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**ORGANIC
WASTE
MANAGEMENT**

February 26, 2018

SUMMARY OF THE AUDIT

OBJECTIVE

To ensure that the city has taken the measures required to reach the objectives on organic waste management set out in the *Sustainable Montréal 2016-2020 Plan* and in the *Plan directeur de gestion des matières résiduelles 2010-2014* of the Montréal agglomeration in keeping with the *Québec residual materials management policy*.

RESULTS

In addition to these results, we have formulated various recommendations for the business units.

The details of these recommendations and our conclusion are outlined in our audit report, presented in the following pages.

Note that the business units have had the opportunity to formulate their comments, which appear after the audit report recommendations.

In recent years, the management of organic waste has become a major environmental issue. Significant efforts have been made to date to increase the recovery rate of these materials. However, given that the 20% recovery rate for 2016 is relatively low compared to the government's target of 60% – a target whose deadline is constantly being postponed – we believe that improvements in the following main areas are needed:

- The city's organic waste management strategy needs to be reviewed to ensure compliance with the government's new requirements on the recycling of reclaimable municipal sludge and organic waste produced by the Industrial, Commercial and Institutional (ICI) sectors.
- No alternative measures regarding the capacity of future treatment plants have been developed or documented by the city to handle a situation involving an organic waste diversion rate that would differ from what is expected.
- Government funding provided for the construction of organic waste treatment plants could be in jeopardy should the number of residential occupancy units the city plans on serving by 2019 is not increased with the addition of residential buildings of nine or more units.
- No measure has been taken to present and enforce the city by-law on collection services (organic waste).
- A performance evaluation of organic waste collection in all sectors where it has been implemented will need to be conducted periodically.
- The communication and awareness plans and their related budgets have not been aligned to ensure the long-term sustained growth of citizen participation rates in organic waste collection.
- The boroughs are not providing periodic reports to the executive committee or the Service de l'environnement on the responsibilities assigned to them under the organic waste management regulation, even though this requirement is explicitly mentioned.

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LIST OF ACRONYMS

CH₄

methane

CMM

Communauté métropolitaine de Montréal

CO₂

carbon dioxide

CRD

Construction, Renovation and Demolition waste

HHW

Hazardous Household Waste

ICI

Industrial, Commercial and Institutional

kg

kilogram

NPO

Non-profit Organization

OWTP

Organic Waste Treatment Plants

PDGMR

Plan directeur de gestion des matières résiduelles

PMGMR

Plan métropolitain de gestion des matières résiduelles

SMEC

Saint-Michel Environmental Complex

t

ton

1. BACKGROUND

For decades, the management of residual materials¹ involved diverting all waste to landfill sites, where it would be buried. This approach is now a thing of the past. For more than 20 years now, Quebecers have been made aware of the importance of recycling paper, cardboard, metal, glass and plastic. In the last ten years or so, attention has now turned to avoiding the disposal of organic waste², considered to be the main source of pollution associated with landfill sites. Based on a characterization study carried out for Recyc-Québec in 2012-2013, of all the residual materials produced by households in Québec, organic waste makes up the largest proportion, with an overall share of 47%. This is followed by recyclable materials (35%), Construction, Renovation and Demolition waste (CRD) (8%) and bulky items (4%). The remaining 6% corresponds to Hazardous Household Waste (HHW), textiles and other various materials³.

The advantage of diverting organic waste away from landfills is two-fold. On the one hand, landfills have a limited capacity and sending waste that could otherwise be reused, recycled or reclaimed reduces the lifespan of these sites. On the other hand, when organic waste decomposes in the absence of oxygen, as is the case in landfill sites, it produces methane (CH₄), a greenhouse gas with global warming potential 21 times greater than carbon dioxide (CO₂)⁴. Over time, the CH₄ can return to the surface and escape into the atmosphere, not to mention that the organic components released during the fermentation of the material can contaminate both surface and ground water, making it unfit for drinking and even for aquatic life⁵.

Conversely, the sustainable management of organic waste can still involve the absence of oxygen as in landfill sites, but this time under controlled conditions in order to maximize the production and recovery of CH₄. Thus recovered, the CH₄ can then be used in other ways, such as introducing it into the natural gas distribution network, rather than allowing it to be released into the atmosphere. This technology is known as “biomethanization.” Organic waste can also be processed in the absence of oxygen using “composting” technology, which involves producing compost that can subsequently be used to fertilize farmland or green spaces. Including the sustainable management of organic waste into a wider residual materials management strategy is actually one of the ways to fight climate change.

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- 1 Refers to materials and items discarded by households and by the industrial, commercial and institutional sector for reclaiming (recovered, recycled, reused or converted into compost) or disposal. Refers to residual materials considered to be organic (leaves, grass, table scraps, sludge) and residual materials considered to be recyclable (metal, glass, cardboard, paper, plastic).
 - 2 Broadly speaking, organic waste includes food waste, yard waste (also called green waste) and municipal sludge (including sludge from septic tanks).
 - 3 Rapport synthèse - Caractérisation des matières résiduelles du secteur résidentiel 2012-2013, Recyc-Québec et Eco Entreprises Québec, August 2015. (In French only).
 - 4 Source: Changes in Atmospheric Constituents and in Radiative Forcing, chapter 2, page 212.
 - 5 Source: Ministry of Sustainable Development, Environment and Fight against Climate Change.

On the legislative front, it should be noted that the *Environmental Quality Act*⁶ sets the guidelines for the management of residual materials. It stipulates, among other things, that each regional municipality, such as the Communauté métropolitaine de Montréal (CMM), is required to develop and maintain in force a residual materials management plan (section 53.7). It also states that each local municipality must take the necessary measures to implement this residual materials management plan in its territory (section 53.24). In other words, Ville de Montréal (the city), along with the 81 other municipalities of the CMM, are required to follow the CMM's management plan on residual materials.

The *Environmental Quality Act* led to the February 2011 adoption by the Minister of Sustainable Development, Environment and Parks⁷ of the Québec residual materials management policy (the Policy). The Policy establishes, among many things, the objectives and strategies in the recycling, reclaiming and reduction of residual materials to be disposed of in the short, medium and long term. It is accompanied by the *2011-2015 Five-Year Action Plan*, which had set targets to be reached by the end of 2015, more specifically to recycle:

- 70% of paper, cardboard, plastic, glass and metal waste;
- 60% of putrescible organic waste.

On January 28, 2017, following its review and approval by the provincial government, the *Plan métropolitain de gestion des matières résiduelles* (PMGMR) of the CMM for 2015-2020 came into force. The new plan makes it a priority to reclaim organic waste rather than diverting it to landfills. It should be pointed out that following amendments⁸ to the *Environmental Quality Act* made in March 2017, the management plan is now to be reviewed every seven years, rather than every five years. In light of the 2017 amendments and given that the current PMGMR of the CMM came into force two years late, it will be valid until 2024. That being said, for the purposes of this report, we will refer to the CMM plan as the PMGMR 2015-2020.

For its part, the Montréal agglomeration developed the *Plan directeur de gestion des matières résiduelles* (PDGMR). The most recent PDGMR to date covers the period from 2010 to 2014. According to the information obtained, the next PDGMR could be adopted in 2019.

In June 2016, the Montréal agglomeration also adopted the *Sustainable Montréal 2016-2020 Plan* which replaced the *Montréal Community Sustainable Development Plan 2010-2015*. The new plan provides the framework governing sustainable development for the next five years and aims to reach, by 2020, the government objectives for the reclaiming of recyclable materials (70%) and organic waste (60%).

⁶ CQLR, chapter Q-2, section 53.4, paragraph 53.24.

⁷ Now the Ministry of Sustainable Development, Environment and Fight against Climate Change.

⁸ Act to amend the *Environmental Quality Act* to modernize the environmental authorization scheme and to amend other legislative provisions, in particular to reform the governance of the Green Fund, CQLR., 2017, chapter 4.

In terms of the division of powers in matters related to the management of residual materials, let us begin by noting the following:

- Under the *Act respecting the exercise of certain municipal powers in certain urban agglomerations*⁹, the agglomeration is responsible for the development of the PDGMR, for reclaiming and disposing of residual materials and for any other aspect involving the management of hazardous materials and infrastructures. According to this Act, as a central municipality, the city has jurisdiction in its own territory and in the territory of any other related municipality. At the city level, these responsibilities are handled by the Service de l'environnement reporting to the Direction générale adjointe au développement, which is in charge, among many things, of producing the PDGMR and managing the operations involving the processing of collected residual materials for the purpose of reclaiming or disposing of them;
- The boroughs of the city (under the Charter of Ville de Montréal¹⁰ (the "Charter")) and related municipalities (under the *Municipal Powers Act*¹¹) are responsible for the collection and transportation of residual materials to recovery sites or landfills determined by the agglomeration (i.e., the Service de l'environnement). Regarding the boroughs, however, in 2014¹² and for the purpose of harmonizing collection services, city council declared its jurisdiction over the removal, transportation and disposal of residual materials for a period of two years under section 85.5 of the Charter as of January 1, 2015. In 2016, this declaration of jurisdiction was extended until December 31, 2018¹³. The related municipalities have maintained their responsibilities in this respect.

Following the 2014 declaration of jurisdiction by the city council, the Service de l'environnement is now in charge of planning and coordinating the awarding of contracts for the collection and transportation of residual materials, in collaboration with the boroughs. In return, all operational activities have been delegated to the boroughs following an amendment made to the internal regulation on the delegation of the city council powers to borough councils¹⁴, which stipulates the following with regard to residual materials:

[TRANSLATION] "City council delegates the following powers to the borough councils:

[...] the application of the by-law on the removal, transportation and disposal of residual materials and related responsibilities, including the follow up and management of contracts, communication with citizens, the management of citizen requests and the distribution of collection receptacles [...]. "

⁹ CQLR, chapter E-20.001, chapter II, section 19.

¹⁰ CQLR, chapter C-11.4.

¹¹ CQLR, chapter C-47.1.

¹² Resolution CM14 1126.

¹³ Resolution CM16 1455.

¹⁴ City council, by-law 02-002, adopted on December 18, 2001, subparagraph 1, section 1, paragraph 12.

That being said, the mission of the Service de l'environnement is to improve the quality of life and living environments of the citizens of the agglomeration of Montréal by:

- Raising public awareness on environmental issues;
- Promoting and managing the quality of the physical environment;
- Working on the responsible management of residual materials and resources in the territory.

Two divisions under the Direction de la gestion des matières résiduelles are particularly involved in this front.

- The Division collecte, transport et traitement des matières résiduelles;
- The Division soutien technique, infrastructure, Saint-Michel Environmental Complex (SMEC).

Other business units support the Service de l'environnement in implementing organic waste management. These include the Service des communications directly under the Direction générale, which works closely with the Service de l'environnement on developing and implementing public awareness campaigns to encourage citizen participation in organic waste collection. In addition, the Service de l'eau, under the Direction générale adjointe au développement, ensures, among other things, the management of sludge from wastewater treatment plants.

For its part, the Bureau du développement durable, under the Direction générale adjointe à la qualité de vie, is in charge of developing and coordinating the implementation of the *Sustainable Montréal 2016-2020 Plan* and of monitoring its progress and mobilizing partner involvement in this respect.

Lastly, based on information from the latest compilation in the *Portrait 2016 des matières résiduelles de l'agglomération de Montréal*, the diversion rate for organic household waste¹⁵ was 20%, up three percentage points compared to the previous year (17%). It is clear that the rate of organic waste recovered and diverted away from landfills is on the rise and moving toward the government target of 60%. However, much remains to be done in order to change the daily habits of citizens and encourage their participation in the recovery of the organic waste they produce every day.

¹⁵ Refers to the overall built environment including residential buildings of eight units or less and those of nine units or more.

2. PURPOSE AND SCOPE OF THE AUDIT

In accordance with the provisions of the *Cities and Towns Act*, we have conducted a value-for-money audit of organic waste management. This audit was performed in compliance with the Canadian Standard on Assurance Engagement (CSAE) 3001 of the CPA Canada Handbook – Assurance.

The purpose of the audit was to ensure that the city has taken the measures required to reach the objectives of organic waste management set out in the *Sustainable Montréal 2016-2020 Plan* and in the *Plan directeur de gestion des matières résiduelles 2010-2014* of the Montréal agglomeration in keeping with the *Québec residual materials management policy*.

The role of the Auditor General of Ville de Montréal is to provide a conclusion regarding the purpose of the audit. To do so, we have collected a sufficient amount of relevant evidence on which to base our conclusion and to obtain a reasonable level of assurance. Our evaluation is based on criteria we have deemed valid for the purpose of this audit. They are presented in Appendix 5.3.

The Auditor General of Ville de Montréal applies the *Canadian Standard on Quality Control* (CSQC 1) of the CPA Canada Handbook – Assurance and, consequently, maintains a comprehensive quality control system that includes documented policies and procedures with respect to compliance with ethical guidelines, professional standards and applicable legal and regulatory requirements. It also complies with regulations on independence and other ethical guidelines of the Code of Ethics of Chartered Professional Accountants, which is governed by fundamental principles of integrity, professional competence, diligence, confidentiality and professional conduct.

Our audit work focused on the years 2015 to 2017. However, for some aspects, data prior to these years were also considered. Most of the audit work was carried out from June 2017 to October 2017, but we also took into consideration information given to us until December 2017.

This work was performed primarily with the following business units:

- Le Service de l'environnement (Division collecte, transport et traitement des matières résiduelles et Division du soutien technique, infrastructure, SMEC both under the Direction de la gestion des matières résiduelles);
- Le Service des communications (Direction Partenaires d'affaires en communication);
- Le Service de l'eau (Direction de l'épuration des eaux usées – Division ingénierie et procédés);
- Le Bureau du développement durable;

- Mercier–Hochelaga-Maisonneuve borough:
 - Direction des travaux publics: Division des études techniques, Division de la voirie under the Direction des travaux publics;
 - Direction de l'arrondissement: Division relations avec les citoyens et communication;
- Rivière-des-Prairies–Pointe-aux-Trembles borough:
 - Direction des travaux publics: Division de la voirie – Section des travaux et déneigement;
 - Direction de l'arrondissement: Division relations avec les citoyens et communication;
 - Direction du développement du territoire et des études techniques: Division de l'ingénierie;
- Rosemont–La Petite-Patrie borough:
 - Direction des travaux publics: Division de la voirie;
 - Direction de l'arrondissement: Division des communications;
- Saint-Laurent borough:
 - Direction des travaux publics: Division de l'environnement et de la protection du territoire;
 - Direction de l'arrondissement: Division des communications et des relations avec les citoyens.

Upon completing our audit work, we presented a draft audit report to the managers of each of the audited business units for discussion purposes. The final report was then forwarded to the Direction générale and to each of the business units involved in the audit in order to obtain action plans and timetables for their implementation.

3. AUDIT RESULTS

3.1. ORGANIC WASTE MANAGEMENT STRATEGY

3.1.1. GOVERNMENT AND REGIONAL REQUIREMENTS FOR ORGANIC WASTE MANAGEMENT

3.1.1.A. BACKGROUND AND FINDINGS

To promote the sustainable management of residual materials in Québec and encourage the recycling and reclaiming of organic waste rather than its landfilling, the government has stepped up its efforts by adopting over the years a legislative framework to promote its collective management. The responsibilities given to municipalities in this respect represent a challenge, since they are required to take measures that comply with government standards and reach recycling targets set by the government.

As such, this section features an overview of the evolution of government and regional (in this case the CMM) requirements regarding measures to be included in the management plan on residual materials and how it compares to the strategy introduced by the city.

It should also be added that under the provisions of the *Environmental Quality Act*¹⁶, the provincial government adopted the *Québec residual materials management policy* (the Policy), with the latest version dating back to 2011. The Policy aims to encourage behaviour that is more respectful of the environment and promote better residual materials management and consumption practices. To this end, it specifies that residual materials management is based on a regional planning approach for all waste produced in municipal territories. Moreover, it makes regional municipalities (in this case the CMM) responsible for this planning and for ensuring that their management plan covers all generators of residual materials within their boundaries.

The Policy aims to create a zero-waste society that maximizes added value through the sound management of residual materials. To help meet this goal, the Policy includes measures that address three major challenges of residual materials management:

- Ending resource waste;
- Promoting the achievement of the goals of the Climate Change Action Plan and of the Québec Energy Strategy;
- Making all stakeholders involved responsible for residual materials management.

¹⁶ CQLR, chapter Q-2, a.53.7.

As previously mentioned, this Policy is accompanied by the *2011-2015 Five-Year Action Plan*, which set targets to be reached by the end of 2015, including recycling:

- 70% of paper, cardboard, plastic, glass and metal waste;
- 60% of putrescible organic waste.

The 2011-2015 Plan also proposed ten strategies on residual materials management, one of which is to ban the disposal of organic waste in landfills by 2020. One of the actions implemented by the government to reduce the amount of organic waste to be landfilled and to promote the achievement of the 60% recycling target was the launch of a funding program for the construction of Organic Waste Treatment Plants (OWTP), known as the *Program for the Treatment of Organic Matter through Biomethanization and Composting* (a provincial financial aid program)¹⁷. This program, which is under the responsibility of the Minister of the Environment, will be further discussed in the section 3.1.3 on the implementation of OWTP.

The 2011 Policy replaced the policy that covered the period from 1998 to 2008. In terms of scope, the 2011 Policy applies to all residual materials generated in Québec by households (residential buildings of eight units or less and residential buildings of nine units or more) and by the Industrial, Commercial and Institutional (ICI) sector. These materials also include municipal sludge generated by the city's wastewater treatment plants. In contrast, the previous Policy (1998-2008) had established reclaiming targets that differed based on the sector (municipal, ICI or CRD) and type of material (e.g., organic, HHW, textiles) involved. At that time, municipalities were only responsible for taking measures to reclaim organic waste produced in its territory (food and green waste), but not for municipal sludge or materials generated by the ICI sector, which was responsible for the disposal of its own waste. In both of these policies, however, the target for reclaiming organic waste was set at 60%.

For its part, the CMM adopted a PMGMR in accordance with the legislative provisions of the *Environmental Quality Act*. The PMGMR sets out, for the 82 municipalities of the CMM, the orientations and targets to be met in terms of recycling, reclaiming and disposing of residual materials and a description of the measures to be implemented in order to reach these objectives. The most recent PMGMR of the CMM for 2015-2020 came into force in January 2017. The plan replaced the former PMGMR, which covered the period from 2006-2011.

The former PMGMR of the CMM, which reflected the principles of the 1998-2008 Policy, featured a 60% organic waste recycling target as one of its goals. Consequently, municipalities were required to implement the following measures:

¹⁷ The initial legislative framework of this provincial funding program for 2012-2019 was approved by the Conseil du trésor du Québec on July 3, 2012. A new legislative framework for 2012-2022 was approved on August 29, 2017.

- Implement a door-to-door collection service for food and green waste in residential buildings of eight units or less;
- Conduct a pilot project on the collection of organic waste in residential buildings of nine units or more;
- Carry out a study to evaluate the feasibility of reclaiming the sludge produced by wastewater treatment plants.

The new 2015-2020 PMGMR of the CMM, which reflects the principles outlined in the 2011 Policy, also has a 60% target for the recycling of organic waste. However, in addition to the measure of the door-to-door collection of food and green waste in residential buildings of eight units or less, the new plan also requires municipalities of the CMM to implement the main following measures:

- Ensure service to members of the ICI sector that produce organic waste that is similar in terms of quality and quantity to the organic waste produced by households (household-type organic waste). For ICI members that are similar to households in terms of organic waste production, the city is required to provide them a collection receptacle (e.g., a bin) and proceed with the collection and transportation of these materials;
- Install recycling receptacles for organic waste in all municipal buildings and public areas, where traffic warrants it;
- Send reusable sludge to a recycling facility.

As for residential buildings of nine units or more, the PMGMR does not contain any obligations for the municipalities, but the CMM proposes to support municipal projects that aim to increase the quantity of organic waste recycled.

In light of these new obligations, it is clear that any evaluation of progress made toward the 60% target (recycling rate) will now need to include organic waste collected from residential buildings of eight units or less, ICI members that produce household-type organic waste and reusable sludge from wastewater treatment plants.

As for the city, the Montréal agglomeration, represented by the Service de l'environnement, opted for a PDGMR¹⁸. The adoption of this plan is not mandatory since, by law, all municipalities of the CMM are required to follow the CMM's PMGMR. Should a city choose to adopt its own plan, however, it must comply with the minimum requirement of the CMM plan and be as restrictive. The most recent PDGMR to date covers the period from 2010 to 2014. In this PDGMR, the Montréal agglomeration set a target for the management of residual materials of recycling 60% of organic waste generated by households within five years of its coming into force and of 80% in the subsequent five years (in other words, ten

¹⁸ Adopted by the urban agglomeration council, resolution CG09 0346, August 27, 2009.

years after the introduction of the PDGMR). The main measures of the 2010-2014 PDGMR are as follows:

- Provide collection receptacles for food and green waste to residential buildings of eight units or less;
- Offer a collection service for food and green waste for residential buildings of eight units or less;
- Operate organic waste treatment infrastructures (for food and green waste);
- Carry out a study on recycling municipal sludge from wastewater treatment plants.

In Appendix 5.1 a diagram shows the periods covered by the two Québec policies on the management of residual materials, the different PMGMR of the CMM and the PDGMR of the Montréal agglomeration. The diagram shows that when the 2010-2014 PDGMR of the agglomeration came into effect, the current Québec policy and its 2011-2015 action plan were not yet in force. It is primarily for this reason that the 2006-2011 PMGMR of the CMM and the 2010-2014 PDGMR of the agglomeration focus exclusively on the residential sector for the collection of organic waste, since this reflects the only obligation municipalities had under the former Policy (1998-2008). In fact, this Policy made a distinction between residual materials to be managed by municipalities and those to be managed privately by the ICI sector. While the former government policy required municipalities to focus on the totality of the built environment, the actions to be taken under the 2006-2011 PMGMR and the 2010-2014 PDGMR targeted only residential buildings of eight units or less in terms of organic waste management.

In addition, to carry the actions of the PDGMR, the Service de l'environnement developed the *Stratégie montréalaise d'implantation de la collecte des résidus alimentaires 2015-2019* (the Strategy). We noted that the Strategy uses an Excel spreadsheet that lists the number of organic waste collection bins to be distributed every year from 2015 to 2019 in order to reach 100% coverage by 2019. The spreadsheet shows this information for each of the 19 boroughs of the city and is based on the respective number of residential buildings of eight units or less¹⁹. The related municipalities of the agglomeration are not covered by this Strategy. It should be noted that this is a local responsibility and that unlike the boroughs of the city, whose responsibilities in this respect were transferred to the central city, related municipalities are still responsible for the collection and transportation of residual materials under the *Municipal Powers Act*²⁰. Based on information obtained from the employees of the Service de l'environnement, this Strategy was approved by the Direction générale and presented to the senior management committee in August 2015. We did not, however, find explicit evidence of its approval.

¹⁹ Calculated based on data from the land register of February 2015.

²⁰ CQLR, chapter C-47.1.

As can be seen, the strategy used thus far to manage organic waste deals with food and green waste produced by residential buildings of eight units or less. The actions featured in the PDGMR 2010-2014 focused on these materials and generators of waste. There is, however, another source of organic waste the city now needs to take into account in order to comply with government requirements and the new PMGMR adopted by the CMM on January 28, 2017.

First, as previously mentioned, the CMM's new 2015-2020 PMGMR does not require the city to introduce organic waste collection in residential buildings of nine units or more. On this front, while we have found no formal evidence for this in the documents pertaining to the strategy, it would seem that the Service de l'environnement allows boroughs to extend the collection of organic waste to a few residential buildings of nine units or more. A maximum equal to 10% of the number of residential buildings of eight units or less was allowed. Certain boroughs availed themselves of this option. The topic will be covered in the section 3.1.2, which deals with the implementation of food waste collection.

During our audit work, the Service de l'environnement mentioned its intention to carry out a survey among the boroughs to obtain a more complete picture of the number of residential buildings of nine units or more that already have collection receptacles. It also asked the Research Chair in Waste Recovery of École Polytechnique de Montréal to study the variation in the quantity of organic waste generated by buildings of nine units or more and whether the type of organic waste set out in the bins comply with the requirements in this respect. This survey and research will help the Service de l'environnement to target the types of buildings with nine units or more where organic waste collection could be introduced.

Second, when the new PMGMR of the CMM came into effect in January 2017, it made it mandatory for the city to include in its collection service the ICI generating household-type organic waste. In light of the information obtained, it would appear that the Service de l'environnement is not able to say how many such ICI members in its territory could be targeted by this measure. The Service de l'environnement also mentioned that certain ICI members previously had access to collection receptacles, but it does not have a specific list of these members. Boroughs will need to be surveyed on this topic. Under the circumstances, we believe that the Service de l'environnement will need to make every effort to produce a complete, up-to-date inventory of all ICI members that produce household-type organic waste in its territory so that the necessary measures can be taken to serve and inform this sector, thus complying with the requirements of the government and of the PMGMR of the CMM.

Third, reusable municipal sludge (in particular sludge from wastewater treatment plants) must now be diverted away from landfills. In the former PMGMR of the CMM and current PDGMR, the city was required to conduct various studies to determine the feasibility of reusing sludge and whether the energy balance of the current sludge incineration process could be positive – in other words, whether its incineration generates more energy than it requires. Let us recall that wastewater treatment plants are operated by the Service de

l'eau, which is responsible for finding ways to reuse the sludge generated by the wastewater treatment process. According to data we obtained, the plants generate 330,000 tons (t) of sludge annually, which when incinerated produces 45,000 t of ashes. The managers of this business unit we met explained that measures have been taken for some years now in order to find ways to reuse the sludge or ashes generated by the incineration process. In 2014, a study on the characterization and recycling of the ashes was conducted. A research program was also carried out to evaluate the possibility of using the ashes for agricultural purposes. The results opened promising avenues and, in 2016, the Service de l'eau obtained from the Canadian Food Inspection Agency a certificate recognizing the "Fertili Cendres" as agricultural fertilizer, which allows the ashes to be used by farmers as a soil amendment. According to the managers we met, many measures still need to be implemented. For example, the incinerators need to be improved to make them more energy efficient. In this respect, in August 2017, a public call for tenders was launched for professional engineering services to prepare a feasibility study on alternative solutions to incinerators of the city's wastewater treatment plant. The technical specification of the call for tenders included the analysis of various solutions previously identified by the Service de l'eau, one of which was processing the sludge using biomethanization. Other uses must also be found for the ashes, since their use on farmland is limited to a few months a year. The Service de l'eau has followed up on the actions required under the 2010-2014 PMGMR of the agglomeration regarding a study on the reclaiming of municipal sludge.

That being said, we are of the view that the Service de l'environnement will have no other choice but to take steps to implement the measures set forth in the new PMGMR of the CMM, which includes updating its organic waste management strategy. Regarding the achievement of the targets, the Service de l'environnement will need to refer to the timetable set by the Ministère de l'Environnement and the CMM. Moreover, it should be noted that the timetables featured in various documents produced by these agencies do not have the same timing, meaning that they are not perfectly harmonized with one another. In our opinion, this situation creates confusion and makes it more difficult to align the actions to be taken with the deadlines to be respected.

- The 2011-2015 action plan that accompanies the latest government Policy is the last one published by the Ministère de l'Environnement. It stipulates that the 60% target for the recycling of organic waste was to be reached by 2015 and aimed to ban these materials from landfill sites by 2020;
- In early 2017, the Ministère de l'Environnement approved the new 2015-2020 PMGMR of the CMM. However, after reviewing this PMGRM, we note that the CMM aims to reach the 60% organic waste recycling and zero percent landfilling targets by 2025. While the documents we have consulted from the Ministère de l'Environnement do not explicitly mention this, we are assuming that the timetables can be postponed;
- Moreover, as previously mentioned, a few months after the January 2017 introduction of the 2015-2020 PMGMR of the CMM, the law was amended making the review of the management plan a requirement every seven years rather than every five years. According to the information obtained, this amendment is actually extending the current

PMGMR of the CMM to 2024. As a result, the timetables for the various measures of the plan may need to be revised.

Under the circumstances, given that the Montréal agglomeration may possibly produce a new updated PDGMR, we believe it may be advisable for the city to lobby the CMM and, at the same time, the Ministère de l'Environnement, so that measures may be taken to harmonize the timetables, thus avoiding any confusion and ensuring that all stakeholders involved may contribute to the achievement of the objectives within the same timetables.

RECOMMENDATIONS

- 3.1.1.B.** We recommend that the Service de l'environnement take the necessary measures to obtain a comprehensive and up-to-date inventory of all members of the institutional, commercial and industrial sector targeted by the *Plan métropolitain de gestion des matières résiduelles* in its territory and all existing residential buildings of nine units or more so that it may have, at its disposal, all the relevant information needed to develop its strategy on the management of organic waste.
- 3.1.1.C.** We recommend that the Service de l'environnement review its organic waste management strategy to include all recyclable materials targeted by the *Plan métropolitain de gestion des matières résiduelles 2015-2020* of the Communauté métropolitaine de Montréal and that it comply with government requirements in this respect, thus contributing to the achievement of the targets established.
- 3.1.1.D.** We recommend that the Service de l'environnement lobby the Communauté métropolitaine de Montréal and the Ministère de l'Environnement so that the timetables for the targets related to the management of organic waste be harmonized by way of avoiding all confusion and promoting compliance with these deadlines.

BUSINESS UNIT'S RESPONSES

- 3.1.1.B.** *Service de l'environnement*
- [TRANSLATION] Develop an action plan to estimate the deposits of household-type organic materials from institutions, businesses and industries, evaluate the current service and follow-up.*
- *Submission of the action plan. (Planned completion: October 2018)*
 - *Achievement of plan actions in accordance with the timeframe. (Planned completion: June 2019)*

Develop a tracking tool that includes all existing buildings of nine or more units.

- *Integration of previously completed inventory of buildings served. (Planned completion: June 2019)*

3.1.1.C. Service de l'environnement

[TRANSLATION] Based on the current processing capacity of external contracts, the strategy is to prioritize the gradual implementation of organic waste collection by 2019 in buildings of eight residential units or fewer and to collect organic waste from other client groups once the infrastructure is in place in 2020. In this situation, it will be necessary to:

- *Specify the integrated strategy for the progressive deployment of household-type food waste management in buildings of nine residential units or more, as well as institutions, businesses and industries. (Planned completion: June 2019)*
- *Collect data on municipal sludge from the Direction de l'épuration des eaux usées and add it to the annual residual materials management report (ref.: Recommendation 3.3.1.B). (Planned completion: March 2019)*

3.1.1.D. Service de l'environnement

[TRANSLATION] Make the required presentations to the Communauté métropolitaine de Montréal and the Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques to express our desire to harmonize the deadlines set for organic waste management targets. (Planned completion: June 2018)

3.1.2. IMPLEMENTATION OF THE ORGANIC WASTE MANAGEMENT STRATEGY

3.1.2.A. BACKGROUND AND FINDINGS

To achieve the organic waste recycling target set forth in the 2010-2014 PDGMR for residential buildings of eight units or less, starting in 2015, the implementation of food waste collection in the Montréal territory intensified, just as the Service de l'environnement developed and deployed its *Stratégie d'implantation de la collecte des résidus alimentaires 2015-2019*. The coordination of this initiative is under the responsibility of the Division

collecte, transport et traitement des matières résiduelles, which reports to the Service de l'environnement. As a reminder, this Strategy applies only to the city's 19 boroughs. Municipalities related to the agglomeration are not covered by it. However, based on information obtained from the personnel of the Service de l'environnement, the majority of related municipalities have already implemented organic waste collection within their respective boundaries.

The Strategy developed by the Service de l'environnement took into consideration the fact that eight of the 19 boroughs had already started implementing the collection of food waste in 2014 or earlier. Consequently, approximately 18% of residential buildings of eight units or less already had access to this collection service. In addition, when the Strategy was launched, the green waste collection service, which was already in place, was serving 100% of buildings.

The implementation of food waste collection entails the acquisition and distribution of collection receptacles: the counter bin used for table scraps and waste from meal preparation and the brown wheeled bin used to place the content of the counter bin for the weekly collection. Given that on January 1, 2015, in accordance with section 85.5 of the Charter, city council took over the responsibility of collecting, transporting and disposing of residual materials, the acquisition of collection receptacles is now under the responsibility of the Service de l'environnement. Following the implementation of the Stratégie d'implantation de la collecte des résidus alimentaires, a \$12 million loan by-law for the acquisition and distribution of organic waste collection receptacles in the boroughs over a five-year period was adopted by the city council in May 2015²¹. It should be mentioned that the purchase of residential organic waste collection bins is eligible for a 33 1/3% subsidy under the provincial funding program governed by the Ministère de l'Environnement.

In accordance with the division of powers, boroughs are responsible for the mass distribution of collection receptacles to the citizens in their territory. Based on the information obtained from the boroughs audited, the distribution was carried out by employees (blue collar) of the borough, by private companies selected following the awarding of a contract or by a Non-profit organization (NPO) - in most cases, the organization spearheading the Éco-quartier program in the boroughs. The initiative was supported by a communication and awareness-raising campaign designed to inform citizens of the new collection receptacles.

Two modes of organic waste collection are used in the agglomeration. In the West Island sector, where 95% of residences are single-family or semi-detached homes, green waste and food waste are collected together (mixed collection), given that there is a high proportion of green waste to be collected due to the size of yards. In the East sector, where there is a high percentage of attached dwellings, reduced green spaces and greater population density (just over three-quarters of the population on the Island of Montréal)²², green waste

²¹ City council resolution, CM15 0681, session held on May 25, 2015.

²² Based on property assessments of April 2017, there were approximately 1,539,000 people living in the East sector and approximately 458,000 people living in the West sector (Source: Portrait 2016 des matières résiduelles de l'agglomération de Montréal).

and food waste are collected separately²³ (see Appendix 5.2 for the boundaries of these two sectors). In terms of percentages, the West sector generates 60% of green waste and 40% of food waste, while it is the opposite for the East sector. In the West, citizens can place both types of organic waste in the brown bin. As needed, paper bags can also be used for green waste. In the East, the brown bin is used exclusively for food waste. Green waste must be placed in one of the containers described in the *By-Law concerning collection services* (16-049). The division between these two sectors is therefore based on the quantity of waste generated and the related type of processing required. Of the 19 boroughs in the city's territory, 4 are located in the West, while 15 are located in the East.

The purpose of the *Stratégie d'implantation de la collecte des résidus alimentaires* is that 100% of occupancy units (located in the city's territory), representing a total of approximately 538,000²⁴ dwellings in residential buildings or eight units or less (just over 2/3 of residences), have at their disposal collection receptacles by the end of 2019 and thus be able to participate in food waste collection or food and green waste collection, depending on the sector.

Since boroughs are responsible for the distribution of collection receptacles, the Service de l'environnement has asked them to determine a distribution rate for the receptacles for the period from 2015 to 2019 in order to ensure that 100% of residential buildings of eight units or less are served by the end of this period. For the boroughs we have audited, we noted that Rivière-des-Prairies–Pointe-aux-Trembles and Rosemont–La Petite-Patrie, which had voluntarily launched the collection of food waste in their territory since 2014 or earlier, chose to complete the implementation by 2015. The Saint-Laurent borough completed the implementation in 2016, while the Mercier–Hochelaga-Maisonneuve borough postponed part of the implementation and will complete it in 2017 rather than 2016 as was initially set in the implementation strategy developed by the Service de l'environnement.

Furthermore, as part of the implementation of this Strategy, the Service de l'environnement gave boroughs the option of extending the collection of organic waste to a few residential buildings of nine units or more. A maximum equal to 10% of the number of residential buildings of eight units or less was allowed. The permission to extend organic waste collection to buildings of nine units or more was given to avoid a situation where a building of nine units or more located on a street with a majority of buildings with eight units or less would be the only one excluded from the collection. In practice, as of September 2017, data received from the Service de l'environnement indicated that only 8 of the 19 boroughs had residential buildings of nine units or more with organic waste collection receptacles. Residential buildings of nine or units or more represent less than one-tenth of the 4.1% of the total number of residential buildings of eight units or less. This figure is even lower in some boroughs. In other words, the ratio is far from the allowable maximum of 10%.

²³ Source: PDGMR 2010-2014.

²⁴ Source: Portrait 2016 des matières résiduelles de l'agglomération de Montréal, Service de l'environnement – Data from the April 2017 property assessment.

The Stratégie d'implantation de la collecte des résidus alimentaires was thus implemented based on the number of residential buildings of eight units or less in each borough and on the rate of distribution set by the boroughs for the period between 2015 and 2019. The details of the implementation were recorded in an Excel spreadsheet. This planning of the number of collection receptacles (bins) required annually by each of the boroughs was to enable the Service de l'environnement to coordinate the purchase and delivery of the bins to each borough to avoid shortages during the implementation phase.

Overall, based on the follow-up done by the Service de l'environnement, at the end of 2016, 60% of occupancy units across the 19 boroughs of the city had access to a collection receptacle (a bin), which was relatively similar to what was set out in the implementation strategy. In early 2017, if we include the Mercier-Hochelaga-Maisonneuve borough, which postponed to 2017 part of the implementation operation, there were still 13 boroughs that had not yet completed the implementation of food waste collection in residential buildings of eight units or less. While the strategy deployed by the Service de l'environnement set out to have the implementation completed by the end of 2019, it should be pointed out that the new 2015-2020 PMGMR of the CMM has a target date of 2020 for the implementation of organic waste collection in buildings of eight units or less. The PMGMR also aims to complete the implementation of food waste collection among ICI members producing household-type organic waste by the end of 2019. It also mentions that the implementation of marked collection receptacles in all municipal buildings and public areas where traffic warrants should be completed by the end of 2020. Much work still needs to be done to complete the implementation in all 19 boroughs. That being said, our audit work has shown that other than the Saint-Laurent borough, the three boroughs audited have offered on a voluntary basis food waste collection services to certain ICI members wishing to participate in the collection. According to information obtained, the recyclable materials produced by participating ICI members are included with the collection of materials from residential buildings of eight units or less. In addition, of the four boroughs audited, only the Saint-Laurent borough has started to implement food waste collection in municipal buildings under its responsibility.

To comply with the targets set out in the 2015-2020 PMGRM of the CMM and those of the 2015-2015 implementation strategy, we believe that the Service de l'environnement, in collaboration with the boroughs, will need to take necessary measures to ensure that the implementation of food waste collection in residential buildings of eight units or less is completed within the established deadlines. Given the timetables established in the PMGMR of the CMM, the Service de l'environnement will also need to take steps to make sure that the collection of household-type organic waste produced by ICI members and collection in municipal buildings are implemented as well. Once implementation among ICI members and municipal buildings has been instigated, we believe that a status report on the implementation should be produced in order to have a clear picture of progress made for each of these sectors.

RECOMMENDATIONS

- 3.1.2.B.** We recommend that the Service de l'environnement ensure that the implementation of food waste collection in residential buildings of eight units or less in the territory of Montréal be completed in accordance with the timetable established in its own implementation strategy in order to comply with the 2020 target date set out in the *Plan métropolitain de gestion des matières résiduelles 2015-2020* of the Communauté métropolitaine de Montréal.
- 3.1.2.C.** We recommend that the Service de l'environnement take the necessary steps to ensure that the implementation of the collection of household-type food waste generated by the institutional, commercial and industrial sector and the implementation of food waste collection receptacles in municipal buildings and public areas be instigated in order to meet the timetables of the *Plan métropolitain de gestion des matières résiduelles 2015-2020* of the Communauté métropolitaine de Montréal.
- 3.1.2.D.** We recommend that the Service de l'environnement produce periodic status reports on the implementation of organic waste collection in the institutional, commercial and industrial sector and in municipal buildings in order to show the state of progress being made in each sector in keeping with the timetables of the *Plan métropolitain de gestion des matières résiduelles 2015-2020* of the Communauté métropolitaine de Montréal.

BUSINESS UNIT'S RESPONSES

3.1.2.B. *Service de l'environnement*

[TRANSLATION] Continue to roll out food waste collection in buildings of eight units or fewer, based on the strategy adopted in August 2015.

Implementation results for a total of 540,000 residential units:

- *End 2017: 76%, 9 boroughs completed;*
- *End 2018: 91%, 12 boroughs completed;*
- *Spring 2019: 100%, 19 boroughs completed.*
(Planned completion: June 2019)

3.1.2.C. Service de l'environnement

[TRANSLATION] Specify the action plan to gradually implement the collection of household-type food waste in institutions, businesses and industries.

- *Submission of the action plan and beginning of implementation (ref.: Recommendation 3.1.1.C). (Planned completion: June 2019)*

Develop an action plan to step up the implementation of organic waste management tools in municipal buildings.

- *Submission of the action plan. (Planned completion: June 2019)*
- *Beginning of implementation. (Planned completion: January 2020)*

Identify public areas where traffic justifies the implementation of organic waste management tools and commence collection.

- *Identification of public areas concerned. (Planned completion: October 2019)*
- *Implementation of collection tools and service. (Planned completion: July 2021 (after OWTP))*

3.1.2.D. Service de l'environnement

[TRANSLATION] Establish a tracking procedure for the implementation of organic waste management for household-type food waste from institutions, businesses, industries and municipal buildings, based on the timeframe established by the Plan métropolitain de gestion des matières résiduelles.

- *Submission of tracking procedure. (Planned completion: June 2019)*
- *Publication of information in every annual residual materials management report. (Planned completion: June 2020 (2019 report))*

3.1.3. IMPLEMENTATION OF ORGANIC WASTE TREATMENT PLANTS

3.1.3.A. BACKGROUND AND FINDINGS

For over 10 years now²⁵, the Service de l'environnement has been working on a project involving the design, construction and operation of five OWTP to be located throughout the territory of the Montréal agglomeration. In accordance with the governance framework for municipal asset management projects and programs, this large-scale project is subject to an approval and coordination process by the municipal administration.

As a reminder, the implementation of structures like OWTP and the processing of materials are under the responsibility of the Montréal agglomeration through its Service de l'environnement. The Division du soutien technique, infrastructures and the SMEC business unit is responsible for this major initiative.

The project is one of the commitments made by the Montréal agglomeration in its 2010-2014 PDGMR, which, in terms of organic waste management, includes the requirement to [TRANSLATION] "Operate organic waste management infrastructures (for food and yard waste)." The new 2015-2020 PMGMR of the CMM has confirmed the relevance of this project in its orientations. On the one hand, these orientations aim to contribute to the reduction of greenhouse gas emissions through the use of regionally based residual materials management infrastructures with a view to reducing dependency on facilities located outside²⁶ the Greater Montréal region. On the other, they aim to optimize collection and transportation activities through the proximity of OWTP by limiting the distance to be travelled²⁷. It should be mentioned that in 2016, the food waste collected was sent to Saint-Thomas near Joliette for processing. Mixed waste (food and green) and green waste were sent to Brownsburg-Chatham in the Lachute region. Only wood chips and bulk leaves were composted locally at the SMEC.

The previous PMGMR (2006-2011) also requested an evaluation of the [TRANSLATION] "Feasibility of options for the implementation of new waste processing/disposal infrastructures to promote regional autonomy." The CMM's vision in the new PMGRM, which involves the "4Rs²⁸ and zero landfilling" objectives to be reached by 2025 is based on regional autonomy in managing residual materials. Based on the principle of regional autonomy and given the lack of a private organic waste treatment plant on the Island of Montréal capable of handling to annual tonnage produced by the agglomeration of Montréal, it was clear for the Service de l'environnement that the agglomeration of Montréal needed to have its own treatment facilities for residual materials.

²⁵ A study dated November 2006 on the feasibility of organic waste treatment technologies was commissioned by the Service de l'environnement.

²⁶ Refers to the organic waste management plants, recyclable material sorting centres and disposal sites.

²⁷ Source: PMGMR 2015-2020, orientation 2.

²⁸ The 4Rs of residual materials management are, in order, reduction, reuse, recycle and recover.

More specifically, the major project spearheaded by the Service de l'environnement involves the construction of the five following OWTP:

- **A pretreatment pilot centre (with mechanical-biological sorting)** – The purpose of this centre is to identify effective and adapted ways to recycle the largest share of household waste possible starting with the sorting of organic waste²⁹;
- **Two biomethanization treatment centres** – Materials are processed using a fermentation process without oxygen. This process produces biogases³⁰ and digestate, a paste that is sent to composting centres;
- **Two composting treatment centres** – Materials are processed using a fermentation process with oxygen. The result is compost that can be used for soil amendment.

The five OWTP will be designed to have a total processing capacity of 224,000 t per year. Table 1 below presents the characteristics and processing capacity of these OWTP. Excluding the pretreatment pilot centre, whose capacity is 25,000 t per year, the four other facilities to be built by the city will have an annual organic waste processing capacity of 199,000 t. The construction of the OWTP will be carried out in two phases. The second biomethanization treatment centre will be built only once the first centre has reached its maximum operational capacity.

In parallel with the OWTP, the Service de l'environnement has adopted a scenario whereby a total of 40,000 per year of green waste (mostly dead leaves) will need to be transported off the island to be composted and 16,000 t of green waste will be composted locally at the SMEC (for an overall total of 56,000 t). The rationale behind this choice is based on the seasonality of the tonnage involved. In fact, there is more green waste to be processed in October and November. The Service de l'environnement did not want to develop large-scale OWTP capable of handling this large, yet seasonal volume of green waste, only to have to operate these oversized centres all year long, which are expensive to run based on per-ton cost. There is also a plan to set aside a capacity of 15,000 t per year for each of the two biomethanization treatment centres (a total of 30,000 t/year) for the processing of organic waste generated by the ICI sector. In this regard, while no agreement has yet been signed, the Service de l'environnement plans on prioritizing public and para-public organizations for the supply of food waste from the ICI to the OWTP. According to the selected scenario, the cost of processing would be taken on by these ICI members, as they currently do with private firms, since the collection and processing of materials generated by public and para-public institutions are not a municipal responsibility.

²⁹ Source: Dossier d'approbation – Centre de traitement des matières organiques de l'agglomération de Montréal, May 12, 2016 version.

³⁰ Once refined, biogas is similar to natural gas considered to be a renewal energy that can be used locally, introduced into the distribution network or liquefied to be used as fuel by the transportation industry.

³¹ Definition: Digestate (solid or liquid waste) is the material remaining after the methanization process.

TABLE 1 – CHARACTERISTICS AND CAPACITIES OF THE FIVE FUTURE OWTP

INFRASTRUCTURES	SECTOR SERVED	MATERIALS PROCESSED	LOCATION OF THE CENTRE	TREATMENT CAPACITY (GROSS AND NET)	ANTICIPATED START OF OPERATIONS (YEAR)
PHASE 1					
Pretreatment pilot centre	East/West	Household waste	Montréal-East	25,000 t/year	2021
Closed composting centre	West	Mixed food and green waste	Saint-Laurent	50,000 t/year, with 11,000 t/year for processing of digestate ³¹ in anaerobic digesters Actual Remaining Treatment Capacity for Residential Sector 39,000 t/year	2020
Anaerobic digester #1 (Biomethanization)	East	Food waste	Montréal-East	60,000 t/year, with 15,000 t/year reserved for ICI sector Actual Remaining Treatment Capacity for Residential Sector 45,000 t/year	2020
Closed and semi-closed composting centre	East	Green waste	Rivière-des-Prairies–Pointe-aux-Trembles	29,000 t/year, with 25,000 t/year for processing of digestate in anaerobic digesters Actual Remaining Treatment Capacity for Residential Sector 4,000 t/year	2020
PHASE 2					
Anaerobic digester #2 (Biomethanization)	East	Food waste	LaSalle	60,000 t/year, with 15,000 t/year reserved for ICI sector Actual Remaining Treatment Capacity for Residential Sector 45,000 t/year	2024
GROSS TREATMENT CAPACITY				224,000 †	
GROSS TREATMENT CAPACITY (EXCLUDING PRETREATMENT PILOT CENTRE)				199,000 †	
GROSS TREATMENT CAPACITY FOR RESIDENTIAL SECTOR (EXCLUDING PRETREATMENT PILOT CENTRE)				133,000 †	

Source: Service de l'environnement - Dossier d'affaires des CTMO de l'agglomération de Montréal, final version of November 26, 2012.

For information, it should be mentioned that during our audit work, three public calls for tenders were launched in May, June and July 2017 for the design, construction and maintenance of the Rivière-des-Prairies–Pointe-aux-Trembles composting centre, the Montréal-East biomethanization centre and the Saint-Laurent composting centre.

ESTABLISHING THE TREATMENT CAPACITY OF ORGANIC WASTE TREATMENT PLANTS

In order to comply with both the 2010-2014 PDGMR and the 2006-2011 PMGMR, which were in effect during the development of the OWTP construction project, at least 60% of residential organic waste (food waste and green waste) need to be diverted away from landfills.

Yet the business record prepared by the Service de l'environnement in this respect mentions that the treatment capacities of OWTP were determined based on the volume of organic waste generated by citizens. In the recommended scenario, the Service de l'environnement retained an organic waste collection ratio of 188 kilogram (kg) per year of food waste per occupancy unit for the East sector and a ratio of 344 kg of food and green waste (mixed collection) per occupancy unit for the West sector. These ratios correspond to a recycling rate of 80% of the total amount of organic waste produced by residential buildings of eight units or less. These findings were based on two studies carried out by a firm specialized in the management of residual materials. This firm recommended evaluating the tonnage to be processed, in other words the capacity of the OWTP based on a diversion rate of 60%. The Service de l'environnement preferred, however, retaining a higher rate in order to have leeway in terms of the objective to be achieved. Since OWTP will be processing organic waste from residential buildings of eight units or less, limiting capacity to 60% of tonnage of this share of the built environment would not have been sufficient to reach the 60% recycling rate for the overall built environment.

Using the number of occupancy units in 2017 in residential buildings of eight units or less (see Table 2), we notice that upon reaching the 80% recycling target for organic waste, the East sector would be generating nearly 91,400 t of food waste per year. Yet the two biomethanization centres each have a capacity of 45,000 t per year (or 90,000 t per year) if we remove the 15,000 t per year reserved by each centre for the ICI sector. For its part, the West sector would be generating nearly 39,900 t per year of green waste and food waste combined. The composting centre in this sector is designed to process 39,000 t per year, once a portion of the digestate from biomethanization centres has been integrated in the treatment process. We note that these quantities are similar to the theoretical capacities of the OWTP centres, which allows us to conclude that the OWTP are actually designed to process up to 80% of organic waste generated by residential buildings or eight units or less.

TABLE 2 – NUMBER OF RESIDENTIAL OCCUPANCY UNITS IN THE AGGLOMERATION (IN 2017) PER TYPE OF BUILDING AND ANTICIPATED TREATMENT CAPACITY

TYPE OF BUILDINGS	SECTORS	VILLE DE MONTRÉAL	RELATED MUNICIPALITIES	AGGLOMERATION	ANTICIPATED TREATMENT CAPACITY U.O X KG (IN t)	
					EAST (188 KG/ U.O.)	WEST (344 KG/ U.O.)
8 units or less	East	480 115 51.1%	6 237 0.6%	486 352 51.7%	91,434	
	West	58 644 6.2%	57 417 6.1%	116 061 12.3%		39,925
	TOTAL	538,759 57.3%	63,654 6.8%	602,413 64.1%		
9 units or more	East	270,023 28.7%	4,541 0.5%	274,564 29.2%		
	West	36,508 3.9%	26,369 2.8%	62,877 6.7%		
	TOTAL	306,531 32.6%	30,910 3.3%	337,441 35.9%		
TOTAL	East	750,138 79.8%	10,778 1.2%	760,916 81.0%		
	West	95,152 10.1%	83,786 8.9%	178,938 19.0%		
	TOTAL	845,290 89.9%	94,564 10.1%	939,854 100.0%		

Source: Portrait 2016 des matières résiduelles de l'agglomération de Montréal, Service de l'environnement – Data from the April 2017 property assessment.

Moreover, the Portrait 2016 des matières résiduelles de l'agglomération de Montréal indicates that in the agglomeration as a whole, 71,125 t was diverted, for a recycling rate of 20%. This means that the total tonnage of organic waste generated by the municipal sector equals 355,000 t³². We therefore wanted to evaluate whether the scenario selected by the Service de l'environnement for the treatment of organic waste at the future OWTP would enable the city to reach the 60% target set for the recycling of municipal organic waste (excluding sludge) featured in the 2010-2014 PDGMR and in the new 2015-2020 PMGMR of the CMM. That being said, our exercise was not to establish with absolute certainty the recycling rate that would be reached. What we did want to determine,

³² Estimate calculated using a factor for the characterization of residual materials produced by the residential sector in Québec from 2006-2007.

using data published by the city and other information provided by the Service de l'environnement, was whether the government target could be reached based on the capacity of the treatment centres.

Based on data obtained from the Service de l'environnement, approximately 60,800 t of food waste and green waste was collected in the entire Montréal agglomeration territory in 2016. The 10,325 t difference between the total recycled tonnage of 71,125 t presented in the Portrait 2016 and this 60,800 t is due to the upstream collection by citizens (domestic composting and grasscycling³³ and green waste management contracts awarded by related municipalities to local farmers for the production of compost. However, all of this goes into the calculation of the organic waste recycling rate and must also be taken into consideration to determine if, overall, OWTP will be capable of achieving the 60% recycling target. Given that the tonnage recycled upstream is invariable and that the total tonnage of the four OWTP and the tonnage of green waste will be subject to a contract in order to avoid major seasonal fluctuations (56,000 t), we have estimated that at the full capacity of OWTP, the agglomeration could reach an organic waste recycling rate just below the 60% target, which was set out in the PDGMR for the residential sector (see Table 3).

The Service de l'environnement is of the view that adjustments will need to be made along the way in order to possibly process more organic waste. The focus has been on using composting OWTP at full capacity and having digestate (36,000 t from biomethanization treatment centres – see Table 1) processed in external centres not owned by the city instead of sending it the OWTP, as originally planned. By freeing up this additional 36,000 t/year of processing capacity of composting OWTP, the recycling rate could reach 66% (see Table 3).

³³ Grasscycling refers to the practice of leaving grass clippings on a lawn after mowing it.

TABLE 3 – EVALUATION OF THE SCENARIO FOR THE PROCESSING OF ORGANIC WASTE WITH REGARD TO ACHIEVING THE 60% RECYCLING TARGET³⁴

TREATMENT PROCEDURE	BASIC CONCEPT (IN t)	EXTERNAL TREATMENT OF DIGESTATE (IN t)
2 OWTP - Biomethanization (East)	90,000	90,000
OWTP Composting (East)	4,000	29,000
OWTP Composting (West)	39,000	50,000
Green waste management (internal and external)	56,000	56,000
Upstream recycling	10,325	10,325
TOTAL FOR RECYCLING	199,325	235,325
TONNAGE TO BE PROCESSED	355,000	355,000
POTENTIAL RECYCLING RATE	56%	66%

Based on these estimates, and given that studies in treatment capacity from the Service de l'environnement also feature several hypotheses, we can conclude that it would be possible for the agglomeration to reach a recycling rate close to the 60% target.

Given that the Québec government plans on eventually further restricting the landfilling of organic waste – even banish it altogether – two issues must be addressed along with the selected scenario on the implementation of OWTP. For one, OWTP will only be able to reach their full capacity if citizens participate in the collection. In this regard, in order to contribute to the achievement of the recycling targets and ensure that the OWTP are not under-utilized, sustained communication and awareness-raising efforts will no doubt be required to bring about change in citizen behaviour and habits. Second, under the new PMGRM of the CMM, it should be kept in mind that both the ICI producing household-type organic waste and municipal buildings need to be served. Should the agglomeration face a situation whereby the amount of waste collected is greater than the capacity of OWTP, provisions will need to be made to find alternatives in order to increase the recycling capacity. In addition, since all Québec municipalities are also seeking ways to comply with the new government regulations by diverting organic waste away from landfills, it is very likely that this will drive up prices charged by private companies for the treatment of such materials.

In any event, based on the actual evolution of the performance of organic waste collection, we believe that the Service de l'environnement will need to adjust the scenario it has selected for the implementation of OWTP.

³⁴ Calculation based on data from the Portrait 2016 des matières résiduelles de l'agglomération de Montréal and information provided by the Service de l'Environnement.

RECOMMENDATION

- 3.1.3.B.** We recommend that the Service de l'environnement analyze, document and propose to the municipal administration different scenarios demonstrating various alternative solutions should the recycling rate of organic waste be lower or greater than the capacity of the treatment centres, in order to be prepared to make appropriate decisions based on the hypotheses selected should the time come.

BUSINESS UNIT'S RESPONSE

3.1.3.B. *Service de l'environnement*

[TRANSLATION] The existing scenarios were presented. These scenarios deal with two-phase biomethanization and the possibility of granting external processing contracts.

- *Annually verify the volumes and collection and report to the municipal administration if the scenarios change.*
(Planned completion: annually, beginning February 2019)

FINANCIAL CONTRIBUTION OF THE FEDERAL AND PROVINCIAL GOVERNMENT FOR THE IMPLEMENTATION OF ORGANIC WASTE TREATMENT CENTRES

The OWTP construction project falls under the provincial funding program of the Ministère de l'Environnement on the implementation of organic waste treatment facilities for the recycling of compost and digestate and for the replacement of fossil fuel with biogas³⁵. The aim of the provincial funding program is to reduce both:

- organic waste for disposal;
- greenhouse gas emissions due to the breakdown of organic waste in landfill sites.

This provincial funding program requires that infrastructures be operational by December 31, 2022³⁶. There is, however, one exception in the program's legislative framework regarding the city, which is authorized to proceed in two phases. The first phase entails commissioning the infrastructures no later than December 31, 2022, and the second involves commissioning a biomethanization facility no later than June 30, 2026. The city

³⁵ Once refined, biogas is similar to natural gas, a non-renewal fossil fuel, which can be used locally, introduced into the distribution network or liquefied to be used as fuel by the transportation industry.

³⁶ Initially, the cities receiving funding under this provincial program (including Ville de Montréal) had until the end of 2019 to commission their OWTP. In September 2015, however, as part of the Accord de partenariat avec les municipalités (a partnership agreement among the municipalities), the government postponed this obligation to December 31, 2022.

has chosen to proceed in two phases in order to ensure the gradual commissioning of the biomethanization centres in keeping with their recycling capacity. Based on information obtained, the date for commissioning of the first-phase centres is 2020, while the commissioning of the second-phase anaerobic digester #2, which will be located in LaSalle, is 2024 (see Table 1). So instead of having two centres operating in the early years with little tonnage, the Service de l'environnement opted to maximize the use of the first biomethanization treatment centre, then, when the tonnage warrants, commission the second centre. The Ministère de l'Environnement approved this approach. According to the implementation schedule of the four OWTP, the project complies with the maximum deadlines of the program for their commissioning.

Based on the approval record (March 2017 version) prepared by the Service de l'environnement, the gross investment required for all five OWTP (including the pretreatment pilot centre) was \$344 million. In February 2010, the provincial government, through its funding program, and the federal government, through its Green Infrastructure Fund, announced that they would both participate in funding the OWTP project of the agglomeration. Based on the information we have found in the legislative framework of the provincial funding program, dated August 29, 2017, the provincial share of the contribution is \$68.5 million and the federal share is \$67.1 million, for a total of \$135.6 million. So the net cost of the project for the city is \$208.4 million.

The financial contribution of both upper levels of government for the project is conditional upon compliance with the deadlines on the commissioning of the infrastructures, as mentioned above. Another condition is that, no later than five years following the commissioning of the infrastructures, 70% of residential occupancy units in the Montréal agglomeration are to have access to an organic waste collection service. After the second year in operation of the OWTP, the city will be required to submit an action plan on reaching the 70% target, if it has not been attained at that time.

Yet, as previously mentioned, organic waste collection is currently limited almost exclusively to residential buildings of eight units or less. The design of the OWTP is also based on a recycling rate of 80% of materials generated by residential buildings of eight units or less. Based on updated information from the April 2017 property assessment (see Table 2 shown previously), we note that if it serves only residential buildings of eight units or less in the agglomeration of Montréal, the city will only reach 64.1% of residential occupancy units, which is below the target required under the provincial funding program. To reach the target set by the program, the collection of organic waste will need to be extended to 55,485 residential occupancy units in buildings of nine units or more. This represents 16.4% of all occupancy units in this type of building for the agglomeration of Montréal as a whole. As of July 2017, based on data provided by the Service de l'environnement, the collection service for organic waste was available to only 5,632 occupancy units in buildings of nine units or more in the city's 19 boroughs. As for related municipalities, the Service de l'environnement did not obtain information on the number of occupancy units in buildings of nine units or more who already have access to the organic waste collection service, but this number is estimated to be minimal. According to Table 2, shown previously,

the total number of occupancy units in residential buildings of nine units or more in related municipalities was less than 31,000.

So while the 2010-2014 PDGMR currently in effect and the new 2015-2020 PMGMR of the CMM do not deal with the collection of organic waste from residential buildings of nine units or more, it would seem that, due to the requirements of the provincial funding program, the city will have no other choice but to extend the organic waste collection service to a significant proportion of these buildings. According to the Service de l'environnement, the boroughs are gradually extending this collection service. However, we have seen no evidence that the Service de l'environnement has established, in collaboration with the boroughs, a clear strategy on implementing organic waste collection to a significant proportion of residential buildings of nine units or more in order to ensure compliance with the eligibility criteria of the provincial funding program. Admittedly, when the Stratégie montréalaise d'implantation de la collecte des résidus alimentaires 2015-2019 was developed, the Service de l'environnement allowed boroughs to provide service to occupancy units in buildings of nine units or more not exceeding 10% of the number of occupancy units of eight units or less. However, the information provided by the Service de l'environnement indicates that only 8 of the 19 boroughs have taken advantage of this opportunity so far.

Against this backdrop and to ensure the maximum share of provincial and federal funding for the OWTP project, the Service de l'environnement must identify various measures to be implemented in order to comply with the eligibility criteria of the provincial funding program regarding the provision of service to 70% of residential occupancy units in the agglomeration of Montréal.

RECOMMENDATION

3.1.3.C. We recommend that the Service de l'environnement analyze various measures to extend the collection of organic waste to a larger share of residential buildings of nine units or more in order to meet the eligibility criteria of the provincial Program for the Treatment of Organic Matter through Biomethanization and Composting, and thus take advantage of the funding available.

BUSINESS UNIT'S RESPONSE

3.1.3.C. Service de l'environnement

[TRANSLATION] Specify the progressive implementation strategy for food waste management to comply with the service established by the Program for the Treatment of Organic Waste through Biomethanization and Composting.

- *Submission of implementation strategy.
(Planned completion: June 2019)*

- *Implementation and service of targeted buildings.
(Planned completion: spring 2021 (based on processing capacity of external contracts))*

3.1.4. APPLYING THE REGULATION GOVERNING COLLECTION SERVICES

3.1.4.A. BACKGROUND AND FINDINGS

To support the recycling objectives of the 2010-2014 PDGMR, while taking into account the fact that the provincial government, through its Policy, aims to ban organic waste from landfill sites, measures have been taken to harmonize the city by-law governing the collection service in the city's 19 boroughs and related municipalities.

In terms of the boroughs, let us recall that under section 85.5 of the Charter, following amendments made by the city council as of January 1, 2015, on the sharing of responsibilities for residual materials management, city council is now in charge of adopting by-laws in this matter. So even if many boroughs were already applying their own by-laws on household waste and recyclable materials, in the process of implementing organic waste collection and in the interest of fairness to all citizens of the 19 boroughs, a new by-law on collection services was adopted by the city council in August 2016³⁷. The responsibilities for the application of this by-law were delegated to the boroughs through amendments made to the internal by-law on the transfer of powers from the city council to borough councils³⁸ (02-002).

Based on information obtained, the by-law, which was developed in consultation with all the boroughs, focuses exclusively on operations related to the collection and transportation of:

- household waste;
- recyclable materials;
- organic waste (food waste and green waste);
- CRD;
- bulky items.

The new by-law is meant to help the city oversee citizen actions and practices in light of government objectives. As such, it defines the categories (e.g., food waste, green waste, recyclable materials) and types of materials (e.g., fruits and vegetables, grass, newspapers) to be collected. More specifically, it includes provisions that prohibit placing

³⁷ By-law concerning collection services (16-049), Ville de Montréal, city council (CM16 0985), adopted on August 23, 2016.

³⁸ City council, by-law 02-002, subparagraph 1, section 1, paragraph 12.

household waste with organic waste mentioned in by-law 16-049. For example, fruits and vegetables for food waste collection and grass for green waste collection cannot be mixed with household waste. To this end, the by-law allows for penalties that range from \$200 for a first offence to \$4,000 for a repeat offence, based on whether the offender is an individual or a corporation.

While the by-law came into effect in August 2016, we note that in light of information obtained from each of the four boroughs audited, none has implemented the necessary mechanisms to ensure oversight of the application of this by-law regarding organic waste. Generally speaking, the boroughs have indicated that the focus is currently on raising awareness among citizens to encourage them to participate in organic waste collection. No effort has yet been made to apply the by-law and no special measure is planned in this respect. However, the boroughs audited have mentioned that their inspectors do intervene in the event of complaints. They also reported difficulty in applying the by-law due to both a lack of resources to inspect the content of household waste and to the challenge of proving who actually mixed the organic waste with the household waste. Practically speaking, the process involves an inspector on the street who opens a garbage bag, looks for organic waste in the bag and a proof of residence (e.g., an invoice) to be able to trace it back to the owner of the garbage bag. With paper recycling and online billing, there are fewer and fewer paper documents in garbage bags to make this association between the garbage bag and its owner.

That being said, if the by-law was enacted to encourage citizens to participate in the organic waste collection, or at least serve a tool to dissuade them from placing everything in with the household waste, it is clear that the goal has not yet been reached. In addition, we have no evidence to suggest that the Service de l'environnement has been monitoring the application of this by-law in the Montréal territory. In our opinion, there should be a discussion to help find solutions to ensure that the by-law has the intended impact on changing citizen behaviour and that it encourages them to participate in the collection of organic waste.

Moreover, a review of the documents and communication and awareness-raising tools obtained from the boroughs, the Service de l'environnement and the Service des communications did not show any evidence that awareness-raising activities are being conducted in the boroughs or in the city as a whole regarding the by-law as it pertains to organic waste collection.

Since the city has not yet reached its objective on the recycling of organic waste, we believe that activities to raise public awareness of the new by-law should be carried out in order to inform citizens of the existence of the by-law and of the requirements it entails for them regarding the collection of organic waste. We also believe that boroughs should implement mechanisms to promote the application of the by-law. For example, warning tickets could be given to citizens when they fail to comply with the provisions of the by-law regarding organic waste collection.

In terms of related municipalities, while they have jurisdiction over the collection of residual materials within their respective boundaries, they must nevertheless take steps similar to those taken by the city in order to comply with the commitments of the agglomeration featured in the PDGMR and strive to reach the government objective on the ban of organic waste in landfills. In this context, to ensure consistent interventions by both the city and related municipalities with regard to the management of residual materials, the Service de l'environnement has developed a by-law similar to that of the city. On February 23, 2017, the agglomeration council³⁹ adopted by-law RCG 17-009 entitled, *"By-law of the urban agglomeration council to encourage coherent interventions concerning the exercise of powers regarding residual materials."* The wording of this by-law is identical to the city's by-law. Consequently, related municipalities are also under the obligation of immediately applying the by-law and its provisions that prohibit citizens from placing food and green waste with their household waste and are also required to contribute to the achievement of the recycling target for organic waste set out in the PDGMR. As a result, there is consistency across the agglomeration regarding the by-law of organic waste recycling.

RECOMMENDATIONS

- 3.1.4.B.** We recommend that the Service de l'environnement, in cooperation with the boroughs, initiate a collective discussion on the best way to apply the by-law on collection services in order to improve the participation rate of citizens in organic waste collection.
- 3.1.4.C.** We recommend that the boroughs of Mercier–Hochelaga-Maisonneuve, Rivière-des-Prairies–Pointe-aux-Trembles, Rosemont–La Petite-Patrie and Saint-Laurent take the necessary measures to ensure the application of the by-law concerning collection services (16-049) in order to comply with its delegation of responsibilities in this matter and to contribute to the achievement of the recycling target set out in the *Québec residual materials management policy*.
- 3.1.4.D.** We recommend that the Service de l'environnement in cooperation with the Service des communications and the boroughs of Mercier–Hochelaga-Maisonneuve, Rivière-des-Prairies–Pointe-aux-Trembles, Rosemont–La Petite-Patrie and Saint-Laurent take the necessary measures to raise awareness of the requirements set out in the by-law concerning collection services (16-049) pertaining to the collection of organic waste when developing communication tools and awareness-raising activities for citizens.

³⁹ Resolution CG17 0058, agglomeration council.

BUSINESS UNITS' RESPONSES

3.1.4.B. **Service de l'environnement**

[TRANSLATION] Launch a collective discussion at meetings with the boroughs.

- *Discussions with borough managers. (Planned completion: May 2018)*
- *Summary of discussions. (Planned completion: September 2018)*

3.1.4.C. **Mercier–Hochelaga-Maisonneuve borough**

[TRANSLATION] The borough of Mercier–Hochelaga-Maisonneuve will take part in the development and implementation of a strategy to improve the application of the Règlement sur les services de collecte, in collaboration with the Service de l'environnement.

(Planned completion: October 2018 (based on Service de l'environnement timeframes))

Rivière-des-Prairies–Pointe-aux-Trembles borough

[TRANSLATION] The methods and resources will be identified in an action plan to allow for the effective, standardized application of the Règlement sur les services de collecte. (Planned completion: based on Service de l'environnement timeframe)

These methods and resources will be identified by the Éco-quartier, the Direction des travaux publics, the Division des permis et de l'inspection and the Service de l'environnement, as part of the development of an action plan.

The action plan will also identify under-performing sectors and confirm interventions to apply if awareness-raising efforts do not achieve the desired results. (Planned completion: September 2018)

Rosemont–La Petite-Patrie borough

[TRANSLATION] Participate actively in the discussion process launched by the Service de l'environnement on how to effectively apply the Règlement sur les services de collecte (ref.: Recommendation 3.1.4.B.). (Planned completion: May 2018)

Draft an action plan that establishes the awareness-raising strategies to put in place in collaboration with the Éco-quartier. This awareness-raising strategy will identify problematic streets in under-performing sectors. If the problem recurs despite awareness-raising efforts, borough inspectors will step in to enforce the regulation. (Planned completion: July 2018)

Saint-Laurent borough

[TRANSLATION] The borough of Saint-Laurent will participate in the Service de l'environnement collective discussion process to develop and implement a strategy to improve the application of the Règlement sur les services de collecte and will implement the appropriate measures (ref.: Recommendation 3.1.4.B.). (Planned completion: October 2018)

3.1.4.D. Service de l'environnement

[TRANSLATION] The application of the Règlement sur les services de collecte (16-049) is a local responsibility. To convey a standard message to all citizens, however, a global communication plan is required.

*Collaborate with the Service des communications and all boroughs to include, where appropriate, the requirements set out in the Règlement sur les services de collecte (16-049) concerning organic waste management in the development of communication tools and awareness activities for the public, as part of the communication plan to relaunch the **Bien manger, bien jeter** promotion campaign. The boroughs will be able to adapt this communication plan to their needs, if required. (Planned completion: May 2018)*

Service des communications

*[TRANSLATION] The Service des communications, in partnership with the Service de l'environnement, is currently developing a communication plan to relaunch the **Bien manger, bien jeter** promotion campaign. This promotion strategy will include a section on the regulation.*

Consequently, the currently available communication tools (e.g., brochures, website, green patrol toolkit) will be updated and the promotional messages broadcast over the various channels and the awareness activities for the public will be adjusted to communicate the requirements set out in the regulation. (Planned completion: May 2018)

Mercier–Hochelaga-Maisonneuve borough

[TRANSLATION] The borough of Mercier–Hochelaga-Maisonneuve will develop and implement, in collaboration with the Service de l'environnement and the Service des communications, a communication and awareness-raising plan that includes the publication of the requirements set out in the Règlement sur les services de collecte, public participation in organic waste management and the publication of the organic waste management performance results in its territory. (Planned completion: October 2018 (based on Service de l'environnement timeframes))

Rivière-des-Prairies–Pointe-aux-Trembles borough

[TRANSLATION] Based on the communication plan of the city's Service des communications, articulate the actions and means of communication identified in the Rivière-des-Prairies–Pointe-aux-Trembles borough's local plan. Ensure that the idea of the requirements set out in the Règlement sur les services de collecte is integrated in our messages.

*Examples: webpage update, Facebook promotion, media relations...
(Planned completion: October 2018)*

Rosemont–La Petite-Patrie borough

*[TRANSLATION] Work with the Service de l'environnement and the Service des communications on the development of communication tools and awareness activities for the public, as part of the communication plan to relaunch the **Bien manger, bien jeter** promotion campaign (ref.: Recommendation 3.1.4.D.). (Planned completion: May 2018)*

*Write an action plan that will establish awareness-raising strategies in collaboration with the Éco-quartier. The communication plan that accompanies the implementation of this strategy will involve developing communication tools and updating current tools.
(Planned completion: July 2018)*

Saint-Laurent borough

*[TRANSLATION] The borough of Saint-Laurent will develop and implement, in collaboration with the Service de l'environnement and the Service des communications, a local communication and awareness-raising plan that communicates the requirements set out in the Règlement sur les services de collecte (ref.: Recommendation 3.1.4. D.).
(Planned completion: October 2018)*

3.1.5. TRACKING THE PERFORMANCE OF ORGANIC WASTE COLLECTION

3.1.5.A. BACKGROUND AND FINDINGS

To ensure that the collection of organic waste in boroughs operates in a manner that promotes the achievement of the targeted recycling rate, progress toward this goal must be tracked. This step is important since it will not only provide us with a status report regarding citizen participation and recycling rates, but it will also enable us to assess compliance in terms of the materials placed in the bins.

As part of implementing the collection of organic waste, boroughs are responsible for local communication and awareness-raising activities in accordance with the delegation of powers granted to them. In the boroughs audited, awareness-raising activities for citizens have generally been given to NPOs, which in most cases operate the borough's Eco-quarter program. Through service agreements signed with a borough, these NPOs have also been tasked with conducting various activities to track the performance of organic waste collection. Following these activities, the NPO is expected to produce status reports. While the specific mode of operation varies from one borough to the next, our audit has revealed that all boroughs have asked the NPOs for an evaluation of citizen participation in the collection following its implementation. The performance tracking activities of organic waste collection were conducted either in the month that followed the distribution of collection receptacles and implementation of the collection service or during the normal course of borough activities following the implementation of the collection service. For example:

- In the boroughs of Mercier–Hochelaga-Maisonneuve, Rivière-des-Prairies–Pointe-aux-Trembles and Rosemont–La Petite-Patrie, monitoring visits were carried out by the organizations responsible for evaluating citizen participation in the collection service following its implementation. Observations were recorded regarding the number of people reached and the number of bins set out on the curb. Following these activities and based on information we obtained, the borough of Mercier–Hochelaga-Maisonneuve identified a participation rate ranging from 20% to 25% depending on the sector visited. In the Rivière-des-Prairies–Pointe-aux-Trembles borough, the report by the organization in charge produced in August 2016 indicated that 35,000 bins had been distributed, while every week an average of 5,349 bins were collected. The participation rate was estimated between 14.3% and 16.3% for the borough as a whole. In the Rosemont–La Petite-Patrie borough, according to the report produced in December 2015 by the organization in charge, monitoring visits were conducted in the five sectors of the borough involved in organic waste collection. The report indicated a participation rate of approximately 17%.
- These tracking activities on the implementation of organic waste collective also included a review of the contents of the bins set out on the curb in order to verify compliance in terms of materials placed in the bins. On collection days, patrollers would inspect the contents of the bins to look for prohibited waste, in which case they would give citizens a courtesy ticket to inform them of the problem. In the Mercier–Hochelaga-Maisonneuve borough, this operation revealed that depending on the sectors visited, 10% to 17%

of bins set out on the curb contained prohibited waste (e.g., cat litter). In the Rivière-des-Prairies–Pointe-aux-Trembles borough, according to the 2016 report, 1,980 bins were inspected during monitoring visits. Following this operation, the organization in charge noted that 26% of bins contained prohibited waste and that, in 22% of bins, the organic waste was placed in an oxo-biodegradable bag, which is not permitted. In the Rosemont–La Petite-Patrie borough, according to the final report produced in 2015 by the organization in charge, the main area of non-compliance in terms of bin content was the use of prohibited bags, either oxo-biodegradable bags or garbage bags.

- In the Saint-Laurent borough, door-to-door canvassing was done prior, during and following the implementation of the collection service. This on-the-ground follow-up involved a survey to rate the satisfaction of citizens with the implementation of the organic waste collection service (mixed collection of food and green waste). The survey questions were also meant to determine whether they always, sometimes or never participate in the collection. Based on the report produced by the organization in charge in December 2016, over 1,300 people were met between September and December 2016. The findings revealed that a majority of people surveyed reported being satisfied with the organic waste collection service.

It should be mentioned that in the Saint-Laurent borough, the brown wheeled bins are equipped with a RFID tag⁴⁰. During the distribution of the collection receptacles, the code on each bin was assigned to a physical address corresponding to a residential building of eight units or less. When collecting organic waste, trucks equipped with a scanner positioned in the rear can read the code on the bin when its content is discharged into the truck. The information is then electronically transferred to the borough into a special software designed for this purpose. This lets the borough know the day and time on which the bin was collected and which truck did the pick-up. The borough is currently using the software primarily to track its bin inventory. Based on the information obtained from borough staff, the software application has not yet been used to track the performance of the collection service, but it is capable of doing so. The main reason mentioned is that the technical specifications of the contract did not include a provision that would require the service provider to supply vehicles equipped with bin-scanning technology. As a result, the information in the databases is not comprehensive, making it impossible for the borough to conduct a conclusive analysis on the performance of the collection service. Based on the information obtained, to date, the efforts of the borough have focused on citizen awareness and satisfaction following the implementation of the collection service. However, now that the implementation of the organic waste collection service has been completed, measures could be taken to track its performance to evaluate the participation of citizens and their compliance in terms of the waste placed in the bins.

⁴⁰ Referred to as a *Radio frequency identification tag*.

- All boroughs audited mentioned that during the summer season, they ask the organization in charge of public awareness to send green patrols to sectors where sanitation is an issue to remind citizens of the different collection services available. However, this operation is not intended only for organic waste collection.

In our opinion, the physical observation of the number and content of brown bins is a good practice that should be periodically implemented by all boroughs in order to assess the rate of participation of citizens and check their compliance with the waste placed in the bins. Given that participation rates remain low even though the implementation has almost been completed in most of the boroughs audited⁴¹, we believe that performance tracking should not only be done on a periodic basis but also planned for the long term.

That being said, it should also be mentioned that the Service de l'environnement produces a monthly table that tracks the tonnage collected by boroughs and by related municipalities⁴². The East sector also calculates the mass ratio⁴³ of food waste collected per occupancy unit for each of the boroughs of the city, for related municipalities and for the East sector as a whole. At the time of our audit in October 2017, the ratio of the East sector was 62 kg/occupancy unit. In the West sector, only the tonnage by borough and by related municipality is calculated. The Service de l'environnement does not calculate the mass ratio per occupancy unit as does the East sector. In the West sector, since food and green waste are collected together in the same bin, it is more difficult to determine a conclusive ratio for each type of waste. This information on tonnage collected and recycling rates per occupancy units are forwarded to the boroughs.

Furthermore, we have noted that two surveys on the collection of organic waste had been commissioned by the Service de l'environnement. The first was conducted in 2013 and included the Island of Montréal as a whole. It was a telephone survey carried out using a sample of respondents living in residential buildings of eight units or less. The purpose was primarily to measure citizens' knowledge of food waste, green waste, and mixed waste, measure the level of participation in territories where the collection was implemented and learn more about their motivations for participating or their reservations about doing so. The second survey was conducted from October 22, 2015, to November 8, 2015, and involved a follow-up study after the implementation of food waste collection. It was also a telephone survey, which was carried out among 1,000 citizens living in residential buildings of eight units or less located in one of the nine boroughs that were at that time partially covered by the food waste collection service. The goal of the study was

⁴¹ At the end of 2015, implementation was 100% completed in the boroughs of Rivière-des-Prairies–Pointe-aux-Trembles and Rosemont–La PetitePatrie. The Saint-Laurent borough completed its implementation in 2016 and the Mercier–Hochelaga-Maisonneuve borough postponed part of its implementation until 2017.

⁴² Before starting a collection in a borough, each truck receives a ticket authorizing it to dispose of the waste collected at a given treatment centre. The driver hands in the ticket upon arrival at the treatment centre. The truck is then weighed before discharging its contents. This is how the centre is able to send the city specific information for each truck regarding tonnage, boroughs or related municipalities.

⁴³ Mass ratio: per units of mass (in kg).

to learn the habits and satisfaction of participants regarding the collection, the reasons for not participating, the interest and concerns of citizens not yet covered by the service, the perceptions and knowledge of citizens with respect to food waste collection and suggested improvements by citizens. While both of the surveys are useful for assessing the performance of the collection service, it is clear that these date back to a time when the implementation of organic waste collection was not as advanced as it is today. Ultimately, we believe that performance tracking should include not only residential buildings of eight units or less but also other sectors of activities where food waste collection will possibly be phased in (e.g., buildings of nine units or more, ICI producing household-type waste, municipal buildings and public spaces). In addition, when the implementation of the Stratégie d'implantation de la collecte des résidus alimentaires was launched, the Service de l'environnement mentioned that all buildings were already covered by the green waste collection service. In our opinion, green waste collection should also be subject to a performance review.

Given certain reservations that citizens may have about organic waste collection, more specifically about food waste (e.g., smell, white grubs), we find it important to track the performance of the collection service on a periodic basis and over the long term for all the sectors of activity in order to obtain a status report and thus be able to target the types of measures needed to encourage a higher level of participation.

In addition, we have observed in certain annual activity reports or bulletins produced by the boroughs that the total annual tonnage of organic waste collected was mentioned. While this initiative is worthy of note, we believe that providing this number without indicating the frame of reference in terms of targeted amounts or the previous amounts collected does not give citizens the opportunity to truly assess the information, nor does it encourage them to take action in order to participate in reaching the recycling target established. Yet every month, the boroughs receive the performance of the organic waste collection service within their boundaries from the Service de l'environnement. In the East sector, it is even presented as a quantity per occupancy unit, which can easily be compared to the design parameters of the OWTP (188 kg of food waste per occupancy unit). In the interest of transparency, but more importantly to maintain the interest of citizens and allow them to see the results of their effort in reaching the recycling target, we believe that the boroughs should periodically inform citizens on the performance of organic waste collection in a manner that is accessible and user friendly.

RECOMMENDATIONS

3.1.5.B. We recommend that the boroughs of Mercier–Hochelaga-Maisonneuve, Rivière-des-Prairies–Pointe-aux-Trembles, Rosemont–La Petite-Patrie and Saint-Laurent provide for the planning of periodic measures to assess the performance of organic waste collection (food waste and green waste) in support of sound decision making on steps that need to be taken to improve under-performing sectors.

3.1.5.C. We recommend that the boroughs of Mercier–Hochelaga-Maisonneuve, Rivière-des-Prairies–Pointe-aux-Trembles, Rosemont–La Petite-Patrie and Saint-Laurent disseminate on a regular basis the results of the performance evaluation of organic waste collection within their boundaries in order to report on the evolution of the recycling rate compared to the established target as a way of encouraging citizens to participate in the collection.

3.1.5.D. We recommend that the Service de l’environnement provide for the periodic tracking of the performance of organic waste collection (food waste and green waste) for all sectors of activity where the implementation has been gradually completed in order to obtain an overview of the situation and guide decision making to promote the achievement of the recycling targets established.

BUSINESS UNITS’ RESPONSES

3.1.5.B. *Mercier–Hochelaga-Maisonneuve borough*

[TRANSLATION] The borough of Mercier–Hochelaga-Maisonneuve will put in place appropriate measures to assess the performance of organic waste management in its territory. This exercise will be carried out with the participation of the Service de l’environnement, which will provide data specific to our borough for performance analysis purposes. (Planned completion: gradually beginning in May 2018)

Rivière-des-Prairies–Pointe-aux-Trembles borough

[TRANSLATION] The tonnage data compiled by the Service de l’environnement (ref.: Recommendation 3.1.5.D.) will be used, with the assistance of the Éco-quartier, to target the under-performing sectors and add to the information gathered by the green patrol that is in place during the summer of 2018. The development of this methodology will be further clarified in the action plan. (Planned completion: September 2018)

Annually, in spring and fall, weigh the trucks (in-house or private) assigned to organic waste collection (food waste and green waste). (Planned completion: April 2018)

Rosemont–La Petite-Patrie borough

[TRANSLATION] Establish a diagnostic measurement strategy, using tonnage data compiled from the weighing tickets, to identify under-performing sectors. The diagnostic and improvement strategies will be

developed in collaboration with the Éco-quartier. These strategies will be clearly set out in the action plan. (Planned completion: July 2018)

Take part in the optimization process for the periodic organic waste management performance tracking planned by the Service de l'environnement (ref.: Recommendation 3.1.5.D).

(Planned completion: continuous – October 2018 to January 2019)

Saint-Laurent borough

[TRANSLATION] Based on information about the Service de l'environnement's periodic organic waste management performance tracking, the borough of Saint-Laurent will implement the appropriate measures to foster informed decision-making about the steps to take to improve under-performing sectors (ref.: Recommendation 3.1.5.D).

(Planned completion: February 2019)

3.1.5.C. Mercier–Hochelaga-Maisonneuve borough

[TRANSLATION] The borough of Mercier–Hochelaga-Maisonneuve will develop and implement, in collaboration with the Service de l'environnement and the Service des communications, a communication and awareness-raising plan that includes the publication of the requirements set out in the Règlement sur les services de collecte, public participation in organic waste management and the publication of the organic waste management performance results in its territory.

(Planned completion: October 2018 (based on Service de l'environnement timeframes))

Rivière-des-Prairies–Pointe-aux-Trembles borough

[TRANSLATION] Based on data provided by the borough's Direction des travaux publics, the Division des relations avec les citoyens will periodically release the tonnage by neighbourhood, using its various means of communication, to foster participation and encourage the achievement of targets. This action will be identified in the local communication plan to be developed (ref.: Recommendation 3.2.D).

(Planned completion: December 2018)

Rosemont–La Petite-Patrie borough

[TRANSLATION] The communication plan that accompanies the action plan will also involve communication actions concerning the regular public broadcast of the performance results (based on diagnostic measures implemented) (e.g., Facebook post, public newsletter).

(Planned completion: August 2018)

Saint-Laurent borough

[TRANSLATION] The borough of Saint-Laurent will develop, in collaboration with the Service de l'environnement and the Service des communications, a local communication and awareness-raising plan that includes the regular publication of the organic waste management performance results in its territory, to encourage the public to participate in the collection (ref.: Recommendation 3.1.5.D.).

(Planned completion: March 2019)

3.1.5.D. Service de l'environnement

[TRANSLATION] Periodically track organic waste management performance based on information already available and data related to Québec's new definition of residual materials (data available in fall 2018).

- *Continuation of monthly data sharing. (Planned completion: continuous)*
- *Optimization of performance tracking tools. (Planned completion: October 2018)*
- *Implementation of optimized performance tracking tools. (Planned completion: January 2019)*

This action will allow the boroughs to evaluate the performance in order to make informed decisions to improve the under-performing sectors (ref.: Recommendation 3.1.5.B.).

3.2. COMMUNICATION AND AWARENESS

3.2.A. BACKGROUND AND FINDINGS

One of the main issues related to the implementation of organic waste collection is, without a doubt, the importance of sustained communication and awareness-raising efforts made to encourage a change in mentality so that citizens participate in the collection. More than 20 years ago, citizens needed to be convinced to separate recyclable materials from household waste. Today, they must learn to separate organic waste so that this new type of collection service becomes a regular part of their daily lives. This education and change in mentality require an action plan, the development and dissemination of communication and awareness-raising tools and, ultimately, an evaluation of the performance of the measures deployed to track their impact on citizens' participation rates and on organic waste recycling rates.

For the city, this challenge is even greater in the East sector (where 15⁴⁴ of the 19 boroughs can be found), given that more than three-quarters of the population of Montréal lives in this sector (which has very few green spaces) and that food waste represents 60% of organic waste to be recycled. Unlike the collection of green waste, which is more acceptable to citizens, the collection of food waste is more of a challenge due to the inconveniences it entails compared to other types of collection. These include odours, insects, white grubs and, in winter, waste that freezes in the bins. These inconveniences could deter or discourage citizens from participating, which is why it is crucial to drive home the message on the importance of participating in the collection. In addition, given the considerable sums involved in the transportation of organic waste and the hundreds of millions of dollars that will be invested in building organic waste treatment plants, citizens participation is essential. Without it, the success of the project and the targets set by the provincial government for the diversion of organic waste away from landfills could be compromised.

During the development of *Stratégie montréalaise d'implantation de la collecte des résidus alimentaires 2015-2019*, the Service de l'environnement worked in collaboration with the Service des communications on a project charter for the planning of a communication campaign to accompany the launch of the food and mixed (food and green) waste collection service. In 2015, the Service des communications produced a document entitled, "*Charte de projet – Implantation des collectes de résidus alimentaires et mélangés, 2015-2020*" intended for the city's 19 boroughs. In terms of the roles and responsibilities of the stakeholders involved, the project charter set out the following:

- The Service des communications is to be in charge of developing a concerted communication strategy with the boroughs to support the achievement of the objectives on the implementation of food waste collection in Montréal. It is also responsible for helping the boroughs implement the communication campaign by supplying them with the tools they need for its launch. The project charter established a target of 80% participation rate by January 1, 2020, the date on which the future OWTP will become operational;
- The Service de l'environnement is to be responsible for securing the budgets for the overall project;
- The boroughs are to be in charge of operational communications (local) by implementing the concerted communication strategy developed to inform citizens about the new food waste collection service.

Concurrently, on May 13, 2015, the Service des communications produced a *Plan de communication - Phase 2015-2016* to accompany the gradual implementation of food or mixed waste collection in buildings of eight units or less in the territory of Montréal. It featured various communication and awareness measures for the pre-implementation, implementation and post-implementation phases. At the time of our audit work, in early October 2017, the 2015-2016 communication plan was the only existing plan. However, during the

⁴⁴ The four boroughs of the West sector are Saint-Laurent, Lachine, Pierrefonds-Roxboro l'île-Bizard-Sainte-Geneviève.

audit, on October 17, 2017, the Service des communications produced a document entitled, “*Stratégie et actions de communication 2015-2017 – Collecte des résidus alimentaires*”. This document provides a status report on the measures deployed, the sums budgeted and the communication tools produced for 2015 and 2016. For the year 2017, it mentions that the 2016 communication objectives will be maintained for another year. It also presents the communication activities and measures launched to date.

It should be noted, however, that the project charter of 2015 provided for a communication budget of \$5.5 million broken down annually from 2015 to 2019, the details of which are shown in Table 4.

TABLE 4 – EVOLUTION OF THE BUDGET AND EXPENDITURES EARMARKED FOR PUBLIC COMMUNICATION AND AWARENESS RAISING ON THE IMPLEMENTATION OF ORGANIC WASTE COLLECTION

YEAR	BUDGET ALLOCATED BY THE 2015 ^[A] PROJECT CHARTER	ORIGINAL BUDGET ^[B]	AMENDED BUDGET ^[B]	VARIATION BETWEEN THE ORIGINAL AND AMENDED BUDGET (C-B)	ACTUAL EXPENDITURES AND COMMITMENTS ^[B]
	A	B	C	D	E
2015	\$350,000	\$0	\$780,000	\$780,000	\$388,571
2016	\$1,743,000	\$650,000	\$1,162,697	\$512,697	\$1,138,993
2017	\$1,452,000	\$0	\$555,000	\$555,000	\$534,636 ^[C]
2018	\$978,000				
2019	\$975,000				
TOTAL	\$5,498,000				

[A] Source: Service des communications, charte de projets, 2015-2019.

[B] Data from Montréal’s integrated accounting system (referred to as the SIMON application).

[C] Balance on the books as of November 1, 2017.

Based on the budgetary breakdown set out in the project charter, the largest sums were to be dedicated to the roll-out phase of the implementation strategy in 2016 and 2017. The information obtained, however, indicates that the budget for 2016 was reduced to \$650,000, which was 62.7% lower than the budget set out in the project charter. Of this \$650,000 budget, a sum of approximately \$450,000 was reserved for the boroughs to conduct their local awareness-raising initiatives, including door-to-door canvassing. In most cases, this was carried out by an NPO with which the borough had signed an agreement for the purpose of educating citizens on the collection service and the use of collection receptacles. In this respect, the Service de l’environnement reimburses the boroughs for

the cost of the door-to-door canvassing based on the agreements signed between the boroughs and the service provider. Based on the information obtained, the unitary cost of the awareness-raising initiative generally varies between \$3 and \$4 per occupancy unit. According to the Food Waste Collection Strategy, the boroughs planned on distributing the collection receptacles to a little under 134,000⁴⁵ occupancy units in 2016, for a public awareness budget of \$450,000 in 2016. The remaining \$200,000 of the budget was used to create communication tools, such as pamphlets, postcards and stickers for the counter bins.

As shown in Table 4, in fall 2016, the Service de l'environnement nevertheless managed to secure an additional budget of just over \$500,000. This additional budget was used to develop the first phase of an advertising campaign, including a series of Web videos, entitled, "*Off the plate, to the bin.*" The campaign took place primarily in December and January, but according to staff of the Service des communications and the Service de l'environnement surveyed, this was not the best time of year to get citizens to pay attention to an environmental issue.

In 2017, the budget allocated was also \$555,000 – or 61.8% less than the amount set out in the project charter (see Table 4). As we noted, the actual budgets allocated to communication and awareness raising were significantly different from the budgets set out in the 2015-2019 project charter. Once the sums for awareness-raising activities had been spent during the distribution of the collection receptacles, there was little leeway left to carry out large-scale advertising campaigns to continue promoting the message.

It should also be mentioned that starting in 2017, a decision was made by the municipal administration to entrust the communication budget, including public awareness activities, to the Service des communications rather than to the Service de l'environnement, as was previously the case. However, it is the Service de l'environnement that continues to manage the implementation of collection receptacles. It is also better positioned to authorize the payment of invoices submitted by the boroughs, since it is familiar with the agreements signed between the boroughs and the organizations selected to conduct the door-to-door canvassing. Based on the information obtained from the Service de l'environnement, the latter agreed to approve the invoices submitted by the boroughs, allowing the Service des communications to proceed with the payment of invoices, which had been given prior validation and authorization.

However, we call into question this significant decrease in the budgets previously earmarked for communication and awareness-raising activities at a time when the implementation of food and mixed waste collection reached the most critical phase of its deployment. Given the issues related to this type of collection, we believe it is crucial that the planning of communication and awareness-raising activities and the budgets earmarked for such activities be allocated, barring a major shift of the parameter, and that the initiative as a whole be managed with a view to continuity in order to maintain citizen interest by reminding them of the changes in their daily habits they must make when it comes to separating organic waste

⁴⁵ For 2017, 2018 and 2019, the Food Waste Collection Strategy planned on implementing the service 93,734, 54,980 eta 52,055.

from household waste. The implementation phase of organic waste collection is more than just an important step of the project. In fact, its success will determine the fate of the project as a whole. Without the participation of citizens, the city runs the risk of having an insufficient amount of waste to enable the future OWTP to operate at full capacity. This would jeopardize the city's ability to reach the organic waste recycling target set by the provincial government. In this respect, having had to review the communication and awareness-raising strategy due to major budget cuts and subsequently having had to review it once again late in the year following additional budgetary allowances will only serve to diminish the effectiveness of the strategy, potentially resulting in the loss of gains made with regard to citizen participation.

In addition, while the Service de l'environnement was given broader powers over the collection and transportation of residual materials starting in 2015, which subsequently developed an implementation of Stratégie d'implantation de la collecte des résidus alimentaires, and while boroughs were granted additional powers⁴⁶ for local communication with citizens, some of them⁴⁷ had already started even before the implementation of organic waste collection. In this respect, we noted during our audit work that four boroughs audited had local communication plans to promote the implementation of organic waste collection in their territory. Unlike the communication plan of the Service des communications, the local plans developed by the boroughs focused on activities specific to the need of their constituents. For example, the Saint-Laurent borough prepared an information document in five different languages to reach as many citizens as possible, given the multiethnic character of the borough. Generally speaking, we noted that the local communication plans included objectives, a message, a communication strategy, a target audience, a timetable for the actions to be taken and a list of communication tools, such as the use of a Facebook page, press releases, borough Website, brochures, stickers. The plans, which were developed for a brief period of one to two years, relied on a variety of means to communicate and raise awareness among citizens. In general, we find these activities and tools to be useful since they are sufficiently varied to reach the greatest number of citizens possible.

While efforts have been made to develop communication plans, we nevertheless believe that it is important for these communication plans to be renewed and extended over longer time periods in order to educate citizens on the new behaviour to be adopted.

For these reasons, we believe that the communication and awareness-raising actions should be recurring and included in long-term communication plans, which at minimum correspond to the Stratégie montréalaise d'implantation de la collecte des résidus alimentaires 2015-2019 and the commissioning of the OWTP expected for 2020 (phase 1) and 2024 (phase 2). This is all the more justified given that one of the measures of the 2015-2020 PMGMR of the CMM requires municipalities to: *[TRANSLATION] "Organize information, awareness and education activities at least once a year on the reduction, recycling, recyclable materials and organic waste for all groups"*⁴⁸.

⁴⁶ By-law 02-002, internal by-law on the transfer of powers from the city council to borough councils.

⁴⁷ The Rosemont-La Petite-Patrie borough (started in 2010) and the Rivière-des-Prairies-Pointe-aux-Trembles borough (started in 2013).

⁴⁸ PMGMR 2015-2020, measure 24, page 68.

RECOMMENDATIONS

- 3.2.B.** We recommend that the Direction générale re-evaluate the budget allocations with a long-term perspective given the evolution of the diversion rate and the *Stratégie montréalaise d'implantation (2015-2019)* by way of ensuring that communication and awareness-raising efforts be maintained over time in order to increase the participation rate of citizens in organic waste collection, to ensure the adequate supply of organic materials for future treatment plants and to promote the achievement of the recycling target.
- 3.2.C.** We recommend that the Service des communications in collaboration with the Service de l'environnement develop a long-term communication and awareness-raising plan identifying the actions to be implemented in order to ensure the sustained growth of citizen participation rate in organic waste collection, thus promoting the achievement of the recycling target.
- 3.2.D.** We recommend that the boroughs of Mercier–Hochelaga–Maisonneuve, Rivière-des-Prairies–Pointe-aux-Trembles, Rosemont–La Petite-Patrie and Saint-Laurent maintain their local communication and awareness-raising plans in order to identify the measures specific to their constituencies in support of the long-term participation of citizens.

BUSINESS UNITS' RESPONSES

- 3.2.B.** **City Manager**
[TRANSLATION] As organic waste management is progressively deployed and the objectives for this activity are identified, communication needs will be evaluated and budgets will be planned accordingly. (Planned completion: December 2018)
- 3.2.C.** **Service de l'environnement**
[TRANSLATION] Development of a long-term communication and awareness-raising plan that identifies budgets and actions to implement in order to enhance public participation (ref.: Service des communications action plan). (Planned completion: June 2018)
- Service des communications**
*[TRANSLATION] The Service des communications, in partnership with the Service de l'environnement and the boroughs, will develop a communication and awareness-raising plan to relaunch the **Bien manger**,*

***bien jeter** promotion campaign, in order to foster the sustained increase of public participation in the collection of organic waste and support the achievement of the target set by the Communauté métropolitaine de Montréal Plan métropolitain de gestion des matières résiduelles (60% by 2025).*

The action plan will cover the period through October 2018 and be adjusted in the following years based on the results achieved and budgetary amounts allotted to this project. In the interest of fairness, the residents of all boroughs will be targeted by the promotional actions. (Planned completion: June 2018)

3.2.D. Mercier–Hochelaga-Maisonneuve borough

[TRANSLATION] The borough of Mercier–Hochelaga-Maisonneuve will develop and implement, in collaboration with the Service de l'environnement and the Service des communications, a communication and awareness-raising plan that includes the publication of the requirements set out in the Règlement sur les services de collecte, public participation in organic waste management and the publication of the organic waste management performance results in its territory. (Planned completion: October 2018 (based on Service de l'environnement timeframes))

Rivière-des-Prairies–Pointe-aux-Trembles borough

[TRANSLATION] The Division des relations avec les citoyens et communications will arrange a meeting with the borough's Direction des travaux publics and the Éco-quartier to identify the problems in the various sectors of its territory. (Planned completion: June 2018)

Based on these data, the Division des relations avec les citoyens et communications will develop a local communication plan that identifies means to raise public awareness and encourage participation in organic waste collection. (Planned completion: September 2018)

Implementation of actions identified in the communication plan and annual relaunch to support the message and foster long-term compliance. (Planned completion: December 2018)

Consider the objectives identified in the communication plan that will be developed by the city's Service des communications (ref.: Recommendation 3.2.C) and relay the resulting campaign locally.

Maintain at least one annual meeting with the borough's Direction des travaux publics to get an update on issues in the field in order to guide communication actions. (Planned completion: December 2018)

Rosemont–La Petite-Patrie borough

[TRANSLATION] Work with the Service de l'environnement and the Service des communications to develop a long-term communication and awareness plan. (ref.: Recommendation 3.2.C.).

(Planned completion: June 2018)

A complete communication plan identifying the objectives, means of communication and projected timeframes will accompany the action plan. (Planned completion: June 2018)

Saint-Laurent borough

[TRANSLATION] The borough of Saint-Laurent will develop, in collaboration with the Service de l'environnement and the Service des communications, a local communication and awareness plan to maintain public participation over the long term (ref.: Recommendation 3.2.C.).

(Planned completion: June 2018)

Finally, as part of our audit work, we also tried to determine whether there was a correlation between the cost per occupancy unit (for both the boroughs and the central city) for the communication and awareness-raising activities and the subsequent performance of organic waste collection (mass ratio per occupancy unit).

It appears, however, that neither the Service de l'environnement nor the Service des communications obtains all the data from the boroughs regarding the cost of the awareness-raising activities they conducted using their own operating budgets. On the one hand, the Service de l'environnement, which was responsible for the communication and public awareness budget prior to the 2017 transfer of the related budgets to the Service des communications, did not compile or produce a comprehensive report on the overall communication and awareness-raising activities, including those carried out by the boroughs for the purpose of analysis and performance tracking. On the other hand, the Service des communications, did not, starting in 2017, prepare a report on the overall expenses for communication and awareness-raising activities (including those of the boroughs). Nor did the boroughs keep a record of all their expenses related to communication and awareness-raising activities taken from their own operating budgets with the goal of evaluating the impact of these activities on the participation rates in organic waste collection. Under the circumstances, we were unable to establish a direct causal link between the amount invested in awareness raising and the performance of the collection.

In our opinion, it would be highly useful to obtain, collate and evaluate all the data on communication and awareness-raising expenses in order to assess the participation and recycling rates. Without this information, it could be difficult for the municipal administration to properly assess the effectiveness and efficiency of the measures undertaken

to encourage citizen participation in the collection. This performance evaluation based on expenses could also facilitate informed decision-making by helping to determine if additional efforts and budgets are needed to improve citizen awareness, thus increasing the participation rate of citizens, as the case may be.

RECOMMENDATIONS

- 3.2.E.** We recommend that the boroughs of **Mercier–Hochelaga-Maisonneuve, Rivière-des-Prairies–Pointe-aux-Trembles, Rosemont–La Petite-Patrie and Saint-Laurent** ensure that all spending on communication and awareness-raising activities in connection with organic waste periodically be compiled and forwarded to the Service de l'environnement so that the information may be used to evaluate the performance of these measures and their impact on the recycling rate.
- 3.2.F.** We recommend that the Service de l'environnement periodically collect information on the expenditures incurred in the territory of Montréal for communication and awareness-raising activities in connection with organic waste and that it proceed to an analysis of the performance of the measures taken and their impact on the recycling rate in order to facilitate informed decision-making and increase the rate of citizen participation.

BUSINESS UNITS' RESPONSES

- 3.2.E. *Mercier–Hochelaga-Maisonneuve borough***
- [TRANSLATION] The borough of Mercier–Hochelaga-Maisonneuve will periodically forward to the Service de l'environnement, based on its requests, information about the expenses related to organic waste management communication and awareness-raising. (Planned completion: October 2018 (based on Service de l'environnement timeframes))*
- Rivière-des-Prairies–Pointe-aux-Trembles borough***
- [TRANSLATION] Creation of a specific budget code associated with expenses for this activity, to generate a year-end report that identifies all expenses. (Planned completion: September 2018)*
- Transmit associated expenses to the Service de l'environnement. (Planned completion: January of each year)*

Rosemont–La Petite-Patrie borough

[TRANSLATION] The action and communication plans will identify the assessed costs and expenses incurred for their application. (Planned completion: September 2018)

Transmit the compiled information about the expenses to the Service de l'environnement. (Planned completion: January 2019)

Work with the Service de l'environnement and the Service des communications to evaluate the performance of the communication and awareness activities (ref.: Recommendation 3.2.F). (Planned completion: May 2019)

Saint-Laurent borough

[TRANSLATION] The borough of Saint-Laurent will periodically send the Service de l'environnement, based on its requests, the information about the expenses related to organic waste collection awareness communication and awareness activities (ref.: Recommendation 3.2.F). (Planned completion: January 2019)

3.2.F. Service de l'environnement

[TRANSLATION] In collaboration with the Service des communications and the borough, received, in January of each year, and compile the expenses incurred for the organic waste communication and awareness activities. (Planned completion: February 2019)

In collaboration with the Service des communications and the boroughs, assess the performance of the communication and awareness activities. (Planned completion: May 2019)

3.3. ACCOUNTABILITY REPORTING**3.3.1. PROGRESS OF THE ORGANIC WASTE RECYCLING RATE****3.3.1.A. BACKGROUND AND FINDINGS**

The agglomeration of Montréal made certain commitments when it adopted its 2010-2014 PDGMR, one of which was to reduce by 60% the landfilling of organic waste produced by the residential sector, more specially by buildings of eight units or less (food waste and green waste). In this respect, every year, the Service de l'environnement produces a report on the mass balance for the agglomeration of Montréal. The Excel report illustrates the annual tonnage of each type of residual material (e.g., recyclable materials, organic

waste, textiles, dry waste and bulky items) collected, the recycling rate and the recycling ratio (kg/occupancy unit). The information presented includes all boroughs and related municipalities. This mass balance report is forwarded to the CMM every year.

In addition, every year, the Service de l'environnement produces a report that presents the progress being made toward the targets for residual materials management, including the target for organic waste presented in its PDGMR. Moreover, in even-numbered years, it publishes a report that provides an overview of residual materials management. The results of the current year and the evolution of activities for the last five years are presented. This overview includes the state of the quantity of residual materials recycled and discarded by municipal collection services. The most recent report produced in 2016 is entitled, "*Portrait 2016 des matières résiduelles de l'agglomération de Montréal*". In odd-numbered years, it publishes the "*Bilan des matières résiduelles de l'agglomération de Montréal*". This document is more concise and presents charts of the progress being made toward the targets of the PDGMR for the agglomeration as a whole, by borough and by related municipalities. The last report was produced in 2015. The Service de l'environnement also published in 2016, the "*Bilan du plan directeur de gestion des matières résiduelles de l'agglomération de Montréal*", which presents a detailed account of achievements made by the Montréal agglomeration for each of the 49 projected actions of the PDGMR since its implementation. It includes a section focused specifically on progress being made in the area of organic waste, on the awareness-raising measures taken and on municipal sludge. The last summary report covered the period from 2010 to 2015. All of these reports are available on the Montréal agglomeration Website on residual materials management.

The reports contain the calculation of the organic waste recycling rate (20% in 2016 versus 17% in 2015). To arrive at this ratio, the Service de l'environnement uses the methodology recommended by the CMM, which provides comparable data on the overview of the situation in each of the cities of the agglomeration. This approach takes into account the tonnage collected by the cities, waste diverted through upstream composting and green-cycling by citizens and through other green waste treatment contracts managed by cities in addition to the official organic waste management contracts. The tonnage calculated primarily⁴⁹ takes into consideration food waste and green waste from the residential sector (buildings of eight units or less and a few buildings of nine units or more).

As shown in the diagram in Appendix 5.1 of this report, it is important to put the 2010-2014 PDGMR in context: it was adopted under the former 2006-2011 PMGMR, which in turn aligned with the former 1998-2008 Québec residual materials management policy. It is important to take this timing into account, since shortly after the agglomeration of Montréal adopted its 2010-2014 PDGMR, the Québec government reviewed its Québec residual materials management policy, adding important clarifications. Table 5 summarizes the differences between both versions of the Québec residual materials management policy. Overall, the difference pertains to the materials included and the sectors targeted. But both seek to reduce by 60% the tonnage to be landfilled. What is important to under-

⁴⁹ Based on information obtained from the Service de l'environnement, materials collected from the ICI sector may be included in the data, but they cannot be clearly identified.

stand is that with more materials and more activity sectors included in the current policy, additional effort needs to be made to reach the 60% target set out in the former policy.

TABLE 5 – EVOLUTION OVER TIME OF THE CONTENT OF THE QUÉBEC RESIDUAL MATERIALS MANAGEMENT POLICY

DATE	DOCUMENT	ORGANIC WASTE TARGETED	ACTIVITY SECTOR TARGETED	TARGET
September 2000	1998-2008 Québec Residual Materials Management Policy	Food waste and green waste	Municipal (residential) ^[A]	60%
February 2011	Québec Residual Materials Management Policy – 2011-2015 Action Plan	Food waste, green waste and municipal sludge	Municipal (residential) and ICI	60%

[A] ICI had their own section in the policy with their own recycling target.

We present these differences because, in our view, there is confusion regarding the accountability reporting of the Service de l'environnement in the *Bilan du plan directeur de gestion des matières résiduelles de l'agglomération de Montréal (2010-2015)* and in the *Portrait 2016 des matières résiduelles de l'agglomération de Montréal*. In both documents, we note that the Service de l'environnement clearly indicates that its PDGMR and the 49 actions to be undertaken align with the most recent Québec Residual Materials Management Policy – 2011-2015 Action Plan. This policy, however, was adopted after the 2010-2014 PDGMR of the Montréal agglomeration. Now that the CMM has adopted its new 2015-2020 PMGMR, which aligns with the new policy, the agglomeration of Montréal may (but is not required to) also develop a new PDGMR in keeping with the current policy. In this way, the Service de l'environnement would be able to connect the achievements under a new PDGMR with the current Québec policy.

This confusion has repercussions that go beyond an issue of inaccurate dates in the accountability reporting by the Service de l'environnement. In fact, the 2016 Portrait des matières résiduelles of the agglomeration indicates that 71,125 t of organic waste were diverted away from landfills, for a recycling rate of 20%. This recycling rate pertains primarily to organic waste from residential buildings of eight units or less (food waste and green waste). This figure reflects the information the city is required to present under its 2010-2014 PDGMR, which is based on the former Québec policy. Where we note confusion is when the Service de l'environnement mentions that the target to be reached is 60% and that it is associated with the current policy. In other words, once the agglomeration has reached its 60% target for food and green waste, it will not have reached the 60% target of the current policy, since the latter now includes municipal sludge and the ICI sector. The situation is similar in the 2010-2015 PDGMR highlight document, where it is clearly

indicated that the organic waste recycling rate for 2015 (17%) is 43% away from the Québec policy target, and that the reference being used is the new policy and the 2011-2015 action plan⁵⁰.

Starting in 2017, given that the CMM has now adopted its new 2015-2020 PMGMR, which aligns with the current Québec policy, and that the agglomeration is now required to report on the new PMGMR rather than the former version, it will be necessary to include a section on municipal sludge recycling and on the ICI sector (at least, as mentioned in the PMGRM, those generating household-type organic waste). The Service de l'environnement will need to collect information from the Service de l'eau to establish the tonnage of sludge generated and the quantity recycled in order to be able to include this information in the report.

In addition, the change in the calculation of the organic waste recycling rate, which will now include more materials and sectors, will certainly have an impact on this rate. When reading the summaries and overviews on residual materials collection, people have become accustomed to seeing the organic waste recycling rate progress by a few percentage points every year. In the next reports, it will probably be necessary to explain why the recycling rate differs or to find a way to present the information that is comprehensive yet allows readers to compare the agglomeration's performance to previous years.

RECOMMENDATION

3.3.1.B. We recommend that in order to comply with the *Plan métropolitain de gestion des matières résiduelles 2015-2020*, the Service de l'environnement take the necessary measures to ensure that the next summary and overview reports on residual materials in the agglomeration of Montréal present the recycling rate obtained compared to the 60% target for all the sectors involved in a way that clearly shows the results and the evolution of the agglomeration's performance.

BUSINESS UNIT'S RESPONSE

3.3.1.B. *Service de l'environnement*

[TRANSLATION] In collaboration with the Communauté métropolitaine de Montréal, review the methodology for including municipal sludge in the residual materials management report.

- Review of the methodology. (**Planned completion: January 2019**)
- Application of the methodology from the 2018 annual residual materials management report. (**Planned completion: April 2019**)

⁵⁰ Source: Bilan 2010-2015 du PDGMR de l'agglomération de Montréal, page 14.

3.3.2. APPLYING THE PROVISIONS OF THE INTERNAL BY-LAW ON THE TRANSFER OF POWERS FROM CITY COUNCIL TO BOROUGH COUNCILS

3.3.2.A. BACKGROUND AND FINDINGS

Let us recall that following a change made by the city council in 2014 under section 85.5 of the Charter regarding the division of roles and responsibilities between the Service de l'environnement and the boroughs regarding the management of residual materials, amendments were also made to the internal by-law on the transfer of powers from the city council to borough councils (By-law 02-002). The new responsibilities of the boroughs included:

“the application of the by-law on the removal, transportation and disposal of residual materials and related responsibilities, including the follow up and management of contracts, communication with citizens, the management of citizen requests and the distribution of collection receptacles⁵¹”.

In terms of the powers delegated to the boroughs, by-law 02-002 specifies obligations when it comes to accountability reporting. It stipulates⁵² that the borough council must:

[...] provide the executive committee and the director of the Service de l'environnement, in the format the latter determines, with:

- a) a semi-annual report of the budgetary evolution;*
- b) a report on the exercise of delegated activities on March 15, and another one on November 15 of every year, containing in particular technical information used to develop production indicators concerning the management of activities;*
- c) an annual review of expenditures relating to the exercise of delegated activities;*
- d) any recommendations it deems appropriate for the improvement of the exercise of delegated activities [...].*

Our audit work, however, has not found evidence that this accountability reporting requirement set out in the by-law has been applied by the boroughs or that the Service de l'environnement is making such a request. Moreover, we noted that the boroughs audited were not aware of these provisions of by-law 02-002. We believe that applying the provisions of the by-law with regard to accountability reporting would enable the Service de l'environnement to provide relevant data on many factors related to organic waste management (e.g., status of bin distribution, performance of the collection, compliance with materials placed in bins, overview of the evolution of complaints). Accountability reporting of this nature by the boroughs would help to inform the Service de l'environnement and the executive committee on the status of the implementation of organic waste collection.

⁵¹ City council, by-law 02-002, adopted on December 18, 2001, subparagraph 1, section 1, paragraph 12.

⁵² Municipal council, Ville de Montréal, By-law 02-002, December 15, 201, subparagraph 6^e.

Along the same lines, as part of the implementation of organic waste collection, we have observed that information sharing between the boroughs and the Service de l'environnement could be improved. In fact, two of the four boroughs we met presented implementation reports produced by the organization in charge of distributing collection receptacles. These reports included the number of bins actually distributed by category of bins – standard 46 litre bins for residential buildings of eight units or less and 240 litre bins for the East sector with residential buildings of nine units or more. Based on information obtained from the individuals we met, it would seem that the Service de l'environnement does not require the boroughs to obtain these implementation reports from the organizations tasked with carrying out the distribution. Nor does it require the boroughs receiving this type of report to forward it to the Service de l'environnement. Yet this is the most accurate information available on the actual number of collection receptacles distributed.

Moreover, three of the four⁵³ boroughs audited mentioned keeping an inventory of residential buildings of nine units or more and of ICI members that have received collection receptacles. In our view, this is information that the Service de l'environnement should have sought to obtain from the start in order to ensure the proper planning of future intervention strategies. Let us recall that under the Policy and the new 2015-2020 PMGMR of the CMM, many issues will need to be formally addressed. For example, the overview of the situation of ICI producing household-type organic waste will need to be made clearer so that this sector may be integrated into the collection. The same goes for the installation of recycling receptacles for organic waste in all municipal buildings and public areas, where traffic warrants it. Obtaining data from the boroughs regarding the sectors currently served will become an indispensable source of information for the planning future strategies. To date, this information has not been sent by the boroughs. There is therefore a resulting lack of efficiency in this regard, since the Service de l'environnement must now validate with each borough whether the information exists.

RECOMMENDATIONS

3.3.2.B. We recommend that the Service de l'environnement specify and standardize the information it obtains from the boroughs following the delegation of powers under by-law 02-002 in order to obtain harmonized information from all the boroughs.

3.3.2.C. We recommend that the boroughs of Mercier–Hochelaga-Maisonneuve, Rivière-des-Prairies–Pointe-aux-Trembles, Rosemont–La Petite-Patrie and Saint-Laurent periodically report on the powers delegated to them regarding residual materials management in compliance with the requirements set out in the internal by-law on the transfer of powers from the city council to borough councils (02-002).

⁵³ The Saint-Laurent borough has not yet rolled out its food waste collection in residential buildings of nine units or more or in the ICI sector.

3.3.2.D. We recommend that the Service de l'environnement take the necessary measures to ensure that all the boroughs comply with the requirements of the accountability reporting on the management of residual materials set out in the internal by-law on the transfer of powers from city to borough council (02-002) in order to obtain all the relevant information to support informed decision-making.

BUSINESS UNITS' RESPONSES

3.3.2.B. *Service de l'environnement*

[TRANSLATION] Develop a joint matrix to compile information from the boroughs about the Internal By-law concerning the delegation of city council powers to borough councils (02-002). (Planned completion: October 2018)

3.3.2.C. *Mercier-Hochelaga-Maisonneuve borough*

[TRANSLATION] The borough of Mercier-Hochelaga-Maisonneuve will provide the Service de l'environnement with the information it requests concerning the responsibilities delegated to it under 02-002. (Planned completion: October 2018 (based on Service de l'environnement timeframes))

Rivière-des-Prairies-Pointe-aux-Trembles borough

[TRANSLATION] With the Service de l'environnement, establish items that must be included in the accountability reporting and the frequency of the measures to obtain comparables at the same periods each year. This strategy will also be part of the borough's general action plan. (Planned completion: September 2018)

Rosemont-La Petite-Patrie borough

[TRANSLATION] Collaborate on the implementation of an accountability reporting process with respect to the requirements of the Internal By-law concerning the delegation of city council powers to borough councils (02-002, ref.: Recommendation 3.3.2.D.). (Planned completion: October 2018)

A report, based on the action and communication plan matrix transmitted by the Service de l'environnement, will be drafted and submitted each year. (Planned completion: January 2019)

Saint-Laurent borough

[TRANSLATION] The borough of Saint-Laurent will provide the Service de l'environnement with the information it requests concerning the responsibilities that were delegated to it under Regulation 02-002 (ref.: Recommendations 3.3.2.B. And 3.3.2.D.).
(Planned completion: November 2018)

3.3.2.D. Service de l'environnement

[TRANSLATION] In conjunction with the borough managers, introduce a specific accountability reporting process to comply with the requirements set out in the Internal By-law concerning the delegation of city council powers to borough councils (02-002).
(Planned completion: October 2018)

4. CONCLUSION

The *Environmental Quality Act* sets the guidelines for the management of residual materials. It stipulates, among other things, that each regional municipality, such as the Communauté métropolitaine de Montréal (CMM), is required to develop and maintain in force a *Plan de gestion des matières résiduelles*. It also states that each local municipality must take the necessary measures to implement this residual materials management plan in its territory.

This law led to the adoption in February 2011 of the Québec residual materials management policy. It is accompanied by the 2011-2015 Five-Year Action Plan, which had set targets to be reached by the end of 2015, include the recycling of 60% of organic waste. This policy aims to ban organic waste from landfill sites by 2020.

The diversion of organic waste from landfill sites is a tremendous challenge for municipalities. In fact, this type of waste represents a significant share (nearly 47% in 2012-2013) of the residual materials generated by Québec households. And unlike the recycling of green waste, which was easily accepted by citizens, the recycling of food waste is more of a challenge for them to integrate in their daily lives since it generates certain inconveniences (insects, odours, white grubs). For the city, this challenge is even greater given that a large swath of its territory (the East sector) is composed of 15 of 19 boroughs and that food waste represents 60% of the organic waste generated.

The most recent overview on residual materials for the agglomeration of Montréal revealed that the recycling rate of organic waste was 20% in 2016 and 10% in 2010. The government target of 60% has been postponed to 2025 in the *Plan de gestion des matières résiduelles* of the CMM. In addition, the latest Québec residual materials management policy has more stringent requirements, since it extends its scope to other materials (sludge generated by wastewater treatment plants) and to the Industrial, Commercial and Institutional (ICI) sector.

To reach the target set by the government, the city has undertaken two major initiatives. To start, it developed and implemented the *Stratégie montréalaise d'implantation de la collecte des résidus alimentaires 2015-2019*, which sets out the need to offer the service to occupancy units (eight units or less) in the Montréal territory so that all citizens may participate in the collection of organic waste. Its implementation is progressing based on its established timetable.

In addition, the city has worked on a large-scale project involving the design, construction and operation of five Organic Waste Treatment Plants (OWTP) located across the Montréal agglomeration territory. Three of these centres are expected to be operational in 2020. The initiation of phase 1 of this large-scale construction project involving the first three OWTP was approved by the executive committee with the launch of three calls for tenders carried out in May, June and June 2017.

To date, it is clear that we are still far from the government target, despite major efforts being made in this respect. Our audit work identified certain aspects, which,

while not exhaustive, could help support the achievement of this target by creating favourable conditions.

1. The city will need to review its management strategy to include not only organic waste generated by the residential sector but also the waste produced by the ICI sector and the recycling of municipal sludge.
2. The city will also need to ensure that its *Stratégie d'implantation de la collecte des résidus alimentaires* is rolled out according to the established timetable so that all occupancy units involved have access to the service as planned.
3. Even if the *Plan de gestion des matières résiduelles* of the CMM does not require municipalities to provide service to the entire residential sector, it would be imperative for the city to provide it to a larger share of residential buildings of nine units or more if it wishes to significantly improve its recycling rate.
4. The city will need to make sure that it has taken all the measures to meet the requirements of the provincial funding program regarding the commissioning date of OWTP and the percentage of occupancy units to be served.
5. The city will need to develop a communication and awareness-raising plan aligned with the *Stratégie d'implantation de la collecte des résidus alimentaires*, the commissioning of OWTP and the results of the diversion rate.

It would also be advisable to correlate the total spending on communication and awareness-raising activities with the impact on the participation rate in order to adjust the content of the message and the sums budgeted for these activities, as needed.

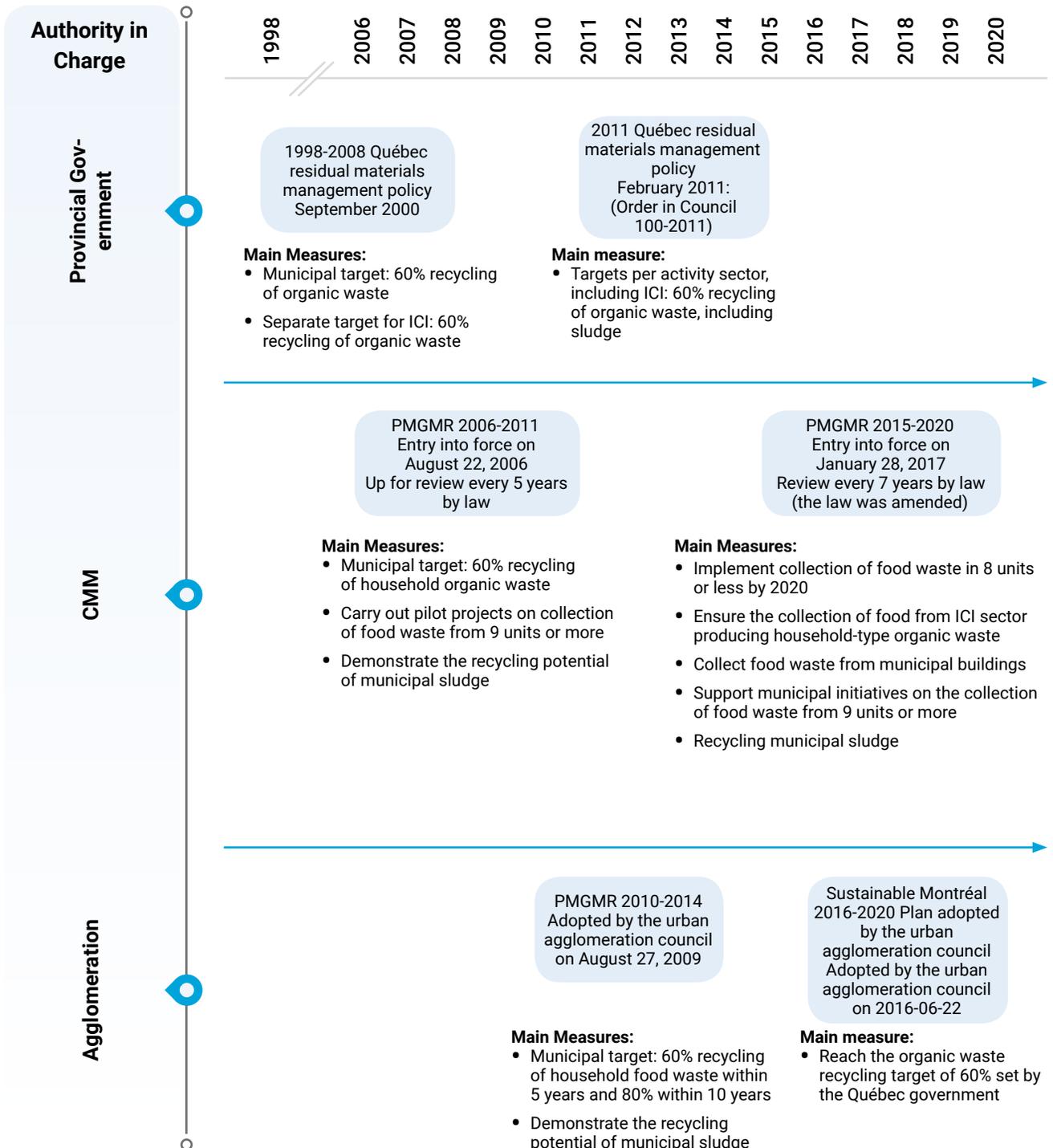
6. Boroughs will need to implement mechanisms to ensure the follow-up of the new regulation on collection services adopted by the city council in 2016. It would also be advisable to launch a collective discussion on ways to effectively apply the regulation and, most importantly, on ways to make citizens aware of its existence and of the penalties it carries. A by-law has transferred responsibilities to the boroughs. Our audit has demonstrated that the boroughs are not clear on this regulation.

Finally, the evolution of the organic waste recycling rate will need to be closely monitored as it relates to the capacity of the OWTP. In this regard, alternative solutions will be required to guide decision-making should the amount of organic waste generated be greater or less than expected as a result of the measures deployed to implement the collection among all producers of organic waste.

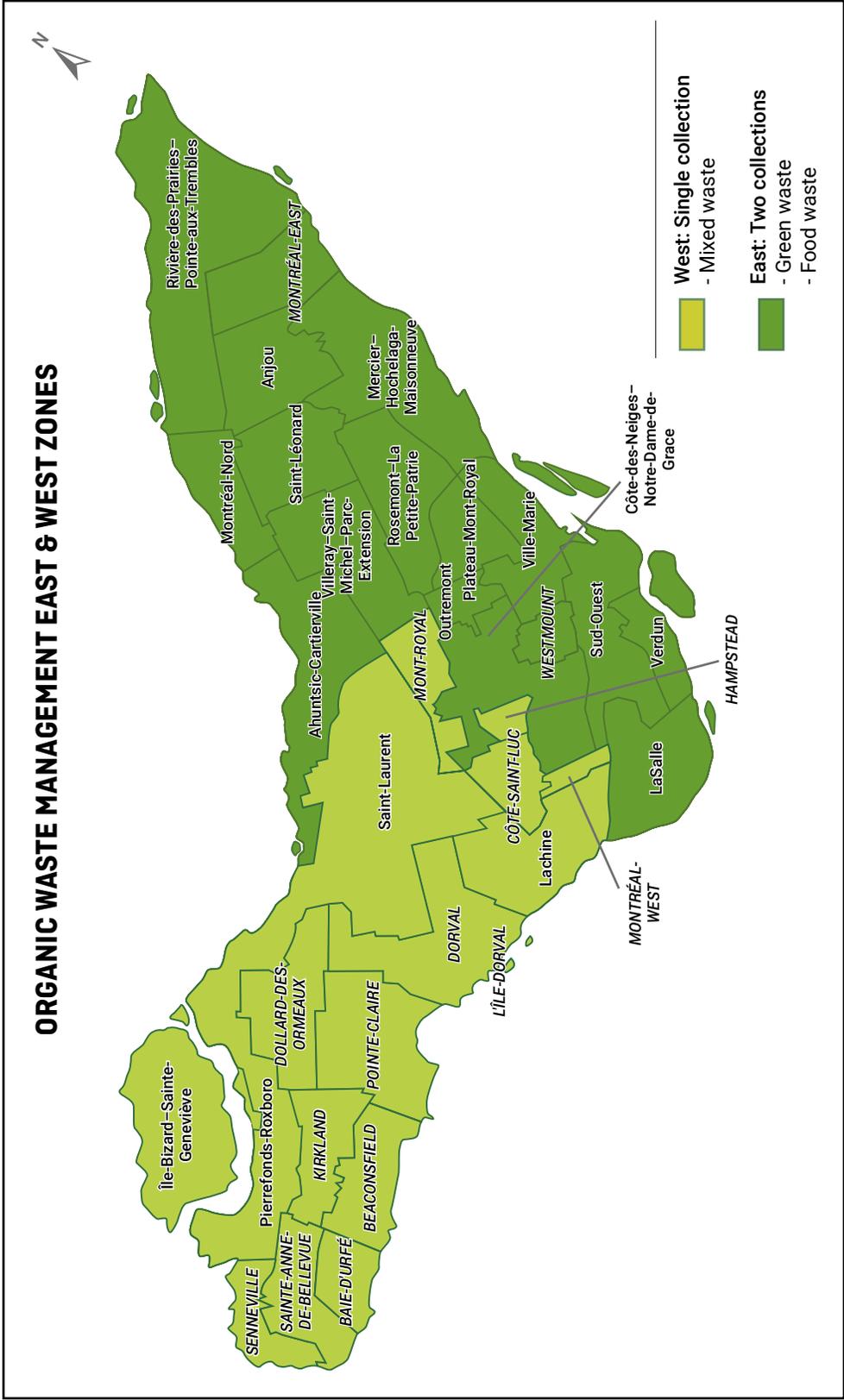
Ultimately, the city will need to make sure it reports on the achievement of the recycling target set for the sectors identified given the new requirements established.

5. APPENDICES

5.1. DIAGRAM OF THE QUÉBEC POLICY AND THE VARIOUS PLANS ON THE MANAGEMENT OF RESIDUAL MATERIALS



5.2. SECTOR BOUNDARIES FOR THE TREATMENT OF ORGANIC WASTE: EAST ZONE AND WEST ZONE OF THE MONTRÉAL AGGLOMERATION



Source: Service de l'environnement

5.3. GOALS AND ASSESSMENT CRITERIA

OBJECTIVE

The purpose of the audit was to ensure that the city has taken the measures required to reach the objectives on organic waste management set out in the Sustainable Montréal 2016-2020 Plan and in the Plan directeur de gestion des matières résiduelles (PDGMR) 2010-2014 of the Montréal agglomeration in keeping with the Québec residual materials management policy.

ASSESSMENT CRITERIA

- A structured action properly aligned with the objectives set for the recycling and reclaiming of organic waste was implemented and aims to secure the largest share of provincial funding available;
- The city's business units involved in the management of organic waste are efficiently fulfilling the responsibilities assigned to them;
- Accountability reporting mechanisms are in place and periodically used to evaluate the proper functioning of the operations and the degree of success in achieving the established objectives.

