TO: Chair and Members  
Public Works Committee | WARD(S) AFFECTED: CITY WIDE

COMMITTEE DATE: March 22, 2010

SUBJECT/REPORT NO: Central Composting Facility Capital Upgrade (PW10032) - (City Wide)

SUBMITTED BY: Gerry Davis, CMA  
General Manager  
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SIGNATURE:

RECOMMENDATION

(a) That Maple Reinders Constructors Limited (MRCL), contracted operator of the City of Hamilton’s Central Composting Facility, be retained to design and construct upgrades to the Central Composting Facility’s curing building and biofilter as described in Report PW10032 as Appendix “A”;

(b) That the City of Hamilton’s cost to execute the upgrades described in subsection (a) shall not exceed $550,000 exclusive of applicable taxes and be funded from capital account 59212-5120792000 (Closed Landfills Maintenance and Capital Improvements);

(c) That Contract C11-105-03 for the operations and maintenance of the Central Composting Facility be amended to reflect subsections (a) and (b);

(d) That the Mayor and City Clerk be authorized and directed to execute all necessary documents to implement subsections (a), (b) and (c) with content acceptable to the General Manager of Public Works and in a form acceptable to the City Solicitor.

EXECUTIVE SUMMARY

Prior to the commencement of operations at the City of Hamilton’s (City) Central Composting Facility (CCF) the Ontario Ministry of the Environment (MOE) issued an Air Certificate of Approval (C of A) that outlines the operating parameters that the facility is required to operate under. At the time, the MOE based its approval of the Air C of A on
computer modelling that was submitted by Maple Reinders Constructors Limited (MRCL), the company that designed, built and now operates the facility on the City’s behalf. As per the conditions of the C of A the City is required to provide the MOE with real-time, post-construction data demonstrating that the CCF meets MOE odour emissions source testing requirements.

The main requirement of the Air C of A is to control odours from the site from any source. In order to demonstrate and provide accurate data, the MOE required that the CCF operate at its reasonable maximum operating range.

At their own cost MRCL has conducted various studies over the last two years to determine if the CCF meets the operating parameters outlined in the Air C of A. Confirmatory testing has indicated that the CCF is operating above the odour limit at the nearest sensitive receptor, although odour complaints have been rare. The study has concluded that the two main sources of odour are the biofilter and curing building. In order to ensure compliance with the C of A, these two areas need to be upgraded. Specifically, an air exhaust stack needs to be installed adjacent to the biofilter and the curing building needs to be completely enclosed and integrated into the existing facility air handling system. Both the stack and enclosed curing building are common practice in the industry and are proven solutions to potential odour emissions.

As the operation has continued to evolve over the last four years MRCL has completed a number of modifications at their own expense. Through its actions and willingness to finance these modifications MRCL has demonstrated a commitment to continuous improvement with the objective of creating more efficient operations at the CCF. Both MRCL and the City have worked in partnership to ensure that the CCF continues in its role as a world leading, state of the art composting facility. In order to continue this strong commitment of partnership, MRCL and City staff propose that the required modification be a cost share.

Under Contract C11-105-03 MRCL is able to request that the cost of any upgrades is shared between MRCL and the City. Specifically, section 6.9 of the Operations and Maintenance Agreement states that capital improvements shall be paid for as agreed to by MRCL and the City.

The City was notified in January 2010 that the capital cost of installing an air exhaust stack and enclosing the curing building is $1.1 million. Staff has successfully negotiated a cost share with MRCL that is split 50 / 50 between MRCL and the City which means the City’s portion of the upgrade is $550,000 excluding applicable taxes. The additional contract provisions that were negotiated are provided in Appendix “A”.

There are sufficient funds in the existing capital budget for the work and the costs include the design and installation of the required modifications to the facility. It is being recommended that MRCL design and construct the modifications as the facility was originally engineered and built by MRCL, and as the facility operator, they are familiar with the specialized air handling systems of the CCF.

Due to the increased operating and maintenance costs as a result of the modifications there will be an operating price adjustment of $1.95 / tonne of source separated
organics for the first 50,000 total tonnes processed at the CCF, which then drops to $1.00 for each tonne after that. This operating cost increase can be funded from revenues received from processing organics from other municipalities and therefore results in no increase to the operating budget for City of Hamilton sourced organic material.

Alternatives for Consideration - See Page 5

### FINANCIAL / STAFFING / LEGAL IMPLICATIONS

**Financial:** A capital expenditure of $550,000 excluding applicable taxes will be funded out of account 59212-5120792000 (Closed Landfills Maintenance and Capital Improvements). In order to offset the additional operating and maintenance costs associated with the operation of the capital upgrades there will be an operating price adjustment of $1.95 / tonne of source separated organics for the first 50,000 total tonnes processed at the CCF, which then drops to $1.00 for each tonne after that. This operating cost increase can be funded from revenues received from processing organics from other municipalities and therefore results in no increase to the operating budget for City of Hamilton sourced organic material.

**Staffing:** The recommendations contained in this report will have no impact on City staffing levels.

**Legal:** Legal Services has been consulted during the preparation of this report. Pending approval from Council an amending agreement will be prepared for execution by the Mayor and City Clerk.

### HISTORICAL BACKGROUND

The information and recommendations provided in this report have City wide implications.

The City’s CCF was constructed to accept organic waste as part of the City’s Green Cart Program. In 2004 MRCL was awarded Contract C11-105-03 to design, build and operate the CCF. Construction of the CCF began in February 2005 and operations commenced in May 2006.

The CCF is comprised of a central processing building, the biofilter which is separate but attached to the central processing building, and a stand alone curing building which is used to further cure finished compost and store it until it is sold. In the composting process a biofilter is used to absorb and degrade odours originating in a composting facility. In essence, the role of the biofilter is to reduce and eliminate any odours.

When the MOE issued the CCF an Air C of A, it was based on modelling that was conducted prior to CCF construction. Although the City received the Air C of A based on modelling, the City is still required to perform confirmatory post-construction testing using real-time data.
MRCL has continually invested in the CCF to maintain it as a state of the art facility, to improve overall operations and to meet MOE requirements. Since 2008 a number of modifications have been completed at MRCL’s cost to specifically improve the operation of the biofilter and curing building. They include:

- Installation of an additional fan which increases the amount of fresh air entering the biofilter
- Installation of a misting system that humidifies biofilter air which improves the operating efficiency of the biofilter
- Increased the size of floor spigots that introduce air into the biofilter
- Changed the original biofilter wood media to a coarser root stock to promote increased biofilter operation
- Installation of tarps in the curing building to partially enclose the building
- Installation of doors in the curing building where previously there were openings
- Installation of an odour neutralizing system in the curing building
- Installation of air curtains in the main processing facility.

Under the MOE’s Air C of A the City must control CCF sourced odour at the most impacted off site location. Therefore, the City is required to make modifications or upgrades to ensure compliance with the C of A. Staff has successfully negotiated a cost share with MRCL at a 50 / 50 split to implement the required modifications, as outlined in Report PW10032 as Appendix “A”.

The technology that has been used at the CCF has been employed successfully in Europe for the past 20 years, and the biofilter configuration has been proven to work effectively. However, the odour unit restrictions in Europe and Canada are not the same with Canadian criteria being more stringent. The proposed solutions of an air exhaust stack and enclosed curing building are common practice in the North American industry and are proven solutions to potential odour emissions.

Only after a period of operations at reasonable maximum operating range has confirmatory testing indicated that the CCF biofilter does not meet MOE source testing criteria. Despite the modifications that were implemented by MRCL the CCF is operating above the odour limit at the sensitive receptor.

The initial CCF design did not include an air exhaust stack and was subsequently constructed without one. However, in order for the City to meet MOE criteria the CCF will need to be upgraded to operate with a stack. The air exhaust stack solution is based on modelling, which indicates that by installing an air exhaust stack the CCF would be below the Air C of A odour limits.

The air exhaust stack will be located at the north-east corner of the main CCF building. The recommended design calls for a stack, twenty-five (25) metres in height, which will result in the stack extending approximately thirteen (13) metres above the current roof line of the processing building and therefore will not be visually imposing.

Additionally, to control odour, the curing building needs to be sealed up and integrated into the overall facility air handling system, which will contain potentially odourous air.
and prevent it from migrating to sensitive receptors. This air will be treated by the bio-filter in the same way as all processing building air is treated.

**POLICY IMPLICATIONS**

The proposal is affected by the Solid Waste Management Master Plan and more particularly relates to Recommendation 15.

Recommendation #15 - “The City of Hamilton should enter any Public-Private partnerships with caution. If pursued, the City should ensure it retains sufficient control and financial protection, to allow the City to continue to deliver the service should the private partner be unable or unwilling to fulfil its obligations.”

Any contract with the MRCL for the design, build and operation of CCF upgrades will be in a form with content acceptable to the City Solicitor.

**RELEVANT CONSULTATION**

City staff has consulted with Corporate Services, Legal Services Division.

The MOE District Office has been informed of the City’s intentions to modify the existing building and operations.

Corporate Services, Finance & Administration

**ANALYSIS / RATIONALE FOR RECOMMENDATION**

N/A

**ALTERNATIVES FOR CONSIDERATION:**

If Council chooses not to approve the recommendations in this report there remains one option that could be considered. This option is as follows:

**Option:** That the modifications identified in this report not be implemented and that staff negotiate with the MOE for a higher odour limit.

All newly sited / constructed composting facilities in Ontario are required to meet the same odour unit limit as the City’s CCF. Staff has surveyed these other facilities in order to determine if they have been able to increase the odour unit levels for their particular facility. They indicated that they have been unsuccessful in convincing the MOE to increase the odour unit level.

The City could attempt to negotiate with the MOE to allow the CCF to emit a higher odour unit limit which could mean a significant staff and capital commitment. However, if the City is unsuccessful in negotiating a higher odour unit level there would be no option other than to upgrade the CCF.
CORPORATE STRATEGIC PLAN


Financial Sustainability

- By engaging in a partnered, cost sharing approach it is demonstrating the delivery of municipal services and management capital assets/liabilities in a sustainable, innovative and cost effective manner

Effective Inter-governmental Relations

- By keeping the Ministry of the Environment informed of its intentions the City is maintaining effective relationships at the provincial level

Environmental Stewardship

- The implementation of the building modifications will lend itself to reducing the impact of City activities on the environment and aspiring to the highest environmental standards.

APPENDICES / SCHEDULES

Appendix “A” to Additional Contract Provisions - Contract C11-105-03
Central Composting Facility Upgrade

Additional Contract Provisions – Contract C11-105-03

Negotiated provisions as agreed to by Maple Reinders Constructors Limited (MRCL) and the City of Hamilton (City):

1. MRCL agrees to design, deliver, install and operate an air exhaust stack located at the north-east corner of the main Central Composting Facility (CCF) building and completely enclose the curing building which shall be connected to the overall facility air handling system. The cost to design, deliver and install the upgrades is estimated to be $1.1 million. MRCL’s share of the costs of the upgrades shall be 50% of the total capital costs or greater and shall be inclusive of all design, installation, and contingency costs but exclusive of applicable taxes. At all times the City will be the owner of all upgrades. All additional insurance and utility costs related to such upgrades will be borne by MRCL.

2. The City agrees to pay to MRCL costs associated with the design, delivery, and installation of an air exhaust stack and the enclosure of the curing building at the CCF in an amount of 50% of the total capital costs but no more than $550,000, inclusive of all design, installation, and contingency costs but exclusive of applicable taxes.

3. MRCL and the City agree that due to increased operating and maintenance costs resulting from the above upgrades, the price per tonne to be paid by the City to MRCL for processing costs will be adjusted as follows:

   an operating price increase of $1.95 / tonne of source separated organics for the first 50,000 total tonnes processed at the CCF per Contract Period, which will be reduced to $1.00 for each subsequent tonne over 50,000 tonnes.

This price adjustment will come into effect following installation, final commissioning and operation of all of the upgrades.

4. The above provisions will be reflected in amendments to Contract C11-105-03 that are acceptable to both the City and MRCL.