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PROCESS FOR RECOVERING COSTS ASSOCIATED WITH PROCESSING COMPACTED BLUE BOX MATERIALS

The Environmental Services Committee recommends the adoption of the recommendation contained in the following report dated September 1, 2010, from the Commissioner of Environmental Services.

1. RECOMMENDATIONS

It is recommended that:

1. Regional Council authorize the recovery of cost premiums associated with processing over-compacted loads of recyclable material, subject to the following conditions:
 - a) Collection of fees for over-compacted loads be deferred until July 1, 2011 to provide sufficient time for the local municipalities to implement any necessary operational changes at a maximum cost of \$316,000 to the Region.
 - b) Deferral of fees be subject to the local municipalities ensuring that their collection contractors demonstrate progressive quarterly reductions in over compacted loads and should this target not be met, in any quarter over-compaction fees would commence immediately or at the discretion of the Commissioner of Environmental Services.
 - c) The local municipalities submit quarterly reports to the Region detailing implemented operational changes which will ultimately result in meeting the goal of no over-compacted loads.
 - d) The Region undertake quarterly compaction tests for a period of one year starting on October 4, 2010 and on an as required basis thereafter for the purpose of verifying base density from which over compaction can be measured.
 - e) The Region accept loads that exceed 2.5 compaction up to a maximum of 10 percent and the uncompacted density be increased accordingly.
 - f) Effective July 1, 2011 the Region invoice any municipality that delivers loads of over compacted material to the Material Recovery Facility at a rate of \$50.00 per load for compaction between 2.5 and 3.0 and \$150.00 for loads between 3.01 and 3.5.

- g) After July 1, 2011 loads that exceed 3.5 compaction be landfilled or delivered to the Dongara Pellet Plant and the actual costs, inclusive of transportation, be charged to the Municipality from which the material was collected.

2. PURPOSE

The purpose of this report is to obtain approval for a mechanism to recover costs from local municipalities associated with processing over compacted loads of recyclable materials.

3. BACKGROUND

On June 24, 2010 Council adopted Clause No.11 of Report No.6 of the Environmental Services Committee which directed staff to report back in September 2010 with a mechanism to recover costs from local municipalities associated with processing over-compacted loads of recyclable materials.

The issue of over compaction was brought forward by York Region's contractor prior to the waste management centre opening in July 2005 as a means to ensure that they would be able to meet contract requirements. During the first 6 months of operation in 2005, York Region staff began to track over compacted blue box loads and in January 2006 the first violation notices were issued to the local municipalities.

In August 2006, York Region and its contract partners participated in the York Region Collection and Processing Optimization Study, funded by Stewardship Ontario to determine the optimal levels of compaction that maximized collection efficiency while maintaining efficient operations. Study results indicated that a compaction level of between 2.0 and 2.5 to 1 is optimal.

The new collection contract for the northern six municipalities was developed in 2006 during which time the Region ensured that the compaction specification of 2.5 to 1 for blue box materials was included. In May 2007, the new collection contractor (Turtle Island) began weekly co-collection of blue box and source separated organics and bi-weekly collection of residual waste. York Region staff continued to track over compacted blue box loads and in 2009 York staff communicated the extent of over compacted materials to the members of the northern six municipalities. A detailed listing of correspondence, meetings and density tests are provided in *Attachment 1*.

Over compacted loads are received from the southern three municipalities on occasion. This is a very rare occurrence simply because their contractor does not use trucks with compaction capabilities. Should a collection vehicle break down it may be necessary to substitute a traditional packer, potentially resulting in an over compacted load.

Over compacted blue box loads result in additional processing costs

In 2009 a total of 41,933 loads of blue box material were accepted at the Region's Material Recovery Facility. Of this total, 4074 loads or 9.7 % had a compaction rate greater than 2.5 times un-compacted density. Under the terms of the Region's new operating agreement with Miller Waste Systems, the Region will be responsible for the additional cost required to separate and sort this material. Currently there are nine additional staff on the sorting line as a direct result of this problem. Material in question is compressed to the extent that it becomes welded with other recyclable material, making mechanical separation impossible as illustrated in *Attachment 2*.

Effective July 5, 2010 Miller may contractually charge the Region for over compacted loads at the rate of \$50.00 per load for all loads from 2.5 to 3.0 compaction and \$150.00 per load between 3.1 and 3.5. Loads compacted greater than 3.5 times un-compacted density can be rejected. Had this practice been applied previously, 199 loads would have been rejected in 2009.

Type of vehicle and loading practices by contractor cause over compaction of blue box material

Curbside collection of materials is a local municipal responsibility. Two collection contractors collect materials on behalf of the local municipalities: Turtle Island Recycling for the northern six municipalities and Miller Waste Systems for the southern three municipalities. Each of these collection contractors use different types of vehicles to perform the collection work (blue box recyclables specifically) and it is this difference in vehicle type and practices used while operating these vehicles that results in differences in compaction of collected materials.

Turtle Island Recycling uses two types of vehicles to collect blue box recyclables. They are side load and rear load packers. While these vehicle types differ in the method of loading material into the vehicle (one from the side and the other from the rear), their operation and function are very similar. These vehicles types have hydraulic components inside the vehicle that are designed to move the collected material into the storage compartment. This action of moving material into the vehicle hydraulically presses (i.e. compacts) the material with the purpose of maximizing the quantity of material in the storage compartment. It is this action of pressing, or compacting, that results in the deformation and fusing of the blue box recyclables (known as over compaction). Due to the type of vehicles being used, the collection contract for the northern six municipalities stipulates that compaction shall not exceed 2.5 times normal un-compacted density.

Miller Waste Systems uses a top load vehicle to collect blue box recyclables. This vehicle type uses a hydraulic arm on the exterior of the vehicle which is used to deposit the collected material into the storage compartment through the top of the vehicle. There are no hydraulic components inside the vehicle and as a result the Region has verified that there is no deformation or fusing of materials with this vehicle type.

Historical density tests replicated to determine current un-compacted density value for each type of blue box collection vehicle

Through discussions on this matter York Region and the northern six municipalities jointly recognized that additional information was required to better understand this situation, as well as providing a basis for consideration of options to achieve improvements and track progress. The first step was to clearly define what constitutes un-compacted density.

To augment density tests conducted in 2005, 2006 and 2007 the Region agreed to duplicate this process in June 2010 in the presence of a representative from the northern six municipalities. Density assessments were conducted on June 15, 16 and 18. The density tests were conducted in both dry and wet weather to reflect the impacts of moisture on weight.

Un-compacted material from several street trucks was loaded into a 40 cubic yard bin and weighed. The average weight was determined to be 62.0 kg per cubic yard. This value compared with an average of 60.7 kg per cubic yard from all studies done to date.

The new un-compacted density average from the June studies of 62.0 kg per cubic yard was then multiplied by 2.5 to arrive at the maximum allowable rate per cubic yard, ($62 \times 2.5 = 155$ kg per cu yd). This number was then multiplied by the capacity of the collection truck. As an example a 25 cu yd truck could weigh 3,875 kg without exceeding the allowable limit.

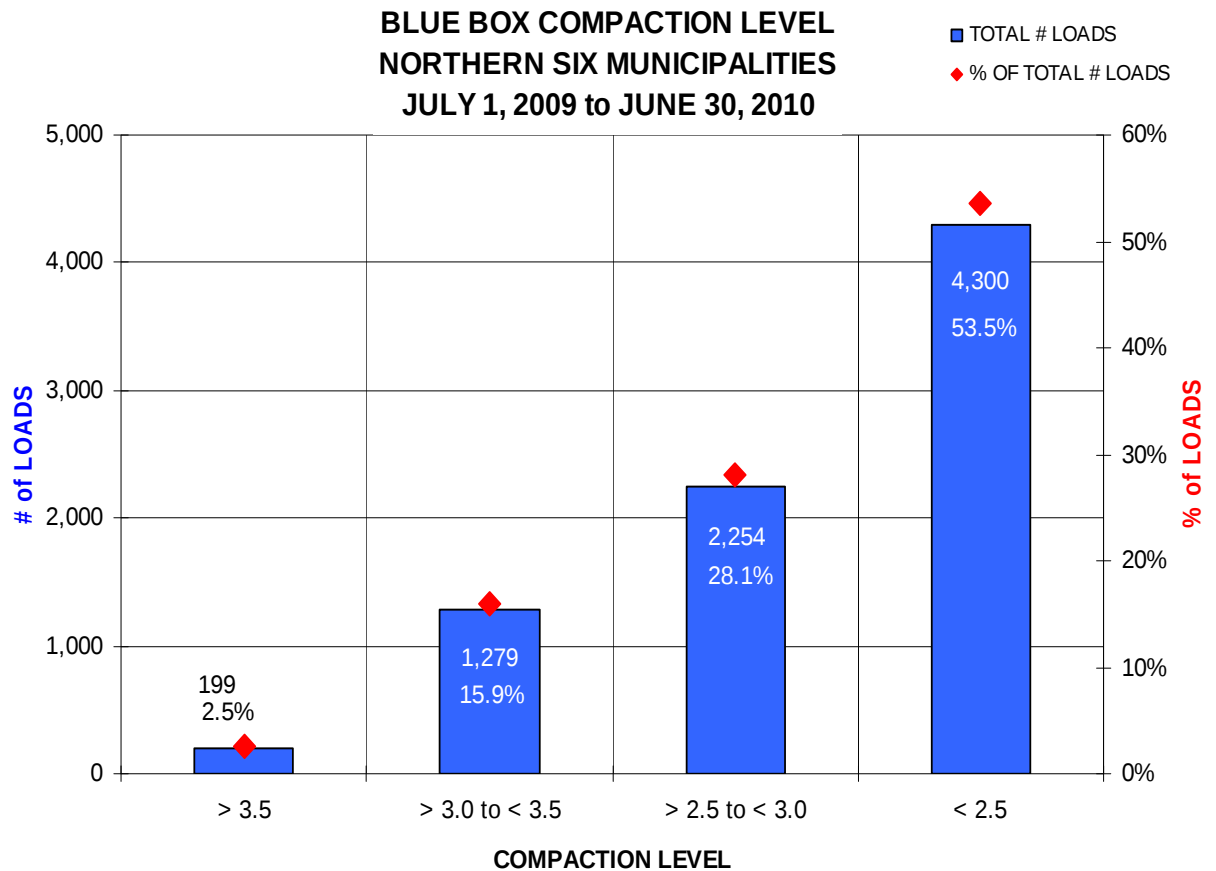
York Region commits to working in partnership with local municipalities to continue density testing and reporting

The Region and northern six municipalities have agreed to undertake quarterly density audits in the next year and periodic tests thereafter to determine if the calculated density should be adjusted to reflect seasonal variations. The Region will coordinate the audits in partnership with the local municipalities. As was done in the past, field notes and results of the audits will be communicated electronically to the stakeholders.

4. ANALYSIS AND OPTIONS

Increase in residual waste over the past year due to over compaction of incoming blue box materials by collection contractor

The following chart illustrates the number of over compacted blue box loads during the past year. The collection contract for the northern six municipalities stipulates that compaction shall not exceed 2.5 times normal un-compacted density.



Local municipalities to work with collection contractor to prevent over compaction of blue box materials

A staff committee representing the northern six municipalities and the Region has been meeting to collaboratively resolve this important issue. In turn representatives from the northern six municipalities have met with their collection contractor and are taking steps to ensure that the terms and conditions of their joint collection contract are enforced. The expectation is that any additional costs associated with resolving blue box over compaction will be borne by the local municipal collection contractor and not by York Region residents.

In return for assurances from the northern six municipalities that the over compaction issue will be resolved by June 30, 2011, Region staff agreed to recommend deferral of premium costs associated with processing over compacted loads until that time. This deferral recommendation is subject to the northern six municipalities ensuring that their collection contractor demonstrates progressive quarterly reductions in over compacted

loads. Should this objective not be met, the Region would have the right to invoke fees immediately.

Local municipalities requested a 10% tolerance above 2.5 compaction

As explained earlier, compaction is converted into weight for each type of collection vehicle. If a vehicle could carry 3875 kg at 2.5 compaction, then a 10% variance would permit a 4262 kg load to be received without financial penalty.

Acceptance of this request will be administered by increasing the audited un-compacted density by 10%. This will have the effect of increasing the acceptable weight at 2.5 compaction by the required amount.

As an example in Table 1:

Table 1
Impact of 10% tolerance

Sample Calculation	Result
Uncompacted density based on actual audits	62kg per cubic yard
62 kg per cubic yard + 10% tolerance	68.2 kg per cubic yard
68.2 kg per cubic yard at 2.5 compaction	170.50 kg per cubic yard

5. FINANCIAL IMPLICATIONS

Over- compaction of blue box materials results in additional cost for processing materials

Under the terms and conditions of the Region's new 10 year operating agreement with Miller Waste Systems, all loads of recyclable material delivered to the Region's Material Recovery Facility compacted between 2.5 and 3.0 will be charged at a rate of \$50.00 per load. Loads between 3.1 and 3.5 receive a \$150.00 surcharge. The total cost in any year may not exceed \$316,000 which represents the additional cost associated with processing this over compacted material. During the first year, this additional cost will be paid by the Region's Solid Waste operating budget subject to Recommendation 1a.

Loads exceeding 3.5 compaction are deemed to be unacceptable material and may be diverted to landfill or the Dongara Plant. As costs for landfilling are lower than for processing these materials no direct financial impact is currently forecasted. However, less diversion of otherwise recyclable material could result in a lower efficiency rating from Waste Diversion Ontario and reduced blue box subsidies.

6. LOCAL MUNICIPAL IMPACT

Cooperation between Region and local municipalities vital to achieving efficient blue box processing and preventing continued over-compaction of blue box materials

In 2009 approximately 4000 tonnes of material was over compacted to the extent that it could not be separated and processed. This resulted in the loss of 1% of the Region's overall diversion number and negatively impacted the local municipalities to the same extent.

In 2009, the blue box program represented 22% of the Region's diversion. The Material Recovery Facility is very efficient at processing acceptable materials. With continual improvement projects, the recent capital investments in a mixed broken glass clean up system and residue sorting station within the Material Recovery Facility have had very significant and positive impacts to further increase the diversion rate. As well, the current capital upgrade project is designed to further increase the Material Recovery Facility's performance and the overall diversion rate. In order to maximize the benefits of these capital investments, it is vital that we continue to work collaboratively with the northern six municipalities and their collection contractors to ensure our diversion goals are reached.

7. CONCLUSION

Over compaction of blue box material is a real impediment to operation of the Region's Material Recovery Facility and must be resolved Region-wide. Staff from the northern six municipalities have acknowledged this and have committed to resolving this issue with their collection contractor. By requiring their collection contractor to comply with the terms and conditions of their contract, over compacted loads will be eliminated, at no additional cost to the Region.

Significant progress has been made in discussing this matter over the past few months. While the northern six municipalities acknowledge the problem and have committed to resolve the issue, they have requested a one year grace period before over-compaction fees are levied. Region staff support this request and suggest that the Region absorb the cost of processing over compacted material until June 30, 2011 subject to demonstrated progressive quarterly reductions in over-compacted loads currently received from the northern six municipalities and their collection contractor.

For more information on this report, please contact Laura McDowell, Director Environmental Promotion and Protection at (905) 830-4444 Ext. 5077.

The Senior Management Group has reviewed this report.

(The two attachments referred to in this clause are attached to this report.)

Summary of the Over Compaction Issue

Note: This listing is intended only as a high level chronology.

Overview

February 7, 2005	Correspondence from Miller to York confirming compaction ratio should not exceed 2.5 to 1 including the operational implications
July 4, 2005	Waste Management Centre officially opened; operating contract includes over compaction clause
July to December 2005	Region informally noting the number and severity of over compacted blue box loads; begins loose (un-compacted) density assessments to establish the 2.5 to 1 compaction level (as expressed in tonnes, net weight of blue box load);
January 2006	Region formally begins tracking over compacted blue box loads and issuing violation notices for over compaction
June 13, 2006	Correspondence from York to Trow outlining items for inclusion in the northern six municipalities contract; includes compaction specification of 2.5 to 1
August 2006	Region, Newmarket, WSI LaRue and Miller cooperatively participate in the “York Region Collection and Processing Optimization Study” Stewardship Ontario project #207 to assess the optimal level of compaction that maximizes collection efficiency while maintaining efficient MRF operations; result indicated a compaction level of between 2.0 and 2.5 to 1 is optimal.
April 19, 2007	Region provides a tour of the Waste Management Centre to Trow and Turtle Island management and drivers; Purpose of this tour is to familiarize Turtle Island with the site layout and site rules including discussion on the issuance of violation notices (example: for not wearing the required personal protective equipment while inside the building, over compacted loads, etc)
May 2007	Turtle Island begins collection of BB and MSW in King and Aurora
September 2007	Turtle Island begins collection in the northern six municipalities and program changes include weekly co-collection of blue box and SSO and bi-weekly collection of SSO
September 17, 2009	Letter from York to the northern six municipalities outlining the concern of over compacted materials added to agenda for the northern six municipalities’ Operational Charter Meeting held September 18, 2009
September 21, 2009	First issue of weekly notification of over compacted materials (as requested from the northern six municipalities’ Operational Charter Meeting September 18, 2009)

Note: Since the Waste Management Centre opened, the Region has had numerous communications with individual municipalities and collectively regarding the over compaction issue and specific loads

Meetings

June & July 2006	Region, Newmarket and WSI LaRue meetings to discuss the process and significance of the compaction study (to be conducted in August 2006)
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September 12, 2008	Waste Coordinators meeting with representatives from the northern six municipalities; workshop facilitated by Dave Szeptycki on over compaction
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Note: While not presented in the table above, the issue of over compaction has been discussed at several meetings with the northern six municipalities and at Local Municipal Coordinator's meetings as well as with individual local municipal members. Additionally, the issue has been discussed at length at Waste Management Centre Operational meetings between the Region and its operating contractor since 2006.

Density

2005 to 2007	Loose (un-compacted) density assessments of single stream blue box recyclable material; conducted between September 15, 2005 through May 15, 2007;
May 7, 2007	Correspondence between King to Region stating interim vehicles used by Turtle Island (before three stream program was adopted by the northern six municipalities) vehicle capacity at 38 cubic yards; Region outlined how the loose (un-compacted) density is assessed and the formula for calculating the 2.5 to 1 compaction level (net weight of load); King stated the "methodology is sound"; Region indicated that due to the reduction in LCBO glass (February 2007), the loose density should be lower and thus the 2.5 to 1 compaction level net weight should also be lower and that another density assessment will be done;
May 14, 2007	Correspondence from Region to Aurora and King offering for them to be present at the next density assessment audit (further to May 7, 2007 note above); attended by Trow; Results of this audit provided to Trow, King and Aurora;
July 3, 2007	Correspondence between Region and Aurora where Aurora states "... and will be forwarding our concurrence of the 6 tonne figure to our contractor."; Region thanks Aurora for their concurrence and advises that the compaction limit is dependent on the vehicle's actual holding capacity for blue box materials and that depending on the capacity, the net weight that corresponds to 2.5 to 1 compaction will change (i.e. smaller capacity = lower net weight limit);
July 11, 2007	Correspondence between Region, Newmarket and Trow regarding the vehicle capacity Turtle Island will be using effective September 2007; Stated capacities are 32 yd ³ rear loader and 30 yd ³ for side loader (note that the compartment split was not provided);
September 2007	No formal communication to the Region has been provided regarding the actual vehicle compartment splits; informal verbal discussions with representatives of the northern six municipalities and Turtle Island are that the side loaders are 60/40 (BB/SSO) split and the rear loaders are 80/20 (BB/SSO split)
October 1, 2009	Correspondence between East Gwillimbury, Turtle Island and Region requesting current vehicle capacities; Turtle Island stated side loader capacity is 23.56 yd ³ ; Region replied seeking clarification if this is the total vehicle capacity or just the capacity for the blue box compartment; As well, Region requested the compartment split ratio (i.e. 60/40, 80/20, other) for the vehicles; As of June 7, 2010, neither the official vehicle capacities or actual split ratios have been provided
May 25, 2010	Correspondence from King to Region stating "I do not believe the northern six municipalities or our Contractor has agreed to the methodology for the (over compaction) calculation"; see May 7, 2007 note above

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Photos of Over Compacted Blue Box Material



