

Direction de  
l'environnement et du  
développement durable

Less is  
more

Public consultation on the  
establishment of an

# Organic Waste Treatment Centre in the West Island

(OWTC West)

November 9, 2011



## Diapositive 1

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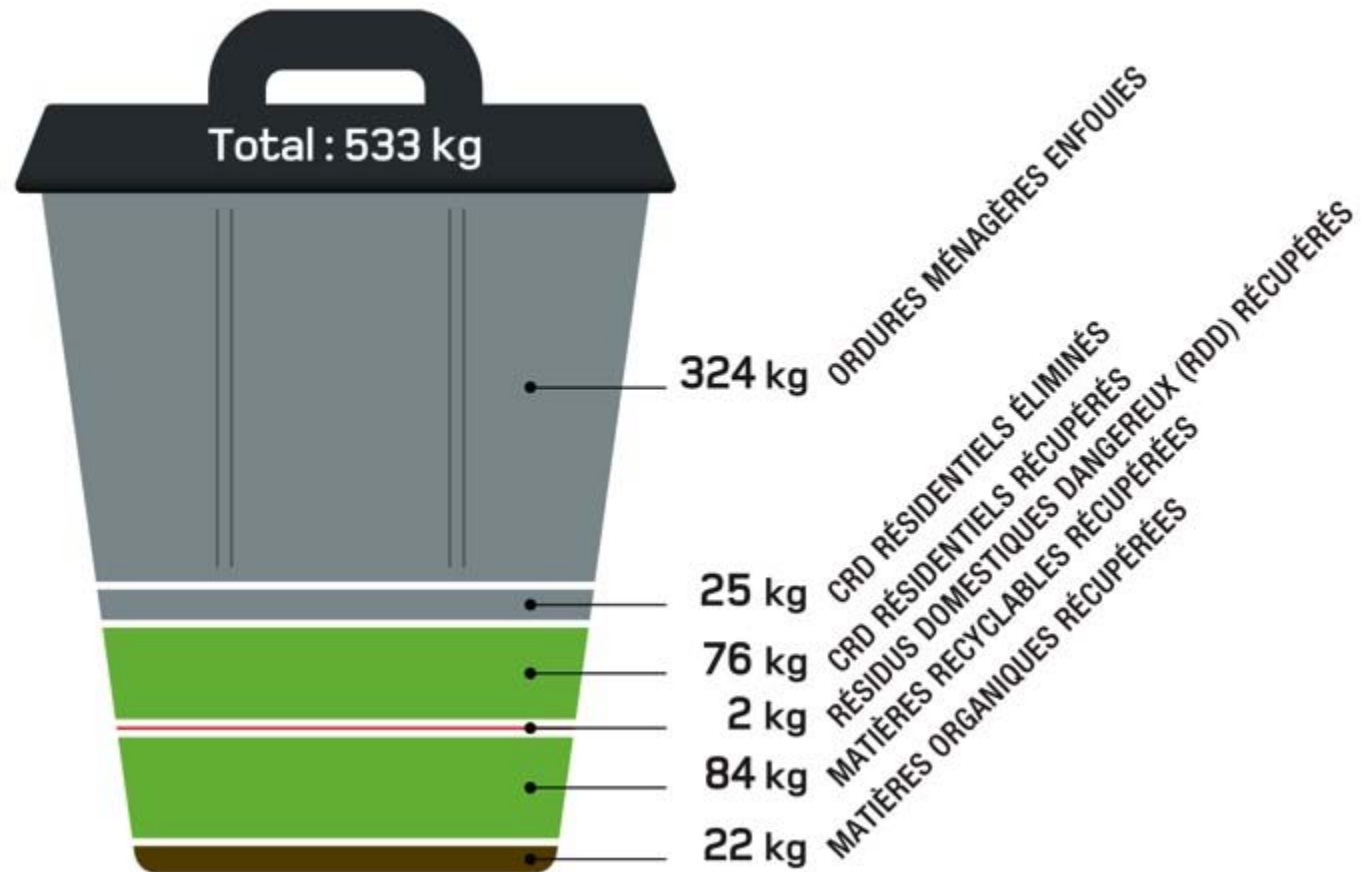
Pierre Lizotte; 2011-11-09

# Introduction

## A Collective Responsibility

# Agglomération de Montréal

## Residual Materials Produced by Person in 2010



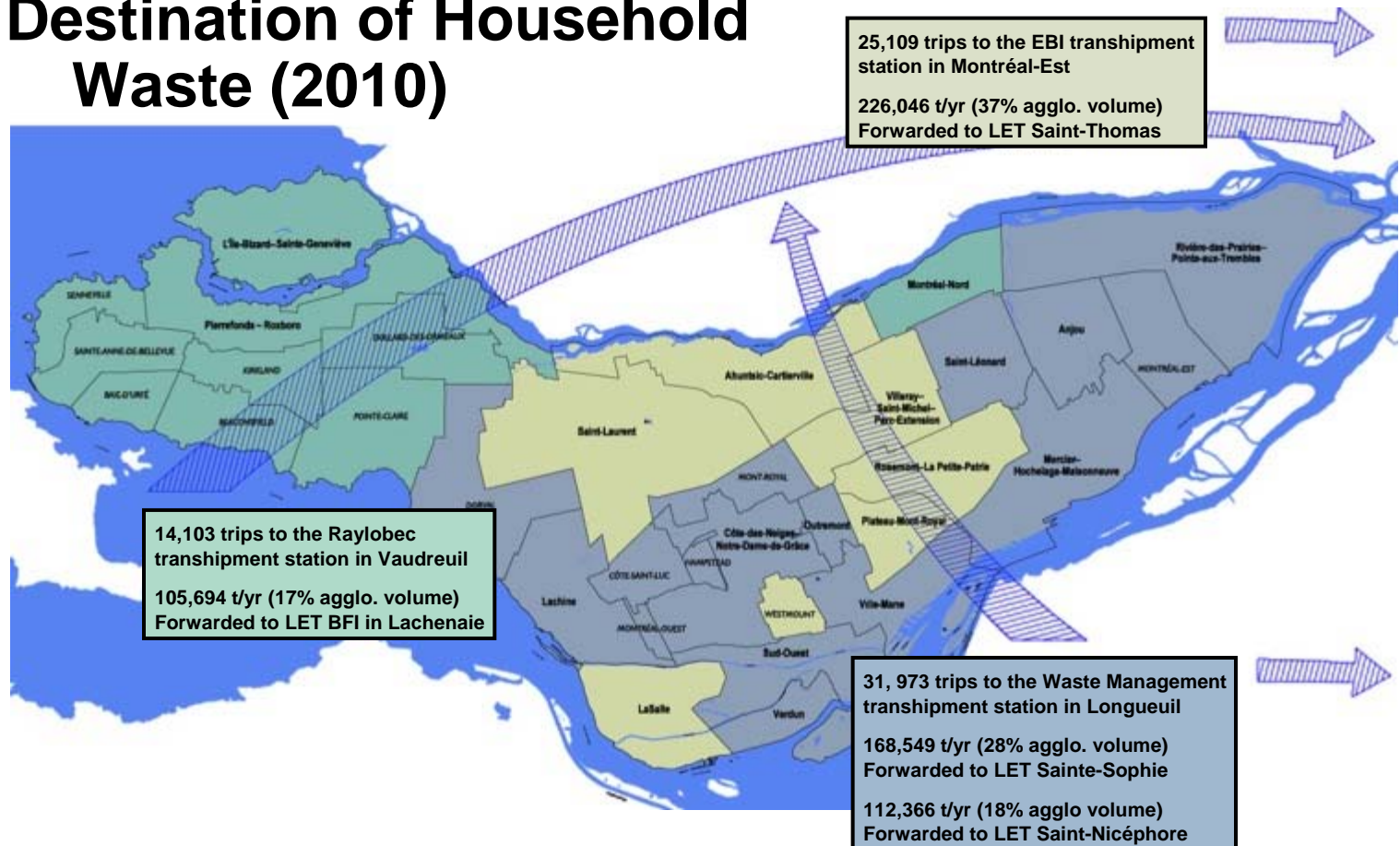
# Agglomeration of Montréal

## Recycled Materials in 2010

Materials	Recovery rate & Tonnage	
	Agglomeration	Western Sector
Recyclable materials	<b>53%</b> (159,008 t)	<b>55%</b> (39,499 t)
Household hazardous waste	<b>56%</b> (3,325 t)	<b>54%</b> (723 t)
Dry materials & bulk waste	<b>59%</b> (143,035 t)	<b>54%</b> (20,360 t)
Organic materials	<b>10%</b> (41,891 t)	<b>19%</b> (19,089 t)
<b>Global rate</b>	<b>37%</b>	<b>38%</b>

# The Present Situation, Landfilling of Waste

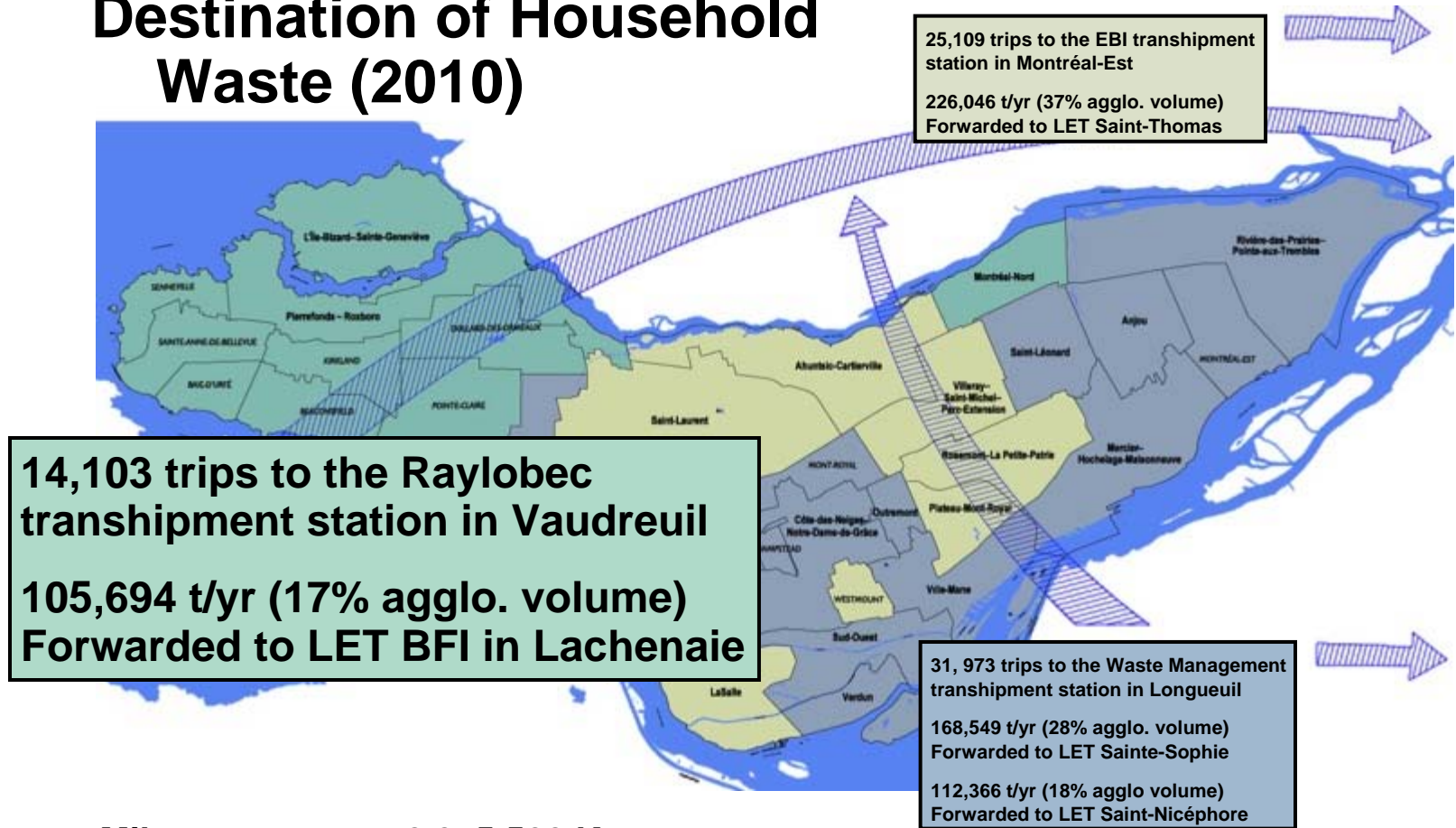
## Destination of Household Waste (2010)



**Mileage per year: 2,075,500 Km**  
**Volume transferred per year: 612,655 tons**

# The Present Situation, Landfilling of Waste

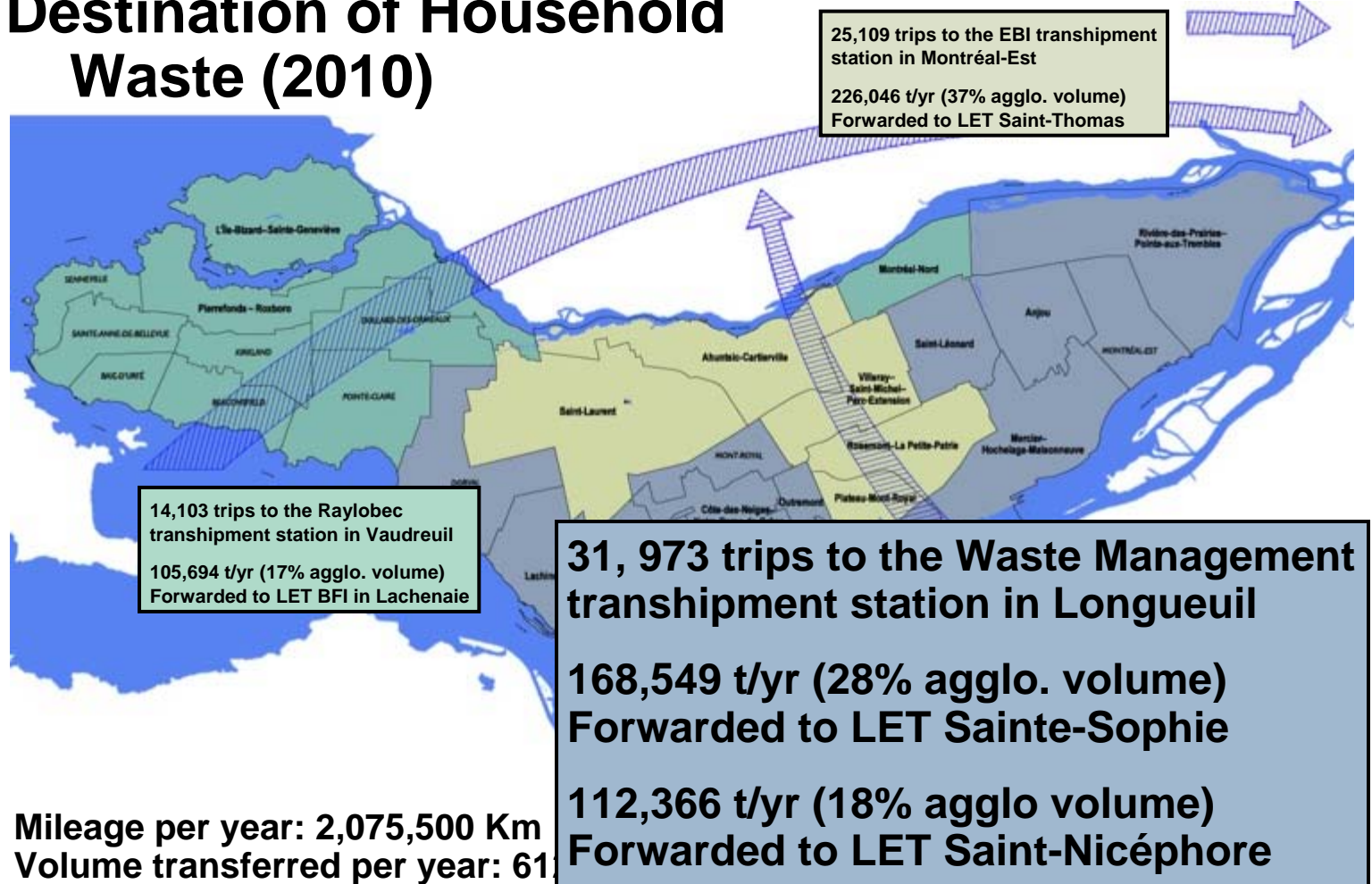
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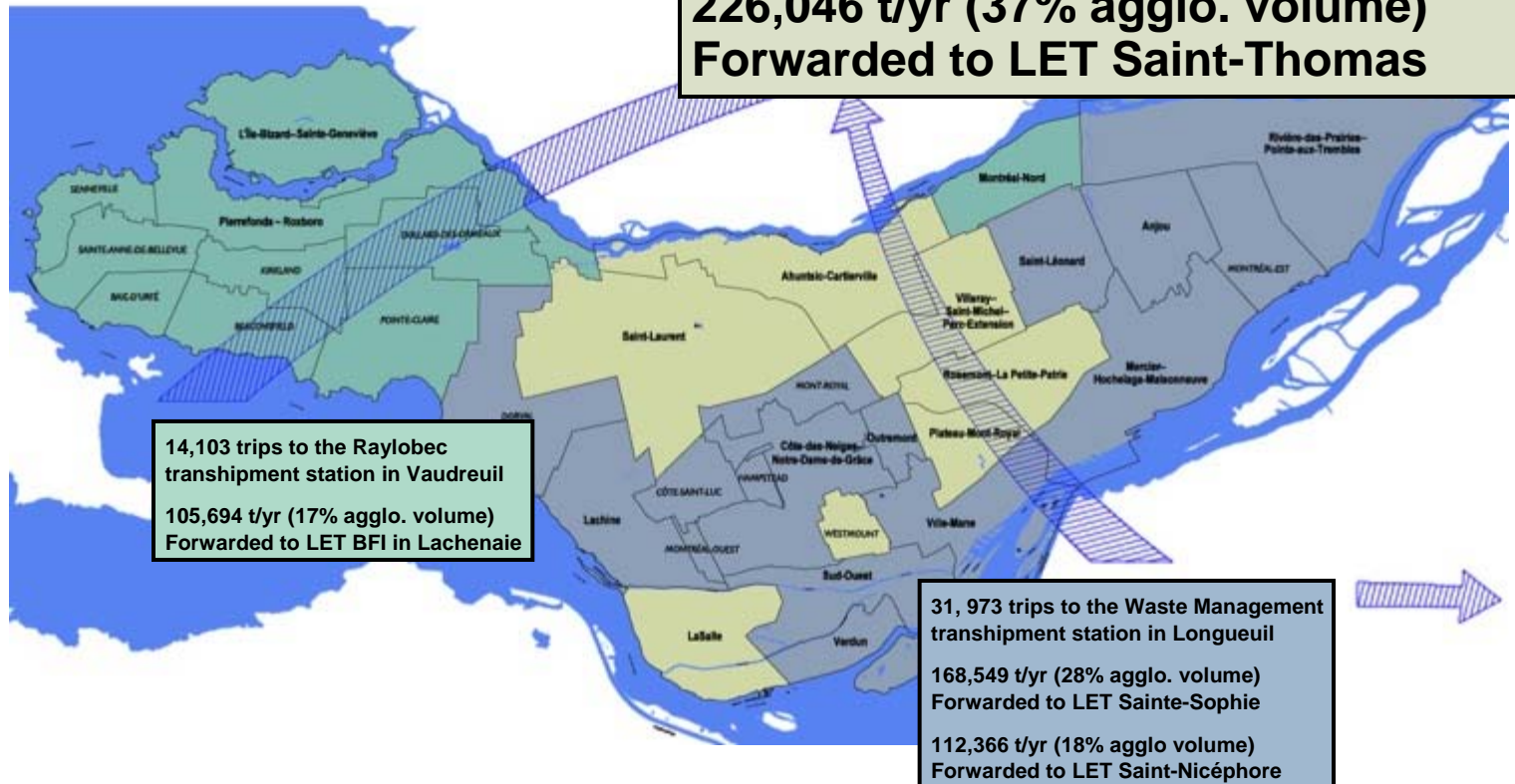
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# The Present Situation, Landfilling of Waste

## Destination of Household Waste (2010)



Mileage per year: 2,075,500 Km  
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# Framework

## Québec Waste Management Policy

- Compliance with the 3 R-V-E hierarchy
- Valorization, in the medium term, of 60% of organic materials
- Banning of landfilling of organic materials in 2020



## Framework (cont'd)

### **Metropolitan Waste Management Master Plan (MWMMP) for the Communauté métropolitaine de Montréal (CMM)**

- Principle of regional autonomy



## Framework (cont'd)

### **Waste Management Master Plan for the Agglomeration of Montréal (WMMPAM)**

- Fairness in the distribution of the infrastructures within the agglomeration territory



# Our Challenges

## **The issues related to organic materials**

- 1/2 of household waste
- Low level of recuperation (10%)
- Considerable transportation

## **The solution:**

- Pursue our ongoing efforts
- Prioritize the valorization of organic materials

# Our Challenges (cont'd)

## The objectives:

- Participation by citizens in selective collections
- Raw material to be transformed into compost and renewable energy
- Treatment near where it's produced



# Our Challenges (cont'd)

## The objectives :

- Reduce:
  - Landfilling and related nuisances
  - GHG
- Contribute to the revitalization of industrial sectors (technology, innovation, architecture)



# Tools Made Available to Citizens



## Selective collection

- Green waste in most territories since 2008
- Kitchen waste since 2008



# Our Environmental and Economic Gains

## Reduction

- 219,000 tons of household waste (8 housing units and less), destined for landfilling
- 710,000 km in distances travelled ( $\approx$  18 times around the world)
- 1/3 of trucks driving to the landfill sites (3,100 vehicles)
- Of the 21,000 tons of CO<sub>2</sub>e (GHG)

# Our Environmental and Economic Gains (cont'd)

## Creation

- 40 new jobs

## Production

- 8 million m<sup>3</sup> of biomethane  
(1 m<sup>3</sup> of biomethane = 1 m<sup>3</sup> of natural gas = 1l of diesel)  
Capable of fuelling 4,000 cars travelling 20,000 km each per year
- 65,800 tons of compost

# Section 1

## The Valorization Technologies for Organic Materials

# Selection of Technologies: Three Key Principles

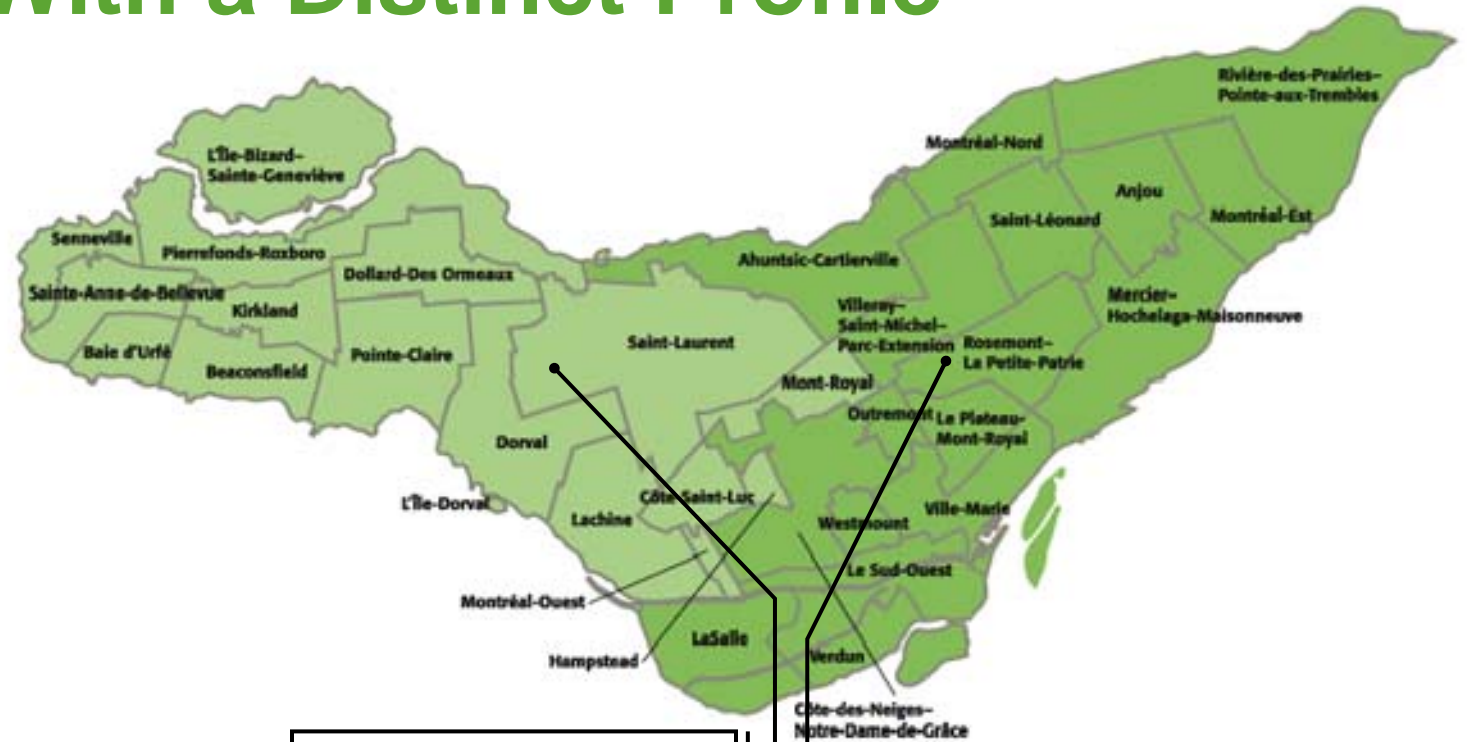
**Valorization rather than disposal**

**Size of infrastructures planned according  
to the needs of the agglomeration**

**Technologies**

- adapted to the Montréal context
- proven effective

# Agglomeration: Two Major Zones With a Distinct Profile



- Population: 427,500 persons
- Prevailing type of dwelling is single-family or detached (95%)
- Abundance of green waste (GW)
- 40% of kitchen waste (KW) vs 60% of green waste (GW)

- Population: 1,473,000 persons
- Prevailing dwellings are not detached
- Limited outdoor landscaped spaces
- Greater quantities of kitchen waste
- 60% of kitchen waste (KW) vs 40% of green waste (GW)

■ Combined collection KW + GW  
■ Separated collection KW/GW

# Agglomeration: Two Major Zones With a Distinct Profile

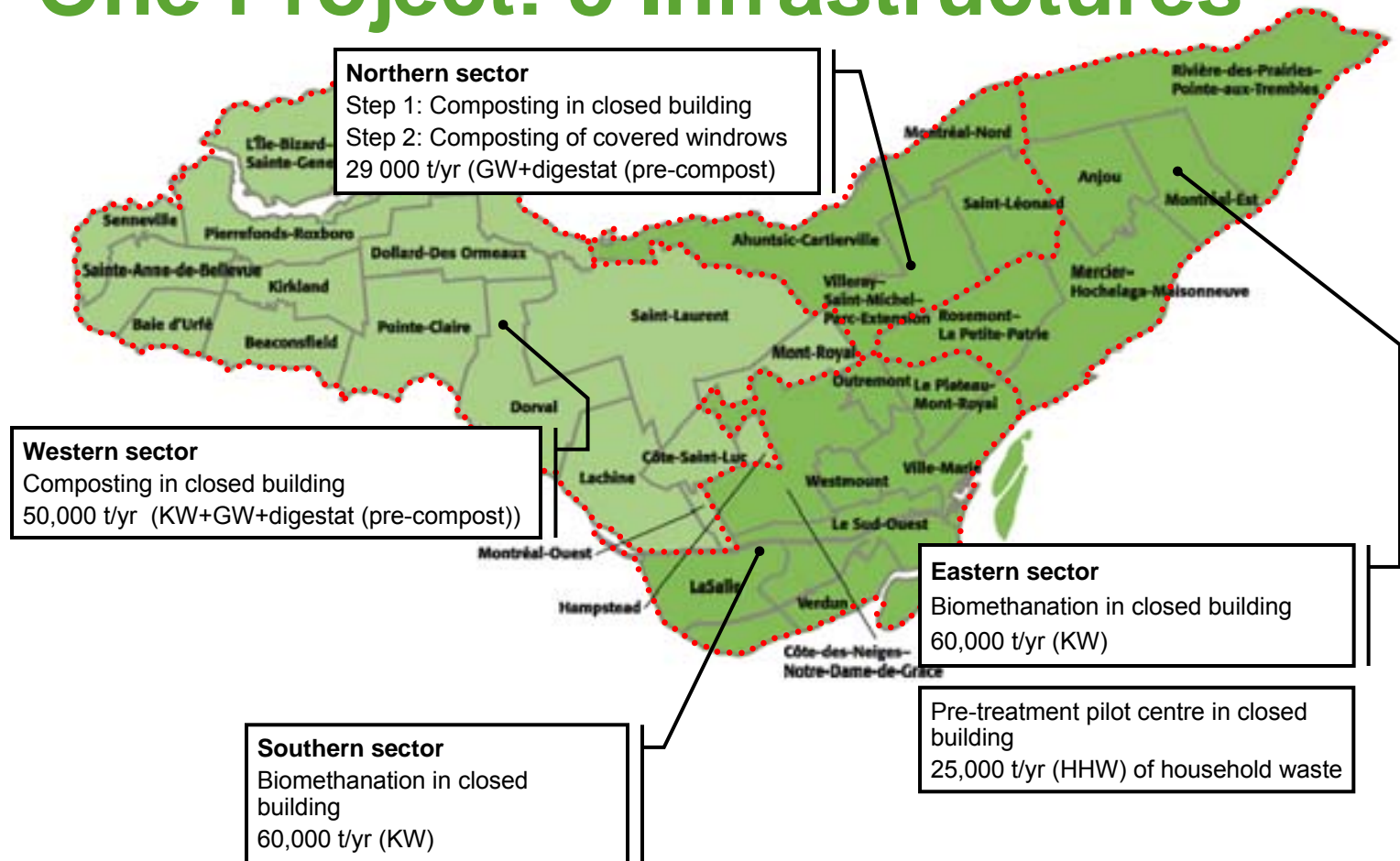


- Population: 427,500 persons
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■ Separated collection KW/GW

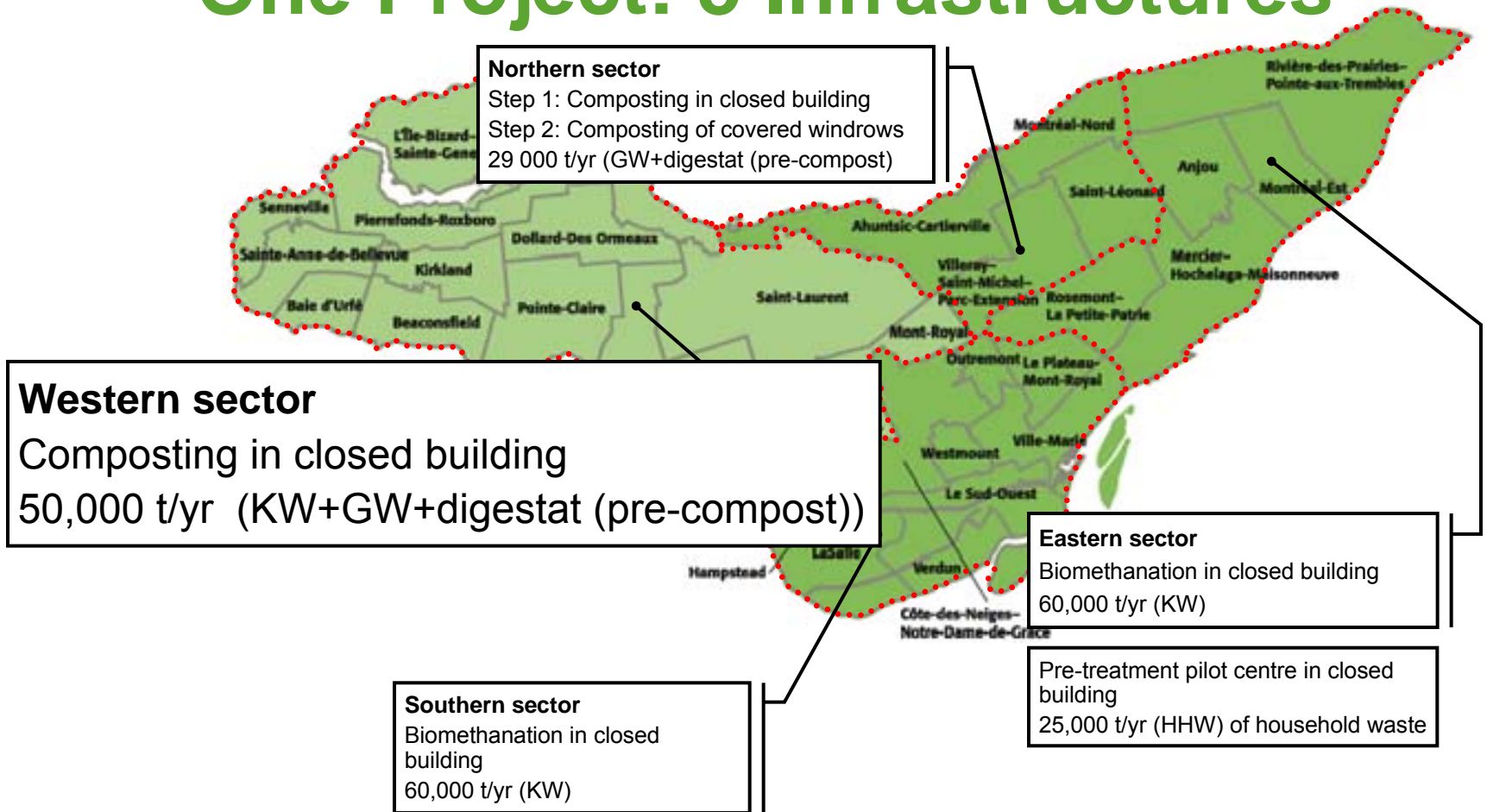
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# One Project: 5 Infrastructures



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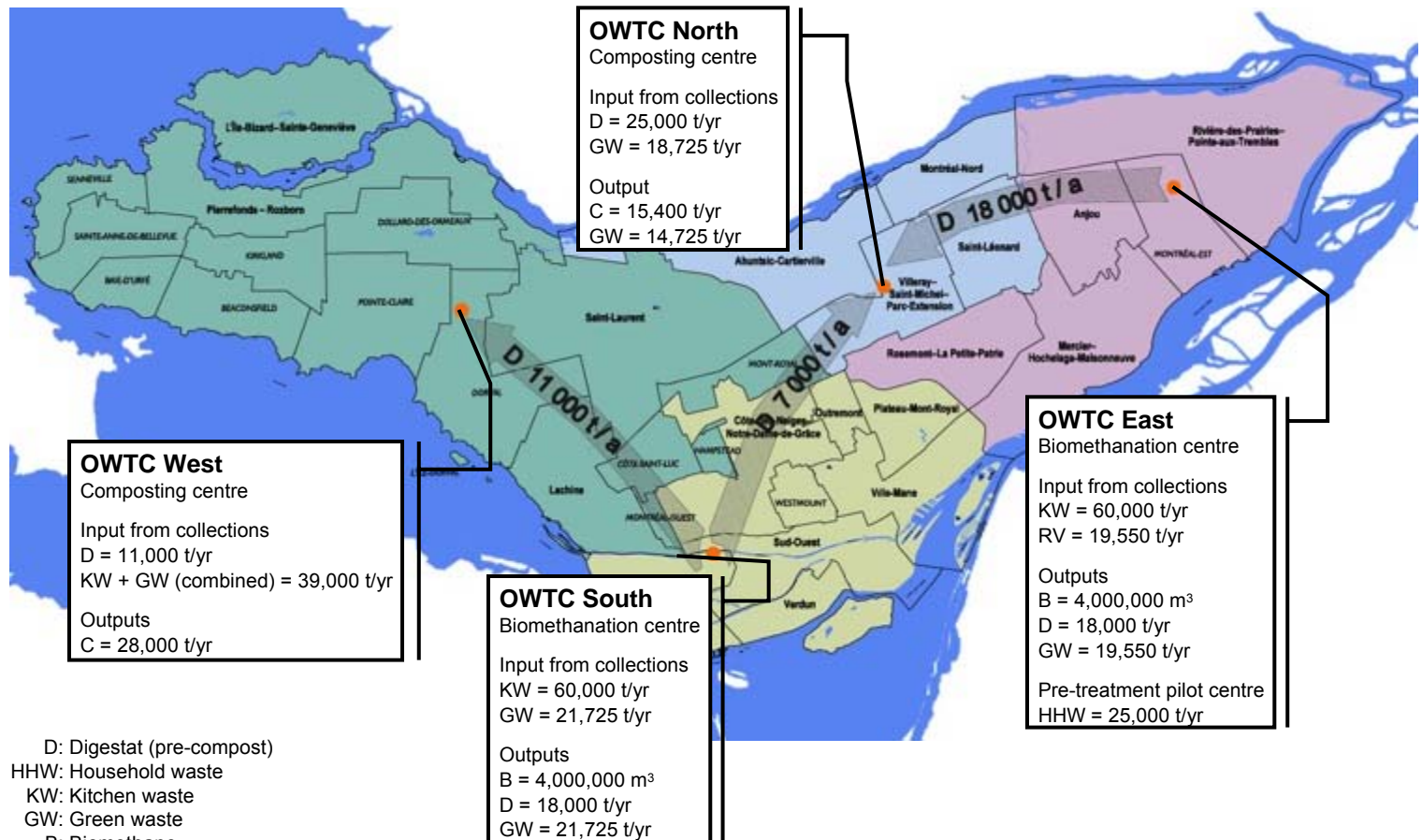


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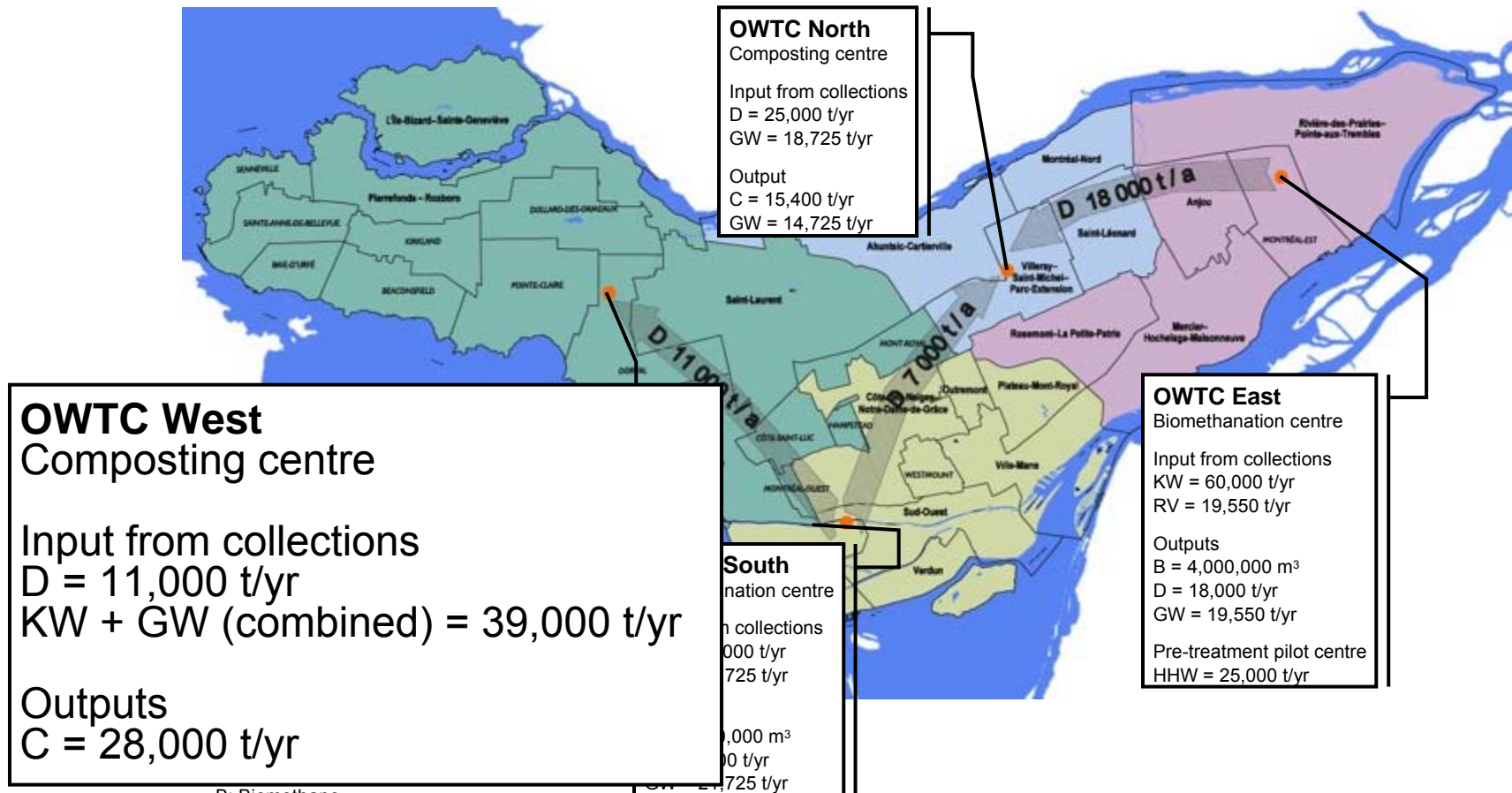
# An Overall Strategy

## Organic waste valorization centre (OWVC) operating at full capacity



# An Overall Strategy

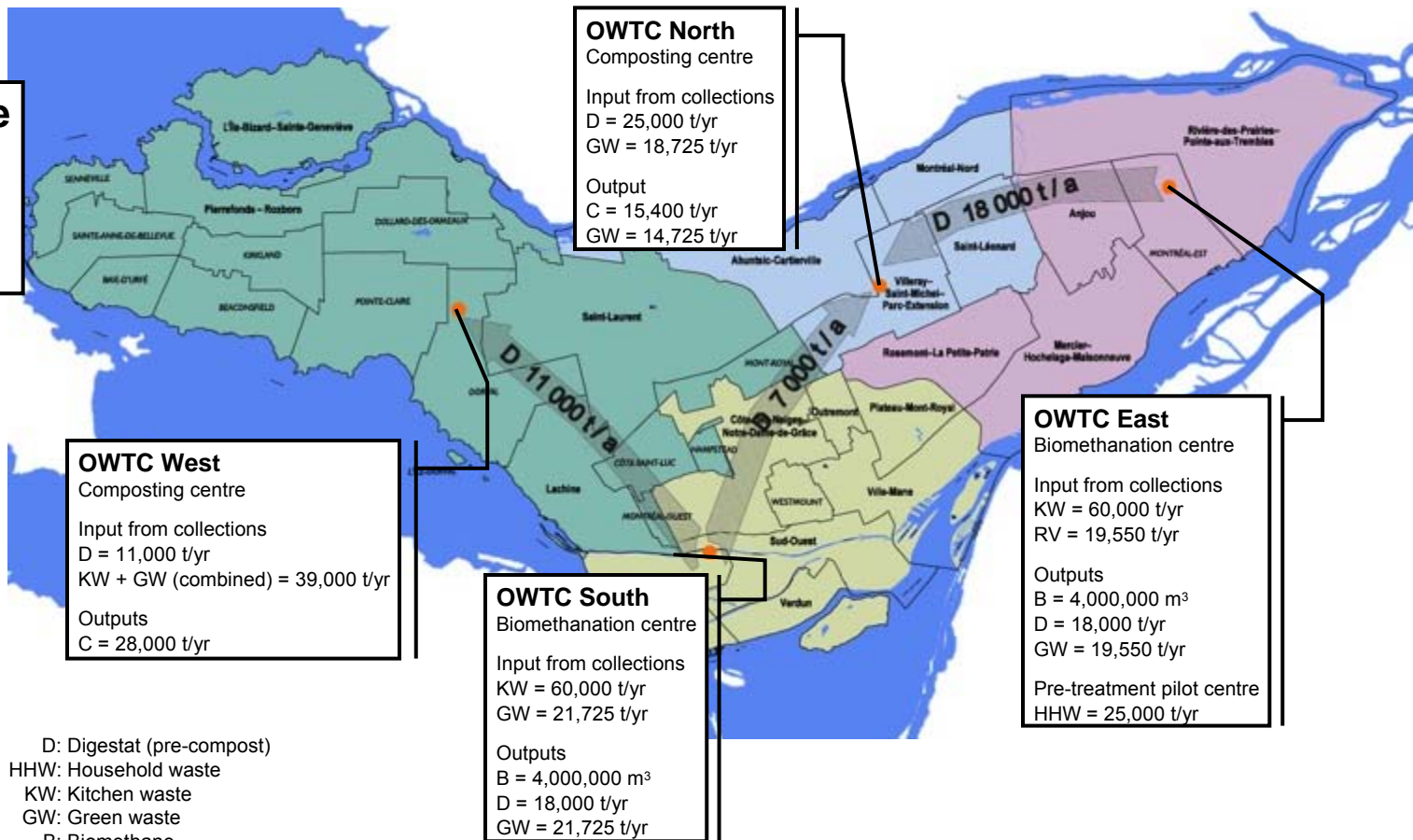
Organic waste valorization center (OWVC)  
operating at full capacity



# An Overall Strategy

Organic waste valorization centre (OWVC)  
operating at full capacity

Green waste to be valorized outside of the island  
56 000 t/yr



## 2 Complementary Technological Approaches

<b>Biological process</b>	<b>Composting</b>	<b>Biomethanation</b>
<b>Environment</b>	With air	Without air
<b>Inputs</b>	Organic waste and pre-compost (digestat)	Kitchen waste
<b>Major outputs</b>	Compost	Methane and digestat (pre-compost)
<b>Benefits</b>	Simpler and less costly	Produces renewable energy

# Pre-treatment Pilot Centre for Household Waste

**Develop our expertise to enhance our environmental performance by diverting from household waste those fractions of the materials:**

- that may be composted
- that may produce energy
- that may be recycled

# Section 2

## Selection of Sites



# Site Selection Process

**11 sites were subjected to a detailed analysis**

**4 sites presenting optimal conditions  
were retained**



# Site Selection Criteria

## Requirements by the Ministère du Développement durable, de l'Environnement et des Parcs (MDDEP)

- Except in the case of existing infrastructures such as the CESM, a distance of 500 m between the infrastructure and any residential or commercial zone, dwellings and public spaces
- Mandatory odor dispersion study



# Site Selection Criteria (cont'd)

## Requirements by the Ministère du Développement durable, de l'Environnement et des Parcs (MDDEP)

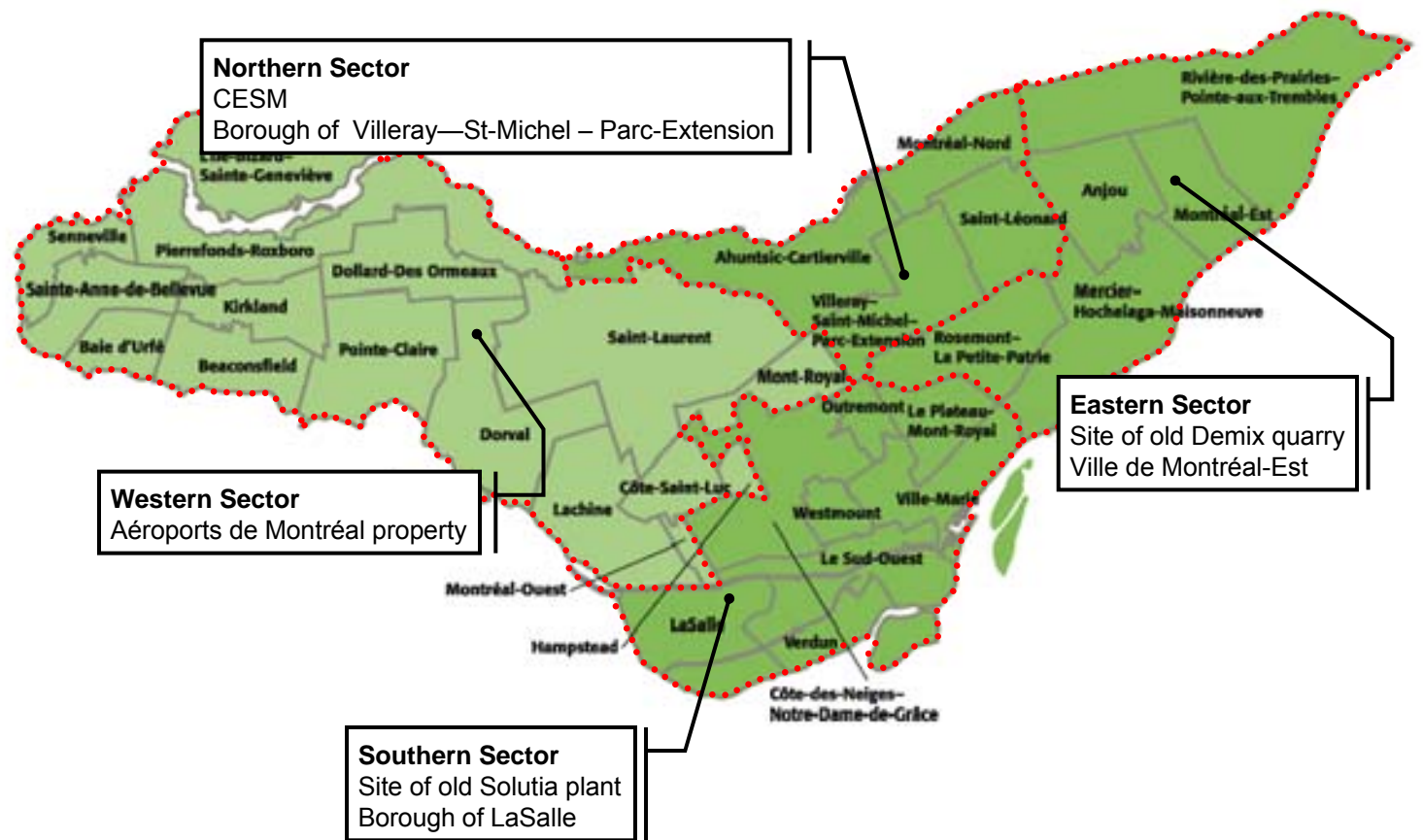
- Distance of 60 m from a waterway, 30 m from any groundwater supply well and 300 m from a lake
- Noise level compatible with the host zoning
- Limited impact of trucking on traffic in the neighborhood

# Site Selection Criteria (cont'd)

## Other agglomeration criteria

- Ideally a municipal property
- Adequate area
- Available in the short term
- Proximity to major arteries and highways
- Connection capacity to the Gaz Métropolitain grid (biomethanation centre)

# Sites Retained



- Combined collection KW + GW
- Separated collection KW/GW

# Section 3

## OWTC West



# Aéroports de Montréal Pierre-Elliott-Trudeau Site

**Complies with the MDDEP guidelines**  
(preliminary MDDEP notice issued on date)

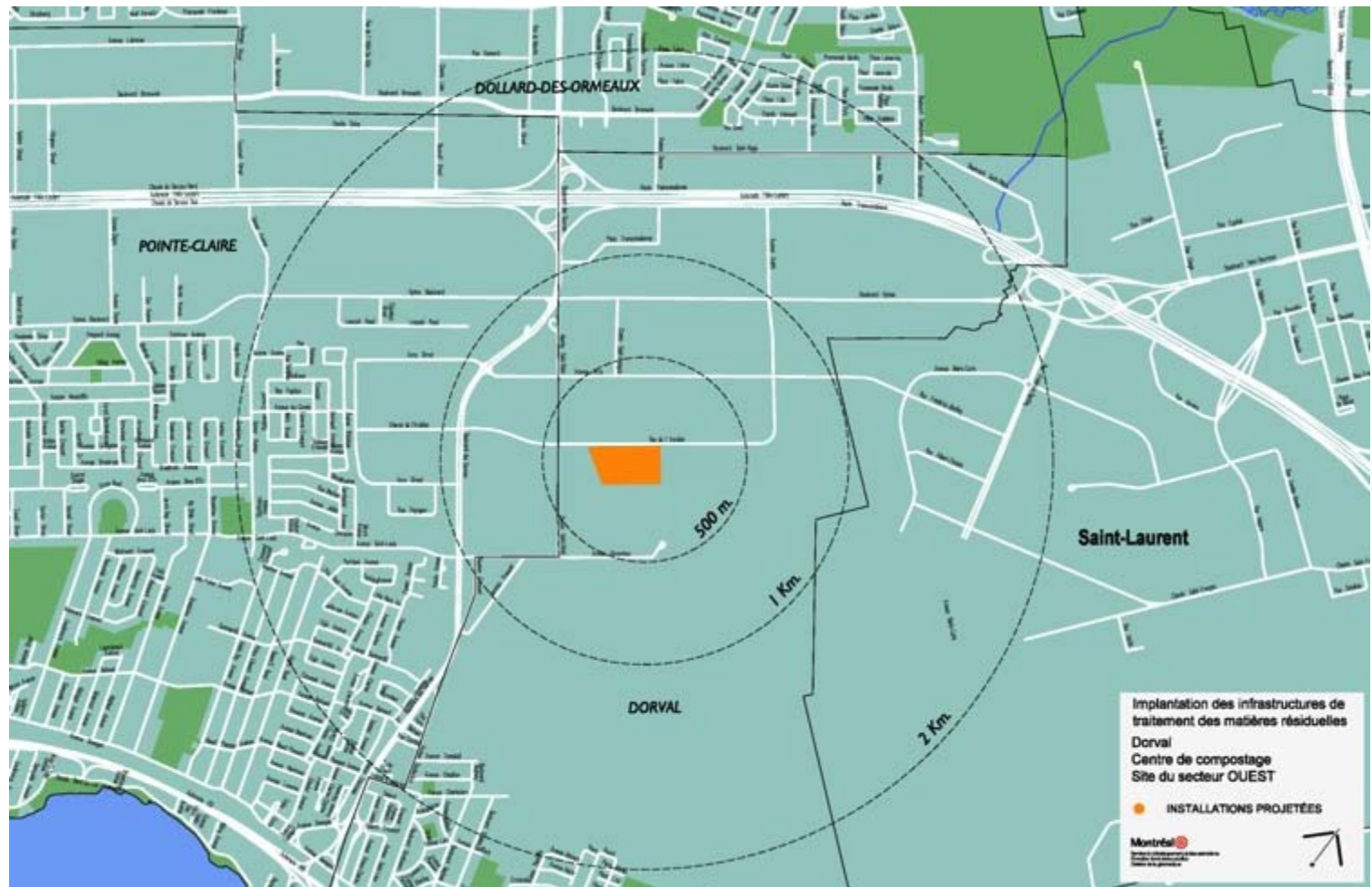
**Property: long-term lease**

**Optimal situation for intersector transport**

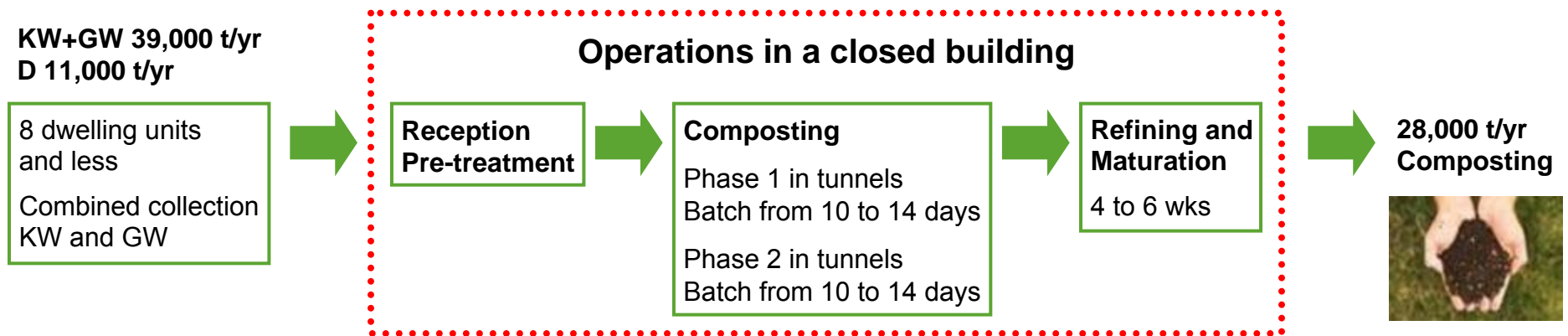
**Study on bird hazards was conclusive**



# Compliant with MDDEP Guidelines – Distance



# Process Diagram – West

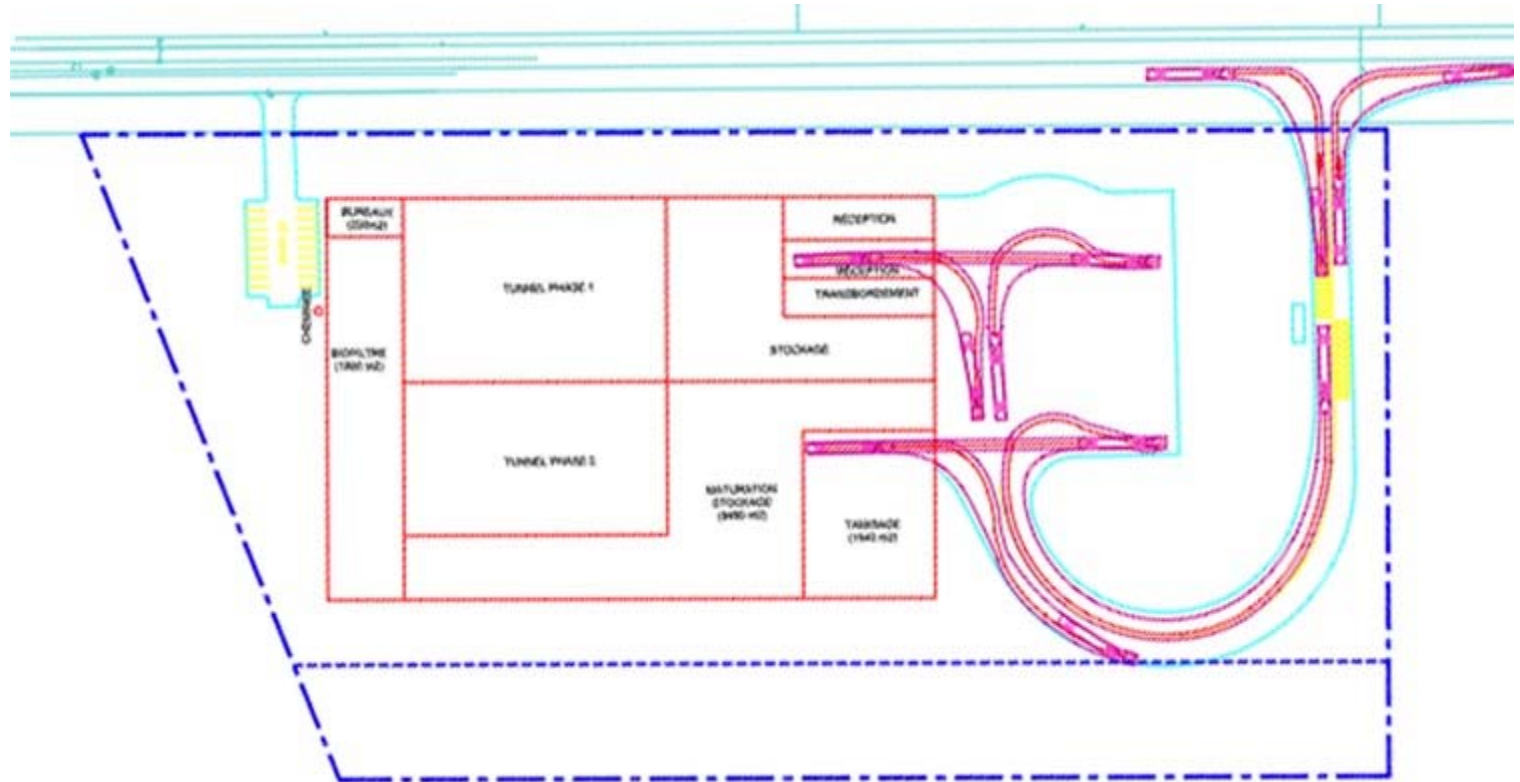


# Actual Property Lay-Out





# Property Lay-Out of OWTC West



# Section 4

## Amendments Required to Zoning By-Law

# Amendments Required

**Present land use:** “industrial”

**Present zoning:** “industrial activities”

**Intended use:** treatment centre (unplanned for  
in the present urban planning by-law)



## Amendments Required (cont'd)

**Section 89 of the Chart:** the Agglomeration Council, responsible for the treatment of residual waste, can authorize this use through a specific by-law which would then supplement the local by-law.

**Conditions:** specific provisions or standards are proposed to better oversee the project.

# Amendments Required (cont'd)

## Authorized use:

Treatment centre for organic materials  
by composting in a closed building

## Conditions:

### A. Occupation of outdoor spaces:

*The provisions of the local by-laws apply,  
except for:*

- Parking area: 20 spaces maximum

# Amendments Required (cont'd)

## Conditions :

### B. Landscaping

*In addition to the provisions of the local by-laws, the following apply:*

- Site plan required before the beginning of the work
- 12 months max. for the landscaping to be done following the end of the construction activities

# Amendments Required (cont'd)

## Conditions :

### B. Landscaping

*In addition to the provisions of the local by-laws, the following apply:*

- Maintenance of a healthy vegetative character
- Setting-up of a vegetation screen on the lateral and back limits except if already in place

# Amendments Required (cont'd)

## **Notice by the Comité d'architecture et d'urbanisme (CAU)**

The Comité d'architecture et d'urbanisme supports the principle authorizing the five organic material treatment centres



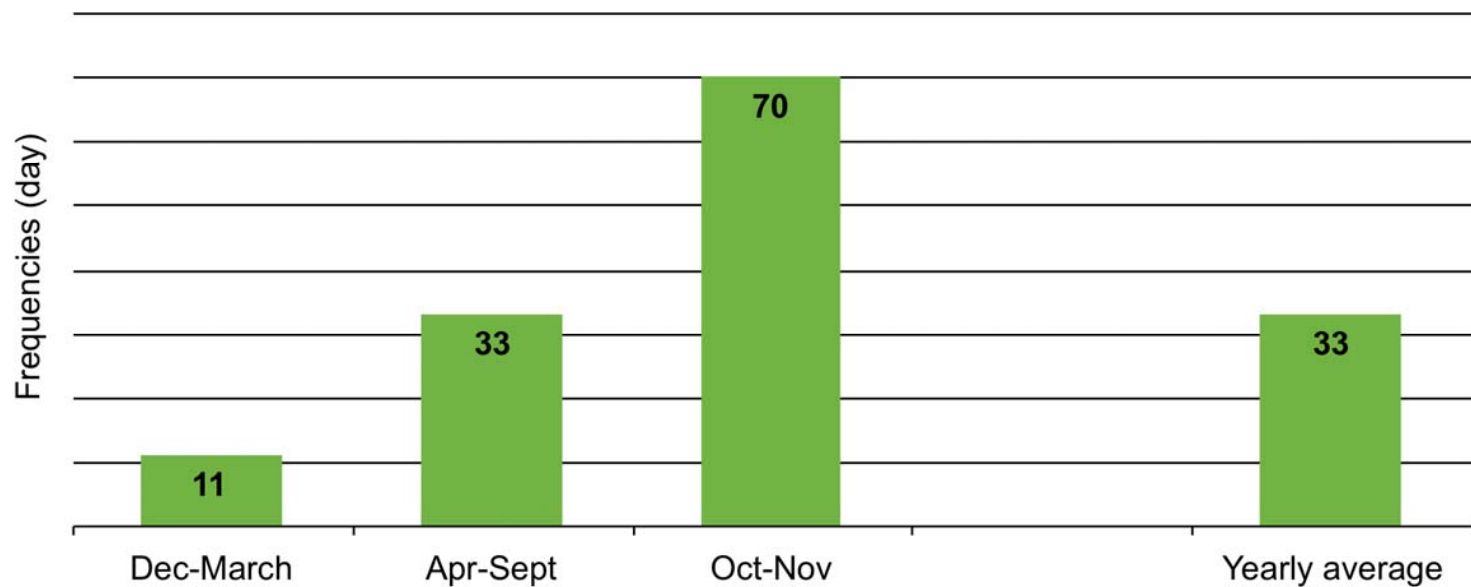


# Section 5

## Results of the Studies Conducted for the OWTC West

# Traffic

**Number of trucks per day for a center operating at full capacity**



# Traffic

## **Basis for the impact simulation of trips on local traffic**

- Trips of both inputs and outputs as well as employees and suppliers were considered and then multiplied by a safety factor of 1.5
- Simulation is a worst-case scenario: morning rush hour during the busiest period of the year in terms of trips (October and November)

# Traffic (cont'd)

## **Basis for the impact simulation of trips on local traffic**

- In reality, the reception period for OM lies outside the morning rush hour of the neighboring road network



# Traffic (cont'd)

## Conclusion of study

- The new trips required were distributed over the road network near the project
- This study demonstrates that if the OWTC was operating today, the few trips resulting from its operations would have a low impact on the network's present situation
- No measure in terms of road transport is required in relation to the OWTC's activities

# Odour Dispersion Study

## Method used to determine odour emission rates

- Assumptions based on a data bank containing more than 400 comparables currently in operation



# Odour Dispersion Study (cont'd)

## **MDDEP requirements in terms of odour detection at the limits of the residential, commercial area**

- Meet 1 o.u.  
98% of the time
- Do not exceed 5 o.u.  
99.5% of the time

# Odour Dispersion Study (cont'd)

## Comparison

- Person wearing perfume: 20-50 o.u.
- Freshly cut grass: 250 o.u.
- Dirty garbage container: 500 o.u.
- BBQ: 2,500 o.u.





# Compliance with MDDEP Guidelines – Odors

## No compromise

- Odor dispersion study integrated within the selection process
- Compliance with MDDEP requirements a prerequisite in terms of selecting a site



# Compliance with MDDEP Guidelines – Odors (cont'd)

## Planned measures

- Closed buildings under negative pressure
- Reception of organic materials in a confined area
- Cleaning of truck wheels before their exiting the reception area
- Treatment of air evacuated using effective filters
- Continuous monitoring of odors, during operations

# Preliminary observations – Bird Hazards

**There are precedent :**

- **Winnipeg (Landfill since 96)**

- Discussions with between the promoter, Airport Authority and transport Canada at the planning stage
- Attenuation measures
- Risks well managed (Transport Canada)

- **Toronto (closed composting facilities)**

- Operate generally with open doors
- No additional risk observed (Airport Authority)

# Preliminary observations – Bird Hazards

## There are precedent<sub>(cont'd)</sub> :

- Ottawa (closed composting facilities)
  - No perceptible effect on Bird strike risks (Airport Authorities)

## Observation :

- “An enclosed waste transfer installation, if well managed, does not attract birds” (our translation)

**Gestion de la faune aux aéroports**, Bulletin n° 38-ÉTÉ 2007  
(Transport Canada)

# Projected measures – Bird Hazards

## 1. Odor control

- Building under negative pressure and air is filtered – no odors emitted
- All activities are conducted indoors

## 2. Preventive management of fauna to be implemented

# Projected measures

## – Bird Hazards (cont'd)

### 3. Other mitigation measures

- Site is cleaned regularly as well as truck wheels
- Planned landscaping to reduce bird perches
- Monofilament and peaked bands to prevent birds from landing



# Conclusion

## – Bird Hazards

**Closed centre eliminates the risks of birds and other mammals coming to feed there as no food is accessible**

**Closed centre designed and operated according to set standards and conditions should not have any impact on the risks associated with bird hazards**



# Noise Assessment Study

## Reference criteria:

- City of Dorval by-laws
- By-law 01-283 MDDEP requirements

## Method:

- Simulations of trips by organic material transport trucks





# Noise Assessment Study (cont'd)

## Conclusion:

- Results achieved are below the thresholds established in the various by-laws
- All of the organic material treatment equipment is inside the building –  
No noise audible outdoors



# Architectural and Landscaping Quality

## **A contribution to the architectural heritage**

- Inclusion in the call for tenders of requirements re. architectural design
- Must enhance the architectural character of the sector

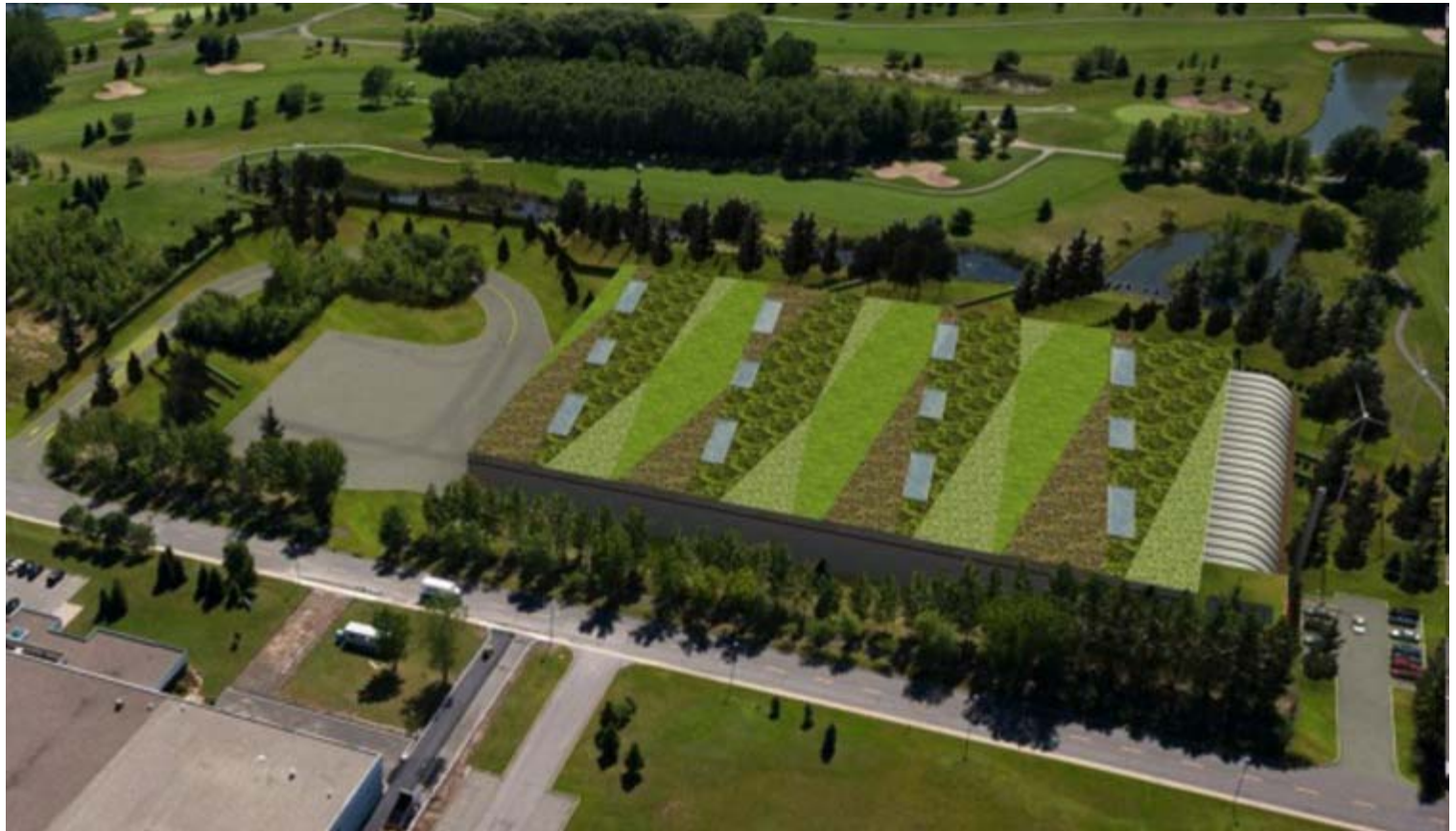
## **A technological and ecological showcase**

- LEED certified construction
- Green roof
- Landscaping with appropriate maintenance

# Illustration of the Establishment of the Planned Infrastructures – Before



# Illustration of the Establishment of the Planned Infrastructures – After



# Illustration of the Establishment of the Planned Infrastructures – Before



# Illustration of the Establishment of the Planned Infrastructures – After



# Next Steps

## **Filing of the OCPM report**

- Winter 2012

## **Adoption of the by-law by the Agglomeration Council**

- Winter 2012

## **Creation of a follow-up committee**

- in 2012



## **Next Steps** (cont'd)

### **Launch of a call for tenders**

- Summer 2012

### **Scheduled beginning of construction**

- Winter 2014

### **Scheduled commissioning**

- Summer 2015





# Any questions?