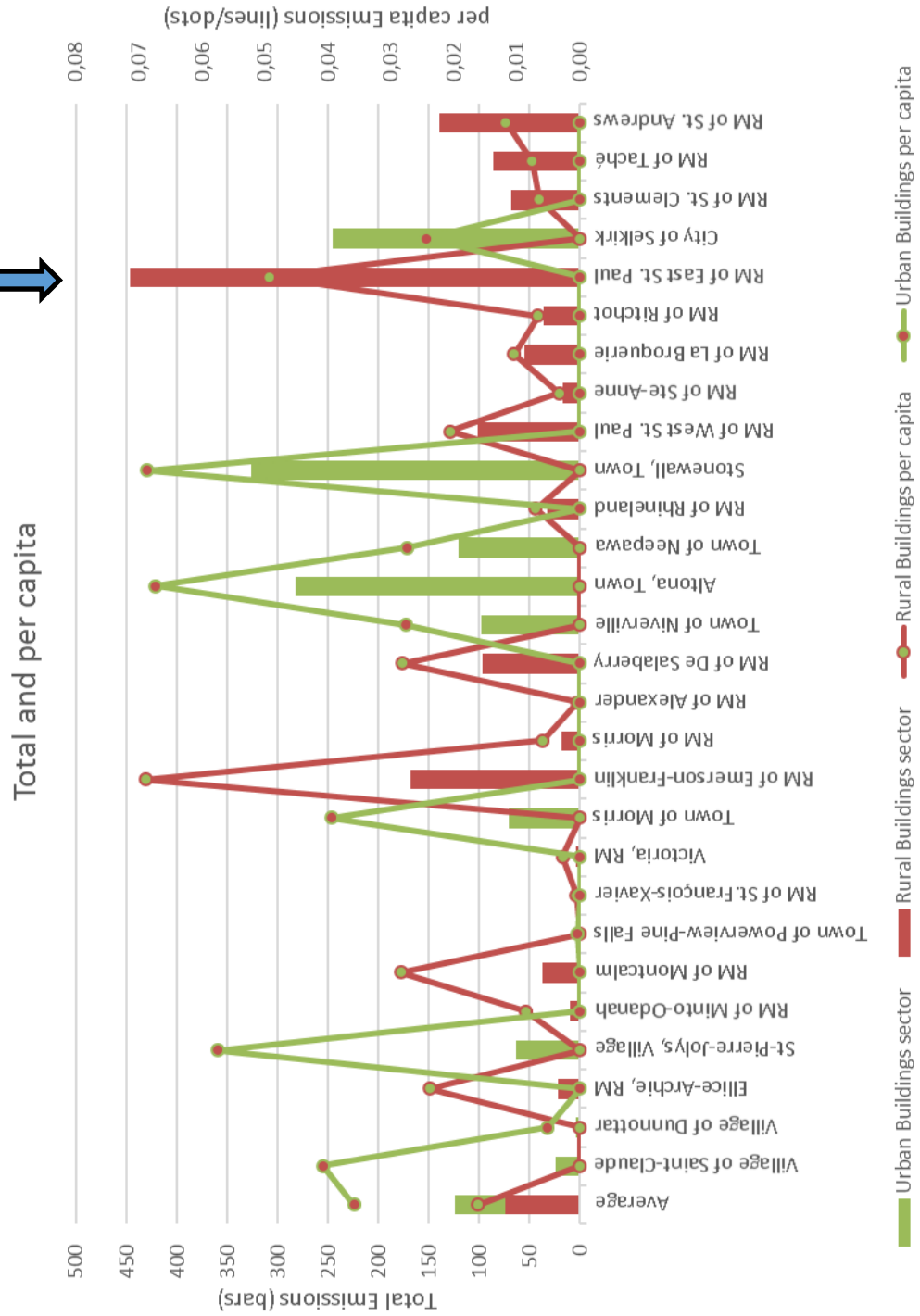
## Urban/Rural Water Sector Emissions



### Urban/Rural Transportation Emissions



### Urban/Rural Buildings Sector Emissions







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[www.durham.ca/climatechange](http://www.durham.ca/climatechange)

**2** Natural Resources Canada. *Canada in a Changing Climate: Sector Perspectives on Impacts and Adaptation.*

[www.nrcan.gc.ca/environment/resources/publications/impacts-adaptation/reports/assessments/2014/16309](http://www.nrcan.gc.ca/environment/resources/publications/impacts-adaptation/reports/assessments/2014/16309)

**3** IPCC. *Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change.*

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**4** George C. Marshall Institute. *Fossil Fuel Energy and Economic Wellbeing*, by Dr. Michael Canes.

<http://marshall.org/energy-policy/fossil-fuel-energy-and-economic-wellbeing/>

**5** Region of Durham. *From Vision to Action: Region of Durham Community Climate Change Local Action Plan 2012.*

[www.durham.ca/climatechange](http://www.durham.ca/climatechange)

**6** General information.

[www.eaststpaul.com](http://www.eaststpaul.com)

**7** Province of Manitoba, *Flood Information.*

<http://www.gov.mb.ca/flooding/history/index.html>

**8** Conservation and Water Stewardship, *Climate Change.*

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**9, 10 etc** City of Thunder Bay. *EarthWise Thunder Bay Community Environmental Action Plan.*

[www.thunderbay.ca/Assets/Living/Environment/docs/EarthWise+Thunder+Bay+Community+Environmenta+l+Action+Plan.pdf](http://www.thunderbay.ca/Assets/Living/Environment/docs/EarthWise+Thunder+Bay+Community+Environmenta+l+Action+Plan.pdf)

**14** Canada Green Building Council. *About CaGBC.*

[www.cagbc.org/](http://www.cagbc.org/)

## Images

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Eco logo (pg. 3)

[www.ecologo.org](http://www.ecologo.org)

Lake friendly logo (pg. 3)

[www.lakefriendly.ca](http://www.lakefriendly.ca)

Earth/Sun GHG (pg. 8)

[www.durham.ca/climatechange](http://www.durham.ca/climatechange)

Community/RM images (pgs. 11, 12, 13, 17)

[www.eaststpaul.com](http://www.eaststpaul.com)

Green building logo (pg. 20)

[www.cagbc.org](http://www.cagbc.org)

Residential pedestrian path (pg. 22)

[www.flickr.com/photos/paytonc/5577643391/sizes/o/in/photostream/](http://www.flickr.com/photos/paytonc/5577643391/sizes/o/in/photostream/)

Tags (pg. 22)

[stalbert.ca](http://stalbert.ca)

Car pool car (pg. 23)

[www.ucalgary.ca](http://www.ucalgary.ca)

Car pool sign (pg. 23)

[www.edmonton.ca](http://www.edmonton.ca)

Electric car (pg. 24)

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Compost garden (pg. 26)

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St. Laurent rain Garden, Denise Allard, École communautaire Aurèle-Lemoine (pg. 35)

Rain Barrel art (pg. 35)

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