

REGIONAL MUNICIPALITY OF OTTAWA-CARLETON
MUNICIPALITÉ RÉGIONALE D'OTTAWA-CARLETON

REPORT
RAPPORT

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DATE 8 November 1996

TO/DEST. Coordinator
 Planning and Environment Committee

FROM/EXP. Director, Solid Waste Division
 Environment and Transportation Department

SUBJECT/OBJET **RESPONSE TO OUTSTANDING P&E INQUIRY NO. 22**
 WASTE DIVERSION TECHNOLOGIES

DEPARTMENTAL RECOMMENDATION

That the Planning and Environment Committee and Council receive this report for information.

BACKGROUND

At the Planning and Environment Committee of 10 September 1996, following a verbal presentation on a waste management proposal by J.C. Environmental, Councillor Legendre requested that staff report back to the Committee on:

1. the various technologies available to extend the life of the Trail Road Landfill Site; and
2. the plans for the Trail Road Landfill Site.

DISCUSSION

1. Waste Diversion Technologies

The RMOC has embarked on a Solid Waste Planning Exercise, the main focus of which is the preservation of waste disposal capacity within the Region, thereby delaying the requirement for a new waste disposal facility.

The presentation by J.C. Environmental highlighted a containerized, in-vessel technology known as the HerHof Composting System. This system involves loading organic waste in a

“bio-cell” where air flow, moisture and temperature are controlled. After approximately seven days of this process, the material is cured for about three to four months and used as regular compost. Various sized HerHof Composting plants have been established in Europe.

Table 1 below highlights other composting technology currently in operation in Ontario.

Table 1
Examples of Composting Technologies in Ontario

Technology	Operations in Ontario	Cost Range
Open Windrow (static/aerated/turned)	St. Thomas, Port Colborne, Gloucester, Milton	low cost
Enclosed Windrow	Bracebridge	low - medium cost
Enclosed Channel	Kingston, Guelph	high - medium cost
Containerized In-Vessel	Peel	high cost
In-Vessel Facility	Toronto Science Centre (prototype)	high cost

Annex A includes a comprehensive list of vendors of Compost Technology that are most active in the industry.

The cost to establish and operate a facility will vary with the type, size and through-put of the facility. However, the broad cost ranges of the above technology are:

Table 2
Explanation of Cost Ranges

Cost	Explanation
Low	capital costs to put in a pad and operating costs range from \$20 to \$40 per tonne
Medium Low	capital costs to construct an enclosure (usually permanent) and operating costs comparable to the above low costs
Medium High	capital costs to construct an enclosure, channels, monitoring and turning equipment, operating costs between \$55 to \$100 per tonne
High	capital cost to construct an enclosure and purchase in-vessel technology, Peel reported capital cost of \$1.17 million and operating cost of \$134 per tonne

There are various technologies available in the marketplace for processing mixed organic waste, many of which are currently successfully operating. Annex A includes further details on specific composting and waste processing technologies.

Currently, the RMOC has contracted two local private firms to compost food waste from the Region's Organics Pilot, food waste from the commercial sector and leaf and yard waste. Ottawa Valley Farms is using open windrow technology and WCI Waste Conversions Inc. is proposing to use containerized in-vessel technology. This step is in keeping with the findings of the two year extensive public consultation process for the 3Rs Study. One of the main conclusions of the Study was to conduct low cost small scale initiatives before investing in large Capital items.

It is important that the entire collection system (processing facility, collection vehicle and container) is fully integrated. The RMOC is currently operating a three-year collection contract and has accelerated the 3Rs Strategic Implementation process in order to prepare for the next generation of collection contracts (June 1999). The next collection contract is the most cost-efficient and effective vehicle for the RMOC to implement a collection system change. The public tender process will foster the establishment of these technologies in the most cost-effective and practical manner for the RMOC.

2. Landfill Optimization Study

The Landfill Optimization Study is expected to be completed by the end of 1996. The study includes the following main landfill design and site life extension options:

Waste Volume Reduction

- shredding and baling waste;
- dynamic compaction of waste (heavy boom drop equipment);
- bioreactor enhancement (re-circulation of leachate);
- landfill mining/reclamation;
- alternative daily cover (tarp technology).

Landfill Design Options

- increase the landfill lift height (expand vertically);
- increase the landfill footprint (expand horizontally).

As members of Council will appreciate, the above optimization options have many regulatory, planning and cost implications. Further, the Province is presently undertaking a Regulatory Review which may impact landfill approval requirements. Accordingly, the Optimization Study will be the subject of a future detailed policy report which will investigate the feasibility of putting in place some of the design and operational components of the Study.

3. Plans for the Trail Road Landfill Site

The economic and social cost of establishing a new waste disposal facility is significant. The Department has implemented programs and is piloting and planning further initiatives at conserving our disposal capacity, vis-à-vis the 3Rs Strategic Planning process, the Solid Waste Collection contract and the Landfill Optimization Study.

New collection and processing (recycling and organics) technologies, landfill optimization technologies and continuing our ongoing public education and IC&I waste diversion support programs will all contribute to extending the life of the Trail Road Landfill Site.

CONCLUSION

This information item has highlighted some of the collection, composting, material processing and landfill optimization technologies that the Solid Waste Division is piloting and establishing. Future collection and processing technologies will be determined during the development and award of the next Solid Waste Collection contract during 1999. In the meantime, the Department will be proceeding with some landfill optimization measures, which will be the subject of a report to Planning and Environment Committee in the near future.

*Approved by
P. McNally, P.Eng.*

KHW/

Attach. (1)

Composting Technology Vendors

Vendor	Technology
Ag-Bag International	enclosed (bagged) aerated windrow
Ashbrook-Simon-Hartley	non-agitated in-vessel system
Bedminster Bioconversion	agitated in-vessel composting system
Canada Composting	German BTA in-vessel anaerobic system
Compost Management	open windrow system
Ebara	non-agitated in-vessel system
Environmental Recovery Systems Inc.	mixed waste composting systems
Envirowaste	covered windrow + in-vessel systems
Green Lane Environmental Group Ltd.	agitated in-vessel composting system
International Process Systems Inc.	agitated in-vessel composting system
JC Environmental	German Herhof in-vessel system
Riedel Environmental Technologies Inc.	Swiss DANO drum composting system
Stinnes Bio-Bin	non-agitated in-vessel system
Thermo Tech Technologies Inc.	thermophilic digestion system
WCI/Green Mountain Technologies Inc.	non-agitated in-vessel system
Wheelabrator	agitated in-vessel composting system

Source: Company brochures, Biocycle, Resource Recycling and other related journals