



# Model Climate Change Action Plan

*A template for completing a greenhouse gas reduction  
plan in the Partners for Climate Protection*

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*Produced with the generous support of the Government of Canada's Climate Change Action Fund.*

*Prepared by: Russ Haycock, Hyla Environmental Services Ltd.*

*For additional copies, contact:*

*Federation of Canadian Municipalities*

*24 Clarence Street, Ottawa, ON K1N 5P3*

*Tel: (613) 241-5221, ext. 370 E-mail: [pcp@fcm.ca](mailto:pcp@fcm.ca)*

*Or download copies from FCM's Sustainable Communities Knowledge Network at: <http://kn.fcm.ca>*

# Introduction

*Partners for Climate Protection* (PCP) is a framework developed for use by municipal governments to undertake initiatives that reduce greenhouse gas (GHG) emissions. Its ultimate goal is to reduce GHG emissions from municipal operations by 20 per cent and community-wide GHG emissions by at least six per cent below 1990 levels, and to reach both these targets within ten years of a municipal government joining the program.

A critical step in PCP is developing a GHG reduction, or *sustainability plan*. Any local action plan (PCP Milestone Three) that sets out how a municipal government will accomplish this is, by definition, a sustainability plan.

Creating a sustainability plan can seem daunting, but it will help your municipal government develop long- and short-term goals, devise communication strategies, procedures, and programs, and will outline an approach that will involve all key stakeholders.

This document is designed to guide you through the development of a sustainability plan. It outlines all of the information your plan should include, such as:

- the rationale for developing a plan, including a description of your community's constraints and challenges;
- an inventory of all municipal infrastructure (buildings, fleet vehicles, traffic signals, etc.) and the amount of energy used and GHG emissions produced;
- the plan's long- and short-term goals;
- the objectives of the plan and its key action items;
- how the plan will be monitored and evaluated; and
- how the plan will be implemented.

## PCP Milestone Framework

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A municipal council's adoption of the *Partners for Climate Protection (PCP) model resolution*<sup>1</sup> is a voluntary commitment to five milestones as follows:

**Milestone One:** Creating a Greenhouse Gas Emissions Inventory and Forecast. Complete GHG and energy use inventories and forecasts for both municipal operations and the community as a whole.

**Milestone Two:** Setting an Emissions Reduction Target. Suggested PCP targets are a 20 per cent reduction in GHG emissions from municipal operations, and a minimum six per cent reduction for the community, both within 10 years of making the commitment.

**Milestone Three:** Developing a Sustainability Plan. Develop a plan that sets out how emissions and energy use in municipal operations and the community will be reduced.

**Milestone Four:** Implementing the Sustainability Plan. Create a strong collaboration between the municipal government and community partners to carry through on commitments, and maximize benefits from greenhouse gas reductions.

**Milestone Five:** Monitoring Progress and Reporting Results. Maintain support by monitoring, verifying, and reporting greenhouse gas reductions.

The *PCP brochure*<sup>2</sup> and *PCP Milestone fact sheets*<sup>3</sup> provide general information on the initiative.

Although municipalities are free to complete the milestones in any order, Milestones One and Two are usually completed before developing a GHG emissions reduction plan (Milestone Three). To assist with the completion of Milestone Three, FCM offers several tools and resources:

- *Citizen Participation and Community Engagement in the Local Action Plan Process: A Guide for Municipal Governments*,<sup>4</sup> profiles eight municipal regions and their experiences developing a plan;
- Examples of plans; and
- *The Business Case for Cutting Greenhouse Gas Emissions from Municipal Operations*<sup>5</sup> presents persuasive evidence of how climate protection activities have a mutually beneficial impact on the economy, the environment and on society, and also reviews the steps required in planning.

The following guidance document provides the elements required to receive credit from the FCM for Milestone Three.

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<sup>1</sup> [http://kn.fcm.ca/ev.php?URL\\_ID=2818&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201&creload=1067520434](http://kn.fcm.ca/ev.php?URL_ID=2818&URL_DO=DO_TOPIC&URL_SECTION=201&creload=1067520434)

<sup>2</sup> [http://kn.fcm.ca/ev.php?URL\\_ID=4687&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201&creload=1067520499](http://kn.fcm.ca/ev.php?URL_ID=4687&URL_DO=DO_TOPIC&URL_SECTION=201&creload=1067520499)

<sup>3</sup> [http://kn.fcm.ca/ev.php?URL\\_ID=2811&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201&creload=1067520542](http://kn.fcm.ca/ev.php?URL_ID=2811&URL_DO=DO_TOPIC&URL_SECTION=201&creload=1067520542)

<sup>4</sup> [http://kn.fcm.ca/ev.php?URL\\_ID=2821&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201&creload=1067520594](http://kn.fcm.ca/ev.php?URL_ID=2821&URL_DO=DO_TOPIC&URL_SECTION=201&creload=1067520594)

<sup>5</sup> [http://kn.fcm.ca/ev.php?URL\\_ID=4670&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201&creload=1067520760](http://kn.fcm.ca/ev.php?URL_ID=4670&URL_DO=DO_TOPIC&URL_SECTION=201&creload=1067520760)

## General Considerations

The guidance document identifies the elements required to receive credit for Milestone Three. *These elements are noted with two asterisks.* Other elements are presented as suggestions only and follow a generalized reporting structure. This template does not imply that municipalities cannot organize their report as they see fit. Flexibility and creativity is encouraged, bearing in mind that the required elements must be treated accordingly.

**Title:** The title should make reference to GHG reductions. A subtitle making reference to the PCP initiative is recommended.

**Recommended Citation:**

Include the title of the document, the name of the committee, the full corporate name of the municipal government, and the year. Your document will add to a growing number of example plans across the country. Other municipal governments that are developing plans will want to read your plan and may want to reference it in their own report.

**Work Team Members:** If a committee or inter-departmental team contributed to the development of the plan, names and affiliations should be provided. The principal author should be recognized so that others who read the plan can make contact with the appropriate person.

**Acknowledgments:** It is always considerate to acknowledge those who contributed to a document. It is assumed that work team members contributed to the document. Acknowledgements should be used to recognize those that contributed to the plan but were not part of the work team, and also to thank those that made special efforts.

**Table of Contents:** Key headings should be listed in a table of contents.

Other documents such as neighbourhood plans, official community plans, and community energy plans may or may not include the appropriate content to be considered a GHG reduction action plan. FCM staff can review the recognition of such plans for credit towards Milestone Three at the municipal government's request.

## Guidance Document Template

### Executive Summary

\*\*An Executive Summary is a concise outline (typically one to two pages long) of the contents of the plan, and must be included so that the information can be easily distributed throughout the community, shared with other municipalities, and posted on the *Sustainable Communities Knowledge Network*.<sup>6</sup> Full example plans will be available to municipal governments upon request, although FCM may distribute the executive summaries from a broad cross section of communities as part of future PCP toolkits.

### Suggested Content

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- review PCP's overall goal and program objectives (e.g., reducing GHG emissions and the Five Milestones) and the municipality's strategic objectives that include GHG emissions reductions;
- illustrate and describe the municipality's emissions by sector and by source for municipal operations and the community and explain any significant changes that have occurred in the inventory over several years, if available;
- state the emissions forecast, the emission reduction targets that the municipal government has set or is considering adopting, and a brief rationale for the targets, if any; and
- summarize the main quantitative and qualitative actions to be implemented that will achieve emission reduction targets including the education and outreach program(s) that will be delivered to the community.

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<sup>6</sup> <http://kn.fcm.ca>

# Background

## Local Context

Describe the location of the municipality. Land form is an important context for plans as it can illustrate any constraints or challenges on community structure and growth potential. City boundaries, the amount of undeveloped land, and the rate of infill generally dictate growth potential, but rapid growth in surrounding areas can also influence the content of a plan. For example, cities surrounded by mountainous terrain and/or water bodies may have limited growth potential. A municipality with a significant area of crown land which will be developed in the near future may have considerable short-term growth potential (e.g., five to 25 years), whereas a municipality with significant agricultural reserve may have considerable long-term (e.g., 25 to 50 years) growth potential. Map(s) of the community relative to provincial and local political boundaries are an ideal way to illustrate this.

## Demographics

Describe the corporate and community profile and other useful demographics of the municipality so that the scope of the plan is apparent. Provide as much of the following demographic data as possible:

- population and growth rate. Growth rates will assist municipalities with emissions forecasts and allow them to prioritize long term planning processes with direct links to emission reductions;
- area (in hectares) within city boundaries. Along with population, gross densities can be calculated; and
- the number of municipal employees.

## Emissions Indicators

Include the number of municipal buildings, vehicles in the municipal fleet; residential, commercial and industrial units and square footages, etc. Consider using a table(s) to illustrate the indicators.

### Example

Emissions Indicators Inventory		
	Number	Total Square Footage or vehicle kilometres travelled (whatever applicable)
Municipal Buildings	5	
Municipal fleet vehicles	20	
Residential Buildings	20,000	
Commercial Units	500	
Industrial Units	25	

## Nature of the Community

Provide a generalized statement of the nature of the community. This background information may support the results of the community GHG emissions inventory and justify the selection of specific reduction actions.

For example, a rural community on the outskirts of a densely populated urban centre may be described as a “bedroom community” and its emissions inventory may indicate that the majority of the emissions are the result of transportation to and from its neighbouring urban centre. In this instance, the focus of the plan may be on community transportation.

Conversely, the inventory does not necessarily describe the nature of the community. For example, if the majority of a community’s emissions come from the industrial sector, it does not necessarily mean that the community has a large industrial sector. The emissions may be from a small number of large industrial operations or a single operation. Further, even though the majority of the emissions are in a particular sector, the community may have only an indirect influence on that sector and, therefore, emissions reduction planning activities would be limited to stewardship, public education and outreach, and liaison with the appropriate government agency responsible for regulating the industry.

Graphs or other illustrations of the nature of the community can be added as sidebars.

## Description of PCP

Refer to the PCP brochure and fact sheets (see notes 2 and 3) and use the Sustainable Communities Knowledge Network (<http://kn.fcm.ca>) to obtain current information. Differentiate between the emissions inventory for municipal operations and for the community. Emphasize that municipal governments are encouraged to begin developing a corporate operations plan prior to developing a plan with the community.

Providing the current number of PCP participants will emphasize to a municipal council and to the community that the municipal government is not acting alone and that a network of support for PCP exists across the country. Use the *PCP Annual Report*<sup>7</sup> or review participant information on the Sustainable Communities Knowledge Network.

Include the history of the community’s involvement with PCP. State when your municipal council passed the model resolution to participate in PCP (council’s resolution is a requirement of participation) and council’s and staff’s involvement at local, regional, provincial, and national levels. Identify any other municipal committees that have been involved with GHG emissions and climate change issues.

<sup>7</sup> [http://kn.fcm.ca/ev.php?URL\\_ID=4669&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201&reload=1059406347](http://kn.fcm.ca/ev.php?URL_ID=4669&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1059406347)

## Greenhouse Gases and Climate Change

Arguments for and against GHG emissions causing climate change should be avoided since the impetus to reduce emissions should be well established (see the *Business Case for Cutting Municipal Greenhouse Gas Emissions*<sup>8</sup>).

Describe the greenhouse effect. For example:

*The natural greenhouse effect is vital to life as we know it. Naturally occurring greenhouse gases (GHG) such as water vapor, carbon dioxide, methane and nitrous oxide trap the sun's heat energy as it is reflected from the surface of the earth. Trapping the sun's heat energy helps warm the surface of the earth, keeping it warmer than it would otherwise be. Although there are many natural sources of greenhouse gas, human activities are contributing to the increase in atmospheric concentrations of greenhouse gas, intensifying the natural greenhouse effect.*

*It is the intensification of this natural greenhouse effect that is causing an unnatural increase in global temperatures and affecting precipitation, wind patterns, and ocean circulation, which will alter the world's climatic regions and, consequently, their ecosystems.*

Research the current science on climate change by searching the Internet for the keywords: "climate +change +science." Always quote and reference sources appropriately as footnotes in the body of the text or in a reference section at the end of the document.

Use the following points as a guide to the international context for climate change actions:

- Canada signed the UN Framework Convention on Climate Change in 1992 at the Earth Summit in Rio de Janeiro<sup>9</sup>;
- the International Committee on Local Environmental Issues (ICLEI) formed the Cities for Climate Protection Program (CCP) in 1993 and has over 400 cities<sup>10</sup> participating world-wide;

- Canada signed the Kyoto Protocol in 1998 along with 159 other Countries (6% reduction below 1990 levels);
- Federation of Canadian Municipalities formed the "20% Club" in 1995;
- ICLEI's CCP Program and FCM's 20% Club merged in 1998 to form the Partners for Climate Protection initiative. Approximately 112 communities participate across Canada (representing approximately 50 per cent of Canada's population); and
- The Government of Canada ratified the Kyoto Protocol in December 2002,<sup>11</sup> committing Canada to lower its GHG emissions to six percent below 1990 levels by 2012.

View current information of the Government of Canada's activities at [www.ec.gc.ca](http://www.ec.gc.ca) (search word "Kyoto") or at [www.climatechange.gc.ca](http://www.climatechange.gc.ca)

## Emissions Inventory, Forecast and Reduction Targets

A summary of municipal emissions must be provided. If a separate report detailing the emissions inventory was completed for Milestone One, the emissions report or the executive summary of the emissions report should be an appendix to your plan.

### Summary of Emissions

\*\*In table form, summarize the municipality's corporate and community emissions in the base year and other inventory year(s), if available, and the emissions from municipal operations and the community by their respective sectors. It may be beneficial to include energy consumption if emission coefficients for electricity have changed over time (see **Emission Coefficients** below).

### Example

Corporate (Municipal Operations)	Base Year (1994) Emissions (in tonnes)	Community	Base Year (1994) Emissions (in tonnes)
Buildings		Residential Buildings	
Fleet		Commercial Buildings	
Streetlighting/Traffic Signals		Industrial Buildings	
Wastewater/Water		Transportation	
Solid Waste		Solid Waste	

<sup>8</sup> See note 5.

<sup>9</sup> <http://unfccc.int/resource/ccsites/senegal/fact/fs209.htm>

<sup>10</sup> <http://www3.iclei.org/member.htm>

<sup>11</sup> [http://climatechange.gc.ca/english/whats\\_new/20021217.htm](http://climatechange.gc.ca/english/whats_new/20021217.htm)



## Emission Coefficients

\*\*List the emission coefficients in the body of the text or as an appendix to the plan. The amount of energy (natural gas and electricity) and fuel types (automobile gasoline, diesel fuel, natural gas, propane, etc.) consumed within the municipality are used to calculate GHG emissions in the inventory. If a change in electricity coefficients has skewed the emissions inventory above or below actual energy consumption (or direct emissions), provide appropriate comments. Energy use could be used as a proxy for reductions.

In most provinces, the emissions coefficients for electricity change over time resulting in a significant change to the emissions inventory that is not due to an equivalent change in the amount of energy consumed. Electricity coefficients change over time depending upon the mix of fuel type used to generate electricity. In some provinces, electric utilities rely heavily on hydroelectric generating plants. Although these plants do not burn fuel, a portion of the total electricity produced by the utility originates from natural gas electricity generating plants and/or coal-fired generating plants in other provinces.

### Example

Corporate (Municipal Operations)	Fuel Type(s)	Amount Consumed (specific to fuel type)
Buildings	Natural gas	
	Electricity	
Fleet	Diesel	
	Gasoline	
Streetlighting/Traffic Signals	Electricity	
Wastewater/Water	Electricity	

## Forecast and Emissions Comparison

\*\*Using a table and/or chart, show the corporate (municipal operations) and community emissions forecast for 10 years past the year in which the municipal government committed to PCP. Include a brief discussion of how the forecast was derived. Include the base year and other inventory years, if any, and calculate the per cent change in each corporate and community sector. Explain why emissions decreased or increased in each sector according to any changes to municipal operations and the community that occurred between the two comparison years. Refer to any actions undertaken to date to reduce emissions.

### Example

Total Corporate Emissions (municipal operations)			
Base Year	GHG Emissions (tonnes eCO <sub>2</sub> )	Forecast Year	GHG Emissions (tonnes eCO <sub>2</sub> )
1995		2005	
Total Community Emissions			
Base Year	GHG Emissions (tonnes eCO <sub>2</sub> )	Forecast Year	GHG Emissions (tonnes eCO <sub>2</sub> )
1995		2005	

## Reduction Targets

\*\*Provide a statement of the GHG emission reduction targets adopted by the municipal council. A council report endorsing the targets can be included as an appendix. If targets have not been set, discuss proposed targets, or options for targets, based on council's support for proposed initiatives.

## Sustainability Plan

\*\*The objective and long-term goal of PCP is to reduce GHG emissions by the emission reduction targets endorsed by the municipal council. Municipal governments develop and propose administrative objectives and long- and short-term goals.

## Administrative Objectives

Administrative objectives propose changes to the municipal structure that facilitate the overall program objective of PCP. These are actions that are internal to the municipal government and will be directed to the city administrator and other senior staff for council's approval. Examples:

1. Seek funding to hire an energy officer to co-ordinate energy reduction actions.
2. Form a council committee to oversee implementation of the plan.

## Long-term Goals (>5 years)

\*\*The long-term goals are statements of intent to change the manner in which a municipal government operates and which will have positive reduction effects on GHG emissions. For example, the following long-term goals are actions that will have the long-term effect of reducing GHG emissions:

- develop a green procurement policy;
- update the Official Community Plan to include energy-efficient wording;
- include energy-efficiency standards in area plans; and
- develop various bylaws to reduce emissions.

## Short-term Goals (<5 years)

\*\*The short-term goals are qualitative and quantitative GHG emission reduction actions that are specific to sectors within the municipal operations or the community. The table below lists an example of a quantitative and qualitative action in each sector of municipal operations and the community. Differentiate between quantitative and qualitative reductions.

	Action	
Corporate (Municipal Operations)	Quantitative (set targets where feasible)	Qualitative
Buildings	Undertake comprehensive municipal building retrofit for improved resource efficiency as per FCM's Municipal Building Retrofit Guide	Encourage high-density, mixed-use building developments, energy-aware landscaping methods, building for passive solar gain, etc.
Fleet	Reduce vehicle kilometres traveled (VKT) by 10 per cent a year	Adopt an anti-idling policy
Streetlighting/Traffic Signals	Replace all red/green traffic signals with LEDs	Adopt energy-efficient legislative measures for streetlighting requirements in new developments
Wastewater and Water	Optimize wastewater treatment motors and pumps	Increase water conservation awareness
Solid Waste	Launch an expanded waste reduction program	Hold an inter-departmental waste reduction challenge, and launch an expanded waste reduction program strategy
Community	Quantitative (set targets where feasible)	Qualitative
Residential	Install new, energy-efficient windows when replacing old windows	Require installation of energy-saving and low-water-flow devices in new and renovated buildings
Commercial	Undertake cost-effective building energy retrofits (e.g., space heating and cooling, office and computer equipment, energy management systems, lighting upgrades, and building shells)	Establish minimum energy performance ratings for all new commercial buildings (e.g., through participation in the Commercial Building Incentive Program)  Investigate community energy plans
Industrial	Increase plant efficiency	Pre-service industrial areas for waste-heat recovery and district heating systems
Transportation	Trip reduction measures (e.g., vanpool and rideshare programs, employer trip reduction programs, car-share cooperatives)	Develop a transportation demand management strategy (e.g., through commute travel reduction, goods movement improvements, school travel reduction, and non-commute travel reduction)
Waste	Implement beneficial use of captured landfill gas	Implement a public education program on waste reduction



## Greenhouse Gas Reduction Actions

\*\*Include a list of reduction actions in both the corporate and community sectors and separate quantitative from qualitative actions. Separate the actions as follows:

- initiatives completed including measurable emission reduction outcomes;
- initiatives underway including a forecast of projected emission reduction outcomes;
- initiatives planned for which support and/or funding has not been secured; and
- initiatives to be proposed in the near future given the appropriate technology.

### Example:

Priority	Objective(s)	Approach / Strategy	Specific Steps	Anticipated Reduction (identify qualitative targets)
Build new wastewater treatment plant	Reduce energy use	Wastewater staff members to review best practices from other municipalities	Implement computerized data acquisition system	Reduction in use of chlorine
	Improve water quality		Install UV disinfection technology	Reduced output of chloramines to receiving water
	Make beneficial use of waste heat		Investigate use of waste heat in cogeneration system	Estimated reduction in energy use is 15 per cent

Other analysis that is useful to include when listing reduction actions is the potential, if any, for reducing air contaminant(s).

Review the reduction potential and the rationale for it, and the recommended approach for reduction.

\*\*Identify the municipal government's infrastructure priorities. For example, a new wastewater treatment plant may be required. State the objective(s) to be covered by each of these priorities. Describe the broad approach or strategy to be taken. For example, the municipal government may wish to include a percentage of new green power purchases, equipment procurement policies, etc. Finally, list the specific steps that the municipal government will take and what the anticipated reductions are.

## Evaluation Using Performance Measures

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\*\* By monitoring the following performance measures, a municipal government will be able to evaluate its progress over time:

- conduct periodic emissions inventory as a check and balance;
- administrative objectives including resources for implementation; and
- policies adopted by the municipality (green power purchases, Leadership in Energy and Environmental Design (LEED) in new building design).

## Implementation Plan

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\*\*The implementation plan should include these items as well as others that outline the barriers, programs, financial tools, and other steps to be taken:

- identify barriers to implementation and suggest appropriate approaches to overcome them;
- recognize if the *Green Municipal Funds*<sup>12</sup> was used to implement any of the stated actions, and state that the plan is a tool to identify projects;
- identify other government programs and policy levers that may assist the municipal government implement actions; and
- next steps.

## References

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Include references to documents, policies, bylaws, data, or any other information referred to in the municipal sustainability plan.

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<sup>12</sup> [http://kn.fcm.ca/ev.php?URL\\_ID=2825&URL\\_DO=DO\\_TOPIC&URL\\_SECTION=201&reload=1067611687](http://kn.fcm.ca/ev.php?URL_ID=2825&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1067611687). The Green Municipal Funds can be used to fund the development of innovative and integrated plans, such as greenhouse gas reduction plans, sustainable community plans, or brownfield redevelopment plans.