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LEAPING TO 80:

A PLAN FOR CITY HALL
TO HELP TORONTONIANS
DIVERT MORE WASTE



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Since 1988, the Toronto Environmental Alliance has campaigned locally to find solutions to Toronto's urban environmental problems. A not-for-profit organization, TEA advocates on behalf of all Torontonians for a green, healthy and equitable city. To learn more about TEA, visit www.torontoenvironment.org.

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EXECUTIVE SUMMARY

In 2000, City Council set a residential waste diversion target of 100% by 2010. In 2007, the target was revised to 70% by 2010. As we approach 2013, the city is stalled at a disappointing 50%.

The good news is that Torontonians love diverting waste. When given the right tools – like green bins and blue bins – they actively participate in sorting products and doing their part to make sure as little garbage as possible goes to landfill.

The bad news is that not everyone has the tools to divert waste from landfill. Roughly half of Toronto residents live in multi-residential buildings, and very few of them have access to blue bins and green bins at home.

The news is even worse outside the home: few schools and shopping malls have blue bin and green bin services; and at the workplace (including offices, manufacturing and construction) most waste ends up going straight to landfill. That's why the provincial waste diversion rate for the industrial, commercial and institutional sector (IC&I) is a shameful 13%.

This report explains why waste diversion is the best environmental, economic and financial approach to dealing with our garbage. It notes that waste diversion creates 7 jobs for every 1,000 tonnes of waste diverted in Ontario versus 1 job for the same amount of waste disposed (in landfill or incinerator). It shows how waste diversion avoids the significant environmental and financial problems associated with landfills and incinerators. The report also provides an overview of how Toronto's residential waste diversion system works and is funded.

Most importantly, the report identifies key actions the city can take to help Torontonians divert more waste:

- **Get Green Bins into all multi-residential buildings by the end of 2013.**
- **Build the facilities needed to divert Toronto's waste.**
- **Target commercial and non-residential waste diversion.**
- **Support diversion with strong policy at the City and Provincial level.**

Combined, these actions will improve Toronto's residential waste diversion rate beyond 70%, to over 80%. With new tools to help Torontonians divert waste outside the home at businesses, work and school, Toronto's diversion of waste from landfill will be even better. These actions will also create an additional 1,800 green jobs, mostly in Toronto.

Financially, these actions will require new investments in waste diversion programs, education, and infrastructure. Annualized, new capital costs will be in the range of \$15 million per year. New operating costs will be around \$6.8 million per year. However, the environmental benefit, green jobs benefit and long term cost savings on disposal offset these costs. In addition, as provincial waste policy progresses, money will be saved by reducing the public subsidy to companies whose products end up as municipal waste by having them pay their way.

In short, this report explains why and how City Hall should help Torontonians continue their love affair with waste diversion.

INTRODUCTION: TORONTO'S GROWING LOVE AFFAIR WITH WASTE DIVERSION

Torontonians care about doing their part to divert waste from landfill. Every week, families dutifully sort through an ever-growing mix of packaging waste, and do their best to put what can be recycled into their blue bins. They also separate out the valuable organics and put them in the green bin. As a result, Torontonians doubled the residential waste diversion rate from 25 % to 49% from 2000 to 2011.¹

TABLE 1: TORONTO'S RESIDENTIAL WASTE DIVERSION RATE¹



Unfortunately, not everyone is able to divert as much as they can. Roughly half of Toronto residents live in multi-residential buildings, and very few of them have access to green bins at home.

Outside the home, things are even worse: few schools and shopping malls have blue bin and green bin services; and at the workplace (including offices, manufacturing and construction) most waste ends up going straight to landfill.

Torontonians want to divert more waste - 94% of households with a blue bin use it, and 87% of those with a green bin use it.² What they need is City Hall to make sure they have the tools, training and resources to do so.

While this report focuses mostly on diverting waste at home, it also sets out what the city should do to help Torontonians divert waste at work and at school.

WASTE DIVERSION 101

Waste diversion is keeping waste out of a landfill or incinerator by reducing, reusing, recycling or composting it. Waste diversion is good because landfills and incinerators harm the environment and because they are becoming increasingly expensive to site, build and operate.

Toronto's goal is to divert 70% of residential waste every year, so that only 30% goes to Green Lane, the city-owned landfill site located outside of London, Ontario.

Torontonians have many diversion tools: blue bins, green bins, yard waste collection and bulky furniture recycling. Other waste diversion options such as collecting electronic waste (eg. TVs, computers and old stereos) and household hazardous waste also keep dangerous substances that can pollute local ecosystems out of our landfill.

What happens to the waste we divert?

Blue bin recyclables picked up curbside are delivered to city-owned Material Recovery Facilities (MRFs), where optical sorters and staff separate paper, plastics, metal and glass. From there, materials are baled up and sold to contracted recyclers.

Green bin organics picked up curbside are delivered to either the city-owned Dufferin composting facility, or delivered to a private contractor for processing. Plastic bags and other residue are removed, and the organics are digested to create compost. The compost is sold to a contractor that sells it as a soil amendment.

Yard waste is collected curbside, as well as from city parks and properties, and composted at city facilities.

Bulky, durable goods that are placed at the curb are picked up by city collectors. Material that is recyclable is brought to the Cherry Street Reuse Centre, the rest is sent to landfill. At the Reuse Centre, bulky items like mattresses, carpets, ceramic toilets and sinks, large plastic furniture, metal and clean wood are sorted and sold to contracted recyclers.

Electronic waste collected at the curb is sorted at the Cherry Street Reuse Centre, then delivered to a contracted recycler to safely dismantle and recycle electronic waste.

Household Hazardous Waste is collected at depots, at Community Environment Days, and in the Toxic Taxi, and delivered for safe handling by a contracted HHW handler.

What happens to the garbage?

Waste that ends up in a garbage is collected curbside and the material is taken to one of 7 city-owned transfer stations and delivered to the Green Lane landfill. However, it's important to note that waste put out as garbage still contains products that could be recycled or composted (read more about this in Appendix 1).

To maximize diversion, the city has planned to build a mixed-waste processing facility at Green Lane. The facility will sort through waste to remove recyclables and organics, and reduce the amount of waste by 65% extending the life of the Green Lane landfill.

Who pays for our waste costs?

Municipal waste management services are paid for through user fees or taxes by residents, businesses and institutions. Some costs are also recovered by selling recyclable material.

Cities are responsible for the cost, despite the fact that they have no control over the waste they receive. They are left picking up the tab to handle increasingly complex packaging and product waste. The producers that make choices about how reusable, recyclable or hazardous their products and packaging are don't have to pay for those choices.

The Province, like other jurisdictions across Canada and the US, is moving forward on important Extended Producer Responsibility (EPR) legislation that will ensure that municipalities no longer subsidize wasteful packaging and product choices of companies. We've made a start with a number of EPR regulations – some types of waste collected by the city is paid for by the producers (called product stewards), including blue bin material and electronic waste.

Unfortunately, product stewards only cover a portion of the costs for only a fraction of the materials the City collects. Toronto had only 38% of the blue bin recycling costs reimbursed in 2010 – full funding for the blue bin alone would provide an additional \$26 million in revenue.³

The Province was working to improve stewardship programs to cover more materials and to ensure that fees are high enough for cities to cover their recycling and waste handling costs.

This includes covering 100% of curbside recycling, and new programs to cover the cost of recycling durable goods and branded organics. See an outline of key stewardship programs and EPR in Appendix 2.

The Province's important progress on waste programs and expanding EPR programs has stalled for over two years. However, as waste policy in Ontario and across Canada moves towards making producers pay for the full life cycle of products they sell, the inevitable result will be that the cost to municipalities for waste diversion will go down in the long term.

THE MANY BENEFITS OF WASTE DIVERSION

Waste diversion isn't just worth doing because it's what Torontonians want, it's worth doing for other good reasons: it's better for the environment, supports a local green economy, and it's the most cost effective way to manage waste in the long term.

Waste diversion is the best thing for the environment

By achieving 70% diversion, Toronto will reduce its greenhouse gas emissions by 155,000 tonnes, which is equal to taking over 25,000 cars off the road.⁴ Also, reusing and recycling materials means the energy that went into making the product isn't thrown away.

More importantly, waste diversion avoids the many negative environmental impacts that result from disposal. The leaching of hazardous materials into soil and groundwater in landfill sites is extremely harmful to the ecosystems in which they are located. As well, noise, odour and visual impacts of landfills harm the health and well-being of local residents.

Disposal of waste through incineration, 'thermal treatment', or 'energy from waste', is also rife with negative environmental impacts:

- Burning waste creates a range of unknown toxic emissions and ash since the garbage 'feedstock' is unpredictable and may contain hazardous materials.
- Energy-from-waste relies on burning material with a high energy value: organics and plastics. However, these are the materials we can and should be diverting.

Waste diversion creates green jobs here in Toronto

Waste diversion creates economic activity in Toronto through the sorting and processing of recyclable materials and by supplying manufacturers with recycled materials. There is steady demand for many metals and paper, as well as growing demand for many recycled plastics.

There are 7 jobs created for every 1,000 tonnes of waste diverted in Ontario versus 1 job for the same amount of waste disposed (in landfill or incinerator).⁵ Using these numbers, Toronto's 2011 diversion of nearly 400,000 tonnes created up to 2,800 jobs in Toronto and Ontario.

TABLE 2: JOBS CREATED IN ONTARIO BY WASTE DIVERSION AND DISPOSAL PROGRAMS ⁵					
	Blue Box	Hazardous & Special Waste	Electronic Waste	Total Recycling	Waste Disposal
Tonnes	902,500	16,340	18,700	937,540	9,375,000
Jobs	4,875	140	1,145	6,160	6,245
Jobs/1000 tonnes	5.4	8.7	61.1	6.6	0.7

Waste diversion is the most cost-effective, in the long run

Right now, waste diversion costs are higher than disposal costs. A key reason for this is that Torontonians still heavily subsidize the cost of our blue box and other diversion programs (See above Who pays for our waste costs?). However, as waste policy in Ontario and across Canada moves towards making producers pay for the full life cycle of products they sell, the inevitable result is that the cost to municipalities for waste diversion will go down.

Meanwhile, the costs of disposal will keep going up. Finding a location for a new landfill with willing hosts will become increasingly rare. Communities across Ontario and the US have made it clear that Toronto’s garbage is not welcome. Even if land is found, the approvals process is expensive and time consuming; the Environmental Assessment for a landfill could cost up to \$100 million, and last 10 years or more, with no guarantee for approval at the end of the process.⁶ Add to this the purchasing cost of a landfill: the Green Lane landfill cost the city over \$220 million. Finally, there are the long term management costs of retired landfills – Toronto spends \$6 million every year to manage retired landfills.⁷ Adding up the numbers shows that landfill costs will only go up, along with the uncertainty of actually finding and getting approval for a new landfill.

Given these facts, extending the life of the Green Lane landfill through increased diversion is the best option. Without any new diversion, Toronto’s Green Lane landfill will be full by 2026. Getting to 70% diversion would extend Green Lane’s capacity by almost a decade to 2034.⁸ Higher diversion rates can extend that capacity even further.

Incineration, or any ‘thermal treatment’⁹ of waste is even worse financially than dumping it.

Similar to landfills, siting incinerators requires a willing community and an expensive and time-consuming approvals process. The cost to develop and run an incinerator is significantly higher than a landfill, as Table 3 shows. Proponents have suggested incinerators create “green” or “renewable” energy. However, the Provincial Government has made it clear that “energy from waste” facilities do not qualify for any preferential rates under the Green Energy Act, and are not considered renewable or green power.¹⁰

Municipalities that send their waste to energy-from-waste facilities or incinerators sign a contract with a “put or pay” provision that guarantees a minimum tonnage of waste, or payment of a fee to the operator. This becomes a disincentive to divert waste and recycle useful resources.

Finally, when provincial regulations change to make product stewards (the producers of goods and packaging) pay the full costs for diverting products they produce, diversion costs for Toronto residents will go down. These revenues will be lost if recyclable products are burned or dumped. Because of this and the ever-growing costs of dumping and burning, waste diversion will become the most cost effective way to handle Toronto’s waste.

TABLE 3: DISPOSAL OPTIONS FOR TORONTO - CAPITAL AND OPERATING COSTS¹¹

Disposal option	Capital Cost (M)	Lifetime Capacity (000 Tonnes)	\$ / Tonne Capital	\$/Tonne Operating	Share of Energy \$	Net \$/ Tonne
Green Lane Landfill	\$220	15,200	\$14.50	\$33.50	\$2/t	\$46/t
Proposed Mixed Waste Processing at Green Lane¹²	\$220	7500	\$33.00	\$90.00	\$3.60/t	\$120/t
Durham Energy-from-Waste incinerator	\$272	3,500	\$77.50	\$121.00	\$61.50/t	\$137/t
Peel Energy-from-Waste incinerator	N/A	4,000	N/A	\$110 - \$120	0	\$110-120 ¹³

THE STATE OF WASTE IN TORONTO¹⁴

Nearly a million households have their waste picked up by the city each week, along with 20,000 businesses, schools, charities, institutions and religious organizations. However, despite being served by the same city, actual diversion services and rates between these groups varies widely.

TABLE 4: RESIDENTIAL WASTE DIVERSION

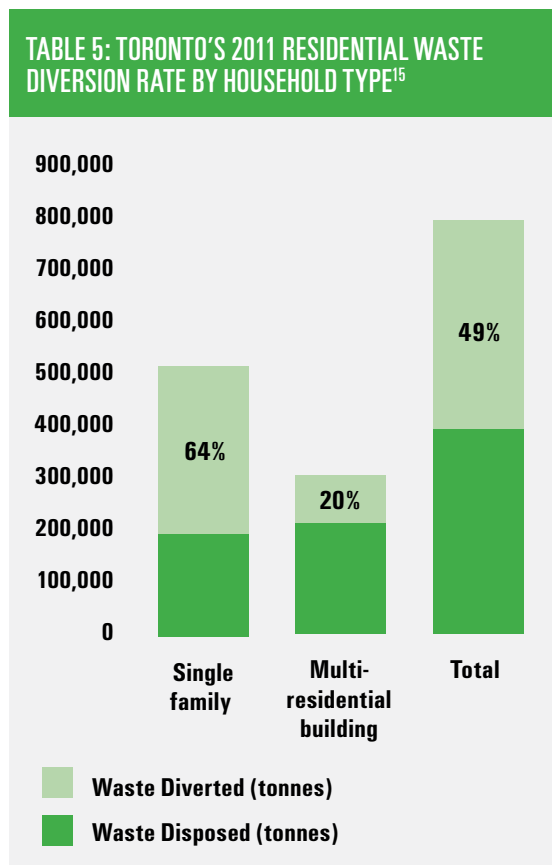
Toronto waste	Tonnes
<i>Diversion Services provided by City</i>	
Blue Bin	146,538
Green Bin	100,663
Leaf & Yard waste	84,297
Environment Days / Depots	2,713
Appliances / Scrap Metal	3,614
Electronics	1,719
Household Hazardous Waste	1,544
<i>Diversion promoted by City</i>	
Backyard Composting	18,970
Grass-cycling	17,116
LCBO & Beer Store Deposit return	14,409
TOTAL Diverted	391,610
TOTAL Waste	799,812
Diverted	49%

Diversion rate

Toronto residents generated nearly 800,000 tonnes of waste in 2011, and just under half of this was diverted from landfill. This put Toronto’s residential waste diversion rate at less than 50% – far lower than the City’s target of 70% by 2010 – largely because of cuts to services and delays for new diversion programs.

Looking closely at the numbers, Toronto’s residential waste diversion rate depends on where you live: Single family homes in Toronto have a diversion rate just under 65% – not far from the 70% target. But multi-residential buildings divert only 20% of their waste, largely because of a lack of green bin access.

Toronto is struggling to reach 50% waste diversion from landfill – primarily because multi-residential buildings don’t have green bins.



Waste diversion outside the home

Outside the home, Torontonians still want to divert waste when they’re given the opportunity. The nearly 15,000 small businesses with City collection services use green bins and blue bins to divert approximately 66% of their waste!¹⁶ Toronto public schools divert 50% of their waste, though only a handful have green bins. City Agencies, Boards, Commissions and Divisions (ABCDs) divert anywhere from 20 to 80% of their waste with an average of just under 50%.¹⁷

Unfortunately, there is no data on the waste generated by the majority of businesses in the industrial, commercial and institutional (IC&I) sector in Toronto. Provincial estimates say the IC&I sector is responsible for 60% of the waste produced in Ontario. Sadly, the provincial IC&I diversion rate has actually decreased in the last decade, and was at a shockingly low 13% in 2010.¹⁸

RECOMMENDATIONS: A BETTER WAY FORWARD

In 2007, Toronto Council set a residential waste diversion target of 70% by 2010. Despite significant delays, a target of 70% is still achievable by 2015, and an even higher diversion target over 80% is entirely within reach if the recommendations below are implemented.

It's also time that the City of Toronto helped Torontonians divert waste where they work. The recommendations below begin the process of providing tools that will dramatically expand the waste diverted in Toronto's industrial, commercial & institutional (IC&I) sector.

EFFECTIVE WASTE DIVERSION PROGRAMS NEED EXCELLENT OUTREACH TO ENGAGE AND SUPPORT RESIDENTS, BUSINESSES, AND NON-RESIDENTIAL CUSTOMERS.

Packaging and product materials change all the time, and waste diversion services change regularly to try to keep up. Moreover, what's recyclable at home isn't always what you can recycle at work or school. This confusing situation requires constant education, reinforcement and outreach to engage the public on what and how to recycle, in order to keep diversion levels high and contamination levels low.

A 2006 survey of GTA residents indicated that 97% of people believed that increased education and promotion were needed to improve recycling rates; 40% admitted they couldn't keep up with program changes and service additions.¹⁹

That's why a good waste diversion strategy relies heavily on education about changing waste diversion programs and consistent messaging to reinforce good diversion habits. Toronto's education and promotion materials are effective, and staff efforts to make simple messages have worked. However, much more active outreach and promotion is needed, especially among the more complex environment of multi-residential buildings and the commercial sector.

Education and communications need to be considered as essential to all waste services, with appropriate funding. In spite of the importance of education and outreach, the waste communications budget was cut in 2011 by almost \$300,000, eliminating four staff positions. These positions need to be restored to provide communications for all city waste customers, in addition to the recommended staff positions mentioned below.

RECOMMENDATION 1: GET GREEN BINS INTO ALL MULTI-RESIDENTIAL BUILDINGS BY THE END OF 2013

- A) Provide dedicated staff to increase support for multi-residential property managers.
- B) Provide adequate funding for the 3Rs Ambassador program to support diversion outreach and training for residents.

ESTIMATED INCREASE IN RESIDENTIAL WASTE DIVERSION RATE: 10-16%

The most important and effective way to achieve higher diversion in Toronto is by getting green bins into multi-residential buildings, now. **Half of Toronto residents live in multi-residential buildings, but less than 20% of the 4500 buildings across the city have green bins.**²⁰ Getting green bins into all multi-residential buildings will increase the city-wide residential diversion rate by up to 12% and save almost 100,000 tonnes of organic waste from landfill.²¹

With effective outreach to achieve high levels of green bin participation, blue bin recycling will also improve. If recycling participation and material capture rates approach the level of single family households, the city-wide residential diversion rate would increase by an additional 4%.²²

Multi-residential buildings across the city have been invited to use green bins, but building managers are slow to introduce them despite the financial incentive of lower waste fees. It's clear that building managers and residents need additional outreach and support to achieve high waste diversion.

A. Provide dedicated staff to increase intensive support for multi-residential property managers and staff.

Studies show that a combination of approaches is needed to increase blue and green bin use in multi-residential buildings. Factors for high diversion include good infrastructure such as clear signage and convenient sorting facilities, ongoing education and reinforcement of messages, and reward systems. However, the most important factor is active and supportive property managers and on-site staff (superintendents) to implement and maintain diversion efforts.²³

Dedicated city staff can provide support to property managers by offering intensive training and support including site visits, workshops and meetings. 22 dedicated staff would allow one staff person to provide intensive support for 200 buildings.

B. Expand the 3Rs Ambassador program to support diversion outreach and training for residents.

The 3Rs Ambassador program is a low-cost program that leverages hundreds of volunteers to engage residents of multi-residential buildings in recycling – approximately 180 ambassadors currently operate in 184 buildings.²⁴ Ambassadors are trained and supported by city staff to promote waste diversion in their buildings by hosting events, updating signage in public spaces, and working with property managers.

With 4 additional staff, the 3Rs Ambassador program could be aggressively expanded to thousands more multi-residential buildings across Toronto.

Financial Impact

The current budget has already set aside funding for green bins for multi-residential customers. What's missing is sufficient funding for education and communications. Combined with restoring the 4 communications positions cut in 2011, adding 26 positions requires an additional \$2.25 million in staffing. Toronto can increase its residential waste diversion rate by between 10-16% by getting green bins in all multi-residential buildings with an investment of \$2.25 million.²⁵

RECOMMENDATION 2. BUILD THE FACILITIES NEEDED TO DIVERT TORONTO'S WASTE

- A) Invest in more city-owned and city-operated organics processing facilities.**
- B) Expand durable goods diversion at Reuse Centres.**
- C) Build the Mixed Waste Processing facility at Green Lane to divert waste.**

ESTIMATED INCREASE IN RESIDENTIAL WASTE DIVERSION RATE: 15%

Torontonians do their part to divert waste at the source – the city must ensure the right diversion facilities are in place.

A. Invest in more city-owned and city-operated organics processing facilities.

The city delayed expanding organics collection to multi-residential buildings because there isn't enough processing capacity to compost what's collected in green bins.²⁶

Currently, the city sends roughly 70,000 tonnes of organics to private compost facilities at different locations, and processes another 30,000 at the city-owned Dufferin facility. Unfortunately, increasing diversion by collecting more organics was not an option – private organics processors faced fines and shut-downs in recent years due to odour violations, making them unreliable and leaving the city few options. In addition, other Ontario municipalities are competing for private contracts – Guelph and York Region have recently had to send organics to New York state due to insufficient capacity in Ontario.²⁷

Private processors are not only unreliable, but sending organics to private processors costs approximately \$143 per tonne, while processing it in-house costs just \$102 per tonne.²⁸

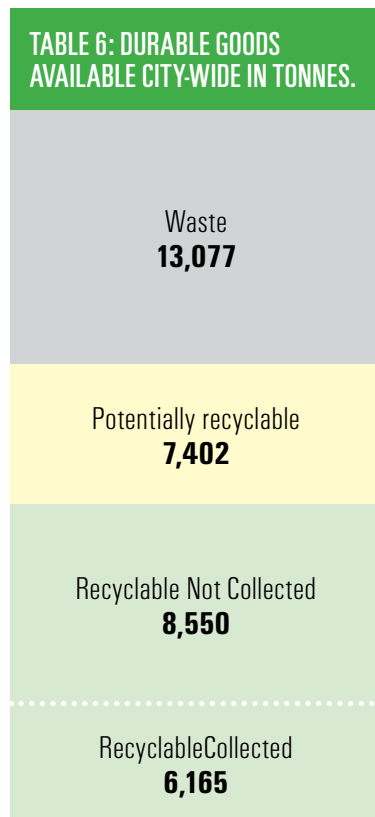
Considering both capital and operating costs, a city-owned and operated organics facility costs about the same as a private processor currently does.²⁹ However, a city-owned facility provides a much higher level of reliability and certainty.

Fortunately, new city-owned organics processors are under construction – a new composting plant is being built, and the current Dufferin facility will be expanded. Together these will manage 140-160,000 tonnes of Toronto's organic waste, and generate green energy as biogas.³⁰ This leaves up to 60,000 tonnes still being sent to private processors.³¹

As green bins roll out to families in multi-residential buildings, schools, and as enhanced organics collection is offered to commercial customers, Toronto's organics volume will increase significantly. Toronto should build another 50-75,000 tonnes of organics processing capacity. Based on the cost of the Disco composting facility, the capital costs will be in the \$50-60 million range.³²

B. Expand durable goods diversion at Reuse Centres.

Toronto's durable goods recycling centre could be diverting at least double what it is now, and new recycling markets could increase that even further.



The Cherry Street Reuse Centre dismantles and diverts bulky durable goods – including appliances, mattresses, carpets, plastic outdoor furniture and toys. Of the estimated 35,000 tonnes of durable goods picked up by the city from single family and multi-residential buildings, the majority of it could be diverted. 42% (about 15,000 tonnes) is currently recyclable, and another 21% (about 7,400 tonnes) is likely recyclable in the near future.³³ However, the City is currently only collecting about 6,165 tonnes, less than one third of the recyclable waste.

Read more about the waste collected at the Reuse Centre in Appendix 3.

With additional Reuse Centres, the full volume of recyclable durable goods could be collected and diverted, increasing the city-wide diversion rate by 1%. Finding new markets to process the potentially recyclable materials could help Toronto achieve another 1% diversion.³⁴

Plans to build more Reuse Centres were delayed by budget cuts in 2010 and 2011. Funds have already been set aside to build three more large Reuse Centres for just under \$25 million in capital costs. When fully operational in 2015, these will require an additional \$4.2 million in operating costs for increased staffing and diversion.³⁵

C. Build the Mixed Waste Processing facility at Green Lane now to increase the diversion rate by 13%.

While residents and businesses do their part to sort their waste, significant recyclables and organics still end up in the garbage bag (see Appendix 1). A mixed-waste processing facility at the Green Lane landfill will sort garbage destined for landfill and pick out the residual recyclable and organic material to help on the road to 80% diversion.

The chosen technology is Mechanical and Biological Treatment that will sort recyclables from the garbage, followed by Anaerobic Digestion to create a lower-grade compost and generate Biogas from the organic matter. Overall, this facility will increase Toronto's waste diversion rate by another 13%.³⁶

Since 2008, the City has been planning to build a Mixed Waste Processing facility at the Green Lane landfill to further sort waste in the garbage stream – but plans have been delayed a number of times.

The facility was put on hold in part because the Province delayed new compost standards that would allow the facility's compost output to be considered diversion. Fortunately, the new compost guidelines were released in September, 2012, and the City can get back on track with this system.³⁷ The cost for building this Mixed Waste Processing facility is about \$210 million

Read more about the mixed waste facility in Appendix 4.

Financial Impact

The costs for building the facilities required to increase waste diversion will be about \$285-305 Million. Annualized over 20 years, this works out to \$15 million per year to increase diversion by 15% per year and lengthen the life of the Green Lane landfill.

Operating costs for the organics processor and the mixed waste facility are not included in this estimate because they are very difficult to calculate. Consider: if these facilities were not built, organics and durable goods would still have to be sent to the Green Lane landfill site. Filling up the landfill faster not only impacts landfill operating costs but future capital costs for securing a new landfill site. Therefore, to determine the operating costs for the new facilities mentioned above, one would need to first subtract the avoided landfill operating costs plus some percentage of the avoided capital costs for a new landfill. Developing this calculation is beyond the scope of this report.

RECOMMENDATION 3: TARGET COMMERCIAL AND NON-RESIDENTIAL WASTE DIVERSION

- A. Increase the number of Toronto businesses and groups served.**
- B. Investigate mandatory recycling and green bin use for all Toronto businesses and multi-residential buildings.**

ESTIMATED INCREASE IN NON-RESIDENTIAL WASTE DIVERSION RATE: UNKNOWN

Beyond the residential sector, Toronto can push even further with waste diversion: **The industrial, commercial & institutional (IC&I) sector generates over 60% of waste in Ontario, but the average diversion rate is estimated at 13%.**³⁸

Provincial regulations only require that a portion of the IC&I sector diverts any waste at all, but there is minimal reporting, and no regulations for smaller businesses or institutions. The provincial government has repeatedly admitted there is a need for better reporting and increased diversion from the IC&I sector, and additional regulation to increase waste diversion across Ontario.³⁹

A. Increase the number of businesses and groups served.

Toronto serves over 20,000 small businesses, institutions and other non-residential groups. Small businesses with City collection use blue and green bins to divert an average of 66% of their waste, far higher than the provincial average.⁴⁰ Unfortunately, many small businesses and groups are not eligible for city waste collection.⁴¹

There is room to expand: Toronto is home to nearly 85,000 businesses, including up to 18,000 food-related businesses.⁴² Offering the affordable, high quality and wide range of diversion services to more businesses in Toronto would not only increase diversion across the city, but support the local economy.

To increase waste diversion in the commercial and non-residential sector, re-examine and revise the commercial waste customer eligibility criteria, waste fees and service options to expand the groups served.

B. Investigate policy options for mandatory recycling and green bin use for all Toronto businesses and multi-residential buildings.

Many businesses, institutions and multi-residential buildings do not receive Toronto solid waste services, and are only required to provide minimum recycling services under Provincial legislation. This not only sends too much waste to landfill, but adds to the confusion of Toronto residents faced with different diversion systems at home, work, place of worship or school.

Other municipalities have by-laws that govern private non-residential waste generated within the city limits, requiring waste diversion and banning materials from disposal (Owen Sound and the Halifax Regional Municipality).⁴³

Considering the benefit to the environment, the City should investigate policy options to require waste diversion among all multi-residential buildings and businesses located in Toronto.

Financial Impact

Increasing the number of businesses served would have minimal or no financial impact since business customers pay waste fees to cover their waste costs.

RECOMMENDATION 4. SUPPORT DIVERSION WITH STRONG POLICY AT THE CITY AND PROVINCIAL LEVEL

- A. Urge the Province to ensure provincial Extended Producer Responsibility (EPR) programs sufficiently fund municipal curbside and municipal depot diversion costs.**
- B. Enforce Toronto's waste diversion by-law that requires Toronto waste customers to use all available waste diversion services.**

ESTIMATED INCREASE IN WASTE DIVERSION: 1%

A. Urge the Province to ensure provincial stewardship programs sufficiently fund municipal curbside and depot diversion costs.

Toronto, along with municipalities across Ontario, needs to continue to urge the Province to create policies that protect the environment and reduce solid waste management costs.

In 2010, Toronto's Blue Box costs were about \$42.4 million, after the sale of recyclable materials. Toronto's municipally-run blue box curbside system is an effective way of collecting and diverting recyclable materials. Yet, product stewards (the companies whose products were collected in the blue bin) only paid the city \$16.2 million - just over 38% of the net costs. Comprehensive Extended Producer Responsibility (EPR) programs would make product stewards pay the full costs. For the blue bin program alone, the City would realize another \$26 million in annual revenues.⁴⁴ Added to full costs recovered for other EPR programs such as electronic-waste and hazardous materials, and the revenue would be even higher.

The Province was working to expand EPR in Ontario, but stalled in 2010. EPR programs were being revised to fund 100% of blue bin material, some branded organics, durable goods (mattresses, appliances) and municipal hazardous waste. The Province needs to hear from Toronto and other municipalities that these programs are essential.

B. Enforce Toronto's waste diversion by-law that requires Toronto waste customers to use all available diversion services.

Part of the Target 70 plan included better enforcement of Toronto's waste diversion by-law⁴⁵ and in 2011, Solid Waste was working on enforcement options with Municipal Licensing & Standards.⁴⁶ By-law enforcement would primarily be an additional tool to provide education and outreach to reduce contamination and increase diversion. Enforcement activities would consist of written warnings, educational materials, waste audits and small fines.

Enforcement of the by-law could be carried out by dedicated staff as well as education and outreach staff hired to implement diversion in multi-residential buildings (outlined in Recommendation 1). Enforcement would help Toronto achieve another 1.25% residential waste diversion from landfill, and this could be much higher among non-residential waste customers.⁴⁷

Financial Impact

Effective Extended Producer Responsibility in Ontario would save the city tens of millions of dollars annually. As noted above, recovering all blue bin collection and recycling costs would bring in a minimum \$26 million annually. Additional EPR programs for branded organics, durable goods and more hazardous materials would cover the full cost of almost all of Toronto's waste diversion collection and processing.

Waste diversion by-law enforcement could be carried out by 5 additional staff to reach single-family and non-residential waste customers at a cost of 375,000.⁴⁸ Enforcement for multi-residential buildings could be carried out by dedicated education and outreach staff hired to support diversion programs (noted in Recommendation 1).

CONCLUSION

Torontonians love diverting waste from landfill. This report makes it clear why this love affair should be encouraged: waste diversion is the best environmental, economic and financial approach to dealing with our garbage. In particular, waste diversion:

- **creates 7 jobs for every 1,000 tonnes of waste diverted in Ontario versus 1 job for the same amount of waste disposed (in landfill or incinerator), and:**
- **avoids the significant environmental and financial problems associated with landfills and incinerators.**

The city's current waste diversion system needs improvement. The key recommendations set out in this report show how this can be done. Table 7 summarizes what impact implementing these recommendations would have on the city's diversion rate and waste diversion costs.

TABLE 7: SUMMARY OF RECOMMENDATIONS AND IMPACTS			
Recommendations	Increase in Diversion Rate	New Annual Capital (amortized 20 yrs) \$ Million	New Annual Operating \$ Million
1 a. & b. Get green bins into multi-residential buildings	10-16%	None	\$ 2.25
2 a. Build more compost facilities	See above	\$2.5-\$3.0	n/a
2 b. Build more ReUse centres	1-2%	\$1.25	\$4.2
2 c. Build a mixed waste facility at Green Lane	13%	\$10.5	n/a
3 a. Increase services to IC&I sector	Unknown	Cost neutral	Cost neutral
3 b. Investigate waste diversion bylaw for IC&I	Unknown	Cost neutral	Cost neutral
4 a. Push for Provincial EPR programs to pay for city waste diversion costs	n/a	None	-\$26 or more in new revenues
4 b. Enforce Toronto's waste diversion by-law	1%	None	\$0.37
Total	25-32%	\$14.25-14.75	\$6.8

Combined, these actions would improve Toronto's residential waste diversion rate beyond 70%, to 80 or higher. With new tools to help Torontonians divert waste through the IC&I sector, Toronto's waste diversion will be even better.

Assuming these waste diversion rates lead to an additional diversion of between 216,000 and 280,000 tonnes annually, these actions could create an additional 1,400 to 1,800 green jobs, many in Toronto.⁴⁹

Financially, these actions will require new investments in waste diversion programs, education, and infrastructure. Annualized, new capital costs will be in the range of \$14-15 million per year. New operating costs will be around \$6.8 million per year plus any net operating costs that need to be calculated for the organics and mixed waste facilities (see above). Importantly, the entire cost of effective diversion can be offset when provincial waste policies progress to require full cost recovery Extended Producer Responsibility programs. Put simply, Torontonians love affair with waste diversion could help us reach a waste diversion level of over 80% and help create up to 1,800 new green jobs!

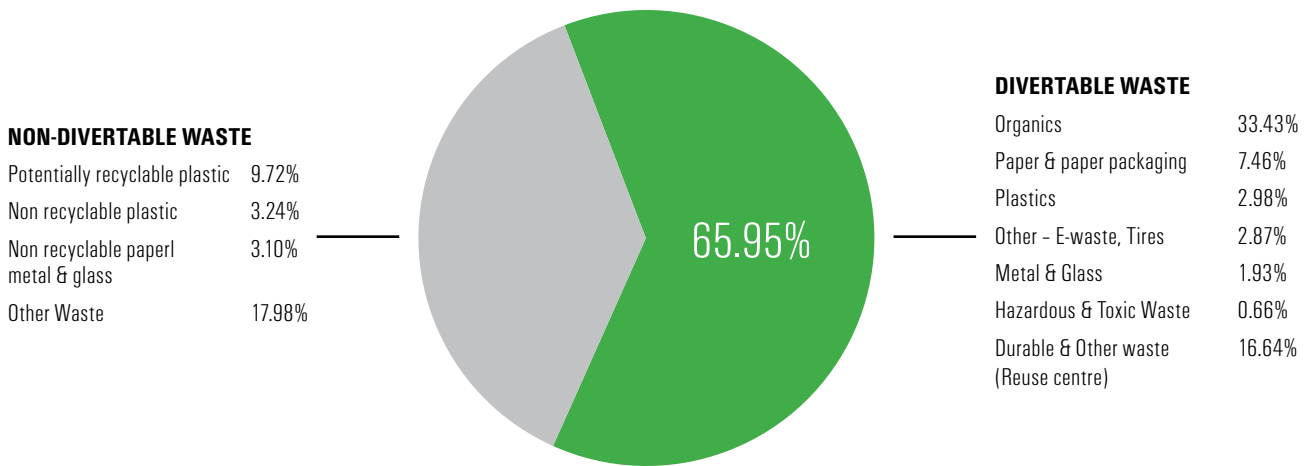
APPENDIX 1

What's in your garbage?

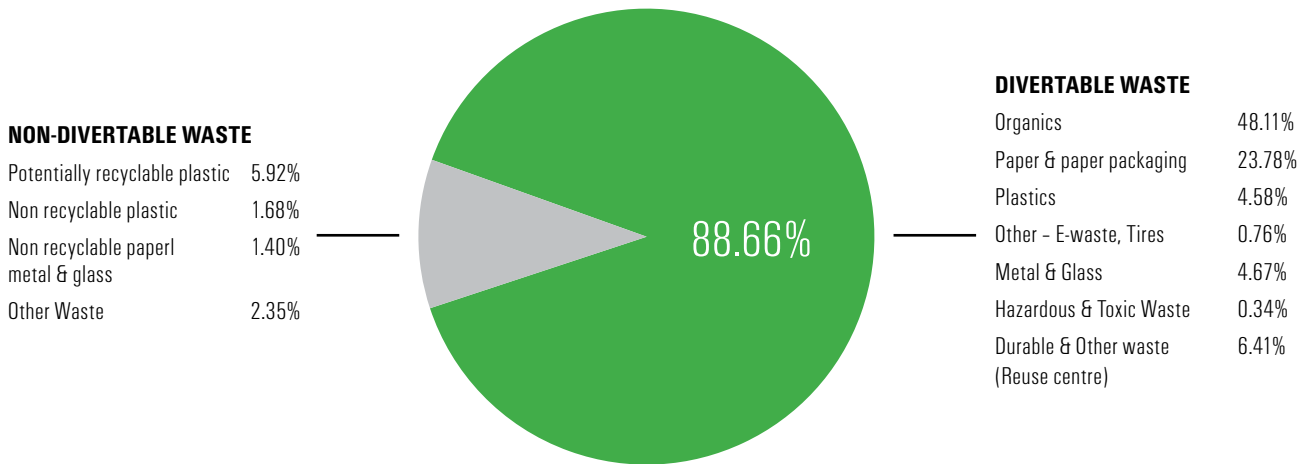
The average Toronto household can divert even more than they already do – **66% of what single family households put out as garbage is actually recyclable or compostable, 89% of what multi-residential households put out as garbage is recyclable or compostable.**

WASTE SET OUT FROM TORONTO HOUSEHOLDS - 2010, 2011

SINGLE FAMILY WASTE - IN RESIDUAL STREAM



MULTI FAMILY WASTE - IN RESIDUAL STREAM



Contents of average 'waste' bin, after 65% diversion of material to blue bin, green bin, yard waste and e-waste pick up. Shows that two-thirds of what we put out as 'waste' is still recyclable

Data from waste audits of single-family and multi-residential households from 2010 and 2011.

APPENDIX 2

Extended Producer Responsibility & Ontario policy

Ontario Policy:

The Ontario government undertook a comprehensive policy review of the Waste Diversion Act in 2008. After much consultation and planning, the Province made it clear that moving towards greater Extended Producer Responsibility (EPR) was a top priority to protect the environment, and to ensure that municipalities have sufficient funding to manage municipal waste.⁵⁰

Unfortunately, the review stalled after the 2011 election, and little progress has been made on waste policies and funding programs to support municipal diversion efforts. In 2012, piecemeal reviews to address flaws and internal problems with the programs occurred, though increased funding from producers is not imminent on a number of programs.

EPR Programs:

Waste Diversion Ontario oversees a number of programs (listed below) that require the producers or first importers of products (called product stewards) to cover, or partially cover, the handling and disposal costs of the products and packaging they sell. Most programs transfer the funds to municipalities to cover the city's collection programs, and some others work directly with the consumer.

Blue Box program

Manufacturers of products or packaging that are recycled in blue box programs must contribute fees to cover up to 50% of the net costs of municipal blue box recycling. Due to program formulas, Toronto (and many other municipalities in Ontario) has not received its fair share of the funds, getting closer to 38% of the net costs of the blue box program.⁵¹

Waste Electrical and Electronic Stewardship

This program covers less than a third of consumer electronics, including computers, phones and TVs, and is meant to cover 100% of municipal collection and recycling costs. In Toronto, funding received covers about 60% of the actual cost of collection and recycling.⁵²

MHSW – Municipal Household and Special Waste

Of the 23 types of hazardous waste collected by the City, only 9 are fully paid for by the product stewards, and another 6 types attract limited funding from the Province, leaving 8 fully funded by Toronto ratepayers.

Ontario Tire Stewardship

Covers the full cost of tire collection and recycling in Toronto.

Ontario Deposit-Return Program (ODRP)

The Beer Store and LCBO deposit return program has seen the volume of drink containers collected by cities drop, and diversion across the province increase.

APPENDIX 3

Toronto's durable goods recycling - Reuse Centres

Toronto's Cherry Street pilot Reuse Centre opened in 2008 in an effort to increase waste diversion for large and bulky goods. A key goal of the pilot centre was to identify options for reuse and potential markets for recycled materials. In the 2011 waste budget, the pilot centre became a permanent facility to process up to 14,000 tonnes of durable goods.⁵³ In the 2012 budget, plans to build 3 additional large ReUse centres were outlined to provide a 'one stop shop' location for residents to drop off different types of waste.⁵⁴

Goods processed at the Reuse Centre include large items such as mattresses, carpeting, metal appliances and metal and wooden furniture. Additionally, electronic waste (computers, televisions, stereos) are collected. Some bulky items are disassembled for recycling of component materials.

New Recycling and Recyclables

Most notably, the waste processed at the Reuse Centres include a number of new materials that are not collected at other transfer stations or in curbside recycling. This demonstrates that there are additional diversion opportunities for Toronto's waste. Ontario's recyclers and residents are ready and able to increase waste diversion rapidly and effectively, however they just need the will and facilities to do so.

CHERRY STREET RE-USE CENTRE - 2011 STATISTICS OF MATERIALS PROCESSED⁵⁵

Recycled Material	Total tonnes	% of total
Mattresses, box springs and futons	1814.12	29.42
Scrap Metal	555.88	9.02
Plastics (PET, HDPE, LDPE, PP, PS)	95.35	1.55
Electronics - covered by stewardship fees	1072.3	17.39
Electronics - not covered	15.35	0.25
Ceramics	578.09	9.38
Clean Wood	10.33	0.17
Other recyclables	3.27	0.05
Election Signs	2.8	0.05
TOTAL Recycled	5787.35	67.26
Other Waste	1639.86	

APPENDIX 4

Mixed waste processing at Green Lane: Mechanical Biological Treatment and Anaerobic Digester (MBT-AD) system

As part of the Target 70 plan, Toronto's waste budget has included capital for a mixed waste processing facility at or near the Green Lane Landfill. The purpose of the facility is to do a final pre-landfill sorting of waste to remove recyclables, organics and liquid to achieve another 10% of total waste diversion for Toronto. (See Appendix 1 for a typical breakdown of residual waste for Toronto households).

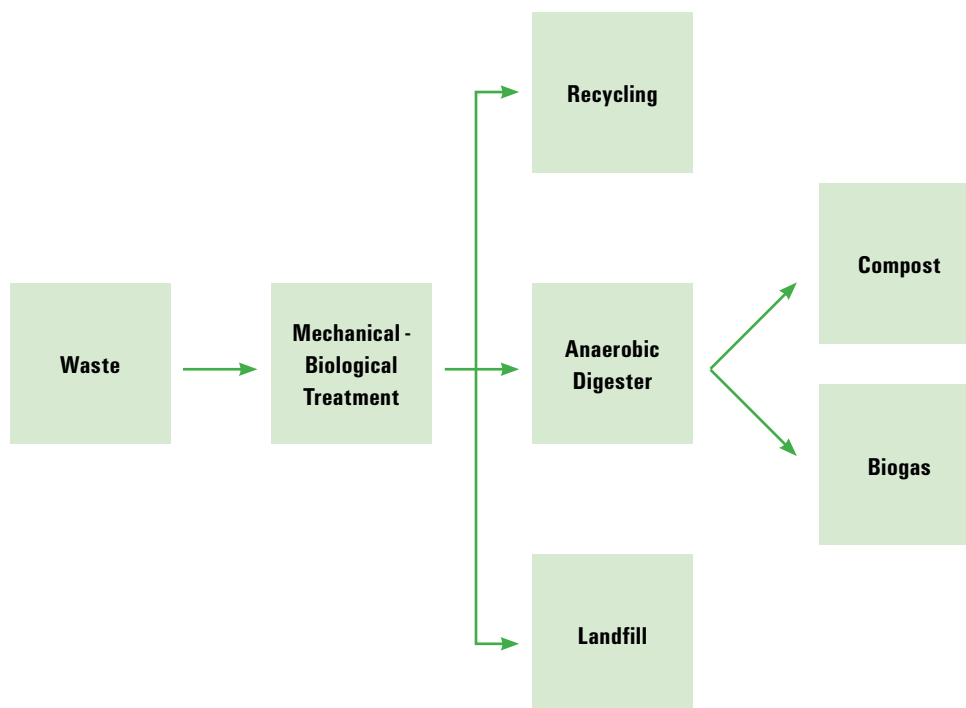
A number of systems were considered based on diversion, performance, cost, environmental impact and required approvals. The selected system is Mechanical and Biological Treatment with Anaerobic Digester (MBT-AD).⁵⁶ The MBT-AD system has an estimated diversion rate of 65%.⁵⁷

The MBT-AD system mechanically separates non-recyclables and recyclables from the waste stream, the remaining is organic material and it is processed to create a lower-grade compost. With the September 2012 announcement of new compost guidelines for Ontario, the compost produced by the MBT facility can now be used in some (non-food) applications, thus, it is considered "diversion".⁵⁸

It is important that a mixed waste processing facility is only one part of a larger waste diversion plan. Recyclables and organics coming from the system are contaminated, and of significantly lower quality than if the material was separated at source.

In 2011 plans for the mixed waste facility changed, calling for a doubling in size for the facility to take in more waste. The reasoning provided is that diversion rates have not increased as quickly as projected in 2009.⁵⁹

SIMPLIFIED SCHEMATIC OF MBT-AD MIXED WASTE PROCESSING FACILITY



ENDNOTES

- 1 Solid Waste Management Services (SWMS) "Multi-Year Business Plan", 2005, and City of Toronto website (<http://www.toronto.ca/garbage/residential-diversion.htm>)
- 2 City of Toronto website (<http://www.toronto.ca/garbage/facts.htm>)
- 3 Waste Diversion "Blue Box Funding Payments 2012" (<http://www.wdo.ca/content/?path=page80+item35760>)
- 4 City of Toronto website (<http://www.toronto.ca/garbage/facts.htm>)
- 5 AECOM "Economic Benefits of Recycling in Ontario" presentation to Ontario Waste Management Association (OWMA), March 7, 2012..
- 6 SWMS report to Public Works and Infrastructure Committee (PWIC) - "Responsibilities of Solid Waste Management Services" March 2011
- 7 SWMS Operating budget, 2011
- 8 SWMS report to PWIC - "Responsibilities of Solid Waste Management Services" March 2011
- 9 There are many different types of incineration and 'thermal treatment' of waste, including variously named types of 'energy from waste' or 'waste to energy' systems including pyrolysis, gasification, plasmification etc.
- 10 Technologies eligible for the Green Energy Act Feed-in-Tariff (FIT) Program must be "Renewable". This includes biogas, biomass, landfill gas, solar, waterpower and wind. Energy from Waste (EFW) is not eligible. (<http://www.energy.gov.on.ca/en/fit-and-microfit-program/2-year-fit-review/glossary/>)
- 11 SWMS report to PWIC - "Responsibilities of Solid Waste Management Services" March 2011
- 12 SWMS report to PWIC - "Responsibilities of Solid Waste Management Services" March 2011. Mixed waste facility capital cost and capacity doubled as per SWMS Capital Budget 2012.
- 13 The Peel Energy from Waste Incinerator was built by a private company, so capital costs are rolled into operating costs.
- 14 All statistics from City of Toronto website unless otherwise noted (<http://www.toronto.ca/garbage/facts.htm>)
- 15 SWMS Budget 2012 – Staff Presentation
- 16 Of 14,800 Yellow Bag commercial customers, 4400 used green bins and the overall diversion rate is 66% - largely attributed to the high percentage of small grocers and restaurant customers with primarily divertible waste. Email from Renee Dello, SWMS October 2012
- 17 Toronto Environment Office "City of Toronto ABCD's Waste Diversion Team: Diverting News 2004-10", August 2011.
- 18 2010 Annual Report of the Office of the Auditor General of Ontario. Chapter 3: Ministry of the Environment "Non-hazardous waste Disposal and Diversion"
- 19 Stewardship Ontario "Communication & Benchmark Survey Enhanced Blue Box Recovery Program - Focus Group Report" March 2006.
- 20 892 multi-residential buildings (743 high-rise and 149 low-rise) have green bins as of October 2012. This represents 20% of the estimated 4500 multi-residential buildings. Email from Renee Dello, SWMS October 2012.
- 21 Multi-residential household waste is between 48 to 60% organic, (SWMS 2010-11 Waste Audits note 48% & Genivar report "Maximizing Residential Waste Diversion in Connection with the Mayor's Tower Renewal Pilot Feasibility Study", 2010 notes average of 61%). Diverting 50% of 2011 total multi-residential waste (275,000 tonnes) at the single family 72% recovery rate (80% participation x 90% capture) is equal to 100,000 tonnes, or 12% diversion city-wide.
- 22 Single family homes have an 87% recovery rate for Blue Box recyclables, while multi-residential households recover only 48% of recyclable material (SWMS 2010-11 Waste Audits). At an 87% recovery rate, an additional 30,000 tonnes would be diverted, equal to 4% city-wide residential diversion.
- 23 Genivar's 2010 Tower Renewal report reviewed data from 7 North American jurisdictions and 8 studies on enhancing waste diversion in multi-residential buildings. SWMS May 2007 report to Executive Committee "Getting to 70%" noted similar results in Appendix E on a pilot study of SSO in multi-residential buildings.
- 24 Conversation with Charlotte Ueta, SWMS, October 2012
- 25 The current budget has already set aside funding for green bins for multi-residential customers. Four education / communications staff were cut from the SWMS Operating Budget 2010 to cut \$300,000 in spending.
- 26 City of Toronto website (<http://www.toronto.ca/garbage/multires>), and SWMS Operating Budget 2011.
- 27 Northumberland News "Trash Troubles: Filling up our landfills with recyclables" Campbell & Dharmarajah. October 19, 2011 and York Regional Council "Report No. 5 of the Environmental Services Committee" May 19, 2011
- 28 SWMS Report to PWIC "SSO Public Facility Business Plan" May 2007, and SWMS "Authority to negotiate and enter into an agreement with AECOM Canada" January 2010. Private processing costs may increase as curbside organics programs are expanded in more Ontario municipalities and competition for contracts increases.
- 29 The final cost of the Disco SSO processing facility is \$77M and will process 2.2M tonnes over 20 years = \$35 capital per tonne (SWMS "Authority to negotiate and enter into an agreement with AECOM Canada" January 2010).
- 30 The new Disco SSO facility will process 90 to 110,000 tonnes and the refurbished Dufferin SSO facility will process up to 50,000 tonnes of organic material per year. SWMS Capital Budget 2012, and SWMS "Authority to negotiate and enter into an agreement with AECOM Canada" January 2010).
- 31 City estimates for total organics tonnage average at 175,000 tonnes (Conversation with Vince Sferazza, SWMS June 2012). If green bin service in multi-residential buildings is pursued aggressively, the total organics tonnage would be higher at 200,000 tonnes or more.
- 32 The new Disco facility will cost \$77 million when complete – SWMS Capital Budget 2012.
- 33 Data from SWMS document "DGMS Estimates City Wide, 2010" – Email from and Conversation with Tim Michael, SWMS, September 2012. "Currently recyclable" material now also includes ceramics and carpets; "Potentially recyclable" material consists of padded furniture.
- 34 Recyclable waste currently not collected is 8,550 tonnes, or 1% of total waste generated. Add 7,402 tonnes of potentially recyclable waste to achieve another 1% diversion.
- 35 As outlined in the SWMS Capital Budget 2012, p15. Additional operating costs will be 1.4 M in 2013, \$2.8M in 2014 and \$4.2M in 2015.

- 36 The MBT facility will divert 65% of the waste received - Initial plans for the facility to receive 120,000 tonnes per year (a fraction of the total waste sent to landfill annually) and would provide an 8-10% increase in the diversion rate (SWMS RFP 9119-12-3061 "Comprehensive business case for 3 approaches to mixed waste processing being considered by Toronto", May 2011). In 2011, plans called for doubling the size of the facility to 240,000 and would provide a higher diversion rate. An aggressive target for organics diversion from multi residential buildings as outlined in Recommendation 1 would reduce the volume of organics in the waste stream going to the MBT facility by about 31,000 tonnes annually. This would reduce the MBT's impact on the residential diversion rate by 3% (ie. 31,0000 of 800,000 tonnes).
- 37 Environmental Registry: Regulation Decision Notice # 010-6658 at www.ebr.gov.on.ca.
- 38 2010 Annual Report of the Office of the Auditor General of Ontario. Chapter 3: Ministry of the Environment "Non-hazardous waste Disposal and Diversion"
- 39 2010 Annual Report of the Office of the Auditor General of Ontario. Chapter 3: Ministry of the Environment "Non-hazardous waste Disposal and Diversion" & Environmental Commissioner of Ontario (ECO) 2010/11 Annual Report, section 5.
- 40 Of 14,800 Yellow Bag commercial customers, 4400 used green bins and the overall diversion rate is 66% - largely attributed to the high percentage of small grocers and restaurant customers with primarily divertable waste. Email from Renee Dello, Oct 2012
- 41 Commercial "Yellow Bag" collection eligibility here: http://www.toronto.ca/yellowbag/e_criteria.htm
- 42 Total businesses from "Toronto Economic Indicators", September 2012; Food-related business statistics from Toronto DineSafe website (<http://app.toronto.ca/food2/FDFAQRegular.jsp>)
- 43 Owen Sound By-law 2006-001 Mandatory Recycling By-law ; Halifax Regional Municipality Solid waste By-law S-600
- 44 Waste Diversion Ontario "Blue Box Funding Payments 2012" (<http://www.wdo.ca/content/?path=page80+item35760>)
- 45 "No owner shall be eligible to receive or to continue to receive services unless the owner sets out for collection all waste in respect of which the City provides services ..." Toronto Municipal Code – Chapter 844-3 E.
- 46 SWMS report to PWIC - "Responsibilities of Solid Waste Management Services" March 2011
- 47 SWMS "Target 70 Update & Look Forward to 2010" presentation to 3Rs Working Group, January 2010 - notes enforcement would divert an additional 10,000 tonnes, or 1.25% of total waste in 2011.. SWMS Business Plan 2005 estimates enforcement could provide up to 9.2% diversion, however that was prior to volume-based waste fees.
- 48 SWMS May 2007 report to Executive Committee "Getting to 70%", Appendix A, p 26 notes enforcement staff needed.
- 49 Based on 2011 total waste tonnages of approximately 800,000 tonnes annually.
- 50 2010 Annual Report of the Office of the Auditor General of Ontario. Chapter 3: Ministry of the Environment "Non-hazardous waste Disposal and Diversion" & Environmental Commissioner of Ontario (ECO) 2010/11 Annual Report, section 5.
- 51 Waste Diversion Ontario "Blue Box Funding Payments 2012" (<http://www.wdo.ca/content/?path=page80+item35760>)
- 52 SWMS report to PWIC - "Responsibilities of Solid Waste Management Services" March 2011
- 53 SWMS Operating Budget 2011
- 54 SWMS Capital Budget 2012 p. 15
- 55 SWMS Annual Report 2011: Cherry Street Reuse Centre
- 56 Compared with other options including landfilling, incineration, energy from waste, and other forms of pre-disposal treatment, the MBT-AD was considered the most cost-effective, stable and appropriate technology.
- 57 Golder & Associates "Planning study for the assessment of mixed solid waste processing technology and siting options" Work Package 1&2 May 2009, Work Package 3 August 2009 for SWMS
- 58 Environmental Registry: Regulation Decision Notice # 010-6658 at www.ebr.gov.on.ca.
- 59 SWMS RFP 9119-12-3061 "Comprehensive business case for 3 approaches to mixed waste processing being considered by Toronto", May 2011