



Region of Waterloo

TRANSPORTATION AND ENVIRONMENTAL SERVICES

Waste Management Division

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### **What are the options when our landfill is full?**

The Waste Management Master Plan (WMMP) study began in April 2012. The WMMP documented the current status of the Region's waste management practices, programs, operations and facilities, provided projections of future diversion rates and waste volumes, and established a strategy to guide waste management programs and services over the next 20 years. A final report including recommendations on waste diversion, planning, and residual waste (garbage) management was endorsed by Regional Council in November 2013.

A summary of the WMMP final report, including the study process and all recommendations can be found in Report E-13-127, and all WMMP reports, including the final report, are available on the Region's Waste Management web page ([www.regionofwaterloo.ca/waste](http://www.regionofwaterloo.ca/waste)).

The WMMP study was directed by three groups: a Project Team of Regional staff; a Steering Committee of Regional senior management staff and appointed Regional Council representatives; and a Stakeholder Group with representatives from local business, education and special interest groups as well as the community-at-large.

Two formal consultation series were held over the course of the study. Consultation Series 1 focused on current waste management services and diversion programs, and was held in Fall 2012. Activities included Public Information Centres in the Cities of Cambridge, Kitchener and Waterloo and Woolwich Township, outreach at community events, as well as a digital engagement program including an online survey. Consultation Series 2 was conducted in Spring/Summer 2013 focused on residual waste (garbage) disposal options. Activities included Public Information Centres in the Cities of Cambridge, Kitchener and Waterloo and Wilmot Township, as well as a digital engagement program including an online survey.

In researching options to deal with Residual Waste (garbage), all available technologies were considered and evaluated, including landfilling, mechanical, biological and thermal processes, and including energy recovery and resource recovery potential:

- Landfill: waste is compacted and buried in an open section (a cell) of the landfill site that has been lined to prevent contaminated water from entering groundwater. After a cell is full, it is covered and a new cell is opened. Materials in the landfill decompose to produce landfill gas. Landfill gas can be collected and used to generate a moderate amount of energy.
- Mechanical Biological Treatment (MBT): a combination of mechanical separation and digestion is used to process waste. Recyclables and wastes that cannot be digested are removed by a mechanical process. Following separation, the remaining primarily organic waste is treated biologically to produce compost and/or biogas. MBT can generate a moderate to significant amount of energy and leaves a moderate amount of waste that still requires final disposal (such as in a landfill) after treatment.

- Thermal Treatment: heat is used to convert waste into biogas or heat energy. Before treatment, recyclables and large items are removed. Thermal treatment can generate a significant amount of energy and leaves a minimal amount of waste that still requires final disposal (such as in a landfill) after treatment.

The alternatives were evaluated according to a customized method that incorporated the principles of the Region's Environmental Sustainability Strategy, and considered local and global impacts according to technical, social, environmental and economic considerations.

During Consultation Series No. 2, participants were asked to provide feedback on the technology evaluation process and preferred future garbage disposal technologies. Over 68% of respondents (165 of 241 total) were either Satisfied or Very Satisfied with the evaluation process. Respondents were asked to rank the three short-listed garbage disposal technologies (thermal treatment, mechanical biological treatment and landfill) in order of preference. The most preferred technology was thermal treatment at 66% (144 individuals). Mechanical biological treatment was most preferred by 33% (69 individuals) of respondents and 6% (12 individuals) felt that landfill was the most preferred option. Overwhelmingly, the least preferred option for 82% (166 individuals) of survey respondents was landfill. Thermal treatment and mechanical biological treatment were least preferred by 9% (20 individuals) and 7% (15 individuals) of respondents, respectively.

Overall, thermal treatment was determined to be the best performing option based on the evaluation criteria being used and was the preferred option of community respondents. However, with 15-20 years of capacity left in our current landfill and at this stage on the Region's planning horizon, further study is required to examine the different types of thermal technologies available, understand the potential to incorporate thermal treatment into the Region's current waste diversion programs, and explore the business case for the implementation of thermal treatment by the Region of Waterloo.

The recommendation from the Waste Management Master Plan regarding thermal treatment is:

- Further investigate thermal technology options (e.g. Feasibility Study, Business Case, Life Cycle Analysis, Environmental Impacts Study).

Waste Management staff have begun work on this further investigation with a Thermal Treatment Feasibility Study, expected to be completed 2015-2016. Staff will report back to the Planning and Works Committee with the results of their study, and to receive further direction from Council. To be clear, no decision on the future of residual waste disposal has been made by Council at this time.

**For more information:**

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