



City of  
**Peterborough**

---

**TO: Members of the Waste Management Steering Committee**

**FROM: W. H. Jackson, Director of Utility Services**

**MEETING DATE: November 18, 2013**

**SUBJECT: Report WMC13-019  
Mattress Recycling Pilot – Results and Recommended Next Steps**

---

## **PURPOSE**

A report to provide the results of a six-week pilot project for the diversion and recycling of mattresses and box springs at the Peterborough County/City Waste Management Facility (the “Landfill”), and to provide guidance on whether to proceed with a full-scale program.

## **RECOMMENDATIONS**

That the Waste Management Committee endorse the recommendations as outlined in Report WMC13-019 dated November 18, 2013 of the Director of Utility Services as follows:

- a) That the Waste Management Committee support in principle the expansion of the mattress recycling pilot to a full-scale program as outlined in Report WMC13-019, and;
- b) That the general public and all waste haulers and retailers known to bring mattresses to the landfill be notified of the Waste Management Committee’s intention to introduce a mattress and box spring user charge and that the issue will be discussed at the January 20, 2014 Waste Management Committee meeting.

## BUDGET AND FINANCIAL IMPLICATIONS

The cost of the 6-week pilot, during which 939 mattresses and box springs were diverted for recycling, was \$15,681. These costs have been charged to the landfill's Recyclables Removal budget. Extrapolating the pilot numbers over a full year, gross costs to recycle would be approximately \$180,000 annually.

Similar to the fee-per-unit charge for Freon containing appliances, a fee-per-unit charge for mattresses and box springs would be appropriate to help offset the cost of recycling. It is suggested that a charge of \$10.00 per unit would be appropriate. Implementation of this fee would reduce the expected annual cost to \$73,000.

Further off-setting recycling costs are the significant savings in air space that would be realized. Each mattress or box spring is on average  $\frac{3}{4}$  of a cubic meter in size. They will ultimately compact to 40% of their original size once land filled, depending upon the weight and height of material land filled above it. This brings their land filled volume down to approximately  $\frac{1}{3}$  of a cubic meter. Recent estimates have established the value of a cubic meter of landfill space at \$33.48. Accordingly, while the net cost to recycle each mattress would be \$6.70, it costs, at a minimum, \$10 to land fill that same mattress.

## BACKGROUND

Waste Management Committee at its meeting of September 9, 2013 in considering Report WMC13-014 "Mattress Recycling Project – Implemental Plan" endorsed the following:

- a) That staff be requested to proceed with implementation of the Mattress Recycling Pilot Project at the Peterborough County/City Waste Management Facility as detailed in Report WMC13-014; and
- b) That staff be requested to report further to the Waste Management Committee on the results of the Pilot Project identified in Recommendation (a) before proceeding with the full Mattress Recycling Program.

A six-week mattress recycling pilot program was launched on September 17, 2013. The intent of this pilot project was to better understand the operational issues which may be encountered with a mattress recycling program, and to get a more accurate count of the mattresses coming to the facility.

The landfill contractor kept records of the quantities and sources of mattresses that came to the drop-off platform, as well as those that went up to the tip face in mixed loads. Those that went to the platform (typically smaller loads, pick-up trucks and trailers) were recorded through the Tracker system, and these were loaded by contractor staff into a dedicated trailer to ship to the recycler. Mattresses that went directly to the tip face were counted by tip face personnel as they were able and called down to the scale house to record manually. It is likely that these counts were not precise, as mattresses could have been hidden from view, and/or busy staff may have miscounted or forgotten to call the numbers down.

## Quantities

The mattress count at the tip face was 310 although clear records on exactly who delivered these were not kept. Verbal discussions with contractor staff indicate that 90% came as part of mixed roll-off loads, and it would not be practical to separate these out of the mix once they arrived at the landfill. These mattresses were all land filled.

A total of 939 mattresses (five trailer loads) were collected at the drop-off area and shipped by the recycler. Overall, a grand total of 1249 mattresses were received at the landfill over the 6-week pilot program period.

Prorating these pilot program numbers, the landfill receives 10,825; say 11,000 mattresses and/or box springs annually.

## Sources

About 57.5% of the mattresses that were recycled during the pilot came from commercial sources. Of those, approximately 20% were from larger retailers, including Leons, Heritage Furniture, and The Clearing House Outlet. Most commercial materials came in smaller loads, with 1-5 mattresses per load. The portion contributed by residential sources came from County transfer stations (5.5%), City operations (1%), and individual residential customers (36%). Table 1 indicates where the mattresses came from.

**Table 1: Source of Mattresses Recycled During the Pilot Program**

Source	City Res	City Com	City Mun	County Res	County Com	County Mun
<b>Percent of Total</b>	35%	56%	1%	1%	1.5%	5.5%

## Challenges and Recommendations

### Operational

The biggest operational challenge was accurately recording the number of mattresses entering the facility. Otherwise, the pilot went well and was operationally easy to execute.

If the program continues, improved communication between the platform attendant and the scale house will be implemented to match, more closely, the system currently employed for Freon items. .

### Financial

A full mattress recycling program would cost in the order of \$180,000 annually exclusive of fees that may be applied.

A user-fee program is appropriate in this case similar to the Freon fee-per-unit charge. The cost to recycle a mattress is \$10 per unit in Toronto. So, if a \$10 per unit fee were charged to dispose of a mattress or box spring at the Peterborough County/City Waste Management Facility, the larger retail generators would have the option of paying the Landfill fee of \$10 per unit or making their own arrangements with the Toronto recycler.

Charging a higher fee could result in illegal dump issues.

### Compliance

It is challenging to identify, remove, and charge for mattresses that go to the tip face as part of mixed generator/mixed waste loads. The most effective method to deal with this situation is a ban on mattresses, similar to what we now have for cardboard and tires. A ban would provide the option to issue fines to those haulers who bring in the banned materials, thereby obliging them to demand compliance from their customers.

## NEXT STEPS

The introduction of a new user fee might create objections and, accordingly, it is proposed that the general public and all waste haulers and retailers known to bring mattresses to the landfill be notified of the Waste Management Committee's intention to introduce this user charge and that the issue will be discussed at the January 20, 2014 Committee meeting.

If, on January 20, 2014, Committee approves of the implementation of a full mattress recycling program then the following steps would be undertaken:

1. Seek City and County Councils' approval to implement the program including:
  - a) updating Waste Disposal By-Law 07-027 to include mattresses and box springs as a recyclable material which is banned from general disposal; and
  - b) implementing a fee-per-unit charge for mattresses which are brought to the facility for recycling.
2. Ensure the general public and all waste haulers and retailers known to bring mattresses to the landfill are advised of the disposal ban and new fees, and provide information on where companies can deal directly with mattress recyclers.
3. Establish a more formalized agreement with the Landfill operator for the provision of services.

It is hoped that these steps could be completed, and sufficient notice provided to landfill users, to allow for an implementation date of June 1, 2014. A minimum of 3 months notice should be given to landfill users prior to implementation.

## **SUMMARY**

Results of the pilot indicate that there would be significant value in implementing a full-scale mattress recycling program. The City's Waste Management Master Plan identified this initiative as having the potential to divert 5% to 8% of the waste stream (by weight), and it was deemed by City staff to be the fourth highest priority in the Master Plan action items. More important than weight is the savings in landfill space that could be achieved. If 10,000 or more mattresses can be diverted each year from the tip face, this equates to at least 3000 cubic meters of landfill space saved, or about 1.70 years of additional landfill life at our current location.

Submitted by,

W. H. Jackson  
Director, Utility Services

Contact Name:  
Virginia A. Swinson, B.Sc.  
Waste Diversion Section Manager  
Phone: 705-742-7777 Ext. 1725  
Toll Free: 1-855-738-3755  
Fax: 705-876-4621  
E-mail: [vswinson@peterborough.ca](mailto:vswinson@peterborough.ca)