

ACTING **TODAY** TO CHANGE **TOMORROW**

Climate Change Local Action Plan
for Greenhouse Gas Reduction 2019

The Town of Altona, Manitoba



Éco-Ouest
Eco-West

Foreword

Eco-West Canada: 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 across many sectors of society. 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, Eco-West Canada's mandate has been to understand the impacts of these and other causes of climate change on our world. And so for the past several years, we have been working towards enhancing the growth and prosperity of Canada's municipalities through the planning and implementation of more progressive, eco-friendly communities and infrastructures.

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 Canada, 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 Canada

Message from AMM

Message from the Mayor

As a provider of basic municipal services such as roads, waste management, emergency services and other community services, our municipality's facilities, operations and budgets are directly affected by climate change. This creates significant challenges as it concerns the ongoing maintenance and improvement of municipal buildings, operations and infrastructure.

A few years ago, Altona Council was approached by Eco-West Canada to participate in a project to measure our greenhouse gas emissions and also create a local action plan to help us deal with the potential impacts of climate change in our community.

Since that time, we have worked alongside the Eco-West team in a comprehensive process that has included consulting with community stakeholders to create a practical, community-supported action plan that is outlined in this document. This plan contains concrete actions that we can all undertake to reduce emissions, conserve energy and save money, while at the same time providing us with an effective tool for making a difference in our community.

Some projects are already under way and more will likely be undertaken in the future. This plan demonstrates that residents, businesses, institutions and municipalities all have a role to play as we 'think globally and act locally' to better position our community and protect our environment to improve our quality of life.

On behalf of the Town of Altona, I would like to thank the many community members who were involved in the various stages of the development of this plan for their contribution.

Yours truly,



Al Friesen
Mayor
Town of Altona

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Table of Contents

Foreword	1
Message from AMM	2
Message from the Mayor.....	3
Project Background & Description.....	6
What is This Document?	7
Terms and Acronyms.....	7
Climate Change Local Action Plan.....	8
Project Description.....	9
Context and Background	10
Eco-West Canada - Partners for Climate Change Protection Flow	11
The Need for Community Action.....	12
The Climate is Changing.....	13
What is Causing Climate Change?	13
What are the Implications?	14
What Can be Done? Create a LAP.....	14
What is the Municipal Role?	14
Helping Municipalities Face Challenges	15
Why Should the Town of Altona Act?	15
Town of Altona.....	16
Community Profile.....	17
GHG Emissions Inventory	19
Vision Statement	21

Potential Programs.....	22
Greenhouse Gas Reduction Action Plans.....	23
Action Plan Legend	25
GOAL 1: Sustainably Manage Water in the Town of Altona	26
GOAL 2: Transportation and GHG Emissions Reductions in the Town of Altona	28
GOAL 3: Reduce Community Waste in the Town of Altona	30
GOAL 4: Reduce Energy Consumption in the Town of Altona	32
GOAL 5: Increase Climate Change Awareness in the Town of Altona	37
Local Benefits & Impacts	38
Types of Benefits.....	39
Next Steps	40
Appendices	42
References	43
GHG Emissions Inventory.....	44

Project

BACKGROUND

ACTING **TODAY** TO CHANGE **TOMORROW**



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What is This Document?

Project Background

In an effort to develop a Climate Change Local Action Plan (CCLAP), the Town of Altona has partnered with the Association of Manitoba Municipalities (AMM) and Eco-West Canada to reach the first 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 multiyear process. The Town of Altona has completed Milestone 1 and has proceeded concurrently with Milestones 2 and 3 in collaboration with the municipal government and the people of the Town of Altona in a participatory process. This included a community consultation in December of 2018 and a community survey in the spring of 2019.

The community 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 community that is taking action against climate change.

Terms and Acronyms

CCLAP	Climate Change Local Action Plan (as an overall process)
CO ²	Carbon Dioxide
CO ² e	Equivalent CO ²
FCM	Federation of Canadian Municipalities
GHG	Greenhouse Gas
ICLE	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

Climate Change Local Action Plan

Project Background

Be Enviro Aware

Whenever possible, make environmentally conscious purchasing decisions such as water and energy efficient fixtures and appliances, electric 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.*



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 Town of Altona 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.

Taking Action to Reduce GHG Emissions Local Action Plan

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 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

Project Background

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

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:

Eco-West Canada/AMM 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:

Eco-West Canada/AMM 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:

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 funding programs - Green Municipal Fund (GMF), Municipalities for Climate Innovation Program (MCIP), etc.
- Improve and enrich local and regional knowledge and expertise with the help of specialized 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 Canada/AMM will establish partnerships and collaborate with institutional partners in Manitoba to improve and safeguard provincial knowledge and expertise.

Context and Background

Project Background

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.

The Partners for Climate Change 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.

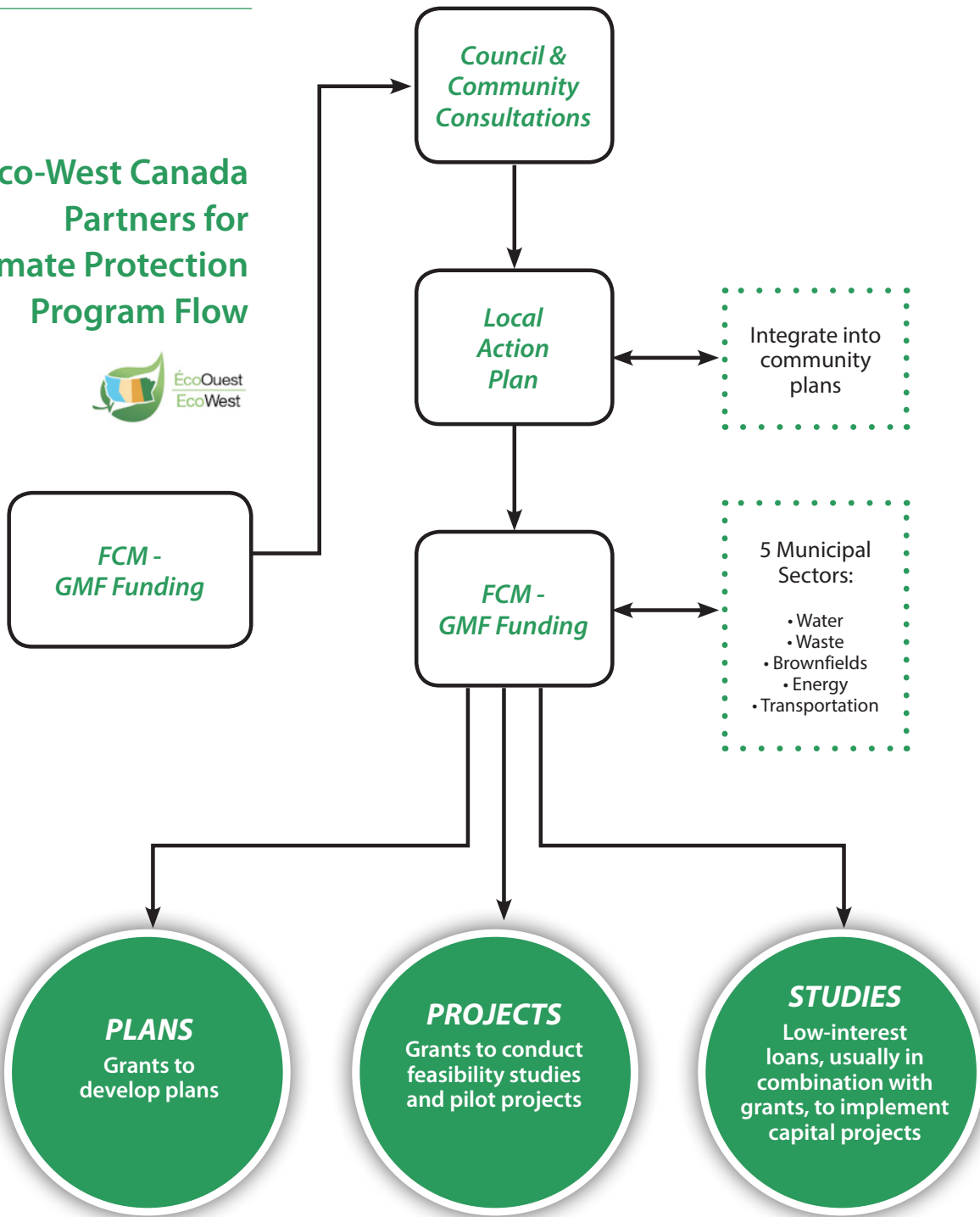
PCP is the Canadian component of the ICLEI's Cities for Climate Protection network, which involves more than 1,100 communities worldwide. PCP is a partnership between the Federation of Canadian Municipalities and ICLEI — Local Governments for Sustainability. PCP membership is free for municipalities. 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

Eco-West Canada Partners for Climate Protection Program Flow



The Need

FOR COMMUNITY ACTION
ON CLIMATE CHANGE

ACTING **TODAY** TO CHANGE **TOMORROW**



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The Climate is Changing

The Need for Action

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

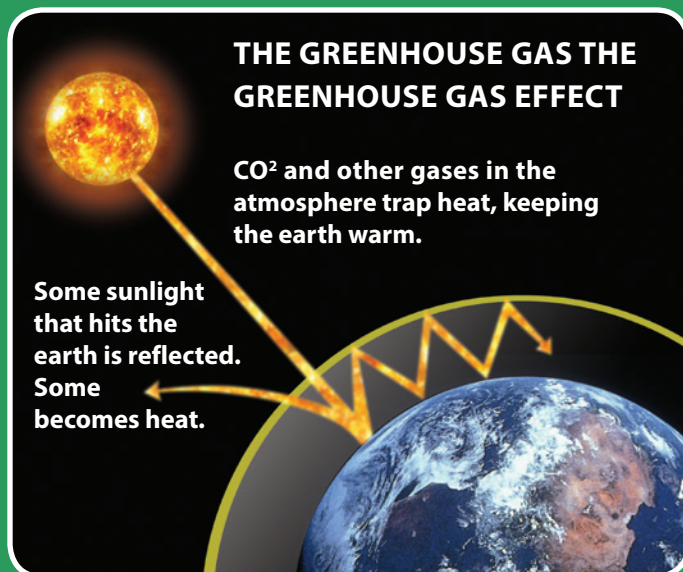
Scientific sources state that the average global temperature has risen almost 1°C over the last 50 years, and in Canada it has risen 1.5°C over the last 64 years.²

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?

The Need for Action

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.

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What Can be Done? Create a 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

The Need for Action

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 Town of Altona Act?

By positioning the Town of Altona 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.



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Town of Altona

COMMUNITY AT A GLANCE

ACTING TODAY TO CHANGE TOMORROW



Community Profile

Community at a Glance

Town of Altona	
Country	Canada
Province	Manitoba
Region	Pembina Valley
Incorporated	1956
Elevation.....	247 m (810 ft.)
Land area.....	4.53 km ²
Total Private Dwellings.....	1,683
Population (2016 census)	
Total	4,167
Density.....	919/km ²

The Town of Altona

The Town of Altona, Manitoba, is located 96 km south of Winnipeg and 13 km north of the Canada-US border. It was built on a local initiative to emerge from Mennonite agricultural settlement in the fertile Pembina Triangle into a diversified regional service center. As a result, much of the surrounding area is devoted to farming and agriculture-based businesses. The town is surrounded by the Municipality of Rhineland.

The town site was originally established in 1895 on a Canadian Pacific Railway spur near the original agricultural village of Altona, settled in 1880 as part of a reserve of the Red River for Mennonites arriving from Russia. Altona gradually surpassed nearby Gretna, expanding its service role to foster the region's cooperative movement in the 1930s and 1940s as well as various economic enterprises, including: oil seed processing, printing and publishing, paper box and clothing manufacturing, a radio broadcasting station as well as a small retail complex.

In 1946, the community became incorporated as a village. Its population at that time was 1,065 residents. In 1956, population growth to 1,698 residents prompted the village council to apply to the provincial government to change the status of Altona to that of 'town'. This change became official on 24 October 1956.

Altona was the site of the creation of the Rhineland Consumers Co-operative (1931), the Altona Co-op Service (1937), the Altona Credit Union (1939) and Co-op Vegetable Oils (CVO) (1943). These cooperative enterprises were a highly effective local response to the devastating impact of the Great Depression on local farmers' incomes. Jake (J.J.) Siemens played an important role in their development, and in the growth of the co-op movement in southern Manitoba.



Community Profile

Community at a Glance



Since 1997, the Town of Altona Community Development Corporation has promoted economic growth, job creation and an enhanced quality of life in the Town of Altona. The Town of Altona Industrial Park covers an area of approximately 150 acres and offers fully serviced, competitively priced lots of various sizes.

The Town of Altona is also home to Friesens Corporation, which started off as a small confectionery store opened by David W. Friesen in 1907 and which now employs hundreds of people. It is the primary printer of yearbooks in North America, as well as commercial consumer books, specializing in full colour art and educational books. The town is also the headquarters for Golden West Broadcasting.

In the late 1990s the town, in partnership with various businesses and volunteers, embarked on an ambitious plan to improve recreation facilities. In 2000, the Town of Altona Aquatic Centre opened to rave reviews, a trails system was started, and in 2003 the Millennium Exhibition Centre opened. This 75,000 square-foot facility features an ice arena, curling arena, banquet hall, meeting rooms, running track, concessions, kitchens and community spaces. Since then, other recreation facilities have been added, including a tennis court, large playground, a \$250,000 skate park (in 2013), and a new, full-size baseball facility called Access Field (2014).

GHG Emissions Inventory

Community at a Glance

The Town of Altona

An inventory of GHG emissions was generated by Eco-West Canada for the Town of Altona in 2011 and again in 2015, both at the corporate and community levels.

Corporate Inventory:

This inventory includes data on all municipal government installations, including buildings, 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.

Corporate Emissions

Corporate emissions in the Town of Altona are based on buildings, vehicle fleet, streetlights and water & sewage.

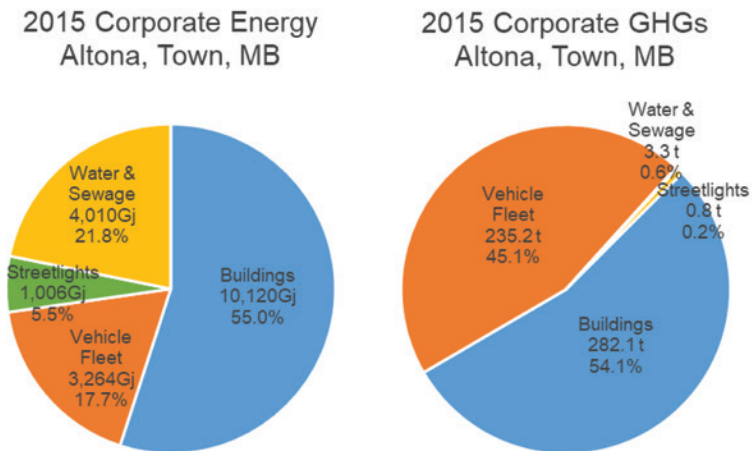
Typically for urban Manitoba municipalities the **vehicle fleet** sector is 45% of all emissions, with the **Buildings** sector accounting for 36%. In Altona, this is 45% and 54%, respectively. The unusually large impact of the buildings sector can be mostly attributed to the inclusion of the Millenium Exhibition Centre in the inventory; typically, municipalities do not include arenas as they are run by arms-length boards. Here inclusion makes for a complete and accurate picture.

Per household emissions from the vehicle fleet sector are below the urban average. Per unit emissions for the **buildings** sector are nearly double the average, for the reasons stated, though about average for urban municipalities including arenas.

The **sewer** sector includes four lift stations while the **water** sector includes two reservoirs, all running on electricity.

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

Corporate GHG Emissions by Sector Town of Altona, 2015



GHG Emissions Inventory

Community at a Glance

The Town of Altona

Community Emissions

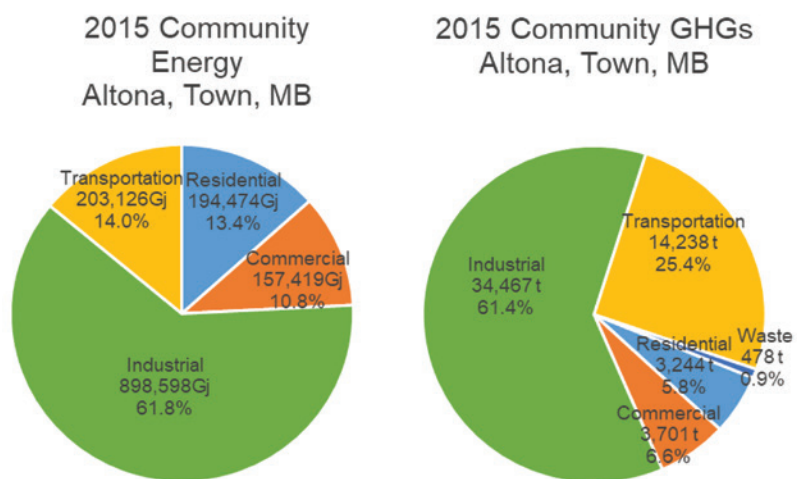
Community emissions include the **residential, commercial, industrial, transportation** and **waste sectors**. The waste sector, naturally, does not have an accompanying energy consumption component, as all GHGs generated are a result of the process of waste decaying in landfills.

Typically, for urban municipalities transportation accounts for around half of all emissions, with the Town of Altona far below this at just under 25%, though this proportion may be misleading, as the **transportation** sector is difficult to accurately gauge.

Interestingly, for Altona the proportions for **residential, commercial** and **industrial** are unusual. They represent 6%, 3% and 60%, respectively, while the average for **urban communities** is 19%, 12% and 19%. This is an indication that Altona is more industrially-focused than some of the other urban municipalities in the study group.

Dividing the energy consumption and waste production by the changes in number of energy consumers in the sector in the community shows that the largest sector, the **industrial**, has seen a marked increase in energy consumption (38%). **Commercial** also increased, by 4%, while per consumer **residential** energy consumption decreased by 7%. **Transportation** stayed constant, although that is entirely a result of the estimation technique that was used. **Waste** remained relatively static but this too may be the result of estimation: in 2011, the town did not weigh waste and so used a proxy value to determine weights.

Community GHG Emissions by Sector Town of Altona, 2015



Vision Statement

Community at a Glance

By participating in the

Climate Change Local Action Plan process,

the **Town of Altona** 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.

How is One Tonne of GHGs Produced?

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



40

average Manitoban homes' electricity use in one year



22 - 150 KM

round-trip drives (from point A to point B and back again)



42

BBQ propane tanks

Potential Programs

GOAL-BASED ACTION PLANS

ACTING **TODAY** TO CHANGE **TOMORROW**



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Greenhouse Gas Reduction Action Plans

Potential Programs

This set of potential programs represents initiatives identified and endorsed by stakeholders and community representatives.

Together, these 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 community 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.

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)

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.⁶



Greenhouse Gas Reduction Action Plans

Potential Programs

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)

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.⁷



New Developments



Buildings / Energy



Waste



Water



Natural Disaster Mitigation



IT Infrastructure



Vehicles / Equipment



Transportation

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.



Responsibility

Indicate the person, department, or group who will lead implementation of the action.



GOAL 1: Sustainably Manage Water in the Town of Altona

Potential Programs

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



OBJECTIVE

Ensure preservation of clean and safe drinking water for future generations

ACTION 1A

Promote community education on maintaining clean and safe drinking water

STEPS

- Promote good water practices and related information through municipal communications such as on the town website and in community e-mails and newsletters



OBJECTIVE

Encourage water conservation programs

ACTION 1B

Provide public education for Efficiency Manitoba programs and other water conservation programs

STEPS

- Promote Efficiency Manitoba and other water conservation programs through municipal communications such as on the town website and in community newsletters and
- Create a low flow fixture change out policy to encourage more residents to install water savers on faucets and shower heads, and low flow toilets.

GOAL 1: **Sustainably Manage Water in the Town of Altona**

Potential Programs

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



OBJECTIVE

Ensure access to clean (potable) water and improve on local water management capabilities

ACTION 1C

Collaborate with the Pembina Valley Water Coop (PVWC) to sustainably manage water resources

STEPS

- Gain a clear understanding of the additional potable water needed in southern Manitoba municipalities due to residential, agricultural and industrial growth
- Develop a clearly defined drought management plan in consultation with PVWC for the region in order to share water during periods of drought, and develop plans to provide alternate sources of water due to drought periods
- Develop plans in consultation with PVWC to provide reliable water supply during disasters such as floods, fires or failures in the distribution system
- Ensure that plans are in place to address changing regulatory needs during the next five years and beyond

GOAL 2:

Transportation and GHG Emissions Reductions in the Town of Altona

Potential Programs

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



OBJECTIVE

Reduce use of fossil fuels

ACTION 2A

Install “No Idling” zone signs

STEPS

- Determine appropriate locations for sign installation
- Purchase and install signs



GOAL 2:

Transportation and GHG Emissions Reductions in the Town of Altona

Potential Programs

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



OBJECTIVE

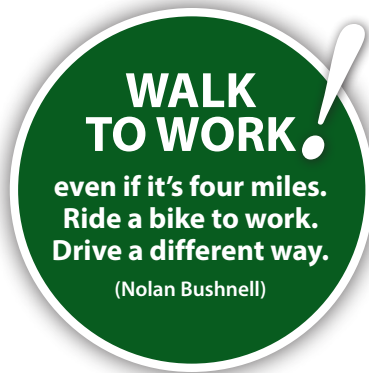
Investigate alternatives to fossil fuels for transportation

ACTION 2B

Investigate potential for electric vehicles for municipal fleet and other transportation

STEPS

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



WALK TO WORK.
even if it's four miles.
Ride a bike to work.
Drive a different way.
(Nolan Bushnell)

GOAL 3: Reduce Community Waste in the Town of Altona

Potential Programs



OBJECTIVE

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

Seek to reduce waste per household in the town

ACTION 3A

Develop a community organics strategy to determine possible steps such as community compost drop off sites 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
- Council should consider the possibility of creating an SSO (source separated organics) program in the town
- Explore innovative organics treatment solutions: Enviroclean Landfill Solutions, etc.

ACTION 3B

Encourage recycling/waste diversion programs already in place in the town

STEPS

- Promote existing recycling/waste diversion programs to local residents

GOAL 3: Reduce Community Waste in the Town of Altona

Potential Programs

Seek to reduce waste per household in the town



OBJECTIVE

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

ACTION 3C

Conduct compost and gardening workshops for area residents

STEPS

- Initiate compost education programs such as those offered through the Green Action Centre
- Invite residents to educational workshops on composting projects

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.

GOAL 4: Reduce Energy Consumption in the Town of Altona

Potential Programs

Seek to reduce energy consumption for existing municipal, buildings, facilities & infrastructure





OBJECTIVE

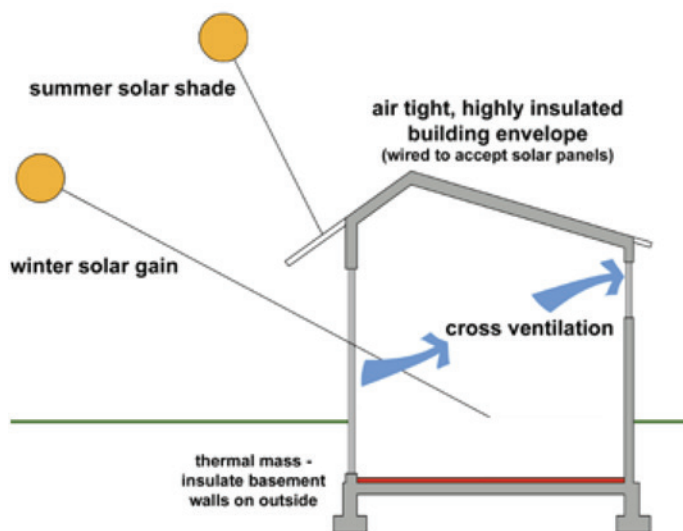
Promote sustainable utilization/reuse of energy at existing facilities

ACTION 4A

Optimize energy use in the town's infrastructure

STEPS

- Electricity production utilized behind the meter (offset purchase of electricity)
- Heat production utilized during shoulder and winter months for space or process heat (offset purchase of natural gas)
- generation of heat and/or electricity through sludge reuse at the wastewater lagoon



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 4: Reduce Energy Consumption in the Town of Altona

Potential Programs



OBJECTIVE

Gain electricity savings and reduce GHG emissions by installing LED lighting

OBJECTIVE

Heat recovery through wastewater district heating – high density and low-density locations (offset purchase of heating fuels (gas/electricity))

Seek to reduce energy consumption for existing municipal, buildings, facilities & infrastructure

ACTION 4B

Install LED lighting at town owned properties and infrastructure

STEPS

- Retrofit town owned parking facilities to LED lighting

ACTION 4C

Use captured heat to supply energy to municipal buildings

STEPS

- Capture heat from sewer line waste water
- Run heat generation from waste water through a heat pump to supply buildings and homes in a central location
- Explore the possibility of tapping into the heat generated by the Bunge plant for redirection to nearby new housing developments

GOAL 4: Reduce Energy Consumption in the Town of Altona

Potential Programs

Seek to reduce energy consumption for existing municipal, buildings, facilities & infrastructure



ACTION 4D

Retrofit or makes changes to existing infrastructure for energy savings/better efficiency

STEPS

- Switch to LED interior, exterior, parking lighting and signage (offset purchase of electricity)
- Undergo 'Building recommissioning Program' (Manitoba Hydro)
- Optimize all building temperature set points and occupancy schedules (offset purchase of electricity)
- Consider air side heat recovery (offset purchase of heating fuel - electricity and natural gas)
- Consider solar air heating (offset purchase of heating fuel - electricity and natural gas)

GOAL 4: Reduce Energy Consumption in the Town of Altona

Potential Programs



Optimize energy use/reuse for administrative buildings and infrastructure

Seek to reduce energy consumption for existing municipal, buildings, facilities & infrastructure

ACTION 4E

Retrofit Millennium Exhibition Centre and explore alternative energy sources and reuses

STEPS

- Undergo 'Building Recommissioning Program' (Manitoba Hydro)
- Move to heat recovery on the arena plant side (offset purchase of heating fuel - electricity and natural gas)
- Install LED interior, exterior, parking lighting and signage (offset purchase of electricity)
- Consider air side heat recovery (offset purchase of heating fuel - electricity and natural gas)
- Consider solar air heating (offset purchase of heating fuel - electricity and natural gas)
- Consider solar thermal hydronic (offset purchase of heating fuel - electricity and natural gas)
- Look into the potential of biomass heating or combined heat and power (offset purchase of heating fuel - electricity and natural gas)

GOAL 4: Reduce Energy Consumption in the Town of Altona

Potential Programs



OBJECTIVE

Optimize energy use/reuse for administrative buildings and infrastructure

Seek to reduce energy consumption for existing municipal, buildings, facilities & infrastructure

ACTION 4F

Retrofit Altona Aquatic Centre and explore alternative energy/heating sources

STEPS

- Install LED interior, exterior, parking lighting and signage (offset purchase of electricity)
- Utilize an aérothermal heat pump water heater
- Utilize solar thermal for hybrid pool water heating

GOAL 5:

Increase Climate Change Awareness in the Town of Altona

Potential Programs

Seek to educate municipal council, employees and residents on climate change issues



OBJECTIVE

Provide opportunities for activities and discussion forums on climate change issues

ACTION 5A

Identify local environmental assets and liabilities, potential risks and hazards arising from climate change

STEPS

- Create a climate discussion forum on municipal website with links to areas of interest on the science underlying climate change, etc.
- Invite environmental consultants to visit the municipality and hold seminars and public meetings on climate change issues
- Use this climate change local action plan as a springboard towards implementing actions to adapt and mitigate the effects of climate change
- Apply for sustainable project funding from the FCM and other sources (federal, provincial, etc.)

Local Benefits & Impacts

ENVIRONMENTAL, ECONOMIC & SOCIAL

ACTING **TODAY** TO CHANGE **TOMORROW**



Éco-Ouest
Eco-West

Types of Benefits

Local Benefits & Impacts



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 effect
- 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
- 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

Next Steps

GETTING STARTED

ACTING **TODAY** TO CHANGE **TOMORROW**



Éco-Ouest
Éco-West

Conclusion

Next Steps - Getting Started

This report confirms that

the Town of Altona

has completed the 3rd milestone of the Partners for Climate Protection (PCP) program.

With this Climate Change Local Action Plan received by council

on _____, 2019,

the **Town of Altona** now has a report that can be described as comprehensive, effective, and achievable.

The next step for Eco-West Canada and the Town of Altona 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 | GHG EMISSIONS INVENTORY |
COMMUNITY SURVEY

ACTING **TODAY** TO CHANGE **TOMORROW**



Éco-Ouest
Éco-West

References

Literature

Appendices

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Town of Altona

July 23, 2019



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

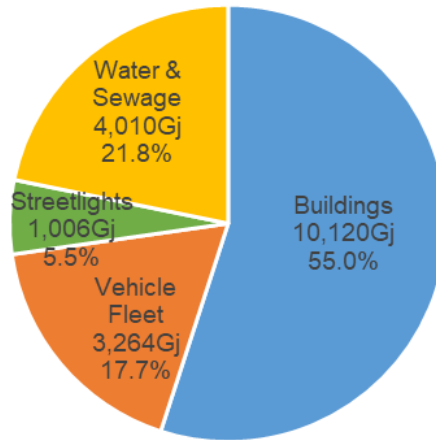
The Community inventory includes all consumption and emission brought about by the citizens of the municipality and its neighbours going about their daily lives. This includes the heating and powering of the Residential, Commercial and Industrial sectors, as well as vehicle Transportation sector and 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

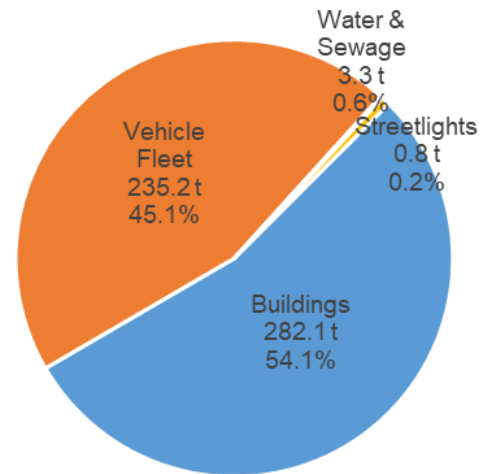
Energy Sources in eCO₂
(t): Electricity, Natural Gas, Diesel, Gasoline, Propane, Waste

Total 2015
eCO₂ (t): 521t

2015 Corporate Energy Altona, Town, MB

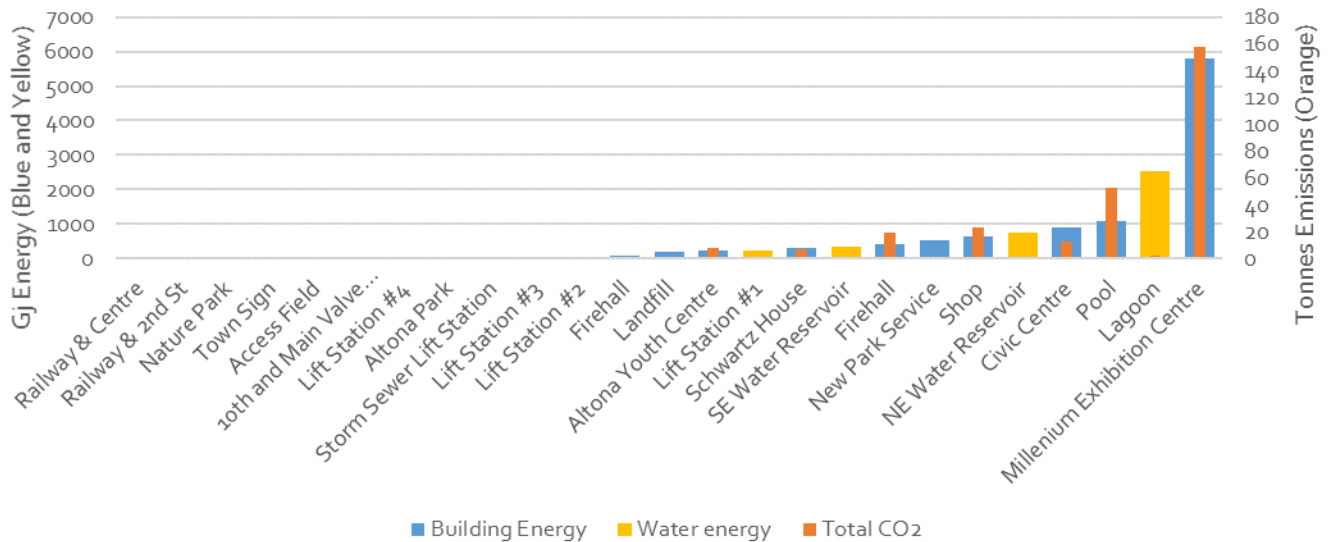


2015 Corporate GHGs Altona, Town, MB



Sector	2011		2015	
	Energy Gj	Emissions tonnes	Energy Gj	Emissions tonnes
Buildings	10,212	297,9 t	10,120	282,1 t
Vehicle Fleet	2,924	212,7 t	3,264	235,2 t
Streetlights	987	1,0 t	1,006	0,8 t
Water and Sewage	3,489	3,1 t	4,010	3,3 t
Total	17,613	514,7	18,400	521,4

Municipal Energy Use and Emissions, All Accounts Altona, Town, 2015



Corporate Emissions

The Corporate Emissions in the Town of Altona are based on Buildings, Vehicle Fleet, Streetlights and Water & Sewage.

Typically for urban Manitoba municipalities the Vehicle Fleet sector is 45% of all emissions, with the Buildings sector accounting for 36%. In Altona this is 45% and 54%, respectively. The unusually large impact of the Buildings sector can be mostly attributed to the inclusion of the Millenium Exhibition Centre 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 urban average. Per household emissions for the Buildings sector are

nearly double the average, for the reasons stated, though about average for urban municipalities including arenas.

The Water sector in Altona includes a number of lift stations, but all use electricity exclusively (with one exception), so are relatively clean, in terms of greenhouse gases (GHGs).

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

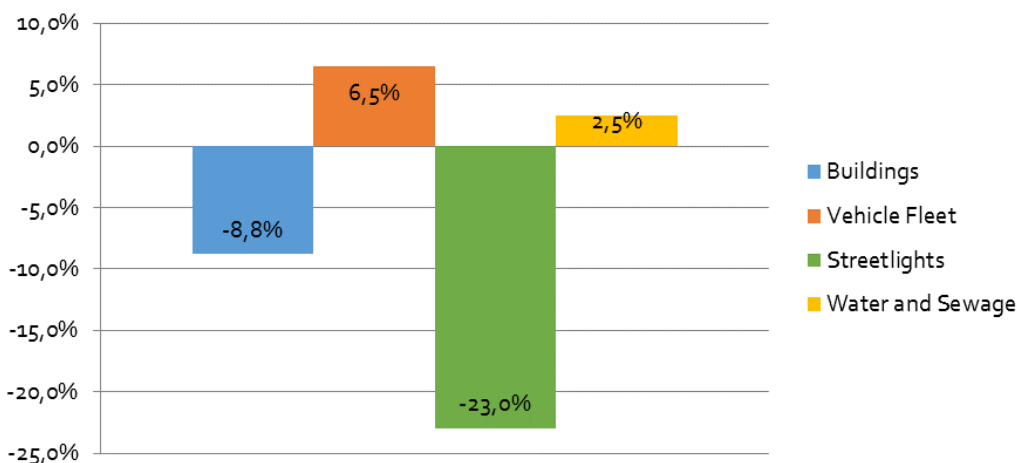


Preliminary Observations: Corporate

Altona experienced modest population growth between 2011 and 2015 (2.4%). The Buildings sector was the major consumer of energy and emitter of GHGs, but almost exclusively because of the Arena.

In general, municipal operations is emitting slightly more GHGs than would have been the case if per household emissions had been constant from 2011. This is despite a decrease in per household emissions for the Buildings sector. This means all increases to the emissions are a result of increases in the Vehicle fleet sector.

Change in GHG Emissions per Household
Altona, Town, 2011-2015

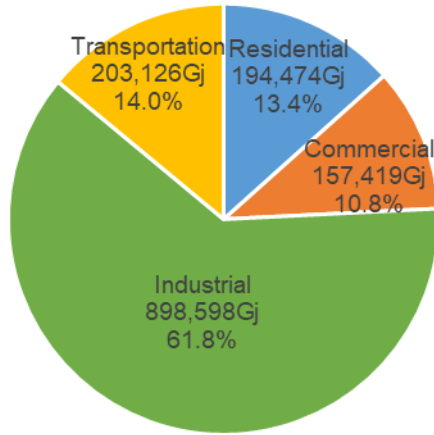


2015 data

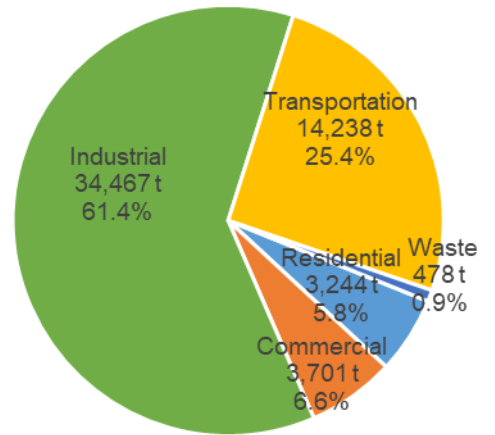
Energy Sources in eCO₂ (t): Electricity, Natural Gas, Diesel, Gasoline, Propane, Waste

Total 2015 eCO₂ (t): 57 464t

2015 Community Energy Altona, Town, MB

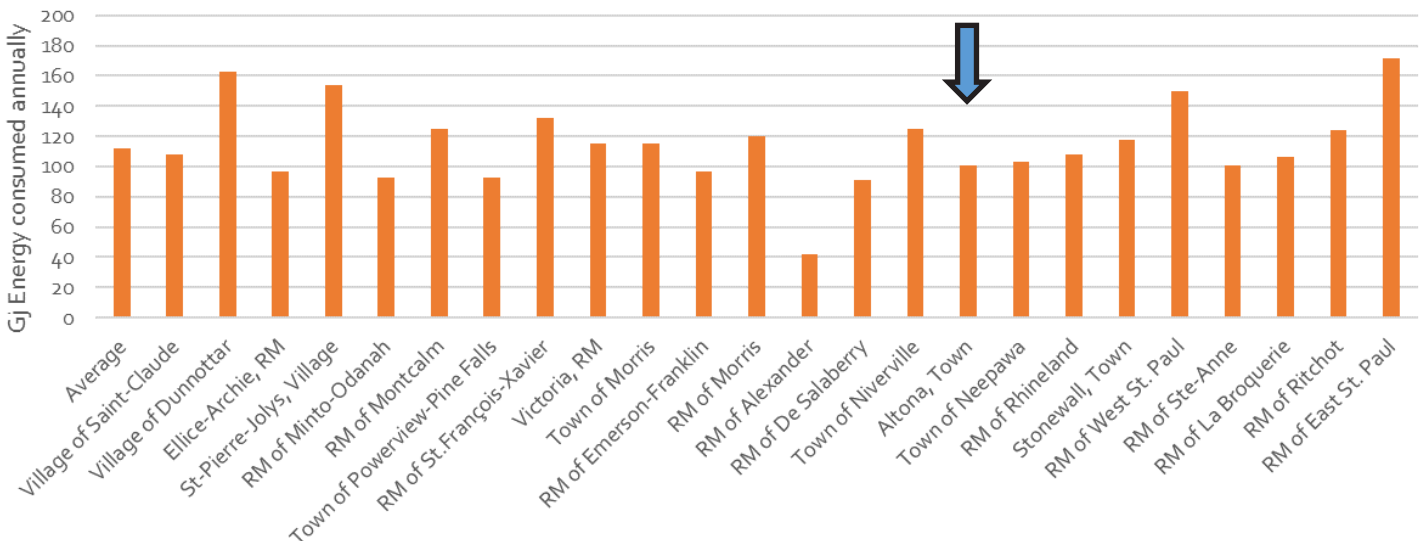


2015 Community GHGs Altona, Town, MB



Sector	2011		2015	
	Energy Gj	Emissions tonnes	Energy Gj	Emissions tonnes
Residential	201,365	3,677 t	194,474	3,244 t
Commercial	153,472	3,710 t	157,419	3,701 t
Industrial	569,765	22,138 t	898,598	34,467 t
Transportation	195,581	13,709 t	203,127	14,238 t
Waste		1,749 t		1,813 t
Total	1,120,183	44,984	1,453,618	57,464

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.

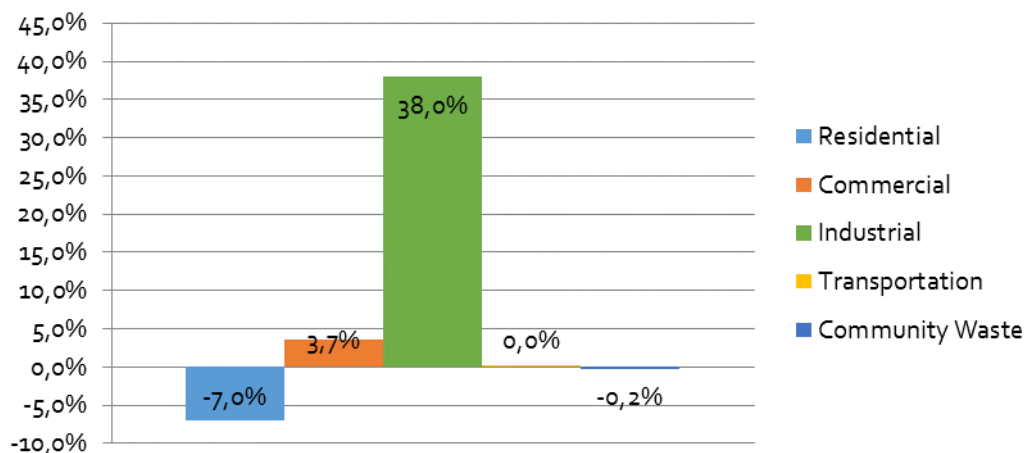
Typically for urban municipalities Transportation accounts for around half of all emissions, with the Town of Altona far below this at just under 25%, though this proportion may be misleading, as the Transportation sector is difficult to accurately gauge.

Interestingly for Altona, the proportions for Residential, Commercial and Industrial are unusual. They represent 6%, 3% and 60%, respectively, while the average

for urban communities is 19%, 12% and 19%. This might indicate that Altona is more of Industrial-focused than some of the other urban municipalities in the study group, .

Dividing the energy consumption and waste production by the changes in number of energy consumers in the sector in the community show that the largest sector, Industrial, has seen a marked increase in energy consumption (38%). Commercial also increased, by 4%, while per consumer Residential energy consumption decreased by 7%. Transportation stayed constant though that is entirely an artifact of the estimation technique. Waste stayed relatively static but this, too, may be a result of estimation: in 2011 the town did not weigh waste and so used an proxy value to determine weights.

Per Consumer Change in Consumption/Waste Altona, Town, 2011-2015



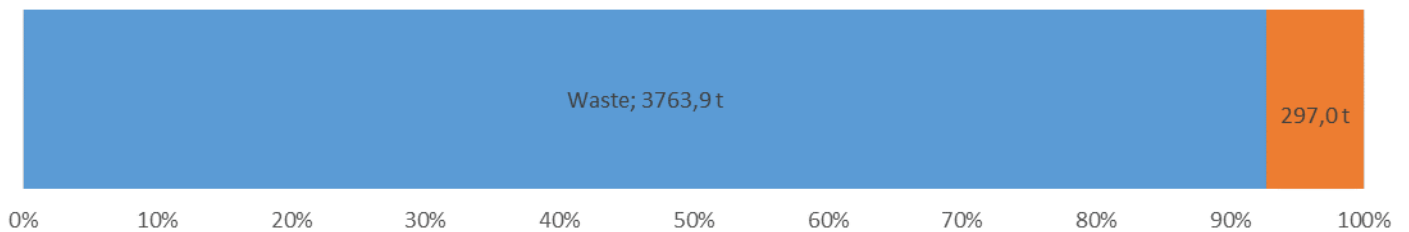
Preliminary Observations: Community

The two tables opposite demonstrate a significant increase in total GHG emissions within the community, though with only one sector, Industrial, reporting a significant change per consumer.

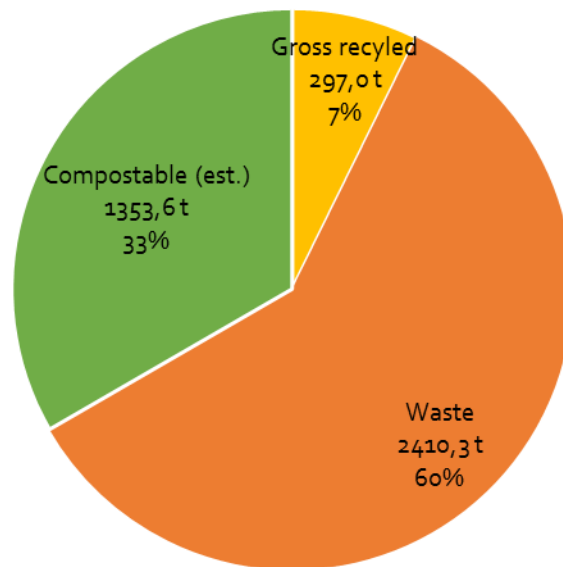
Altona is almost unique in the study area (especially among urban municipalities) in the high proportion of emissions and energy consumption used by the Industrial sector.

+ Waste Appendix

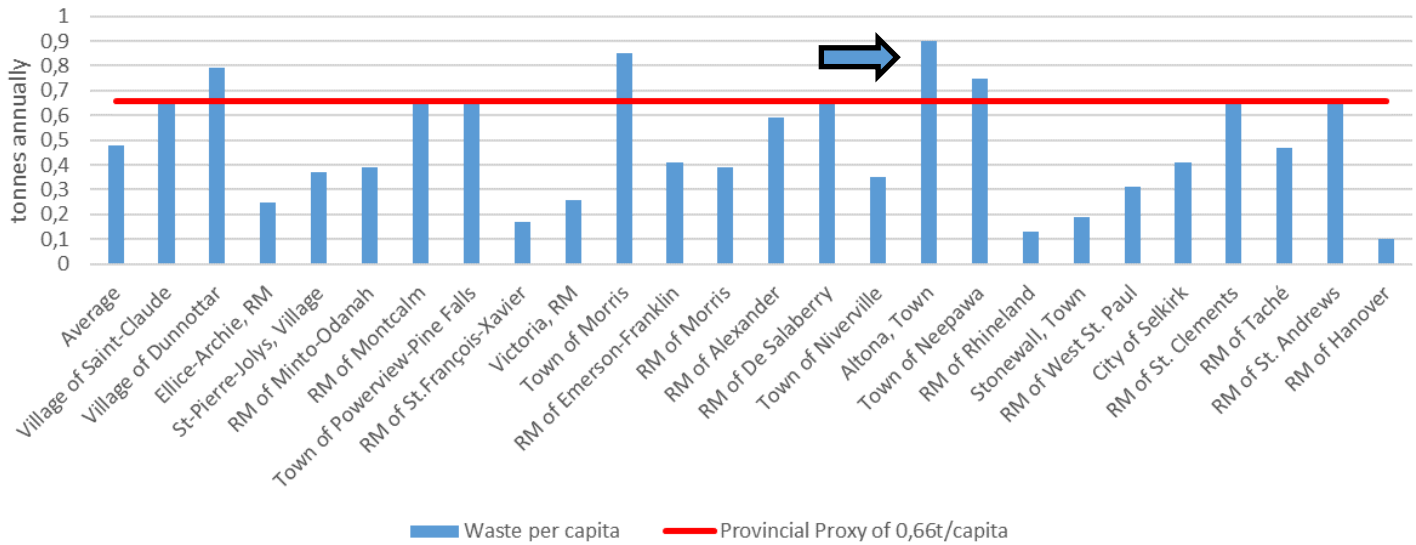
In Brief: Altona's per capita waste production is above the average for the study area, and almost 50% higher than the proxy rate used by the province. Since Altona also has a relatively poor recycling rate, there's a significant opportunity for recycling programming.



Waste Stream Breakdown



Annual Waste Production per capita



Waste per capita as reported to Eco-West Canada

Waste Analysis

As In 2015 the Town of Altona reported to Eco-West Canada landfilled waste of 2410 tonnes, or about 899 kg per person per year. This amount of waste is well above the the provincial proxy amount of 660 kgs per person per year. This is among the highest Waste rates in the Eco-West study.

Altona recycled 54 tonnes of material in 2015. This is a high proportion of the total waste stream (30%) and the per capita rate of 71 kg per capita is much higher than the 58 kg per capita rate of the South Central peer group. As most communities (particularly urban) manage a waste rate well below the proxy, it is likely a program here would have a significant impact on waste tonnage.

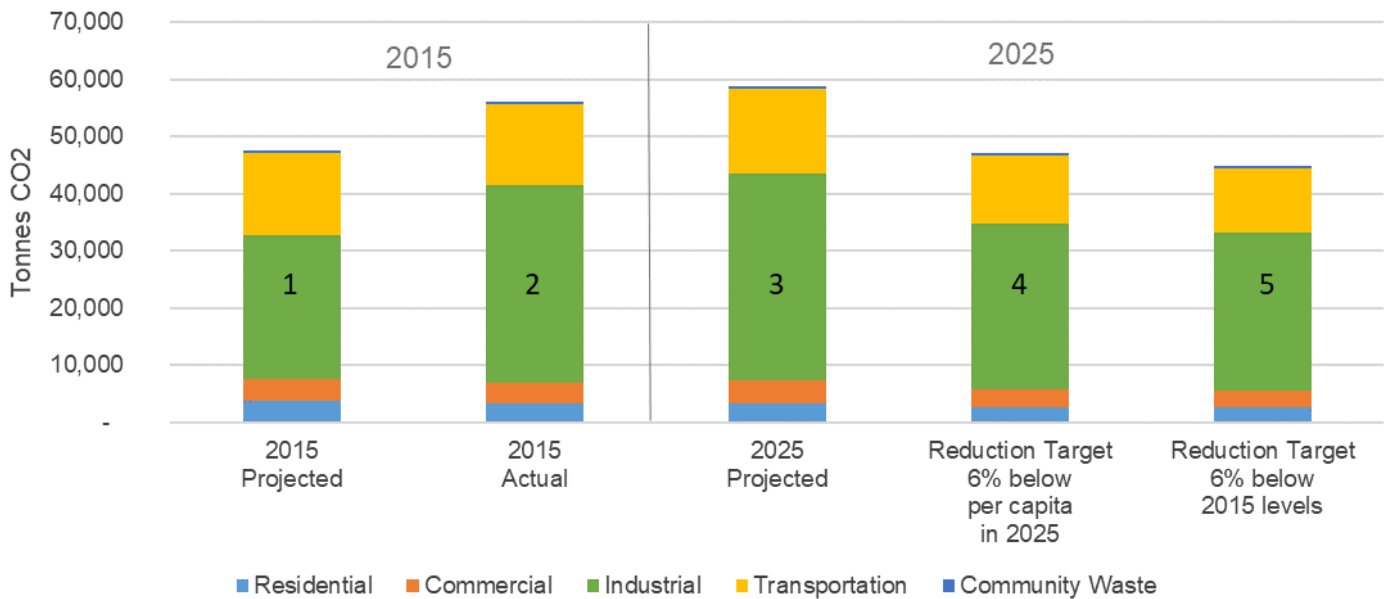
There remains a significant proportion of the waste stream that is compostable. Composting might allow a significant reduction in landfilling for the municipality, while reducing a prime source of GHG: methane from decomposition.



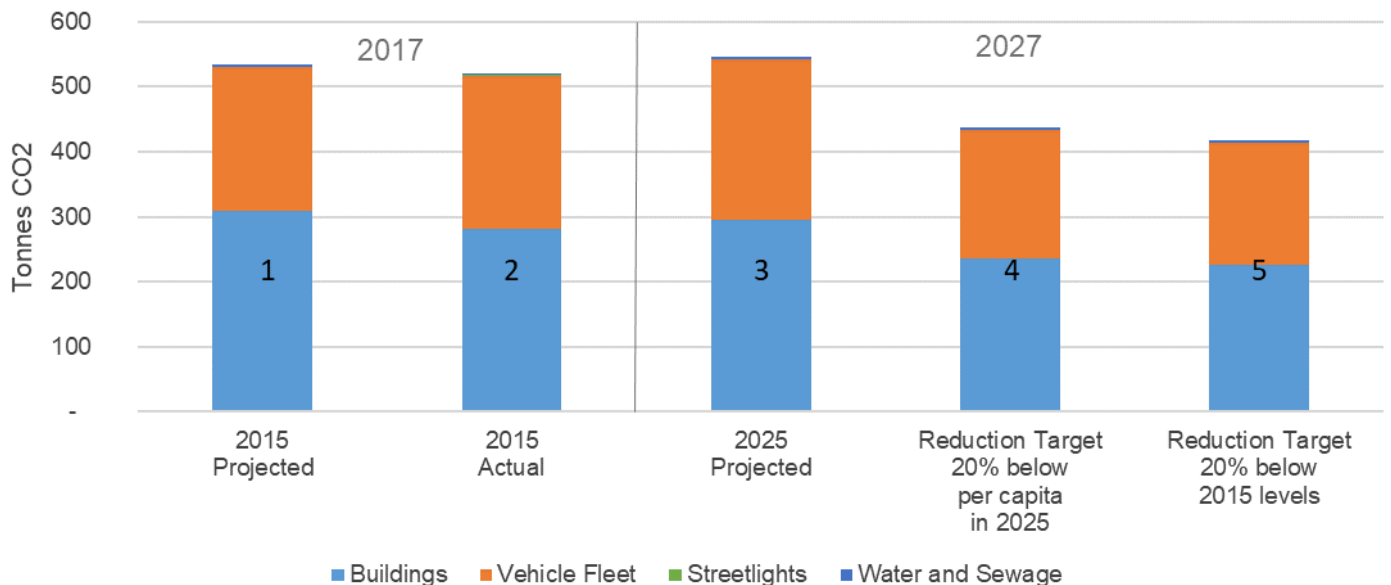
Business-as-Usual and Emissions Projections

In Brief: In a period of province-beating growth Altona'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.

Altona, Town, MB Community Emissions Forecast +6.1% Population Change, 6% reductions



Altona, Town, MB Corporate Emissions Forecast +6.1% Population Change, 20% reductions



Altona Past, Present and Future

In 2015 Altona reported 522 tonnes of CO² or equivalent emissions for municipal or Corporate operations, and 57,464 tonnes for Community operations. To determine whether this describes an improvement since 2011 a forecast was made for 2015 using data from 2011. 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 18% more GHGs than would have been expected — approximately 8,674 tonnes more, the equivalent of or the equivalent of 1,850 cars driven for a year. The major increase came from the Industrial sector, which accounted for 99% of the gain (difference between bar 1 and 2, top graph).

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 4,369 tonnes of CO² annually, removing the equivalent of 923 cars from the road (bar 4, top graph). A much more ambitious target of 20% off unmodified 2015 levels would mean removing over 4 times that; 18,795 tonnes annually, the equivalent of 3,970 cars (bar 5, top graph).

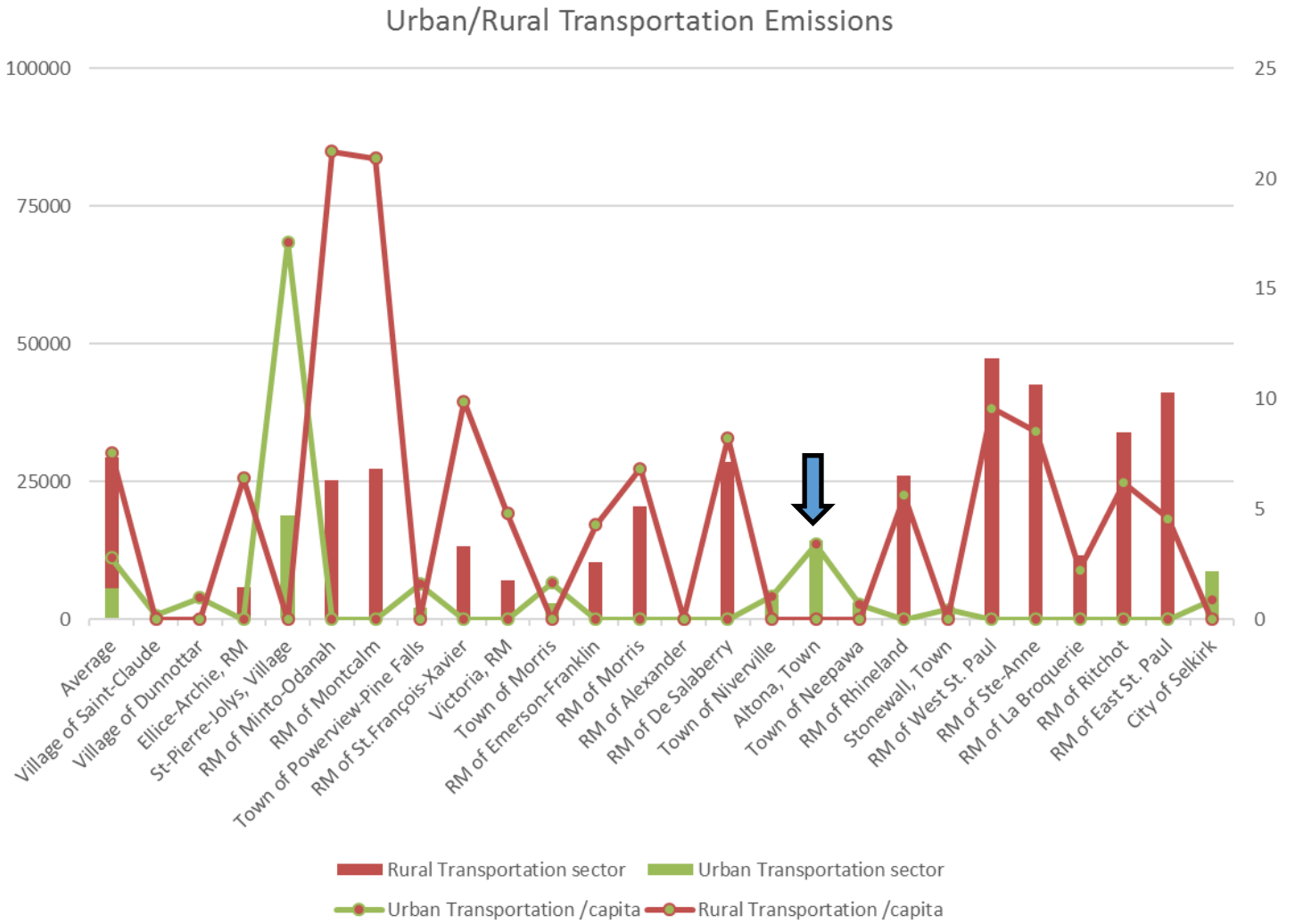
It's difficult to guess where programs would be the most successful to target reductions. Industrial has the largest impact and while a community would be hard pressed to find support for limiting economic growth, efficiency measures can increase competitiveness for businesses, so local enterprises may be on board if given incentives or information. Transportation's impact may be alleviated by measures aimed at increasing car pooling, increasing active transportation within the town or any of a host of measures that are also significant for improving liveability of a town..

Corporate

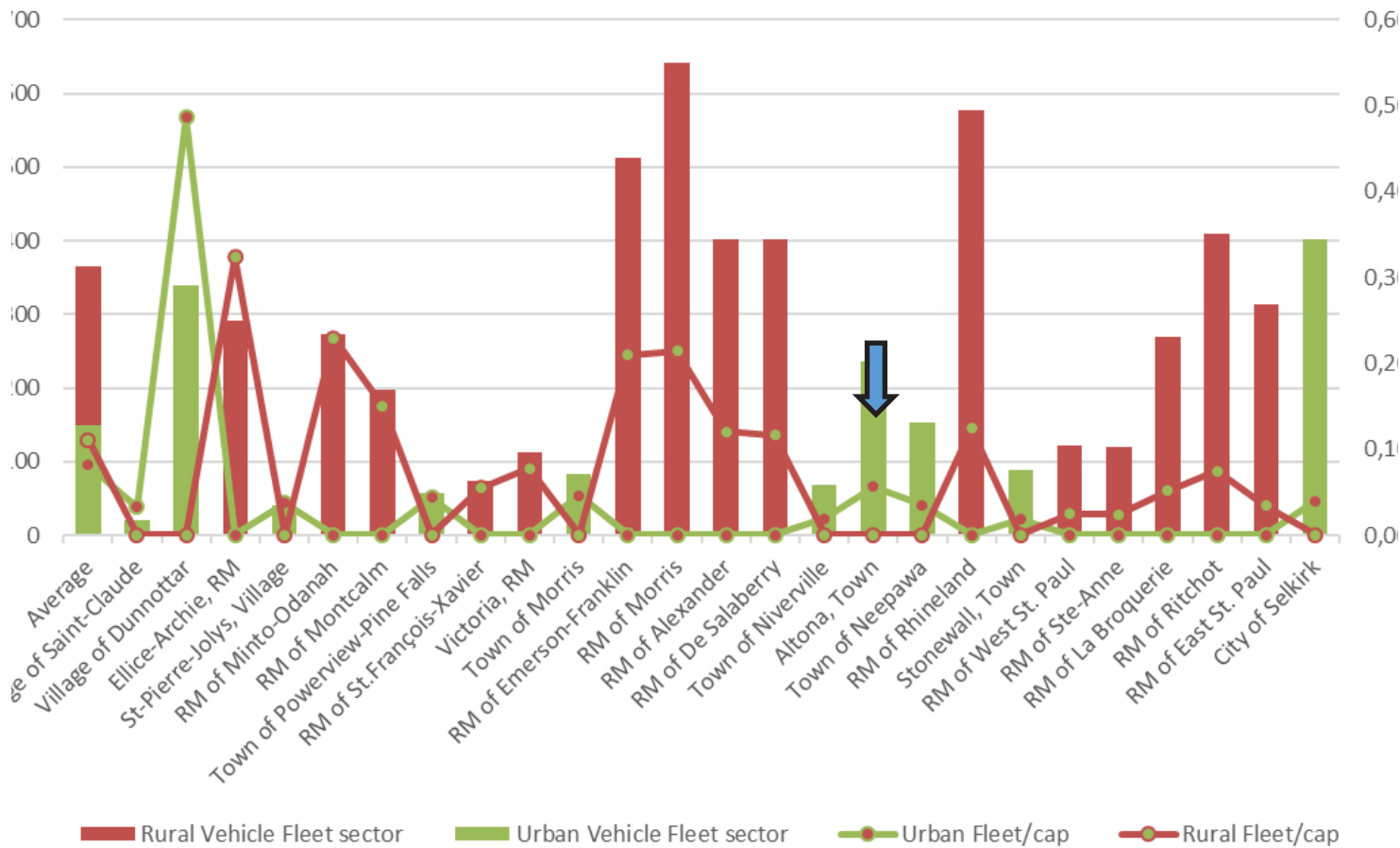
For the municipality, the Building sector is the major consumer of energy and emitter of GHGs. Efficiency measures aimed at improving the supporting infrastructure may have the largest impacts, and with consumption concentrated in the Arena, as it is, an upgrade of those systems may be the most impactful, 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.) (bar 1 and 2, bottom graph).

If the Town committed to a 20% decrease in per capita emissions from 2015 levels, it could save an estimated \$87,900 annually (in 2015 dollars) and the equivalent of 24 cars off the road (bar 4, bottom graph). The more ambitious goal of realizing 20% off 2015 levels could result in a savings of \$119,500 and 33 cars (bar 5, bottom graph).

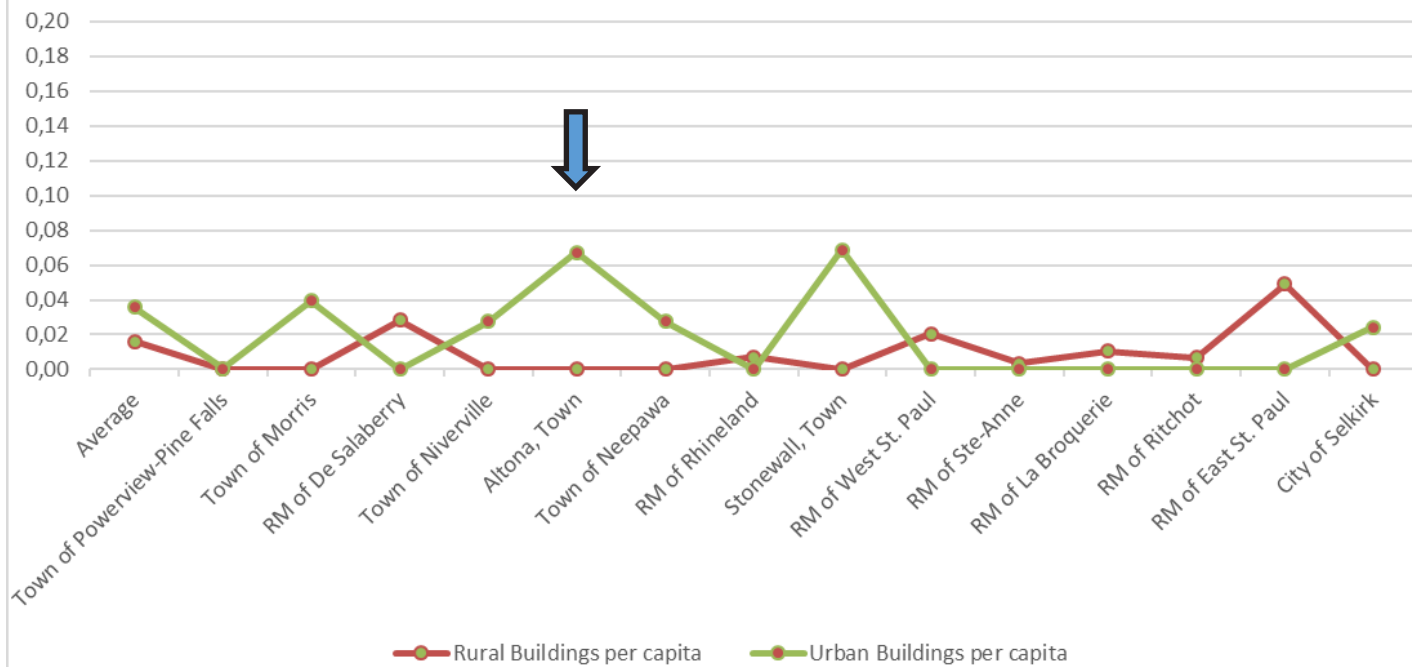
Appendix—Transportation & Vehicles Graphs



Urban/Rural Vehicle Fleet Emissions Total and per capita



Urban/Rural Buildings Emissions per capita



Back Page