

# Adaptation Case Study #6: City of Montreal

**SECTOR: MUNICIPALITY**

Location: Montreal, Quebec



Natural Resources Canada  
Ressources naturelles Canada

Canada



Network for  
Business Sustainability

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## Introduction

In 2015, the City of Montreal joined the Compact of Mayors,<sup>1</sup> a global coalition of city leaders making voluntary commitments to prepare for the impacts of climate change. Denis Coderre, mayor of Montreal, explained the decision: “I like to say: Think global, act local. I strongly believe that actions have to come from cities. We are the frontline when it comes to climate change. By joining the Compact of Mayors, Montreal makes the commitment with other leading cities worldwide to fight for cleaner air, a greener planet, a better sustainable future.”<sup>2</sup>

### Climate Change Impacts in Southern Quebec (Including Montreal)

Predicted changes include:

- higher average temperatures
- more rain and more frequent and intense heavy rainfalls
- longer heat waves and more hot nights

Source: Agglomeration of Montreal, *Climate Change Adaptation Plan for the Agglomeration of Montréal, 2015–2020* ([http://ville.montreal.qc.ca/portal/page?\\_pageid=7237,75085661&\\_dad=portal&\\_schema=PORTAL](http://ville.montreal.qc.ca/portal/page?_pageid=7237,75085661&_dad=portal&_schema=PORTAL), 2015)

Joining the Compact of Mayors reflects the City of Montreal's recognition that climate change will affect the region. Over the next century, projected climate changes for the Montreal region include more rain and more frequent heavy rainfalls, higher average temperatures, and longer heat waves. These changes can impact the local economy and residents' well-being. For example, heavy rainfalls can cause flooding, and higher temperatures and heat waves can threaten health through increased allergies (due to more pollen), disease, and heat strokes.<sup>3</sup>

1 Compact of Mayors ([www.compactofmayors.org](http://www.compactofmayors.org), no date (n.d.))

2 United Nations, *Mayors Announce New Commitments for Climate Action Ahead of 2015 Paris Climate Conference* ([www.un.org/climatechange/blog/2015/04/mayors-announce-new-commitments-climate-action-ahead-2015-paris-climate-conference](http://www.un.org/climatechange/blog/2015/04/mayors-announce-new-commitments-climate-action-ahead-2015-paris-climate-conference), 2015)

3 Chee F. Chan, Julia Lebedeva, José Otero, and Gregory Richardson, *Urban Heat Islands: A Climate Change Adaptation Strategy for Montreal* (Montreal: McGill School of Urban Planning, 2007); Agglomeration of Montreal, *Climate Change Adaptation Plan for the Agglomeration of Montréal, 2015–2020* ([http://ville.montreal.qc.ca/portal/page?\\_pageid=7237,75085661&\\_dad=portal&\\_schema=PORTAL](http://ville.montreal.qc.ca/portal/page?_pageid=7237,75085661&_dad=portal&_schema=PORTAL), 2015)

## Montreal's Approach to Climate Change Adaptation

The City of Montreal is adapting to the impacts of a changing climate, taking actions to minimize and respond to the effects of climate change. Chartered Professional Accountants (CPAs) are an important part of these efforts.

In December 2015, the Agglomeration of Montreal adopted a formal Climate Change Adaptation Plan (the Plan).<sup>4</sup> The Agglomeration of Montreal is formed by the 16 cities on the Island of Montreal. One of these cities is the City of Montreal, which is subdivided into 19 boroughs.

“With this first plan, we decided to use climate projections for the Montreal region to identify the impacts anticipated,” explained Émilie Charbonneau, section chief, Changements climatiques, at the City of Montreal and the leader of the team preparing the Plan.

The team produced maps showing Montreal's vulnerability to climate hazards. Maps showed, for example, areas exposed to flooding and heat islands (urban areas with higher air temperature than surrounding areas).<sup>5</sup> They used these scenarios to identify appropriate climate change adaptation actions, involving green infrastructure, among other approaches. Green infrastructure draws on nature to provide services such as stormwater management and cooling.<sup>6</sup> Two examples of green infrastructure are tree planting and green roofs, roofs covered with plants. “Green infrastructure slows the rain flow in the storm sewer and at the same time it lowers temperature and improves air quality,” said Charbonneau.

The Plan identifies climate change adaptation actions that the Agglomeration of Montreal's boroughs and cities can adopt. Charbonneau's team provided localized data to help boroughs and cities understand their specific risks related to climate change and determine which actions would be most valuable.

The Agglomeration of Montreal's latest climate change adaptation efforts build on earlier Sustainable Development Plans<sup>7</sup> (2005–2009, 2010–2015). For example, Montreal has supported tree planting for many years.

4 Agglomeration of Montreal, *Climate Change Adaptation Plan for the Agglomeration of Montréal, 2015–2020* ([http://ville.montreal.qc.ca/portal/page?\\_pageid=7237,75085661&\\_dad=portal&\\_schema=PORTAL](http://ville.montreal.qc.ca/portal/page?_pageid=7237,75085661&_dad=portal&_schema=PORTAL), 2015)

5 Chee F. Chan, Julia Lebedeva, José Otero, and Gregory Richardson, *Urban Heat Islands: A Climate Change Adaptation Strategy for Montreal* (Montreal: McGill School of Urban Planning, 2007)

6 Rutgers, The State University of New Jersey, *An Introduction to Green Infrastructure Practices*, (<http://njaes.rutgers.edu/pubs/fs1197/intro-to-green-infrastructure.asp>, 2012)

7 E.g. City of Montreal, *Montréal Community Sustainability Development Plan, 2010–2015* ([https://ville.montreal.qc.ca/pls/portal/docs/page/pes\\_publications\\_en/publications/version\\_synthese\\_en.pdf](https://ville.montreal.qc.ca/pls/portal/docs/page/pes_publications_en/publications/version_synthese_en.pdf), n.d.)

## The Role of CPAs

Developing a climate change adaptation plan and taking action requires the collaborative work of individuals with a range of expertise. CPAs join biologists, engineers and urban planning specialists and many others in providing critical input regarding adaptive actions.

With climate change adaptation, “a whole series of actors who never had to deal with each other before now have to do it on a common platform, and integrate different knowledge and skill sets to be able to come up with a strategic plan, implementation and funding,” said Alan DeSousa, FCPA, FCA. DeSousa is a Montreal city councillor and mayor of Saint-Laurent, one of the City of Montreal’s 19 boroughs.

Raoul Cyr, CPA, CA, director, Comptabilité et informations financières, City of Montreal, emphasized the centrality of CPAs: “There is not one City project involving assets that goes forward if it hasn’t been approved by accounting or finance.” Cyr’s team of 80 employees is one of five departments within the City of Montreal’s financial unit. Boroughs have some flexibility in the projects they pursue, but major climate change adaptation initiatives, involving capitalized assets or City funds, will receive financial review. The City of Montreal’s financial unit also reviews projects of other municipalities within the Agglomeration of Montreal if the projects are related to the responsibilities of the Agglomeration.<sup>8</sup>

CPAs with the City of Montreal contribute to climate change adaptation in multiple ways:

### Building the Business Case and Conducting Cost-benefit Analyses

The new climate change adaptation plan includes recommended actions, but does not yet link actions to economic costs and benefits. Charbonneau explained that her team will work with CPAs to provide this information.

Understanding the business case for action is vital, according to Charbonneau. Decision makers need to understand the importance of action in the near term. “We have to show them that it will cost a lot of money if we wait,” said Charbonneau. “And yes, there is a cost to implement adaptation measures right now, but the cost will be higher if we wait.”

<sup>8</sup> City of Montreal, *Agglomeration Council* ([http://ville.montreal.qc.ca/portal/page?\\_pageid=5977,88851616&\\_dad=portal&\\_schema=PORTAL](http://ville.montreal.qc.ca/portal/page?_pageid=5977,88851616&_dad=portal&_schema=PORTAL), n.d.)

The accounting team led by Cyr will be involved in providing cost-benefit analyses of planned actions. Climate change makes these analyses more complex because CPAs must consider the future costs associated with a changing environment.

Cyr described how he seeks to address future changes. In managing stormwater, for example, a project manager may need to choose between “a pipe that costs \$20 per foot and a pipe that costs \$2 per foot.” The less expensive pipe may not be as suitable for withstanding the increased flooding predicted as a result of climate change. Cyr will address such concerns: “I will have lots of questions when I analyse the project, to determine if it is realistic and what the project manager bases their opinion on to say that, in four or five years, that’s the strength of material we will need.”

A less costly option may be deemed adequate today, but could result in future costs. When sewer pipes are inadequate, Cyr explained, sewer backups could lead to lawsuits against the City, resulting in additional expenditures. The City may face similar legal liability if it fails to pursue other adaptation actions.

For Montreal, adapting to climate change means thinking about both mid- and long term solutions.

### **Budgeting and Resource Allocation**

The City of Montreal’s CPAs will also contribute to climate change adaptation through budgeting and resource allocation. Cyr explained: “If we are investing \$300 million in snow removal, and there is less snow, because of the prolonged summer season, then the budget allotted to this activity must be realigned.”

CPAs can help find solutions that consider both accounting requirements and the regulatory constraints within which cities operate. Cyr and DeSousa commented that Generally Accepted Accounting Principles (GAAP) can make accounting for investments related to climate change adaptation projects challenging in some cases. For example, Montreal’s Plan identifies tree planting as a key adaptation initiative. Trees reduce soil erosion and hold water, and therefore help manage heavy rainfall; they also cool hot areas.

But under GAAP, trees often represent an operating expense rather than a capital investment. DeSousa explained: “When you are developing a road, and add trees as an auxiliary part of that project, you can capitalize these amounts, because they are related to the project and they are financed and amortized over the life of that project. If your only project is planting trees for

the environmental [benefits] they provide, our understanding is that you cannot capitalize those trees under Generally Accepted Accounting Principles. As a result, they are accounted for as an operating expense.”

Cyr expanded: “Over the next few years, the City plans to plant approximately \$60 million worth of trees. Imposing a \$60 million operating expense upon the taxpayers within a single year is quite daunting. On the other hand, considering this expenditure as a capital project would allow citizens to be taxed over the course of a few years, thus lessening the financial burden.

“Climate change is going to force cities and governments to put in place capital projects and other measures to prevent future losses or damages. These projects and measures will be financed out of annual operating and capital budgets. A lot of people would like these measures, which are made to reduce future costs, to be considered capital projects. Then taxation could be spread out over time instead of being taxed the year the expenditure is made.”

Ultimately, financial reporting on climate change adaptation projects is an emerging issue, with the City of Montreal taking proactive steps to understand and evaluate how to account for these types of ecological investments. Over time, GAAP and other accounting standards may need to address how to account for projects involving natural resources, such as trees, to ensure consistency in reporting across organizations.

### **Providing Leadership**

Trained as a CPA, DeSousa worked initially in corporate finance. He has now spent 25 years as an elected official in public service.

His accounting skills have been valuable in his work as a Montreal city councillor and mayor of Saint-Laurent. DeSousa led the development of the Agglomeration of Montreal’s **Sustainable Development Plans** (2005–2009, 2010–2015), which incorporated climate change adaptation elements such as increasing green infrastructure. In developing these plans, he emphasized a clear process: determining the deliverables, deadlines, responsibilities, performance indicators and tools. This process clarity is just one of the “benefits that came with an accounting background,” he said.

## How CPAs Can Maximize Their Impact on Climate Change Adaptation

CPAs are a natural fit for the evolving topic of climate change, according to Cyr. “Accountants have always been described as looking at the past,” he noted. “But that isn’t true. Accountants must also look forward, as they quite often prepare budget estimates for projects, establishing financial parameters and components.”

Cyr and DeSousa suggested three ways that CPAs can maximize their impact in organizational adaptation to climate change.

- **Adopt a broad, informed perspective.** Climate change adaptation requires considering more than initial costs, according to Cyr. “Accountants need to say: ‘Yes, there’s the cost of the tree, but what savings does it allow us to make’”—for example, by reducing stormwater runoff and flooding. “It is that kind of open-mindedness that the accountant will need to make future project decisions.” To make accurate assessments, CPAs will need more training on understanding climate change impacts.
- **Be involved from the start.** CPAs need to be involved early in the adaptation planning process, according to DeSousa, so that they provide their expertise and work effectively as part of a diverse team. Work on climate change is multidisciplinary, said DeSousa: “You need to bring on board the accountant and the biologist.” Early involvement in the project facilitates the best use of everyone’s knowledge.
- **Use “enabling” or “soft” skills.** DeSousa urged CPAs to leverage three skills:
  - *Collaboration skills* to enhance their ability to understand the technical skills that others bring to the table, assess the importance of that expertise and use it to complement other skill sets required by the project
  - *Communication skills* to enable them to absorb, synthesize and articulate new data and views
  - *Leadership skills* to enable them to bring forward solid recommendations.

Finally, Cyr and DeSousa referenced the example of tree valuation as they called for accounting principles to consider the benefits provided by nature. Such an approach, called “natural capital valuation,” is an emerging area of concern for the public and private sectors.<sup>9</sup>

<sup>9</sup> Craig Alexander and Brian DePratto, *Valuing the World around Us: An Introduction to Natural Capital. Special Report* ([www.td.com/document/PDF/economics/special/NaturalCapital.pdf](http://www.td.com/document/PDF/economics/special/NaturalCapital.pdf), 2014)

## Case Summary

- *What is the impact from climate change?*  
Projected climate changes in the Montreal region include more rain and more frequent heavy rainfalls, higher average temperatures, and longer heat waves.
- *What is the adaptation strategy?*  
In December 2015, the Agglomeration of Montreal released an adaptation plan which identifies anticipated climate impacts and recommends adaptation actions for the 16 municipalities on the Island of Montreal, including the City of Montreal and its 19 boroughs.
- *What is the role of CPAs?*  
CPAs contribute to adaptation in multiple ways. They help build the business case, and analyze costs and benefits of actions. As part of project management activities, they perform budgeting and resource allocation. Throughout the process, they provide leadership.
- *How can CPAs maximize their impact on climate change adaptation?*  
CPAs involved with the City of Montreal's work recommend taking a broad perspective, becoming involved early in the adaptation planning process and drawing on "enabling" CPA competencies such as leadership and communication.

***This case study was written by Sakis Kotsantonis, KKS Advisors, based on interviews with those involved.***



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