

ACKNOWLEDGEMENTS

This report was prepared by Bacopo Environmental Solutions Inc. The author would like to acknowledge the assistance of the following in the preparation of the report:

- The Association of Municipal Recycling Coordinators
- The City of Toronto Solid Waste Management Division Policy and Operational Staff
- The Greater Toronto Apartment Association Head Office Staff and Various Members of the Association
- The Greater Vancouver Regional District Solid Waste Management Division
- The Region of Peel Solid Waste Management Division
- Stewardship Ontario
- The Vancouver Fire Department

TABLE OF CONTENTS

- 1.0 Introduction
- 2.0 Objectives
- 3.0 Research Conducted
- 4.0 Legislation Applicable to Toronto Multi-Residential Recycling Requirements
 - 4.1 City of Toronto Municipal Legislation
 - 4.2 Province of Ontario Regulation
 - 4.2.1 The Environmental SWAT Team
- 5.0 Toronto Waste Levy
 - 5.1 How does levy work
 - 5.2 Audit of Multi-Unit Residential Waste
 - 5.3 Measurement of Levy
 - 5.4 Financial Impact of Levy
 - 5.5 Toronto Comprehensive Improvement Plan
- 6.0 Determination of the Number of Multi-Unit Buildings in Toronto
 - 6.1 Greater Toronto Apartment Association
 - 6.2 City of Toronto Finance Division
 - 6.3 Statistics Canada
 - 6.4 City of Toronto Municipal Licensing and Standards Division
 - 6.5 City of Toronto Solid Waste Management Division
- 7.0 Compilation of Recycling Data for Various Multi-Unit Buildings
 - 7.1 Analyses of Data
 - 7.2 Results of Interviews with Superintendents and Property Managers
 - 7.3 Example of a Successful Recycling Program
 - 7.3 Results of Discussions with Greater Vancouver Regional District and Vancouver Fire Department
- 8.0 Conclusions
- 9.0 Recommendations

Appendices

- Appendix 1 - City of Toronto 2005 Waste Diversion Report
- Appendix 2 - Scarborough Multi-Unit Waste Audit
- Appendix 3 - Example of a Successful Multi-Unit Building Recycling Program
- Appendix 4 - Tabular Recycling Data for 4 Categories of Multi-Unit Buildings
- Appendix 5 - Toronto List of Materials That Can be Recycled
- Appendix 6 - Toronto SWMSD Recycling Handbook for Owners, Property Managers and Superintendents

1.0 INTRODUCTION

The Keele Valley Landfill, Toronto's last active landfill site, closed at the end of 2002. Consequently, all of Toronto's municipal solid waste goes to the state of Michigan for disposal in the Carleton Farm Landfill owned by Republic Services. Together with making the decision to send all of Toronto's municipal waste to Michigan for disposal, Toronto Council also set an aggressive goal of 100% diversion of waste from landfill by 2012. As part of the plan to encourage the achievement of this goal, Toronto Council approved the implementation of a multi-unit waste reduction levy in July, 2005. The purpose of the waste levy is to provide financial incentive to encourage maximum use of the no-charge recycling service provided by the City of Toronto (Toronto) by placing a levy on a portion of the residential solid waste generated by each multi-unit residential building. The levy was to be initiated on July 1, 2006 after a six month mock-building trial run was conducted beginning January 1, 2006. The implementation of the program has been delayed due to a number of operational issues. It is anticipated that City of Toronto Solid Waste Management Services Division (SWMSD) staff will once again bring this issue before Toronto Council for consideration in the first quarter of 2007, with an anticipated implementation date of January 1, 2008.

Waste diversion from multi-unit buildings in Toronto was at 13% in 2005, compared to 53% for single households, according to a February 15, 2006 report prepared by the General Manager of the Toronto SWMSD (see Appendix 1).

2.0 OBJECTIVES

The Greater Toronto Apartment Association (GTAA) is actively pursuing (i) a means to minimize the potential financial impact the Toronto waste levy will have on its members and (ii) methods to enhance the capture of dry recyclable materials in the multi-unit buildings of its members. To this end it hired Bacopo Environmental Solutions Inc. on November 6, 2006 to conduct research and prepare this report outlining what course of action the GTAA should pursue in order to achieve its objectives.

3.0 REASERCH CONDUCTED

- Internet search on apartment recycling best practices
 - Review of trade journals on apartment recycling best practices
 - Review of Toronto Council reports relating to recycling and the waste levy
 - Discussions with the Association of Municipal Recycling Coordinators (AMRC) about apartment recycling best practices
 - Discussion with Stewardship Ontario about funding and waste audits
 - Meeting with the GTAA sub committee on recycling
 - Meetings with the President & CEO of the GTAA
 - Meetings with Toronto SWMSD Policy and Operational staff
 - Review of past reports on pilot programs for the enhancement of recycling in multi-unit buildings
 - Extensive data gathering from GTAA members on 275 buildings in Toronto
-
- Interviews by telephone and e-mail of various property managers and superintendents of GTAA buildings
 - Compilation and analysis of the data received from GTAA members

- Review of provincial and municipal legislation regarding recycling in multi-unit buildings in Toronto
- Discussions with the City of Vancouver and City of Toronto Fire Departments

4.0 LEGISLATION APPLICABLE TO TORONTO MULTI-RESIDENTIAL RECYCLING REQUIREMENTS

4.1 City of Toronto Municipal Legislation

Recycling is mandatory for all residential properties (including multi-residential) according to the City of Toronto Municipal Code, Chapter 844. The City of Toronto has a diversion goal from landfill of 100% by 2012.

4.2 Province of Ontario Regulation

Ontario Regulation 103/94 applies to multi-residential recycling requirements. The regulation states that “The owner of a building that contains 6 or more dwelling units shall implement a source separation program for the waste generated at the building.” In addition, the regulation states that the following materials shall be collected in the source separation program:

- Aluminum food or beverage cans
- Glass bottles and jars for food or beverages
- Newsprint
- Polyethelene terephthalate bottles for food or beverages
- Steel food or beverage cans
- The categories of waste that are collected or accepted by the blue box waste management system, if any, of the municipality where the building is located

4.2.1 The Environmental SWAT Team

The province of Ontario has a team of inspectors which goes around the province enforcing environmental regulations. The Environmental SWAT Team conducted an inspection sweep of waste recycling in apartment buildings, condominiums and other multi-unit residential buildings in the Greater Toronto Area, Ottawa, Kingston and Belleville in August 2001. In total the team conducted 105 inspections which resulted in 63 Provincial Officer Orders being issued. Of the 63 orders issued 53 resulted in court summonses and fines. Seventy of the inspections were in Toronto which resulted in 52 of the 53 total court summonses and fines issues by the SWAT team.

The province of Ontario has established a goal of 60% diversion of waste from disposal, for Ontario Municipalities to achieve by 2008.

5.0 CITY OF TORONTO WASTE LEVY

It is proposed that the waste levy will apply to all apartment buildings, condominiums, town homes and co-operatives. The levy has been set to increase the waste diversion at multi-unit buildings from 13% to 26%.

5.1 How Does the Waste Levy Work

Each building will be given a fixed amount of no-charge waste volume based on the amount of waste the building should produce if it were to recover recyclables at an equal rate to single family homes. That rate has been determined by Toronto SWMSD staff to be about 60% of the dry (blue and grey box) recyclable materials available in the typical waste produced by multi-unit building residents. If a building stays within the no-charge waste limit, there is no waste levy applied against that building, however should it exceed that waste volume a waste levy is paid on the excess waste produced. Billing to building owners will be done on a quarterly basis, with each building operator required to make a pre-payment of one quarter of the estimated cost of collection for the year.

5.2 Audit of Multi-Unit Residential Waste

An audit of Toronto multi-unit residential waste was performed in 2006 by Stewardship Ontario. The audit results were based on garbage and recycling samples from ten multi-unit residential complexes in the Scarborough area of Toronto. A table of the results for this audit is included in Appendix 2. Based on the 2006 audit, the annual solid waste and recycling generation rate per apartment unit is approximately 776 kg. The formula for the determination of the waste levy considers the generation rate per unit excluding certain bulky items. Toronto SWMSD staff has used a number of 680 kg/unit/year as the generation rate for the determination of the waste levy to have been applied in 2006. That number could change when the application of the waste levy is brought before Toronto Council for its consideration in 2007. However, for the purposes of calculating various waste and recycling capacities in this report, the author has used a generation rate of 680 kg/unit/year to be consistent with Toronto staff.

The audit separates the waste/recycling materials into eight categories. The first five categories paper, paper packaging, plastics, metals and glass are considered to include all the dry recyclable materials that Toronto wants to capture through its blue box/grey box recycling program. Based on weight, the three materials identified in the audit which represent the most abundant recyclable materials in multi-unit building waste/recyclables are:

- Newspapers
- Corrugated cardboard
- Boxboard/cores

The five categories named above represent approximately 46% of the total materials identified in the audit, however not all materials in these categories are recyclable. Toronto staff has determined that approximately 44% of the materials in the waste/recycling stream generated by multi-unit residents are potentially blue box materials. Based on an annual total generation rate of 680 kg/unit, 44% of that annual rate equals approximately 299 kg. Toronto staff has set a capture rate of 60% of the available 299 kg of recyclables, that is, 180 kg/unit/year, leaving a residual waste for the multi-unit building recycling program of 500 kg/unit/year.

Each building will be allowed to dispose of 500 kg of residual waste/unit/year at no charge. The collection and disposal of any waste above that amount will be subject to the waste levy. Toronto staff has translated the 500 kg/unit/year of allowable residual waste into cubic yards. For compacted waste, this weight of residual waste represents 2.4 cubic yards/unit/year and for uncompacted waste, it represents 5.4 cubic yards/unit/year.

5.3 Measurement of the Waste Levy

The city proposes to measure the volume of waste placed out for collection by use of a metering system. A transponder will be placed on each collection bin and will send electronic information on the location, date and container volume to a central database when each collection takes place. The transponder for each bin will be placed accordingly to match the radar frequency reader on the truck. The application of the electronic technology in such a rugged environment has created some operational issues for Toronto, which it is in the process of resolving with its equipment supplier.

5.4 Financial Impact of Waste Levy

The waste levy has been set at \$30/tonne for each tonne in excess of the residual waste allotment established for each building. In addition, there is an escalating charge for building operators that have a poor waste diversion program up to a maximum \$90/tonne. Toronto staff estimate that the levy will average out at approximately \$3/unit/years across all the multi-unit buildings in Toronto. Assuming that one cubic yard equals 210 kg of compacted waste or 92 kg of uncompacted waste, based on a charge of \$30/tonne, one cubic yard of compacted waste in excess of the building's residual waste allotment will be billed at $210 \text{ kg/cubic yard} \times \$30/1000 \text{ kg} = \$6.30/\text{cubic yard}$ and one cubic yard of uncompacted waste in excess of the building's residual waste allotment will be billed at $92\text{kg/cubic yard} \times \$30/1000 \text{ kg} = \$2.76/\text{cubic yard}$. The escalation charges applied to buildings with a poor recycling program are shown on Table 1 below.

TABLE 1
Escalation Fees Chart

Cubic Yards Over Per Week	Charge Per Cubic Yard Compacted(\$)	Total Charge Per Week Compacted(\$)	Charge Per Cubic Yard Uncompacted(\$)	Total Charge Per Week Uncompacted(\$)
1	6.30	6.30	2.76	2.76
2	6.30	12.60	2.76	5.52
3	6.30	18.90	2.76	8.28
4	12.60	31.50	5.52	13.80
5	12.60	44.10	5.52	19.32
6	12.60	56.70	5.52	24.84
7	18.90	75.60	8.28	33.12
8	18.90	94.50	8.28	41.40
9	18.90	113.40	8.28	49.68

In order for a building owner to determine (i) what the suggested recycling capacity for his/her building is and (ii) what the total maximum residual waste allotment is for his/her building, a chart has been created for buildings containing from 10 to 400 units. This chart is shown as Table 2 below.

TABLE 2

Weekly Recycling/Waste Capacity For

Multi-Unit Buildings

# OF UNITS	***TOTAL ALLOWABLE UNCOMPACTED WASTE (yds ³)	**TOTAL ALLOWABLE COMPACTED WASTE (yds ³)	SUGGESTED RECYCLING CAPACITY (yds ³)	*SUGGESTED RECYCLING CONTAINERS
10	1.1	0.5	0.6	1 cart
20	2.1	0.9	1.2	2 carts
30	3.1	1.4	1.8	3 carts
40	4.2	1.9	2.4	4 carts
50	5.2	2.3	3.0	1-3 yds ³ bin or 5 carts
60	6.3	2.8	3.6	6 carts
70	7.3	3.2	4.2	7 carts
80	8.3	3.7	4.8	8 carts
90	9.4	4.2	5.4	9 carts
100	10.4	4.6	6.0	1-6 yds ³ bin or 10 carts
110	11.5	5.1	6.6	11 carts
120	12.5	5.5	7.2	12 carts
130	13.5	6.0	7.8	13 carts
140	14.6	6.5	8.4	14 carts
150	15.6	6.9	9.0	1-6, 1-3 yds ³ bins or 15 carts
160	16.7	7.4	9.6	16 carts
170	17.7	7.8	10.2	17 carts
180	18.7	8.3	10.8	18 carts
190	19.8	8.8	11.4	19 carts
200	20.8	9.2	12.0	2-6 yds ³ bins or 20 carts
210	21.9	9.7	12.6	21 carts
220	22.9	10.1	13.2	22 carts
230	23.9	10.6	13.8	23 carts
240	25.0	11.1	14.4	24 carts
250	26.0	11.5	15.0	2-6, 1-3 yds ³ bins or 25 carts
260	27.1	12.0	15.6	26 carts
270	28.1	12.4	16.2	27 carts
280	29.1	12.9	16.8	28 carts
290	30.2	13.4	17.4	29 carts
300	31.2	13.8	18.0	3-6 yds ³ bins or 30 carts
310	32.3	14.3	18.6	31 carts
320	33.3	14.7	19.2	32 carts
330	34.3	15.2	19.8	33 carts
340	35.4	15.7	20.4	34 carts
350	36.4	16.1	21.0	3-6, 1-3 yds ³ bins or 35 carts
360	37.5	16.6	21.6	36 carts
370	38.5	17.0	22.2	37 carts
380	39.5	17.5	22.8	38 carts
390	40.6	18.0	23.4	39 carts
400	41.6	18.4	24.0	4-6 yds ³ bins or 40 carts

* 1 wheeled cart = 95 gal = 0.57 yd³ 1 flower pot = 300 gal = 1.8 yd³

** assume 1 yd³ = 210 kg of compacted waste

*** assume 1 yd³ = 92 kg of uncompact waste

5.5 Toronto Comprehensive Recycling Improvement Plan

Toronto Council directed that the management staff of each multi-unit building in Toronto was required to submit a recycling improvement plan to the General Manager of the SWMSD for approval. In order to assist with this process, Toronto has formulated a chart for building management to complete and submit. It is available electronically on the City of Toronto website under the 'garbage and recycling' link. Once connected to the link follow the path of Multi-unit (apts) – Recycling improvement plan.

6.0 DETERMINATION OF THE NUMBER OF MULTI-UNIT BUILDINGS IN TORONTO

Various sources of data were researched to determine the number of multi-unit buildings and associated dwelling units in Toronto.

6.1 The Greater Toronto Apartment Association

The GTAA provided six lists of privately owned multi-unit buildings in Toronto, circa 1998. A list was compiled for each of the six area municipalities that made up Metropolitan Toronto prior to the amalgamation of the new City of Toronto. Each list was broken down into four categories of building types, based on the number of units contained in the building. The four categories are as follows:

- Buildings with \geq eight units, but $<$ 100 units
- Buildings with 100 – 199 units
- Buildings with 200 – 400 units
- Buildings with $>$ 400 units

Table 3, shown below, lists the number of buildings in each category for each former area municipality in Toronto. The number of buildings listed totals 4,245.

TABLE 3
Number of Multi-Residential Buildings in Toronto in 1998

Former Area Municipality	<100 units	100-199 units	200-400 units	>400 units	TOTAL
Toronto	1232	168	105	41	1546
Scarborough	288	124	73	7	492
East York	221	26	23	5	275
Etobicoke	430	88	37	8	563
York	294	38	22	5	359
North York	696	183	120	11	1010
Total	3161	627	380	77	4245

6.2 City of Toronto Finance Division

The City of Toronto Finance Division was requested to provide a list of all privately owned multi-unit buildings in Toronto that it had listed on the tax assessment role. A list of 3,530 buildings was provided according to which political ward each building was located in. The breakdown of the buildings is as shown in Table 4 below.

TABLE 4

**Number of Privately Owned Multi-Residential Buildings in Toronto in 2006 –
By Political Ward**

Political Ward	Number of Multi-Unit Buildings
1	21
2	53
3	38
4	81
5	114
6	171
7	46
8	45
9	117
10	124
11	92
12	134
13	91
14	180
15	142
16	92
17	51
18	57
19	55
20	130
21	166
22	217
23	51
24	16
25	75
26	110
27	155
28	58
29	103
30	36
31	86
32	105
33	42
34	125
35	63
36	67
37	98
38	30
39	3
40	40
41	6
42	6
43	32
44	6

According to Statistics Canada 2001 Census Semi-Custom Profile, there were the following apartment units in Toronto:

- Apartment buildings with 5+ storeys – 354,995 units
- Apartment buildings with <5 storeys – 116,915 units

TOTAL	471,910 units
-------	---------------

6.4 City of Toronto Municipal Licensing and Standards Division

According to a report prepared in December 2003 by the General Manager of the City of Toronto Municipal Licensing and Standards Division, apartments account for approximately one half of Toronto's dwelling units. There are 454,430 units in 3,590 rental apartment buildings in Toronto.

6.5 City of Toronto Solid Waste Management Division

Based on a discussion with staff from the Toronto SWMSD, it was determined that Toronto presently provides municipal waste/recycling collection services to over 5,200 multi-unit complexes with over 490,000 units in the City of Toronto. These complexes include apartments, condominiums, town homes, co-operatives and public housing buildings. The list of buildings in item 6.1 was prepared in 1998 and is consequently outdated. Nevertheless, the ratio of buildings in the four categories is probably very similar today as it was in 1998. In addition, the list of buildings in item 6.2 does not include town homes, co-operatives and public housing. Once again, this list provides a good representation of which political wards contain the greatest percentage of multi-unit buildings. The number of dwelling units shown in items 6.3 and items 6.4 are five and three years old respectively and indicate a total number of dwelling units, which is somewhere between four to seven percent less than the Solid Waste Management Division number of 490,000 units.

Based on the various sources of data researched, it confirms that the Toronto SWMSD figures are reliable and accurate in terms of representing the number of multi-unit complexes and dwelling units in Toronto.

7.0 COMPIATION OF RECYCLING DATA FOR VARIOUS MULTI-UNIT BUILDINGS

On each of November 20, 2006 and December 8, 2006, Brad Butt, President and CEO of the GTAA sent a written communication to all GTAA members to participate in the recycling study of apartment buildings being conducted by Bacopo Environmental Solutions Inc. on behalf of the GTAA. Members of the GTAA were invited to submit various recycling information related to buildings they managed as part of the research conducted for this study. Information was received for 275 buildings. This information was put into tabular form and is shown on Tables 5, 6, 7, and 8 below.

7.1 Analysis of Information

It is important to note that the 275 buildings which provided information for this study probably represent 8-10% of the total buildings represented by the GTAA members.

Consequently, some of the information received and analyzed might not be representative of the remaining 90-92% of the buildings, because of the small sampling size. The owners of the buildings that participated in the study provided the following information:

- Building address
- Number of units
- Number, size and type of recycling containers
- Location of recycling containers
- Whether or not the building has a garbage chute

The information provided was tabulated and analyzed for buildings in four categories:

- Buildings with < 100 units
- Buildings with 100-199 units
- Buildings with 200-400 units
- Buildings with > 400 units

The tables for the four categories are included in Appendix 4. Table 5 below shows a summation of some of the statistical data that is relevant to the analysis.

TABLE 5
Recycling Data for All Buildings

	Buildings With Recycling Outdoors		Buildings With Recycling Indoors		Buildings With No Garbage Chute		Buildings With Garbage Chute	
	yd ³ Below Capacity	Not Meeting Specs	yd ³ Below Capacity	Not Meeting Specs	yd ³ Below Capacity	Not Meeting Specs	yd ³ Below Specs	Not Meeting Specs
Buildings < 100 units	90.6 47%	58/124 47%	6.2 48%	5/14 36%	55.5 48%	40/84 48%	35.6 42%	23/58 40%
Buildings 100-199 units	61.5 49%	23/52 44%	7.9 32%	3/20 15%	13.0 57%	4/11 36%	56.8 50%	16/51 31%
Buildings 200-400 units	187.2 62%	26/47 55%	46.8 64%	6/15 40%	23.8 60%	3/3 100%	195.4 59%	24/53 45%
Buildings > 400 units	82.4 53%	5/8 63%	97.6 72%	2/2 100%	N/A	N/A	180.0 62%	7/10 70%
All Buildings	421.7 54%	112/224 50%	158.5 64%	16/51 31%	92.3 50%	47/98 48%	305.8 46%	70/172 41%

Notes: Total # of buildings not meeting Toronto recycling requirements 112+16=128
 Total % of buildings not meeting Toronto recycling requirements 128/275= 47%
 Total recycling capacity below Toronto specs all buildings 421.7=158.5=580.2 yd³
 Total % of recycling capacity below Toronto specs all buildings 580.2/1028=56%
 Total number of buildings = 275
 Total # of units for all buildings = 39,963
 Average # of units per building = 39,963/275 = 145

It was assumed that whatever container recycling capacity each building had was being fully utilized for every collection period. The key findings of the analysis are as follows:

- Of the 275 buildings reporting information 128(47%) did not have enough recycling container capacity available to meet Toronto's recycling requirements and thereby avoid paying the Toronto waste levy.
- When added together, the total volume of container recycling capacity of the 128 buildings amounted to only 44% of the total recycling container capacity required to avoid paying the Toronto waste levy.
- If it is assumed that 47% of the approximately 5,200 multi-unit buildings (averaging 145 units/building), serviced by Toronto, only have 44% of the total recycling capacity required to avoid the Toronto waste levy. The following additional tonnes of recyclable materials can be captured, by ensuring that all the buildings in Toronto have the appropriate recycling capacity and are utilizing it fully on a weekly basis:

$5200 \text{ buildings} \times 145 \text{ units} \times 47\% = 354,380 \text{ units}$

$354,380 \text{ units} \times 0.56(180 \text{ kg of recyclables/unit/year}) / 1000 \text{ kg} = 35,721 \text{ tonnes}$

If these additional recycling tonnes were captured, it would almost double the total amount of recycling tonnes received from Toronto multi-unit buildings in 2005.

- For those building managers that provided a central area for recycling that was shared by multiple buildings, 64% (40/63) of those buildings didn't meet Toronto's recycling standards.
- For those buildings that had indoor recycling capacity 69% meet Toronto's recycling standards versus 50% for buildings that had outdoor recycling capacity.
- Surprisingly, 59% of buildings with garbage chutes met Toronto's recycling standards versus 52% for buildings without garbage chutes. The feeling of most observers involved in apartment recycling programs is that, if tenants had to walk to a waste bin to dispose of waste as opposed to throwing it down a chute, it would encourage a better participation in the recycling program for the building, since both the waste and recyclables disposable were equally convenient.
- It appears that some of the mid-size to larger buildings are using a large number of wheeled carts for their recycling program which is time consuming for the superintendent (super) to roll out to the curbside each collection period.

7.2 Results of Interviews with Superintendents and Property Managers

Supers and property managers were interviewed by phone or through e-mail on the pros/cons of multi-unit building recycling practices. The key findings were as follows:

Q. Will closing garbage chutes improve recycling in your building?

A. Approximately 80% said no; various comments received were terrible idea; the building will become a garbage dump; and the stairways between floors will be covered in garbage.

Q. Would you be willing to have a recycling cart on each floor of your building for tenants to use and for the super to remove and manage?

A. This question received support from approximately 50% of those interviewed.

Q. Would placing recycling containers indoors versus outdoors improve tenants' participation in the recycling program?

A. Approximately 60% said yes but some seemed resistant because of potential problems with pests, vermin and odours.

Q. Do you think placing waste bins and recycling containers side by side for tenants with no garbage chutes will create excessive contamination in the recycling containers?

A. this question was equally supported by people who said yes and those who thought otherwise.

Other information received and observations made during the interviews were as follows:

- Some supers believe that tenants that are new immigrants don't care about recycling.
- One property manager recalled closing a number of garbage chutes in buildings he managed approximately 12 years ago, resulting in a positive effect on the tenant participation in the building recycling program.
- One super suggested a town hall meeting for tenants and building management to discuss ways to increase participation in the recycling program.
- One super asked for a note acknowledging that the tenants in his building were doing a good job of recycling, in order to place this message in the building's newsletter, with the goal of inspiring additional participation in the recycling program by the tenants.
- Many supers suggested effective communication (tenants/supers/property management) is the key to a successful recycling program.
- It was suggested that Toronto supply a blue box container to each unit in every multi-unit building in Toronto, because of the lack of space in each unit to store recyclables.
- Some supers were very pessimistic about their tenant's ability to successfully participate in a recycling program.
- One super thought that only those tenants that cared about recycling would participate in the building recycling program and no matter what anyone did, all those that didn't care, wouldn't participate.
- One super suggested that each tenant pay a recycling fee each year that would be reimbursed if the tenant participated in the building recycling program to the extent required by Toronto.
- It was suggested that Toronto provide proper disposal for household hazardous waste collected in multi-unit buildings.
- A super with a tri-sorter said tenant participation in the recycling program was high, but the level of contamination in the recycling materials was rather high in his estimation, although the Toronto staff had not notified him of such a problem.
- Some supers felt that the tenants in their buildings participated more in fiber recycling rather than container recycling.
- A number of supers said the recycling bins in their building were overflowing well before the day of collection of the bin.

- One super believed that young children in his building were more interested in recycling than the adults were.

7.3 Example of a Successful Recycling Program

Appendix 3 contains an e-mail from a utility management coordinator for Park Property Management detailing the reduction in waste and increase in recycling in a number of the buildings his company manages. In addition, a copy of a recycling implementation plan for one of his buildings is included as a very good example of what a motivated management company can do to increase recycling in its building.

7.4 Discussions with Greater Vancouver Regional District and Vancouver Fire Department

The Greater Vancouver Regional District (GVRD) was contacted to determine the details of its multi-unit building recycling program. The key findings are as follows:

- Based on a recent waste audit, it was determined that approximately 12% of multi-unit buildings had garbage chutes.
- There was speculation in the Greater Toronto Area that due to a fire in a Vancouver apartment building garbage chute in the past, there was legislation passed banning the use of garbage chutes in multi-unit buildings in Vancouver. The GVRD staff were not aware of any such legislation and either was the Vancouver Fire department. The only requirement the Fire Department had of buildings with garbage chutes was that the chute be equipped with a heat sensor and that each chute room had a sprinkler system.
- The GVRD staff had no information on the relationship of garbage chutes and the rate of recycling in multi-unit buildings. However, GVRD staff did say that... “closing garbage chutes should have a positive effect in recycling, in theory anyways, provided of course that the building’s recycling containers and garbage containers are equally convenient (or equally inconvenient) for residents to get to.”
- The GVRD has implemented a mandatory-pay recycling program. All owners of multi-unit buildings are required to pay a recycling service fee whether they use the recycling service or not. Most buildings participate since the owners are already paying for the service.
- The GVRD tries to site wheeled cart recycling containers in locations that are convenient for residents. In most cases this means putting them close to the garbage container.
- The GVRD does not require building managers to bring out the recycling carts for collection. The collection crew goes and gets them if they are indoors. The GVRD does charge a premium for this service in some cases.
- The GVRD used to provide plastic tote bags for residents to store their recyclables.

8.0 CONCLUSIONS

- Some building managers provide recycling containers in a central area that are shared by multiple buildings. This creates an inconvenience for those tenants that are located furthest from the containers and consequently, they don’t recycle as much.
- Children are the next generation of recyclers and should be used as ambassadors for today’s recycling programs to encourage parents and families to participate.

- There are different types of multi-unit buildings with different constraints to recycling. Property management, building supers and local municipalities should work jointly to find the most cost effective and practical recycling program for each complex.
- It appears that in some cases property management didn't put a lot of time and effort into understanding and supporting the waste/recycling management programs in their buildings. In some cases, property management appeared out of touch with the concerns and needs of the supers managing the recycling programs. An example of this is the shortage of recycling capacity at many buildings, including the overflow of existing recycling containers.
- It also appears that most property managers are concerned about keeping costs down; avoiding the waste levy by enhancing the recycling program in their buildings, is an effective means of achieving that goal.
- Some supers perceive an enhanced recycling program in their complex as additional work for them. In the short term, that could be the case however, in the long term, a well maintained and effective recycling program will result in a cleaner building which will require less effort and attention for the supers to maintain.
- A major conclusion emerging from a review of past recycling studies in multi-unit buildings is that building management needs to continue communication and education efforts with their tenants on an ongoing basis or else material recovery rates for recycling tend to decline.
- Smaller buildings generally don't have garbage chutes and therefore participation in recycling and waste disposal programs requires relatively the same effort and time commitment for tenants. It is expected that the volume of recyclables collected in these smaller buildings without a garbage chute would be greater than similar sized buildings with chutes. However, the information gathered indicates that more buildings without a garbage chute, in this size category, experience non compliance with Toronto's recycling requirements versus similar sized buildings with garbage chutes. This conclusion may not be accurate of what happens in the majority of Toronto buildings, in this size category, because of the small sampling of buildings used in the study. Based on the information in Table 3, 75% of the multi-unit buildings in Toronto were less than 100 units in 1998. If that same percentage is applied to the approximate 5200 buildings serviced by Toronto presently, it equates to 3900 buildings that are less than 100 units. Therefore, the 138 buildings in this size category that were analyzed for this study only represent approximately 3.5% of the total number in Toronto. To determine more meaningful results, a larger sampling of this category of building needs to be conducted.
- Supers play a big role in how successful a building's recycling program can be. From the limited interviews that were conducted of this group, it appears that there is a wide range of attitude and perception amongst the supers when it comes to the implementation and effectiveness of building recycling programs. Some are real "keeners" and others don't really care about the program, other than it is one of their mandated job tasks. Most supers fall somewhere in between these divergent mindsets. Some feel isolated in their ability to run the program because they perceive that property management doesn't care and either do the tenants. They believe that there is a lack of financial and communication resources to properly run the program and a lack of ability on their part to control tenants. Supers need to be provided with the appropriate resources to maintain a successful building recycling program.
- Residents in multi-unit buildings don't have the same neighbourhood peer pressure to recycle since garbage chutes and central recycling areas allow residents to manage

their waste in relative anonymity. A resident in a single family household needs only to look out his/her window on the appropriate day to see which of the neighbours aren't setting out their blue box for collection and it is obvious who is not participating.

- In summary, based on the present research data and review of previous studies on improving the rate of recycling, there doesn't appear to be one particular strategy which can be universally applied to all multi-unit buildings in Toronto. Rather, what is being suggested is that each building owner review the menu of suggestions included in the next section of this report and try to implement as many of the recommendations as are practically feasible for his/her building.

9.0 RECOMMENDATIONS

1. All building managers should review table 2 in this report to ensure their buildings have the appropriate volume of containers for waste and recycling in order to meet the City of Toronto's recycling requirements and thereby avoid paying the waste levy.
2. In particular, building managers should ensure that they have sufficient volume to capture corrugated cardboard, which was identified in the waste audit conducted for Stewardship Ontario, as one of the most abundant recyclable materials available in the multi-unit waste stream.
3. Building managers should consider a mix of wheeled recycling carts and larger container bins. The use of wheeled carts should be used only in areas where the larger container bins can not be easily placed and removed on a regular basis, such as laundry rooms, garbage chute rooms, mailrooms, common rooms and indoor parking areas. If building managers can afford the room, they should maximize the use of larger recycling bins (2 - 6 cu yard capacity) and only use wheeled carts to place strategically in and around the building to enhance the capture of recyclables.
4. Where feasible, indoor recycling areas should be provided rather than outdoor areas. If the area is outdoors the containers should be stored on a concrete surface marked with the building address and chained to a post or railing or to each other to avoid theft.
5. All recycling areas should be well lit, well maintained, safe, readily accessible, provided with sufficient well marked recycling containers, clearly stating what materials can be placed in the containers. The area should also be serviced by a sprinkler system.
6. Building managers should consider placing a wheeled recycling cart in the chute room of each floor in their building. Prior to the placement of the carts, the building manager should ensure that all fire and health department requirements are met.
7. Waste and recycling containers should be well labeled and placed next to each other to encourage tenants to bring both their waste and recyclables when they visit the building's waste disposal area.

8. The recycling containers should be monitored on a daily basis to determine if the recycling capacity of the building is being exceeded prior to the collection of the recycling materials and if it is, sufficient additional capacity should be added.
9. Property managers should provide their building managers with all the communication tools required to educate and motivate tenants to participate in the building recycling program including the following:
 - a) An updated list of materials that can be recycled (see appendix 5)
 - b) The Toronto SWMSD recycling handbook for owners, property managers and superintendents (see appendix 6)
10. Building Managers should include the following communication strategies to promote their building's recycling program:
 - a) Recruit building recycling stewards
 - b) Do door-to-door visits
 - c) Distribute written materials and newsletters
 - d) Display posters and instructions in the building lobby, chute rooms, laundry rooms etc.
 - e) Hold town hall meetings and publicity events
 - f) Continue the communication programs over time
11. Property managers should periodically review the state of the recycling program with their building managers to ensure it is operating in an efficient manner and should also welcome feedback from the building manager on the effectiveness of the program on an ongoing basis.
12. Each new building manager should be given an orientation of the building's recycling program by the property manger.
13. Each new tenant should be given an orientation of the building's recycling program by the building manager.
14. The lease agreement for each tenant should include a clause which states that proper participation in the building's recycling program is mandatory. If a tenant is found not participating in the program or creating excessive contamination a recycling levy will be applied to the tenant's monthly rent until he/she conforms to the recycling requirement.
15. Building/property mangers should establish a tenant/management recycling committee for each building which could meet periodically and assist in providing the communication link to tenants, regarding recycling issues for the building.
16. Periodic town hall meetings can be held by property management to refresh and update the tenants understanding of the building's recycling program.
17. The building manager in each building should contact the Toronto SWMSD to determine who the municipal contact is for his/her building regarding waste/recycling collection issues.

18. Building managers with larger buildings (>400 units) can consider the use of multiple chute systems for the collection of waste and recyclables.
19. Building managers should instruct their tenants to wash out all containers prior to placing them into the recycling containers to prevent the attraction of vermin and pests. This is particularly relevant for building managers that have recycling containers located indoors.
20. Wherever feasible, building managers should provide each building with its own recycling containers as opposed to having multiple buildings sharing a centralized recycling area.
21. In order for building managers to decrease or eliminate the waste levy for their buildings they should:
 - a) Keep bulky items out of the waste bins (Toronto has a separate collection for these items that doesn't count against the waste levy)
 - b) Properly compact the waste in the bins
 - c) Set out only full bins for collection
22. Toronto should provide all multi-family households with a blue box or reusable tote bag to store and transport recyclable materials.
23. Toronto should consider a means for multi-unit building managers to dispose of the household hazardous waste collected from building residents.
24. On behalf of property managers with buildings of 8 – 200 units, the GTAA can consider requesting Toronto to pass the appropriate legislation allowing property managers the option of closing down garbage chutes.