

**Proposed Initiatives and Financing Model to Get to 70%
Solid Waste Diversion by 2010**

Date:	May 14, 2007
To:	Executive Committee
From:	Geoff Rathbone, Acting General Manager, Solid Waste Management Services Joseph P. Pennachetti, Deputy City Manager and Chief Financial Officer
Wards:	All
Reference Number:	p:/2007/swms/may/011EC.doc

SUMMARY

In order to assist in meeting the waste diversion objectives, it is proposed that the cost of the Solid Waste Management program be removed from the broad property tax base and instead, the City implement a volume-based, solid waste rate structure better related to a property's residual solid waste needs. A volume-based rate structure would provide individuals with the opportunity and means to reduce their generation of waste and in doing so manage their household expense.

This report recommends that Council adopt a goal of achieving 70% solid waste diversion by 2010, and recommends a number of programs and initiatives necessary to achieve the 70% diversion goal.

The report also recommends the establishment of a volume-based rate structure for solid waste services for single and multi-unit residential customers to raise the funds necessary to achieve the 70% diversion goal.

RECOMMENDATIONS

The Acting General Manager of Solid Waste Management Services and the Deputy City Manager and Chief Financial Officer recommend that:

- 1) Council adopt the goal of achieving 70% solid waste diversion by 2010;
- 2) the solid waste initiatives and programs described in Appendix A, to achieve the goal of 70% solid waste diversion by 2010, form the basis of the City's 10 year solid waste diversion plan;
- 3) the Acting General Manager of Solid Waste Management Services be directed to submit progress reports as part of the service planning process describing the status of the various initiatives included in the City's 10 year solid waste diversion plan;
- 4) a volume-based rate system be established, commencing on or about July 1, 2008, for residential solid waste management services based on the principles and directions set out in Appendix B to this report in order to generate sufficient funds to support the programs and initiatives necessary to achieve the goal of 70% solid waste diversion by 2010 and to provide residents with an incentive to reduce or divert solid waste from landfill;
- 5) the commencement date set out in Recommendation (4) be subject to the Province enacting a regulation to allow solid waste management service fees to have priority lien status as requested in Recommendation 6(a);
- 6) the Province of Ontario be requested to make the following short and long-term legislative and/or regulatory changes:
 - (a) short term: to establish priority lien status for solid waste management service fees; and
 - (b) long term: to allow property tax reductions or credits as deemed appropriate by City Council, despite the existence of any legislation or regulation, where the City is providing a service that is currently funded through taxes and subsequently passes a by-law establishing a user fee system to fund that service;
- 7) the Acting General Manager of Solid Waste Management Services in consultation with the Deputy City Manager and Chief Financial Officer and the City Solicitor, be directed and authorized to take all necessary steps to implement the volume-based rate system including the immediate purchase and distribution of residential residual waste containers upon which rates are to be calculated prior to the commencement date;

- 8) subject to the adoption of Recommendation (4), a grant program be established within the 2008 Operating Budget, Non-Program account, in a total amount equivalent to the cost of the existing programs for Solid Waste Management Services as shown in the City's 2007 Operating Budget (i.e. \$183.5 million), prorated based on the implementation date of the volume-based rate system, in order to provide residents with rebates in accordance with the principles and directions set out in Appendix B to this report;
- 9) the grant program and residential rebates provided for in Recommendation (8) be considered in the interests of the City in accordance with section 83 of the *City of Toronto Act, 2006*;
- 10) the Deputy City Manager and Chief Financial Officer be directed to take all necessary steps to implement the billing for the volume-based rate system as part of a water/solid waste bill, to implement the grant program in accordance with Recommendation (8) and, in consultation with the City Solicitor, to bring forward through the 2008 budget process a billing bylaw that sets out necessary billing matters, including billing frequencies, due dates, adjustments and penalties for late payments;
- 11) subject to receiving the legislative/regulatory authority described in Recommendation 6(b), the Deputy City Manager and Chief Financial Officer in consultation with the Acting General Manager, Solid Waste Management Services and the City Solicitor be directed to report back on a tax adjustment program as a long-term measure to replace the grant program described in Recommendation 8;
- 12) the Deputy City Manager and Chief Financial Officer direct proceeds from the volume-based rate system to the Waste Management Reserve Fund and that the Reserve Fund be utilized to fund all of Solid Waste Management Services' net operating expenses and capital requirements;
- 13) the Acting General Manager of Solid Waste Management Services, in consultation with the Deputy City Manager and Chief Financial Officer and the City Solicitor, be directed to report back through the 2008 budget process on the final commencement date, the volume-based rates and the grant amounts for 2008;
- 14) the 2007 approved Capital Budget for Solid Waste Management Services be amended to increase the 2007 Capital Budget by \$28.475 million in total project costs associated with purchase of approximately 500,000 residual waste containers, with 2007 cash flow of \$7.180 million funded from the Waste Management Reserve Fund, and a 2008 commitment of \$21.295 million funded by additional debt financed by the new volume-based rate system;

- 15) the 2007 approved Operating Budget for Solid Waste Management Services be amended by increasing the 2007 Gross Budget by \$2.703 million funded from the Waste Management Reserve Fund, for support of various diversion initiatives;
- 16) the Acting General Manager, Solid Waste Management Services be authorized to issue a Request for Proposals for the supply and delivery of kitchen containers for the multi-unit residential SSO program and replacement green bins for residential green bin program and any other items or equipment necessary for the implementation of SSO initiatives recommended in this report;
- 17) the Acting General Manager, Solid Waste Management Services be directed to expand the existing recycling cart pilot areas to include the proposed residual waste carts and that the information gathered be used to estimate city-wide cart size requirements;
- 18) the Acting General Manager, Solid Waste Management Services be authorized to issue a Request for Proposals for the processing of single stream recyclable material for the tonnage forecasted to result from the implementation of the initiatives recommended in this report and from growth;
- 19) the Acting General Manager, Solid Waste Management Services be authorized to issue a Request for Expressions of Interest (REOI) and, subsequently, a Request for Proposals to the three top qualified respondents from the REOI, for the processing of residual waste for the tonnage of material forecasted to result from the implementation of the initiatives recommended in this report;
- 20) the following three Working Groups be established as set out Appendix C:
 - a) In-store Packaging Waste Diversion Working Group;
 - b) Multi-family Waste Diversion Working Group; and
 - c) 3Rs Working Group;
- 21) the Acting General Manager, Solid Waste Management Services be directed to submit a request to the Provincial and Federal Governments asking that they take immediate steps to implement policies and programs and adopt financial mechanisms to promote, encourage and achieve source reduction or reuse of packaging and products which currently become municipal solid waste;
- 22) the Acting General Manager, Solid Waste Management Services be directed to request the Province of Ontario to take immediate steps to extend the stewardship programs of Waste Diversion Ontario to include, within 24 months, the following classes of waste: green bin organics, electronics, mattresses, furniture, carpets, and sporting goods;

- 23) the Acting General Manager, Solid Waste Management Services be directed to report back to the October 3, 2007 meeting of the Public Works and Infrastructure Committee on specific materials or classes of materials or products, specifically including batteries, light bulbs, paint cans, plastic bags and hot drink cups, that may be suitable for deposit-return or take-it-back programs; and
- 24) the City Solicitor be directed to submit the necessary bills to Council to implement the above recommendations.

Financial Impact

In order to assist in meeting the waste diversion objectives, it is proposed that the cost of the Solid Waste Management program be removed from the broad property tax base and instead, the City implement a volume-based, solid waste rate structure better related to a property's residual solid waste needs. A volume-based rate structure would provide individuals with the opportunity and means to reduce their generation of waste and in doing so manage their household expense.

The proposal is to remove the SWM operating budget of approximately \$183.5 million from the property tax base. In its place, that amount plus an additional amount of approximately \$54 million, necessary to fund the initiatives proposed to achieve the 70% diversion goal, would be charged directly to single and multi-unit residential customers using a volume-based rate structure. It is projected that the rate would be increased annually at a rate of approximately 3.5% to offset the inflation and debt service cost pressures projected for Solid Waste Management Services. It should be noted that at this point population growth has not been included. However, this will be updated annually through the budget process.

There are currently approximately 1,008,000 million residential and multi-residential dwelling units in the City of Toronto. The removal of the \$183.5 million SWM program cost from the residential/multi-residential property classes would result in a reduction of approximately \$101 million for the residential class (approximately \$209 per household per year) and a reduction of approximately \$82.5 million for the multi-residential class (approximately \$157 per household per year). This would be rebated back to solid waste customers as a credit against the rates charged through the new volume-based solid waste bill.

Chart 1 below illustrates the average cost per household based on the proposed funding approach.

Chart 1

	2007 Annual 'Base' Cost				Additional Annual Cost to fund 70% diversion initiatives		Total Annual Cost	
	Estimated Households	% of SWM Budget	\$ M	per household	\$ M	per household	\$ M	per household
Residential - Curb side Pickup	482,000 hh	55%	\$101 M	\$209/hh	\$30 M	\$62/hh	\$131 M	\$271/hh
Multi-Residential – Bulk Pickup	526,000 hh	45%	\$82.5 M	\$157/hh	\$24 M	\$46/hh	\$106.5 M	\$203/hh
	1,008,000 hh	100%	\$183.5 M	\$182/hh	\$54 M	\$54/hh	\$237.5 M	\$236/hh

In the alternative, keeping the SWM costs within the property tax funded programs, would result in a 2.8% tax increase on the residential property class (\$37 million annually), and a corresponding 0.9% tax increase on the non-residential property classes (commercial and industrial - \$12 million, and multi-residential - \$5 million annually) to fund the diversion initiatives.

Toronto’s business sector, other than yellow bag customers, contracts with private haulers for the disposal of its residual solid waste. Given that they do not receive waste collection and disposal services, and consistent with Council’s approved priority to ‘Enhancing Toronto’s Business Climate’, the proposed volume based rate structure for residential solid waste management services will result in a cost avoidance for Toronto’s businesses of all future cost increases for solid waste management, including higher costs of diversion of approximately \$12 million per year, as shown in Chart 2 below:

Chart 2 – Comparison of Incremental SWM Program Funding Requirements
Tax Approach vs. User Fee Approach

	<u>Tax Approach</u>	<u>User Fee Approach</u>	<u>Difference</u>
	<u>Annual</u>	<u>Annual</u>	<u>Annually</u>
Commercial	\$ 11M	0	(\$ 11M)
Industrial	\$ 1 M	0	(\$ 1 M)
	\$12 M	0	(\$12 M)
Residential/Multi-Residential	\$ 42 M	\$ 54 M	\$12 M
Total	\$ 54 M	\$ 54 M	-

Regulatory and Legislative Impediments:

Despite the new broad permissive powers contained in the *City of Toronto Act, 2006* (the “Act”), the City has very little flexibility over the governance of its property tax system. The *Act*, and its associated regulations, continues the same property tax and assessment system previously governing Toronto under the *Municipal Act, 2001*. For example, the current regulations require that any tax shifts or reductions be given in proportion to the current tax ratios and in proportion to assessed property values.

These constraints give rise to two difficulties in implementing a volume-based rate structure for residential solid waste services where the residential/multi-residential property classes are given a property tax credit for the current total costs of solid waste management services: (i) the City is precluded from removing the entire \$183.5 million SWM program cost from the residential/multi-residential property classes; and (ii) any property tax reduction on the residential class must be given in proportion to assessed value, meaning that some properties would receive tax reductions that are much greater and some properties will receive tax reductions that are much smaller than the average fee for base solid waste services.

Possible Solutions:

Short-Term – Grant Program:

In the short-run, the City has the ability in the current legislation to provide a grant program whereby every residential property could be provided a flat rate rebate to offset the \$183.5 million in taxes collected as the solid waste portion of the budget. The use of rebates does not require any legislative or regulatory change, with the exception of a minor regulatory change to allow the City to add outstanding solid waste fees to the property tax bill and to collect them as a priority lien. The rebates would be included on a proposed utility style bill which would include both a water billing and a solid waste billing.

Longer-Term – Broad Legislative Authority:

As indicated above, currently, the City cannot remove the Solid Waste Management cost from the property tax supported program, and provide an equivalent flat reduction per household in property tax.

In the longer term, the City needs the flexibility to remove the Solid Waste Management costs from the property tax base outside of the assessment-based property tax system and replace it with user fees, while at the same time allowing for broad authority to allow for such property tax credits or adjustments as the City believes to be appropriate. This could take the form of an adjustment to the tax calculation which would reduce the tax bill on a consistent basis for similar types of residential and multi-residential units.

It is therefore recommended that the Province of Ontario be requested to make the necessary legislative and/or regulatory changes to the property tax system to provide broad authority to the City for implementation of the recommended rate structure or similar service rate structures in the future.

Solid Waste 2007 Operating & Capital

As outlined in Appendix D, the 2007 approved Capital Budget for Solid Waste Management Services is being increased by \$28.475 million in total project costs associated with purchase of 500,000 “Residual Waste Containers”, with 2007 cash flow of \$7.180 million funded from the Waste Management Reserve Fund Account, and a 2008 commitment of \$21.295 million funded by additional debt financed by the new Solid Waste rate structure.

Also as outlined in Appendix D, the 2007 approved Operating Budget for Solid Waste Management Services is also being amended by increasing the 2007 Gross Budget by \$2.703 million funded from the Waste Management Reserve Fund Account. This includes supporting various diversion initiatives which were deferred as part of the 2007 Budget process pending a report back on innovative funding options to support the City’s diversion initiatives. The additional diversion operating costs totalling \$2.703 million in 2007 include:

1. Implementation of the Volume-Based Rate System – advertising, systems development, container maintenance, & administration (\$1.500 million);
2. Education, Outreach, and Enforcement of Waste Diversion By-Law (\$0.417 million);
3. Curbside Waste & Recyclable Collection for Townhomes (\$0.400 million);
4. Improved Single Family Recycling Capacity - new Blue Recycling Carts (\$0.332 million);
5. Source Reduction - Promotion, Education, Awards, & Contests (\$0.048 million);
6. Introduction of New Recycling Materials - add polystyrene, and plastic film (\$0.006 million).

DECISION HISTORY

Business Plan

At its meeting held on June 14, 15 and 16, 2005, City Council adopted, as amended, Works Committee Report No. 4, Clause 1(a) “Solid Waste Management Services Multi-Year Business Plan”. The Plan identified over 20 individual waste diversion initiatives that, when combined, would allow the City to reach its waste diversion goals of 60%

diversion from landfill by 2008 and a vision of 100% by 2012. The new initiatives included: implementation of a source separated organics (SSO) program in multi-unit residential buildings, increasing the recovery of recyclables in multi-unit residential buildings, single stream recycling and new containers, the addition of more materials accepted into the City's recycling program, mandatory diversion programs and enforcement, waste limits/fees and reuse centres and collection of durables. The implementation of these initiatives was contingent on budget approvals. The report and Council's decision can be viewed at:

<http://www.toronto.ca/legdocs/2005/agendas/council/cc050614/wkscl001a.pdf>.

The Multi-Year Business Plan can be viewed at:

http://www.toronto.ca/garbage/pdf/2005_plan.pdf

Multi-Unit Waste Reduction Levy

At its Special meeting held on February 21, 22, 23, 24, 25, 28 and March 1, 2005, City Council considered Policy and Finance Committee Report No. 3, Clause 2 "City of Toronto 2005 Budget Advisory Committee Recommended Tax Supported Operating Budget" and adopted a number of resolutions linked to the introduction of a waste reduction levy for multi-unit residences. At its meeting held on July 19, 20, 21 and 26, 2005, City Council adopted, as amended, the implementation plan for the multi-unit waste reduction levy (Policy and Finance Committee Report No. 7, Clause 39 "Implementation of Multi-Unit Waste Reduction Levy"). The report can be viewed at: <http://www.toronto.ca/legdocs/2005/agendas/council/cc050719/pof7rpt/cl039.pdf>

At its Special meeting held on March 29 and 30, 2006, City Council considered Policy and Finance Committee Report No. 2, Clause 1, "City of Toronto 2006 Budget Advisory Committee Recommended Tax Supported Operating Budget" and adopted a recommendation that deferred the funding for the enforcement component of the program to the 2007 Operating Budget process. The report and Council's decision can be viewed at: <http://www.toronto.ca/legdocs/2006/agendas/council/cc060329/cl001.pdf>

At its meeting held on April 20 and 23, 2007, City Council considered Executive Committee Report No. 7, Clause EX7.1, 2007 Recommended Operating Budget" and adopted a recommendation that the funding for the Multi-Unit Waste Reduction Levy be deferred to the 2008 Budget process for consideration. The Council decision can be viewed at:

<http://www.toronto.ca/legdocs/mmis/2007/ex/reports/2007-04-16-ex07-cr.pdf>

Mandatory Diversion

At its meeting held on July 19, 20, 21 and 26, 2005, City Council adopted Policy and Finance Committee Report No. 7, Clause 36 "Enforcement of Mandatory Waste Diversion By-laws for Single Family Residences". The report recommended that the City's residential collection by-law that requires source separation of recyclable materials, Green Bin organics and yard waste for single-family residences be enforced.

The report and Council's decision can be viewed at:

<http://www.toronto.ca/legdocs/2005/agendas/council/cc050719/pof7rpt/cl036.pdf>.

At its Special meeting held on March 29 and 30, 2006, City Council considered Policy and Finance Committee Report No. 2, Clause 1, "City of Toronto 2006 Budget Advisory Committee Recommended Tax Supported Operating Budget" and adopted a recommendation that deferred the funding for the enforcement component of the program to the 2007 Operating Budget process. The report and Council's decision can be viewed at: <http://www.toronto.ca/legdocs/2006/agendas/council/cc060329/cl001.pdf>.

At its meeting held on April 20 and 23, 2007, City Council considered Executive Committee Report No. 7, Clause EX7.1, 2007 Recommended Operating Budget" and adopted a recommendation that the funding for the Enforcement of Mandatory Waste Diversion By-Law for single family residences be deferred to the 2008 Budget process for consideration. The Council decision can be viewed at:

<http://www.toronto.ca/legdocs/mmis/2007/ex/reports/2007-04-16-ex07-cr.pdf>

Reuse Centres

At its meeting held on July 25, 26 and 27, 2006, Toronto City Council deferred consideration of Works Committee Report No. 2, Clause 21(d) "Solid Waste Requirements for Lands at Ingram Transfer Station". The report recommended that the vacant lands abutting the Ingram Transfer Station be used by Solid Waste Management Services for a new reuse facility and for site modifications to improve operational efficiencies and customer services at the Ingram Transfer Station. Council deferred the report to allow the Deputy City Manager in consultation with the General Manager of Parks, Forestry and Recreation and the General Manager of Solid Waste Management Services, to examine options for the property in the vicinity of the Ingram Transfer Station, taking into account green space and the City's solid waste management needs.

The July 25, 26, and 27, 2006 Council decision can be viewed:

<http://www.toronto.ca/legdocs/2006/agendas/council/cc060725/cofa.pdf> .

At its meeting held on May 2, 2007, the Public Work's and Infrastructure Committee deferred consideration of the staff report PW5.15 entitled "Ingram Reuse Centre and Other Potential Reuse Properties" until the next meeting of the Public Works and Infrastructure Committee to be held on May 30, 2007, with a request that Deputy City Managers Richard Butts and Sue Corke, and appropriate staff, report on all alternative uses for the Ingram site being proposed by the local Councillor, and in particular on: (a.) a proposed Child Care Centre; and (b.) a publicly-owned and operated driving range and/or other community recreation purpose under the management and direction of Parks, Forestry and Recreation. The May 2, 2007 Committee decision can be viewed at:

<http://www.toronto.ca/legdocs/mmis/2007/pw/decisions/2007-05-02-pw05-dd.pdf>

Addition of New Blue Box Materials

At its meeting held on July 25, 26 and 27, 2006, City Council approved Works Committee Report No. 5, Clause 10 “Additional of New Materials to the Blue Box Program”. The report recommended that plastic film and polystyrene be added to the Blue Box program subject to implementation of a new container system that will provide residents with the necessary capacity for their recyclables. The report and Council’s decision can be viewed at:

<http://www.toronto.ca/legdocs/2006/agendas/council/cc060725/wks5rpt/cl010.pdf>.

At its meeting held on April 20 and 23, 2007, City Council considered Executive Committee Report No. 7, Clause EX7.1, 2007 Recommended Operating Budget” and adopted a recommendation that the funding for the Introduction of New Recycling Materials be deferred to the 2008 Budget process for consideration. The Council decision can be viewed at:

<http://www.toronto.ca/legdocs/mmis/2007/ex/reports/2007-04-16-ex07-cr.pdf>

Recycling Container Capacity

At its meeting held on September 25, 26, 27 and 28, 2006, City Council adopted Policy and Finance Committee Report No. 7, Clause 52 “Recycling Container Capacity”. The report recommended the roll-out of a City-wide semi-automated cart system for Blue Box materials for single-family homes between the fall 2007 and fall 2008 subject to budget approval and confirmation from a downtown pilot in 1,000 homes that carts are operationally acceptable in the downtown core or if the pilot demonstrated that certain areas are not suitable for cart collection, a further report would be submitted outlining the type of collection system for those areas. The report and Council's decision can be viewed at:

<http://www.toronto.ca/legdocs/2006/agendas/council/cc060925/pof7rpt/cl052.pdf>

Source Separated Organic Programs in Multi-Residential Buildings

As part of the Multi-Year Business Plan

(http://www.toronto.ca/garbage/pdf/2005_plan.pdf), Solid Waste Management Services recommended an integrated implementation plan for source separated organic programs in multi-residential buildings. The City has been operating several organics collection pilots and is reporting out the results of the pilots and is recommending the roll-out of an SSO program city-wide beginning mid-2008 in Appendix E of this report.

Door to Door Townhouse Collection

As part of the Multi-Year Business Plan

(http://www.toronto.ca/garbage/pdf/2005_plan.pdf), Solid Waste Management Services identified the need to explore opportunities to harmonize the collection practices for townhouse developments with a goal of enhancing diversion for this customer base. The enhanced door-to-door waste and recyclable collection service to townhouse

developments recommended in the 2007 Operating Budget process was deferred to the 2008 Budget process for consideration (Executive Committee Report No. 7, Clause EX7.1, “2007 Recommended Operating Budget”
<http://www.toronto.ca/legdocs/mmis/2007/ex/reports/2007-04-16-ex07-cr.pdf>).

Innovative Funding Strategy

At its meeting held on April 20 and 23, 2007, City Council considered Executive Committee Report No. 7, Clause EX7.1, 2007 Recommended Operating Budget” and adopted an amended 2007 Operating Budget for Solid Waste Management Services. Funding for the 4 Enhanced Service Priorities (Enforcement of Mandatory Waste Diversion By-law, Multi-Unit Waste Reduction Levy, Door-to-Door Waste and Recyclable Collection for Townhouses and Introduction of New Recycling Materials) was deferred to the 2008 Budget process for consideration. In addition, Council directed the Deputy City Manager and Chief Financial Officer report back to the Budget Committee on a strategy to accommodate funding for the City’s diversion initiatives, including the 4 service priorities mentioned above. The Council decision can be viewed at: <http://www.toronto.ca/legdocs/mmis/2007/ex/reports/2007-04-16-ex07-cr.pdf>

ISSUE BACKGROUND

In March, 2005, Council considered and approved a Multi-Year Solid Waste Business Plan. The Plan provided a ten year strategy (2004-2014) to achieve the City’s diversion goals which included a broad range of new waste diversion initiatives, many of which are part of the 70% diversion plan presented in this report. The Business Plan also estimated that the cost of implementing the new initiatives would result in a 7% annual increase in the Solid Waste Operating Budget over the planning term and significant Capital requirements over the corporate targets.

As part of the diversion strategy, the Business Plan recommended the consideration of bag limits and bag tags for single-family homes and an equivalent system for apartments and condominiums. These systems were considered by Council but were ultimately not approved.

As part of the 2007 budget process, it was recommended that Solid Waste Management Services, in conjunction with the Deputy City Manager and Chief Financial Officer, report back to the Budget Committee by June 2007 on a strategy to accommodate funding for the City’s Diversion initiatives.

This report builds on the 2005 Solid Waste Business Plan by providing:

- an updated and expanded plan to achieve 70% waste diversion from landfill by 2010;
- a 10-year operating and capital cost estimate of achieving the plan;

- an volume-based rate structure for all residential homes to generate the additional funds necessary to fund the cost of achieving the 70% diversion goal while driving diversion behaviour;
- an implementation timeline for the diversion initiatives and volume-based billing system.

COMMENTS

The City's waste management activities, programs and initiatives should take the protection of human health and the environment and the conservation of natural resources into account.

To this end, the City should promote, support, and where appropriate, implement initiatives that reduce, reuse, recycle and compost our waste. Staff supports the goal of reducing the amount of waste generated to the maximum extent practicable. Staff also supports the goal of ultimately having a waste stream that contains only materials that are reusable, recyclable or compostable.

At this point, however, and for the foreseeable future, not all waste will fit into the above categories and some residual waste will remain. In order to protect human health and the environment, the City must have programs to manage this residual waste for the foreseeable future. The recent purchase of the Green Land landfill provides a solid base to build on. The City's residual waste management plans should also include the processing of residual waste to recover resources and reduce the amount of material requiring final disposal.

This report recommends initiatives that take the above principles into account and achieve 70% diversion by 2010. It recommends that the goal of 70% diversion from landfill by 2010 be adopted by Council and that the initiatives described in this report and Appendix A form the basis for the City's 10-year waste diversion plan.

This report also recommends a funding model where the cost of waste management is taken off the tax base and charged directly to waste generators based on the amount of waste generated. Direct funding mechanisms are already in place for Yellow Bag customers; City agencies, boards commissions and divisions that receive solid waste services; and commercial customers that drop off waste at our transfer stations. This report recommends a volume-based rate structure for the City's residential customers. A report will be brought to the July 2007 meeting of the Public Works and Infrastructure committee outlining a plan to fund solid waste services provided to the city's charitable organizations and religious institutions.

Increasing the City's diversion rate from 42% to 70% represents approximately 250,000 tonnes per year of new diversion. To achieve this over a three year period between now and 2010 will be a major challenge. Details of the various programs and initiatives will

have to be developed. The programs will have to be implemented simultaneously. Promotion and education components for the various initiatives will have to be delivered simultaneously. Carts and trucks will have to be purchased. Additional processing capacity will have to be acquired. And finally, meaningful consultation will have to be carried out.

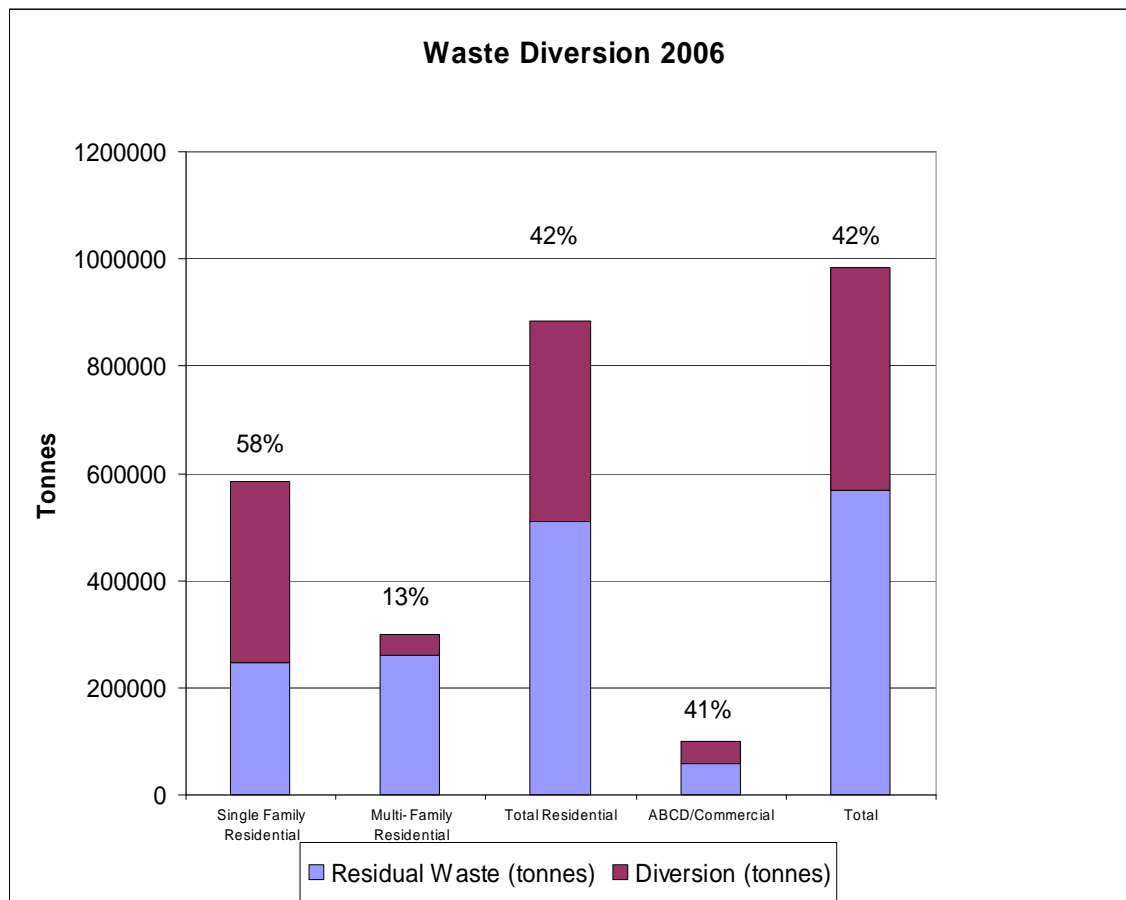
To achieve 70% diversion by 2010 will require a commitment by staff and council alike to keep the projects on track. Staff is committed to providing the level of inter-departmental cooperation necessary to make it happen.

The balance of this report describes:

- the programs and initiatives required to reach 70% diversion;
- the expected cost of the proposed initiatives; and
- the proposed volume-based rate structure for residential customers.

Programs and Initiatives Required to Reach 70% Diversion

In 2006, over 375,000 tonnes of residential waste was diverted from landfill, representing an overall residential diversion rate of 42%. This overall rate is a combination of the diversion rates for single- and multi-unit residences which were 58% and 13% respectively as can be seen in Table below.



The proposed reduction, reuse, recycling and residual waste processing initiatives to increase the overall residential waste diversion rate from 42% to 70% by 2010 are described in Appendix C and summarized below:

- Source Reduction Initiatives including initiatives such as: promotion and education aimed at changing individuals behaviour; an in-store packaging working group to review possible voluntary measures to reduce in-store packaging; a review of powers under the City of Toronto Act to tax, ban or otherwise regulate in-store packaging; a review of possible products that could be subjected to take-back or stewardship programs; and lobbying of federal and provincial governments to improve packaging and stewardship regulations including the possible modification of the Stewardship Ontario funding model to encourage source reduction;
- Development of Reuse Centres for the reuse, disassembly and recycling of electronics and other durable goods along with a program for the curbside collection of bulky items and consideration of possible partnerships or grant programs for reuse organizations;

- Replacement of Blue Boxes with Blue Recycling Carts to increase recycling container capacity for households;
- Addition of New Materials such as plastic film and polystyrene to the Blue Cart Recycling program;
- Additional single stream recycling process capacity;
- Implementation of source separated organics (i.e. Green Bin) collection in multi-unit residences;
- Provision of in-unit and on-floor recycling systems to increase the recovery of recyclable material in multi-unit residences;
- Implementation of door-to-door, curbside collection, Blue Cart Recycling and Green Bin program for townhouses including the purchase of smaller collection vehicles to service these customers;
- Education and enforcement of the City's Diversion By-law;
- Introduction of a volume-based rate structure for residential solid waste services to provide waste generators with a financial incentive to reduce the amount of waste they dispose of;
- Investigation and, where appropriate, implementation of emerging source separation techniques, including initiatives such as the possible recycling of residential construction and demolition waste;
- Development of a Residual Waste Processing Facility(ies) to recover resources from mixed residual waste and reduce the amount of material to be landfilled.

The expected diversion from the various initiatives is shown on the following Table.

Residential Waste Diversion (Tonnes)							
	2006	2007	2008	2009	2010	2011	2012
Generation before 3R's	885,000	885,000	885,000	885,000	885,000	885,000	885,000
Less Source Reduction Initiatives			1,000	5,000	10,000	10,000	10,000
Generation after Source Reduction	885,000	885,000	884,000	880,000	875,000	875,000	875,000
Existing Diversion Programs	375,000	375,000	375,000	375,000	375,000	375,000	375,000
Reuse Centres & Durable Goods Collection			5,000	23,000	29,000	38,000	44,000
Blue Recycling Carts			5,000	15,000	15,000	15,000	15,000
Addition of New Recyclable Materials		500	3,500	5,000	5,000	5,000	5,000
Townhouse Collection			5,000	10,000	16,000	16,000	16,000
On-Floor Carts for Apartments / Condos			1,000	2,000	3,000	3,000	3,000
Apartment / Condo SSO		300	1,500	15,000	30,000	30,000	30,000
Education & Enforcement of Diversion Bylaw			8,000	9,000	10,000	10,000	10,000
Volume-Based Rate Structure			19,000	33,000	40,000	40,000	40,000
Emerging Source Separation				5,000	15,000	25,000	35,000
Total Source Separated Diversion	375,000	375,800	423,000	492,000	538,000	557,000	573,000
Source Separated Diversion Rate	42%	42%	48%	56%	61%	64%	65%
Residual Waste Processing					75,000	75,000	75,000
Residual Waste Diversion Rate					9%	9%	9%
Total Diversion	375,000	375,800	423,000	492,000	613,000	632,000	648,000
Total Diversion Rate	42%	42%	48%	56%	70%	72%	74%
Remaining Residual Waste	510,000	509,200	461,000	388,000	262,000	243,000	227,000
Disposal Rate	58%	58%	52%	44%	30%	28%	26%

Note:

1. Numbers in table exclude population growth.

Many of the initiatives are interdependent. For example, Green Bin organics collection in apartments will not likely be successful without a volume-based solid waste rate structure and the recovery of new materials such as plastic film and polystyrene will not be feasible unless a new container system with the necessary capacity is implemented.

Many of the initiatives will include promotion and education components and some will require meaningful public consultation. The promotion, education and consultation efforts will be developed as the initiatives are developed.

The above initiatives, combined with growth, will result in the need for processing capacity for durable goods collected at the re-use centres, recyclable material collected in the Blue Cart Recycling program, organic material collected in the Green Bin program and Residual Waste. The additional processing requirements are described in Appendix A and summarized below.

The proposed initiatives in this report are expected to result in the diversion of 44,000 tonnes per year of electronics and durable goods through six proposed reuse centres and separation collection. Staff will issue Requests for Proposals or Requests for Tenders for the reuse and/or recycling of the materials collected through this initiative.

Combined with growth, these initiatives are expected to generate in the order of 100,000 tonnes of single stream recyclable material. Staff is preparing a Request for Proposals for up to 100,000 tonnes per year of single stream processing capacity for a term of 7-10 years commencing in 2010. Staff expects to report out on the Request for Proposals in September 2007.

The initiatives proposed in this report, along with growth, are expected to generate on the order of 70,000 tonnes per year of SSO material. Staff is bringing a report to the May 30 meeting of the Public Works & Infrastructure committee recommending the expansion of the city-owned SSO processing capacity from 25,000 to 110,000 tonnes per year between now and 2013. As authorized by Council, staff has also issued an RFP for Ontario-based private sector SSO processing capacity for the 5-7 year period until the city-owned facilities are operational. Staff expects to report out on the RFP in June or July.

The initiatives proposed in this report will result in the need for approximately 150,000 tonnes per year of residual waste processing, resulting in 75,000 tonnes per year of diversion. Staff is currently working on terms of reference for an environmental assessment for residual waste processing facilities. However, in March 2007, the province enacted new regulations under the Environmental Assessment Act that fundamentally changed the way the Act is applied to waste projects. Under the new regulation, landfills still require individual environmental assessments but thermal treatment facilities with energy recovery (i.e. energy from waste facilities) can follow a new screening process, and all other waste facilities (such as mechanical-biological treatment) are exempt from the Act as long as they generate less than 1,000 tonnes per day of residue destined for final disposal.

Staff is reviewing the implications of the new regulation and will be bringing a report to the June 27 meeting of the Public Works & Infrastructure committee with its recommendations on how the City should proceed with its current EA process.

In order to achieve 70% diversion by 2010, many of the proposed initiatives would have to be implemented simultaneously as shown on the following Gantt chart.

Program	2008				2009				2010				2011				2012			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
REDUCTION INITIATIVES																				
Source Reduction Initiatives																				
REUSE INITIATIVES																				
Reuse Centres and Durable Goods Collection																				
RECYCLING INITIATIVES																				
Blue Recycling Carts																				
New Recyclable Materials																				
Townhouse Collection																				
On-Floor Containers for Apts./Condos																				
Apartment/Condo SSO																				
Education/Enforcement of By-Law																				
Volume Based Rate Structure																				
Emerging Source Separation																				
RESIDUAL WASTE PROCESSING																				
Residual Waste Processing																				

Expected Cost of Proposed Initiatives

The expected Capital and Operating Costs along with the cash flow projections for the current Solid Waste Management Services program and initiatives proposed in this report are included as Appendix D, which includes the following 3 Tables:

1. 10 Year Operating Cost Summary to Support 70% Diversion;
2. Revised 2007 – 2016 Capital Plan;
3. Changes to Capital Plan from the Council Approved 2007 – 2016 Capital Plan.

The cash flow projections in Appendix D show that the additional proposed diversion initiatives will result in an additional \$213.7 million of diversion related capital being added to the capital plan over the next 10 years. Staff calculate that the proposed volume-based based structure will have to generate an additional \$54.0 million in annual revenue, over the base 2007 budget amount of \$183.5 million, or a total annual cost of \$237.5 million in 2008 dollars. As the new rate structure is planned to be implemented on July 1, 2008, the actual increase in 2008 due to the new rates will only be half of \$54 million, or \$27

million during this transition year. It is projected that the rate for 2009 and future years would be increased annually at a rate of 3.5% to offset the inflationary pressures and capital debt repayment costs experienced by Solid Waste Management Services. It should be noted that at his point growth has not been included, however, this will be updated annually.

It is proposed that the \$237.5 million annual cost be recovered from the single and multi-unit residential customers base using the existing tax ratio of 55% allocated to single unit dwellings and 45% being allocated to multi-unit dwellings. The volume-based rate used for single unit residences would generate a total revenue of approximately \$131 million per year (or approximately \$271 per household per year), and the rate used for multi-unit dwellings would generate a total revenue of \$106.5 million per year (or approximately \$203 per household per year).

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ATTACHMENTS

1. Appendix A - Proposed Initiatives to Achieve 70% Diversion by 2010
2. Appendix B - Proposed Principles for the Volume-based Rate System and Grant Program
3. Appendix C – Description of Working Groups
4. Appendix D – Cost Tables
5. Appendix E – Implementation of Source Separated Organics Programs in Multi-Residential Buildings

Appendix A – Proposed Initiatives to Achieve 70% Diversion by 2010

Source Reduction Initiatives

The nature of solid waste is extremely complex and ever changing. The waste varies in volume and composition according to the source of the waste, the time of year and season, and also over time as new products and packages are introduced and abandoned. For example, ten years ago there were no disposable single use dusters and mops and single-serve water bottles were rare. Products are also constantly becoming obsolete - wooden and aluminium toboggans are replaced by plastic ones and conventional CRT computer screens are replaced by flat LCD screens.

The expected useful life of these items can vary from minutes (plastic carry-out bag) to decades (mattress) but almost all eventually become waste.

In time, virtually all products and packaging becomes waste and municipalities, being at the 'end of the pipe', are ultimately responsible for its management. (In fact, the Municipal Act (or COTA) requires that municipalities manage the waste set out by their residents.) This, despite the fact that municipalities have very little input or control into how products and packages are designed. Municipalities do not have clear jurisdiction with respect to packaging design, but rather this jurisdiction lies primarily with the Provincial and Federal Governments. Nor are we asked to the table by Industry as they develop new designs.

Poor initial design (e.g., multi-laminate consumer products) results in packaging and products that cannot be reused or recycled and must be disposed of. The Federal and Provincial governments, who are primarily responsible for packaging legislation, need to enact legislation that changes packaging and product design. Industry needs to take end-of-life considerations into account when designing new products and packaging.

National packaging legislation could ensure that any companies selling products in Canada comply with packaging design legislation. The Province through its product stewardship initiatives could develop incentives for producers to use less packaging and packaging that is more recyclable. For example, stewards could be responsible for 50% of the costs to manage recyclable packaging and 100% of the costs to manage non-recyclable packaging.

It is recommended that the Provincial and Federal governments take immediate steps to implement polices and programs and adopt financial mechanisms to promote, encourage and achieve source reduction or reuse of packaging and products which currently become municipal solid waste.

While national packaging legislation is not in the City's control, we are currently exploring the City's powers under the new City of Toronto Act to determine whether we can influence the design and distribution of in-store retail and food service packaging through taxes, bans or other legislation. This could include items such as plastic grocery bags and polystyrene food containers (e.g., clamshell containers, meat trays), cold and

hot drink cups and other packaging. While some retailers may voluntarily choose to use recyclable packaging, By-laws by the City may be more effective overall.

It is recommended that an In-Store Packaging Waste Diversion Working Group be established consisting of City staff and representatives from retail and food services businesses, trade associations, packaging and raw material suppliers, and BIAs. The mandate of the group would be to explore a range of mechanisms that would result in achieving the waste reduction targets as outlined in this Appendix.

The City will also implement a comprehensive promotion and education campaign aimed at changing the purchasing behaviour of residents (e.g., buying items in bulk rather than packaged, minimizing single serving products, etc.).

Reuse, Disassembly and Recycling of Durable Goods

There are numerous charitable organizations in Toronto such as Goodwill, Salvation Army, St. Vincent de Paul Society and Habitat for Humanity that accept and utilize reusable goods. Examples of these goods include clothing, electronics, small appliances, furniture, dishes, bedding, toys and building materials such as kitchen cupboards, bathroom fixtures, lighting, windows and doors. In order to increase diversion, the City intends to work co-operatively with these charities by assisting them to obtain more reusable items and increase diversion. This could be achieved through operating partnerships or grant programs.

However, it must also be recognized that only a small percentage of goods may be in a state suitable for reuse or that the supply of certain goods may exceed demand. Therefore some, perhaps even the majority, of durable goods will be disassembled and recycled, not reused. There are emerging facilities for the disassembly and recycling of non-reusable goods such as worn-out mattresses, furniture and carpets. We are currently planning a mattress recycling pilot with a company that disassembles and reuses/recycles the components of the mattress.

In order to facilitate the collection of durable goods for reuse and recycling, it is recommended that the City establish approximately six reuse facilities across the City. These reuse facilities will receive reusable/recyclable goods (e.g., furniture, building materials, electronics, clothing, mattresses, carpets and sporting goods) from the public and redistribute these items to local charities for reuse or to appropriate facilities for disassembly and recycling.

Due to the convenience of curbside collection and mobility issues, a significant portion of residents will not take full advantage of a reuse facility. In order to maximize diversion of durable goods, the reuse centres would be complemented with a separate curbside collection program for some of the large, bulkier items generated by residents. These include carpets, furniture, mattresses and building materials. Residents would call in to schedule a collection day, similar to the current practice for white goods. While some of

these materials may not be suitable for reuse due to their age and quality they could be recycled.

The City's net cost of operating the proposed reuse program could be reduced if the materials to be managed were designated under the Waste Diversion Act. We recommend that the Province of Ontario take immediate steps to extend the stewardship programs of Waste Diversion Ontario to include, within 24 months, the following classes of waste: green bin organics, electronics, mattresses, furniture, carpets, and sporting goods.

We have established a City re-use website www.toronto.ca/reuseit which helps residents determine the most suitable and convenient charitable organization location to drop off their reusable goods. We will also consider establishing an electronic waste exchange on the City's website for residents to pass on reusable items to other residents.

Improved Recycling Capacity

With the addition of new materials to the Blue Box program over the past several years the existing blue and grey box no longer provide enough capacity for many residents. The addition of more materials to the Blue Box program will further increase the need for additional bin capacity.

In September 2006, we reported on the results of a recycling container capacity pilot project in the Scarborough community and recommended roll-out of a city-wide cart system for Blue Box materials, subject to budget approval and that an additional pilot be implemented in the downtown core to determine whether the cart would be suitable in areas with denser housing.

For the downtown pilot, five areas were selected to represent neighbourhoods with potentially challenging collection issues, such as dense housing, narrow or no driveways, hilly terrain, and on-street parking. 240 litre sized carts (equivalent capacity to approximately 4 blue boxes) and information packages were delivered to the residents. Approximately 3% of residents either refused delivery of the cart or contacted staff to request the cart be taken back because they felt the cart was too large.

Participation was monitored and a written survey conducted. The survey results support the quantitative data collected in the pilot areas. Most survey respondents approve of the concept of using a cart for recycling. Nearly three quarters of study participants were satisfied with the cart. However, the findings did validate that some downtown residents have issues related to using a cart, namely:

- many find the cart more difficult to store than the recycling boxes;
- some indicated that it is hard to move up stairs (as in hilly areas);

- there are concerns that it is too heavy for some residents such as women, seniors and the disabled.

Four in five participants prefer the cart to the blue box system.

Over one quarter would like to see a smaller narrower cart. For example, the 240 litre cart will not fit between some laneways between houses and some row house locations had to store the cart in front of the house. Thus, residents who encountered difficulty with the cart size tested would like the City to provide a smaller narrower version.

While the 240 litre cart may be the ideal size for most households' recycling needs, we will be offering three sizes of carts to accommodate those residents who would prefer a smaller cart and those that would require a larger cart. The three sizes of bins that will be offered will be approximately 120 litres (equivalent to 2 blue boxes) 240 litres (equivalent to 4 blue boxes) and 360 litres (equivalent to 6 blue boxes). The carts will be provided to residents at no charge and would be delivered to their homes. The program would be rolled out between March 2008 and December 2008.

Going from the Blue Box system to carts will increase the capture of recyclables, reduce blowing litter, potentially reduce injury claims as collection is automated and allow for the addition of plastic film and polystyrene. Feedback from the Collection Operations staff on the cart pilot areas was positive.

With respect to concerns arising from mobility challenges (as raised by Council on September 25, 26, 27 and 28, 2006), presently Solid Waste Management services does provide a "front and side door" collection service for residents with mobility challenges. Residents must fill out a "front and side door collection" application which has to be signed by a doctor. Solid Waste Management collection supervisors will visit the sites to approve the application. Currently, four locations in the Scarborough cart pilot area are receiving front door pick up without problems.

Next Generation Green Bins

The current Green Bin was designed to maximize capacity but was limited in size to what could be reasonably lifted by our collection crews from a weight perspective. Residents wishing to put out more organics than can be fit in the Green Bin must either purchase another Green Bin or use clear plastic bags for their overflow material. As our new collection system will be automated, we have the opportunity to provide residents with a larger Green Bin. An RFP for a larger "next generation" Green Bin will be issued.

New Materials for Recycling

Spiral wound containers which are used to package products such as frozen orange juice, potato chips and cookie dough were added to the City's recycling program in the fall of 2006. Polystyrene and plastic film will be the next materials added to the Blue Box program once the new cart system is in place.

Plastic film that residents could set out include plastic grocery sacks; retail store carry out sacks; rinsed milk pouches and outer bags; bread sandwich and bulk food bags; dry cleaning bags; diaper outer bags; frozen food bags; and over wrap for toilet tissues and paper towels. Polystyrene may include rigid and foam plastic items such as cups, food containers, cutlery and plates, packing and flower trays.

We are also investigating the possibility of including ceramics and other types of glass such as drinking glasses, heat-resistant glassware and mirrors as acceptable glass items in our recycling program.

Green Bin Organics in Apartment/Condos

Pilot projects testing organics collection has been undertaken in 28 buildings throughout the City. Source separated organics collection can be implemented in multi-residential buildings on a city-wide basis over a period of one and a half years commencing in mid 2008, subject to approval of the volume-based rate structure. Please see the implementation plan report in Appendix E.

On-Floor Recycling Containers for Apartment Residents

Initiatives are required to make recycling more convenient for residents in multi-unit dwellings. Apartment dwellers generally have to take their recyclables to one common area usually in the basement or an area outside. To make recycling more convenient, it is recommended that the City provide recycling carts to property managers at no charge to place in different areas of the building such as laundry rooms, different parking levels, the mailroom and other common areas. The carts could be designed to be aesthetically pleasing for indoor use. The superintendent would then transfer the material from the carts to the central recycling area.

Townhouse Collection

Approximately 30,000 townhouse units are currently serviced by central point collection. Central point or pile collection is accomplished by having either the resident, property management firm, or a third party bring all waste and recyclables to a central point either on private or public property for collection by City staff or its contractors. The main reason central point collection has traditionally been done is that the townhouse development roads could not be safely accessed by standard waste collection trucks, (e.g., streets that are too narrow for our collection fleet to manoeuvre, cornering radii that are too tight for collection vehicles to make it around corners etc.).

Central pile collection makes participation in the recycling and Green Bin program inconvenient for residents. Providing door to door collection to townhouses where central point or pile collection currently exists provides an opportunity to make diversion more convenient for the residents. To accomplish this, we plan on purchasing and using smaller and lighter waste collection vehicles.

With the smaller vehicles, it may possible to provide door to door collection to all townhouse locations presently receiving central point collections. This will enable these households to participate in the cart program, which will increase diversion.

Education, Outreach and Enforcement of Diversion By-Law

The City's residential waste collection by-law states that all owners or tenants of residential locations receiving municipal garbage collection services must source separate recyclable materials, Green Bin organics and yard waste. SSO collection will be mandatory in apartments once an SSO program is put in place in the building. Mandatory diversion is not currently enforced for single-family households. Most homes do participate regularly; however, there are some single-family residences that consistently do not source separate their recyclables and organics. The City can issue fines for single-family homes in the amount of \$105 for not source separating their recyclables and organics.

Multi-unit residential buildings are also subject to the mandatory recycling by-law. Failure of a building owner/operator to offer a recycling program for residents can result in the removal of City provided solid waste services.

It is estimated that, five staff (a combination of Solid Waste Management Services Education Officers and MLS By-Law Compliance Officers) will need to be hired to monitor and enforce recycling in single-family homes and 14 additional staff (Education Officers and By-Law Compliance Officers) to adequately enforce mandatory recycling in the 5,000 apartment buildings in the City.

A progressive and escalating program of education and written warnings will be used to enforce the City's existing mandatory diversion by-law. The intent of the enforcement for single-family homes is to change the behavior of those who refuse to divert. The intent of the enforcement for apartments is to change the behavior of apartment owners/property managers who blatantly refuse to offer proper recycling to their tenants.

Volume-Based Solid Waste Rate Structure

The proposed volume-based rate structure for solid waste is described in detail in the report. Along with generating revenue, the solid waste rate structure will act as a financial mechanism to drive diversion behaviour leading to more source reduction and more source separation.

The rate structure is modeled on similar programs that have been implemented in other major North American cities such as: Vancouver, Quebec City, Seattle, San Francisco, San Jose, and Los Angeles.

Emerging Source Separation Techniques

Solid Waste Management Services staff are constantly monitoring for the emergence of new processes or technologies that would allow new materials to be added to the list of source separation programs. For example, staff is currently investigating the potential to divert residential C&D (construction and demolition) waste, and in particular residential roofing shingles. Staff will report back with recommended diversion programs as new techniques emerge and are determined to be feasible.

Processing Capacity

Along with implementing the programs to enable the source separation and collection of various wastes, processing is required to ensure the newly separated materials are effectively diverted from landfill.

The initiatives proposed in this report are expected to result in the diversion of 44,000 tonnes per year of electronics and durable goods through six proposed reuse centres. Staff is currently reviewing city-owned sites and will recommend sites later in 2007. This report anticipates the six reuse centres being developed between 2008 and 2012. During that time staff will issue Requests for Proposals to reuse or recycle the various collected materials.

The initiatives proposed in this report are expected to result in the collection of an additional 100,000 tonnes of single stream recyclable material. Staff is preparing a Request for Proposals up to 100,000 tonnes per year of single stream processing capacity for a term of 7-10 years beginning in 2010. Staff expects to report out on the Request for Proposals in September.

The initiatives proposed in this report are expected to generate on the order of 70,000 tonnes per year of additional SSO material to be processed. Staff is bringing a report to the May 30, 2007 Public Works & Infrastructure Committee meeting recommending the expansion of the city-owned SSO processing capacity from 25,000 to 110,000 tonnes per year between now and 2013. As authorized by Council, staff has also issued an RFP for Ontario-based private sector SSO processing capacity for the 5-7 year period until the city-owned facilities are operational. Staff expects to report out on the RFP in June or July. Staff also has council authority to negotiate short-term SSO processing contracts as required to meet the City's short-term needs. Although SSO processing is still relatively new industry in Ontario, and therefore subject to growing pains, staff is confident the above processing options will provide the required SSO processing capacity.

The initiatives proposed in this report will result in the need for approximately 150,000 tonnes per year of residual waste processing by 2010, resulting in 75,000 tonnes per year of diversion. Staff is currently working on terms of reference for an environmental assessment for residual waste processing facilities. However, in March 2007, the province enacted new regulations under the Environmental Assessment Act that fundamentally changed the way the Act is applied to waste projects. Under the new

regulation, landfills still require individual environmental assessments but thermal treatment facilities with energy recovery (i.e. energy from waste facilities) can follow a new screening process, and all other waste facilities (such as mechanical-biological treatment) are exempt from the Act as long as they generate less than 1,000 tonnes per day of residue destined for final disposal. This means the City can now implement mechanical-biological treatment facilities without a lengthy EA process.

Staff is reviewing the implications of the new regulation and will be bringing a report to the June 27, 2007 Public Works & Infrastructure Committee meeting with its recommendations on how the City should proceed with its current residual waste EA process.

In order to meet the 70% diversion goal by 2010, the City will need to choose, and proceed expeditiously to implement, a technology that is not subject to an individual EA or a screening process.

Public Education

While public education is extremely important to effectively implement new diversion programs, one cannot rely on a single, comprehensive public education and promotion plan. There will instead be a series of smaller communications plans tailored to each initiative, specific to their unique set of objectives and challenges relative to the target audiences and key messages. A wide variety of tactics would be used depending on whether the issue is simple (i.e. adding new materials to the well established Blue Box Program) or more difficult (i.e. introducing a new initiative that uses negative reinforcement rather than positive reinforcement, such as fee-for-service or enforcing mandatory recycling rules). Implementing a new program operationally will not make it happen until the public has been informed, embraced it and is actively engaging in the required behaviour. For each new diversion initiative, a communications plan will be created with an additional public education budget. Existing budgets only meet the communication needs of mature programs that merely require maintenance, not large-scale introduction and buy-in, which is what is required for the new initiatives described in this report.

GHG/Energy Saving Benefits of Recycling

Even though solid waste activities make a minor contribution (4 per cent) annually to Toronto's yearly greenhouse gas emission total of 24 million tonnes of eCO₂ (GHG = greenhouse gas), achieving 70 per cent diversion would reduce the City's annual GHG emission by approximately one per cent. The following two examples illustrate how diversion also results in energy savings. Every 100 tonnes of aluminum recycled saves 1,400,000 kWh (kilowatt-hours) of energy. In 2006, Toronto recycled approximately 1,000 tonnes of aluminum for a saving of 14 million kWh, which is also equivalent to a saving of 3,510 tonnes of GHG. Similarly, recycling 100 tonnes of plastic, saves 577,000 kWh of energy. Given approximately 5,000 tonnes of plastic was recycled by the City in

2006, the resulting energy savings was close to 29 million kWh. This produced a saving in greenhouse gas emissions of 7,250 tonnes.

Appendix B – Proposed Principles for the Volume-based Rate System and Grant Program

(a) Principles for Proposed Rate Structure

- the rate structure would be designed to collect the full cost of providing residential Solid Waste Management Services (i.e. currently \$183.5 million) as well as an additional amount for new diversion facilities and programs (estimated at \$54 million per year);
- the rate structure would be mandatory and volume-based so that residents setting out more residual waste would pay more and residents setting out less residential waste would pay less;
- the rate structure would be applied to residual waste containers only - all waste diversion services would be free of direct charge;
- consistent with the practice of billing for Toronto Water Services, the property owner(s) (whether owner occupied or tenanted) or the condominium board, as the case may be, would be charged the rate and be responsible for payment of the bill;
- unpaid amounts may be added to the tax roll and may be collected in the same manner as taxes;
- residents would choose from four possible sizes of residual waste carts (75, 120, 240 and 360 litre):
 - residents choosing the smallest size of residual waste cart (75 litre) would pay no more than the 2007 cost of Solid Waste Management Services;
 - as part of the subscription fee for the selected residual waste cart, single unit homes will be provided with four free tags per year to accommodate occasional surges in waste volume.

(b) Principles for Proposed Grant Program

- the grant program would provide a grant by way of a rebate of all or part of the solid waste rate to all owners of residential and multi-residential property (whether owner occupied or tenanted) with the exception of condominium unit owners, and to residential condominium boards, and the grant will be reflected on the water/solid waste bill;

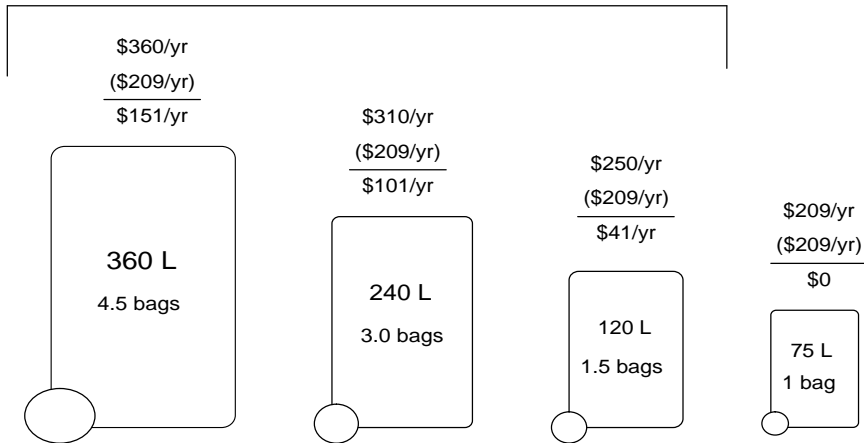
- all single unit dwellings would receive a grant in the amount of a standard flat rate per dwelling, and all multi unit dwellings, including condominiums, would receive a grant in the amount of a standard flat rate per unit;
- the standard per dwelling and per unit flat rate grant amounts would be set so as to offset the rate charged for the smallest solid waste container.

Below are two diagrams that illustrate an example of the proposed billing structure in single unit and multi unit homes:

Getting to 70% Rate Structure

Single Unit Dwellings

$$\$209 + \$62/\text{hh}/\text{yr} = \$271/\text{hh}/\text{yr}$$



Example of Getting to 70% Rate Structure

Multi-unit Building

(based on every two week waste generation)

$$\text{\$157/unit/yr} + \text{\$46/unit/yr} = \text{\$203/unit/yr}$$



Chart 1

	Estimated Households	2007 Annual 'Base' Cost			Additional Annual Cost to fund 70% diversion initiatives		Total Annual Cost	
		% of SWM Budget	\$ M	Per household	\$ M	per household	\$ M	per household
Residential - Curb side Pickup	482,000 hh	55%	\$101 M	\$209/hh	\$30 M	\$62/hh	\$131 M	\$271/hh
Multi-Residential - Bulk Pickup	526,000 hh	45%	\$82.5 M	\$157/hh	\$24 M	\$46/hh	\$106.5 M	\$203/hh
	1,008,000 hh	100%	\$183.5 M	\$182/hh	\$54 M	\$54/hh	\$237.5 M	\$236/hh

Appendix C – Description of Working Groups

The following three Working Groups be established to provide input and advice into the design and implementation of policies and practices to help achieve the goal of 70% diversion from landfill:

- a) In-store Packaging Waste Diversion Working Group - consisting of City staff, councillors and representatives from retail and food services businesses, trade associations, packaging and raw material suppliers, and BIAs and having a mandate to explore a range of mechanisms that would result in achieving the waste reduction targets related to in-store packaging described in Appendix C and report its findings in time for the September 2007 meeting of the Public Works and Infrastructure Committee;
- b) Multi-family Waste Diversion Working Group - consisting of City staff and representatives from apartment and condominium trade associations, building owners and designers, residents and condominium board representatives, TCHC staff and co-op building representatives and having a mandate to explore ways and means of effectively implementing the initiatives, and achieving the waste reduction and diversion targets, related to multi-unit residential dwellings described in Appendix C including providing input into the City's promotion, education and outreach programs for multi-unit residential diversion; and
- c) 3Rs Working Group - consisting of City staff and 6-8 community representatives and having a mandate to explore ways and means of effectively implementing the initiatives, and achieving the overall waste reduction and diversion targets, described in Appendix C including the provision of input into the City's promotion, education and outreach programs for source reduction, reuse, and recycling initiatives.

Appendix D – Cost Tables

SOLID WASTE MANAGEMENT SERVICES

Projected 10 Year Costs to Support 70% Diversion (\$ Millions)

2007-2016 Capital & Operating Summary	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Capital Funding										
Capital Debt Requirement	26.45	77.30	74.40	95.52	31.00	27.60	11.50	7.10	7.10	7.10
Less: Capital Debt Target (2007, & 50% of 2008 Approved)	(19.27)	(16.45)								
Less: 2007 New Capital to be Funded from SW Reserve	(7.18)									
Capital to be Debentured/(Repaid) by Rates	0.00	60.86	74.40	95.52	31.00	27.60	11.50	7.10	7.10	7.10
Cumulative Debentures	0.00	60.86	135.26	230.78	261.78	289.38	300.88	307.98	315.08	322.18
Operating Revenue										
Revenue from New Solid Waste Rates (As of July 1, 2008)	0.00	118.77	245.85	254.42	263.32	272.54	282.08	291.95	302.17	312.74
Revenue from Tax Program	183.54	183.54	183.54	183.54	183.54	183.54	183.54	183.54	183.54	183.54
Less: Grant to Rebate Taxes (As of July 1, 2008)	0.00	(91.77)	(183.54)	(183.54)	(183.54)	(183.54)	(183.54)	(183.54)	(183.54)	(183.54)
Total Revenue	183.54	210.54	245.85	254.42	263.32	272.54	282.08	291.95	302.17	312.74
Operating Expenditures										
Solid Waste Base Net Operating Costs	183.54	190.79	200.02	205.41	211.76	217.01	222.47	228.07	233.82	239.73
Additional Diversion Operating Costs	2.70	11.87	15.91	17.07	23.41	25.12	25.68	26.25	26.84	27.44
Debt Charges for Capital Over Target	0.00	1.83	10.75	21.80	33.24	37.48	40.86	42.34	43.33	44.32
Total Operating Expenditures	186.24	204.48	226.68	244.28	268.41	279.61	289.01	296.66	303.99	311.50
Operating Surplus/(Deficit)	(2.70)	6.06	19.17	10.13	(5.09)	(7.08)	(6.93)	(4.71)	(1.83)	1.24
Solid Waste Reserve										
Deposit to (Draw from) Reserve	(9.88)	6.06	19.17	10.13	(5.09)	(7.08)	(6.93)	(4.71)	(1.83)	1.24
Cumulative Reserve Contribution (Draw)	(9.88)	(3.83)	15.35	25.48	20.39	13.32	6.39	1.67	(0.15)	1.09

Notes:

1. Projection based on additional Annualized Revenue in 2008 of \$54 Million (Actual increased Revenue in 2008 will be half of this or \$27 million, as the new Solid Waste Rate structure is only being implemented effective July 1, 2008).
2. Projection based on 3.5% annual increase in Solid Waste Rates in 2009 and future years

SOLID WASTE MANAGEMENT SERVICES

Revised 10 Year Capital Plan to Support 70% Diversion (\$000's)

2007-2016 Capital Projects/Sub-Projects	2006 Carry Forward	2007	2008	2009	2010	2011	2007 to 2011	2012	2013	2014	2015	2016	2012 to 2016	Total 2007 - 2016
PROJECTS INCLUDED IN 10 YEAR PROGRAM (To be Financed by the City)														
1. Transfer Station Asset Management	3,569	3,864	4,594	4,100	4,100	4,100	20,758	4,100	4,100	4,100	4,100	4,100	20,500	41,258
2. Residential Collection	207	4,104	1,440	2,340	410	410	8,704	410	410	410	410	410	2,050	10,754
3. Perpetual Care of Landfills	0	6,585	6,714	7,569	8,134	8,740	37,742	9,375	10,077	10,745	10,574	10,574	51,345	89,087
4. Waste Diversion Facilities														
4.1.0 Residual Waste Facilities - EA & Design	2,355	870	2,000	2,250	2,500	1,000	8,620	0	0	0	0	0	0	8,620
4.1.1 Residual Waste Facilities - Construction	0	0	0	30,000	45,000	0	75,000	0	0	0	0	0	0	75,000
4.2 Additional SSO Processing Capacity	0	1,000	4,400	14,300	19,000	15,400	54,100	13,000	1,900	0	0	0	14,900	69,000
4.3 Collection Vehicles	0	0	254	0	0	0	254	0	0	0	0	0	0	254
4.4 Reuse Centres	900	1,450	7,000	5,000	10,000	5,000	28,450	0	0	0	0	0	0	28,450
4.5.0 Recycling Containers (Carts)	0	7,180	21,295	0	0	0	28,475	0	0	0	0	0	0	28,475
4.5.1 Residual Waste Containers (Single Homes)	0	7,180	21,295	0	0	0	28,475	0	0	0	0	0	0	28,475
4.5.2 Replacement SSO Containers (Single Homes)	0	0	2,000	9,000	9,000	0	20,000	0	0	0	0	0	0	20,000
4.6.0 Transfer Station Modifications	700	427	0	0	0	0	427	0	0	0	0	0	0	427
4.6.1 Transfer Station Modifications	0	0	4,500	0	0	0	4,500	0	0	0	0	0	0	4,500
4.7 Container Line Upgrade	0	710	0	0	0	0	710	0	0	0	0	0	0	710
4.8 SSO Multi-Unit Res Containers	0	0	480	1,008	1,008	0	2,496	0	0	0	0	0	0	2,496
4.9 Multi-Unit Residential Levy	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.10 Mandatory Diversion Enforcement - Vehicles	0	0	570	0	0	0	570	0	0	0	0	0	0	570
4.11 Tractor Trailers	0	0	494	0	0	0	494	0	0	0	0	0	0	494
4.12 Curbside Collection of Durable Goods	0	0	1,650	0	0	0	1,650	0	0	0	0	0	0	1,650
4.13 Recycling Upgrades for Multi-Units	0	0	865	1,816	1,816	0	4,497	0	0	0	0	0	0	4,497
4.14 Diversion Facilities Retrofit	0	0	3,000	3,000	3,000	3,000	12,000	3,000	3,000	3,000	3,000	3,000	6,000	18,000
4.15 Additional Single Stream Processing Capacity	0	0	0	0	0	2,500	2,500	7,500	2,500	0	0	0	2,500	5,000
4.16 Replacement L & Y Waste Composting Facility	0	0	1,875	2,000	100	0	3,975	0	0	0	0	0	0	3,975
5 Clean and Beautiful City	565	0	0	0	0	0	0	0	0	0	0	0	0	0
GROSS COSTS	8,296	33,370	84,426	82,383	104,068	40,150	344,397	37,385	21,987	18,255	18,084	18,084	113,795	458,192
NET COSTS	8,189	26,447	77,302	74,404	95,524	31,000	304,677	27,600	11,500	7,100	7,100	7,100	60,400	365,077
DEBT TARGET		19,267	32,893	13,288	13,108	32,350	110,906							
OVER (UNDER) DEBT TARGET		7,180	44,409	61,116	82,416	(1,350)	193,771							
PROJECTS EXCLUDED FROM 10 YEAR PROGRAM (To be Financed by Others through Partnerships)														
6. Waste Diversion Facilities														
6.1 Transfer Station Modifications		0	0	0	0	0	0	0	0	0	0	0	0	0
6.2 Additional Single Stream Processing		0	0	0	0	2,500	2,500	7,500	7,500	0	0	0	15,000	17,500
6.3 Replacement Composting Facility		0	1,875	2,000	100	0	3,975	0	0	0	0	0	0	3,975
6.4 Residual Waste Facilities - Construction		0	0	30,000	45,000	0	75,000	0	0	0	0	0	0	75,000
GROSS COSTS		0	1,875	32,000	45,100	2,500	81,475	7,500	7,500	0	0	0	15,000	96,475
NET COSTS		0	1,875	32,000	45,100	2,500	81,475	7,500	7,500	0	0	0	15,000	96,475
TOTAL CAPITAL INCLUDING EXCLUDED PROJECTS														
TOTAL GROSS COSTS	8,296	33,370	86,301	114,383	149,168	42,650	425,872	44,885	29,487	18,255	18,084	18,084	128,795	554,667
TOTAL NET COSTS	8,189	26,447	79,177	106,404	140,624	33,500	386,152	35,100	19,000	7,100	7,100	7,100	75,400	461,552

SOLID WASTE MANAGEMENT SERVICES

Changes to Projects from Council Approved 10 Year Capital Plan (\$000's)

2007-2016 Capital Projects/Sub-Projects	2006 Carry Forward	2007	2008	2009	2010	2011	2007 to 2011	2012	2013	2014	2015	2016	2012 to 2016	Total 2007 - 2016
PROJECTS INCLUDED IN 10 YEAR PROGRAM (To be Financed by the City)														
1. Transfer Station Asset Management	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2. Residential Collection	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3. Perpetual Care of Landfills	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4. Waste Diversion Facilities														
4.1.0 Residual Waste Facilities - EA & Design	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.1.1 Residual Waste Facilities - Construction	0	0	0	30,000	45,000	0	75,000	0	0	0	0	0	0	75,000
4.2 Additional SSO Processing Capacity	0	0	3,400	13,300	16,500	(8,850)	24,350	(7,000)	1,900	0	0	0	(5,100)	19,250
4.3 Collection Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.4 Reuse Centres	0	0	5,000	2,000	7,000	2,000	16,000	0	0	0	0	0	0	16,000
4.5.0 Recycling Containers (Carts)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.5.1 Residual Waste Containers (Single Homes)	0	7,180	21,295	0	0	0	28,475	0	0	0	0	0	0	28,475
4.5.2 Replacement SSO Containers (Single Homes)	0	0	2,000	9,000	9,000	0	20,000	0	0	0	0	0	0	20,000
4.6.0 Transfer Station Modifications	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.6.1 Transfer Station Modifications	0	0	4,500	0	0	0	4,500	0	0	0	0	0	0	4,500
4.7 Container Line Upgrade	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.8 SSO Multi-Unit Res Containers	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4.9 Multi-Unit Residential Levy	0	0	(240)	0	0	0	(240)	0	0	0	0	0	0	(240)
4.10 Mandatory Diversion Enforcement - Vehicles	0	0	570	0	0	0	570	0	0	0	0	0	0	570
4.11 Tractor Trailers	0	0	494	0	0	0	494	0	0	0	0	0	0	494
4.12 Curbside Collection of Durable Goods	0	0	1,650	0	0	0	1,650	0	0	0	0	0	0	1,650
4.13 Recycling Upgrades for Multi-Units	0	0	865	1,816	1,816	0	4,497	0	0	0	0	0	0	4,497
4.14 Diversion Facilities Retrofit	0	0	3,000	3,000	3,000	3,000	12,000	3,000	3,000	3,000	3,000	3,000	6,000	18,000
4.15 Additional Single Stream Processing Capacity	0	0	0	0	0	2,500	2,500	7,500	2,500	0	0	0	2,500	5,000
4.16 Replacement L & Y Waste Composting Facility	0	0	1,875	2,000	100	0	3,975	0	0	0	0	0	0	3,975
5 Clean and Beautiful City	0	0	0	0	0	0	0	0	0	0	0	0	0	0
GROSS COSTS	0	7,180	44,409	61,116	82,416	(1,350)	193,771	3,500	7,400	3,000	3,000	3,000	19,900	213,671
NET COSTS	0	7,180	44,409	61,116	82,416	(1,350)	193,771	3,500	7,400	3,000	3,000	3,000	19,900	213,671
DEBT TARGET		0	0	0	0	0	0							
OVER (UNDER) DEBT TARGET		7,180	44,409	61,116	82,416	(1,350)	193,771							
PROJECTS EXCLUDED FROM 10 YEAR PROGRAM (To be Financed by Others through Partnerships)														
6. Waste Diversion Facilities														
6.1 Transfer Station Modifications		0	(4,500)	0	0	0	(4,500)	0	0	0	0	0	0	(4,500)
6.2 Additional Single Stream Processing		0	0	0	0	(2,500)	(2,500)	(7,500)	2,500	0	0	0	(5,000)	(7,500)
6.3 Replacement Composting Facility		0	(1,875)	(2,000)	(100)	0	(3,975)	0	0	0	0	0	0	(3,975)
6.4 Residual Waste Facilities - Construction		0	0	28,000	27,000	(100,000)	(45,000)	(79,000)	0	0	0	0	(79,000)	(124,000)
GROSS COSTS		0	(6,375)	26,000	26,900	(102,500)	(55,975)	(86,500)	2,500	0	0	0	(84,000)	(139,975)
NET COSTS		0	(6,375)	26,000	26,900	(102,500)	(55,975)	(86,500)	2,500	0	0	0	(84,000)	(139,975)
TOTAL CAPITAL INCLUDING EXCLUDED PROJECTS														
TOTAL GROSS COSTS	0	7,180	38,034	87,116	109,316	(103,850)	137,796	(83,000)	9,900	3,000	3,000	3,000	(64,100)	73,696
TOTAL NET COSTS	0	7,180	38,034	87,116	109,316	(103,850)	137,796	(83,000)	9,900	3,000	3,000	3,000	(64,100)	73,696

Appendix E – Implementation of Source Separated Organics Programs in Multi-Residential Buildings

Summary

Implementation of city-wide SSO collection from multi-residential buildings is necessary if the City is to meet its waste diversion goals. Pilot projects testing organics collection have been undertaken in 28 buildings throughout the City to date, the results of which are outlined in this Appendix. Approval is being sought to implement source separated organics collection in multi-residential buildings. The program could be phased in over approximately one and a half years, commencing in mid-2008. It is projected that approximately 30,000 tonnes of SSO will be diverted annually, which will have a 3.5% impact on the overall diversion rate for the City. To be successful, the program should be initiated once a volume-based rate structure is in place.

Description of Pilot Projects

Several different methods of collecting organics have been implemented in 28 buildings (4330 units) receiving City collection services to date. Residents are provided with the in-home kitchen containers and are allowed to use plastic liners, similar to their single-family dwelling counterparts. The buildings are provided with the outdoor collection containers and with once-a-week organics collection service. Deep collection systems, carts, bulk bins and automated chute systems were/are being tested, as well as closing the chute to garbage and dedicating it to organics for maximum convenience.

City staff arranged for the delivery of information materials door-to-door with the assistance of property managers and then followed up with a lobby display to have one-on-one contact with the residents and to hand out the kitchen containers. Posters were also provided to the property management to publicize and inform residents about the organics project. The list of acceptable Green Bin materials is identical to the list for the single-family Green Bin Program.

Two types of deep collection systems were installed in 2002 in two locations for the collection of household organics. The deep collection containers are 40% above ground and 60% is installed 5 feet underground. This allows for compaction by gravity and the cool underground temperature keeps organics virtually odour free. The system is being tested at a small 20 unit condo with no chute and at a large 266 unit rental building with a garbage chute that continues to be used for garbage. Collection is once a week at the large building, and once every three to four weeks at the smaller building.

Sixteen locations of various size were initiated into a cart organics collection in September 2005. Thirty-five gallon carts are being used for collection, which is the same cart used for commercial organics collection through the yellow bag program. The carts are collected on a weekly basis.

In May 2006, three locations which share a common collection point were put on bulk organics pick up. Since then one more building has come on the bulk organics depot collection.

In June 2006, a large (517 unit) complex which has a three-stream chute sorting system joined the program on the bulk organics collection route. This provides residents the opportunity to direct material into recycling, organics or garbage streams from the convenience of their chute room. A chute sorting system was also tested in a Toronto Community Housing Corporation (TCHC) building in 2002. It is estimated that there are approximately 125 buildings in the City that currently have a chute sorting system and another 65 buildings are planning to install one.

TCHC agreed to test cart collection of organics in three of their apartment buildings and subsequently have been participating since the end of July. One of their larger buildings will also be brought onto the bulk organics collection early in 2007.

Most recently, a large condominium building expressed interest in testing the closing of the garbage chute to garbage and dedicating it strictly for organics. This building was brought onto the program at the end of October 2006.

Results to Date

Quantity of Organics Collected

Overall the buildings are setting out an average of approximately 1 kg/hh/week of organics (compared to approximately 4 kg/hh/wk for single-family homes. Recent waste composition studies undertaken involving 20 buildings have shown that there is approximately 4 kg/hh/week of organics available in the waste stream. Thus, approximately one quarter of the organics are being captured.

Quantities set out by individual buildings range from a low of 0.43 kg/hh/week to a high of 2.09 kg/hh/week. The buildings with better performance either have very keen property management or no garbage chutes (residents must come to a common collection point regardless of whether disposing of waste, organics or recyclables).

Staff have been out to the TCHC buildings three times to weigh the organics set out and have found that the results fall in line with the results from the other buildings on the program. The quantity collected on the days monitored ranged from a low of 0.6 kg/hh/week to a high of 2.1 kg/hh/week.

Quality of Organics Collected

An organics waste composition study was undertaken in November 2005 to determine the quality of organics collected from the multi-residential pilot project and compare it to the quality of organic materials collected from single-family dwellings. The sample sorted had minimal contamination and was of good quality. There was no noticeable difference

in quality between the single-family dwelling sample and the multi-family dwelling sample. However, it should be noted that the sample of buildings participating in the Apartment SSO project are not necessarily representative of the overall City-wide multi-residential sector. The participating buildings volunteered to participate in the program and so are obviously keen. We did approach several buildings that have been traditionally poor recyclers, but they chose not to participate in the project.

The new three stream chute sorting system building, which was the most recent addition to the pilot, has been showing good participation, but is showing higher levels of contamination – over 20% by volume. This location will continue to be monitored closely to determine whether this changes as residents become more familiar with the new system. Our initial trial with retrofitting a TCHC building with a 3–stream chute sorting system in 2002 showed a substantial increase in contamination in the recyclables and a high level of contamination in the organics stream. There were also problems with overflow, mainly due to a lack of housing staff available to check on the system and change carts. This led to issues with vermin and the organics project was promptly terminated.

The complex which opted to close its chute to garbage and dedicate it for organics (to maximize convenience) was on the program for three weeks before discontinuing due to excessive contamination problems. They rejoined the program in January and are participating in the bulk depot collection method.

Resident Surveys

A four page survey was distributed door-to-door to residents in participating buildings in April 2006. Residents were provided with envelopes to drop off their completed surveys to the property management offices, to be collected by City staff for tabulation. Overall there was a 34% response rate. Of the respondents, 64% indicated that they participated in the organics collection program. Residents' main reason for participating was the belief that the program was good for the environment. Residents commented that by participating in the program they noticeably reduced their garbage.

When asked an open ended question on what they didn't like about the program, a number of responses were elicited. The main responses are as follows: residents felt the program was inconvenient, messy, attracted fruit flies, caused odour and more work. When solicited for comments on how to improve the organics collection (with no prompts), residents suggested clearer literature with stronger messages, collection points on each floor, the use of chutes for organics to make it as convenient as garbage, fines and penalties and making participation mandatory.

Property Managers' Feedback

The property managers of the buildings participating in the pilot project were asked to comment on their perceptions on how the program was working, to expand on any issues

they had with the program and to provide feedback on suggestions for improvement in the event the City would expand the organics collection project City-wide.

Overall the feedback from the property managers was positive. The property managers expressed that they were pleased to have the opportunity to reduce their waste and that the program was fairly easy, even though they did have some concerns. There was a consensus amongst them that there has not been a high response rate amongst the residents. Several property managers expressed concerns about odours and maggots as the project progresses into the summer time. One property manager indicated that they were participating in the project in anticipation of the waste levy. Several property managers stressed the importance of promotion and education materials and ongoing communication support from the City with respect to improving the success of the program.

Mechanical Biological Treatment as an Alternative

Mechanical biological treatment (MBT) is a waste treatment technology that recovers resources such as metal contained in waste, and produces low grade compost. It consists of mechanical sorting and biological treatment processes for mixed waste streams (residual waste).

MBT is a potential alternative to source separated organics collection from the multi-residential sector. Since the compost product made from MBT is of lower quality than compost made from SSO, it will be difficult to market. As such, it is recommended that we proceed with source separated organics collection from the multi-residential sector.

Implementation

SSO collection from multi-residential buildings will present some challenges, but needs to be implemented if the City is to meet its waste diversion goals. It is recommended that the program be phased in over approximately one and a half years commencing in mid-2008. The existing bulk waste collection contracts expire in 2008 and SSO collection would be included in the new tenders.

Unlike the single-family Green Bin program, one universal system will not fit all and the program would be implemented on a building by building basis. It is estimated that it would take approximately one and a half years to set up the program and educate the residents on a building by building basis (approximately 13 buildings per day).

It is proposed that the City provide the initial in-unit kitchen containers for all multi-residential units at a cost of approximately \$2.5 million for 500,000 units and the property management companies be responsible for the purchase of the outdoor containers. The property management companies would also be responsible for replacing broken containers and for the purchase of in-unit kitchen containers for new tenants, should the previous tenants not leave the container in the apartment when they move out.

The outdoor containers (bulk bin, cart, and deep collection) would have to be purchased by the buildings according to the City's specifications.

Some examples of anticipated costs for building owners to purchase their outdoor containers are outlined below based on average participation:

- A multi-residential complex of 50 units would require approximately 4 carts @ \$55 each, or \$220 in total;
- A multi-residential complex of 200 units would require approximately 15 carts @ \$55 each, or \$825 in total;
- A multi-residential complex of 300 plus would require approximately two plastic bulk bins @ \$500 each, or \$1,000 in total.

Some large buildings store their waste materials in a lower parking level and use a tractor to tow materials to an above ground collection point. These locations would have to use stronger steel bulk bins which costs approximately \$1,200 each.

The deep collection units range in price from approximately \$2,000 to \$3,500 plus installation costs. Liner bags range from \$98 for a pack of 20 small size bags to \$194 for a pack of 20 large size bags. One deep collection unit can service a building of approximately 300 units, based on a weekly collection.

Similar to recycling, the onus would be on property management to ensure that the organic material is not contaminated and is suitable for composting by the City.

Additional SSO processing capacity will be required to compost the organics collected from the multi-residential sector.

Effective education of residents will be required if the organics collection program is to be successful. For the pilot buildings, information materials were provided to the residents and followed up with lobby displays at which time the in-unit containers were distributed. The lobby displays occurred between 4 and 7 pm to catch as many residents as possible as they came home from work. This provided residents with face-to-face communication and gave them the opportunity to ask questions and dispel myths. This approach worked well in the pilot scenarios where property managers were fairly keen to participate and willing to follow up with residents who did not pick up their kitchen containers during the lobby display. In order to ensure all residents are aware of the program and support a faster paced roll-out for a city-wide initiative, it is recommended that teams of staff go door-to-door delivering kitchen containers, an information package and explaining the program to residents, similar to the door-to-door communication program undertaken for the single-family dwelling Green Bin rollout.

The performance of a building on organics collection often has more to do with the efforts of property management than the merits of a particular collection system. In order

to be successful, staff recommends that implementation of organics collection be subject to approval of the volume-based rate structure. Without a financial incentive, some property managers may not make the effort to operate an effective SSO separation system. The awareness in the multi-residential sector of a potential City waste reduction levy was a definitive factor encouraging buildings to take part in the current pilot project

With a financial incentive, it is estimated that buildings would set out an average of 75 kg/hh/year, which would result in an actual diversion after processing of approximately 30,000 tonnes annually.