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**DURHAM-YORK RESIDUAL WASTE ENVIRONMENTAL ASSESSMENT
RESIDUAL WASTE QUANTITY AND REQUEST FOR QUALIFICATIONS**

The Solid Waste Management Committee recommends the following:

- 1. The presentation by Andy Campbell, Director, Solid Waste Management, be received;**
- 2. The following deputations be received and the accompanying submissions be referred to Genivar (formerly MacViro) the Consultant for the Durham/York Residual Waste Study, for consideration:**
 - (a) Michael O’Flanagan, Resident, Newmarket and member of Communities First and accompanying submission;**
 - (b) Rod Muir, Waste Diversion Campaigner, The Sierra Club of Canada;**
 - (c) Karen Buck, President, Citizens for a Safe Environment, Community Environmental Assessment Team for City of Toronto Residual Waste and accompanying submission;**
 - (d) Paul Connett, Professor Emeritus from St. Lawrence University, Canton, New York and accompanying submission; and**
 - (e) Erin Shapero, Councillor, Town of Markham; and**
- 3. The following report, May 3, 2007, from the Commissioner of Transportation and Works, be referred back to staff for a further report to be provided to the June 6, 2007 Committee meeting:**

1. RECOMMENDATIONS

It is recommended that:

- 1. Council support in principle a commitment to negotiate an amendment to the Durham-York Energy from Waste Memorandum of Understanding committing York to the provision of 50,000 tonnes per year of residual waste to the proposed Durham-York Energy from Waste facility on a ‘put-or-pay’ basis and that staff report back on the remaining financial and other MOU issues identified by Durham Regional Council in their Reports #2007-J-13 and #207-J-14.**
- 2. Regional Council endorse the issuance of a Request for Qualifications by Durham Region for vendors of thermal waste treatment technologies using the principles for complete submission requirements, anti-lobbying (revised in response to the April 11, 2007 recommendations of the Solid Waste Management Committee) and identifying an appropriate range of the potential processing capacity for the proposed facility taking into account the consultant’s analysis.**

2. PURPOSE

The purpose of this report is to:

- i) Provide an update regarding the quantity of York Region's residual waste projected for contribution to the proposed Durham-York Energy from Waste facility and,
- ii) Recommend changes to the Memorandum of Understanding to facilitate the release of a Request for Qualifications (i.e. the first stage of a purchasing process to be followed by a Request for Proposals).

3. BACKGROUND

On April 21, 2005, Regional Council adopted Clause 1 of Report No. 3 of the Solid Waste Management Committee to initiate a partnership with Durham to jointly undertake a Residual Waste Environmental Assessment Study.

On June 23, 2005, Regional Council adopted Clause 1 of Report No. 4 of the Regional Commissioner of Transportation and Works authorizing the Region to enter into an agreement with Durham to jointly conduct the Durham-York Residual Waste Environmental Assessment Study.

On June 22, 2006, Regional Council adopted Clause 1 of Report No. 4 of the Solid Waste Management Committee identifying the preferred and alternative thermal waste treatment technologies and authorizing staff to proceed with the Environmental Assessment process.

On February 22, 2007, Regional Council adopted Clause 2 of Report No. 2 of the Solid Waste Management Committee authorizing entry into a Memorandum of Understanding with the Regional Municipality of Durham, which identifies the processes and guiding principles for the Regions to proceed jointly with the energy from waste project.

On April 18, 2007, Durham Regional Council approved recommendations to Report #2007-J-13 "Durham Region Energy from Waste (EFW) Project- Preliminary Business Case and Financial Impact Assessment" and Report #2007-J-14 "Regional Council Approvals to Proceed with the Durham and York Region Energy from Waste (EFW) Project" (*see Attachment 1*). The recommendations included proposed amendments to the Durham-York Energy from Waste Memorandum of Understanding. One particular amendment proposed was, "York and Durham will make minimum waste tonnage commitments to the EFW for the operating term on a 'put-or-pay' basis prior to the issuance of the RFQ".

On April 19, 2007, Regional Council referred Clause 4 of Report 5 of the Solid Waste Management Committee (*see Attachment 2*) and the communication from the Regional

Municipality of Durham (April 18, 2007) (*see Attachment 1*) to staff for a further report to the next Solid Waste Management Committee meeting on May 9, 2007.

4. ANALYSIS

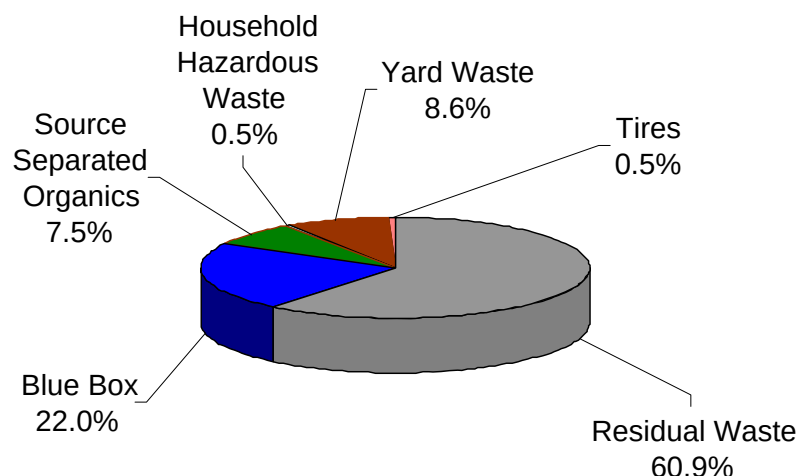
York and Durham are jointly undertaking an environmental assessment to consider options for the management of residual wastes that remain after their respective diversion efforts. The environmental assessment has identified thermal treatment (energy from waste) as the preferred approach to managing the residual waste. Part of the environmental assessment program is a two step procurement process involving pre-qualification of potential vendors of energy from waste technologies. It is planned that a Request for Qualification (RFQ) will be issued in May, subject to authorization by Council. Presuming that the project proceeds as planned, pre-qualified vendors will then be requested to respond to a Request for Proposals (RFP) for development of the Durham-York Energy from Waste facility. Development of the RFP requires a determination of the quantity of residual waste that would be sent to the Durham-York Energy from Waste facility.

Amendments proposed by Durham to the Durham-York Energy from Waste Memorandum of Understanding seek to define the annual quantities of residual waste that the Regions will commit to provide to the proposed Durham York Energy from Waste facility on a 'put-or-pay' basis. This commitment is sought as a pre-requisite to issuance of the Request for Pre-Qualification of vendors of energy from waste technologies.

4.1 York Region Diversion and Residual Waste

In 2006, the Region processed a total of 322,000 tonnes of residual waste, recyclable and compostable materials at its facilities (*see Figure 1*). The diversion rate from landfill in 2006 was 39%.

Figure 1
2006 Material Profile

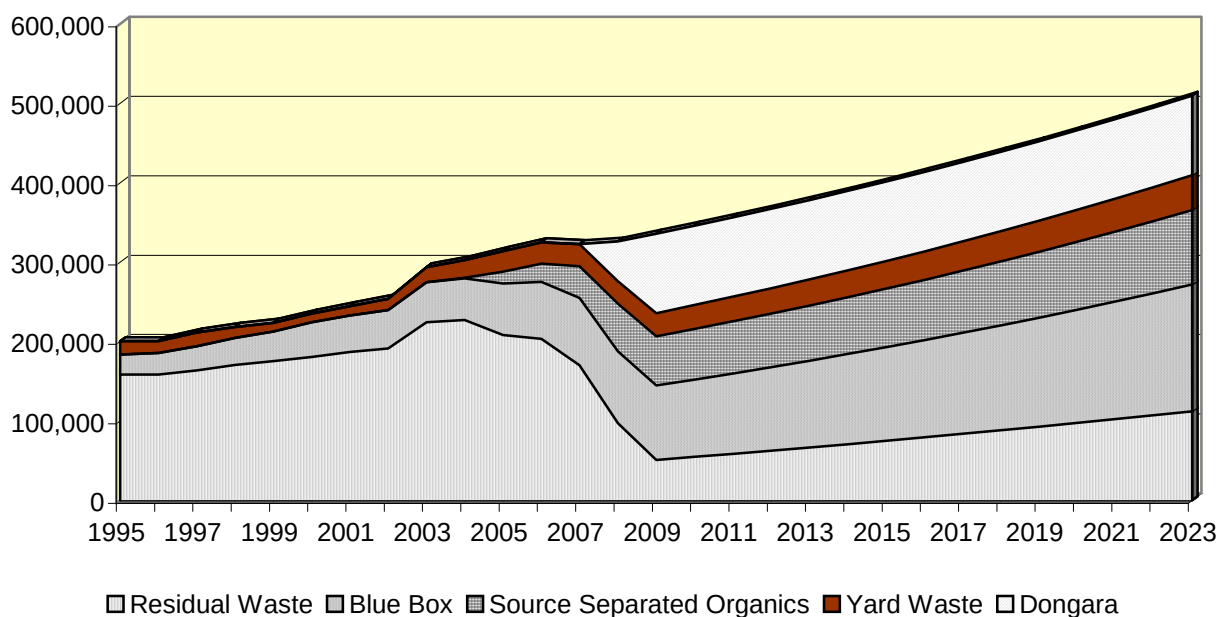


Currently, York Region's residual waste (approximately 194,000 tonnes) is disposed at landfill sites located in Ontario and Michigan. Despite the continuing growth of the Region, it is expected that the proportion of residual waste generated in York Region will progressively decrease into the future. These future reductions will result from the implementation and expansion of diversion initiatives including processing of source separated organic waste, blue box recycling, household hazardous waste diversion, leaf and yard waste composting, establishment of community environmental centres, conducting of regular re-use initiatives and an on-going program of promotion and education to enhance public awareness and participation.

Commencing in 2008, York Region has contracted to provide 100,000 tonnes of residual waste per year to the Dongara waste pelletization facility in Vaughan. The Dongara facility will convert waste into a solid fuel product, which Dongara will then market to industrial energy consumers as a supplement or replacement for other solid fuels, such as coal.

The Region's diversion initiatives and commencement of operation of the Dongara facility are expected to have a significant influence in reducing the quantity of residual waste requiring disposal.

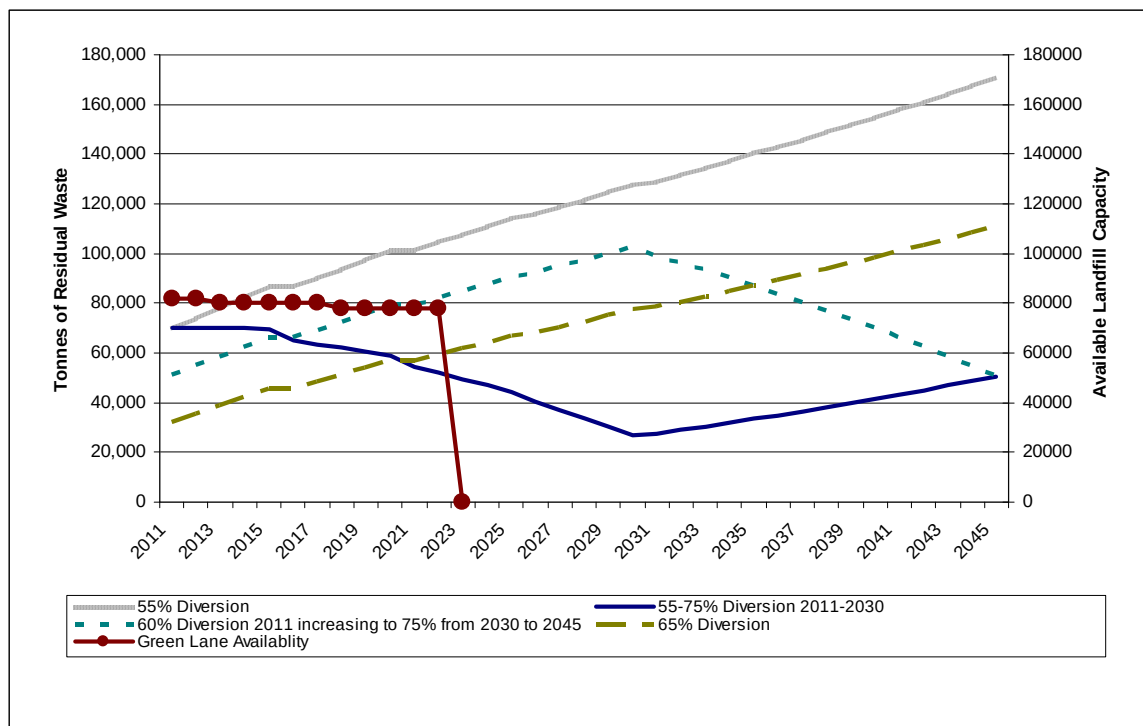
Figure 2
Material Quantity Projections (65% Diversion)



As shown on Figure 2, the amount of residual waste requiring disposal is expected to decline to approximately 55,000 tonnes per year in 2010, increasing into the future as the Region's population continues to grow. This residual waste would be available to be directed to the proposed Durham-York Energy from Waste facility. The projection of residual waste quantities remaining for disposal is based on implementation of the Dongara facility and public acceptance/participation in diversion initiatives such as the source separated organics program. Projecting residual waste tonnages into the future depends on the expected waste diversion rate and population growth forecasts. Four potential diversion rates and the resulting residual waste quantities are presented in Figure 3. York Region also has a landfill contract until the end of 2022 at the Green Lane Landfill in St. Thomas which would be used to handle any residual ash from the energy from waste plant or daily peak waste flows.

Committing waste tonnage to the Durham-York facility prior to the end of our contract at the Green Lane Landfill will result in higher costs. York partnering with Durham prior to 2022 is a hedge against the possibility that our community will not divert more than 55% and to ensure that there is a secure long-term waste disposal option for the Region.

Figure 3
York Region Residual Waste Quantity Projections
(after deducting 100,000 tpy sent to Dongara facility)



4.2 Energy from Waste Processing Capacity

As part of their scope of work, project consultants for the Environmental Assessment performed a detailed evaluation of the quantity of residual waste that would be received at the proposed Durham-York Energy from Waste facility. Regional staff provided supporting data on materials received by the Region during 2005 and 2006, as well as future planned waste management programs and initiatives. Genivar (formerly MacViro) compiled and evaluated York's and Durham's residual waste data and produced a technical memorandum regarding the processing capacity of the proposed Durham-York Energy from Waste facility projected for the period 2011 to 2030 (*see Attachment 3*).

The following are key elements of the consultant's residual waste quantity analysis:

- i) A baseline assumption that 100,000 tonnes per year of York's residual waste will be directed to the Dongara pelletizing facility.
- ii) Recognition that there are substantial seasonal fluctuations in the quantity of residual waste received by the Regions, with peak periods occurring in the Spring and low periods occurring in the Winter (*Attachment 3, Figure 2*).
- iii) Identification of the implications of the range of EFW facility sizing options:
 - o The need to operate at a reduced rate and/or obtain additional residual waste inputs from other non-GTA municipalities or IC&I sources during seasonal low periods, if the facility is sized to accommodate the peak residual waste quantities (*Attachment 3, Figure 3*); versus,
 - o The need to landfill excess residual waste during peak periods, if the EFW facility is sized to handle only the lower periods of residual waste generation (*Attachment 3, Figure 4*).
- iv) Consideration of:
 - o The effect that increasing diversion will have in reducing the range of seasonal fluctuations of residual waste generation; and,
 - o The sensitivity of residual waste projections to achievement of diversion rates spanning from 55 to 75 percent.

The results of the consultant's analysis suggest that the proposed Durham-York Energy from Waste facility would need to have initial capacity to process residual waste in the range of approximately 150,000 to 200,000 tonnes per year.

4.3 Residual Waste Composition and Energy Content

As part of their scope of work, project consultants for the environmental assessment performed an analysis of the current composition and energy content of residual waste from the Town of Markham (*see Attachment 4*). Markham's residual waste was considered as providing a reasonable representation of York's future residual waste following implementation of the source separated organics program Region-wide.

The following are key elements of the residual waste composition and energy analysis:

- The audit provides a profile of post-diversion residual waste from single-family dwellings located in a residential neighbourhood;
- The residual waste contained organics and recyclables that could have potentially been diverted from disposal; and,
- The energy content of the residual waste sampled during the audit was found to be roughly 12.4 megajoules/kg (5,300 BTU/lb), which is within the range of values that would typically be expected taking into account seasonal variations (11.6 to 12.4 megajoules/kg [5,000 to 5,300 BTU/lb]).

A similar composition and energy analysis is currently being performed to characterize Durham's residual waste. Once completed, the combined waste composition and energy analysis for both York's and Durham's residual waste will contribute to preparation of the RFP for development of the Durham-York energy from waste facility. The energy content of the residual waste as fuel, impacts on many of the fundamental aspects of the design of the facility including: the waste input and thermal treatment modules, exhaust handling and heat transfer process components, as well as the energy conversion equipment.

4.4 Request for Qualification of Energy from Waste Technology Vendors

York and Durham are jointly participating in the pre-qualification of energy from waste technology vendors. Durham is assuming a lead role in this process and is seeking to issue a Request for Qualification of energy from waste technology vendors in May 2007. Clause 4 of Report No. 5 of the Solid Waste Management Committee (*see Attachment 2*) describes the pre-qualification process including:

- Roles of Durham and York;
- The Request for Qualification;
- Evaluation of submissions;
- Retention and participation of a Fairness Monitor; and,
- Proposal of an anti-lobbying clause.

The Solid Waste Management Committee's recommendation referring the proposed anti-lobbying clause back to staff was the subject of a staff memo to Council (*see Attachment 2*) suggesting alternate wording to address the concerns raised by the Committee. On April 19, 2007, Council referred Clause 4 of Report No. 5 of the Solid Waste Management Committee and the April 18, 2007 communication from Durham (*see Attachment 1*) back to staff for a further report to the Solid Waste Management Committee on May 9, 2007.

The recommendation presented herein regarding a 'put-or-pay' tonnage commitment to the proposed Durham-York Energy from Waste facility addresses one of the key issues raised in the April 18, 2007 communication from Durham. Staff will report back to

Committee and Council in future regarding other matters raised in the April 18, 2007 communication including amendments to the Durham-York Energy from Waste Memorandum of Understanding that have been proposed by Durham.

5. FINANCIAL IMPLICATIONS

The construction of the facility is scheduled to begin in 2009 after the receipt of all necessary approvals. Funds will be included in the appropriate future year capital and operating budgets of the Solid Waste Management Division following the authorization of Regional Council to proceed with the construction of the facility. The estimated construction costs for a 250,000 tonnes/year processing facility are between \$225,000,000 and \$250,000,000.

Commitments by the Regions to minimum annual residual waste tonnages on a 'put-or-pay' basis will be one factor in the future determination of the unit costs (\$/tonne) of thermal waste processing. Additional considerations still to be defined include:

- Precise capital and operating costs to be offered by pre-qualified vendors.
- Pricing for electricity revenue to be obtained from the Ontario Power Authority; additional revenue from heat energy sales, if applicable to the preferred site.
- Project financing options that may be considered.
- Costs related to site-ownership and host community agreements.
- Details of the partnering arrangement between the Regions as per the Durham-York Energy from Waste Memorandum of Understanding and any amendments thereto.
- Details regarding cost/revenue sharing and other partnership terms and conditions yet to be defined in the future operating agreement to be established between the Regions. In its preliminary financial analysis, Deloitte and Touche LLP has indicated costs in the range of \$120 to \$130/tonne based on an assumed 250,000 tonne per year facility.

Durham has requested that York commit tonnage to the EFW on a put-or-pay basis through an amendment to the Durham-York Energy from Waste Memorandum of Understanding (MOU). Given the data presented in Figure 3, over the period of the Environmental Assessment study York will have residual waste ranging from 32,000 to 110,000 tonnes per year to send to the EFW plant. It is recommended that York commit in principle to provide 50,000 tonnes per year to the EFW facility on a 'put-or-pay' basis at this stage. The tonnage commitment can be revised upon considering responses to the RFQ and prior to the release of the RFP.

The Durham-York Energy from Waste Memorandum of Understanding identifies key project milestones for decisions on whether to proceed jointly with the project. As the project progresses, additional information will be developed to refine the cost estimates and additional reports will be brought before Committee and Council to update the

information and seek authorizations as may be required. The Region will have the choice to 'opt out' of the project at these milestones.

Durham is seeking to amend the MOU adopted by York Regional Council on February 22, 2007 in Clause 2 of Report No. 2 of the Solid Waste Management Committee. Durham's proposal affects potential project milestones for termination of the project, capital ownership, equal put-or-pay tonnage requirements, and a 25 year term. In addition, York Council adopted a resolution on April 19, 2007 in Clause 4 of Report 5 of the Solid Waste Management Committee to consider up to 49% private sector ownership for the facility. Staff have not had sufficient time to fully discuss these issues with Durham and need to report back to Council before finalizing changes to the MOU.

6. LOCAL MUNICIPAL IMPACT

Regional and municipal staff continue to work closely to implement the various diversion programs identified to minimize the quantities of residual waste remaining for disposal. On-going exchange of information, consultation and negotiations with local municipality stakeholders are major components of the Durham-York Residual Waste Environmental Assessment project.

7. CONCLUSION

Projections indicate that York Region will have approximately 32,000 to 70,000 tonnes of residual waste available to direct to the proposed Durham-York Energy from Waste facility in 2011 growing to as much as 110,000 tonnes/year by 2045 depending on the diversion rate. The project consultant's analysis of York's and Durham's waste management programs indicates that the proposed Durham York Energy from Waste facility should be sized to process approximately 150,000 to 200,000 tonnes per year of residual waste.

For more information on this report contact Neil MacDonald, Engineer, of the Solid Waste Management Branch at extension 5713 in the Transportation and Works Department.

The Senior Management Group has reviewed this report.

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