



ADMINISTRATIVE REPORT

Report Date: February 18, 2010
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Meeting Date: March 4, 2010

TO: Standing Committee on City Services and Budgets
FROM: General Manager of Engineering Services
SUBJECT: Residential Food Waste Collection & Composting: Phase 1 Implementation

RECOMMENDATION

- A. THAT Council approve the implementation of the first phase of a single family residential sector food waste collection and composting program, involving the addition of raw fruit and vegetable scraps to the City's current curbside yard trimmings collection program beginning April 22, 2010, at an estimated cost of \$230,000 for communications and promotions; source of funding is \$50,000 from the existing Solid Waste Division 2010 promotional budget and \$180,000 from the Capital Financing Fund (Solid Waste Capital Reserve).
- B. THAT staff develop an implementation plan for the second phase of a single family residential sector food waste collection and composting program, involving the conversion of garbage collection from weekly to biweekly service and the collection of yard trimmings with all food waste and food soiled paper collected weekly, at an estimated cost of \$20,000 for cart change request research; funding to be provided from the Capital Financing Fund (Solid Waste Capital Reserve), and report back to Council before July 30th, 2010 with details and recommendations.
- C. THAT Council approve the allocation of \$75,000 from the Capital Financing Fund (Solid Waste Capital Reserve) to fund the development of a communications plan for the second phase of a single family residential sector food waste collection and composting program.
- D. THAT Council approve the allocation of \$240,000 from the Capital Financing Fund (Solid Waste Capital Reserve) to fund additional local scale composting activities in 2010, including increasing sales of subsidized backyard composters, delivering additional community based social marketing initiatives, and contracting for the development and coordination of one or more neighbourhood scale pilot projects.

COUNCIL POLICY

On May 5, 2009, Council received the Greenest City Action Team's *Quick Start Recommendations* report and directed staff to report back with implementation strategies for:

- city-wide food waste collection and composting,
- continuation and possible expansions to backyard composting promotions and distribution of subsidized composters,
- neighbourhood scale composting pilot projects, ideally in concert with local community gardens,
- shifting from weekly to biweekly garbage collection.

In October 2009, Council received the Greenest City Action Team's *Vancouver 2020 A Bright Green Future* report which encourages the City to accelerate work with Metro Vancouver to implement city-wide composting programs, including support for backyard composting, neighbourhood scale pilot projects, and participation in Metro Vancouver's regional composting program.

PURPOSE

The purpose of this report is to seek Council approval for:

- implementing the first phase of a food waste collection and composting program for Vancouver's single family residential sector including funding of a communications and promotions campaign,
- funding to carry out cart change request research in advance of launching the second phase of a food waste collection and composting program, and
- funding of increased backyard and neighbourhood scale composting promotions and activities in 2010.

BACKGROUND

The City has demonstrated a commitment to diverting organic materials from disposal for the past 20 years. This commitment was recently renewed and enhanced through Council's endorsement of the Greenest City Action Team's recommendation to implement city-wide food waste diversion initiatives.

The following is a summary of current City initiatives:

- *Backyard Composting* - Since March 1990 the City has operated a successful backyard composting promotions program. The City sells backyard composters to residents for \$25 (approximately half price) and contracts with City Farmer for the operation of the City's Compost Demonstration Garden.
- *Vancouver Landfill (VLF) Composting Facility* - In 1992 Council approved the construction and operation of this facility, designed to receive and process yard trimmings into compost using a relatively low technology static windrow system. The facility was not designed to compost food waste or mixed loads of food waste and yard trimmings, and the City is not authorized by the VLF's Operational Certificate issued by the Ministry of Environment to compost a full range of food waste with the current system. Attempting to process food waste using the current system would result in unacceptable odours and attraction of vectors (rodents, birds). Yard trimmings currently processed at the facility include material originating from Vancouver's curbside collection program and material dropped off to the Vancouver South Transfer Station (VSTS) and VLF by private

contractors, residents, and the Park Board. Finished compost is sold to various organizations and a relatively small amount is donated.

- *Curbside Collection of Yard Trimmings* - In 1999 Council approved the implementation of this biweekly (every other week) collection program for the single family residential sector, which was then converted to a fully automated, cart based service in 2006. Yard trimmings comprise the majority of organic solid waste generated by residents. Collected material is hauled to and then transferred from the VSTS to the VLF where it is composted.

New Regional Yard Trimmings & Food Waste Diversion Initiative

Beginning in January 2008, Metro Vancouver (MV) proposed amendments to the Greater Vancouver Regional Solid Waste Management Plan (SWMP) to achieve aggressive new waste diversion targets. The collection and composting of food waste has been identified as a key priority in the draft plan and the Regional Zero Waste Challenge. Accordingly, MV is working towards increasing organic waste processing capacity in the region. Since the spring of 2008 Vancouver staff have been discussing with MV staff our interest in participating in a regional food waste diversion initiative.

In 2008 and early 2009 MV conducted a competitive contracting process for securing regional food waste composting capacity. The completion of that work resulted in MV's announcement on June 25, 2009, that the Regional District had signed a 10 year contract with Fraser Richmond Soil & Fibre (FRSF) for processing combined yard trimmings and food waste, with a minimum of 50,000 tonnes per year (TPY) of additional composting capacity to be made available to MV member municipalities. FRSF currently receives approximately 100,000 TPY of yard trimmings from various MV municipalities (but not including Vancouver since the City's yard trimmings are processed at the VLF).

At the In Camera session of January 26, 2009, Council provided approval for staff to negotiate and enter into a contract with MV for composting of yard trimmings and food waste at FRSF. Staff are currently concluding work to establish an agreement with MV for processing Vancouver's curbside yard trimmings and food waste at FRSF, based on the terms of the June 2009 MV/FRSF agreement.

DISCUSSION

With the recent implementation (2006) of Vancouver's cart based fully automated yard trimmings collection program, the City is well positioned to expand organics collection to include food scraps from the single family residential sector.

Phased Implementation

To allow for a quick start, it is recommended that food waste diversion implementation occur in three phases:

- Phase 1 - begin collecting raw fruit and vegetable kitchen scraps with yard trimmings from single family properties biweekly on April 22, 2010 (Earth Day), subject to finalization of an organics material processing agreement with MV.
- Phase 2 - allow single family residents to add the full spectrum of food waste (fruits, vegetables, meat, fish, dairy, bread, cereal products, and food soiled paper) with yard trimmings beginning in early 2011, and convert to weekly collection of food waste with yard trimmings and biweekly collection of garbage.

- Phase 3 - work with Metro Vancouver and the private waste hauling and organics materials processing sectors to develop and implement options for diverting food waste from multi-family residential buildings and the business community.

Phased implementation is considered the best means of starting a food waste composting collection program in the shortest possible timeframe, given our current biweekly collection frequency of yard trimmings and weekly collection of refuse. Maintaining weekly collection of putrescible waste (the rapidly decomposable food waste fraction including meat, fish, dairy products and food soiled paper) is considered best practice to avoid the generation of excess foul smelling products and the attraction of potential disease transmission vectors such as flies and rodents. Significant operational implications, such as cart size change requests, are predicted and need to be carefully planned for switching the collection frequency of garbage and yard trimmings with food waste. The results of that work will contribute to the development of a Phase 2 implementation plan, which will be reported to Council before the end July, 2010. A preliminary discussion for Phase 3 is provided later in this report.

Phased implementation provides an opportunity to roll-out a program more quickly, but is more challenging in terms of education and promotions since these activities will need to be delivered consistently over a longer period, and must be designed to affect citizen behaviour incrementally as the program rolls out. Because this proposal calls for a significant change to the collection service provided by the City, effectively communicating with residents is critical for the program to be successful. Recommended communications and promotions activities are discussed later in this report.

Estimated Food Waste Diversion

As indicated in Table 1, it is estimated that an additional 6,100 and 9,600 tonnes per year (TPY) can be diverted after the implementation of Phase 1 and Phase 2, respectively.

Table 1: Current Approximate Annual Tonnage (2008)

Total Garbage Collected Curbside (includes food waste)	62,100
Backyard Composting (estimated)	5,700
Food Waste - Currently in Garbage and Disposed at Vancouver Landfill	
Fruit & Vegetable Scraps (Phase 1)	6,100*
Meat, Dairy, Bread, Cereal, Food Soiled Paper (Phase 2)	9,600*
Total "All Food" Waste	15,700*
Yard Trimmings - Currently Composted at Vancouver Landfill	
Single Family Sector Curbside Collection	21,200
Vancouver South Transfer Station Drop-off	16,300
Vancouver Landfill Drop-off	6,800
Vancouver Street Leaves	5,000
Total Yard Trimmings	49,300
Phase 1: Total Curbside Yard Trimmings + Fruit & Vegetable Scraps	27,300
Phase 2: Total Curbside Yard Trimmings + "All Food" Waste	36,900

*assumes 85% participation and 85% capture efficiency

Phase 1 Operational Implications

Collections Program:

There is currently a relatively low set out rate of yard trimmings carts in the winter months compared to other times of the year. With implementation of the proposed Phase 1 program, additional participation/cart setouts are expected. However, staff estimate this additional demand on collection resources can be absorbed within current operations.

Material Transfer & Processing Changes:

It is recommended that, beginning with Phase 1, curbside collected yard trimmings mixed with fruit and vegetable food scraps are sent to FRSF, and the VLF composting facility be scaled down to accommodate only street leaves and drop-off yard trimmings from the VSTS and VLF. Details are provided in Table 2.

Table 2: Recommended Material Transfer & Processing Changes

Operation	Recommended	Approx. Annual Tonnage
Existing Curbside Collected Yard Trimmings with addition of Food Waste	Transfer to FRSF* for processing via VSTS**, using existing City forces.	27,300 (yard trimmings and fruits & vegetables)
VSTS** Drop-off Yard Trimmings	Status quo - transfer to Vancouver Landfill for composting.	16,300
Vancouver Landfill Drop-off Yard Trimmings	Status quo - compost at Vancouver Landfill.	6,800
Vancouver Street Leaves	Status quo - direct haul using existing City forces to Vancouver Landfill for composting.	5,000
Vancouver Landfill Composting Facility Impacts	Scale down facility to accommodate only drop-off yard trimmings & street leaves.	28,100 (40% reduction)

*FRSF = Fraser Richmond Soil & Fibre

**VSTS = Vancouver South Transfer Station

Phase 1 Communications Plan

This is an important and high-profile project which will require a substantial information campaign. This major initiative involves a fundamental change in people's behaviour and how their waste is collected. For the average citizen, it will be a noticeable shift in a primary city service and requires advance notice, explanation and in some cases convincing of the benefits of the program.

Several other cities in Canada have already undertaken the collection of food waste. Most of them have wisely chosen to have extensive communications around their programs to drive behaviour change, and to explain to citizens what the program was about and why it was being done. This program is similar to the Burrard Street cycling lane project in that strong communications can help defuse potential apprehension caused by a lack of understanding.

This program should be a combination of engaging and motivating advertising along with a set of very clear and plain language instructions delivered in parallel. The program will be designed to:

- ensure people are engaged positively;
- foster and sustain public interest; and,
- develop new behaviours required to incorporate composting into regular home activities.

To not do this effectively will risk an unsuccessful program, possibly with expensive side effects to fix.

This approach therefore needs a mix of convincing social marketing communications combined with very simple and easy to understand visuals and instructions.

The recommended communication plan for implementing Phase 1 includes:

- mailing "how to" information to single family households;
- newspaper, radio, posters and online advertising and information;
- social media such as Twitter, Facebook and YouTube; and
- community outreach, media events and potentially trade show-style engagement.

The estimated budget for Phase 1 is \$230,000.

Implementation of Phase 2 will require a more significant shift of attitudes and behaviours among the public, and warrants stepping up communications over Phase 1. The communications plan for Phase 2 will be designed to integrate with and build on the success of the Phase 1 plan. Hiring of an agency to design a communications campaign for Phase 2 is recommended, with an estimated budget of \$75,000. Further details and recommendations, including a budget estimate for implementing a communications campaign for Phase 2 will be reported to Council before the end of July 2010.

Increased Promotions of Local Scale Composting

To complement expansion of curbside organics collection, increased promotion of local scale composting is proposed. Local scale composting provides a sustainable means of diverting a portion of the organics waste stream. It requires individual participation which can raise awareness of the benefits of waste diversion, reinforces the direct benefits of composting and lifestyle changes required to participate, results in the production of a soil amendment that can be utilized locally, and provides a low cost and low energy alternative to large scale collection programs.

Backyard Composting:

Since 1990, the City has sold backyard composters to residents at the approximately 50 percent subsidized rate of \$25.00 (incl. pst.) and extensively promoted the practice of backyard composting. Composters are sold year round from the Vancouver South Transfer Station and the City conducted seven very successful neighbourhood sales events between 1996 and 2002. The promotion of backyard composting is primarily carried out through a contract with City Farmer through a variety of direct social marketing methods.

In 2007, staff commissioned a large public survey on backyard composting. Based on that survey and the number of composters sold since then, it is estimated there were almost 50,000 backyard composters in consistent use in the City at the end of 2009.

That represents a backyard composting rate of about 47 percent for the residential properties with yard space and results in an estimated diversion of approximately 6,000 tonnes of yard trimmings and fruit and vegetable waste annually.

Analysis of the survey results by a consulting statistician indicated that it is possible for the City to sell a maximum of about 5,000 more backyard composters. While this is simply a snapshot of demand at a given time, it indicates that a large increase in the backyard composting rate is not thought possible. Barriers to consistently using backyard composting are relatively high (e.g. requires space, time, a willingness to self manage food waste, and is limited to fruit and vegetable scraps). These findings are consistent with what other cities with large scale backyard composting programs have achieved.

While limited, the possible sale of 5,000 composters indicates that there is enough demand to warrant another neighbourhood sales event which is the best way to jump start additional sales of composters. The neighbourhood sales would be held in the early summer of 2010 on one Saturday in four or five different locations in the City, probably Community Centres. One hundred percent of the potential 5,000 composter sales are not expected to be satisfied in one-day neighbourhood sales. Based on previous experience with neighbourhood sales it is estimated that a maximum of 3,000 composters would be sold. Additional net funding of \$130,000 is required above our existing budget of \$115,000 to cover the subsidy of the composters and the promotion for the truckload sale, along with possible increased sales of composters at VSTS throughout the year as a result of the additional promotion. Promotion of the neighbourhood sales events will generally take the form of direct advertising including flyers sent to homes, newspaper ads, radio spots and web ads, as well as a social marketing component including knowledgeable staff at the truckload sale locations to provide encouragement and answer questions and continued collaboration with City Farmer.

Community Based Social Marketing:

Research demonstrates that delivery of initiatives at the community level to be effective for changing behaviour. To complement the promotion and outreach performed by City Farmer, staff propose issuing a Request for Expressions of Interest for qualified organizations to develop and test additional community based social marketing strategies. The scope of work would include identifying backyard composting barriers and benefits, developing tools and strategies for changing behaviour, conducting pilots, evaluating the strategies, and reporting on the project and the results. Staff estimate a \$60,000 budget to conduct this initial work.

Neighbourhood Scale Pilot Project:

To support neighbourhood scale composting projects staff propose issuing a Request for Expressions of Interest for qualified organizations (such as City Farmer, Evergreen and Environmental Youth Alliance) to design and implement a neighbourhood composting study and pilot initiatives. The scope of work would include researching barriers and benefits of neighbourhood composting, examining composting technology options and suitable locations in Vancouver, testing recommended scenarios through pilot locations, and preparing a report on the project and the results. Staff estimate a \$50,000 budget to conduct this initial work.

Phase 2 Implementation Planning

The proposed conversion of garbage collection from weekly to biweekly service, and conversion of food scraps and yard trimmings collection from biweekly to weekly service, is expected to have significant operational impacts and requires evaluation and planning to ensure smooth implementation.

Garbage cart size change request from residents could be considerable. Approximately 91,800 garbage carts are currently in use and it is estimated that approximately 35 percent of single family residential garbage is food waste. By reducing garbage collection frequency by half, residents may need larger garbage carts even with diverting food waste to yard trimmings carts. Staff propose a budget of \$20,000 for public consultation including conducting a survey on the City website and focus group studies to better understand what cart size changes residents may request. The purchase price for carts is estimated at \$60 to \$70 each, and the time required to allow for procurement, manufacturing and receipt of a large purchase of carts is approximately six months. There could be significant financial implications associated if there are a substantial number of requests to upsize garbage carts in Phase 2.

Staff will evaluate Phase 2 implementation logistics (such as management of cart size changes and conversion of collection truck routes), estimated start-up costs, and ongoing labour and equipment requirements and estimated total system financial implications for Phase 2, and will report back to Council with recommendations before the end of July 2010.

Phase 3 Multi-Family Residential and ICI (Industrial, Commercial, Institutional) Sectors/Future Food Waste Diversion Opportunities

Providing a minimum of 50,000 TPY of additional capacity at FRSF is the first phase of a region-wide expanded food waste diversion initiative. This first phase focuses on food waste from the single family sector, since the collection of waste materials from this sector is controlled directly by municipal government. Subsequent, time committing work focusing on organic materials diversion from the multi-residential and ICI sectors is more complex, will result in private sector waste generator, hauling and processing implications, and will therefore require coordination, planning and collaboration on a regional scale. Accordingly, work described in this report focuses on staff's recommended quick start food waste diversion option for processing material originating from the single family sector. Subsequent reports to Council will propose food waste diversion strategies and actions focussed on the ICI and multi-residential sectors, developed in cooperation with Metro Vancouver and in consultation with the private sector.

Discussions in this regard are occurring between municipal and MV staff, primarily as this issue relates to the Zero Waste Challenge and development of a new regional Solid Waste Management Plan. At the same time Vancouver staff are reviewing Vancouver specific opportunities for establishing additional processing capacity to accommodate food waste from commercial hauling, and will continue to coordinate that work with MV's regional solid waste planning. Opportunities staff are considering include enclosed composting systems and biofuel production technologies. Vancouver staff considers the Vancouver Landfill as a suitable potential project location for this type of increased capacity. The Corporation of Delta has confirmed their support for the concept of a new Vancouver Landfill based organics processing facility. We look forward to working with Delta to expand our facility and satisfy their concerns and we will report back to Council with information and recommendations as this work develops.

FINANCIAL IMPLICATIONS

There are a number of variables that impact total costs, including the actual tonnage of yard trimmings and food waste collected, program participation rates, and actual transfer and landfill and composting facility operating costs. However, based on available data, staff estimate total collection and processing costs with the implementation of Phase 1 will be comparable to forecasted 2010 costs if food waste collection was not implemented. Therefore, no changes to 2010 Solid Waste Utility fees will be required.

The estimated cost of communications and promotions for implementing the first phase of a single family residential sector food waste collection and composting program is \$230,000; source of funds is \$50,000 from the existing Solid Waste Division 2010 promotional budget and \$180,000 from the Capital Financing Fund (Solid Waste Capital Reserve).

The estimated cost of developing an implementation plan for the second phase of a single family residential sector food waste collection and composting program, involving the conversion of garbage collection from weekly to biweekly service and the collection of yard trimmings with all food waste and food soiled paper collected weekly is \$20,000; funding to be provided from the Capital Financing Fund (Solid Waste Capital Reserve).

The estimated cost of hiring an agency to develop a communications plan for the second phase of a single family residential sector food waste collection and composting program is \$75,000; funding to be provided from the Capital Financing Fund (Solid Waste Capital Reserve).

The estimated cost of additional local scale composting activities in 2010, including increasing sales of subsidized backyard composters, delivering community based social marketing initiatives, and contracting for the development and coordination of one or more neighbourhood scale pilot projects is \$240,000; funding to be provided from the Capital Financing Fund (Solid Waste Capital Reserve). Table 3 provides more detail on this cost estimate.

Table 3: Local Scale Composting Activities Cost Estimates

Activity	\$ Estimate
Backyard Composters	
Conduct neighbourhood sales & promotion (3,000 composters @ \$55)	165,000
Neighbourhood sales revenue (3,000 composters @ \$25 per composter, less pst)	(70,000)
Increased composter sales at VSTS (1,300 composters @ \$50)	65,000
VSTS sales revenue (1,300 composters @ \$25 per composter, less pst)	(30,000)
Backyard Composters Total	\$130,000
Community Based Social Marketing	
Labour - research, develop strategies, conduct pilots (multiple strategies and neighbourhoods), coach participants, evaluation, report writing	45,000
Materials - communication materials/tools	15,000
Community Based Social Marketing Total	\$60,000
Neighbourhood Scale Pilot Project	
Labour - research, conduct pilots (approx. 3 - 5 locations), coach participants, evaluation, report writing	35,000
Materials - composters for pilots, communication materials/tools	15,000
Neighbourhood Scale Pilot Project Total	\$50,000
TOTAL	\$240,000

The current balance of the Solid Waste Capital Reserve is \$68,000,000. The phase two report to Council will include a comprehensive financial strategy including balancing the financial requirements of the initiative with the financing needs of the Solid Waste Capital Reserve.

PERSONNEL IMPLICATIONS

Operating the Vancouver Landfill composting facility at reduced capacity would result in the elimination of two regular full-time positions and a reduction of auxiliary time. Through regular attrition the staff in the two positions can be reassigned within the Transfer and Landfill Operations Branch.

Staff met with CUPE 1004 representatives to discuss the staffing impacts resulting from the downsizing of the Vancouver Landfill composting facility. The Union was mainly interested in the possibility of new City regular full time positions resulting from the expansion of the Vancouver Landfill composting facility to accept food waste on a regional scale. An expansion depends on several variables including a viable business case, Ministry of Environment authorization, Delta's support with attention to their specific concerns, and integration with the regional draft Solid Waste Management Plan for organics processing.

A copy of this report has been provided to CUPE 1004.

ENVIRONMENTAL IMPLICATIONS

Staff estimate the potential amount of food waste (including fruit, vegetables, meat, dairy, bread, and food soiled paper) that can be captured from single family residential garbage in Vancouver is approximately 15,700 TPY (approximately 6,100 TPY is fruits and vegetables). Diverting this material with the 49,300 TPY of yard trimmings currently composted at the VLF would bring the total amount of organics

collected for composting to approximately 65,000 TPY. This would drive up Vancouver's waste diversion rate for the single family sector from 50 percent to approximately 60 percent (with 85 percent participation and 85 percent capture efficiency).

CONCLUSION

In response to the Greenest City Action Team's Quick Start Recommendations, staff have developed the first phase of a plan for implementing a single family residential food waste collection and composting program. This first phase involves the collection of raw fruit and vegetable kitchen scraps with yard trimmings starting April 22, 2010 (Earth Day). Future reports to Council will provide details and recommendations for expanding this program to include other food waste, and strategies and actions required for diverting multi-family and ICI sector food waste from disposal.

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