

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

Climate Change Local Action Plan  
for Greenhouse Gas Reduction 2019

The RM of West Interlake, Manitoba



Éco-Ouest  
Eco-West

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## 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**  
*Executive Director, Eco-West Canada*

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# Project

BACKGROUND

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



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# What is This Document?

## Project Background

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In an effort to develop a Climate Change Local Action Plan (CCLAP), the RM of West Interlake has partnered with 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 RM of West Interlake has completed Milestone 1 and has proceeded concurrently with Milestones 2 and 3 in collaboration with the municipal government and the people of the RM of West Interlake in a participatory process.

The set of potential programs represents initiatives identified and endorsed by stakeholders and community representatives through three online surveys distributed between the months of April and July 2019 to residents, municipal staff and council members; and a consultation process which took place in February 2020 at the RM of West Interlake. The objective of this exercise was to invite councillors and administration to identify and prioritize specific activities that could take place within or on behalf of their municipality to reduce community risks from and contribution to climate change.

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 <sup>2</sup>	Carbon Dioxide
CO <sup>2</sup> e	Equivalent CO <sup>2</sup>
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 RM of West Interlake 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.<sup>1</sup>



# 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 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 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 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.

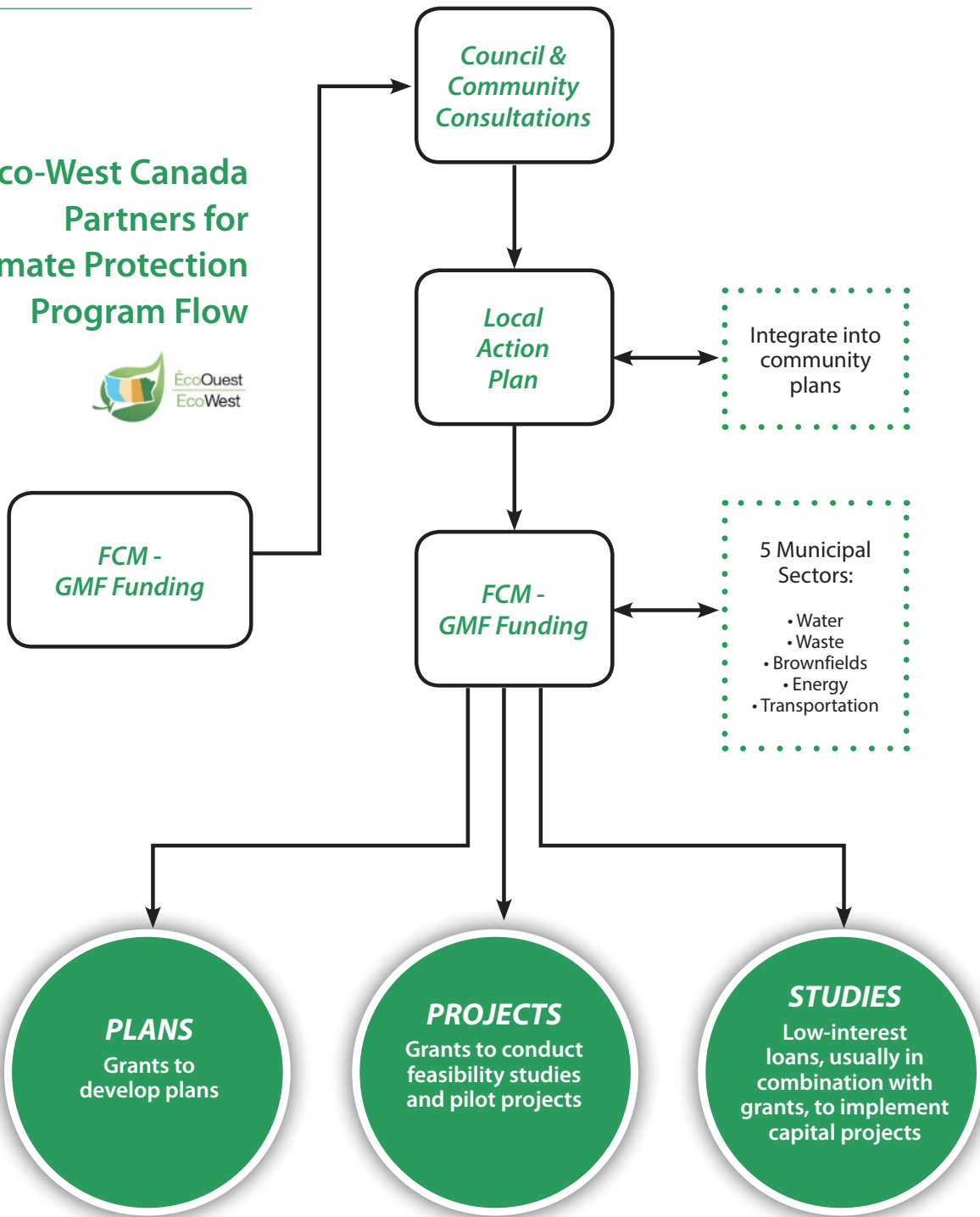
PCP is the Canadian component of the ICLEI's Cities for Climate Protection network, which involves more than 1,100 communities worldwide. PCP is a partnership between the Federation of Canadian Municipalities and ICLEI — Local Governments for Sustainability. PCP membership is free for municipalities.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

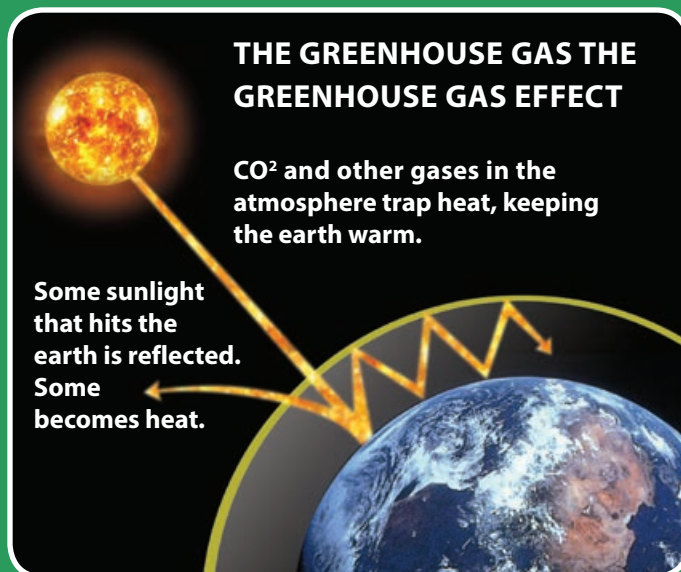
Scientific sources state that the average global temperature has risen almost 1°C over the last 50 years, and in Canada it has risen 1.5°C over the last 64 years.<sup>2</sup>

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?

### 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.

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

## 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 RM of West Interlake Act?

By positioning the RM of West Interlake 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 West Interlake

COMMUNITY AT A GLANCE

ACTING TODAY TO CHANGE TOMORROW





# Community Profile

## Community at a Glance

RM of West Interlake	
Country .....	Canada
Province .....	Manitoba
Region .....	Interlake
Incorporated .....	2015
Elevation.....	257 m (843 ft.)
Land area.....	1,621 km <sup>2</sup>
Total Private Dwellings.....	1,323
Population (2016 census)	
Total .....	2,162
Density.....	1.3/km <sup>2</sup>

## *The RM of West Interlake*

The Rural Municipality of West Interlake is a municipality in central Manitoba that incorporated on January 1, 2015, via the amalgamation of the RMs of Eriksdale and Siglunes. It was formed as a requirement of The Municipal Amalgamations Act, which required that municipalities with a population less than 1,000 amalgamate with one or more neighbouring municipalities by 2015. The Government of Manitoba initiated these amalgamations in order for municipalities to meet the 1997 minimum population requirement of 1,000 to incorporate a municipality

Eriksdale is an unincorporated community located near the eastern shore of Lake Manitoba. The community is located at the junction of Highway 6 and Highway 68, approximately 118 kms north of Winnipeg. The first white settlers in the area were from Sweden and began arriving in 1905. They mostly arrived via Oak Point, which was the end of the rail line at the time.

Ashern is an unincorporated community recognized as a local urban district (LUD). The community of Ashern is the largest in the municipality and is a regional service centre to a trading area of approximately 8,000 people. Ashern was named after A. S. Hern, a timekeeper of the firm that constructed the railway that served the western Interlake region. Today the community also supports the area’s agriculture, fishing, mineral extraction, recreation and tourism industries.

Agriculture and its related businesses continue to be the major economic activity in the western Interlake. The relatively low land prices, the ability of this land to produce high quality forage crops, the abundance of clean water, and the stable cattle prices have combined to make this area one of the best beef producing areas in the country.



# Community Profile

## Community at a Glance



The major products produced in this region are thus agricultural products, specifically grain, hay, forage seed, livestock and PMU (pregnant mares urine). The production of cattle is perhaps the most important agricultural sector in the RM of West Interlake. The majority of cattle produced locally are feeder cattle and are purchased by feedlots in Manitoba, Saskatchewan, Alberta, Ontario and the United States. Veterinary clinics are located in Lundar and Ashern, providing services for small and large animals.

The local fishing industry is very active during the winter months. Commercial fishing on Lake Manitoba remains a major source of income for some residents. The fishermen of Eriksdale bring their catch to one of the local co ops which act as regional marketing agents for the Freshwater Fish Marketing Corporation. They pack and send the fish to Winnipeg for processing.

The Eriksdale Consumers Co op was formed in the early 1950s. In January 2006, Arborg Co-op and Eriksdale Co-op amalgamated to form the Interlake Consumers Co-op. Currently there are approximately 1,270 participating members. The co op sells groceries, hardware, clothing, farm supplies and fuel.

Area beaches on Lake Manitoba boast fine sand and clear, clean water. Oak Bay Lodge, Lake Manitoba Narrows Lodge and Silver Bay are popular places for local cottage owners and seasonal campers. In the northwest of the R.M. lie the Lake Manitoba Narrows, birthplace of the province's name. The Cree called this area Manitobau, meaning "Narrows of the Great Spirit". Today this region is prime angler country with Master Angler Awards given here for perch, freshwater drum, northern pike, walleye and sauger.



# Climate Profile Assessment

## Community at a Glance

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The discussion below interprets data from the Prairie Climate Atlas (<https://climateatlas.ca/>) for the Municipality of West Interlake. This data set forecasts the anticipated changes to the climate of the region for the near future (2021-2050) and later (2051-2080). The forecasting protocol used is an aggregation of 24 different models, with the mean or average of all reported below as the anticipated average for the municipality. This data set also includes Low and High estimate forecasts, referring to the lowest and highest 10% of forecasts generated. The text below will use these extreme estimates as a proxy for extreme weather conditions that may be experienced by the community in the coming years.

Additionally, the Prairie Climate Atlas forecasts based on two scenarios - one in which GHG emissions continue to grow at current rates and the other in which significant reductions are made worldwide. For the sake of simplicity, this report uses the high carbon future scenario when discussing the potential change in climate.

### *Precipitation and Temperature*

Assuming no major reductions or increases in GHG inputs, the Municipality of West Interlake will see a change in winter and spring precipitation of 17mm (10% increase), and full annual change of 31mm (7% increase). The average annual temperature will increase in the region by 2.4°C, 2.2°C in spring, 2.2°C in summer, 2.8°C in fall and 3.0°C in winter. Annual very hot days (VHD) will decrease from 7 to 19 days, with the increased occurrence of nighttime lows of 20°C and hotter exacerbating the situation. At the extreme end, a year may contain as many as 35 days above 30°C. Annual very cold days (VCD) will decrease from 20 days per year to 10 days per year. There will be an increase in the length of the frost-free season by 21 days on average. In some extreme years the frost-free season may be longer by as many as 46 days, while in others it may be shorter by up to 4 days.

### *Opportunities and Threats*

Changes in anything can create opportunities and threats, and the climate is no exception to this.

### *Agriculture*

Agriculture in the region has both opportunities and threats from the changing climate. The annual frost-free season will increase by 17%, potentially increasing yields and the range of crops that can be grown. On the other hand, increased cold weather precipitation may lead to delayed seeding and field flooding. With summer VHDs doubling, with a 2% increase in precipitation, the chance for drought increases as well, as do the associated risks of wildfires.

# Climate Profile Assessment

Community at a Glance

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## *Municipal Operations*

Significant increases in winter/spring precipitation increase the chance of spring flooding as well as increased needs for snow plowing. Drought may place a strain on potable water infrastructure, requiring adequate water storage and retention. This, combined with high heat conditions in the summers, may increase fire risk, particularly in more rural fringes of the community. Road and building maintenance may be made easier with frost heaving.

## *Community-At-Large*

Chances for drought from essentially unchanged summer precipitation levels with the doubling of VHDs, and the occurrence of tropical nights increase risks to populations vulnerable to extreme temperatures (especially seniors, which comprise 26% of the population, more than the provincial average of 16%).

NOTE: The information disseminated by this report has been sourced from the Prairie Climate Centre's Climate Atlas, including but not restricted to maps, tables, statistics and interpretations. It is provided as a good faith estimation of future climate impacts. It is provided without any warranty or representation, express or implied, as to its accuracy or completeness. Any reliance placed upon the information contained here is the sole responsibility of the reader; in no event will Eco-West Canada accept liability for any losses or damages resulting from reliance on this report. While the analysis has been performed in good faith using the best techniques and data available at the time this report was published, the climate is much more complex than can be precisely modeled and the impacts actually experienced over the periods analyzed may be much different than predicted.

# Climate Atlas Report

## Region (1:50K): ASHERN

### RCP 8.5: High Carbon climate future

GHG emissions continue to increase at current rates

Variable	Period	1976-2005 Mean	2021-2050			2051-2080		
			Low	Mean	High	Low	Mean	High
Precipitation (mm)	annual	474	372	505	643	377	509	655
Precipitation (mm)	spring	104	58	114	177	67	121	187
Precipitation (mm)	summer	196	115	200	298	106	193	298
Precipitation (mm)	fall	111	63	121	189	65	120	190
Precipitation (mm)	winter	63	41	70	102	44	75	111
Mean Temperature (°C)	annual	1.6	2.2	4	5.7	4.3	6.4	8.5
Mean Temperature (°C)	spring	1.4	0.3	3.6	6.9	2.4	5.7	9.2
Mean Temperature (°C)	summer	17.5	17.9	19.7	21.4	19.6	21.9	24
Mean Temperature (°C)	fall	3.7	3.7	5.9	8	6	8.2	10.4
Mean Temperature (°C)	winter	-16.5	-17.5	-13.7	-10	-14.5	-10.5	-6.6
Tropical Nights	annual	1	0	4	9	2	14	28
Very Hot Days (+30°C)	annual	7	5	19	35	14	38	62
Very Cold Days (-30°C)	annual	20	1	10	21	0	3	10
Date of Last Spring Frost	annual	May 21	April 24	May 11	May 27	April 11	May 3	May 20
Date of First Fall Frost	annual	Sep. 22	Sep. 16	Oct. 3	Oct. 23	Sep. 25	Oct. 15	Nov. 4
Frost-Free Season (days)	annual	121	117	142	167	136	162	190

### RCP 4.5: Low Carbon climate future

GHG emissions much reduced

Variable	Period	1976-2005 Mean	2021-2050			2051-2080		
			Low	Mean	High	Low	Mean	High
Precipitation (mm)	annual	475	374	500	639	372	505	653
Precipitation (mm)	spring	104	58	113	179	63	116	178
Precipitation (mm)	summer	196	115	197	287	111	195	291
Precipitation (mm)	fall	111	64	118	186	64	120	188
Precipitation (mm)	winter	63	42	72	106	44	73	108
Mean Temperature (°C)	annual	1.6	2	3.8	5.6	3	4.9	7
Mean Temperature (°C)	spring	1.4	0.4	3.5	6.7	1.4	4.6	8
Mean Temperature (°C)	summer	17.5	17.6	19.3	21.1	18.3	20.3	22.4
Mean Temperature (°C)	fall	3.7	3.6	5.8	7.8	4.3	6.7	8.9
Mean Temperature (°C)	winter	-16.5	-17.7	-13.8	-10.3	-16.1	-12.2	-8.2
Tropical Nights	annual	1	0	3	9	0	6	15
Very Hot Days (+30°C)	annual	7	4	17	32	8	25	44
Very Cold Days (-30°C)	annual	20	1	11	23	0	6	16
Date of Last Spring Frost	annual	May 21	April 28	May 14	June 1	April 19	May 9	May 26
Date of First Fall Frost	annual	Sep. 22	Sep. 15	Oct. 2	Oct. 22	Sep. 19	Oct. 6	Oct. 27
Frost-Free Season (days)	annual	121	111	138	164	120	147	177

## Where did this data come from?

Global Climate Models (GCMs) are used to depict how the climate is likely to change in the future. Since no one climate model can be considered 'correct', it is important to use many GCMs to capture a range of possible conditions. The GCM data we used were obtained from the Pacific Climate Impacts Consortium (PCIC). PCIC collected temperature and precipitation data produced by 24 different models and used advanced statistical techniques to create high-resolution (daily, 10km) versions of the data for all of Canada (for more information visit [pacificclimate.org](http://pacificclimate.org)).

## What are the RCP 8.5 and RCP 4.5 future climate scenarios?

One of the most important inputs into GCM simulations of the future climate is the expected concentration of greenhouse gases (GHGs; especially carbon dioxide) in the atmosphere as a result of human activity. In the scientific literature these future GHG concentrations are used to calculate Representative Concentration Pathways (RCPs). The High Carbon scenario (RCP8.5) assumes that we continue to emit very large amounts of carbon dioxide from the burning of fossil fuels; the Low Carbon scenario (RCP4.5) assumes that drastic reductions of emissions in the coming decades will stabilize the concentration of GHGs in the atmosphere by the end of this century. We did not use RCP2.6, an even lower emissions scenario.

## How are the minimum, mean, and maximum calculated?

We used an ensemble of 24 different GCMs to analyze the future climate. The mean values are the average values of this ensemble over the 1976-2005, 2021-2050 and 2051-2080 periods. The range of values in each time period is indicated by the High (90th percentile) and Low (10th percentile) values in the tables. This means about 10% of the predicted values are above the "High" value, and 10% are lower than the "Low" value.

## The Climate Atlas of Canada

The Climate Atlas of Canada ([climateatlas.ca](http://climateatlas.ca)) is an interactive tool for citizens, researchers, businesses, and community and political leaders to learn about climate change in Canada. It combines climate science, mapping and storytelling to bring the global issue of climate change closer to home, and is designed to inspire local, regional, and national action and solutions.

## Source

Prairie Climate Centre (2019). Climate Atlas of Canada, version 2 (July 10, 2019). <https://climateatlas.ca>

## Disclaimer

The information disseminated by the Prairie Climate Centre -- including but not restricted to maps, tables, statistics and interpretations -- is provided as a public service. It is provided without any warranty or representation, express or implied, as to its accuracy or completeness. Any reliance you place upon the information contained here is your sole responsibility and strictly at your own risk. In no event will the Prairie Climate Centre be liable for any loss or damage whatsoever, including without limitation, indirect or consequential loss or damage, arising from reliance upon the data or derived information.

# GHG Emissions Inventory

Community at a Glance

## The RM of West Interlake

Eco-West Canada completed an energy consumption and GHG emissions inventory in 2011 and 2016 for the RM of West Interlake, both at the corporate and community levels.

### Corporate Inventory:

This inventory includes data on all municipal government installations, including the buildings, street lighting, water and sewage, the municipal fleet and solid waste in the community and/or the municipal government.

### Community Inventory:

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

## Corporate Energy Consumption & Emissions:

The operations of the Municipality of West Interlake emitted 155 tonnes of CO<sub>2</sub>e in 2016, from the consumption of 4,380GJ of energy. These energy purchases cost approximately \$156,000.

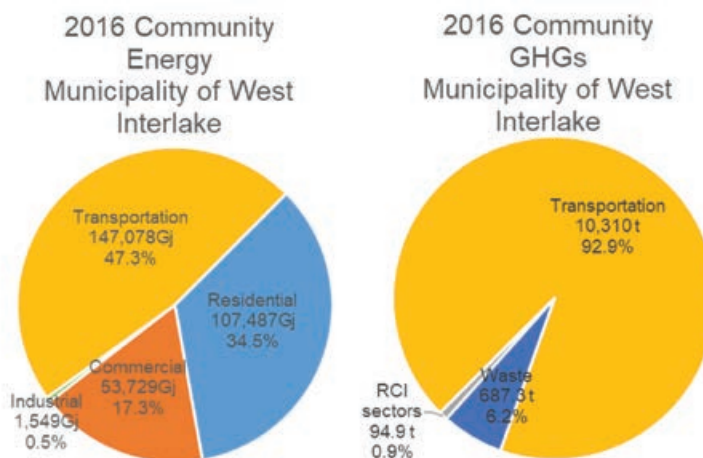
The Municipality of West Interlake's most energy intensive sector is the **vehicle fleet** sector, consuming 49.6% of all energy used by the corporation (2,170GJ in total), and emitting 154.2t of CO<sub>2</sub>e. Care must be taken when considering the vehicle fleet sector; it uses primarily fossil fuels, which makes its energy consumption the "dirtiest" per unit of consumption. It is also the most difficult to measure, though any changes made will have significant GHG emissions impacts. Typically, for large rural municipalities, the major consumer of energy is this sector, at 3,319GJ total energy consumed, or 1.1GJ/capita. The municipality's consumption is much more than that.

The second most energy intensive sector for West Interlake is **buildings** accounting for 31.5% of consumption, and 0.5% of emissions. This sector tends to be quite a significant energy consumer because buildings must be kept lit and habitable for people to function. In Canada, this means significant heating and cooling costs. Vehicle bays have the added issue of having doors the size of whole walls that can vent an entire building's heat in seconds, creating problems for firehalls and public works garages.

The third highest sector is **streetlights** at 10.4%.

Finally, the **water and sewage** sector represents just 8.6% of total consumption

## Corporate GHG Emissions by Sector RM of West Interlake, 2016





# GHG Emissions Inventory

Community at a Glance

## *The RM of West Interlake*

### *Community Energy Consumption & Emissions:*

This inventory divides community energy consumption into the following sectors: **residential**, **commercial**, **industrial** and **transportation**. Emissions here include an additional sector: waste.

The community-at-large in the Municipality of West Interlake uses the most energy in the **transportation** sector, which comprises 47.5% of the total. This consumes 147,078GJ of energy, and emits 10,310 t of CO<sup>2</sup>e. This is an estimate based on the number of households in the community. Typically, for rural municipalities, the transportation sector consumes 43.4GJ per capita. West Interlake, at 68.0Gj per capita, is much higher than the average (56.7% the per capita average).

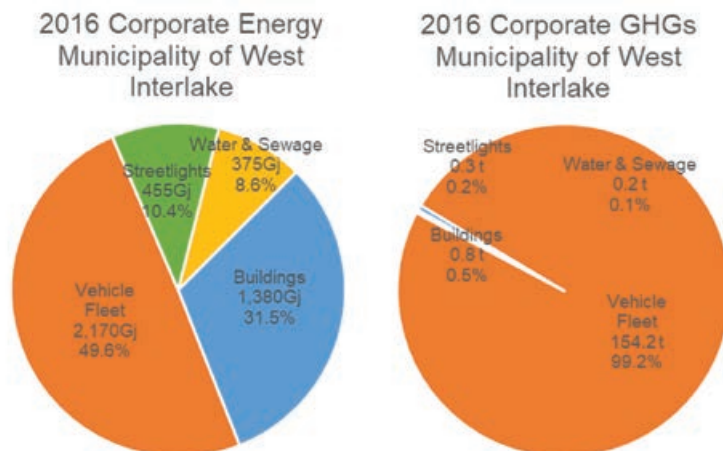
The second highest energy consumer in the community is the **residential** sector, with 107,487GJ,

34.7% of total consumption. Per capita this is 49.7GJ, about twice as much as the rural average of 29.4GJ.

**Commercial** was next highest at 53,729GJ, 24.9GJ per capita and 17.3% of total energy consumption, less than the rural average of 29.7GJ/capita.

The least energy intensive sector, accounting for 0.5%, is the **industrial** sector, which consumed 1,549GJ total and 0.7GJ/capita (much less than the average of 35.1GJ on a per capita basis).

### Community GHG Emissions by Sector RM of West Interlake, 2016



# Vision Statement

Community at a Glance

By participating in the

## *Climate Change Local Action Plan process,*

the **RM of West Interlake** 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:



**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**



Éco-Ouest  
Eco-West



# Greenhouse Gas Reduction Action Plans

Potential Programs

## 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>6</sup>*



*This set of potential programs represents initiatives identified and endorsed by stakeholders and community representatives through three online surveys distributed between the months of April and July 2019 to residents, municipal staff and council members; and a consultation process which took place in February 2020 at the RM of West Interlake.*

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)



# Greenhouse Gas Reduction Action Plans

## Potential Programs

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### Easy wins at work include:

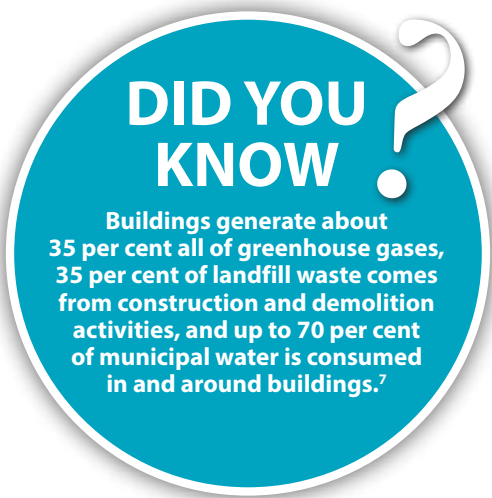
- Participate in workplace and community-based carpools
- Implement an anti-idling program to reduce emissions from municipal fleet vehicles
- Turn off lights and get rid of phantom loads by using a power bar and shutting it off when equipment (computers, monitors etc.) is not in use
- Buy sustainable 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.<sup>7</sup>



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: Reduce community waste

*Seek to reduce waste per household in the municipality*

Potential Programs



### OBJECTIVE

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

### ACTIONS

- Operate new waste disposal grounds to high standards of efficiency environmental protection
- Develop a community organics strategy to determine possible steps such as community compost drop off sites or organics pick up
- Encourage recycling/waste diversion programs already in place in the municipality

## GOAL 2: Reduce impact of transportation around the RM of West Interlake

Potential Programs

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

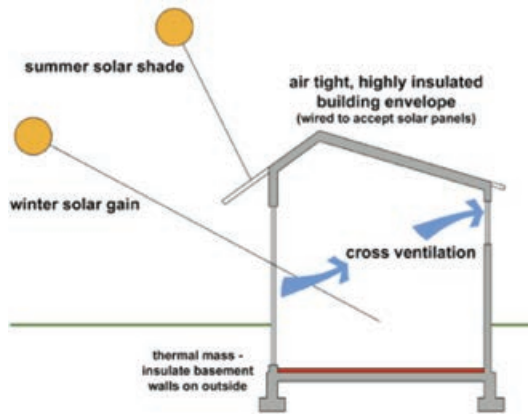


**OBJECTIVE**

*Reduce use of fossil fuels*

### ACTIONS

- Investigate potential for electric vehicles for municipal fleet and other transportation



### 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 3: Reduce energy consumption in the RM of West Interlake

*Seek to reduce energy consumption for existing buildings*

Potential Programs



### OBJECTIVE

*Investigate and invest in solar projects for the municipality*

### ACTIONS

- Study solar opportunities for municipality to determine best project(s) and scale

## GOAL 4:

# Protect and enhance the natural environment in and around the municipality

Potential Programs



**OBJECTIVE**

*Develop deep, grassroots support for environmentally sustainable planning and management of the community*

*Ensure a robust natural environment accessible for current and future generations*

### ACTIONS

- Create strong partnerships with the other RMs near Lake Manitoba
- Identify local environmental assets and liabilities, potential risks and hazards arising from climate change
- Protect existing natural infrastructure and rehabilitate areas that have been altered

# Local Benefits & Impacts

ENVIRONMENTAL, ECONOMIC & SOCIAL

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



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# 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**

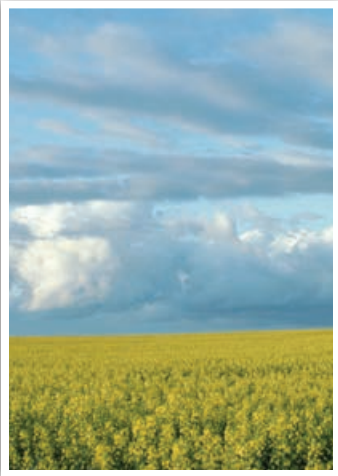


Éco-Ouest  
Éco-West

## Conclusion

### Next Steps - Getting Started

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This report confirms that

### *the RM of West Interlake*

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

With this Climate Change Local Action Plan received by council on **Date to Come**, the RM of West Interlake now has a report that can be described as comprehensive, effective, and achievable.

The next step for Eco-West Canada and the RM of West Interlake 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 & CONSULTATION

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



Éco-Ouest  
Éco-West

# References

## *Literature*

### Appendices

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[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)
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<http://marshall.org/energy-policy/fossil-fuel-energyand-economic-wellbeing/>
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- 7 Canada Green Building Council. About CaGBC.  
[www.cagbc.org/](http://www.cagbc.org/)





# Municipality of West Interlake

April 4, 2019



## Greenhouse Gas (GHG) Emissions Inventory



This report is an inventory of GHG emissions that were generated within your territory in 2011 and 2016, 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.

# Why an energy and emissions 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 zero, 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.

The information contained in this document is privileged and only for the information of the client. It may not be used, published or redistributed without the prior written consent of the client or Eco-West Canada. The data and opinions expressed are made in good faith and while every care has been taken in preparing this document, Eco-West Canada gives no warranties of whatever nature in respect of these documents, including but not limited to the accuracy or completeness of any information, facts and/or opinions contained therein.

## Note to the Reader

This report makes comparisons across a number of dimensions to give context to the consumption and emissions figures presented. Comparisons are made between communities, between years for the Municipality, and to averaged Manitoba municipalities. Although not exhaustive, they give a global picture of the magnitude of consumption and emissions in the Municipality and whether that is high or low.

An important additional consideration for the reader is annual weather differences. The two years compared in this report—2011 and 2016—had different weather. Normalized to a 24 year average, 2011 had as much as 7.2% more heating requirements than 2016. This report has normalised data from 2011 to allow for a more robust comparison between years based on Degree Days Heating (DDH), and centimetres of snowfall. Cross-community comparisons do not take into account differences between surveyed years despite most other communities shown in this report are displaying 2015 or 2016 data. Normalising coefficients and sources are below.

**Residential** energy consumption has been increased for 2011 using the Residential Space Heating proportion reported by Natural Resources Canada (63%). The Commercial Space Heating proportion (50%) impacts the **commercial** and **industrial** sectors in the Community inventory, and the **buildings** and **water** sectors in the Corporate inventory. **Vehicle fleet** emissions for 2011 have been decreased by the snowfall adjustment, to reflect reduced plowing.

## Data sources

The data in this report come from a variety of sources. Electricity and natural gas consumption information for the municipality’s operations and for the aggregate of the community at large comes from Manitoba Hydro. Vehicle fleet consumption, and the fuel types and respective quantities used are provided by municipal staff. Waste and recycling tonnage similarly come from municipal records, supplemented by recycling data from Manitoba Multi-Materials Stewardship. Transportation data is estimated using a proxy rate provided by the Federation of Canadian Municipalities.

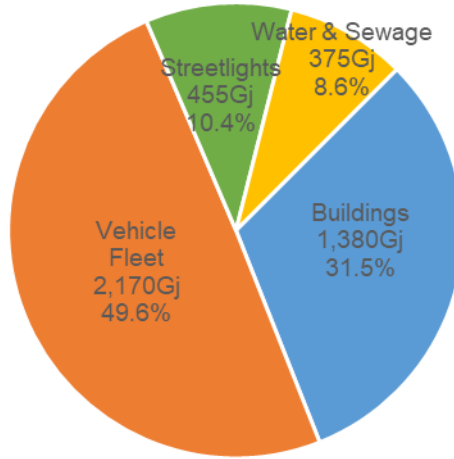
DDH Adjustment	Snowfall Adjustment	Source: fisherbranch.weatherstats.ca	Additional data allowing cross-community comparisons comes from the communities themselves.
7.2%	-3.60%	1-Apr-19	
Residential Space Heating Energy Consumption	Commercial Space Heating Energy Consumption	Source: oeo.rncan.gc.ca/publications/statistics/trends11/	
63%	50%	1-Apr-19	

**2016  
Corporate  
Data**

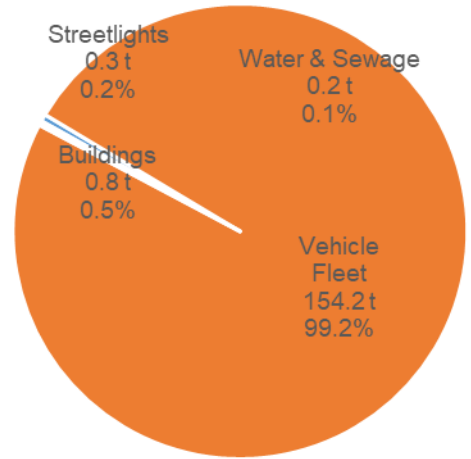
Energy Sources:  
Electricity, Natural  
Gas, Diesel, Gasoline,  
Propane, Waste

**Total 2018  
CO<sub>2</sub>e:  
155 t**

2016 Corporate Energy  
Municipality of West  
Interlake



2016 Corporate GHGs  
Municipality of West  
Interlake



Sector	2011		2016	
	Energy GJ	Emissions tonnes	Energy GJ	Emissions tonnes
Buildings*	1,798	1.0 t	1,380	0.8 t
Vehicle Fleet	WAITING FOR DATA		2,170	154.2 t
Streetlights	454	0.3 t	455	0.3 t
Water & Sewage	287	0.2 t	375	0.2 t
<b>Total</b>	<b>2,538</b>	<b>1 t</b>	<b>4,380</b>	<b>155 t</b>

## Corporate Emissions

The operations of the Municipality of West Interlake emitted 155 tonnes of CO<sub>2</sub>e in 2016, from the consumption of 4,380GJ of energy. These energy purchases cost approximately \$156,325.

The Municipality of West Interlake's most energy intensive sector is the **vehicle fleet** sector, consuming 49.6% of all energy used by the corporation (2,170GJ in total), and emitting 154.2t of CO<sub>2</sub>e.

Care must be taken when considering the vehicle fleet sector; it uses primarily fossil fuels, which makes its energy consumption the "dirtiest" per unit of consumption. It is also the most difficult to measure, though any changes made will have significant GHG emissions

impacts.

Typically, for large rural municipalities, the major consumer of energy is this sector, at 3,319GJ total energy consumed, or 1.1GJ/capita. The Municipality's consumption is much more than that.

The second most energy intensive sector for West Interlake is **buildings** accounting for 31.5% of consumption, and 0.5% of emissions.

The **buildings** sector tends to be quite a significant energy consumer because buildings must be kept lit and habitable for people to function. In Canada, this means significant heating and cooling costs. Vehicle bays have the added issue of having doors the size of whole walls that can vent an entire building's



# + Preliminary Observations: Corporate

The Municipality of West Interlake experienced population loss between 2011 and 2016 (-2.0%) while undergoing an increase of 72.6% in energy consumption.

The largest consumer of energy, and therefore energy costs, is the **vehicle fleet** sector, consuming 49.6% of all energy used by operations. This is less than the average for Rural communities studied so far (94.9% of the per capita average).

An audit of energy efficiency among these buildings may identify opportunities for energy efficiency improvements.

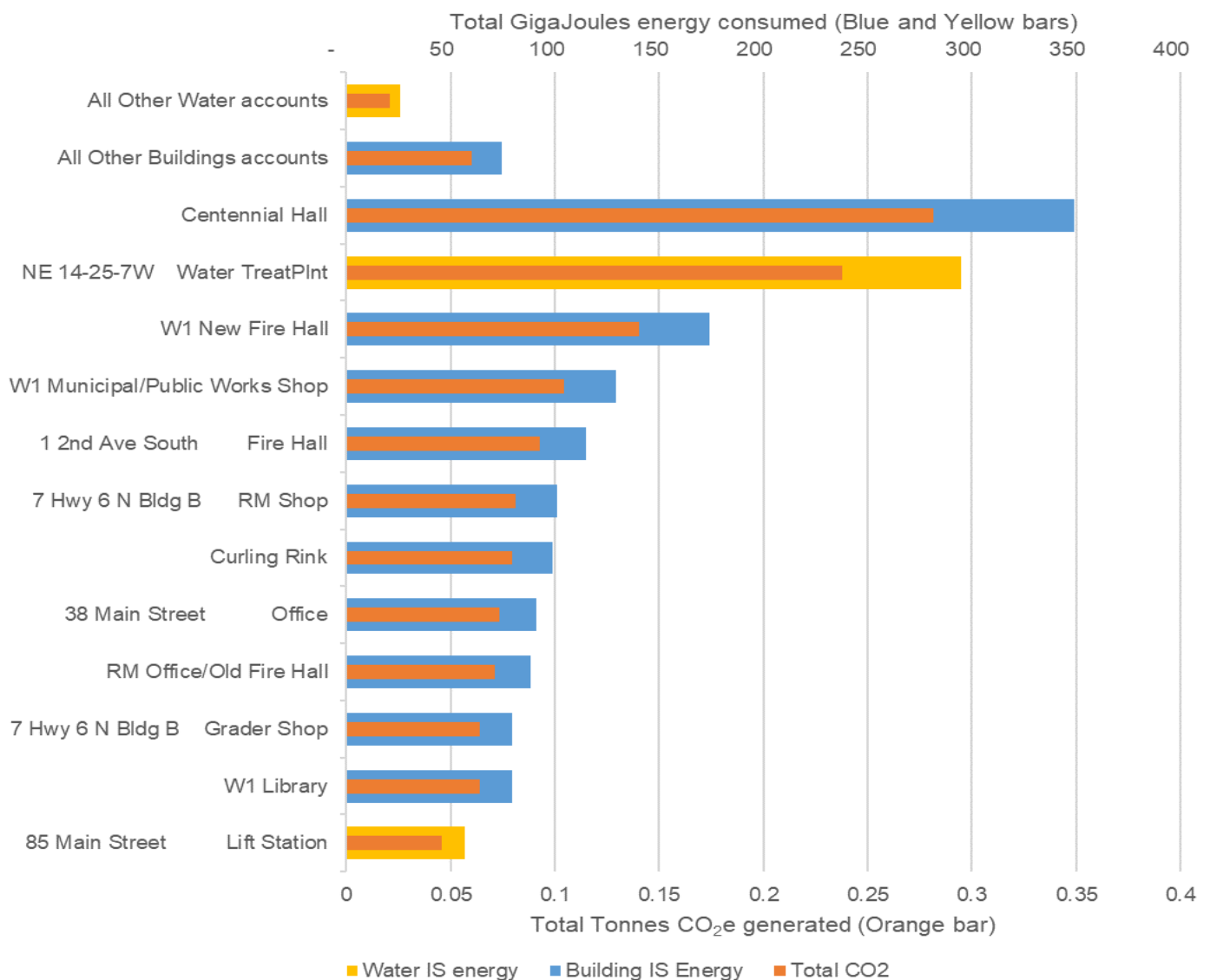
Older buildings are potential targets for insulation or other energy efficiency measures, as are large buildings like arenas and recreation centres.

heat in seconds, creating problems for firehalls and public works garages.

Finally, the **water and sewage** sector represents just 8.6% of total consumption.

The third highest sector is **streetlights** at 10.4%.

Municipal Energy Use and Emissions, All Accounts  
Municipality of West Interlake - 2016

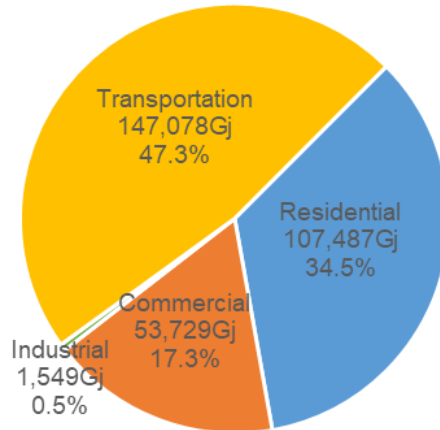


# 2016 Community Data

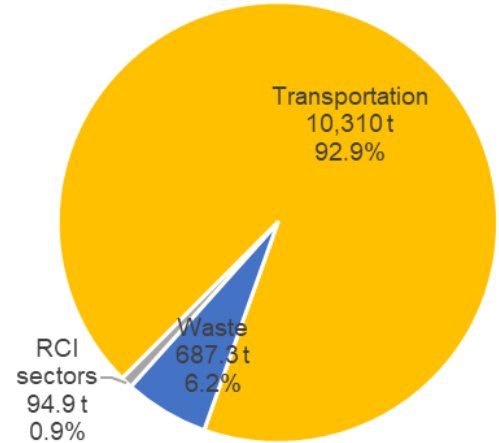
Energy Sources:  
Electricity, Natural Gas, Diesel, Gasoline, Propane, Waste

Total 2018 CO<sup>2</sup>e:  
11,092 t

### 2016 Community Energy Municipality of West Interlake



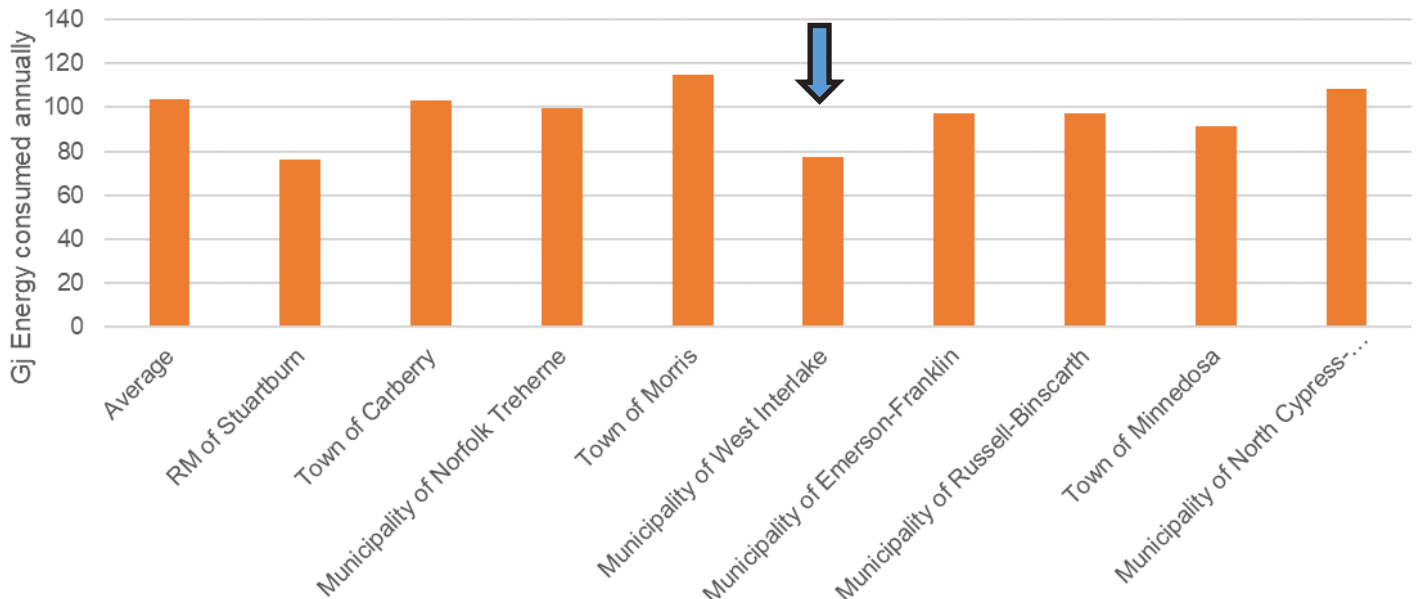
### 2016 Community GHGs Municipality of West Interlake



\* Normalized

Sector	2011		2016	
	Energy Gj	Emissions tonnes	Energy Gj	Emissions tonnes
Residential*	107,597	63 t	107,487	63 t
Commercial*	54,204	32 t	53,729	31 t
Industrial*	1,658	1 t	1,549	1 t
Transportation	142,887	10,016 t	147,078	10,310 t
Waste		701 t		687 t
<b>Total</b>	<b>306,345</b>	<b>10,750 t</b>	<b>309,843</b>	<b>11,092 t</b>

### Per Household Energy Consumption



## Community Emissions

This inventory divides community energy consumption into the following sectors: **residential**, **commercial**, **industrial** and **transportation**. Emissions include a further sector: **waste**, discussed in the section following this one.

The community-at-large in the Municipality of West Interlake uses the most energy in the **transportation** sector, which comprises 47.5% of the total. This consumes 147,078GJ of energy, and emits 10,310 t of CO<sub>2</sub>e. This is an estimate based on the number of households in the community.

Typically, for Rural municipalities, the transportation sector consumes 43.4GJ per capita. West Interlake, at 68.0Gj per capita, is much more than the average (56.7% the per capita average).

The second highest energy consumer in the community is the **residential** sector, with 107,487GJ,

34.7% of total consumption. Per capita this is 49.7GJ, about twice as much as the Rural average of 29.4GJ.

**Commercial** was next highest at 53,729GJ, 24.9GJ per capita and 17.3% of total energy consumption, less than the Rural average of 29.7GJ/capita.

The least energy intensive sector, accounting for 0.5%, is the **industrial** sector, which consumed 1,549GJ total and 0.7GJ/capita (much less than the average of 35.1GJ on a per capita basis).

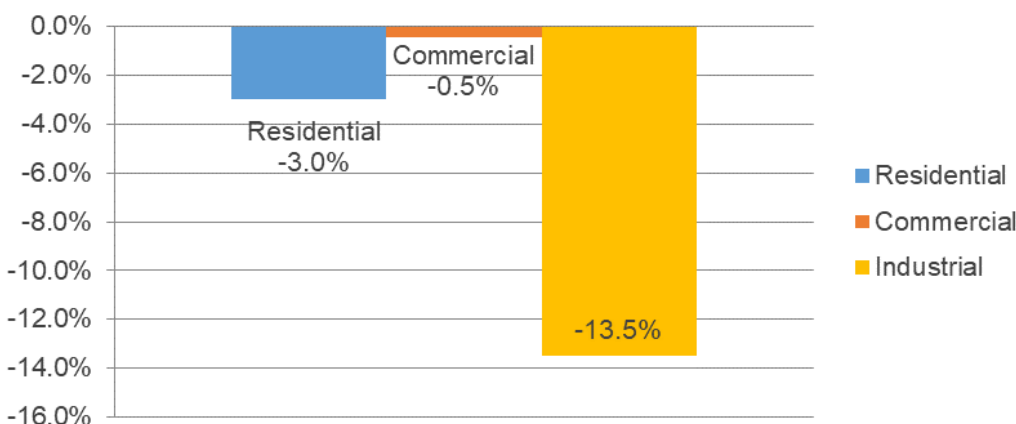


## Preliminary Observations: Community

The two tables on the previous page demonstrate an increase in total energy consumption within the community, with 3.5% growth in energy consumption but 10.5% higher GHG emissions while population decreased by -2.0% in the same time period.

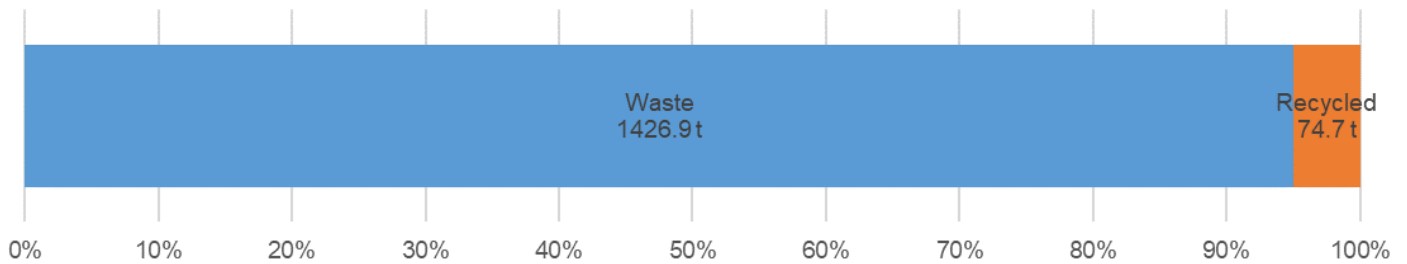
By far the greatest increase in energy consumption was in the **transportation** sector, which accounted for 119.8% of energy use growth (taking into account countervailing changes in other sectors). Per user consumption of energy increased in the **transportation** sector (by 5.0%). Per user consumption of energy decreased in the **industrial**, **residential** and **commercial** sectors (by -0.5%, -3.0% and -13.5, respectively).

Per Consumer Change in Consumption  
Municipality of West Interlake, 2011-2016

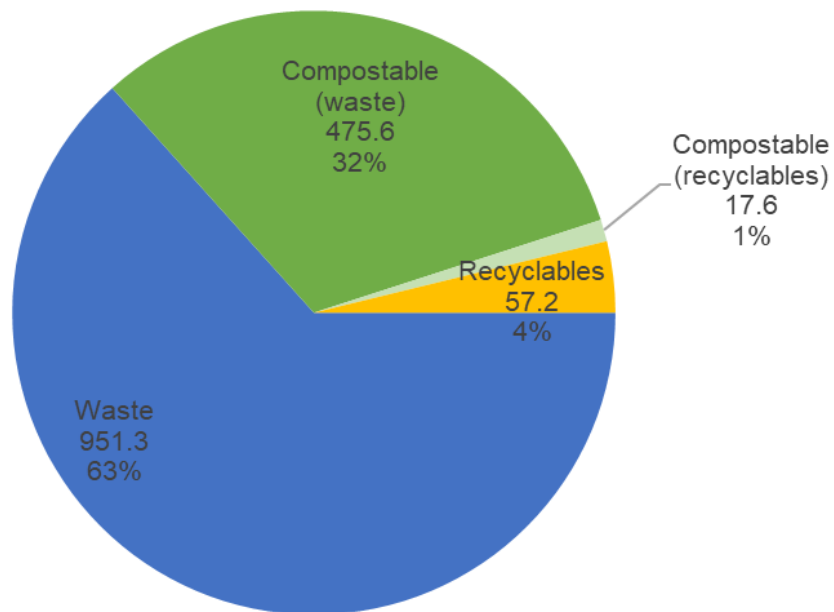


# + Waste Appendix

In Brief: The Municipality of West Interlake does not weigh its waste, so likely reports and pays for a higher amount of per-capita waste than it generates. It recycles less than its peers, indicating an opportunity for improvement.

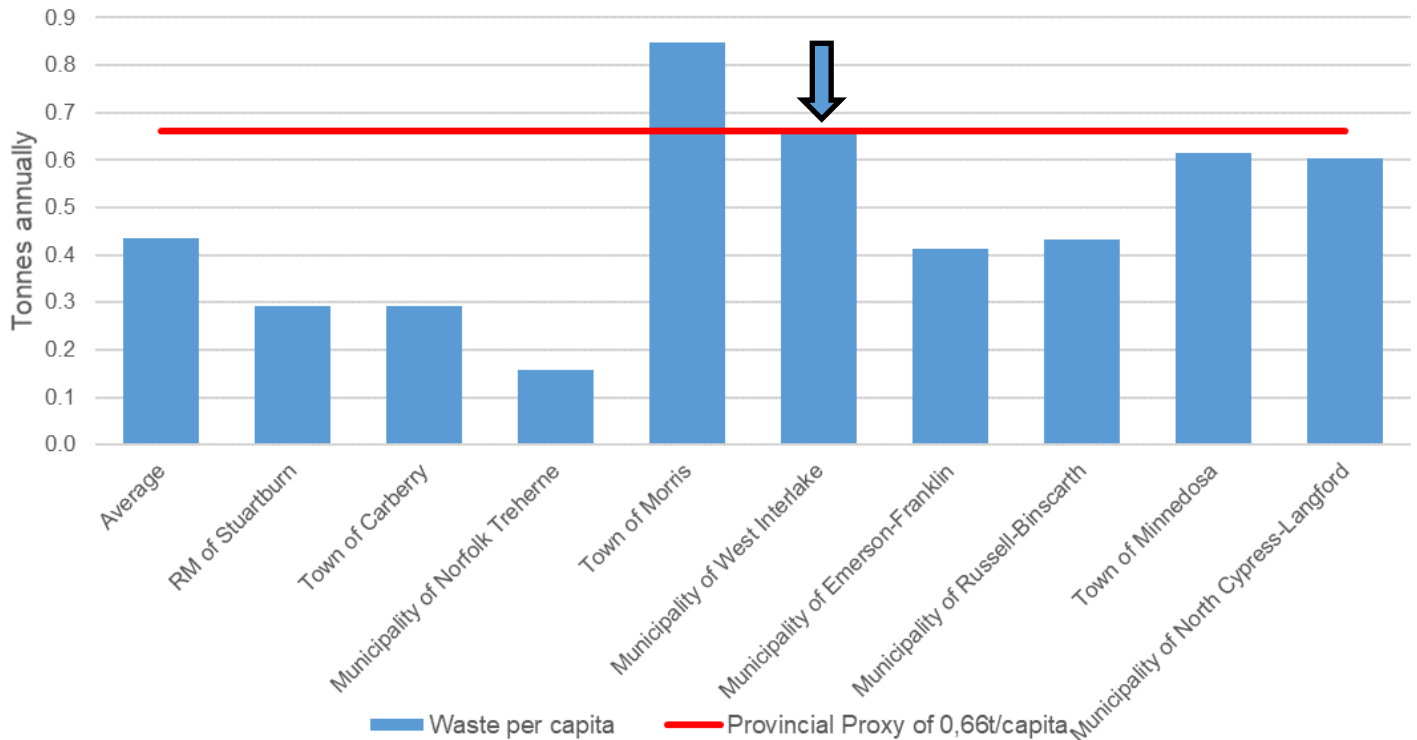


Waste Stream Breakdown  
Municipality of West Interlake - 2016





## Annual Waste Production per capita



Waste per capita as reported to Eco-West Canada

## Waste Analysis

In 2016 the Municipality of West Interlake reported 1,426.9 tonnes of waste landfilled, or about 660.0 kg per person per year. This reported amount is a proxy used by the Province of Manitoba to determine a levy-per-tonne charged to municipalities that do not weigh the amount of waste generated in the community. Municipalities that weigh their waste stream almost universally report much lower waste production levels than the proxy suggests.

This amount of waste reported is approximately 50% greater than to the average level seen by most other communities, which is set high to encourage weighing, and those communities using their landfills as revenue generators.

West Interlake recycles 34.4 kg/capita, less than the peer group average of 63.3 kg/capita.

The total waste stream of the community, with recycling and waste combined, is 694.4 kg/capita. This is approximately 50% greater than the estimated average for the peer group.

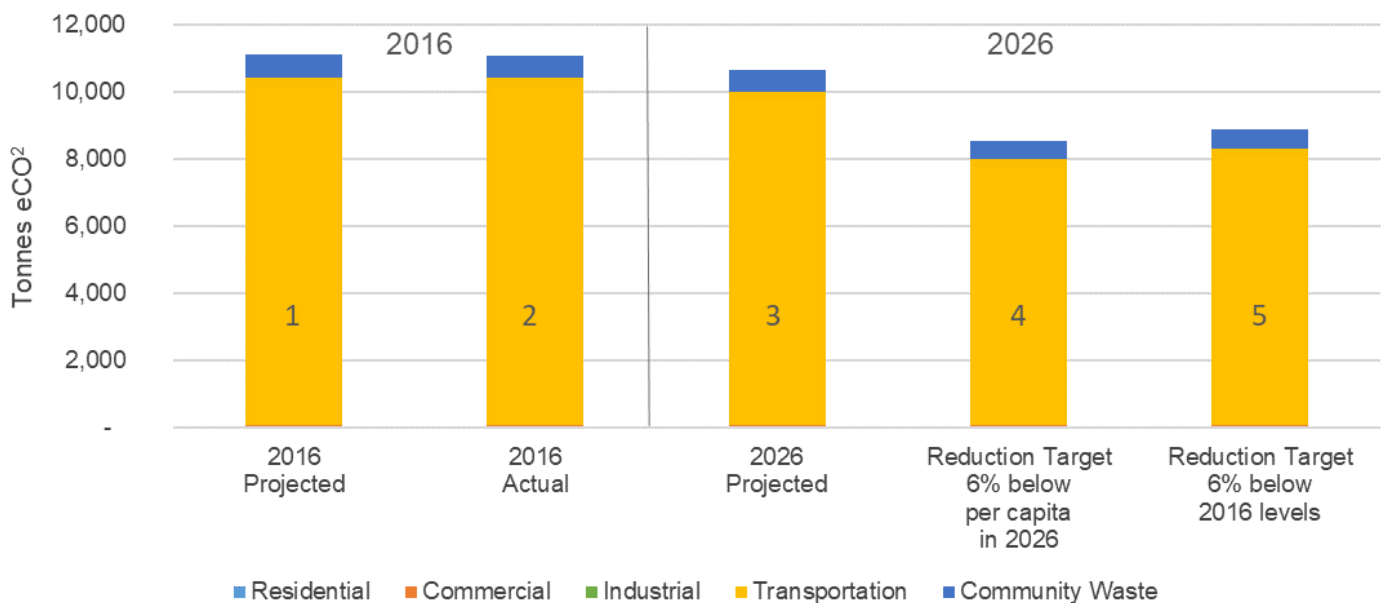
As the community produces more waste per capita than average, but recycles less per kg of waste it is very unlikely that the recycling program is performing optimally.

West Interlake has no organics waste processing, which puts about one third of the waste stream, the third most responsible for GHGs and ground water issues, into landfills. An organics processing system would reduce landfill fees, WRARS levies, landfill use rates, GHGs, odor issues and generate a usable material for landscaping.

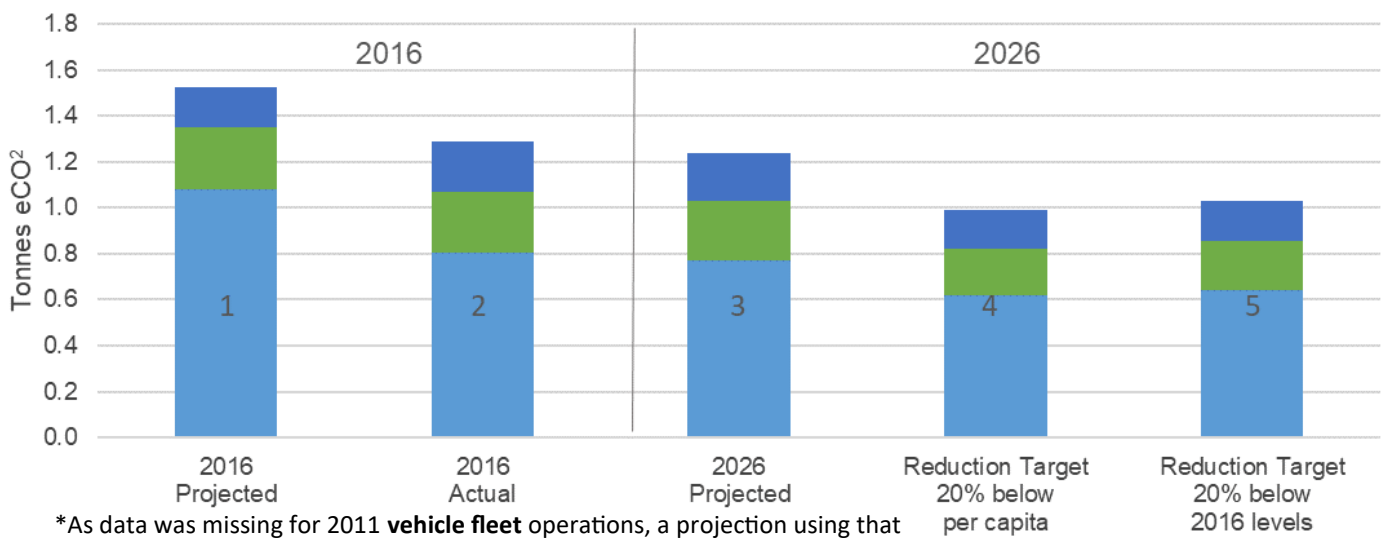
# + Business-as-Usual and Emissions Projections

In Brief: In a period of population decrease the municipality's operations decreased energy consumption in the three stationary sectors. The community-at-large kept emissions relatively constant, though the measured sectors (RCI) reported decreases.

Municipality of West Interlake Community Emissions Forecast  
-3.9% Population Change, 6% reductions



Municipality of West Interlake Corporate Emissions Forecast  
-3.9% Population Change, 20% reductions



\*As data was missing for 2011 vehicle fleet operations, a projection using that sector was not possible

■ Buildings ■ Streetlights ■ Water and Sewage

# West Interlake Past, Present and Future

In 2016 West Interlake reported 155 tonnes of CO<sub>2</sub> or equivalent emissions for Municipal operations, and 10,405 tonnes for Community operations. To determine whether this describes an improvement since 2011 a forecast was made for 2016 using data from 2011. This was scaled on the increase in households for the **residential**, **transportation** and **community waste** sectors, and by **commercial** and **industrial** Hydro clients for those sectors.

## Community

Compared to the projection, the community-at-large is emitting 7.0% less GHGs than would have been expected.

Going into the future, if no changes are made total emissions will increase by 5.9% assuming growth remains constant for the next ten years (bar 3, top graph). A commitment to a 6% per capita decrease in emissions would save 661.3 tonnes of CO<sub>2</sub>e annually, removing the equivalent of nearly 140 cars from the road (bar 4, top graph). A more ambitious target of 6% off unmodified 2016 levels would put that at 1,242 tonnes, the equivalent 262 cars (bar 5, top graph).

## Corporate

Compared to the projection, municipal operations is emitting 18.3% less GHG than would have been expected (bars 1 and 2, bottom graph), though this total doesn't include the impact of the **vehicle fleet**.

For Municipality operations, the **buildings** sector had the largest impact on energy consumption and emissions, decreasing by 25.5%, offsetting a 27.0% increase in the **water** sector.

While the population is decreasing by -2.0% every 5 years and -3.9% every 10 years a 20% reduction in CO<sub>2</sub>e emissions from 2016 levels could save an estimated \$25,091 in energy expenditures and 25 tonnes of GHGs (off projected levels), the equivalent of 5 cars annually in 2026 (bar 5, bottom graph).



Éco-Ouest  
Éco-West

Survey Report  
Rural Municipality of West Interlake, Manitoba  
July 2019







*Notice to reader: This document was prepared by Eco-West Canada Inc. (EWC) for the municipality pursuant to the terms of our engagement with the Client. The materials and observations 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 surveys, 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.*





## EXECUTIVE SUMMARY

This report is a summary of three surveys distributed between the months of April and July, 2019 to residents, staff and council members of the Municipality of West Interlake, Manitoba by Eco-West Canada Inc. (EWC), as part of the Climate Change Local Action Plan process.

**The Residents Survey** identified the community members' opinions and knowledge regarding climate change, municipal infrastructure and services.

**The Staff Survey** identified the basic readiness of the municipality regarding possible changes to conditions of environment and energy consumption.

**The Council Survey** addressed the big picture, vision and council's opinions regarding the direction of the municipality.

As per agreement, The Municipality of West-Interlake Administration distributed links for Staff Surveys and Council Surveys by e-mail if necessary and publicized the Residents Survey on the Municipality of West-Interlake website as well as through social media channels where possible. Each survey had the following number of respondents:

Residents Survey: **55 respondents**

Staff Survey: **2 respondents**

Council Survey: **3 respondents**

Not all responses are identified in this report. Please ask your EWC consultant for a detailed compilation.



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# CURRENT PICTURE of WEST-INTERLAKE

Population: **2162** (2016)  
# of council members: 7

## RESIDENTS AND COUNCIL SURVEY RESULTS BY TOPIC

### Respondent profiles

Fifty-five **residents** responded to the Residents Survey. The respondents' ages vary from 18 to 65+, distributed as follows:

Age	% of Resident Respondents
18 to 30	7%
31 to 45	42%
46 to 55	20%
56 to 65	22%
65+	9%

60% of respondents have lived in the community for more than 20 years, while 36% have lived in the community between two and twenty years. 76% of community respondents live with one other adult in the household, and 39% of respondents have children under the age of 18 living in the home.

69% of respondents plan to continue living in the community for years to come, while 25% are unsure of their future living plans. 46% of community respondents live in a house in town while 55% live in a house outside of town. 72% plan to live in their current home for as long they intend to live in the community. Of those who do not plan to stay in their current home, most say they would prefer to live in a house or apartment in town (53%).

77% of community respondents are employed or self-employed. Of these, 72% work full time, the remaining work less than 20 hours, but more than 10 hours a week.

Three of seven **council** members responded to the Council Survey.

## WATER

### Water Management

Council members believe the main water assets or issues that require investment or need to be addressed are the quality of drinking water and the availability of drinking water and drainage/improving flood protection.

42% of community respondents either have water savers on all faucets and showers, low-flow toilets or a combination thereof.





Most residents (79%) believe the tap water is fine to drink, while 6% only drink it if it is filtered or treated. 11% do not drink tap water out of concern for its quality.

## **WASTE**

### **Waste Management**

43% of community respondents reported producing less than one garbage bag in household waste per week, 49% produce one to two garbage bags per household, and 8% reported producing three garbage bags or more per week. 6% of respondents recycle less than a quarter of their household waste, 23% recycle between a quarter and half, another 43% recycle between half and three quarters, and 28% recycle more than three quarters of all household waste.

### **Compost**

30% of respondents do not compost, 17% of respondents compost yard waste and 47% compost kitchen waste.

Council respondents answered that the municipality finds improving composting is a somewhat important investment to the municipality.

### **Proper disposal of harmful products**

When it comes to proper disposal of potentially harmful products (electronics, paint, batteries, car fluids) 61% of respondents recycle or use proper disposal sites.

## **TRANSPORTATION**

### **Attitudes and Habits**

72% of community respondents work away from home, some or all of the time. To get to work, 91% of respondents use a motor vehicle while 9% walk. 38% of respondents work less than 5 kilometers from their home and 55% of respondents work between 5 and 45 kilometers from their home. Most respondents (68%) never walk or bike to work, while 19% do it to a varying frequency. 44% of respondents never travel outside the municipality for work.

### **Electric Vehicles**

41% of respondents express no interest in hybrid or electric vehicles. Despite concerns about range, performance or functionality, 47% of respondents are either considering buying a hybrid or electric vehicle or are interested in learning more about them.



# ENVIRONMENT

## Climate Change

92% of community respondents understand that human activity greatly contributes to climate change, but 31% believe they are not ready or don't have time to do something about it, or don't think they can make much of a difference. 66% of respondents are concerned about the effects of climate change.

Council respondents are unsure if most residents of the community agree that the global climate is changing as a result of human activity. They were equally uncertain about engagement of residents in municipal governance and planning. However, Council respondents do believe that most residents will support the government if it takes measures to reduce its contributions to climate change, and feel that residents are willing to reduce their own contributions to climate change.

When asked what the municipal council's needs regarding technical or information support are on issues regarding sustainable development and climate change, a majority of Council respondents expressed the need for support on applying for grants for environmental projects, understanding that there does not need to be a trade-off between the economy and the environment, communicating with the public about conservation and sustainability, identifying local environmental assets and liabilities, understanding the science of climate change and establishing an environmental or sustainability plan.

## Attitudes and Beliefs

Regarding attitudes and beliefs toward the environment, a majority of community respondents **agree** with the following statements:

- *Individuals first need to change their own habits in order to reduce society's impact on the environment.*
- *A municipal government that reduces its environmental impact is making a smart decision on behalf of its residents.*
- *Municipal governments need to take steps to reduce their impact on the local environment*
- *There does not need to be a trade-off between the economy and the environment*

**A majority disagree** with the following statements:

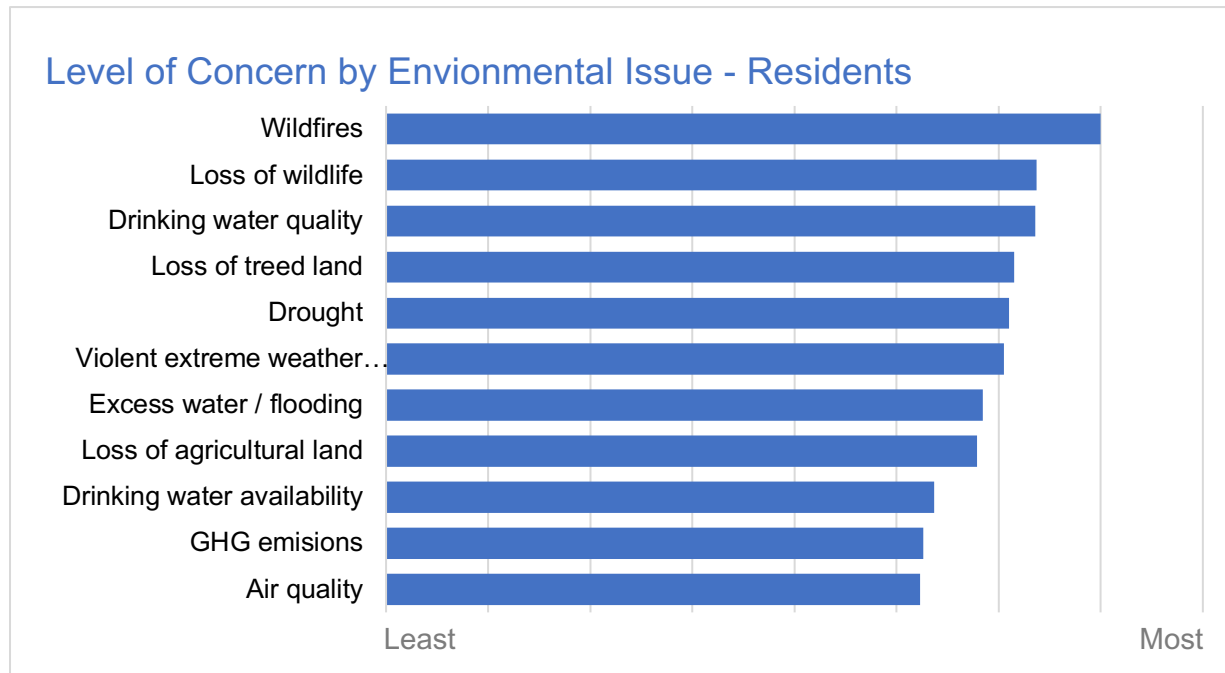
- *I don't have time to worry about how my actions affect the environment*
- *Ensuring a strong economy is more important than environmental protection*
- *Governments need to focus their spending on municipal services, not protecting the environment*
- *I am confused about environmental issues*
- *New technologies will solve environmental problems before they get out of hand*



**A majority are unsure** about the following statements:

- *My municipal council views environmental issues as a top priority*
- *Pollution is inevitable if we make improvements to our standard of living*
- *Ensuring a strong economy is more important than environmental protection*

The chart below represents the level of concern residents have for various environmental issues:



Regarding Council respondents, a majority **agree** with the following statements:

- *Council members view environmental issues as a priority*
- *Individuals first need to change their own habits in order to reduce society's impact on the environment*
- *Municipal governments need to take steps to reduce their impact on the local environment*
- *A municipal government that reduces its environmental impact is making a smart decision on behalf of its residents*

**A majority disagree** with the following statements:

- *Governments need to focus their spending on services, not protecting the environment.*
- *We don't have time to worry about how our actions affect the climate*

**A majority are unsure** about the following statements:

- *Ensuring a strong economy is more important than environmental protections*



Council members indicated the following groups as those that should take the lead on solutions to environmental problems:

*Federal, Provincial and Municipal governments; Conservation and watershed Management districts; Individuals; Businesses; Scientists and universities; and activists and organized interest groups.*

The municipal staff respondents rate their readiness, and the readiness of municipal managers to the following assignments, if directed to do so by the municipal council:

Area	Readiness				
	High	Moderate	Low	Not ready	Unsure
Planning and implementing energy consumption audits of the municipal fleet vehicles	√	√			
Planning and implementing strategies for greenhouse gas reduction	√	√			
Planning and implementing improvements to recycling programs	√	√			

When indicating what areas municipal staff requires more support in addressing environmental concerns, all respondents indicated understanding the science of environmental issues, communicating to Council or to the public about environmental issues, establishing an environmental sustainability plan for the municipality, identifying environmental assets and liabilities, applying for grants to support environmental projects or programs and finding money within existing budgets to support environmental projects or programs.

## GENERAL MUNICIPAL AFFAIRS

### Homes and Buildings, and Properties

93% of respondents own their homes. When it comes to home renovations, a majority of community respondents found that making repairs to the roof, walls, floors or foundation were the most important renovations worth considering while improving or repairing the electrical, plumbing or heating systems; improving the energy efficiency of the home; and maintaining of or increasing the value of the home were also very important.

The last time that a repair, addition or renovation was done to most of community respondents' homes (49%) was within the last two years, while 40% of respondents responded having done repairs, and addition or a renovation between two and ten years ago. The main factors in deciding to have renovations done are cost, finding a qualified contractor/tradesperson and deciding whether the benefits are worth it, with cost of renovations being the most important factor. Roof repair or replacement as well as interior remodelling or cosmetic repairs are the most popular types of intended future renovations in West-Interlake.





Council respondents believe that energy efficiency renovations are important for municipal buildings.

**Private Properties**

All community respondents have a yard or land surrounding their home, 98% of which take care of it themselves. According to residents, the most important yard/land improvements are improving drainage, improving the grading (slope) of the land, and adding or removing trees and shrubs. The most important factors in deciding to do an outdoor project are cost, obtaining a municipal permit and finding a qualified contractor/tradesperson.

**Agricultural Operations**

25% of respondents run an agricultural operation or live with someone who does. Of these agricultural operations, 55% use it for forages, 27% grow grains or oilseeds and 73% use it for livestock and dairy.

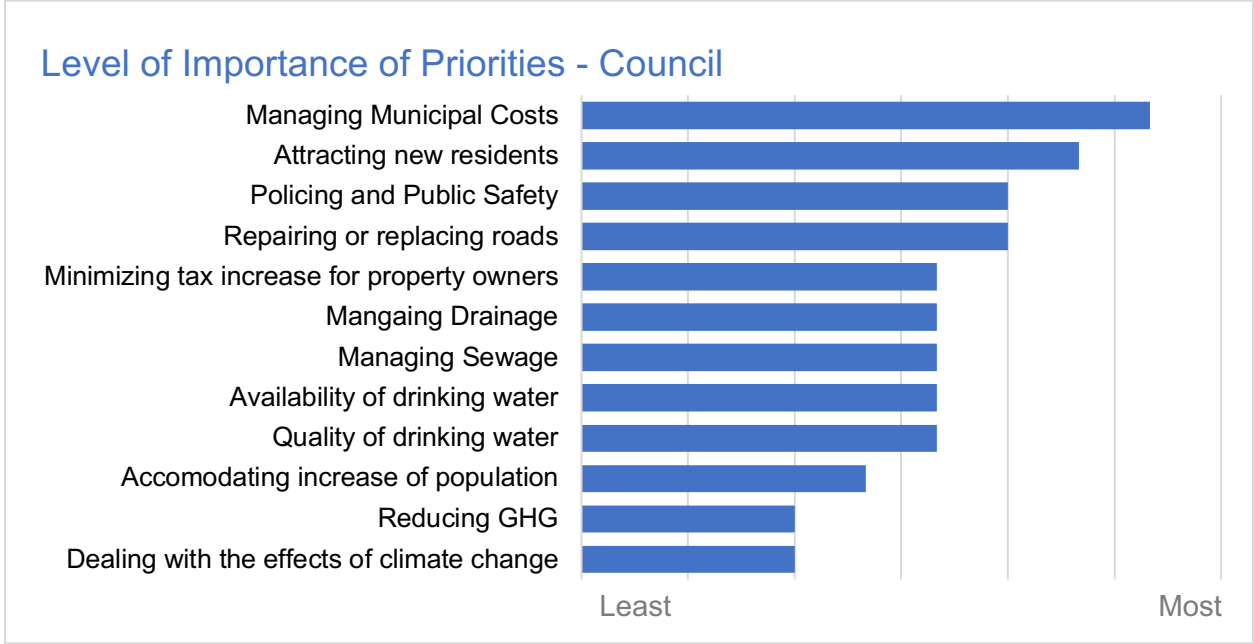
**Municipal Capabilities**

The majority of **council** respondents rate the municipality as having the following capabilities in these areas:

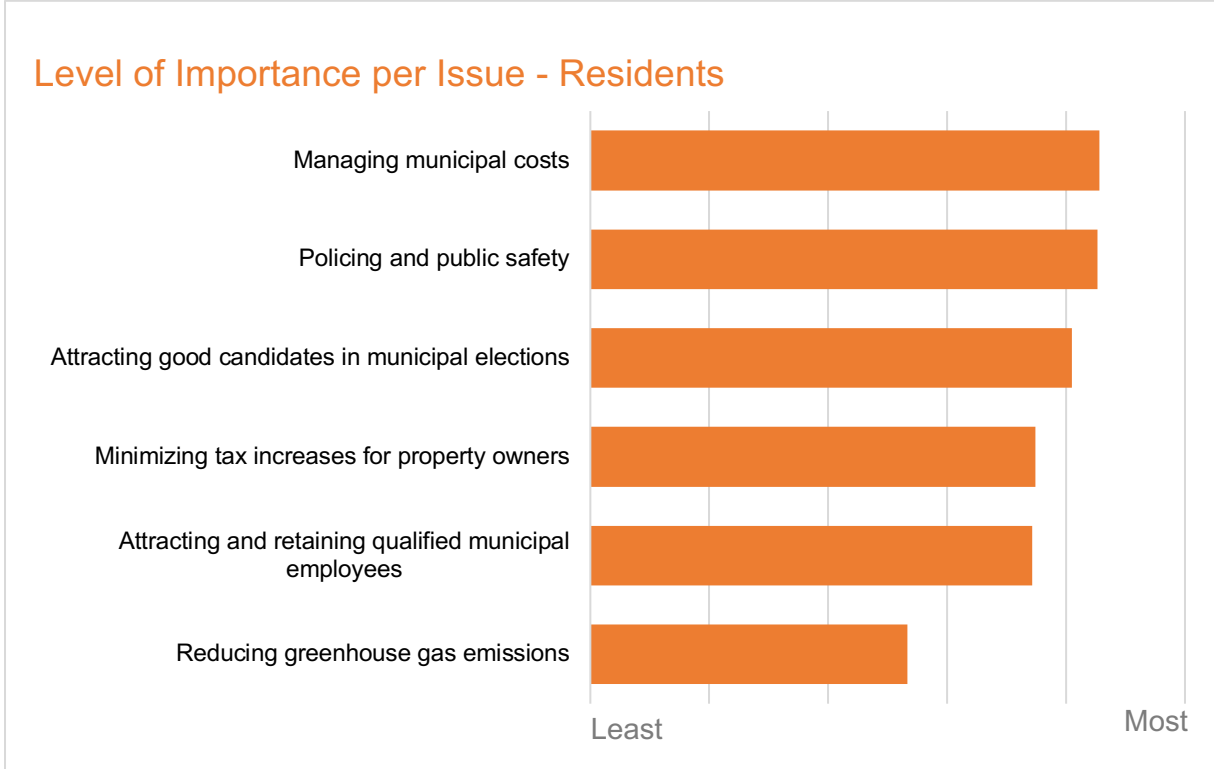
Area	Capabilities		
	Excellent	Moderate	None
Development planning		√	
Policy and legislation		√	
Managing Municipal Finances		√	
Engaging with constituents		√	
Promoting conservation and sustainability		√	
By-law enforcement		√	
EMO planning		√	



According to **Council** respondents, the most important priorities are the following issues or problems:



The table below represents residents' beliefs of the importance of the following issues for the municipality:



Additionally, residents mentioned the following additional priorities:

- Healthcare
- Economic Development
- Sustainable development
- Roads
- Quality of water
- Reducing crime
- Recycling and landfills

### **Economic Future**

When asked to highlight the most important investments for the municipality, economic development was highlighted by a majority (66%) of respondents.



# Sustainability Visioning & Initiative Prioritization

## Rural Municipality of West Interlake

---

### Final Report

#### **1 Methodology**

##### **1.1 Context and Preparation**

The objective of the engagement with the Rural Municipality of West Interlake was to invite councillors and administration to identify and prioritize specific activities that could take place within, or on behalf of their municipality to reduce community risks from and contribution to climate change.

Experts in sustainability were contracted by Eco-West to guide the participants through the process, in consideration of global sustainability issues and the connection between climate change and municipal sustainability.

##### **1.2 In-Session Details and Methods**

The consultation with the RM of West Interlake took place February 25, 2020. Table 1 shows the agenda and objectives for the consultative session.



**Table 1. Rural Municipality of West Interlake Sustainability Consultation Agenda Items with Objective and Format Details**

Item	Objective & Format Details
<b>Welcome &amp; Introductory Remarks</b>	<ul style="list-style-type: none"> <li>– Provide re-introduction to Eco-West</li> <li>– Describe Eco-West mandate</li> <li>– Describe Eco-West process and where the RM of West Interlake is in the process</li> <li>– Validate value of the process</li> </ul>
<b>Process Introduction</b>	<ul style="list-style-type: none"> <li>– Introduction of CanSustain.</li> <li>– Reiterate session objectives:               <ol style="list-style-type: none"> <li>1. Understand climate change within the context of West Interlake sustainability</li> <li>2. Identify ways to reduce community risks from and contribution to a changing climate.</li> <li>3. Prioritize ideas and actions.</li> </ol> </li> </ul>
<b>Sustainability Basics</b>	<ul style="list-style-type: none"> <li>– Provide baseline information about sustainability and importance at the community level.</li> </ul>
<b>Sustainability and Climate Change</b>	<ul style="list-style-type: none"> <li>– Describe what climate change is and what influences it.</li> <li>– Describe Greenhouse Gases and the source of Canada’s GHGs.</li> <li>– Describe how municipalities can be affected by climate change.</li> </ul>
<b>Community Sustainability Context</b>	<ul style="list-style-type: none"> <li>– Provide summarized / consolidated information specific to the community and draw links with sustainability</li> </ul>
<b>Activity Brainstorming</b>	<ul style="list-style-type: none"> <li>– Identify and document activities and initiatives that attendees believe will reduce community risks from and contribution to a changing climate.</li> </ul>
<b>Prioritization of Initiatives</b>	<ul style="list-style-type: none"> <li>– In plenary, group similar activities and prioritize based on two variables: urgency of need within the community; significance of the initiative in moving towards sustainability.</li> </ul>
<b>Session Close</b>	<ul style="list-style-type: none"> <li>– Summary of session objectives and outcomes</li> <li>– Summary of next steps</li> </ul>

### 1.3 Information Referenced

The following community specific information and regional sources were referenced in preparation for the consultation:

1. NASA, "Solar Irradiance," *National Aeronautics and Space Administration*, last accessed September 2019. [https://www.nasa.gov/mission\\_pages/sdo/science/solar-irradiance.html](https://www.nasa.gov/mission_pages/sdo/science/solar-irradiance.html)
2. Thomas F. Stocker et al., "Climate Change 2013: The Physical Science Basis," *Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Chapter 2 (September 30, 2013): 165-185. [https://www.ipcc.ch/site/assets/uploads/2017/09/WG1AR5\\_Chapter02\\_FINAL.pdf](https://www.ipcc.ch/site/assets/uploads/2017/09/WG1AR5_Chapter02_FINAL.pdf)
3. Earth Observatory, "The Atmosphere's Energy Budget," *National Aeronautics and Space Administration*, last accessed June 2018. <https://earthobservatory.nasa.gov/Features/EnergyBalance/page6.php>
4. Earth Observatory, "Climate Forcings and Global Warming," *National Aeronautics and Space Administration*, last accessed June 2018. <https://earthobservatory.nasa.gov/Features/EnergyBalance/page7.php>
5. *Canada's Top Climate Change Risks. The Expert Panel on Climate Risks and Adaption Potential. 2019. The Council of Canadian Academies.*
6. *Investing in Canada's Future: The Cost of Climate Adaptation Infographic (FCM, IBC), September 2019*
7. *RM of West Interlake Pastures in "Critical" Conditions. PortageOnline. Posted August 9, 2019.* <https://www.portageonline.com/local/rm-of-west-interlake-pastures-in-critical-condition>
8. *Hard Hit Areas in Interlake could Wait Another Two Weeks for Power, Warming Centres Open. CTV news online* <https://winnipeg.ctvnews.ca/hard-hit-areas-in-interlake-could-wait-another-two-weeks-for-power-warming-centres-open-1.4641735>

### 1.4 Post Session Activity

Results, documentation and comments from the session were consolidated and are presented in this report.

## 2 Rural Municipality of West Interlake Representation

Table 2 presents attendees at the consultation.

**Table 2. Attendees at RM of West Interlake Consultation**

Name	Association	Title / Role
Paul Murphy	West Interlake	Councillor
Randy Helgason	West Interlake	Councillor
Lyle Finney	West Interlake	Councillor
Arnthor Jonasson	West Interlake	Reeve
Courtney Roehl	West Interlake	CAO
John Bezemer	West Interlake	Councillor
Clayton Gibson	West Interlake	Councillor

## 3 Results

Results of the prioritization exercise are presented in Appendix 1 of this document, in entirety. Activities derived in prioritization exercise were further categorized by potential sustainability objective they support as found in Appendix 2 of this document.

**Appendix 1. Prioritized Activities and Initiatives, as decided by Rural Municipality of West Interlake Consultation Attendees, to Reach Sustainability Vision**

	The community needs this now	Needs to be done sooner rather than later	Should be put in the plan
A very significant step toward municipal sustainability		<ul style="list-style-type: none"> <li>Maintaining new Waste Disposal Grounds and following government reg.</li> <li>Solar projects (large scale for impact). *</li> <li>Solar lights. *</li> <li>Promote solar power generation for residents. *</li> <li>Over insulate municipal buildings to reduce energy requirements.</li> <li>Creating strong partnerships with other RM on and around Lake Manitoba.</li> </ul>	<ul style="list-style-type: none"> <li>Electric vehicles. **</li> <li>Switch fleet of vehicles from gas to other forms of energy over time (diesel?). **</li> </ul>
		<ul style="list-style-type: none"> <li>Optimize recycling (cost and efficiency).</li> <li>Consolidate municipal functions to save costs.</li> <li>Climate – We need to have all our infrastructure in place to deal with all climate variables.</li> <li>Protect existing natural infrastructure and rehabilitate areas that have been altered.</li> </ul>	<ul style="list-style-type: none"> <li>Start a composting program.</li> </ul>
Likely a strong step to municipal sustainability		<ul style="list-style-type: none"> <li>Better drainage.</li> <li>Partner with First Nation and neighbouring RMs.</li> </ul>	<ul style="list-style-type: none"> <li>Advance the collection of waste and the subsequent management of it.</li> <li>Promote group or mass housing.</li> <li>Improve recycling programs to divert waste from landfill.</li> </ul>
A moderate, but positive step toward municipal sustainability.	<ul style="list-style-type: none"> <li>Being more diligent in fuel consumption in RM fleet. **</li> </ul>		

Solar power addressed multiple times by consultation attendees. (\*)

Fleet vehicles and their energy use mentioned more than one quadrant. (\*\*)

**Appendix 2. Activities Captured by Potential Objectives**

Activities	Objectives						
	Energy	Transportation	Buildings and Infrastructure	Waste	Water / wastewater	Socio-economic development	Preserving Nature
Being more diligent in fuel consumption in RM fleet.	•	•					
Maintaining new Waste Disposal Grounds and following government regs.				•			
Solar projects (large scale for impact).	•					•	
Solar lights.	•		•				
Promote solar power generation for residents.	•		•			•	
Over insulate municipal buildings to reduce energy requirements.	•		•				
Creating strong partnerships with other RM on and around Lake Manitoba.						•	
Optimize recycling (cost and efficiency).				•			
Consolidate municipal functions to save costs.						•	
Climate – We have to have all of our infrastructure in place to deal with all climate variables.			•				
Protect existing natural infrastructure and rehabilitate areas that have been altered.							•
Better drainage.					•		
Partner with First Nation and neighbouring RMs.						•	
Electric vehicles.	•	•					
Switch fleet of vehicles from gas to other forms of energy over time (diesel?).	•	•					
Start a composting program.				•			•
Advance the collection of waste and the subsequent management of it.				•			•
Promote group or mass housing.			•			•	
Improve recycling programs to divert waste from landfill.				•			•



## Action Table for Potential Programs

Goal 1: Reduce community waste							
Seek to reduce waste per household in the municipality							
Objectives	Actions	GHG Impact	Cost	Enviro	Econ	Social	Task
Expand the awareness, education and capacity for solid waste diversion	Operate new waste disposal grounds to high standards of efficiency environmental protection	↓↓↓	\$\$	🌿🌿🌿	\$	❤️	Public Works
	Develop a community organics strategy to determine possible steps such as community compost drop off sites or organics pick-up	↓↓↓	\$\$	🌿🌿🌿	\$\$	❤️❤️	Council/CAO
	Encourage recycling/waste diversion programs already in place in the municipality	↓	\$	🌿🌿	\$	❤️	Council/CAO
Goal 2: Reduce impact of transportation in the Municipality of West Interlake							
Seek to improve air quality and reduce GHG emissions through a reduction in the number of motor vehicle kilometers travelled							
Objectives	Actions	GHG Impact	Cost	Enviro	Econ	Social	Task
Reduce fossil fuel use	Investigate potential for electric vehicles for municipal fleet and other transportation	↓↓↓	\$\$	🌿🌿🌿	\$	❤️	CAO
Goal 3: Reduce energy consumption in the Municipality of West Interlake							
Seek to reduce energy consumption for existing buildings							
Objectives	Actions	GHG Impact	Cost	Enviro	Econ	Social	Task
Investigate and invest in solar projects for the municipality	Research solar opportunities for municipality to determine best project(s) and scale	↓↓↓	\$\$	🌿🌿🌿	\$	❤️	CAO/Energy Consultant
Goal 4: Protect and enhance the natural environment in and around the municipality							
Ensure a robust natural environment accessible for current and future generations							
Objectives	Actions	GHG Impact	Cost	Enviro	Econ	Social	Task
Develop grassroots support for environmentally sustainable planning and management of the community	Creating strong partnerships with other RMs in the Lake Manitoba area	↓↓	\$\$	🌿🌿🌿	\$	❤️❤️	CAO/Neighbour communities
	Identify local environmental assets and liabilities, potential risks and hazards arising from climate change	↓	\$\$\$	🌿🌿	\$\$\$	❤️❤️	Env. consultant
	Protect existing natural infrastructure and rehabilitate areas that have been altered	↓↓	\$\$	🌿🌿🌿	\$	❤️❤️	CAO/Water-shed district and others

## Funding Opportunities – Government of Canada

Sector	Fund name	Description	Weblink
Energy	Emerging renewables deployment (\$200M) (NRCan)	e.g. offshore wind, geothermal, tidal	<a href="https://www.nrcan.gc.ca/climate-change/green-infrastructure-programs/emerging-renewable-power/20502">https://www.nrcan.gc.ca/climate-change/green-infrastructure-programs/emerging-renewable-power/20502</a>
Energy	Reducing diesel in rural and remote communities (\$220M) (NRCan)	Deployments, demonstrations, energy efficiency, and forest bioheating e.g. renewable energy (solar and wind), bioheating, community capacity building	<a href="https://www.nrcan.gc.ca/climate-change/green-infrastructure-programs/reducing-diesel-energy-rural-and-remote-communities/20542">https://www.nrcan.gc.ca/climate-change/green-infrastructure-programs/reducing-diesel-energy-rural-and-remote-communities/20542</a>
Energy	Northern REACHE (\$54M) (INAC)	e.g. solar, wind, storage, hydra, biomass heating, residual heat recovery and LED lighting	<a href="https://www.aadnc-aandc.gc.ca/eng/1481305379258/1481305405115">https://www.aadnc-aandc.gc.ca/eng/1481305379258/1481305405115</a>
Energy	Canada Infrastructure Bank (\$35B) (INFC) (~\$5B for green infrastructure projects)	For large, transformative projects via loans, loan guarantees, and equity investments e.g. transmission lines (between provinces or territories)	<a href="https://cib-bic.ca/en/">https://cib-bic.ca/en/</a>
Energy	Green infrastructure bilateral agreements (\$9.28) (INFC) (base+per-capita)	For projects that reduce GHGs or build cleaner, better-corrected electricity systems e.g. renewables (onshore wind, solar), transmission, smart grids	<a href="https://cib-bic.ca/en/">https://cib-bic.ca/en/</a>
Transportation	Electric vehicles and alternative fuel infrastructure (\$120M) (NRCan)	Deployments of EV and alt fuel (nature gas, hydrogen) infrastructure + demonstrations of next-gen charging technology + new codes and standards	<a href="https://www.nrcan.gc.ca/energy-efficiency/energy-efficiency-transportation-and-alternative-fuels/electric-vehicle-and-alternative-fuel-infrastructure-deployment-initiative/18352">https://www.nrcan.gc.ca/energy-efficiency/energy-efficiency-transportation-and-alternative-fuels/electric-vehicle-and-alternative-fuel-infrastructure-deployment-initiative/18352</a>
Transportation	Green infrastructure bilateral agreements (\$9.28) (INFC) (base+per-capita)	For projects that reduce GHGs or build cleaner, better-connected electricity systems e.g. electric vehicles and alternative fuel infrastructure	<a href="https://cib-bic.ca/en/">https://cib-bic.ca/en/</a>

Buildings	Net-Zero Energy Ready Codes for new buildings (\$99M) (NRCan)	RD&D for lower incremental costs of adopting NZER	<a href="https://nrc.canada.ca/en/stories/construction-innovation/laying-foundation-net-zero-energy-ready-building-codes-2030">https://nrc.canada.ca/en/stories/construction-innovation/laying-foundation-net-zero-energy-ready-building-codes-2030</a>
Buildings	Canada Infrastructure Bank (\$35B) NFC) (~65B for green infrastructure projects)	For large, transformative projects via loans, loan guarantees and equity investments e.g. energy efficient retrofits	<a href="https://cib-bic.ca/en/">https://cib-bic.ca/en/</a>
Buildings	Green infrastructure bilateral agreements (\$9.28) NFC)	For projects that reduce GHG or build cleaner, better-connected electricity systems e.g. energy efficiency retrofits in public buildings (TBC)	<a href="https://cib-bic.ca/en/">https://cib-bic.ca/en/</a>
Buildings	Low Carbon Economy Fund (\$1.48 base+per capita) (ECCC)	For cost-effective, incremental projects that significantly reduce GHGs e.g. residential and commercial energy efficiency retro fits	<a href="https://www.canada.ca/en/environment-climate-change/services/climate-change/low-carbon-economy-fund.html">https://www.canada.ca/en/environment-climate-change/services/climate-change/low-carbon-economy-fund.html</a> <a href="https://www.nrcan.gc.ca/energy-efficiency/energy-efficiency-industry/financial-assistance-energy-efficiency-projects/20413">https://www.nrcan.gc.ca/energy-efficiency/energy-efficiency-industry/financial-assistance-energy-efficiency-projects/20413</a>
Industry & Forestry	Industrial energy efficiency (\$17M) (NRCan)	ISO 50001, Superior Energy Performance, ENERGY STAR 'E' for Industry	<a href="https://www.nrcan.gc.ca/energy-efficiency/energy-efficiency-industry/financial-assistance-energy-efficiency-projects/20413">https://www.nrcan.gc.ca/energy-efficiency/energy-efficiency-industry/financial-assistance-energy-efficiency-projects/20413</a>
Industry & Forestry	Low Carbon Economy Fund (\$1.48 base+per-capita; \$0.68 competition) (ECCC)	For cost-effective, incremental projects that significantly reduce GHGs e.g industrial energy efficiency (process changes, fuel switching)	<a href="https://www.canada.ca/en/environment-climate-change/services/climate-change/low-carbon-economy-fund.html">https://www.canada.ca/en/environment-climate-change/services/climate-change/low-carbon-economy-fund.html</a>
Industry & Forestry	Low Carbon Economy Fund (\$1.48 base+per-capita; \$0.68 competition) (ECCC)	For cost-effective, incremental projects that significantly reduce GHGs e.g carbon storage, forestry management practices	<a href="https://www.canada.ca/en/environment-climate-change/services/climate-change/low-carbon-economy-fund.html">https://www.canada.ca/en/environment-climate-change/services/climate-change/low-carbon-economy-fund.html</a>
Clean Technology	Clean Growth Hub (stakeholder support) (NRCan)	To help companies, PTS, researchers access federal clean tech programs	<a href="https://www.nrcan.gc.ca/21644">https://www.nrcan.gc.ca/21644</a>
Clean Technology	Impact Canada —Clean Technology Stream (\$75M) (NRCan)	Prizes, compensation for solving tough challenges in clean technology	<a href="https://impact.canada.ca/en/challenges/clean-tech-impact">https://impact.canada.ca/en/challenges/clean-tech-impact</a>

Clean Technology	Energy Innovation Program (\$53M lyear ongoing) (NRCan)	RD&D for GHG reductions in electricity, buildings, transportation, or industry e.g. industrial electrification, small modular nuclear, carbon capture and use	<a href="https://www.nrcan.gc.ca/science-data/funding-partnerships/funding-opportunities/funding-grants-incentives/energy-innovation-program/18876">https://www.nrcan.gc.ca/science-data/funding-partnerships/funding-opportunities/funding-grants-incentives/energy-innovation-program/18876</a>
Adaptation	Building regional capacity and expertise (\$13M) (NRCan)	Improving capacity to apply regional information	<a href="https://www.nrcan.gc.ca/climate-change/impacts-adaptations/building-regional-adaptation-capacity-and-expertise-brace-program/21324">https://www.nrcan.gc.ca/climate-change/impacts-adaptations/building-regional-adaptation-capacity-and-expertise-brace-program/21324</a>
Adaptation	Climate Change Adaptation Platform (\$12M) (NRCan)	Co-funded projects addressing shared adaptation priorities	<a href="https://www.nrcan.gc.ca/climate-change/impacts-adaptations/adapting-our-changing-climate/10027">https://www.nrcan.gc.ca/climate-change/impacts-adaptations/adapting-our-changing-climate/10027</a>
Adaptation	Green infrastructure bilateral agreements (\$9.2B) (INFC) (base+per-capita)	For projects that reduce GHGs or build cleaner, better-connected electricity systems e.g. projects that help communities prepare for challenges of climate change	<a href="https://cib-bic.ca/en/">https://cib-bic.ca/en/</a>
Environment and Lands	Environment Canada - Eco Action Community Funding Program	Supports projects that will protect, rehabilitate or enhance the natural environment, and build the capacity of communities to sustain these activities into the future Supports projects with the following themes: clean air, clean water, climate change and nature.	<a href="http://www.ec.gc.ca/eco-action/">http://www.ec.gc.ca/eco-action/</a>
Environment and Lands	Federation of Canadian Municipalities - Green Municipal Fund	Helps create more sustainable communities by improving air, water and soil qualities while reducing green house emissions	<a href="http://fcm.ca/home/programs/green-municipal-fund.htm">http://fcm.ca/home/programs/green-municipal-fund.htm</a>
Environment and Lands	Habitat Stewardship Program for Species at Risk - Environment Canada	HSP contributes to the recovery of endangered, threatened, and other species at risk, and prevents other species from becoming a conservation concern The HSP provides funding to stewards by implementing activities that protect or conserve habitats for species at risk nationally	<a href="http://www.ec.gc.ca/hsp-pih/default.asp?lang=En&amp;n=59BF488F-1">http://www.ec.gc.ca/hsp-pih/default.asp?lang=En&amp;n=59BF488F-1</a>

Environment and Lands	Environment Canada - Aboriginal Fund for Species at Risk - Prevention Stream (AFSAR)	AFSAR aims to prevent wildlife species, other than species at risk, from becoming a conservation concern on Aboriginal lands across Canada.	<a href="http://research.acadiau.ca/tl_files/sites/research/AFSAR%20Prevention%20Stream%20Application%20Guidelines%20-%202015-2016.pdf">http://research.acadiau.ca/tl_files/sites/research/AFSAR%20Prevention%20Stream%20Application%20Guidelines%20-%202015-2016.pdf</a>
Environment and Lands	ISC- Indigenous Community-Based Climate Monitoring Program	Provides funding to support Indigenous communities in the development and implementation of community-based climate monitoring projects	<a href="https://www.aadnc-aandc.gc.ca/eng/1509728370447/1509728402247">https://www.aadnc-aandc.gc.ca/eng/1509728370447/1509728402247</a>
Environment and Lands	National First Nations Environmental Contaminants Program	Community-based research on environmental contaminants trends in relation to human health focusing on First Nations communities south of the 60th parallel First Nations must submit a Research Proposal	<a href="https://www.canada.ca/en/indigenous-services-canada/services/first-nations-environmental-contaminants-program.html">https://www.canada.ca/en/indigenous-services-canada/services/first-nations-environmental-contaminants-program.html</a>
Environment and Lands	Participant Funding Program - Canadian Environmental Assessment Agency	Funding is offered in support of participation opportunities posted on the Agency website or described in Aboriginal consultation plans established for the project.	<a href="https://www.canada.ca/en/environmental-assessment-agency/services/public-participation/participant-funding-application-environmental-assessment.html">https://www.canada.ca/en/environmental-assessment-agency/services/public-participation/participant-funding-application-environmental-assessment.html</a>
Environment and Lands	Fairmont Community Engagement Charitable Focus Program	Program funding for projects that include Water or Community Development and Support (including job growth, health, education, support for local business, and poverty and hunger relief for at risk communities).	<a href="http://www.fairmont.com/corporate-responsibility/community-engagement/charitable-program/">http://www.fairmont.com/corporate-responsibility/community-engagement/charitable-program/</a>



Environment and Lands	Environment Canada - Funding Services	Funding is available for new projects that engage Canadians and clearly demonstrate measurable, positive environmental results. Priority will be given issues of clean water, climate change (Through Eco Action Community Funding Program), mitigation and adaptation.	<a href="https://www.canada.ca/en/environment-climate-change/services/environmental-funding/ecoaction-community-program.html">https://www.canada.ca/en/environment-climate-change/services/environmental-funding/ecoaction-community-program.html</a>
Community Planning	Global Community Initiatives	Partners with communities to help develop them in ways identified by the community itself	<a href="http://global-community.org/">http://global-community.org/</a>
Youth	TD Friends of the Environment Foundation	Funding for natural playgrounds, schoolyard greening, environment education programs and many others	<a href="http://fef.td.com/funding/">http://fef.td.com/funding/</a>



