Supports Item No. 2
P&E Committee Agenda
April 5, 2007

CITY OF **VANCOUVER**

ADMINISTRATIVE REPORT

Report Date: March 14, 2007
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RTS No.: 06466
VanRIMS No.: 13-6000-10
Meeting Date: April 5, 2007

TO: Standing Committee on Planning and Environment

FROM: General Manager of Engineering Services

SUBJECT: Report Back: The Next Steps in Waste Diversion

RECOMMENDATION

THAT Council receive this report for INFORMATION.

COUNCIL POLICY

On February 21, 1989, Council approved the implementation of a multi-material residential recycling program and set a recycling goal of 40% beyond the 10% level achieved in 1985.

On March 29, 1990, Council approved the implementation of the backyard composting program and Compost Demonstration Garden.

On August 28, 1990, Council approved the implementation of the residential leaf collection program.

On June 25, 1991, Council approved a reduction in the residential refuse can limit from five (5) to three (3) cans per single family dwelling.

On November 19, 1991, Council approved the implementation of an on-going Christmas tree collection and recycling program.

On March 10 1992, Council approved City Farmer's operation of the Compost Demonstration Garden and Compost Hotline on an ongoing basis, subject to annual review by staff.

On December 8, 1992, Council approved the construction and operation of the yard waste composting facility at the Vancouver Landfill.

On May 3, 1994, Council agreed to support the Greater Vancouver Regional Solid Waste Management Plan (SWMP). That SWMP was later approved by the Province.

On April 25, 1995, Council approved the implementation of the worm composting program.

On February 8, 1996, Council approved the production of the educational "3Rs" elementary school play, performed every two years on an on-going basis.

On October 7, 1997, Council approved the implementation of the Solid Waste Utility effective January 1, 1998.

On April 28, 1998, Council approved the implementation of the city-wide apartment recycling program.

On November 5, 1998, Council approved a reduction in the residential refuse can limit from three (3) to two (2) cans per single family dwelling.

On December 16, 1999, Council approved the implementation of the yard trimmings curb side collection program.

On January 29, 2004, Council approved the implementation of automated garbage collection service beginning in 2005, and automated yard trimmings collection beginning in 2006.

On September 30, 2004, Council adopted various Garbage Service and Yard Trimmings Administrative Policies for automated collection, including a variable rate structure which encourages waste diversion.

On December 12, 2006, Council approved banning recyclable material and yard trimmings from garbage collected by the City.

PURPOSE

In December 2006 staff provided Council with detailed reports on waste diversion contained in a memorandum (RTS No. 05762). The purpose of this report is to re-table those previously distributed reports, which are attached as appendices 1 and 2 hereto. Re-submitting this information to Council provides an opportunity for City staff to deliver a summary presentation on this subject, and to field questions from Council following the presentation. Since many of the waste management issues and initiatives discussed in the enclosed information are regional in scope, staff from the Greater Vancouver Regional District (GVRD) will participate in the presentation and will also be available for questions from Council.

BACKGROUND

The City has made a commitment to participate in the regional solid waste management planning and implementation process. Currently, the GVRD is underway with a review of the regional Solid Waste Management Plan (SWMP) for the purpose of developing an updated plan. This work is founded on three primary goals:

Goal 1 Minimize waste generation.

Goal 2 Maximize reuse, recycling and energy recovery.

Goal 3 Manage residuals responsibly.

Goals 1 and 2 are encompassed by the regional *Zero Waste Challenge* approved by the GVRD Board on May 26, 2006. Goal 3 is to be met primarily through the region's work with establishing new disposal capacity through their Cache Creek Landfill replacement process, and with existing disposal capacity in the region.

Previously, Council requested that staff report back with information on the following solid waste management issues and topics:

- The concept of Extended Producer Responsibility (EPR).
- Product stewardship and waste diversion opportunities for newsprint, electronics, junk mail, excessive packaging including take-out food packaging, plastic shopping bags, and litter.
- Household hazardous waste education.
- Diversion of organic waste.
- Diversion of construction/demolition waste.
- Assisting and improving solid waste initiatives taken by other levels of government.
- Toronto's waste diversion programs.
- The *zero waste* concept, both externally and internally.
- Options to improve facilities for reuse of goods and materials.
- Waste diversion from the multi-family sector.
- Public, on-street recycling containers, including what Seattle and Toronto are doing.

DISCUSSION

Appendix 1 attached to this report provides summary information specifically in response to Council's motion of February 14, 2006 ("...*that staff report back on the process needed to take the next steps in waste reduction*..."). More comprehensive information is provided in the document contained in Appendix 2 titled, *The Next Steps in Waste Diversion*. That report is divided into two parts and includes a description of:

- Part 1 Background - the solid waste function, the governance structure for managing solid waste, and the achievements made under the Regional Solid Waste Management Plan (SWMP); and
- Part 2 Next Steps - specific processes required for taking the next steps in waste diversion for various issues, including identifying the responsible levels of government.

The enclosed reports include information on numerous waste diversion actions already being taken by staff, as well as additional steps that are being investigated and planned locally, regionally and provincially.

A great deal has been achieved in terms of waste diversion since the implementation of the current regional SWMP in 1995. The waste diversion rate is now 52 percent, one of the highest in the world. Over 1.6 million tonnes of material is being recycled and composted annually in the region from all sectors, including over 50,000 tonnes from Vancouver's single family sector. Maintaining, improving and promoting existing programs are therefore significant ongoing tasks for Vancouver. This important work also helps to ensure the City remains well positioned as additional Vancouver specific waste diversion initiatives are pursued, and so that the City can continue to support initiatives led by other levels of government which the City benefits from.

FINANCIAL IMPLICATIONS

There are no financial implications.

CONCLUSION

Under the existing regional SWMP programs have already been implemented for most of the large material categories for which there is reliable and cost effective processing capacity and end-use market availability. Remaining material categories are much smaller or more costly to manage (e.g. large scale food waste diversion). As a result, many future waste diversion options involve greater complexity and risk. Increasing recovery rates for existing programs beyond what we've already achieved without further significant advancements with behavioural change also presents challenges. Therefore, staff anticipate the next regional SWMP will account for new challenges and opportunities in terms of program complexity, funding, governance and sustainability. In addition to supporting senior government waste diversion plans and programs, Vancouver staff will continue to pursue cost effective, affordable and environmentally and socially responsible waste management initiatives for the purpose of further advancing the diversion of Vancouver's solid waste from disposal.

* * * * *

On February 14, 2006 Council approved the following motion:

WHEREAS:
1. Reduction of waste is a significant challenge for our society;
2. The GVRD is considering moving to a "zero waste" philosophy;
3. Vancouver is committed to being a world leader in sustainability; and
4. Citizens are motivated to take the next steps in waste reduction.

THEREFORE BE IT RESOLVED that staff report back on the process needed to take the next steps in waste reduction, including:

a) organic composting;
b) improvement of facilities for reuse of goods and materials;
c) minimization of materials deposited in landfills;
d) extended producer responsibility;
e) initiatives being taken by other levels of government and how the City of Vancouver can assist or improve upon those initiatives;
f) opportunities for the City of Vancouver to lead in creating a zero waste environment;
g) feasibility and cost of a municipal composting program;
h) analyze the effectiveness of Toronto's "green bin" program for collecting household organic waste (see http://www.toronto.ca/greenbin/index.htm);
i) analyze Toronto's waste diversion tactics to see if Vancouver could adopt new programs (see http://www.toronto.ca/garbage/);
j) installation of recycle bins in the downtown core and analyze the effectiveness of the City of Toronto's downtown recycling bins (see http://www.toronto.ca/litter/forum/pdf/022504/toronto.pdf; http://www.toronto.ca/garbage/bins/); and
k) investigate improved interception of construction/demolition waste, such as diverting demolition waste to "used" building supply businesses.

Information responding to this motion is summarized in Table 2 herein. That table is organized under five topics and the individual items in the above motion are grouped within these topics as follows:

Table 1

Topic	Title	Motion Items
1	Organic composting, including feasibility and cost of a municipal composting program and effectiveness of Toronto's green bin program.	(a), (g) and (h)
2	Improvement of facilities for reuse of goods and materials, including construction/demolition materials.	(b), and (n)
3	Minimization of materials disposed to landfills, including extended producer responsibility (EPR), Vancouver's support of initiatives taken by other levels of government, and Toronto's waste diversion tactics.	(c), (d), (e), and (i)
4	Opportunities for Vancouver to lead in creating a zero waste environment.	(f)
5	Installation of recycle bins in the downtown core and analyze effectiveness of Toronto's downtown recycle bins.	(j)

Following each topic, Table 2 includes:

- a brief discussion of current waste management and diversion initiatives ("Current Situation") and the level of government involved;
- important "Issues" relevant to each Topic;
- specific waste diversion "Next Steps" organized by level of government responsible, but focusing specifically on next steps for the City of Vancouver; and
- a reference to the relevant section(s) of the attached report (Appendix 2) where more details are available.

Table 2

Topic 1:	*Organic composting, including feasibility and cost of a municipal composting program and effectiveness of Toronto's green bin program.*
Current Situation:	Compostable organics represent approximately 21% (by weight) of garbage disposed. Current initiatives such as centralized yard trimmings composting and backyard food waste composting have resulted in an annual diversion rate of approximately 52%. Vancouver diverts approximately 40,460 tonnes of compostable material each year. The Greater Vancouver Regional District (GVRD) is responsible for developing organics diversion strategies for Lower Mainland municipalities and this work is well underway as part of the regional Solid Waste Management Plan (SWMP) review process. Work recently completed includes a review of programs in other jurisdictions and two studies on food waste collection and processing. On November 27, 2006 staff from Engineering Services met with City of Toronto waste management planning staff in Vancouver to discuss, among other things, Toronto's organic materials diversion program. Approximately 100,000 tonnes of organic material (including, but not limited to food waste) is collected annually in Toronto's green bin program. 65% of this material is trucked five hours east to three different processing plants in Quebec. The remaining material is processed in two Ontario facilities, one of which is at risk of shutting down due to serious odour issues. Plans to expand the second Ontario processing facility (anaerobic digestion plant) have been delayed. The quality of the end product produced from the mixed organic feedstock is reported to be questionable. The estimated net cost of Toronto's organics diversion program is $115 per tonne.
Issues:	▪ Sufficient local processing capacity is not available to manage the amount of organic material currently generated in Vancouver or the region. ▪ Food waste processing facilities are more complex to design, site, construct and operate compared to yard trimmings composting facilities, and the risks are high. ▪ Food waste collection and centralized processing programs are expensive relative to our current waste management systems (approx. $130 to $630 /tonne more expensive). ▪ There is uncertainty with respect market demand for the supply of finished product based on the available supply of feedstock, and at a price point that results in a sustainable return on investment. ▪ The net sustainable benefits of large scale centralized food waste and multi organic material composting are suspect. ▪ Experience from other jurisdictions does not always translate well due to different material collection methods, processing infrastructure, markets, legislation, and program funding models.
Next Steps:	Next steps for the region include: ▪ the completion of a third study looking at market conditions; ▪ integration of organics diversion strategies with the *Zero Waste Challenge* including an analysis of options and costs. Next steps for the City include: ▪ continuing to monitor and support the GVRD in their work to develop viable strategies; ▪ investigating and reporting to Council a Solid Waste By-law amendment to prohibit the disposal of yard trimmings with garbage collected from single family homes; ▪ working with City Farmer (City's contracted operator of the Vancouver Compost Garden), to conduct a detailed survey of participation rates and barriers with home management of food waste in Vancouver in 2007; ▪ developing a plan to increase food waste diversion through expanded backyard and multi-family composting programs based on the results of the above survey.
Details:	Refer to sections 2.2.1 and 2.2.4 in the attached report.

Topic 2:	*Improvement of facilities for reuse of goods and materials, including construction/demolition materials.*
Current Situation:	Facilities for the reuse of goods and materials are well established by the private sector through second hand stores, used building material stores, repair stores, rental stores, and charitable organizations. The demand among these stores and agencies for used goods is high. Under the regional Solid Waste Management Plan (SWMP), the Greater Vancouver Regional District (GVRD) is responsible for supporting and promoting reuse centres. The role of municipalities is limited to managing processes related to zoning. In 2004, the diversion rate for demolition and construction waste was 66% (by weight). As per the terms of the SWMP, the construction sectors that are serviced by private haulers are responsible for implementing their own waste diversion programs, with additional support from the GVRD. The latter is accomplished though the GVRD's *BuildSmart* program.
Issues:	▪ It is advantageous for the private sector to provide this waste diversion tactic since the free market fosters competition, competition ensures a high level of service, and service can be provided over a broad area of the City. ▪ The City recently ran a pilot program at the Vancouver Landfill where the Salvation Army provided a facility to collect reusable items free of charge. Unfortunately the pilot was not entirely successful and the Salvation Army discontinued the initiative. The lack of success of the pilot may be attributed to the fact that our region is already well served with stores and agencies that accept reusable items.
Next Steps:	Next steps for the region include integrating material reuse opportunities into the process of developing a new SWMP and completing the *Zero Waste Challenge*. That work includes the consideration of initiatives for further waste reduction and diversion of waste from the construction sector, including a disposal ban on materials such as wood waste. Next steps for the City include: ▪ continuing to monitor and support the region's work with reuse initiatives; ▪ determining the costs and benefits of expanded material recycling and reuse depot facilities at the Vancouver Landfill and Vancouver South Transfer Station (VSTS) as part of the current Council approved projects to review redevelopment opportunities for these sites; ▪ continuing to monitor and support the Recycling Council of BC's materials exchange service and specifically, the web page *Vancouver Reuses* (www.vancouver.reuses.com); ▪ developing municipal initiatives as part of Vancouver's *Green Building Strategy*, including revisions to the Vancouver Building Code and requirements for demolition, building and occupancy permits that will lead to increased diversion (details are expected to be reported to Council by Sustainability Group staff in the coming months).
Details:	Refer to sections 1.2.4, 1.3, 2.2.2 and 2.3.1 in the attached report.

Topic 3:	*Minimization of materials disposed to landfills, including extended producer responsibility (EPR), Vancouver's support of initiatives taken by other levels of government, and Toronto's waste diversion tactics.*
Current Situation:	All of our solid waste management systems and programs are designed based on the priorities established under the nationally and internationally recognized 5R's waste management hierarchy: *reduce, reuse, recycle, recover and residual management*. The first 3 R's in the hierarchy encompass the concept of waste diversion and result in minimizing materials disposed to landfill. Currently, 52% of waste is diverted from disposal, which is exceptional compared to other jurisdictions (Toronto's waste diversion rate is approximately 40%). The British Columbia government is a recognized leader with Extended Producer Responsibility (EPR) policy. EPR places the responsibility of waste diversion on industry and is a very successful strategy for diverting waste from landfill. Perhaps the most recognized EPR program is BC's beverage container deposit/return program which has achieved a diversion rate of approximately 80% for these materials.
Issues:	It is important for senior government to lead the development of Extended Producer Responsibility (EPR) policy and programs since: ▪ they regulate industry on other matters and have the necessary regulatory framework in place to do so; ▪ EPR regulated materials flow across local government borders throughout their lifecycle; ▪ broad scale (e.g. provincial) implementation of EPR programs maintains a level playing field for producers, and results in a more cost effective system for industry to manage their materials.
Next Steps:	Next steps for the Province include the implementation of an EPR program for electronics planned to start in August 2007. This will benefit the City by diverting electronic waste from landfill. Next steps for the region include: ▪ integrating waste minimization opportunities into the process of developing a new SWMP and the regional *Zero Waste Challenge*; ▪ pursuing the implementation of additional material disposal bans; ▪ completing a study of EPR programs in the region and including the results of that work into the new Solid Waste Management Plan; ▪ continuing to monitor and assess the transferability of waste diversion strategies followed by other local governments to the Lower Mainland. Next steps for the City include: ▪ continuing to monitor and support the region's work with waste minimization and EPR initiatives; ▪ investigating and reporting to Council a Solid Waste By-law amendment to prohibit the disposal of blue box recycling program materials with garbage collected from single family homes; ▪ considering opportunities to assist the brand owners of electronic materials that become waste with their waste diversion efforts, such as providing space at City recycling depots to collect these materials; ▪ pursuing additional opportunities to lobby senior government on EPR issues including packaging materials diversion and household hazardous waste education.
Details:	Refer to sections 1.1, 1.2, 1.4, 2.1, 2.2.3 and 2.3.3 in the attached report.

Topic 4:	*Opportunities for Vancouver to lead in creating a zero waste environment.*
Current Situation:	In May the Greater Vancouver Regional District (GVRD) Board approved a motion directing regional staff to draft a *Zero Waste Challenge* that reflects the needs of the region. Since then GVRD staff developed a work plan and have recently initiated a public consultation process.
Issues:	Proponents argue that a *zero waste* concept is positive since it focuses attention on waste reduction, encourages EPR and identifies creative ways to reduce waste. Critics say *zero waste* creates false expectations and implies 100% diversion can be achieved regardless of how sustainable such a goal may be. There is also criticism that it is ineffective for local governments to adopt *zero waste* policy since many issues covered by *zero waste*, such as industrial redesign and EPR, fall under the authority of senior government.
Next Steps:	Next steps for the region include integrating *Zero Waste Challenge* work into the GVRD's development of a new regional Solid Waste Management Plan. This work is expected to have direct positive impacts on Vancouver by encouraging more waste diversion. Next steps for the City include: ▪ continuing to monitor and support the regional waste diversion initiatives which benefit Vancouver; ▪ completing a corporate waste and supply chain management study (joint effort by Sustainability Group, Materials Management and Building Services branches of Corporate Services), which is expected to serve as an excellent example of how the principles of sustainability and *zero waste* can be applied to our business practices, to reduce environmental impact and minimize costs (results to be reported to Council at a later date).
Details:	Refer to sections 2.2.5 and 2.3.2 in the attached report.

Topic 5:	*Installation of recycle bins in the downtown core and analyze effectiveness of Toronto's downtown recycle bins.*
Comments:	Staff previously provided Council with information on this issue (memo dated April 11, 2005, RTS #5008). Additional information is included in sections 2.1.2, 2.1.8, 2.3.4, and 2.3.5 of the attached report.

THE NEXT STEPS IN WASTE DIVERSION

(RTS 06466 APPENDIX 2)

Originally Submitted to Council December 5, 2006 by Memorandum (RTS 05762)

TABLE OF CONTENTS

SUMMARY

Previously, Council requested staff report back with information on various solid waste management issues and topics related to waste diversion including:

- The concept of Extended Producer Responsibility (EPR).
- Product stewardship and waste diversion opportunities for newsprint, electronics, junk mail, excessive packaging including take-out food packaging, plastic shopping bags and litter.
- Household hazardous waste education.
- Diversion of organic waste.
- Diversion of construction/demolition waste.
- Assisting and improving solid waste initiatives taken by other levels of government.
- Toronto's waste diversion programs.
- Leadership opportunities with *zero waste*.
- Options to improve facilities for reuse of goods and materials.
- Waste diversion from the multi-family sector.
- Public, on-street recycling containers, including what Seattle and Toronto are doing.

This report responds to those requests and provides Council with information on the next steps in waste reduction (Part 2 of the report). Specific topics are organized by the level of government responsible for leading the processes to achieve those next steps. Information is also provided on our solid waste management system, achievements to-date with respect to waste diversion, and current waste management planning initiatives (Part 1 of the report).

Well managed solid waste systems are vital for minimizing impacts to public and environment health. Sustainable systems also account for economic and social impacts. These systems are designed based on the priorities established under the internationally recognized 5R's waste management hierarchy: *reduce, reuse, recycle, recover and residual management*. The first 3 R's in the hierarchy encompass the concept of waste diversion. The last 2 R's deal with managing the residual solid waste fraction that remains after higher priority management options are exhausted. The next steps taken with diverting waste will also follow these waste management principles.

A great deal has been achieved in terms of waste diversion since the implementation of the current regional Solid Waste Management Plan (SWMP) in 1995. The regional diversion rate is now 52 percent, one of the highest in the world, with over 1.6 million tonnes of materials being recycled and composted annually. Maintaining, improving and promoting existing programs are therefore significant ongoing tasks. Under the existing SWMP, programs have already been implemented for most of the large material categories for which there is reliable and cost effective processing capacity and end-use markets available. Remaining material categories are much smaller or more costly to manage (e.g. food waste). As a result, many future waste diversion options involve greater complexity and risk. It will also be more difficult to increase recovery rates for existing programs beyond what we've already achieved, without further significant advancements with behavioural change. The next SWMP will

therefore present many more challenges in terms of program complexity, funding, governance and sustainability.

Each level of government is allocated certain roles and responsibilities with respect waste management and diversion. The rational applied for this division of labour is based on factors such as scope of issue, geographic scale of area or size of population impacted, cost allocation/source of program funding, and administrative capacity and legal authority necessary to affect change. Below is a brief summary of the specific roles the public sector will take with the next steps in waste diversion. Specific issues that Council has expressed interest in are referenced in the context of this governance structure (full details are provided in Part 2 of this report):

Federal and Provincial Government

The next steps in waste diversion will involve senior government continuing their leadership role with the development and implementation of manufacturer's responsibility programs for specific products and packaging materials, for the purpose of reducing waste, and increasing reusability, recyclability, and recycled material content. Extended Producer Responsibility (EPR), or product stewardship, is the current and preferred policy strategy for dealing with products and their packaging at the end of their useful life. The BC Provincial government is a national leader with the development of EPR programs through regulation. EPR is based on the concept that manufacturers or product "brand-owners" are held responsible for their product's life-cycle impacts. Perhaps the most well known example of an EPR program is BC's beverage container deposit/return program. Waste diversion strategies that are most appropriately led by senior government can be designed to produce a positive or negative incentive to divert waste. An EPR program involving redeemable deposits (e.g. beverage containers) is an example of a positive incentive. Examples of negative incentive strategies include taxes or "eco-fees", bans, and minimum recycled content requirements. Examples of specific materials that Council has expressed interest in, in terms of next steps, that are most appropriately dealt with by senior government waste diversion policy include: electronics; additional household hazardous wastes; excessive packaging including beverage and food containers and plastic bags; newsprint, including inserts; and junk mail.

Regional Government

The Greater Vancouver Regional District (GVRD) will play a central role in developing the next steps in waste diversion for Lower Mainland municipalities. Next steps involve continuing to lead a process of reviewing the regional Solid Waste Management Plan (SWMP) for the purpose of developing an updated plan founded on three primary goals: (1) Minimize waste generation; (2) Maximize reuse, recycling and energy recovery; (3) Manage residuals responsibly. Goals 1 and 2 are encompassed by the regional *Zero Waste Challenge* approved by the GVRD Board on May 26, 2006. Goal 3 is to be met primarily through the region's work with maintaining existing and establishing new disposal capacity. The GVRD's role with this work is rational and cost effective since it avoids a duplication of effort amongst municipalities and ensures a reasonable level of program consistency across the region. Vancouver has made a commitment to participate in the regional SWMP, which emphasises waste diversion through an integrated management approach following the 5Rs hierarchy. Examples of specific materials that Council has expressed interest in that are most appropriately

dealt with through regional government include organics (e.g. food waste) and demolition, land clearing and construction (DLC) materials. However, additional sustainable large-scale diversion of these materials will be difficult to achieve without an increase in private sector processing and end-use market capacity, and overcoming concerns with achieving net positive environmental, economic and social benefits.

Municipal Government

Since our role is to provide, administer and regulate specific waste management services and programs for our municipality's customer base, next steps for Vancouver will primarily involve monitoring and supporting the region's efforts with developing new waste diversion initiatives, and enhancing programs specific to Vancouver. Examples of additional next steps for Vancouver include:

- increasing diversion of corporate solid waste;
- pursuing additional material reuse opportunities through depot enhancements;
- improving the promotion of residential (including multi-family) recycling programs;
- pursuing By-law changes that prohibit the disposal of yard trimmings and blue box program recyclables with garbage collected from single-family homes;
- working with City Farmer (City's contracted operator of the Vancouver Compost Garden), to conduct a detailed survey of participation rates and barriers with home management of food waste in Vancouver;
- developing a plan to increase food waste diversion through expanded backyard and multi-family composting programs based on the results of the above survey;
- determining the costs and benefits of expanded material recycling and reuse depot facilities at the Vancouver Landfill and Vancouver South Transfer Station as part of the current Council approved projects to review redevelopment opportunities for these sites;
- continuing to monitor and support the Recycling Council of BC's materials exchange service and specifically, the web page Vancouver Reuses (www.vancouver.reuses.com);
- developing municipal initiatives as part of Vancouver's Green Building Strategy, including revisions to the Vancouver Building Code and requirements for demolition, building and occupancy permits that will lead to increased diversion (details are expected to be reported to Council by Sustainability Group staff in the coming months);
- continuing to monitor and support the region's work with waste minimization and Extended Producer Responsibility (EPR) initiatives, and pursuing additional opportunities to lobby senior government on EPR issues including packaging materials diversion and household hazardous waste education;
- considering opportunities to assist the brand owners of electronic materials that become waste with their waste diversion efforts, such as providing space at City recycling depots to collect these materials;
- investigating the costs, benefits and implications of including plastic shopping bags in our residential recycling program;
- pursuing further enhancements with on-street recycling systems and product stewardship opportunities for managing litter.

INTRODUCTION

The City of Vancouver has made a commitment to participate in the regional solid waste management planning and implementation process. Currently, the Greater Vancouver Regional District (GVRD) is underway with a review of the regional Solid Waste Management Plan (SWMP) for the purpose of developing an updated plan. This work is founded on three primary goals:

Goal 1 Minimize waste generation.

Goal 2 Maximize reuse, recycling and energy recovery.

Goal 3 Manage residuals responsibly.

Goals 1 and 2 are encompassed by the regional *Zero Waste Challenge* approved by the GVRD Board on May 26, 2006. Goal 3 is to be met primarily through the region's work with establishing new disposal capacity though their Cache Creek Landfill replacement process, and with existing disposal capacity in the region.

Previously, Council has requested that staff report back with information on the following solid waste management issues and topics:

- The concept of Extended Producer Responsibility (EPR).
- Product stewardship and waste diversion opportunities for newsprint, electronics, junk mail, excessive packaging including take-out food packaging, plastic shopping bags, and litter.
- Household hazardous waste education.
- Diversion of organic waste.
- Diversion of construction/demolition waste.
- Assisting and improving solid waste initiatives taken by other levels of government.
- Toronto's waste diversion programs.
- Leadership opportunities with *zero waste*.
- Options to improve facilities for reuse of goods and materials.
- Waste diversion from the multi-family sector.
- Public, on-street recycling containers, including what Seattle and Toronto are doing.

PURPOSE

This report responds to Council's requests for information on the processes involved with taking the next steps in waste reduction. The report is organized into two parts:

- Part 1 – BACKGROUND provides summary information on solid waste management operations, principles, governance, metrics, and current waste diversion planning initiatives.
- Part 2 – NEXT STEPS addresses specific requests for information from Council, with a discussion of background issues first and then waste diversion next steps for each topic. Discussion topics are grouped by the level of government that has primary responsibility for the particular issue.

PART 1 - BACKGROUND

1.1 The Solid Waste Function

The BC Environmental Management Act defines Municipal Solid Waste (MSW) as refuse that originates from residential, commercial, institutional, demolition, land clearing or construction sources. Well managed MSW systems are vital for minimizing impacts to public health and the environment. Sustainable MSW systems also account for economic and social impacts. Solid waste management systems are designed based on the priorities established under the internationally recognized 5R's waste management hierarchy: *reduce, reuse, recycle, recover and residuals management*.

The first 3 R's in the hierarchy encompass the concept of waste diversion. The last 2 R's deal with managing the residual fraction of MSW that remains after higher priority management options are exhausted. While the value of diversion is well known, sustainable long-term disposal capacity is also essential in an integrated waste management system for the following reasons:

- It is reasonable to expect that there will always be a fraction of residual materials requiring disposal despite a society's best efforts with waste diversion and energy recovery.
- Well managed disposal options are essential for the protection of human and environmental health.
- It provides an efficient stop-gap measure for managing waste materials while new technology, market capacity, policy, and public acceptance develops to the extent where it is viable to implement new or expanded, cost effective and well planned waste diversion programs in a sustainable manner.
- It allows government regulators to maintain control of disposal costs, thereby minimizing economic impacts to the tax payer.
- It reduces the occurrence of illegally abandoned garbage.

1.2 Municipal Solid Waste Management (MSW) Governance

The following is a summation of how MSW diversion roles and responsibilities are allocated based on current policy and regulation. A brief discussion of the appropriateness of this allocation is also included in terms of the impacts to Vancouver:

1.2.1 Federal and Provincial

Senior government is responsible for developing and regulating manufacturers' responsibility programs for specific products and packaging materials, for the purpose of reducing waste and increasing material reusability and recyclability. Extended Producer Responsibility (EPR), or product stewardship, is the current and preferred policy strategy for dealing with products and their packaging at the end of their useful life. Perhaps the most well recognized example of EPR is the provincial beverage container deposit/return program.

EPR is based on the concept that the companies or "brand-owners" that manufacture and sell a product are held responsible for the life-cycle impacts of that product. The BC Provincial government is a national leader with the development of EPR programs through regulation. The concept and application of EPR is discussed in more detail under Part 2 of this Report.

It is rational and appropriate that senior government is charged with the overall responsibility of leading the development of EPR policy and programs given their overarching regulatory authority and since the flow of commodities covered by EPR programs do not recognize local government boundaries. However, even with the strong legislative power of senior government the magnitude and complexity of implementing manufacturers' responsibility programs should not be understated.

1.2.2 Greater Vancouver Regional District (GVRD)

The GVRD is responsible for long-range solid waste management planning for the Lower Mainland. Through a network of six transfer stations, the Cache Creek Landfill and a waste-to-energy facility in Burnaby, the GVRD also provides the majority of regional transfer and disposal capacity. Under Provincial legislation, the GVRD is accountable for the creation, coordination and monitoring of our regional Solid Waste Management Plan (SWMP). Specific responsibilities allocated to the GVRD under the SWMP include:

- Planning and implementing long-term, environmentally responsible energy recovery and disposal capacity for the management of MSW residuals.
- Regulating private waste transfer and disposal facilities.
- Implementing and promoting material disposal bans.
- Supporting and promoting waste reduction and diversion in the industrial, commercial and institutional (ICI), and demolition, land clearing and construction (DLC) sectors.
- Promoting and coordinating common 3R's initiatives across the region, such as reuse education and waste exchanges, backyard composting and school education programs.
- Researching and monitoring solid waste management technologies and market conditions.
- Researching and tracking the knowledge, attitudes and practices of the region's solid waste management customer base.
- Monitoring and reporting to the Province the region's performance with diverting waste materials from disposal.

Managing and completing this work using a regionally centralized management model is sensible and cost effective. It avoids a duplication of effort within Lower Mainland municipalities and ensures reasonable consistency with program design and implementation across the region. For example, regional planning of major waste diversion promotion and education initiatives that utilize major media, such as television, radio and large circulation newspapers provides better value, enables a

coordinated approach, is more successful and reduces the financial burden on individual municipalities.

The centralized waste reduction and recycling function that the GVRD is responsible for is funded by the Regional Waste Reduction and Recycling Rate. The Rate is currently $2.20 per tonne and is levied on all materials disposed in the GVRD. The current annual revenue generated from this Rate is approximately $3 million, of which Vancouver's share is approximately $770,000.

1.2.3 Lower Mainland Municipalities

Municipalities are responsible for administering and providing specific waste management services and programs for their customer base. Municipal services are typically limited to the collection and transfer of solid waste materials, and the provision of street cleaning operations. The individual municipalities in the region also fund and manage municipally focussed promotional programs to support the particular services they provide. Specifically, the municipalities are responsible for implementing and promoting residential recycling and yard trimmings collection programs, drop-off depot operations for basic recyclables and yard trimmings, and backyard composting programs. The municipalities are also responsible for incorporating basic information about GVRD and private sector programs into municipal residential promotional materials and supporting those programs where practical.

In Vancouver, municipal forces provide garbage, yard trimmings and recycling collection services to the single family sector. City crews also provide weekly recycling collection to approximately 38,000 residential suites in over 1,700 multi-family buildings. The City contracts for the collection of recyclables from an additional approximately 97,000 residential suites in over 2,800 buildings.

The City finances the delivery and promotion of residential materials collection services through the Solid Waste Utility, which avoids dependency on property taxes as a program funding source. The City also owns and operates a windrow composting facility for yard trimmings, a transfer station (Vancouver South Transfer Station) and a landfill (Vancouver Landfill located in Delta) which contribute to the region's integrated waste management system.

1.2.4 Private Sector Waste Haulers and the ICI and DLC Sectors

Commercial waste hauling companies provide garbage and recycling collection service to the multi-family residential, industrial, commercial and institutional (ICI), and demolition, land clearing and construction (DLC) sectors. There is also limited local capacity provided by the private sector for processing recyclables and organics, and landfilling DLC waste. The ICI and DLC sectors are responsible for implementing their own waste diversion programs serviced by private haulers with support from the GVRD and the Province. The private sector also provides facilities for the reuse of goods and materials through second hand stores, used building materials stores, repair stores and charitable organizations.

1.3 Benefits and Principles of Regional Solid Waste Management Planning

There are many benefits to centralizing solid waste management planning at a regional level:

- The uncontrolled flow of waste out of the regional system is minimized, which mitigates the risk of economic instability to the delivery of waste collection and diversion programs and services.
- Economies of scale are realized; a duplication of effort and expense amongst the various levels of government and the private sector is avoided.
- Particular roles and responsibilities are assigned to specific sectors that are most suited and empowered to carry out those tasks.
- A reasonable degree of consistency is provided with service and program delivery across the region.

In terms of waste diversion, some of the underlying principles of the region's Solid Waste Management Plan include:

- The 3R's hierarchy of waste management: *reduce, reuse and recycle*.
- The *polluter pay* principle, including manufacturers' responsibility programs (e.g. Extended Producer Responsibility) as the preferred option, where practical.
- Products made from old materials (materials that become "waste") are to be of the highest possible usefulness.
- Programs should be easily accessible and relatively simple.
- The largest percentage materials in the waste stream are dealt with first so that diversion is maximized for a given amount of effort and expense.
- Programs should be generally consistent across the region so that they are relatively easy to understand, and to minimize the amount of promotion and education.

Our regional SWMP places much of the responsibility for waste diversion directly on senior levels of government and the private sector, largely through EPR policy. There are other jurisdictions in the world where municipalities are allocated much more responsibility for waste diversion program delivery, but to carry out that work those municipalities typically receive significant funding from their senior levels of government.

Attachment B provides further details on the regional Solid Waste Management Plan.

1.4 Current Waste Generation and Diversion

1.4.1 Regional

The GVRD reviews its solid waste management system annually. This involves reviewing and monitoring solid waste generation and reduction rates, and comparing these figures to a 1990 baseline in accordance with the 1995 SWMP. A primary goal of the SWMP was to reduce per capita waste disposal to 50 per cent of 1990 levels. This

goal was met two years early, in 1998. Current goals are being established as part of the regional solid waste management plan review work and the *Zero Waste Challenge*.

In 2004, nearly 1.5 million tonnes of municipal solid waste was disposed from the region, translating to a disposal rate of 0.69 tonnes per capita. In 2004, the regional waste diversion rate was 52 percent. This means over one half of what used to be disposed as garbage is now reduced, reused, recycled and composted. While it is almost impossible to compare diversion rates in different jurisdictions due to reporting and program differences, a 52 percent diversion rate is exceptional compared to other regions both nationally and internationally. We are now recycling and composting about 1.6 million tonnes each year. Maintaining, improving and promoting existing programs are therefore significant ongoing tasks for government and the private sector.

Attachment C provides more detail on generation and diversion rates, and also material composition data of regional solid waste.

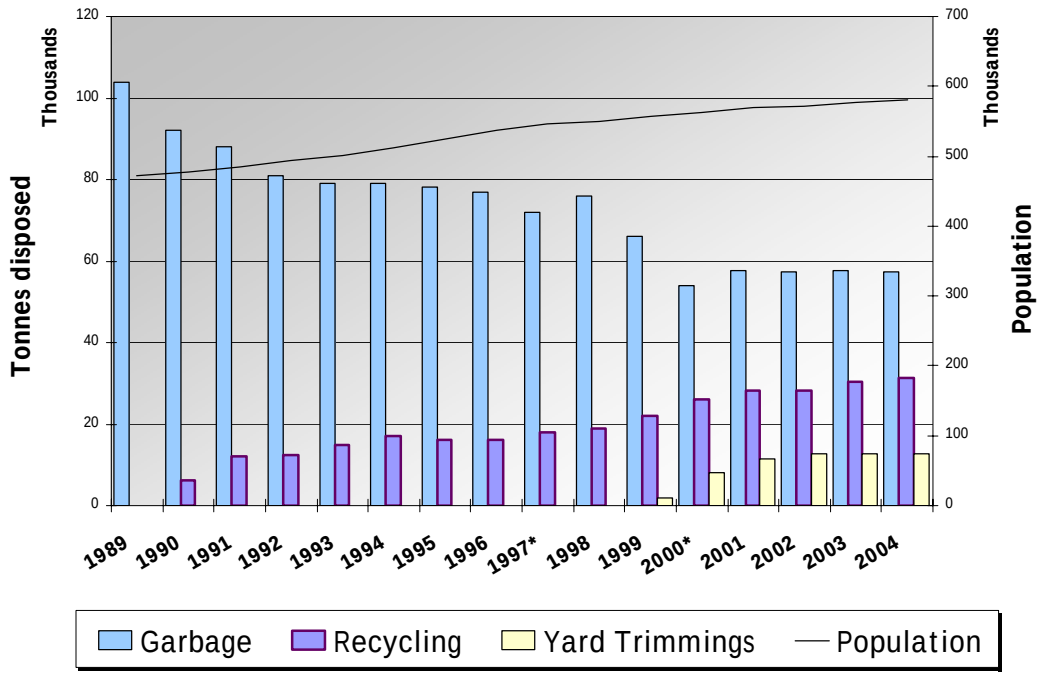
1.4.2 City of Vancouver

Since Vancouver's solid waste management role is to focus primarily on residential waste collection and recycling programs, the City relies on regional waste diversion statistics as indicators of our overall performance. We therefore apply the regional diversion rate of 52 percent to Vancouver. However, based on the type and quantity of materials collected by the City under our single-family collection program (i.e. garbage, blue box materials and yard trimmings collection programs), Vancouver's estimated recycling rate for the single-family sector is 47 percent by weight, based on 2004 data. The overall diversion rate for the single-family sector is therefore greater than 47 percent when all diversion initiatives are accounted for, such as the beverage container deposit/return program.

The following is a summary of 2004 solid waste data specific to Vancouver including garbage tonnage collected by the private sector (refer to Attachment C for more details):

Material Type	Tonnes
Single Family Residential Garbage Collected by City	57,450
Commercial Sector Garbage Collected by Private Haulers	291,300
Total Material Disposed	348,750
Blue Box and Apartment Recycling Collection:	
Newspapers	11,560
Mixed Paper & Cardboard	13,190
Mixed Containers (plastic, glass, metal)	6,460
Estimated Recyclables Dropped of at Depots, including Metals, White Goods, Paper, Cardboard, Plastics, Mattresses and Gypsum	6,500
Yard Trimmings Collected from Single-Family Properties	14,370
Yard Trimmings Dropped Off at VSTS & VLF Depots	17,690
Backyard Composting (estimate)	8,500
Total Material Recycled	78,270

Historical waste generation and recycling performance of Vancouver's single family sector is indicated in the following chart:



1.5 Current Work and New Solid Waste Management Planning

The GVRD and the Lower Mainland municipalities continue to effectively manage existing waste diversion programs, and collection and disposal systems.

Due to the pending closure of the Cache Creek Landfill, a significant amount of the GVRD's planning work over the last five years has been dedicated to securing long-term disposal capacity, rather than on planning large new waste diversion programs. Despite the GVRD's recent focus, there has still been significant progress made with waste diversion. For example:

- The BC Ministry of the Environment has been revising Provincial EPR regulation, improving some existing EPR programs, and planning new ones (e.g. EPR for electronics discussed in more detail under Part 2 of this report).
- The GVRD has undertaken a SWMP review process.
- The municipalities have been adding new materials to their recycling programs as new processes and markets develop (in Vancouver, we've added plastic #4 and #5, pizza boxes and aluminium foil).
- All three levels of government in BC have been active with maintaining and improving existing waste diversion and education programs, which are very significant ongoing work program tasks.

With the current SWMP nearing completion, some significant regional initiatives are proceeding as steps towards a new SWMP. These address many of the issues raised by Council with respect to waste diversion next steps, which are discussed in more detail in Part 2 of this report. This planning and research work being completed by the GVRD includes, but is not limited to:

- Modeling solid waste systems.
- Reviewing new technologies.
- Researching organics diversion technologies, opportunities and barriers.
- Formulating additional material disposal ban opportunities.
- Completing waste and recycling material composition studies.
- Adopting a *Zero Waste Challenge* and initiating a work program and public consultation process.
- Researching programs in other jurisdictions.
- Evaluating the effectiveness of EPR programs in the GVRD and determining how they could be improved.

The GVRD has not indicated a firm timeline for drafting and seeking approval of a new SWMP. Municipalities and other stakeholders will have significant input and will be required to make decisions as the preparation for the new SWMP moves along. The City has a significant role to play in terms of cooperation, support and lobbying to ensure the new SWMP is drafted and implemented in accordance with the best possible waste diversion principles. In particular, Council's support and lobbying for additional EPR and packaging reduction programs through the Union of British Columbia Municipalities (UBCM) and the Federation of Canadian Municipalities (FCM) to the senior levels of government will be vital.

We can expect that the existing SWMP's general principles will be applied to the new SWMP. In terms of sustainable waste diversion, this means that the general focus will be on opportunities to divert the largest percentage of materials remaining in the waste stream for a given amount of resources. Under the existing SWMP, programs have already been implemented for most of the large material categories for which there is reliable and cost effective processing capacity and end-use market availability. Remaining material categories are much smaller. As a result, developing economically viable processing systems and end-use markets is more difficult and involves greater risk. Without an investment of significant capital funding by government we are reliant on the private sector to develop this additional capacity. We can therefore expect that new recycling programs will generally be more costly. It will also be more difficult to increase recovery rates for existing programs beyond what we've already achieved, unless further significant advancements are made with changing behaviours. The same challenge exists for increasing diversion through waste minimization and reuse, since the success of those types of initiatives is based largely on behavioural modification.

The next SWMP will therefore present many more challenges in terms of complexity, cost and governance. As an example, we can expect there to be considerable pressure on the City and other municipalities to assist industry to meet waste diversion goals,

by subsidizing private sector EPR collection programs in some manner. Additional organics diversion is another good example of an upcoming challenge, and these topics are covered in more detail in Part 2 of this report.

PART 2 – NEXT STEPS

2.1 Federal and Provincial Government Next Step Issues

2.1.1 The Concept of Extended Producer Responsibility (EPR)

EPR, or product stewardship, is a type of regulatory or policy model that places the responsibility of waste diversion on industry (i.e. product "brand-owners") instead of government. These programs may be legislated or implemented voluntarily, perhaps under the threat of legislation. Recycling costs are typically recovered from the consumer of the product through a fee paid at point-of-purchase. Probably the best known example of EPR is British Columbia's beverage container deposit/return program.

EPR has many advantages over government run recycling programs:

- Collection and program administration costs are allocated to the parties responsible for generating these materials as waste. This is more equitable and in-line with the *polluter pay* principle, compared to placing this financial burden on the municipal tax payer or solid waste utility customer. (This strategy is particularly important for products that are expensive to recycle, such as electronics).
- The responsibility of program education, promotion and monitoring, and for creating and maintaining end markets for recycled materials is shifted to the producers or brand-owners of those materials, although senior levels of government may still provide some assistance.
- Industry, the sector which has direct control over product design and pricing must assume life-cycle responsibility for these materials. This provides an incentive for producers to design their products for repair, upgrade and recycling since it is the producers who have to deal with the product at the end of its life.
- It demonstrates to the consumer the true, full cost of the product which makes environmental comparisons easier.
- It allows more convenient drop-off, often through return-to-retail, the same location where these items are purchased.
- It allows the option of a refundable deposit to be charged on a product or packaging as an incentive to increase recovery rates (e.g. beverage containers in BC).

As previously mentioned, it is appropriate that senior government leads the development of EPR policy and programs since:

- they regulate industry on other matters and have the necessary regulatory framework in place to do so; and,

- EPR regulated materials flow across local government borders throughout their lifecycle.

Implementation of EPR programs on a broad scale is also necessary to maintain a level playing field for producers, and so that it's more cost effective for industry to manage their materials. Regardless, some producers lobby against EPR, primarily because of the responsibility that this type of policy allocates to them. This lobbying can delay the implementation of new programs or the expansion of existing ones (e.g. inclusion of dairy beverage containers in the existing beverage container deposit system). It is therefore advisable that local governments demonstrate firm support for more EPR programs when they are appropriate. However, EPR is sometimes not practical and other types of manufacturers' responsibility programs may be more appropriate (refer to "EPR for Newspaper" below).

British Columbia is a recognized leader in EPR. Materials covered under BC product stewardship programs include beverage containers, lead-acid batteries, lubricating oil, oil filters and containers, pharmaceuticals, paint, solvents, flammable liquids, gasoline, pesticides and tires. There are also other voluntary EPR programs that the City benefits from that are national or North American in scope (e.g. the *Call2Recycle*™ program for collecting and recycling nickel-cadmium batteries operated by the Rechargeable Battery Recycling Corporation (RBRC) based in the United States).

As a next step and in preparation for a new regional Solid Waste Management Plan the GVRD is presently conducting a study on EPR specific to our region. This involves an assessment of the effectiveness of existing EPR programs, determining what new EPR programs are needed, and determining how to develop strategies to further enable EPR in the GVRD. For the implementation of additional EPR programs, the next steps will be taken by the Provincial government with input from the GVRD, the municipalities and other stakeholders.

2.1.2 Extended Producer Responsibility (EPR) for Newspaper and Newsprint Recycled Content

Applying a typical EPR strategy to divert materials such as newspapers, and other paper products such as cardboard and boxboard is not considered practical. These materials are heavy, are generated in large volumes, are regularly consumed, and are often distributed free of charge. For these reasons a deposit type program where old paper products are accepted back at retail or depots under an EPR program is not considered feasible.

Alternatively, with the cooperation of senior government, there may be other types of manufacturers' responsibility programs for diverting paper that are more effective and operationally feasible. For instance, taxing industry and routing that tax revenue to municipalities or other agencies to cover the cost of municipal recycling collection programs could be considered by the Province. However, a strategy like this is difficult to implement and sustain because it:

- requires a high level of trust and cooperation across the levels of government involved;
- raises questions about how the tax revenue is spent and if it is equitable;

- results in disputes over program costs and efficiencies.

Typically, municipalities do not lead these types of recycling program funding strategies, largely because of the issue of fairness, the scope of regulation required, the high cost of administration relative to the benefits, and since the lifecycle flow of these materials do not recognize municipal borders. For example, the producers of newspapers distributed in Vancouver may not be located in Vancouver and would therefore not be subject to a municipal tax. If the tax was instead levied against retailers, this type of program would be expensive to administer given the high volume of retailers that sell newspapers, and would not be equitable as it would not capture newspapers distributed free of charge. To provide fairness it may be considered necessary to develop a scale of taxes or fees based on individual newspaper sales volumes for individual retailers. However, it is expected that the administration costs associated with that type of program would outweigh the benefits, relative to current diversion rates achieved through more cost effective municipal recycling programs.

It may also be possible to regulate a minimum recycled content for specific products, such as newspapers. Minimum recycled content legislation helps to create larger, more stable and higher value end markets. This results in a direct benefit to local government given their dependency on recycle material commodity markets for ensuring the delivery of cost effective municipally operated collection programs. Therefore, in terms of manufactures' responsibility strategies for increasing newsprint waste diversion, minimum recycled content legislation may be the most rational option should senior government decide to pursue such a strategy.

However, additional direct benefits to Vancouver from minimum newspaper recycled content legislation are anticipated to be nominal. Through existing programs a diversion rate of 80 percent has already been achieved for newspaper. The conditions that contribute to this high diversion rate include:

- Newspaper is included in the regional disposal ban.
- Newsprint distributed locally is already manufactured with recycled material (contains about 10 percent recycled content).
- Vancouver and other Lower Mainland municipalities benefit from recycled content legislation for newsprint in the states of California and Oregon. With our recycling collection programs, the City receives about $1.4 million a year from the sale of old newspapers. This revenue offsets approximately 25 percent of the City's total recycling collection program costs.

Canada is also one of the largest exporters of newsprint in the world, and the demand for both virgin and recycled newsprint is very high worldwide. The overall impact of recycled content legislation in BC on the large export market would therefore be relatively minor.

In terms of next steps, staff will continue to monitor additional newsprint diversion opportunities through the GVRD's solid waste management planning process. If it is determined that there would be sufficient benefit to the City in "closing the loop" with newsprint recycling through recycling materials content legislation, the City and the GVRD could urge the Province to pursue such as strategy.

2.1.3 Diversion of Junk Mail and Newspaper Inserts

Attempting to reduce the amount of advertising and junk mail arriving at residences and businesses is difficult as it would restrict the free flow of information and advertising. Currently, the following options are available to residents:

- They can display a sticker on their mailbox or mail slot indicating that this type of unaddressed material is not to be delivered by Canada Post (however, caution needs to be applied here since some important information is also delivered in this manner, including the City's recycling newsletters).
- Residents can contact the publishers of free newspapers and register to not receive that material.
- Residents can have their names removed from the Canadian Marketing Association list which will stop the delivery of the majority of addressed advertising mail, such as catalogues, insurance ads and credit card offers.

Similar to the comments under "EPR for Newspapers" above, municipalities do not typically legislate or tax the responsible sectors of industry and business on these far reaching product stewardship issues, largely because of the issue of fairness and the high cost involved with administering those types of initiatives relative to the perceived benefits. In terms of next steps, if this issue is considered a priority, local government may wish to urge senior government to take action, but with the understanding that such action would likely have negative impacts on the free flow of advertising and information, and may negatively impact municipal recycling program revenues.

2.1.4 Extended Producer Responsibility (EPR) for Electronics

Small appliances such as computers, monitor printers and televisions represent about 4.8 percent (by weigh) of materials disposed in the region. Currently there are limited options for diverting these materials from disposal. There are some local businesses and organizations that accept electronic items for refurbishing or recycling, but not at a scale where diversion of large quantities of electronics is possible. To deal with these materials more effectively, the Provincial government passed an EPR regulation in early 2006 for selected electronics. This initiative is a very positive step forward for dealing with a problematic waste material in a sustainable manner and will allow the public to return their used electronic items for recycling. The program is scheduled to start in August of 2007 and will initially cover desktop computers, desktop servers, portable computers (except handheld devices), desktop printers and televisions.

To avoid a financial burden on the general taxpayer or solid waste utility subscriber, the GVRD and the municipalities will not be directly involved with implementing this program. However, we may find that industry proposes to local government that municipalities provide electronic waste collection depot facilities to supplement their efforts. Deciding whether to implement such a proposal would be based on availability of space, levels of funding industry is willing to provide to offset municipal costs, and whether municipal participation would negatively impact on private sector competition.

As an additional next step, staff will consider the operational feasibility of collecting electronic waste as part of the current redesign work on the Vancouver South Transfer Station (VSTS) and the recycling depot at the Vancouver Landfill. At a corporate level, the City will be able to utilize this EPR program to recycle some of our old outdated electronics. As well, since we anticipate the EPR program will eventually expand to include other electronic devices, peripherals and recording media (the GVRD has expressed this desire to the Province) we will monitor the success of the program and will continue to work with the GVRD to encourage the Provincial government to ensure the program's performance standards are maintained at a high level.

2.1.5 Household Hazardous Waste (HHW) Education

The primary responsibility for the proper processing of most hazardous wastes and the associated promotions lies with the producers of those materials under various Provincial Extended Producer Responsibility (EPR) programs. Accordingly, the Provincial government implements and regulates these programs. In BC, the most comprehensive program covering HHW is *Product Care*, which allows the public the opportunity of returning waste paint, flammable liquids, pesticides and gasoline to specific depot locations. In addition to the promotion and education provided through industry led programs, the GVRD and the municipalities incorporate basic educational information related to services into their own educational materials targeted to the residential sector. While the various EPR programs may run their own information telephone lines, all levels of government and some producers support the central BC recycling and hazardous waste hot line at 604-732-9253. That telephone line is run by the Recycling Council of BC (RCBC) and is advertised on various GVRD and municipal promotional materials.

To supplement this work, in the recent past the City approached HHW EPR program operators and successfully coordinated an arrangement whereby HHW EPR program promotional materials were included in Vancouver's annual collection calendar mailing to single-family properties. This included:

2003 - Rechargeable Battery Recycling Corporation bookmark.
2004 - Product Care brochure.
2006 - Revised Product Care brochure.

The City has also taken a proactive approach to preventing hazardous materials from being disposed improperly. At the Vancouver Landfill and the VSTS the City provides secure temporary storage areas for hazardous materials abandoned by the users of these facilities. The City contracts with a HHW collection service provider so that these materials are properly processed and recycled or securely disposed. In fact, the majority of these materials, including paint, oil filters, anti-freeze, lead acid batteries, and propane tanks are sent for recycling. By way of signage at our facilities, City web page links, and through e-mail and phone inquiries the City also provides information to our customers on the agencies where they can properly dispose of HHW. The City also prohibits the disposal of hazardous materials with regular garbage through the Solid Waste By-law, and the GVRD bans these materials from disposal in all Lower Mainland waste facilities.

In terms of next steps staff will continue to work with the GVRD and EPR program leaders to pursue additional opportunities to educate the public on responsible HHW

diversion and disposal where there are direct benefits to the City. We also anticipate the GVRD will urge the Provincial government to complete a comprehensive review of the efficacy of Provincial HHW management programs and to pursue the expansion of these programs to include additional materials through EPR policy. Our understanding is that the Province has not completed an overall review of these programs with regard to their recovery rates, the effectiveness of their educational efforts and the materials that are still not included in HHW EPR programs, including such things as old pesticides, fertilizers, household cleaning products, diesel, propane and butane. We expect this issue will also be raised by the GVRD upon their completion of the previously mentioned study of EPR in our region. That study may also result in a re-evaluation of the roles of the GVRD and the municipalities with HHW diversion in the next SWMP.

2.1.6 Promotion of Excessive Packaging Reduction

Under the regional Solid Waste Management Plan, the Federal and Provincial governments are responsible for implementing policy and regulation aimed at reducing packaging. Senior government has the legislative framework and power that allows them to implement packaging reduction programs and provide a level playing field for producers over a wide jurisdiction. Historically, it has been the Canadian Council for Ministers of the Environment (CCME) that has provided most of the leadership with this work. However, no new significant developments in packaging reduction policy have occurred since the CCME developed the National Packaging Protocol (NaPP) in the early 1990s. The primary goal of that voluntary program, which was achieved in 1996, was 50 percent reduction in packaging disposed by the year 2000 compared to 1988 levels.

As a next step, senior government will need to consider additional Extended Producer Responsibility (EPR) programs for packaging and the implementation of packaging diversion legislation. Staff will continue to work with the GVRD through their solid waste management planning process to address this issue.

2.1.7 Diversion of Plastic Bags

Materials such as plastic bags, disposable coffee cups and dishes are very visible signs of our "throwaway" consumer society. They contribute to litter problems, but overall they represent a small percentage of materials contributing to the residual waste stream. For example, plastic shopping bags comprise only about one percent of MSW by weight. Based on this measure they may not be considered as a high priority issue in the next regional Solid Waste Management Plan.

In terms of diversion initiatives, some retailers are now voluntarily taking back plastic bags for recycling. The plastics industry is coordinating information on those programs and providing it to RCBC so that they can keep the public informed through their recycling hot line. This is a responsible approach for the plastics industry to take from a life cycle perspective, since this is a volunteer initiative and because plastic shopping bags are essentially a disposable product.

In terms of next steps, the Province has the option of mandating that producers and retailers become more formally involved in diverting waste plastic bags through an

Extended Producer Responsibility (EPR) program, perhaps with an eco-fee and/or a deposit. The Federal and Provincial governments can also tax throwaway packaging materials to discourage their use, similar to what Ireland did with plastic grocery bags in 2002. However, that approach may not be considered desirable as it may be perceived by the public as unnecessary and ineffective compared to an EPR program or a partial or complete ban. For example, in Ireland it is being reported that they are now experiencing an increase in plastic bag use as the public becomes conditioned to the tax.

Notwithstanding the discussion above, about eight of the 21 municipalities in the GVRD are now accepting plastic shopping bags in their residential recycling collection programs. Despite the perceived benefits of this waste diversion initiative, we have a number of concerns with how well this type of program would work in Vancouver. For instance:

- there are operational challenges that would need to be overcome;
- there are cost implications;
- there are uncertainties regarding the net benefits, primarily because of challenges with recycling contaminated (dirty) bags from curb-side programs (a problem experienced in other municipalities also); and,
- we are uncertain whether the existing recycling market capacity could effectively manage the volume of plastic film anticipated from a large municipality like Vancouver.

Therefore, as a next step, staff will investigate the costs, benefits and implications of such a program for Vancouver. At the same time, staff will continue to work with the GVRD to determine the effectiveness of the existing industry/retailer plastic bag collection and recycling programs, and we'll consider options to assist with the promotion of those programs to further benefit Vancouver residents.

2.1.8 Diversion of Take-out Food and Beverage Packaging

The most common types of disposable food and beverage packaging are manufactured from either paper or polystyrene plastic. Regionally, paper wrappers, plates and cups represent about 3.6 percent (by weight) of materials disposed as garbage. Polystyrene, including "Styrofoam" type cups and dishware comprise less than one percent.

There are significant operational challenges with diverting these types of materials through recycling. Typical disposable paper cups and dishes contain a polymer coating which reduces their recyclability. They cannot be recycled with standard paper, but could potentially be dealt with through polycoat beverage container recycling programs or through food waste processing/composting, depending on the type of technology available to a local market. Also, as recently indicated in a memo to Council, there are currently no recycling options and very limited reuse options available in the Lower Mainland to deal with expanded foam polystyrene products such as cups, dishware and packaging materials.

If diversion of these specific material types is considered a priority, in terms of next steps the Federal or Provincial governments would need to consider the implementation of a partial or complete ban on the use of these materials, or may choose to develop a manufacturer's responsibility type program through some type of packaging legislation.

Similar to the previous discussion on EPR programs, it is generally not sustainable under a municipality's limited scope of governance to regulate, ban or tax the sectors of industry and business responsible for dealing with issues such take-out food and beverage waste packaging diversion. Challenges with equity and the high cost of administering these types of initiatives relative to the anticipated returns can be dealt with more sustainably and effectively by senior government.

Perhaps a more significant issue in Vancouver, with respect to take-out food and beverage packaging is littering and the proliferation of coffee cups disposed to public litter containers. This issue is discussed in more detail later in the report.

2.2 Greater Vancouver Regional District Next Step Issues

2.2.1 Diversion of Organic Waste

Based on 2004 regional waste composition data, organics represent about 45 percent by weight (226 kg/person/yr) of MSW disposed as garbage. This is the largest single material category remaining in the region's waste stream. However, this category includes many material types other than food waste, including such things as wood pallets, textiles, footware and rubber. It is therefore important to distinguish the compostable versus the non-compostable fractions of organics remaining in the waste stream as follows:

Material	% Remaining
Compostable Organics:	
Non-Backyard Compostable Food (meats, breads, dairy, fats)	8.6
Backyard Compostable Food (fruits, vegetables)	7.9
Yard Trimmings	4.8
Total Compostable Organics	21.3
Non-Compostable Organics:	
Wood (other than wood from yard trimmings)	14.6
Multi-materials (e.g. footware)	4.8
Textiles	3.9
Other (e.g. leather, rubber including tires, etc.)	0.8
Total Non-Compostable Organics	24.1
Total - All Organics	45.4

Currently, about 46 percent (417,300 tonnes) of total organic material is diverted annually in the GVRD. The annual regional diversion rate of the compostable fraction is 52 percent (248,500 tonnes). The majority of organic waste diverted is made up of yard trimmings, and a relatively small amount is food waste diverted through backyard composting and that which is collected from the commercial and institutional sectors. Considering the majority of organic waste generated (i.e. total produced including

amount recycled and disposed with garbage) is yard trimmings, organics composting as a waste diversion measure can be considered as well established in the region.

As an option for further increasing organics diversion, the GVRD is actively considering the challenges and opportunities associated with centralized food waste composting. The GVRD has completed two studies on food waste collection and processing, and a third study looking at market conditions is expected to be completed soon. Regional and City staff have also visited other jurisdictions to review their programs. Further, staff are monitoring a pilot organics collection program for the single-family sector recently implemented in the Capital Regional District.

Based on work completed to-date, the following is a summary of some important considerations:

- Since the implementation of the 1995 Solid Waste Management Plan (SWMP), there has been some hope that the private sector might develop more food waste processing capacity. Several composting facilities have started up to serve the Lower Mainland, but have later met with failure or have had very limited success.
- There is insufficient available processing capacity in the region to manage the amount of organic material currently generated.
- Food waste processing facilities, whether anaerobic or aerobic, are more complex to design, site, construct and operate compared to yard trimmings composting facilities.
- From a sustainability perspective it is vitally important to assess and weigh the benefits of centralized food waste processing against the economic costs of separating, collecting and processing another stream of materials, the environmental impacts of the additional fleet of trucks (e.g. greenhouse gas emissions), and the environmental and social impacts of locating a processing facility (e.g. odours).
- Food waste collection and centralized processing programs are very expensive relative to our current waste management systems. Cost drivers include the capital cost of a processing facility, transportation costs, and collection equipment and labour costs. Unit costs are particularly high given the small quantity of material relative to what is diverted in our existing programs. The following is an approximate comparison of municipal collection and processing costs for four MSW streams based on the City's operations, and costs obtained from other jurisdictions that separate food waste for processing:

Waste Stream & Service Type	Approximate Total Cost per Tonne
Single family garbage collection and disposal	$ 130
Single family and apartment recycling collection and processing (net of revenue)	$ 120
Single-family yard trimmings collection and processing	$ 230
Residential food waste collection and processing (estimated)	$ 360 to $ 760

- There is considerable risk involved with siting, funding and operating centralized organics material processing facilities. As examples:

  - A recently commissioned, privately funded and operated food waste composting facility in Squamish recently shut down due to odour issues. They are not expected to reopen.
  - Guelph Ontario's "wet waste" organics processing facility was shut down earlier this year because of odour problems and other operational difficulties.
  - One of the facilities used to process approximately 18,000 tonnes of organic waste each year from the Greater Toronto Area was recently handed a 90 day court order to rectify serious odour problems and are at risk of closing. Due to the challenges with siting and funding sufficient local area processing capacity, a significant portion of Toronto's residential collected food waste is transported to Quebec for processing.

- There is significant uncertainty with respect market demand for the supply of finished product based on the available supply of feedstock in the City or Region, and at a price point that results in a sustainable return on investment.
- Processing methods that divert large amounts of organic material, including disposable paper dishes and cups, pet excrement, tissues, paper towels, meat and bones, are particularly expensive and the end product has a lower value and questionable use. An alternative approach is to accept a limited number of food waste items for a higher grade end product, but this would result in a diversion rate increase of only about eight percent at reduced economies of scale (higher cost per tonne).
- The City has implemented a national award winning system to recover and utilize landfill gas (LFG) from the Vancouver Landfill. LFG is comprised of about 50 percent methane, which is produced from the anaerobic degradation of organic waste disposed to landfill. A LFG gas beneficial use (cogeneration) system has been operating at the Vancouver Landfill since the fall of 2003. The project initially collected about 2,000 cubic feet per minute (cfm) of landfill gas, equivalent to 200,000 tonnes per year of CO_2 (greenhouse gas) equivalents, but now collects about 3,500 cfm of landfill gas equivalent to about 350,000 tonnes per year of CO_2 equivalents. The collected gas is used to generate electricity which is sold to BC Hydro and to offset the natural gas heating demands of a local greenhouse. Offsets from the beneficial use system account for about an additional 50,000 tonnes per year of CO_2 equivalents. Approximately $300,000 of annual revenue generated from the project offset City landfill gas system operating costs.

In terms of next steps with organics diversion:

- GVRD staff will be bringing a food waste diversion proposal to the Province, the GVRD Board and the municipalities for a decision as part of their work on the new SWMP. That proposal and the timing of implementation will have to be weighed against other possible waste diversion programs which may be more sustainable.
- City staff recently discussed with the GVRD the option of a Vancouver yard trimmings disposal ban at the Vancouver Landfill. However, because this particular issue has regional and enforcement implications, GVRD initiated disposal bans are preferred over the City initiating a ban at the Vancouver Landfill without the region's support.

- As part of the regional *Zero Waste Challenge*, GVRD staff are reviewing options for increasing the list of materials banned from regional disposal with garbage, including yard trimmings.
- City staff are investigating the option of a Solid Waste By-law amendment prohibiting the disposal of yard trimmings with Vancouver residential garbage collected by City forces. Since the City's automated yard trimmings collection program is now fully implemented, we feel this is feasible and anticipate reporting to Council on this issue in the near future.
- Next year City staff are planning to work with the non-profit organization City Farmer, the City's contracted operator of the Vancouver Compost and Water Conservation Demonstration Garden, to conduct a detailed survey of participation rates and barriers with home management of food waste in Vancouver, and to develop a plan to increase food waste diversion through an expanded backyard and multi-family composting program. Backyard composting provides a sustainable option for diverting a portion of the organics waste stream.

2.2.2 Diversion of Demolition, Land Clearing and Construction (DLC) Waste

In 2004, the DLC diversion rate was 66 percent (by weight). Under the terms of the SWMP, the DLC sectors that are serviced by private haulers are responsible for implementing their own waste diversion programs, with additional support from the GVRD. The latter is accomplished though the GVRD's *BuildSmart* program which includes such things as:

- The publications: *Demolition and Salvage: A Guide for Project Managers and Contractors; Old to New Design Guide – Salvaged Building Materials in New Construction;* and *Construction Waste Recycling: A Guide for Builders and Contractors.*
- Case study fact sheets.
- A directory of salvaged building materials and suppliers.
- Central listing of incentives and funding.

In terms of next steps:

- The GVRD is considering initiatives for further waste reduction and diversion in the DLC sectors, including a disposal ban on materials such as wood waste.
- The City is currently considering municipal DLC initiatives as part of Vancouver's *Green Building Strategy*, including revisions to the Vancouver Building Code and requirements in demolition, building and occupancy permits that will lead to increased diversion. More details on those initiatives are expected to be reported to Council by Sustainability Group staff in the coming months.

2.2.3 Improving on Initiatives taken by Other Levels of Government

The GVRD coordinates this task by facilitating input from the municipalities. The current Solid Waste Management Plan (SWMP) is a model of cooperation between governments and the private sector, and confirming the roles for the different levels of government and the private sector is part of the next SWMP review process.

As a next step, the GVRD is conducting a study of Extended Producer Responsibility (EPR) in the region in preparation for drafting the new SWMP. Specifically the GVRD is:

- assessing the effectiveness of existing EPR programs;
- determining what new EPR programs are needed; and
- determining how to develop strategies to further enable EPR in the GVRD.

Municipalities can also interact and lobby other levels of government directly, including through the Federation of Canadian Municipalities (FCM) and the Union of BC Municipalities (UBCM).

2.2.4 Waste Diversion Tactics in Toronto and Other Jurisdictions

Experience from other jurisdictions does not always translate well due to different material collection methods, processing infrastructure, markets, legislation, and program funding models. However, there are lessons to be learned from the experiences in other regions and municipalities. As a next step, the GVRD has begun to review waste diversion tactics followed in other jurisdictions as part of the preparation for drafting the next Solid Waste Management Plan (SWMP). For example, in their work with reviewing organics processing systems they are considering systems in Toronto, Guelph, Edmonton and Halifax.

As resources allow City staff also review how other jurisdictions provide waste collection and diversion programs, services and promotions. Similarly, Vancouver staff are routinely contacted by municipalities in other provinces who want to learn from example, based on our experiences and successes with waste diversion. For instance, staff were recently invited to present on our Solid Waste Utility model's variable rate pricing system for automated waste collection at waste management conferences in Ontario and Quebec, and also presented on various Vancouver waste management initiatives at the Canadian National Solid Waste Symposium held in Richmond this past spring.

2.2.5 Zero Waste

The concept of *zero waste* originated in 1995 in Canberra, Australia, which endorsed a goal of "no waste by 2010". Since then, some jurisdictions have adopted *zero waste* as a goal (i.e. 100 percent diversion by a certain date), although most jurisdictions have instead adopted it as a guiding principle to pursue aggressive resource recovery and to promote industrial redesign.

Proponents argue that a *zero waste* concept can be a positive force to the extent that it focuses attention on waste reduction, encourages EPR and identifies creative ways to reduce waste. However, *zero waste* is subject to criticism for creating false expectations about an unreachable goal, implying that 100 percent diversion can be achieved regardless of cost and social impacts, and by risking a diversion of investment from environmental performance improvement initiatives for existing waste management infrastructure (e.g. waste-to-energy facilities, bioreactors, landfill

gas recovery, etc.). There is also criticism that it is ineffective for local governments to adopt *zero waste* policy since many issues covered by *zero waste*, such as industrial redesign and EPR, fall under the authority of senior government.

The GVRD and the Lower Mainland municipalities are already pursuing and lobbying for many of the waste reduction strategies that fall under the umbrella of *zero waste*, including EPR and new products from old materials of the highest possible usefulness.

In May of this year, the GVRD Board approved a motion directing regional staff to:

- draft a *Zero Waste Challenge* that reflects the needs of this region, including waste reduction goals which would provide the basis for community consultation;
- give consideration for the conversion of waste to energy in the development of the *Zero Waste Challenge*; and
- develop a work plan and related costs for the initiation of the *Zero Waste Challenge*.

Since then GVRD staff have developed a work plan and have recently initiated a public consultation process. *Zero Waste Challenge* work will be integrated into the GVRD's work to develop a new regional Solid Waste Management Plan (SWMP). Given the challenges associated with the remaining types of materials to be diverted from disposal and the fact that many of the initiatives required to achieve *zero waste* must be led by senior government, a more realistic interim waste reduction goal will probably be set as part of the next SWMP.

2.3 City of Vancouver Next Step Issues

2.3.1 Options to Improve Facilities for Reuse of Goods and Materials

Facilities for the reuse of goods and materials are well established by the private sector through second hand stores, used building material stores, repair stores, rental stores, and charitable organizations. The demand among these stores and agencies for used goods is high. It is advantageous for the private sector to provide this waste diversion tactic since the free market fosters competition, competition ensures a high level of service, and service can be provided over a broad area of the City. Under the Solid Waste Management Plan (SWMP), the regional district is responsible for supporting and promoting reuse centres. The role of municipalities is limited to managing processes related to zoning.

To further promote the concept of reuse the City recently ran a pilot program at the Vancouver Landfill where the Salvation Army was invited to locate a staff person and truck before the landfill weigh scales to collect reusable items. Unfortunately the pilot was not entirely successful and the Salvation Army discontinued the initiative. The lack of success of the pilot may be attributed to the fact that our community is already saturated with stores and agencies that accept reusable items.

Despite the poor performance of the pilot, as a next step in waste diversion the City is considering the costs and benefits of expanded material recycling and reuse depot facilities at the Vancouver Landfill and Vancouver South Transfer Station (VSTS) as

part of the current Council approved projects to redevelop the Residential Drop-off Area at the Landfill and complete an infrastructure review of the VSTS.

Aside from the advertising that reuse stores and agencies do themselves, one-stop access to reuse information is provided through the Recycling Council of BC (RCBC) hot line (604-732-9253). That service is funded by the public and private sectors, and is advertised on most waste diversion promotional materials published by the GVRD and Lower Mainland municipalities. RCBC also runs a large materials exchange database for industrial materials and the web page *Vancouver Reuses* (www.vancouver.reuses.com) for low value items, as part of their work for governments and industry. There are also privately operated materials exchange type publications and web pages that provide the public an opportunity to buy, sell and trade items, thereby diverting them from disposal.

2.3.2 Corporate Leadership in Waste Diversion

The City's Sustainability Group is currently working with the Materials Management and Building Services branches of Corporate Services to complete a corporate solid waste and supply chain management study of City owned facilities. The purpose of the study is to review current practices, and identify service improvement and waste diversion opportunities. This initiative is an excellent example of how the principles of sustainability and *zero waste* can be applied to our business practices to reduce environmental impact and minimize costs. It is anticipated that the results of this work will form an overall corporate solid waste diversion strategy, the details of which are expected to be reported to Council at a later date. This work is an important next step toward ensuring the City, as a corporation, is taking a leadership role with waste diversion and encouraging the community to follow our example.

2.3.3 Waste Diversion from Multi-family Buildings

A recent GVRD and City of Vancouver sponsored waste audit of multi-family waste indicates that the composition of that waste stream isn't significantly different from the single-family waste stream. The audit also revealed that although apartment dwellers are recycling significant amounts of material there is still potential for increased diversion. For example, according to the waste audit, 17 percent of the multi-family waste stream (by weight) in Vancouver is comprised of recyclable paper.

The recent audit also attempted to determine if the presence and use of garbage chutes in buildings influenced recycling behaviours. Of the buildings surveyed, 12 percent contained garbage chutes. Although it was difficult to determine individual building waste generation and diversion rates, the study concluded that there is a high level of participation in building recycling programs by tenants, regardless of whether garbage chutes are used or not.

To further increase diversion rates in multi-family buildings, staff will be pursuing several initiatives to increase waste diversion and to improve upon the success of the City's multi-family recycling program, including:

- The development of a comprehensive and multi-lingual education program that targets new recyclers (new tenants).

- An annual education program that targets all apartment dwellers, with a particular focus on paper recycling.
- A newsletter to residents, managers and owners of multi-family buildings that encourages program "buy-in".
- An improved reporting and tracking system for customer requests and complaints.
- Improved web based information.

2.3.4 Public On-street Recycling Containers and Seattle and Toronto Tactics

Staff provided Council with information on this issue on April 11, 2005 (refer to Memo RTS #5008). Updated information is provided as follows:

Returnable beverage container recycling racks have now been installed on all of Cityline litter containers throughout Vancouver. This means that of the approximately 1,200 litter containers located in the City, the majority (924) have recycling racks. The racks are designed to hold up to five deposit containers (glass and plastic bottles, tetra packs or aluminium cans) and provide easier access to those who collect deposit containers. To date, feedback from the public and visitors has been very positive.

In June staff completed a litter can waste composition study and reviewed the effectiveness of the recycling racks. It was determined that beverage deposit containers made up less than one percent (by weight) of materials disposed. Qualitative results from the study also confirmed that the recycling racks are a success, although at times some contaminants are found in the racks (e.g. coffee and juice cups) which necessitate cleaning by City crews.

The study also concluded that newsprint is the primary recyclable material being disposed in public litter cans, making up 23 percent (by weight) of that waste stream. In accordance with the June 2006 Council approved recommendations in the Newspaper Box Policy Review report, it is anticipated that the provision of 100 Multiple Publication News boxes (MPNs) that contain a recycling compartment will provide some on-street recycling opportunities for newsprint. In 2007 staff will monitor the use of these recycling compartments to determine whether this is an effective means of diverting newsprint from the litter stream. Based on staff research, stand alone public recycling receptacles are generally ineffective since contamination is to the point where the material often requires disposal as garbage. However, there may be ways to mitigate this, and options will be investigated as part of the evaluation of the recycling compartments in the MPNs. Staff anticipate reporting to Council on the results of that work in 2007.

By way of comparison, staff also reviewed and continue to monitor what the cities of Seattle and Toronto provide in terms of public litter and recycling containers:

- The City of Seattle utilizes blue recycling cans to capture recyclable beverage containers. These receptacles are installed next to the green litter cans throughout the city in areas with high pedestrian traffic, primarily the downtown. There are approximately 300 blue recycling cans throughout the city. Crews service the cans once a day up to three times per week. It should be noted that

beverage containers in Washington State are not covered by a deposit-return program.

- The City of Toronto implemented a litter campaign in 2003 to reduce the amount of litter on the street by 50 percent within five years. On-street multi-waste containers were placed under an adopt-a-bin program with local businesses. The intention of the program is that businesses act as the 'eyes on the community' and report overflowing, damaged and misused containers to City staff. This program works for the City of Toronto based on revenue generated from local business advertising on the waste containers. A similar program could not be applied in Vancouver since the City's contracted street furniture provider holds the exclusive rights to advertise on street furniture and in return provides that furniture at no cost to the City.

2.3.5 Product Stewardship and Litter

Further to the above discussion on litter can waste and the previous discussion on product stewardship as a diversion strategy for take-out food and beverage packaging, this section discusses options for dealing with these types of materials as litter.

Based on the City's litter can waste audit completed in 2006 it was determined that fast food waste (food and packaging) makes up about 57 percent (by weight) of materials in public litter cans. Further, anecdotal evidence indicates that of the litter removed from Vancouver's streets by City crews, this type of material is common. Staff has investigated and continue to review options for dealing with these issues, in terms of cost recovery and waste diversion.

With respect to cost recovery options, preliminary research has determined the City could potentially implement a "litter tax" levied to fast food retailers in the form of either a variable rate or a flat rate. The variable rate concept would involve subdividing businesses that create the waste into different categories that represent the amount of litter they generate, or subdividing businesses into different classes based on gross sales, number of sales, number of transactions, or another similar metric as a representation of litter generation.

The only jurisdiction in North America we are aware of that has developed this type of cost recovery regulation is the City of Oakland in California. It has been reported that in early 2006 they approved a litter ordinance for the purpose of taxing specific business types based on gross sales receipts, for the purpose of off-setting municipal street cleaning costs with the tax revenue. It is too early to determine how well this system is working in Oakland and we will monitor their progress in 2007. However, it has been reported in the media that business organizations in California are contemplating lawsuits against Oakland based on the litter tax being discriminatory. It has also been reported that the City of Chicago previously attempted to implement a similar tax but were prevented by the courts.

It is staff's opinion that the risks and complexities of this type of tax applied in Vancouver and the resources required to administer this type of system would outweigh the benefits, in terms of waste diversion and litter reduction. A litter tax may help offset municipal street cleaning costs, but it does not address the root cause of littering (littering is a behavioural issue). Similar problems apply to a flat rate tax

option. That system may be less complex and onerous to administer, relative to a variable rate, but inequitable to businesses that generate less waste.

In terms of waste diversion next steps, we are pursuing corporate litter/waste reduction awareness opportunities under the umbrella of the Keep Vancouver Spectacular (KVS) program. KVS has been highly successful with raising community support and awareness with litter. We are therefore pursuing opportunities to leverage that success to reduce the impacts of food and beverage packaging waste on Vancouver's waste stream through waste minimization opportunities. For instance, a number of corporate KVS participants could help raise awareness and pressure the retail community to consider more environmentally responsible alternatives over disposable, non-recyclable cups, dishware and take-out food packaging. Additional initiatives to address the issue of street litter will be presented to Council in an upcoming report.

CONCLUSION

This report provides Council with information on baseline conditions with solid waste management in the region, including a description of current principles, governance, metrics, and waste diversion planning initiatives. This report also describes next steps in waste diversion for various issues and processes required to achieve those next steps, organized by the level of government responsible. Despite these groupings it is recognized that cooperation on most waste diversion issues is required between all levels of government and the private sector.

ATTACHMENT A: COUNCIL REQUESTS DEALT WITH IN THIS REPORT

Standing Committee of Council on Transportation and Traffic, Tuesday, Dec. 2, 2003.

- Options to speed the process of removing garbage chutes to encourage recycling;
- Product stewardship approach for newspaper recycling and litter collection;
- Options for increasing residential recycling rates;
- Options for dealing with organic waste from restaurants and households;

Standing Committee on City Services and Budgets, Thursday, Jan. 29, 2004.

- Options to promote elimination of excessive packaging;
- Options to charge fast food outlets for the solid waste that they generate.

Regular Council, Tuesday, March 9, 2004.

- User pay options for fast food outlets and advertisers for the removal of waste they generate, such as fast food containers and junk mail inserted in weekly newspapers.

December 2004

- Informal inquiry to staff about how to reduce plastic bags.

Standing Committee on City Services and Budgets, June 16, 2005.

- THAT the General Manager of Engineering Services work with the Greater Vancouver Regional District (GVRD) to develop a household hazardous waste education program.

Regular Council, March 15, 2005.

- Reallocation of resources within the contract with the City's street furniture provider to introduce recycling containers.

Regular Council, Feb.14, 2006.

- The process needed to take the next steps in waste reduction, including:
  a) organic composting;
  b) improvement of facilities for reuse of goods and materials;
  c) minimization of materials deposited in landfills;
  d) extended producer responsibility;
  e) initiatives being taken by other levels of government and how the City of Vancouver can assist or improve upon those initiatives;
  f) opportunities for the City of Vancouver to lead in creating a zero waste environment;
  g) feasibility and cost of a municipal composting program;
  h) analyze the effectiveness of Toronto's "green bin" program for collecting household organic waste (see http://www.toronto.ca/greenbin/index.htm);
  i) analyze Toronto's waste diversion tactics to see if Vancouver could adopt new programs (see http://www.toronto.ca/garbage/);

j) installation of recycle bins in the downtown core and analyze the effectiveness of the City of Toronto's downtown recycling bins (see http://www.toronto.ca/litter/forum/pdf/022504/toronto.pdf); http://www.toronto.ca/garbage/bins/); and
k) investigate improved interception of construction/demolition waste, such as diverting demolition waste to "used" building supply businesses.

Standing Committee on City Services and Budgets, June 29, 2006.

- An informal inquiry about the newsprint waste diversion and old newsprint being sold offshore.

ATTACHMENT B: OVERVIEW OF REGIONAL SOLID WASTE MANAGEMENT PLAN

The Regional Solid Waste Management Plan (SWMP) is a requirement of the Provincial Environmental Management Act (formerly the Waste Management Act). The SWMP defines initiatives and programs that are to be implemented by the Greater Vancouver Regional District (GVRD) and the municipalities. In broad terms, solid waste or waste is defined as refuse or garbage, including recycling and composting. The SWMP also lists initiatives that the GVRD expects and requires senior levels of government and the private sector to implement. The specific objectives of the SWMP are:

- to reduce per capita garbage disposal in the year 2000 by at least 50 percent;
- to do this and to responsibly manage the residual (garbage); and
- to do this in a cost effective and environmentally sound manner.

The SWMP was created with a number of guiding principles, including:

- the 5R hierarchy of waste management: reduce, reuse, recycle, recover and residual management;
- the polluter pay principle;
- a commitment by all levels of government to fulfilling their roles and responsibilities under the SWMP;
- bringing about fundamental changes in the way in which we think about and manage wastes;
- minimizing or eliminating cross-subsidization of programs unless essential for the success of the programs; and
- having programs and systems flexible enough to accommodate and take advantage of future changes.

The existing SWMP was prepared and implemented to some degree starting in the early 1990's, with final approval from the Province in 1995. What follows is a list of the general responsibilities and initiatives contained in the SWMP, however, this list is not comprehensive, some of the initiatives were not implemented and other initiatives were expanded.

The GVRD has overall responsibility for the coordination of the SWMP, including general research and development, promotion of the 3R's, audience research and tracking, and reporting. This central coordination is vital to avoid duplication of effort within the municipalities of the GVRD. Specifically, the GVRD is responsible for:

- planning and implementing sustainable long-term disposal capacity;
- setting and promoting disposal charges;
- licensing waste hauling companies and government waste haulers;
- licensing privately operated solid waste and recycling facilities;
- implementing and promoting disposal bans;
- supporting and promoting waste reduction and diversion in the industrial, commercial and institutional (ICI) and demolition, land clearing and construction (DLC) sectors;

- requiring waste audits and waste reduction plans for ICI waste generators above a certain threshold with a possible link to business licences;
- conducting waste reduction workshops for the ICI sector;
- coordinating cooperative arrangements amongst municipalities for processing capacity;
- increasing government procurement of reusables and products containing post-consumer materials;
- promoting increased demand for recyclable materials;
- developing and promoting a reuse program, reuse guide and reuse workshops;
- supporting and promoting reuse and repair centres;
- implementing a waste exchange database;
- coordinating communications and education programs;
- running a school education program;
- promoting backyard composting, consumer conservation and reduction, general 3R's awareness and centralized composting locations/operations;
- promoting recycling of such specialty items as phone books and Christmas trees;
- promoting a quantity-based user fee garbage collection system; and
- educating municipal waste managers about how to implement 3R's programs and promotions.

The SWMP recommended that the Province and the Federal government implement manufacturers' responsibility programs for all packaging and short-life products. Manufacturers' responsibility programs for durable products were rated as a second priority. Four general models for programs in which manufacturers may assume some or all responsibility for managing wastes from their products are listed in the SWMP:

- Deposit/refund systems (e.g. beverage container deposits).
- Industry funded product stewardship with backdrop regulations which is also called extended producer responsibility or EPR (e.g. BC's hazardous waste programs).
- Product and packaging taxes (may be used to fund municipal programs).
- Mandatory recycling requirements (e.g. minimum recycled content).

Senior governments were also asked to establish a task force to re-evaluate "junk" or unsolicited mail with a view to reducing waste.

The Province was also asked to:

- provide targeted incentives to stimulate and support the development of markets for selected secondary materials;
- establish a life cycle assessment task force;
- evaluate virgin materials subsidies and their adverse affect on waste management, and remove or adjust where appropriate;

- develop and distribute industrial, commercial and institutional (ICI) waste audit and reduction plan guide documents to the GVRD, municipalities and waste generators, along with a communications strategy; and
- sponsor and cooperate with the ICI and demolition, land clearing and construction (DLC) waste sectors for research and development into new and expanded markets.

The Province also regulates the public sector MSW facilities.

The private sector is generally responsible for:

- providing processing capacity for dry recyclables;
- possibly providing processing capacity for compostables; and
- implementing their own waste reduction and diversion programs;

Municipalities are responsible for some of the residential waste diversion programs along with the direct promotion needed to support those municipal programs. Specifically, the municipalities are responsible for implementing and promoting:

- recycling collection to all households, including the expansion of materials accepted as markets, technologies and budgets allow;
- yard trimmings collection to all single-family households;
- drop-off depots for basic recyclables and yard trimmings;
- municipally subsidized backyard composter programs;
- quantity-based user fee systems for residential waste collection; and
- market development with regard to implementation standards, financial assistance and changes to zoning or zoning bylaws.

The municipalities are also responsible for incorporating basic information about all GVRD and private sector programs and promotions into the municipal residential promotional materials. The municipalities are also to provide support for the GVRD and private sector programs where practical. This would include such initiatives and programs as disposal charges, disposal bans, reuse and repair centres, waste exchange database, school education, consumer conservation and reduction, 3R's, central composting locations and the EPR programs. The City of Vancouver also owns and operates a composting facility, transfer station and landfill as part of the regional system.

The SWMP has been very successful with waste diversion. In 2004, the regional diversion rate was 52 percent. In other words, just a little over half of what used to go in the garbage now goes to reduction, reuse, recycling and composting. While it is almost impossible to compare diversion rates due to reporting and program differences, a 52 percent diversion rate puts the GVRD in a leading position compared to other regions in the world. We are now recycling and composting about 1.6 million metric tonnes each year. The maintenance, improvements and promotion of the existing programs are therefore significant ongoing tasks for governments and the private sector.

ATTACHMENT C: 2004 SOLID WASTE STATISTICS

Summary of Tonnages by Material Type – All Sectors

	Tonnes Recycling	Tonnes Garbage
PAPER		
Newspaper	97,210	24,270
Cardboard	137,420	16,170
Mixed Paper	154,620	67,540
Non-recyclable Paper		89,810
TOTAL PAPER	389,250	197,790
ORGANICS		
Yard Trimmings	248,470	51,330
Food Backyard Compostable		83,620
Food Other		91,100
Wood	159,550	154,710
Tires	9,280	2,330
Other Organics		98,220
TOTAL ORGANICS	417,300	481,310
Plastics	17,790	98,400
Glass	127,610	14,250
Metals	73,890	44,460
Mixed Recyclables	11,130	
Concrete	319,070	*
Gypsum	74,820	9,910
Masonry		1,210
Asphalt	112,000	*
Rocks, Sand, Dirt, Ceramic		14,930
Other Inorganic		990
Small Appliances		50,800
Hazardous Waste	20,550	18,120**
Household Hygiene		28,650
Bulky Objects		62,850
Fines		16,380
Lead Acid Batteries***	4,700	910
Other	27,790	

Notes:

* Demolition and construction loads were not included in the garbage study.
** 4,510 tonnes of empty hazardous waste containers are included in this tonnage.
*** Hazardous waste.

Included in the recycling tonnages above is 7.67 percent or 122,410 tonnes diverted through product stewardship (EPR) programs.

Data Sources: 2004 GVRD Solid Waste Composition Study
2004 GVRD Solid Waste Management Report for all sectors (recycling).

Summary of Regional Tonnages & Diversion Rates

Under the existing SWMP, we have achieved a great deal, reaching an overall regional diversion rate of 52 percent in 2004.

The 2004 regional tonnages (all sectors) and per capita tonnages for all sectors are shown in the table below.

	Disposed	Recycled	Total Generated
Tonnes	1,476,700	1,595,900	3,072,600
Tonnes per capita	0.69	0.75	1.44

The diversion rate is calculated as follow:

$$\frac{\text{0.75 tonnes per capita SW recycled}}{\text{1.44 tonnes per capita total SW generated}} \times 100 = 52\ \%$$

2004 Regional Tonnages and Diversion Rates:

	Tonnes Disposed	Tonnes Recycled	Total Tonnes Generated	Diversion Rate
Single-Family Residential	453,050	368,040	821,100	45 %
Multi-family Residential, Industrial, Commercial and Institutional (ICI)	654,050	402,590	1,056,630	38 %
Demolition, Land Clearing and Construction (DLC)	369,600	702,860	1,072,460	66 %
Product Stewardship (EPR)		122,410	122,410	

Summary of Vancouver Tonnages

The following is a summary of 2004 solid waste data specific to Vancouver:

Material Type	Tonnes
Single Family Residential Garbage Collected by City	57,450
Commercial Sector Garbage Collected by Private Haulers	291,300
Total Material Disposed	348,750
Blue Box (Single Family) Recycling Collection:	
Newspapers	7,170
Mixed Paper & Cardboard	8,160
Mixed Containers (plastic, glass, metal)	4,170
Apartment Recycling Collection:	
Newspapers	4,390
Mixed Paper & Cardboard	5,030
Mixed Containers (plastic, glass, metal)	2,290
Estimated Recyclables Dropped of at Depots, including Metals, White Goods, Paper, Cardboard, Plastics, Mattresses and Gypsum (estimate 1/3 from single family homes)	6,500
Yard Trimmings Collected from Single-Family Properties	14,370
Yard Trimmings Dropped Off at VSTS & VLF Depots (estimate 1/3 from single family homes)	17,690
Backyard Composting (estimate)	8,500
Total Material Recycled	78,270

Estimated Single Family Home Diversion Rate Vancouver:

$$\frac{\text{Total Diverted}}{\text{Total Garbage + Total Diverted}}$$

$$\frac{50{,}433}{57{,}450 + 50{,}433} \times 100 = 47\ \%$$