TORONTO STAFF REPORT

April 19, 2006

To: Works Committee

From: Richard Butts, General Manager, Solid Waste Management Services

Subject: Supplementary Information on the Eucan Recycling/Litter Bin Test

Purpose:

To respond to the request from the Works Committee for additional information on the Eucan recycling/litter bin test.

Financial Implications and Impact Statement:

There are no financial implications arising from this report at this time.

Recommendations:

It is recommended that:

(1) the Eucan proposal for the new recycling/litter bins not be accepted;

(2) recycling/litter bins be included in the Coordinated Street Furniture Request for Proposals (RFP); and

(3) the Eucan bins installed for the test remain in place, under the existing terms and conditions, until a final decision is reached by Council on the award of the Coordinated Street Furniture program, subject to concurrence by Eucan.

Background:

At its meeting on January 11, 2006, the Works Committee had before it the report titled "Test Results of New Recycling/Litter Bins." This report discussed the test results including the financial analysis, consultation feedback and bin performance issues including qualitative waste analysis. The Works Committee deferred this report to allow for the gathering of additional quantitative data on the recycling performance of the test bins; and to allow for the consideration of the results of the Eucan test simultaneously with the report on a Harmonized Street Furniture

approach; and further requested "that the report be forwarded to the City Manager's Office for input prior to submission to the Works Committee and also with respect to Council's direction of July 20, 21 and 22, 2004." The Committee also requested that revised dates for the proposed Community Council consultation and the date for report back to the Works Committee on the outcome of such consultation be provided.

Comments:

Waste Audit of Recycling/Litter Bins

This waste audit examined the material collected in the current recycling/litter bins known as the SilverBox compared to the new recycling/litter bins tested referred to as the EcoMupi and EcoBox. The study determined the quantities of recyclables captured, the contamination levels and the quantity of recyclables placed in the garbage compartment. City staff were responsible for selecting the sample bins to be collected and the collection of the material. To ensure that quantities and types of waste generated were comparable, an equal number of SilverBoxes and new test bins were selected from similar locations. For example if a SilverBox was near a high pedestrian flow corner, then a new bin was selected in the same neighbourhood on a similar corner or if a SilverBox was beside a transit shelter, a new bin was collected in the same area beside another transit shelter, etc. To ensure that the material was representative of the material typically collected in public spaces throughout Toronto, bins were selected from all Districts in the City.

In total, 37 SilverBoxes and 37 new bins (24 EcoMupis and 13 EcoBoxes) were audited. Two side-loading split compartment trucks were used to gather the material; one truck collected the material from the SilverBoxes and the other from the EcoMupis and EcoBoxes. To make certain that there was no difference in collection frequency of the two types of recycling/litter bins, both trucks collected bins in the same area at the same time.

The City of Toronto hired AET Consultants Inc. to conduct the waste audit and data analysis. On February 27, 2006, the consultant conducted the audit. AET had three staff that performed the waste audit. The City assisted the consultant by allowing the audit team to conduct the audit at a dedicated space at the Commissioner Street Transfer Station.

The performance of the bins based on the audits was mixed. The new Eucan bins tested contained less garbage contamination in the recycling stream than the SilverBoxes; however there were more recyclables found in the waste stream of the new bins than the SilverBoxes.

Please refer to Appendix A for the complete waste audit report; the following highlights some of the key audit findings. The SilverBox recycling stream, with 166.07 kg of sorted material, contained 6.48 % (10.76 kg) garbage contamination. The new bin recycling stream, with 147.42 kg of sorted material, contained 2.64% (3.89 kg) garbage contamination.

Both the SilverBox and new bins contained similar recyclable categories with newspapers representing the largest category followed by glass and magazines, catalogues, telephone books and directories.

The SilverBox waste stream sample totalled 91.96 kg and contained 23.24 kg, or 25.27% recyclables. The new bin waste stream sample totalled 85.93 kg and contained 26.95 kg, or 31.36% recyclables. In both samples, newspaper dominated as the primary recyclable, in the new bins it was 11.61% and SilverBoxes was 7.75% of the total waste sample. It is important to note that the sample for the new bin waste stream was saturated with water and contained ice. Therefore to provide more accurate weight results, the consultant calculated a ratio for the volume of wet to dry paper and determined a 3:1 ratio was representative (which has been factored into the results).

Coordinated Street Furniture Program

City Council, at its meeting of October 26, 27 and 28, 2004, in considering Clause 1(a) of the Works Committee Report 8, entitled "Publication Box Strategy – Beautiful City Initiative", requested a comprehensive work plan to advance a coordinated street furniture program. This coordinated street furniture program was to take into account the expiry of the current transit shelter agreement in 2007 and to include transit shelters, recycling/litter bins, benches and other components in addition to publication boxes.

Transportation Services has submitted a Coordinated Street Furniture report to this meeting of the Works Committee, which discusses the public consultation feedback and provides the guiding principles and structure of a RFP for this program. SWMS supports the recommendations in this report including the inclusion of recycling/litter bins in the Coordinated Street Furniture RFP. If, however, the City does not receive proposals through the Coordinated Street Furniture RFP that meet our recycling/litter container needs, SWMS will still have sufficient time to release an RFP to acquire recycling/litter containers.

Under the terms of the current ten year contract with Eucan for the supply of SilverBoxes, Eucan owns the SilverBoxes and will retain them once the contract expires. There are approximately 4,000 SilverBoxes within the public road allowance that will need to be replaced once the Eucan contract expires on October 14, 2009. In addition to the SilverBoxes, a new recycling/litter bin contract would likely incorporate at a minimum, the replacement of the approximately 2,700 City owned stand alone litter bins currently in place with new recycling/litter containers.

Given the magnitude of a new recycling/litter container contract and the need to ensure the synchronized transition of one contract to another, should the current contractor not participate in the RFP or not be a successful proponent, the City would need to release an RFP two or three years in advance of the current contract expiration. This would allow sufficient time to receive competitive bids and award a contract and for new bins to be manufactured and installed. If the Coordinated Street Furniture RFP is released in the summer of 2006, and the City does not receive proposals that meet our recycling/litter container needs, SWMS will have sufficient time to release and award an RFP to plan for the end of the current Eucan contract that expires in October of 2009.

To meet our current litter collection needs, in accordance with funds allocated in SWMS 2006 budget and future years, SWMS will install a few hundred new inexpensive recycling/litter bins without advertising until a new contract is awarded.

New Bins Installed

For the new bin test, Eucan installed 82 EcoMupis that currently contain advertising that the City receives revenue for, and 55 EcoBoxes that do not contain advertisements. Removing the units would cause disruption to pedestrians while sidewalks are repaired to their original state and would reduce the number of bins. It is recommended that the City allow Eucan to keep the EcoMupis and EcoBoxes in place, on the same terms and conditions already approved by Council, until a final decision on award of the Coordinated Street Furniture program is made by Council.

Community Council Meetings

Extensive public consultation was conducted for both the Eucan Test and the Coordinated Street Furniture program. These consultations included meetings with: the public, Resident and Ratepayers Associations, Business Improvement Areas, Pedestrian and Cycling Committees and other interest groups. Since we are not recommending the acceptance of the Eucan proposal at this time and given that the Coordinated Street Furniture program has stringent deadlines to meet to release an RFP no later than the summer of 2006, it is recommended that these reports not be forwarded to Community Councils for additional public consultation at this time.

City Manager Review

As requested, the City Manager was consulted for input on this report and concurs with the recommendations herein.

Conclusions:

The recycling materials collected in both the new bins tested and SilverBox recycling stream were similar in composition, with newspaper being the primary material. The performance of the new bins compared to the SilverBoxes was varied. The new Eucan bins contained less garbage contamination in the recycling stream than the SilverBoxes; however the waste stream in the new Eucan bins contained more recyclables than the new SilverBoxes.

The results of the Test, described in the January 3, 2006 report entitled “Test Results of New Recycling/Litter Bins” (Test Results Report), along with the further information on recycling performance found in this report, do not conclusively demonstrate that the new bins performed better than the current recycling/litter collection containers.

The January 3, 2006 Test Results Report noted that without actually tendering, there is no way of determining what the City’s advertising revenues could be after the current agreement expires. It also noted that the consultant, Education Plus, could not say with certainty that accepting the Eucan proposal would be financially advantageous to the City compared to maintaining the existing contract, purchasing 1,000 additional bins and tendering once the current contract with Eucan expires. Concern was also expressed about extending an existing contract by seven years without offering a competitive process.

Given that the test did not conclusively demonstrate that the new bins were superior to the SilverBoxes and the independent consultant could not say with certainty that the Eucan proposal would be financially advantageous, SWMS does not recommend the acceptance of Eucan's proposal to extend its current contract in order to incorporate EcoMupis and EcoBoxes as part of the recycling/litter bin program.

SWMS therefore supports the recommendations in the Transportation Services' Coordinated Street Furniture report including the inclusion of recycling/litter containers in their RFP. If the City does not receive proposals that meet the City's recycling/litter container needs through the Coordinated Street Furniture RFP process, a new RFP should be issued for recycling/litter containers alone.

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Richard Butts
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Attachments
Appendix A – 2006 Waste Audit Study
Table 1 – Sort Data
Table 2 – Top 5 Wastes in the Silver & New Eucan Boxes by Weight

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Table 1:Sort Data -

City of Toronto Audit on Public Recycling/Litter Bins

February 27, 2006

	Silver Box			New Eucan Box		
	Recycling Stream	Waste Stream		Recycling Stream	Waste Stream	
	37 Bins Collected in Toronto, York, Etobicoke, North York & Scarborough	37 Bins Collected in Toronto, York, Etobicoke, North York & Scarborough	% Recyclables	37 Bins Collected in Toronto, York, Etobicoke, North York & Scarborough	37 Bins Collected in Toronto, York, Etobicoke, North York & Scarborough	% Recyclables
Materials	kg	kg		kg	kg	
1. PAPER	**117.17**	**11.40**	**12.40**	**108.09**	**15.97**	**18.58**
Newspaper	95.96	7.13	7.75	94.67	14.07	11.61
Magazines & Catalogues Telephone Books/Directories	13.29	1.64	1.78	8.95	0.28	0.23
Mixed Fine Papers	7.29	2.63	2.86	4.25	1.62	1.34
Books	0.63	0.00	0.00	0.22	0.00	0.00
2. PAPER PACKAGING	**6.09**	**6.42**	**6.98**	**3.61**	**1.65**	**1.92**
Corrugated, Kraft Paper & Paper Bags	4.22	2.19	2.38	1.08	0.65	0.53
Boxboard/Cores	1.42	3.09	3.36	2.00	0.59	0.48
Molded Pulp	0.00	0.19	0.21	0.22	0.16	0.13
Gable Top Cartons	0.34	0.67	0.73	0.16	0.43	0.35
Aseptic Containers	0.11	0.28	0.30	0.15	0.33	0.27
3. PLASTICS	**7.20**	**1.61**	**1.75**	**7.09**	**1.84**	**2.14**
PET Bottles & Jugs (#1)	6.43	0.87	0.95	6.20	1.62	1.34
HDPE Bottles & Jugs (#2)	0.39	0.26	0.28	0.21	0.13	0.11
Other Bottles and Jugs	0.31	0.16	0.17	0.38	0.07	0.06
Tubs, Lids & Jars	0.07	0.32	0.35	0.30	0.02	0.02
4. METALS	**2.89**	**2.58**	**2.81**	**4.94**	**1.71**	**1.99**
Aluminum Food & Beverage Cans	2.10	0.42	0.46	2.85	1.21	1.00
Aluminum Foil & Trays	0.11	0.16	0.17	0.00	0.08	0.07
Steel Food & Beverage Cans	0.48	2.00	2.17	2.09	0.42	0.35
Aerosol Cans & Paint Cans	0.20	0.00	0.00	0.00	0.00	0.00
5. GLASS	**21.96**	**1.23**	**1.34**	**19.80**	**5.78**	**6.73**
Glass Bottles and Jars	21.96	1.23	1.34	19.80	5.78	4.77
Total Recyclables	**155.31**	**23.24**	**25.27**	**143.53**	**26.95**	**31.36**
6. GARBAGE	**10.76**	**68.72**		**3.89**	**58.98**	
Street	10.76	53.74		3.89	45.87	
Residential/ Commercial		14.98		0.00	13.11	
Total Garbage	**10.76**	**68.72**		**3.89**	**58.98**	
Combined Total	**166.07**	**91.96**		**147.42**	**85.93**	
% Garbage	6.48			2.64		

Note: The waste stream material found in the new Eucan box was wet and consequently would result in a heavier weight than normal, especially in terms of paper.

The following calculation was therefore used to compensate for the moisture retention (including newspaper, magazines & catalogues, telephone books/directories, mixed fine papers, books, corrugated, Kraft paper, paper bags, boxboard/cores and molded paper):

Actual paper matter = Weight of water saturated paper /3

APPENDIX A

2006 WASTE AUDIT STUDY
PUBLIC RECYCLING/LITTER BINS
EUCAN BOX & SILVER BOX
CITY OF TORONTO, ONTARIO

FINAL REPORT

Privileged and Confidential

Prepared for:

THE CITY OF TORONTO
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MARCH 2006

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1.0 INTRODUCTION

1.1 Background

AET Consultants Inc. (AET) conducted a waste audit of the City of Toronto's (Toronto) recycling and litter bins on February 27th, 2006 and developed a report to summarize their findings. The waste audit report is intended to outline and compare data regarding the garbage and recycling materials collected in both the silver boxes and new Eucan bins.

Toronto currently has recycling programs for paper, paper packaging, plastics, metals and glass (for a detailed category list see Table 1).

The waste audit report includes the scope of study, approach and methodology, sort results, top recyclable materials present in each sample, and a comparative analysis of materials from the Silver Box and Eucan bins.

1.2 Scope of Study

The City of Toronto Works Committee requested Solid Waste Management Services to gather additional quantitative data on the recycling performance of the new Eucan recycling/litter bins being tested in public space locations. This study was designed to examine the material collected in the current recycling/litter bins known as the Silver Box compared to the new recycling/litter bins tested referred to as the EcoMupi and EcoBox. The study determined the quantities of recyclables captured, the contamination levels and the quantity of recyclables placed in the garbage compartment.

2.0 APPROACH AND METHODOLOGY

2.1 Waste Collection

City Staff were responsible for selecting the sample bins to be collected and the collection of the material. To ensure that quantities and types of waste generated were comparable, an equal number of Silver Boxes and new test bins were selected from similar locations. For example if a Silver Box was near a high pedestrian flow corner, then a new bin was selected in the same neighbourhood on a similar corner or if a Silver Box was beside a transit shelter, a new bin was collected in the same area beside another transit shelter, etc. To ensure that the material was representative of the material typically collected in public spaces throughout Toronto, bins were selected from all Districts in the City of Toronto.

In total, Solid Waste Management Services collected 37 Silver Boxes and 37 new bins on February 23, 2006. Two side-loading split compartment trucks were used to gather the material; one truck collected the material from the Silver Boxes and the other from the EcoMupis and Eco Boxes. To make certain that there was no difference in collection frequency of the two types of recycling/garbage bins, both trucks collected bins in the same

area at the same time. The following photos illustrate samples from the 37 Silver Boxes and new Eucan Boxes.

Photo 1: Recyclable Material Sample generated from 37 Silver Boxes

Photo 2: Waste Material Generated from 37 Silver Boxes

Photo 3: Recyclables Generated from 37 New Eucan Boxes

Photo 4: Waste Generated from 37 New Eucan Boxes

2.2 Waste Sort

The City of Toronto hired AET Consultants Inc. to conduct the waste audit and analysis. On February 27, 2006, the consultant conducted the audit. AET had three staff that performed the waste audit. The City of Toronto assisted the consultant by allowing the audit team to conduct the audit at a dedicated space at the Commissioner Street Transfer Station, located at 400 Commissioner Street. The waste was stored at this location in labeled piles after collection.

AET personnel hand sorted and separated the waste from the piles into the appropriate waste categories. A digital platform scale was used to weigh the sorted waste material. The contents of each sample were examined and separated into their appropriate waste class in plastic totes (sorted waste) and weighed individually. The plastic totes were tared (1.31kg) and zeroed out to calculate the total sample weight for each waste class. This process was repeated for each sample of waste collected (ie. Silver box recyclables, Silver box garbage, Eucan box recyclables, and Eucan box garbage).

Upon completing the sorting and the weighing, AET recorded their field data into a laptop computer, pre-programmed to sum the categories and develop weights and splits by approved categories. Once all the waste material was classified and weighed, the recycling and garbage materials were piled separately for removal and disposal.

The following photo illustrates the sample material waste streams being physically sorted into their appropriate material categories based on composition.

Photo 5: Sample waste materials being physically sorted and characterized

3.0 RESULTS AND DISCUSSION

The following section outlines the results of the Silver and Eucan Boxes waste audit. Table 1 summarizes the sort results including the material categories, sorted results for all material categories, % of recyclables in the waste stream, and the overall recyclable and waste content of each sample. Table 2 provides the top five recyclable materials, their weight and percent of sample, for each sample audited.

3.1 Recyclables Present in Samples

A total of eighteen (18) recyclable categories were used to sort recyclables for the audit. Garbage was separated into two (2) categories. These categories are outlined in Table 1. For each sample, the top five waste categories (by weight) were highlighted and displayed within tables in descending order. Table 2 provides this information along with the total weight and percent division of recyclables and waste.

3.1.1 Silver Box - Recycling

The following paragraphs outline the results of the top five highest recyclable categories with respect to the sorted material for the Silver Box – Recycling sample. These categories in descending order are newspaper, glass bottles and jars, magazines & catalogues, telephone books/directories, mixed fine papers and PET bottles & jugs (#1).

A total of 166.07 kg of material was sorted from Silver Box - Recycling. Newspaper accounted for 95.96 kg, representing the largest weight category. The second largest recycled material was glass bottles and jars, which contributed 21.96 kg to the sample. The third largest category was Magazines & Catalogues, Telephone Books/Directories, which accounted for 13.29 kg.

The top five waste categories and their percentage of the total sample weight for Silver Box -Recycling are listed in Table 4.

Table 3. Top Five Recyclable Categories for Silver Box - Recycling

Waste Category	Weight (kg)	% of Total
Newspaper	95.96	57.78
Glass Bottles and Jars	21.96	13.22
Magazines & Catalogues, Telephone Books/Directories	13.29	8.00
Mixed Fine Papers	7.29	4.39
PET Bottles & Jugs (#1)	6.43	3.87

3.1.2 Silver Box - Waste

The following paragraphs outline the results of the top five highest recyclable categories with respect to the sorted material for the Silver Box – Waste sample. These categories in descending order are newspaper, boxboard, mixed fine papers, corrugated, Kraft paper & paper bags, and steel food & beverage cans.

A total of 91.96 kg of material was sorted from Silver Box - Waste. Newspaper accounted for 7.13 kg, representing the largest weight category. The second largest material was boxboard, which contributed 3.09 kg to the sample. The third largest category was mixed fine paper, which accounted for 2.63 kg.

The top five waste categories and their percentage of the total sample weight for Silver Box – Waste are listed in Table 5.

Table 4. Top Five Waste Categories for Silver Box - Waste

Waste Category	Weight (kg)	% of Total
Newspaper	7.13	7.75
Boxboard	3.09	3.36
Mixed Fine Papers	2.63	2.86
Corrugated, Kraft Paper & Paper Bags	2.19	2.38
Steel Food & Beverage Cans	2.00	2.17

3.1.3 Eucan Box - Recycling

The following paragraphs outline the results of the top five highest recyclable categories with respect to the sorted material for the Eucan Box – Recycling sample. These categories in descending order are newspaper, glass bottles and jars, magazines & catalogues, telephone books/directories, PET bottles & jugs (#1) and mixed fine papers.

A total of 147.42 kg of material was sorted from Eucan Box - Recycling. Newspaper accounted for 94.67 kg, representing the leading weight category. The second largest recycled material was glass bottles and jars, which contributed 19.80 kg to the sample. The third largest category was Magazines & Catalogues, Telephone Books/Directories, which accounted for 8.95 kg.

The top five waste categories and their percentage of the total sample weight for the Eucan Box – Recycling are listed in Table 6.

Table 5. Top Five Recyclable Categories for Eucan Box - Recycling

Waste Category	Weight (kg)	% of Total
Newspaper	94.67	64.22
Glass Bottles and Jars	19.80	13.43
Magazines & Catalogues Telephone Books/Directories	8.95	6.07
PET Bottles & Jugs (#1)	6.20	4.21
Mixed Fine Papers	4.25	2.88

3.1.4 Eucan Box - Waste

The following paragraphs outline the results of the top five highest recyclable categories with respect to the sorted material for the Eucan Box – Waste sample. These categories in descending order are newspaper, glass bottles and jars, mixed fine papers, PET bottles & jugs (#1) and aluminum food & beverage cans.

A total of 85.93 kg of material was sorted from Eucan Box - Waste. Newspaper accounted for 14.07 kg, representing the primary weight category. The second greatest recycled material was glass bottles and jars, which contributed 5.78 kg to the sample. The third largest category included mixed fine papers and PET bottles & jugs, which each accounted for 1.62 kg.

The top five recyclable categories and their percentage of the total sample weight for the Eucan Box – Waste are listed in Table 7.

Table 6. Top Five Recyclable Categories for Eucan Box - Waste

Waste Category	Weight (kg)	% of Total
Newspaper	14.07	16.37
Glass Bottles and Jars	5.78	6.73
Mixed Fine Papers	1.62	1.89
PET Bottles & Jugs (#1)	1.62	1.89
Aluminum Food & Beverage Cans	1.21	1.41
Corrugated, Kraft Paper & Paper Bags	0.65	0.76

3.2 Comparison of Recycling and Waste Streams

3.2.1 Recycling

The Silver Box recycling stream, with 166.07 kg of sorted material, contained 6.48 % (10.76 kg) garbage contamination. The Eucan Box recycling stream, with 147.42 kg of sorted material, contained 2.64% (3.89 kg) garbage contamination. The design of the Eucan Box may contribute to the lower contamination rate.

Both the Silver Box and Eucan Bin contained the same top five recyclable categories with very similar distribution percentages of all categories of recycling. Newspapers were approximately 60% of each sample followed by glass at approximately 13% and magazines, catalogues, telephone books and directories were approximately 7%.
Table 2 lists these quantities and percentages.

3.2.2 Waste

It is important to note that the sample for the Eucan Box waste stream was saturated with water and contained ice. During the sort we separated and removed as much ice as was feasible from the study results, yet paper products and paper packaging contained a significant amount of water saturation. Therefore to provide more accurate weight results, the volume of wet to dry paper material was used to determine a 3:1 ratio. The calculation used is listed in the following section and was applied to all porous paper products in the Eucan Box waste stream.

The Silver Box waste stream sample totaled 91.96 kg and contained 23.24 kg, or 25.27% recyclables. The Eucan Box waste stream sample totaled 85.93 kg and contained 26.95 kg, or 31.36% recyclables. In both samples, newspaper dominated as the primary recyclable, with the Eucan Boxes it was 11.61% and Silver Boxes was 7.75% of the total waste sample.

Within both waste streams there were similarly significant quantities of commercial and residential garbage, at least 20%. This variety of waste included obvious non-street items such as construction material, sanitary waste and kitchen scraps.

3.3 Calculations

1. The following calculation was used to extrapolate the dry weight of paper material in the Eucan Box waste stream, which was saturated with water.

   Paper and Paper Packaging (ratio of 3:1, wet to dry volume)

   = Total wet weight of paper material /3

   = Extrapolated weight for paper material

4.0 CONCLUSIONS

The following conclusions can be drawn from this study:

- The Eucan Box recycling samples were less contaminated with garbage than the Silver Boxes by about 59%.

- The recycling materials collected in both Eucan Boxes and Silver Boxes recycling stream had similar percentages.
- Newspapers, by far, were the greatest contributor of weight in the recycling stream.
- Both waste streams contained at least 25% recyclables.
- The waste stream for Eucan Boxes contained more recyclables (24%) than the Silver Boxes.
- The Eucan Box waste stream box design is prone to capture rainwater, which in turn results in wet, heavier material.

Respectfully Submitted,

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