



City of Toronto's Waste Diversion Initiatives: Zero Waste to Landfill by 2012

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Hong Kong - June 2005



1

City of Toronto

- Population 2.5 million
- Serve over 1 million units
 - 510,000 single-family homes
 - 490,000 multi-family homes
 - 20,000 small commercial
 - Agencies, Boards, Commissions & Departments
- Private Haulers at Transfer
- Litter Collection



2

How Did We Get Here?

- City owned landfill closed December 2002
- Anticipating the closure, Toronto/Ontario searched unsuccessfully for replacement landfill from 1985 to 1995 - spent \$100 million
- Unable to site a landfill, the City sought capacity in 1996
- Commenced shipment to Michigan in 1998



3

What Toronto Ships to Michigan?

- Shipments rose as December 2002 Closure of Landfill approached
- Includes Municipal Solid Waste and Biosolids from Wastewater Treatment

Year	Tonnes
1998	250,000
1999	330,000
2000	430,000
2001	660,000
2002	730,000
2003	1,245,000
2004	1,050,000
2005 (est.)	975,000



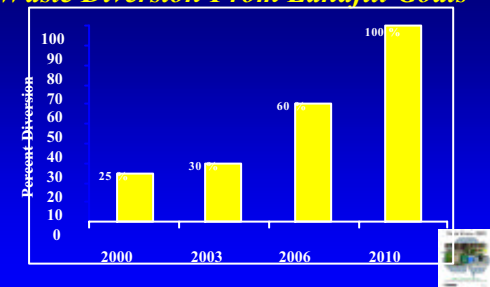
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ESTIMATED 2001 ONTARIO WASTE SHIPMENTS TO MICHIGAN



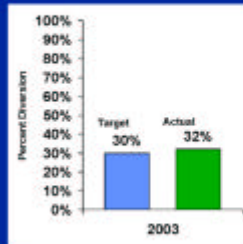
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Task Force 2010 Waste Diversion From Landfill Goals



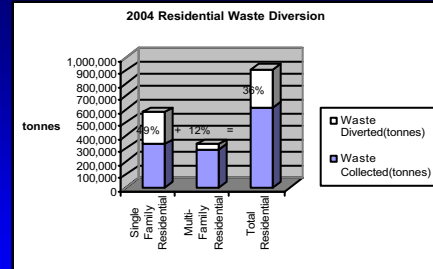
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Exceeded 2003 Target

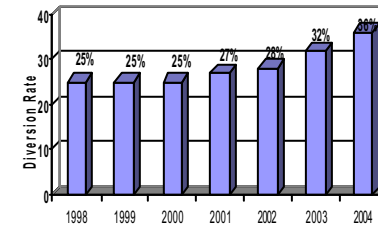


Success due to:

- rollout of Green Bin to 220,000 homes - these homes at 50% + diversion
- apartment recycling blitz
- each 1% equals 10,000 tonnes of new diversion



City of Toronto Diversion Rates 1998-2004



Residential Single-Family Collection Program

“Green Bin Program”

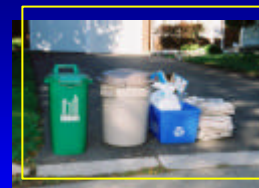
Objective: maximize recovery of source separated organics (SSO) through:

- user convenience: nothing else to buy
- inclusive materials list
- allowance of plastic liners
- bi-weekly residual waste collection to encourage diversion

Green Bin Program: Design

“3-Stream” Program + Separate Seasonal L&Y Collection

- Weekly collection of kitchen organics
- Collection of recyclables or residual waste on alternating weeks



Residents given a 45L cart and a 7L kitchen container

Green Bin Program SSO Materials List

Green Bin Made Easy... “Line your indoor container with a plastic bag if you wish”



Green Bin Program Implementation

Area	No. SF Hhlds	Implementation Date
Etobicoke	70,000	September 17, 2002
Scarborough	110,000	June 24, 2003
City, York, E. York	210,000	October 19, 2004
North York	110,000	2005
Total	500,000	

Green Bin Program - Results

- Participation in the Green Bin Program has been excellent; 90% +
- SSO quality good. Contamination generally low <<10%
- Some challenges



Organic Composition

Product	Approximately
- food and animal waste	70%
- diapers and sanitary	10-15%
- tissues + towels	10%
- paper based packaging	5-10%

Yellow Bag Commercial Program

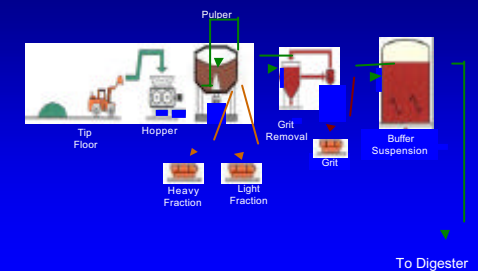
- "ThreeStream" system
 - recyclables, organics, residual waste
- acceptable materials similar to residential
 - food - meat, dairy, vegetable scraps
 - plants
 - soiled paper (e.g. paper towels)
- Base collection frequency = 2 x per week
 - can purchase 5 or 6 day collection
- Service is all or nothing.

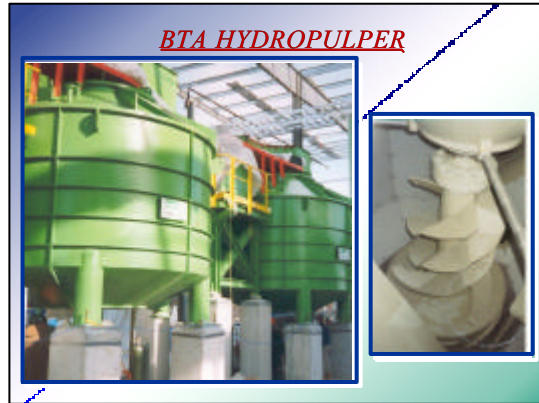


Organics Processing



Dufferin Facility: Pre-processing Operations



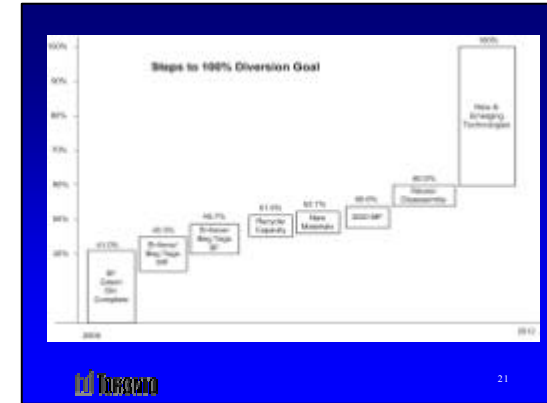


2004 Residential Waste Diversion

Program	Tonnes
Blue/Grey Box Program	149,336
Leaf & Yardwaste & Christmas Trees	80,069
Green Bin SSO	35,808
Backyard Composting (1)	18,324
Depots/Environment Days	2,858
Large Appliances/Scrap Metal	6,936
Grasscycling (2)	11,655
Household Hazardous Waste	863
Stewardship and Deposit - Return (3)	6,629
Diversion in Tonnes	311,258
Waste	565,910
Diversion and Waste	877,468
Diversion in %	36%

- Total of 180,050 backyardcomposters and 118 multi-bin units distributed as of yearend. Assumes 100 kg diverted per year per backyard composteand 2.7 tonnes per year per multi-bin.
- Assumes grass in the amount of approximately 15% of the leaf and yard waste stream is left on the lawn as a result of the grass ban policy and grasscycling promotion, using the method set down by CAO Benchmarking Group.
- Refers to the Beer Store recovery of residential refillable beer bottles using method set down by CAO Benchmarking Group.

	Waste Collected Tonnes	Waste Diverted Tonnes	Diversion Rate
Single Family Residential	290,842	274,816	49%
Multi-family Residential	275,068	36,742	12%
Total Residential	565,910	311,558	36%



Environment Days

- 44 Events from April to October
- Attendance of over 44,000



Steps to 100% Diversion Goals...

- Green Bin Organics in Apartments/Condos
 - will be first/largest in North America
 - expand current pilot to 30 diverse buildings in 2005
 - feasibility
 - collection systems
 - quality/quantity
 - determine timeline of full-scale rollout (current 2007-10)
 - pilot results
 - publicly owned processing timeline

Impact
35,000 t/ 3.8%

Multi-Family Organics Collection: Deep collection System

25

Steps to 100% Diversion Goals...

- **Expand/Enforce Mandatory Diversion By-law and Introduce PAYT in Apartments and Condos**
 - enforce existing mandatory recycling By-law
 - suspend waste service for 3 months
 - extend By-law to include organics when available
 - PAYT for waste in 2005
 - pay only above threshold
 - two phase pre/post organic

Impact
40,000 t/ 4.4%

26

Steps to 100% Diversion Goals...

- **Expand/Enforce Mandatory Diversion By-law and Introduce PAYT in Single Family**
 - enforce existing mandatory recycling By-law
 - warning → \$55.00 fine
 - expand By-law to Green Bin in 2005
 - PAYT in 2007
 - two item per week threshold
 - \$1.00 per extra item
 - one year phase-in

Impact
29,000 t/ 3.2%

27

Steps to 100% Diversion Goals...

- **New Material for Recycling**
 - require secure markets and space in box
 - priority items
 - tubs and lids (2005)
 - polystyrene
 - plastic film
 - ceramics/plate glass
 - milk jugs

Impact
11,000 t/ 1.2%

28

Steps to 100% Diversion Goals...

- **Improved recycling capacity**
 - Blue/Grey boxes are full!
 - Add capacity with larger container and/or increased collection frequency
 - Port Union recycle cart pilot success
 - Expand cart demonstration to 3,600 homes in 2005

Impact
25,000 t/ 2.8%

29

Recycle Cart Demo

Recycle Cart Demo

- 650 homes in Port Union area
- Benefits:
 - increased capture of recyclables
 - reduced blowing litter
 - potential to reduce injury claims
- Expand demo to 3,600 homes in diverse neighbourhoods

30

Recycle Cart Demo

Recycle Cart Demo

- Cart mix:
 - 80% 65 gal/20% 95 gal
 - 4 to 6 blue boxes of capacity
- Every two weeks recycle collection
- Co-collection with organics

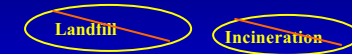


Steps to 100% Diversion Goals...

- Reuse/Disassembly of Durable Goods for Recycling
 - inadequate infrastructure and end markets for durable goods
 - furniture/mattresses/carpets
 - textiles/toys/sporting goods
 - electronics/scrap metal
 - building materials
 - propose establishment of six City of Toronto Reuse/Disassembly Centres
 - supported by curbside collection service
 - co-ordinate with existing charities

Impact
33,000 t/ 3.4%

Long-Term Treatment Options for Maximum 40% Residual Waste



New & Emerging Technologies

- ✓ Physical
- ✓ Advance Thermal
 - Gasification
 - Pyrolysis
- ✓ Biological
- ✓ Chemical

WDO- Designated Materials



WDO- How Funding is Distributed



WDO- Funding Bodies



