

Direction de
l'environnement et du
développement durable

Less is more

SUMMARY OF THE

[W]ASTE MANAGEMENT

MASTER PLAN

for the agglomeration of Montréal
2010-2014

August 2009





Gérald Tremblay
Mayor of Montréal



Alan DeSousa, FCA
Member of the Executive Committee,
Responsible for sustainable development
and the environment

MANAGING FOR SUSTAINABLE DEVELOPMENT

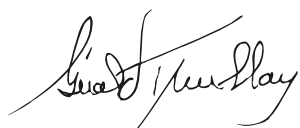
Dear fellow citizens,

At the public consultation in the spring of 2008, the agglomeration of Montréal proposed a draft Waste Management Master Plan centred on sustainable development and action. A total of 50 representatives from various organizations participated in the public consultation, held by the Permanent Commission of the Agglomeration council on the environment, transportation and infrastructures. In addition, the Commission received 30 written briefs for analysis.

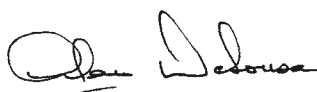
What emerged from the public consultation was widespread adherence to the objectives of the Master Plan. All stakeholders encouraged the agglomeration to hasten the plan's implementation and to raise the objectives even higher, in order to further reduce the amount of waste produced and to maximize recourse to the 3RVs: reduction, reuse, recycling and enhancing the value of waste through biological treatment (composting) and thermic treatment (energy production).

The Commission's report contains 33 recommendations, which the agglomeration has made its own. Topping the list, the agglomeration has declared itself resolutely in favour of having public agencies, private companies and the population as a whole adopt the best practices in waste management, emphasizing, in order of priority: reduction at the source, reuse, recycling, composting or enhancing the value of waste, and then only, disposal, within a perspective of regional autonomy.

This Waste Management Master Plan gives form to this fundamental orientation. By working together—boroughs and municipalities, citizens and community organizations—we will not only achieve the objectives set by the Plan, but we will be able to set even higher ones.



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PROPOSALS CENTRED ON SUSTAINABLE DEVELOPMENT

The Montréal agglomeration's Waste Management Master Plan proposes a number of actions to citizens. They are all rooted in a vision of the environment that adheres to the principles of sustainable development and aim to achieve the objectives of the 1998-2008 Québec Policy on Waste Management (Québec Policy).

These actions call on consumers and citizens to be responsible for the waste they produce, by following the "3RV" hierarchy. This emphasizes, first and foremost, reduction at the source, followed by reuse, recycling, composting or enhancing the value of waste, and then only, disposal of waste, in a perspective of regional autonomy. To this end, the island of Montréal will have to accommodate treatment facilities. Given the heavy concentration of the population on the island's limited space, Montréal faces a significant challenge.

To minimize the amount of waste produced by each individual, the agglomeration is asking consumers to be vigilant, and to buy and act responsibly. It also hopes to raise citizen awareness about the environmental impact of the waste they produce, as well as the associated costs.



ESSENTIAL CRITERIA

The Waste Management Master Plan was developed according to a number of essential criteria.

RESPECT FOR GOVERNMENT OBJECTIVES

At the very least, the agglomeration must attain the objectives set for the municipal level. The Plan foresees the achievement of these objectives within the next five years. More ambitious objectives will then be set for the following five years.

SECTOR AUTONOMY

Insofar as possible, and subject to the assessments that will be carried out according to a life-cycle approach, the agglomeration seeks to reduce the export of waste off the island of Montréal for disposal.

CLEANLINESS

Collection methods and tools also have an impact on cleanliness, which is important to the municipal administration.

FEASIBILITY WITHIN THE MONTRÉAL CONTEXT

Technologies and treatment options must be applicable to the Montréal context. They must also be proven, that is, already operating under real conditions elsewhere in the world.

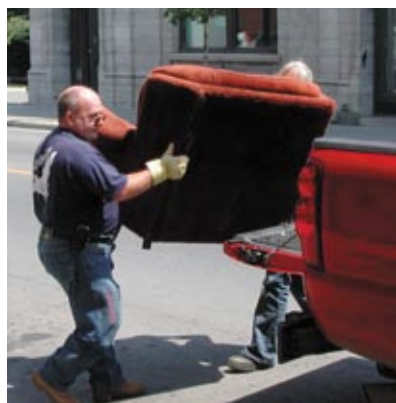
FINANCIAL CAPACITY

The choice of solutions must take into account the capacity of Montréal taxpayers and optimize recourse to financial contributions from the various stakeholders.

Through the *Environment Quality Act*, the Government of Québec requires all regional county municipalities (MRCs) and metropolitan communities, including the Montréal Metropolitan Community (MMC), to establish a residual materials management plan in accordance with the government's objectives.

The MMC's Metropolitan Waste Management Plan came into effect in August 2006, following approval by the Government of Québec. It sets objectives for recovering, enhancing the value and disposing of waste, and describes the services that will be offered to achieve these objectives.

The Master Plan was developed to give concrete expression to the measures of the Metropolitan Plan that concern the agglomeration of Montréal.





OBJECTIVES AND TONNAGE

YEAR	
	Population
RECOVERY 	Recyclable materials
	Organic materials
	HHW
	Textiles
	Partial total
	Other materials
	Bulky items
	Total recovery
DISPOSAL 	Household waste
	Bulky items ²
	Total disposal
GENERATION	TOTAL

For the first five years of the Plan, the minimum objectives are those of the Québec Policy. More ambitious objectives are set for the subsequent five years. These objectives will have to be reviewed and refined according to the situation prevailing at that time.

2008		Minimum recovery objective (%)	Minimum tonnes treated	Recovery objective (%)	Minimum tonnes treated
1,898,206					
Recovery rate (%) ³	Tonnes				
53	150,355	60	170,214	80	226,952
8	31,528	60	157,635 ¹	80	210,180 ¹
54	3,159	60	3,510	80	4,680
1	133	50	6,650	80	10,640
	185,175	---	338,009	---	452,452
N/A	339	N/A	681	N/A	681
43	114,318	60	137,182	80	182,909
31	299,832	---	475,872	---	636,042
---	626,035	---	472,859	---	358,416
---	119,862	---	96,998	---	51,271
---	745,897	---	569,857	---	409,687
---	1,045,729	---	1,045,729	---	1,045,729

¹ Equivalent to overall tonnage of the agglomeration in buildings of eight units or less

² Including residential CRD waste

³ See Appendix: Calculation of recovery rates

REALISTIC MEANS FOR REACHING OUR GOALS



TO IMPLEMENT ITS PROPOSALS, THE AGGLOMERATION HAS SET OUT 49 ACTIONS

1. AWARENESS

- 1.1 Inform the population of the main sources of waste
- 1.2 Mobilize the population to increase participation and promote cleanliness
- 1.3 Support the actions of social economy businesses
- 1.4 Recognize and encourage socially responsible behaviours

2. REDUCTION AT THE SOURCE

- 2.1 Set up an environmental management system
- 2.2 Modify conditions for granting construction, renovation and demolition permits
- 2.3 Actively promote reduced consumption
- 2.4 Promote waste reduction in industries, businesses and institutions
- 2.5 Institute a recognition program for "green" industries, businesses and institutions
- 2.6 Create a Montréal contest to encourage the production of "sustainable" products

3. REUSE

- 3.1 Update the Directory of Reuse Addresses
- 3.2 Set up a 3RV Promotion Centre
- 3.3 Finance part of the disposal costs of social economy businesses involved in reuse
- 3.4 Consolidate collection mechanisms specific to reuse

- 3.5 Direct municipalities' used furniture to organizations that are members of the Collectif montréalais pour le réemploi
- 3.6 Make used materials and furniture from industries, businesses and institutions available to the arts community
- 3.7 Finance research and development for post-consumer textile products

4. RECYCLABLE MATERIALS

- 4.1 Provide recycling pick-up to all buildings with nine units or more
- 4.2 Ensure the sorting and marketing of mixed recyclables
- 4.3 Modify door-to-door collection tools
- 4.4 Require mandatory recovery measures for public events
- 4.5 Set up drop-off points in public places

5. ORGANIC MATERIALS

- 5.1 Introduce collection tools for green waste
- 5.2 Introduce collection tools for kitchen waste
- 5.3 Provide pick-up of green waste
- 5.4 Provide pick-up of kitchen waste
- 5.5 Operate organic materials treatment facilities (green and kitchen waste)
- 5.6 Set up reserved areas (action to be carried out under action 8.1: Create more ecocentres)
- 5.7 Establish a regulatory framework that will allow local authorities to prohibit the deposit of grass clippings with regular household waste
- 5.8 Encourage all forms of household composting and grasscycling





6. SEWAGE SLUDGE

- 6.1 Establish a by-law to ensure regular emptying of septic tanks
- 6.2 Conduct a study on enhancing the value of sludge from the Wastewater Treatment Plant
- 6.3 Produce an annual report on enhancing the value of sludge from the Wastewater Treatment Plant

7. HOUSEHOLD HAZARDOUS WASTE (HHW)

- 7.1 Optimize mobile collection
- 7.2 Make greater use of eco-centres to recover HHW
- 7.3 Study the possibility of offering household pick-up, for a fee
- 7.4 Establish a regulatory framework that allows local authorities to prohibit the deposit of HHW with regular household waste

8. RESIDENTIAL CONSTRUCTION, RENOVATION AND DEMOLITION (CRD) MATERIALS AND BULKY ITEMS

- 8.1 Create more eco-centres
- 8.2 Give people who request construction permits the list of organizations that recycle renovation and demolition materials
- 8.3 Facilitate the sorting of residential CRD waste and bulky items in municipal shop yards
- 8.4 Foster the collection of residential CRD waste and the treatment of this waste in private recycling facilities
- 8.5 Support the ecological recovery of fluorocarbons from household appliances
- 8.6 Encourage the use of recycled dry materials in major public and private construction projects
- 8.7 Establish a regulatory framework to prohibit the deposit of residential CRD waste and bulky items with regular household waste

9. HOUSEHOLD WASTE

- 9.1 Reduce household waste collection to once a week
- 9.2 Set up a pilot pre-treatment facility
- 9.3 Conduct detailed studies on producing refuse-derived energy

10. FOLLOW-UP

- 10.1 Conduct an annual review on achievement of the targets of the Québec Policy and progress of the Waste Management Master Plan; every two years, draft a portrait of the agglomeration's waste management
- 10.2 Participate in an annual waste characterization study

NEW FACILITIES

IT IS IMPOSSIBLE TO RECYCLE, ENHANCE THE VALUE OR DISPOSE OF WASTE WITHOUT THE APPROPRIATE EQUIPMENT AND INFRASTRUCTURES FOR TREATING THE HUGE VOLUME OF WASTE PRODUCED BY INDIVIDUALS AND COLLECTED EACH WEEK. AS SUCH, THE AGGLOMERATION IS PROPOSING 16 FACILITIES, WHICH FALL INTO 3 CATEGORIES.



The first category comprises facilities intended for sorting and marketing recycled materials, construction, renovation and demolition materials, and recyclable bulky items.

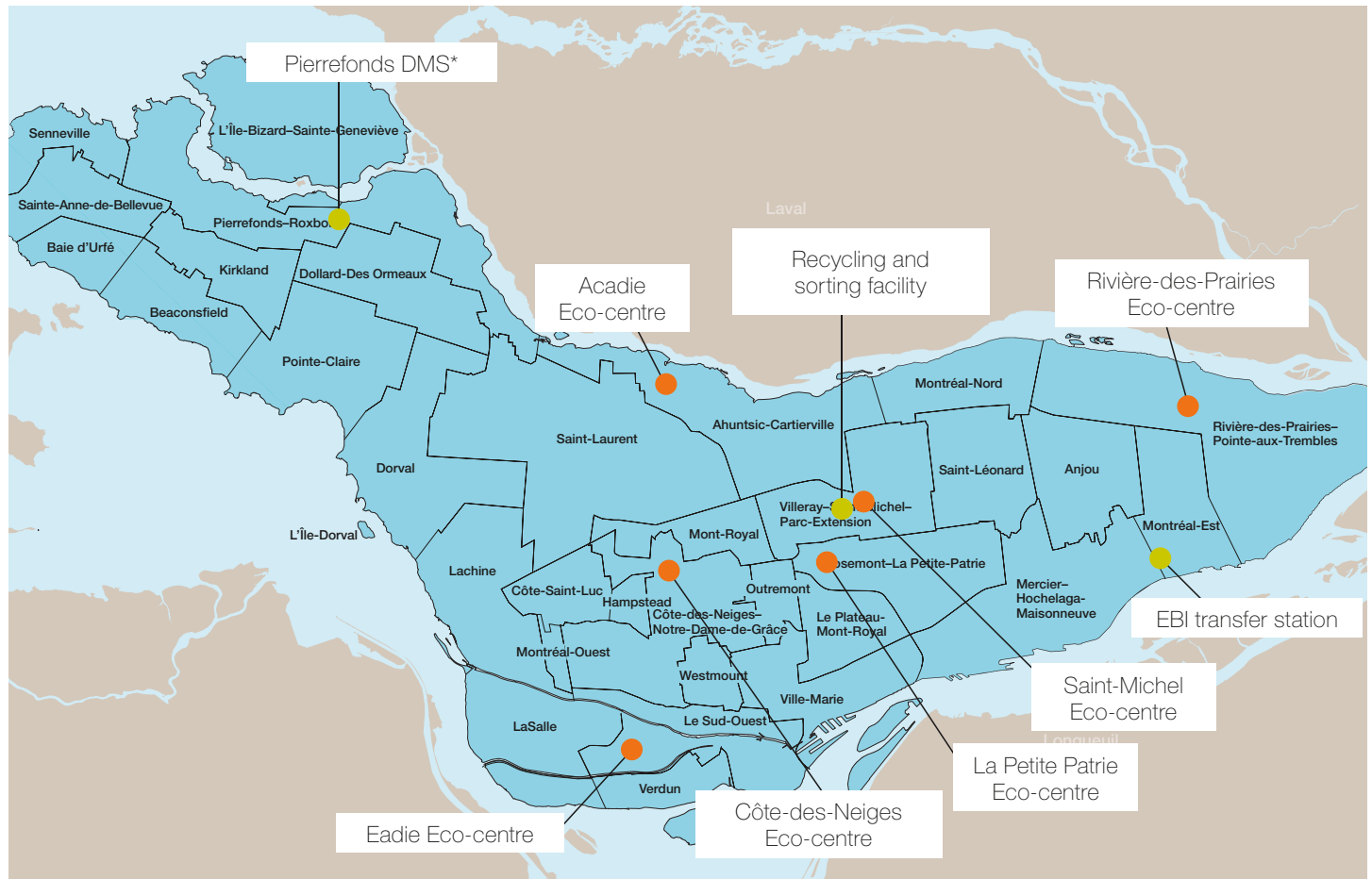
Several of these facilities already exist; they are operated mostly by the private sector.

The second category covers the treatment of organic materials.

The agglomeration must ensure the construction and operation of the facilities, in some cases in partnership with the private sector.

The third category consists of municipal facilities such as eco-centres and the 3RV Promotion Centre. In some cases, new facilities will have to be created.

CURRENT LOCATION OF THE AGGLOMERATION'S WASTE MANAGEMENT FACILITIES

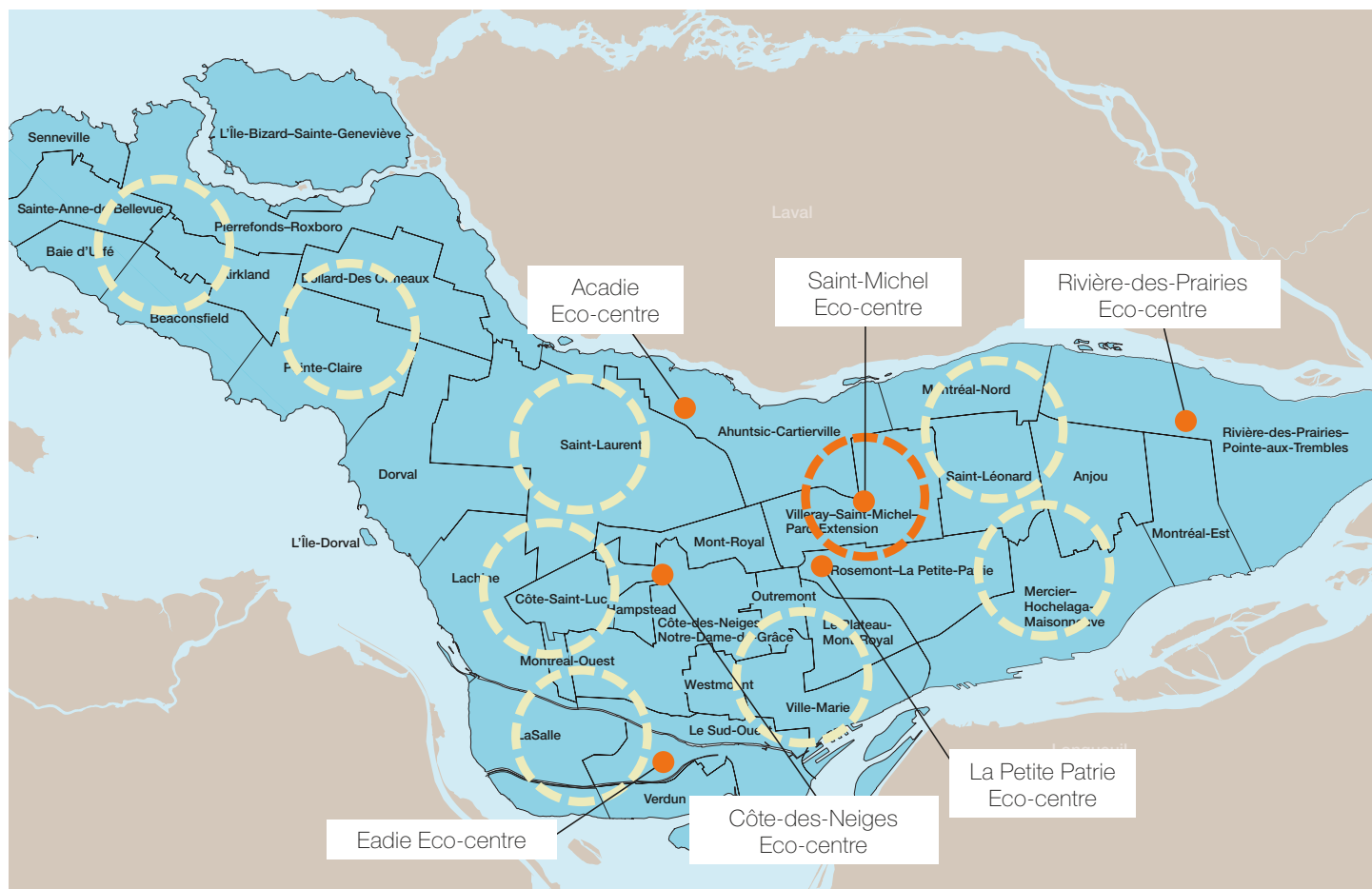


* Dry Materials Landfill Site

CURRENT FACILITIES

Source: Division de la gestion des matières résiduelles – Ville de Montréal, December 2007

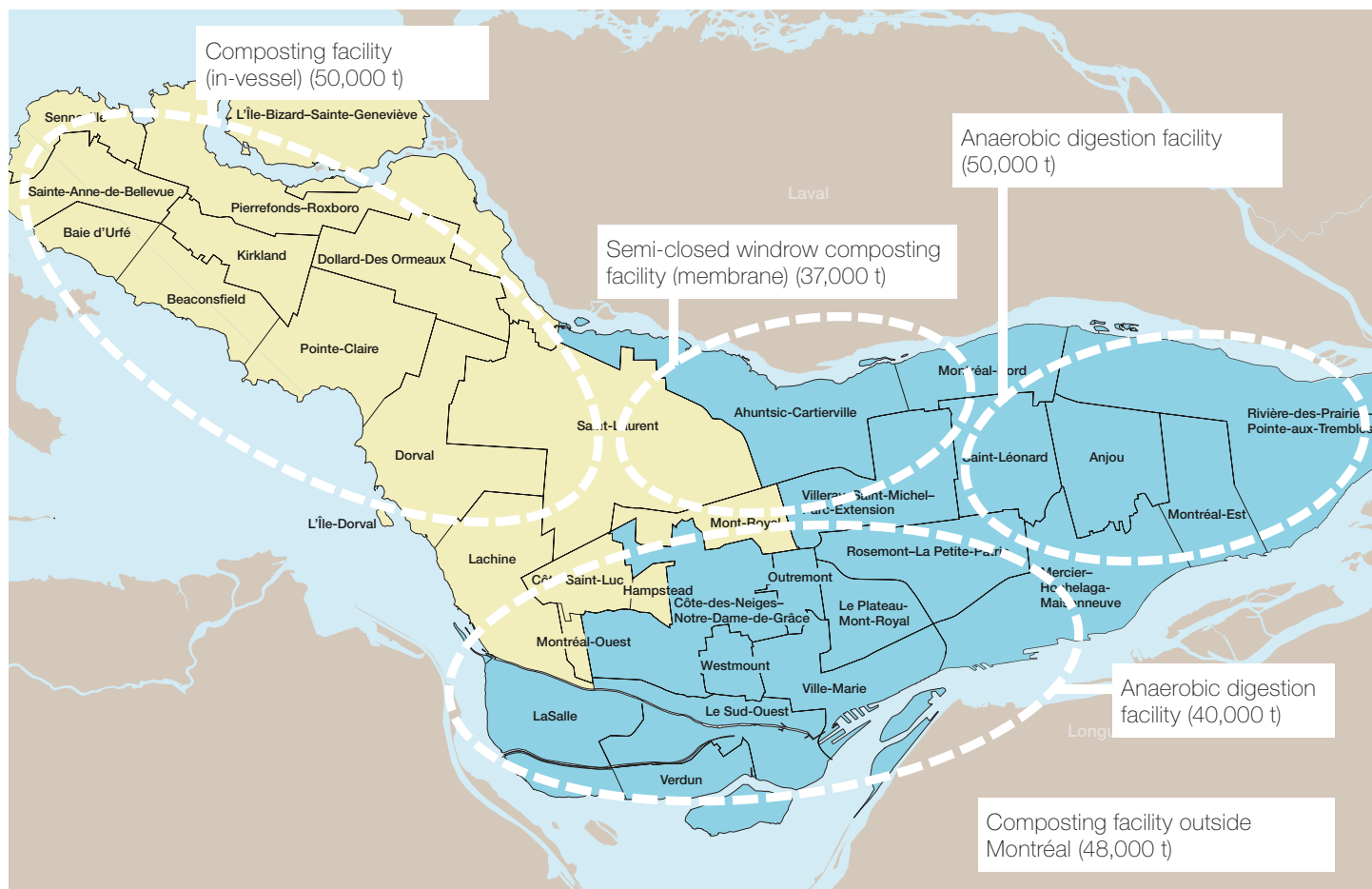
POTENTIAL LOCATION OF THE AGGLOMERATION'S FUTURE FACILITIES, ECO-CENTRES AND 3RV PROMOTION CENTRE



- PLANNED ECO-CENTRES
- 3RV PROMOTION CENTRE
- CURRENT ECO-CENTRES

Source: Division de la gestion des matières résiduelles – Ville de Montréal, March 2009

POTENTIAL LOCATION OF THE AGGLOMERATION'S FUTURE ORGANIC MATERIALS MANAGEMENT FACILITIES

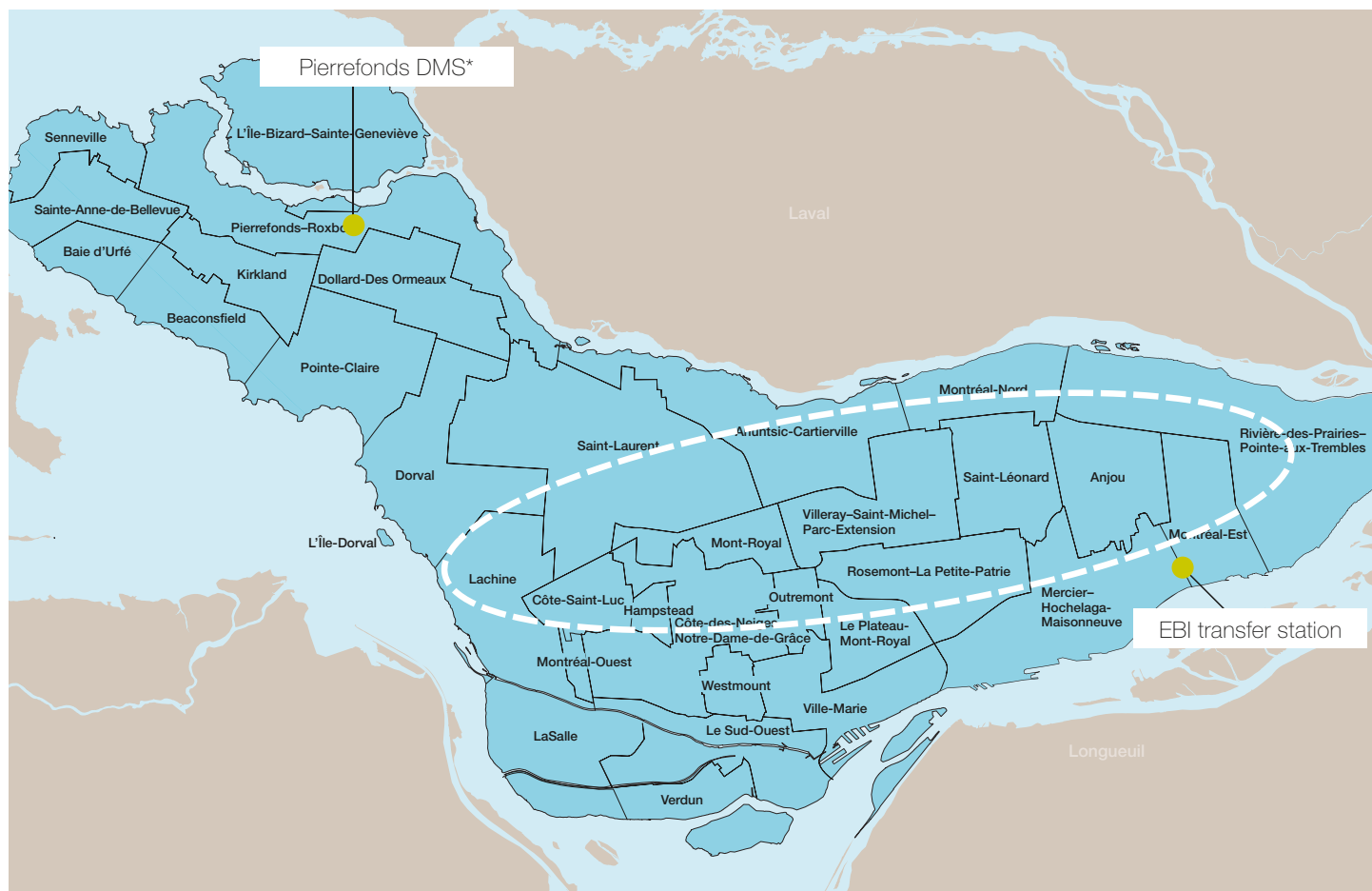


**COMBINED COLLECTION
GREEN WASTE +
KITCHEN WASTE**

**SEPARATED COLLECTION
GREEN WASTE
KITCHEN WASTE**

Source: Division de la gestion des matières résiduelles – Ville de Montréal, March 2009

POTENTIAL LOCATION OF THE AGGLOMERATION'S PILOT PRE-TREATMENT FACILITY



* Dry Materials Landfill Site

-  PILOT PRE-TREATMENT FACILITY
-  CURRENT FACILITIES

Source : Division de la gestion des matières résiduelles – Ville de Montréal, March 2009

POTENTIAL FACILITIES FOR THE AGGLOMERATION⁴

MATERIALS	INFRASTRUCTURE	CAPITAL COST (\$M)	ANNUAL OPERATING COST (\$M)	COST (\$/TONNE)
Reusables	1 3RV promotion centre (5,000 t)	5	0.18	35
Recyclable materials	Included in contract agreements		1.3	6
Organic materials	1 semi-closed windrow composting facility (membrane) (37,000 t)	14	1.5	50
	1 composting facility (in-vessel) (50,000 t)	25	4.25	85
	1 anaerobic digestion facility (40,000 t)	30	4.8	120
	1 anaerobic digestion facility (50,000 t)	35	6.2	120
HHW, residential CRD waste and bulky items	8 new eco-centres	25.6	0.7 *	60
Residential CRD waste and bulky items	Included in contract agreements		7.0	50
Household waste and final residues (goal: on agglomeration territory)	1 pilot pre-treatment facility (25,000 t)	10	1.75	70

* Per eco-centre

⁴ The table indicates required facilities, by material, as well as their capital costs in unindexed dollars, according to their 2008 value, the annual operating cost and the operating cost per tonne.

A SINGLE REGULATORY FRAMEWORK FOR EVERYONE

The solutions chosen must be in keeping with the jurisdictions of the agglomeration, local authorities and the central city of Montréal, and with the MMC's Metropolitan Plan.

All citizens of the island of Montréal must be treated equally. Terminology must be standardized and by-laws harmonized to meet the standards of the Québec Policy. For this reason, the agglomeration will propose a regulatory framework consistent with the measures of the Metropolitan Plan.

With respect to the sharing of responsibilities, the agglomeration will take care of enhancing the value and disposing of residual materials, and any other aspect related to the management of hazardous waste; local authorities are responsible for waste collection and transportation.



ROLES AND RESPONSIBILITIES OF LOCAL ADMINISTRATIONS

Local administrations are responsible for activities in the Master Plan that vary according to the specific characteristics of the municipalities and boroughs, while respecting the sharing of responsibilities as defined by law. Local administrations must carry out this role in keeping with the general orientations set by the agglomeration, such as the choice of waste treatment options.

Each local administration must develop its own action plan in keeping with the Master Plan, within 24 months of its adoption. A report must be prepared describing to what extent the objectives have been achieved.

IMPLEMENTATION OF THE MASTER PLAN BY LOCAL ADMINISTRATIONS MAY FOCUS ON THE FOLLOWING ASPECTS

PARTICIPATION IN THE MASTER PLAN'S MANAGEMENT AND FOLLOW-UP COMMITTEE

Local administrations will be invited to sit on the Master Plan's management and follow-up committee. The committee that was set up during the Master Plan's development will need to be expanded to include all local stakeholders.

The primary mandate of the committee will be to monitor progress made in achieving the objectives set by the Québec Policy, and to recommend adjustments needed to improve the programs outlined in the Master Plan and to meet the specified deadlines. It will report to the agglomeration council on its work.

In addition, the Environment Committee, which brings together local authorities four times a year, will be mandated to address the various waste management issues that may arise.

The central city will organize an annual forum to bring together all representatives concerned.

The central city will also carry out coordination and communications activities. It will aim to make use of the expertise developed by local authorities and other organizations involved in the areas of information, communications and public awareness, such as the MMC and RECYC-QUÉBEC.

LOCAL AWARENESS PROGRAMS

The Metropolitan Plan calls on local administrations to carry out information and awareness activities on the services and programs offered to their citizens.

They may design their own tools for this purpose, or use the tools provided by the agglomeration, adapting them to their local needs. The agglomeration will carry out campaigns on major issues of municipal, regional or provincial scope, in collaboration with the MMC and RECYC-QUÉBEC.

COST OF ACTIONS

IN TOTAL, THE AGGLOMERATION EXPECTS TO SPEND \$240.6 MILLION OVER A TEN-YEAR PERIOD, INCLUDING \$203.4 MILLION TO ENSURE THE COLLECTION AND TREATMENT OF ORGANIC MATERIALS. THE CREATION OF NEW FACILITIES NEEDED TO IMPLEMENT THE PROPOSALS WILL COST \$144.6 MILLION. THE TABLE BELOW SUMMARIZES THESE COSTS.

TOTAL COST OF THE MASTER PLAN IN THOUSANDS (\$000)

ADDITIONAL COSTS WITHOUT THE MASTER PLAN	0-5 YEARS	5-10 YEARS	TOTAL (\$)
	48,750	113,750	162,500

ADDITIONAL COSTS WITH MASTER PLAN ACTIONS	0-5 YEARS	5-10 YEARS	TOTAL (\$)
Awareness	13,000	— **	13,000
Reduction at the source	905	— **	905
Reuse*	330	(825)	(495)
Recyclable materials*	19,600	(44,000)	(24,400)
Organic materials*	84,900	118,500	203,400
Sewage sludge	60	— **	60
Household hazardous waste*	55	765	820
Residential CRD waste and bulky items*	300	(14,000)	(13,700)
Household waste*	(7,850)	(16,500) **	(24,350)
Follow-up	350	400	750
TOTAL (\$)	111,650	44,340	155,990

*Including disposal costs avoided

**Costs to be revised in 2015

COST OF THE DEBT (FACILITIES)	0-5 YEARS	5-10 YEARS	TOTAL (\$)
TOTAL (\$)	14,696	69,935	84,631

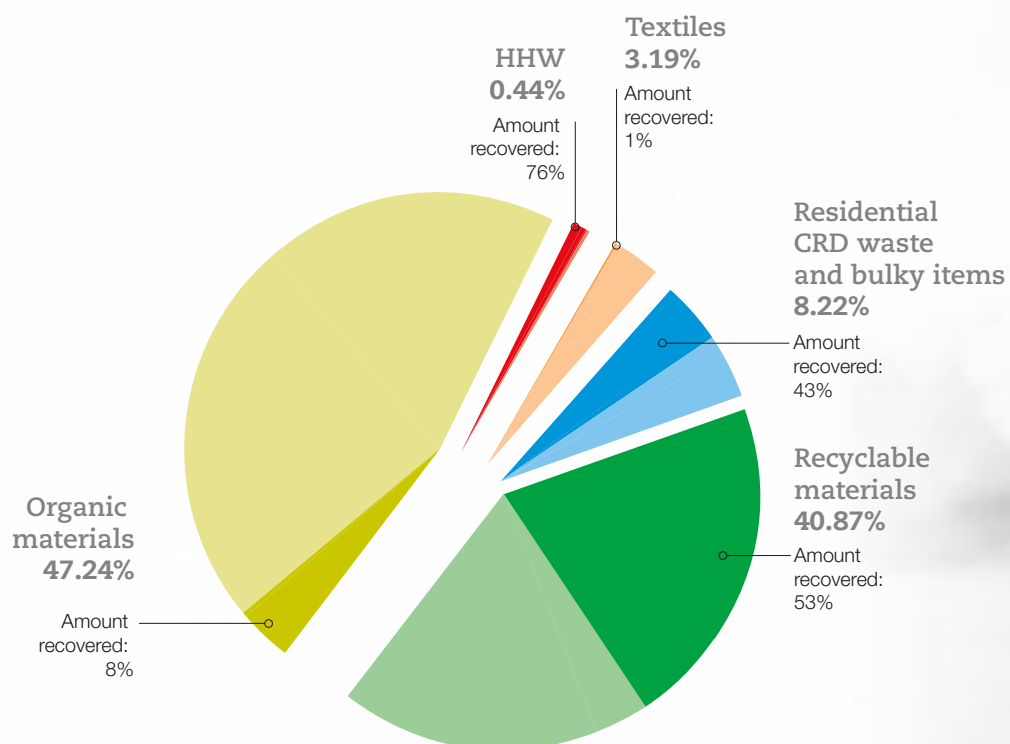
TOTAL COST OF MASTER PLAN	0-5 YEARS	5-10 YEARS	TOTAL (\$)
TOTAL (\$)	126,346	114,275	240,621

ALL FACILITIES REQUIRED FOR THE MASTER PLAN / IN THOUSANDS (\$000)

FACILITIES	ADDITIONAL CAPITAL COSTS (\$)		TOTAL (\$)
	0-5 YEARS	5-10 YEARS	
One composting facility (in-vessel) (50,000 t)	25,000	—	25,000
Two anaerobic digestion facilities (40,000 t and 50,000 t)	65,000	—	65,000
One semi-closed windrow composting facility (membrane) (37,000 t)	14,000	—	14,000
Eight new eco-centres	12,800 4 new eco-centres)	12,800 4 new eco-centres))	25,600
One 3RV Promotion Centre	5,000	—	5,000
One pilot pre-treatment facility	10,000	—	10,000
Total (\$)	131,800	12,800	144,600

APPENDIX

CHARACTERIZATION OF THE AGGLOMERATION'S RESIDUAL MATERIALS IN 2008



COMPOSITION OF WASTE ON THE TERRITORY OF THE MONTRÉAL AGGLOMERATION⁵

The waste characterization study is used to determine the amount and composition of materials placed at the curbside by residents for the different types of collection (recyclable materials, organic materials and household waste) as well as the amounts recovered prior to municipal collection (pre-collection recovery) through deposit programs, extended producer responsibility programs, grasscycling and domestic composting.

⁵ Source: *Caractérisation des matières résiduelles du secteur résidentiel au Québec, 2006-2007*, RECYC-QUÉBEC et Éco-entreprises Québec, in collaboration with Dessau-Soprin and NI Environnement, 2007.

CALCULATION OF RECOVERY RATES

THE RECOVERY RATE REFERS TO THE AMOUNT OF WASTE RECOVERED IN RELATION TO THE AMOUNT OF WASTE THAT COULD POTENTIALLY BE RECOVERED.

The methodology used for these calculations was developed by the MMC for its Scorecard.

The agglomeration of Montréal's report is based on the observation of quantities recovered and disposed of by municipal collection services. It also includes an estimate of the quantities recovered by citizens (e.g. through grasscycling or domestic composting) or by companies (extended producer responsibility). These are referred to as pre-collection recovery quantities. The quantities generated on the territory of the Montréal agglomeration are therefore a sum of pre-collection recovery quantities, the quantities recovered by municipal collection services and the quantities disposed of in landfill sites.

Recovered materials can be grouped into three major categories: recyclable materials (collected in recycling bins), organic materials, and other materials such as HHW, textiles and an "other" sub-category comprising information and communication technology devices (ICTs) and miscellaneous objects. The sub-categories of each major category are estimated according to their relative share as determined by the waste characterization study conducted by RECYC-QUÉBEC for the MMC territory in 2006. For example, paper and cardboard represent 68% of materials collected in recycling bins. The same methodology applies to the sub-categories of household waste that is disposed of.



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