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STAFF REPORT: ENGINEERING AND PUBLIC WORKS DEPARTMENT



REPORT TO: Committee of The Whole
MEETING DATE: June 09, 2014
REPORT NO.: EPW.14.042
SUBJECT: Annual Solid Waste Report 2013
PREPARED BY: Jeffery Fletcher, Manager of Solid Waste and Environmental Initiatives

A. Recommendations

THAT Council receive Staff Report EPW.14.042 entitled “Annual Solid Waste Report 2013” for their information.

B. Background

The Town is required to complete an Annual Report on the Solid Waste Disposal Site for submission to the Ministry of Environment (MOE) District Office. The 2013 Annual Report was provided to the MOE on April 15, 2014. This report included information on type and quantity of all wastes received and transferred, discussion of negative impacts discovered during inspections, operating procedures, detailed results of leachate, surface and ground water monitoring, site capacity and compliance, and a discussion of recycling programs.

The above information is supported by 5 separate documents that include integrated information:

1. Annual Solid Waste Report;
2. Annual Water Monitoring Report;
3. Closure and Post-Closure Care Cost Estimates;
4. Water Quality Assessment of Indian Brook; and
5. Waste Diversion Ontario – Data Call.

The Town retained Golder Associates Limited (Golder) to prepare reports 1 through 4 of the above reports. The reports include detailed information of waste managed as documented during daily operations of the Landfill Site. The Water Monitoring and Quality Report provides an assessment of Landfill Site boundary compliance and an evaluation of future Landfill Site monitoring requirements. The fourth study is required to be conducted every 5 years that assesses the water quality of the adjacent Indian Brook. The fifth document is part of the annual reporting to the Ontario municipal blue box funding organization Waste Diversion Ontario and is largely curbside collections and financially focused.

Annual Solid Waste Report

The list below includes some of the notable conclusions and recommendations that were provided by Golder based on the findings of the Annual Solid Waste Report and Water Monitoring Report for the period ending December 31, 2013.

Conclusions

- An estimated landfill capacity of 5,620 m³ was consumed in 2014. Based on the 6 year average landfill capacity consumption of 10,630 m³ / year (the 2008 to 2013 average), the remaining Site life is approximately three years. The apparent density of landfilled waste in 2013 increased over 2012 to 692 kg/m³. The average apparent waste density from 2008 to 2013 was 436 kg/m³.
- Elevated nitrate concentrations to the north and south of the Site that exceed the reasonable use criteria could reflect landfill impact. However, based on low concentrations of other landfill indicators and the presence of agricultural operations, it is considered more likely that nitrate is of agricultural origin.
- The north boundary of the Site also has elevated chloride which reflects landfill impact; however concentrations are declining over time.
- Elevated ammonia concentrations at the north east corner of the Site likely represent landfill impact. However, concentrations of landfill leachate indicator parameters are below the applicable reasonable use criteria (provincially established maximum concentration levels) along the eastern boundary (Indian Brook) of the east contaminate attenuation zone.
- Private wells and/or residences located to the north and west are located at least 500 m from the licensed fill area of the Site. Based upon the observed extent and migration path of the existing landfill impacts, these wells will not likely be impacted by landfill operations.

Recommendations

- Dataloggers should be installed in two wells to the north to monitor effects of aggregate extraction activities on water table elevations.
- Construction of new wells should be completed including one at a location approximately 150 m south of the southern Landfill Site boundary to assist in the assessment of the need for a contaminant attenuation zone (CAZ) to the south of the Site.

Town Staff has begun work on addressing the reports' recommendations and will include any additional surveying or sampling requirements into the next round of reporting.

Indian Brook Assessment

The list below includes some of the notable conclusions and recommendations that were provided by Golder based on the findings of the stream water quality assessment. Based on discussions coming out of the Landfill Expansion Environmental Screening a third stream sampling station closer to the Landfill was added for 2013 and the number

of sub-stations was increased to capture a more representative invertebrate population size.

Conclusions

- The assessment did find differences in the benthic invertebrate community and water quality results at station 3, which may indicate that this location is being influenced by the waste disposal facility and/or the surrounding agricultural operations. It is unknown whether the influence is from surface water runoff or groundwater discharge. Higher turbidity (suspended particles) values at station 3 indicate this area is receiving higher runoff than the other two stations.
- The landfill reclamation and cell construction project commencing this May includes the removal of waste closest to the Indian Brook and construction of a lined landfill cell in this area, which is expected to reduce impacts of the landfill on the underlying groundwater and ultimately its discharge down gradient to surface water.

Recommendations

- Further monitoring is planned and required on the stream and station 3 will be sampling for quality parameters annually along with the 2 other stations.
- Station 3 will be resampled for benthic invertebrates in subsequent years using the 2013 methods for consistency and comparison.

Overall Site Waste Management

Total waste managed at the Site has remained relatively consistent with a decline in 2013; the table below identifies tonnages under 3 waste streams. The 3 other tables below breakdown, for 2013, the waste streams into more detailed classes of material. Using the numbers from 2013 the overall Site diversion rate is 35%.

Waste Stream tonnes	2010	2011	2012	2013
Disposal	4448	4240	4197	3888
Recycle	1229	1098	1407	1126
Compost	892	942	891	1067
Total Managed	6568	6279	6497	6081

Disposal Stream	2013 Tonnages
Residential Curbside	1786
Residential Drop-off	356
Commercial Drop-off	1722
Town Operations Waste Drop-off	25
Total Landfilled	3888

Recycle Stream	2013 Tonnage
Curbside Recycling	834
Depot Recycling	36
Scrap metal	93
Concrete/asphalt	36
Wood waste	86
Tires	14
Electronics Waste	15
Household Hazardous Waste	12
Total Recycled	1126

Compost Stream	2013 Tonnage
Apples	592
Commercial Brush	25
Residential Yard Waste	281
Town Operations Drop-off	87
Chipped brush used in landfill	82
Total Managed	1067

Diversion (Blue Box) Program

The 2012 Waste Diversion Plan for the Town outlines a number of Goals and Objectives for the blue box program. Two targeted objectives are outlined in the Plan: reduce program net cost and increase recovery rate. The two program indicators are being used to evaluate and monitor the performance of the blue box program. The monitoring targets are described as: net cost of the blue box program per tonne and kilograms of blue box material marketed per household. The net cost / tonne table below outlines past and current performance, target performance and the available group averages of similar municipalities. The net cost / tonne target is to reduce net cost per tonne by 15% (considering inflation) by 2025. As can be seen in the table below, 2013 experienced an increase in net cost / tonne over previous years and sat higher than the 2013 target.

Blue Box Net Cost / Tonne

Year	TBM Net Cost/ Tonne	Target Net Cost / Tonne	Municipal Average Net Cost / Tonne
2011	\$321		\$506
2012	\$367	\$354	\$463
*2013	\$398	\$361	Not available
2015		\$375	
2025		\$446	

*2013 is unofficial; data has not completed Waste Diversion Ontario's verification process

The Blue Box Kilograms per Household table below outlines past and current performance and target performance. The target for kilograms per household is 175 kilograms per household by 2025. The Town is sitting lower than similar Ontario municipalities and this may be a result of low occupancy in some areas of the Town. Also, due to the nature of some residential units (village core area) many homes that are in a commercial area are not part of the municipal collection program. If an adjustment was made to the kg/household to excluding commercially zoned units the Town would have 132 kg/household value for 2013.

Blue Box Kilograms per Household

Year	TBM Kilograms / Household	Target Kilograms / Household	Similar Municipalities Kilograms/ Household
2012	109		153
*2013	109		
2015		118	
2025		175	

*2013 is unofficial; data has not completed Waste Diversion Ontario's verification process

In addition to the indicators above, it is typical to review the blue box capture rate. A program's recycling rate for blue box materials compares the material estimated to be generated by households served by the program (based on Stewardship Ontario's historical waste composition data) to the blue box tonnes marketed by that program and has a maximum value of 90%. This rate is calculated by Waste Diversion Ontario (WDO) and is not yet available for the 2013 reporting year. The table below shows the Town's rate over the past 3 years compared against the average of similar municipalities. The Town's rate has fluctuated but sits higher than similar municipalities.

Year	2010	2011	2012
The Blue Mountains	68%	56%	68.1%
Average Similar Municipalities	56%	54%	56.3%

The above numbers relating directly to TBM's blue box program reveals, in general, that the Town's net cost is well lower than the average and the capture rate sits just above

the average. However, the kilograms captured per household are low and could be improved. This kg / household factor is an emerging and important indicator for funding. It will be important to increase the kilograms per household to maximize funding. The target set by the Town's Waste Diversion Plan appears to be lower than the average in the short term and may need to be revisited. However, increasing kilograms per household may prove difficult with reduced occupancy of homes in some areas of the Town.

Residential Overall Diversion Rate

The most common comparator between municipal diversion programs is the total (not just blue box) residential diversion rate. This rate is the percentage of material recycled, composted and/or reused versus residential disposal. The focus of the numbers below is residential only, whereas the "overall Site diversion rate" of 35% for the Landfill Site and includes all activities and sectors including residential and commercial. Total residential diversion rate is sitting significantly higher than the average of similar municipalities, however other municipalities on average are improving diversion at a faster rate than the Town over the past 4 years.

Residential Diversion Rate (Waste Diversion Ontario)

	2010	2011	2012	2013
The Blue Mountains	42%	41%	45%	44%
Similar Municipal Group Average	29.5%	32%	35%	

*2013 is unofficial; data has not completed Waste Diversion Ontario's verification process

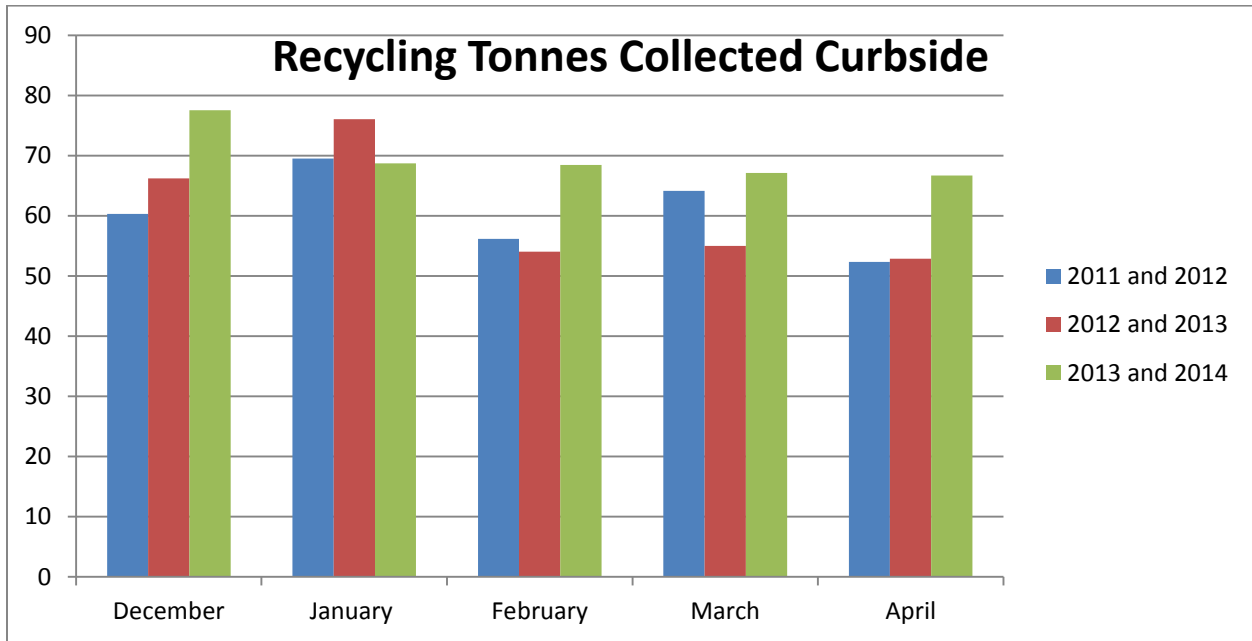
Developments in 2014

Change in collection method

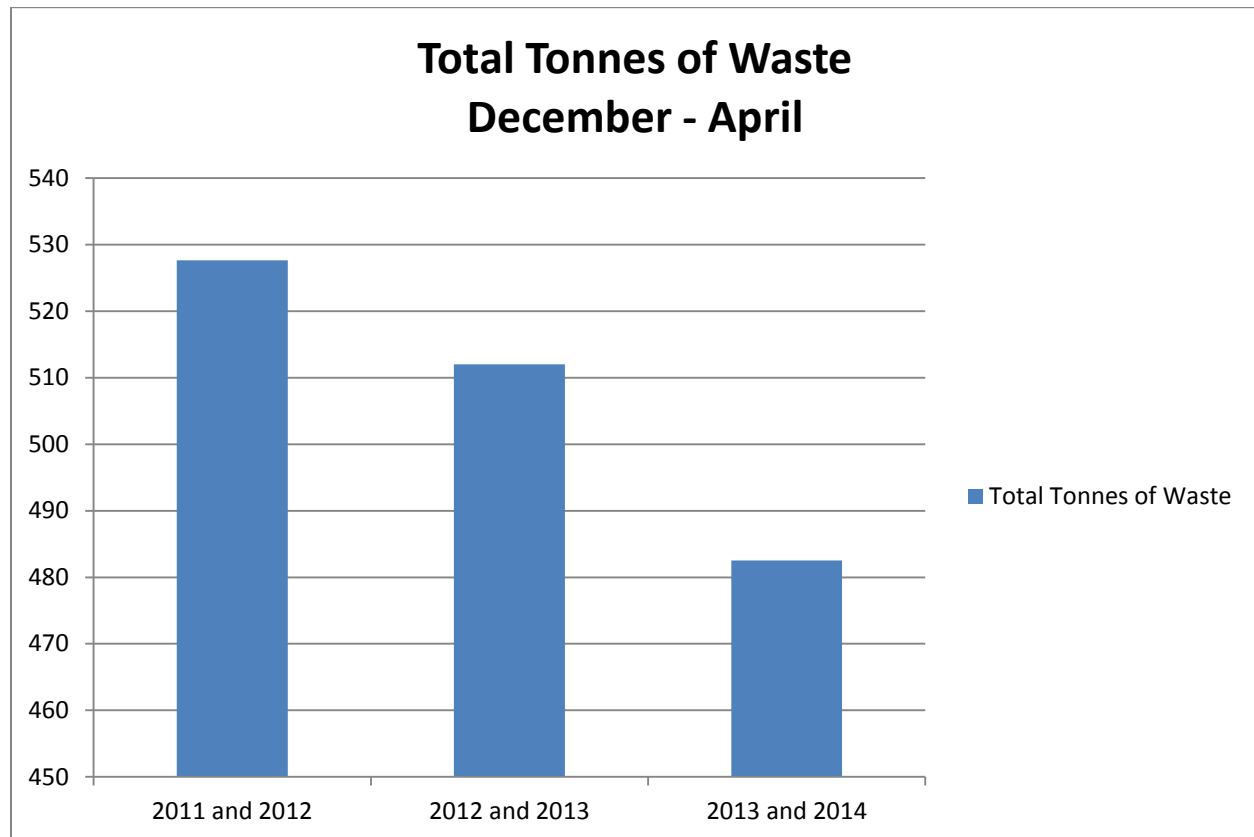
In December of 2013 the Town's contracted curbside waste collector initiated a minor change to the method of collection. Previous to this garbage was collected in one truck and recycling was collected in a separate truck, two trucks drove every street. The change involved basically using one truck on every street. The trucks used in the Town's collection program have a split body which allows one truck to collect different streams of material. The collectors use one side for garbage and one to collect mixed recycling. The papers and containers do get mixed in the trucks however the garbage stays separated from the recycling in separate compartments. The split tail gates open independently allowing the garbage to be dropped at the landfill and the recycling to be held in the truck and to be tipped at the contractor's facility where it is prepared for shipping to a facility that processes mixed recycling.

This change was partly initiated to assist with winter collection, minimizing the traveling on some difficult winter roads. However, the additional benefit of increased recyclable material and reduced garbage has resulted. The table below shows the general increase in recyclables collected from December to April compared to 2 years previous over the same months. An increase of 40 tonnes of recyclables has occurred; this has

increased the diversion rate for curbside collection from 37% to 42% over the previous year.



The table below shows the garbage tonnages over the same 4 month period. A dramatic and corresponding decrease in garbage collected has occurred. A decrease of approximately 30 tonnes of garbage has occurred from December to April compared to the two years previous. Interestingly, the total waste stream (garbage and recycling) tonnage has not changed during this same period over the past three years.



Next Steps

There are many opportunities to advance the Town's diversion rate. Increasing multi-unit diversion through promotions and education and implementing organics collection have the greatest potential to increase diversion. With the loss of the Solid Waste Division's Environmental Initiatives Coordinator in October of 2013 Town staff has been unable to progress the planned organics diversion program that had an implementation date of fall 2015. This fall start corresponded well with the expiry of the existing contract in September of 2015. Town staff is proposing a procurement process that will involve a request for proposal to interested bidders. Town Staff hope to include new levels of optional service to implement during the new term of contract. With the right available resources those could include curbside collection of single use household batteries, green bin organics collection and yard waste collection.

C. The Blue Mountains' Strategic Plan

This activity in part satisfies Town Strategic Goal 2. "Addressing the Town's municipal infrastructure needs", and contributes to Strategic Action 2.5 "Develop a waste management strategy to meet diversion targets and address landfill capacity".

D. Environmental Impacts

The activity of studying and monitoring is the basis for an understanding of the impacts of the Site on the adjacent natural environment and the success of the Site's related waste diversion programs.

Some Site boundary issues persist and the initiated Site expansion and remediation project will provide the Site with new engineered containment technology which will work towards eliminated Site impacts on ground and surface water.

The Town has a waste diversion strategy under the Community Sustainability Plan (2010) of reaching a 60% residential diversion rate by 2015, this is similar to the provincial goal of 60%. The 2012 Waste Diversion Plan outlines a number of actions that would work to meet this goal the Town will need to continue applying appropriate resources to meet these goals.

E. Financial Impact

The Town's net cost per tonne of blue box recycling (\$398.00/tonne) is currently higher than the Town's target and is also approaching the average of similar municipalities (\$463.00/tonne). The Town needs to work at keeping this per tonne indicator low.

F. In Consultation With

None

G. Attached

None

Respectfully submitted,

Jeffery Fletcher

Jeffery Fletcher
Manager, Solid Waste and Environmental Initiatives

Engineering & Public Works
Office: 519-599-3131 Ext.238
Fax: 519-599-7723

jfletcher@thebluemountains.ca

Reg Russwurm

Reg Russwurm
Director, Engineering and Public
Works