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The Regional Municipality of Durham Report

To: The Committee of the Whole
From: Commissioner of Works
Report: #2018-COW-98
Date: May 2, 2018

Subject:

Organics Management Request for Information Update

Recommendations:

That the Committee of the Whole receives this report for information and forwards it to Regional Council for information.

Report:

1. Purpose

- 1.1 The purpose of this report is to provide an update on the assessment of the responses to the Request for Information (RFI) #1158-2017 for Mixed-Waste Transfer and Pre-Sorting, Organics Processing, and Beneficial Use of By-Products/End Products for the Regional Municipality of Durham (Region).
- 1.2 The detailed analysis of the RFI responses will form the basis of the recommended next steps of an organics management strategy to be outlined in a staff report to Committee and Council in June 2018.

2. Background

- 2.1 Works Department Waste Management staff has been investigating organics processing technologies and potential waste supply requirements since a preliminary technical investigation of anaerobic digestion processing was completed in November, 2013. In 2011 and 2013, waste composition studies (currently being updated) also demonstrated that significant organics remain in the garbage waste stream currently going to DYEC. In 2014, processing technologies for highly contaminated organics from the mixed waste garbage stream were

reviewed based on Request for Information 677-2014, which focused on gaining additional technical information on anaerobic and aerobic processing from existing reference facilities in both North America and Europe.

- 2.2 Subsequent to a preliminary technical feasibility and financial analysis conducted, in June 2017, staff were directed to prepare and release a RFI in an effort to gather the necessary information to provide the framework for investigation of viable options for implementation of a long term organics management plan.
- 2.3 As part of the RFI process, Respondents were asked to provide information on option(s) or approach(s) to meet the Region's objectives. The Respondents could provide information on one or more of the three components which included:
 - Mixed Waste Transfer and Pre-Sorting
 - Organics Processing
 - Beneficial Use of By-Products/End Products
- 2.4 A working group consisting of staff from the Works, Legal and Finance departments, assisted by GHD, are currently analysing the RFI-1158-2017 submissions to update the preliminary technical, financial, service delivery and regulatory analysis presented in June 2017.

3. General

- 3.1 RFI-1158-2017 closed on February 1, 2018, and nineteen (19) information responses were received from waste management service providers, technology providers, a construction company and byproduct/end product users. This level of response is considered very good in comparison to similar processes completed elsewhere in the province.
- 3.2 Of the 19 submissions received, 8 Respondents provided detailed responses to the technical and financial questions with the remaining providing various levels of response.
- 3.3 Of the 19 respondent companies, 16 are currently operating in Ontario, one in Quebec, one in the USA and one in Europe.

- 3.4 A total of 10 Respondents provided information on Mixed Waste Transfer and Pre-Sorting, Organics Processing and Beneficial Use of By-Products /End Products and/or a complete solution, including:
- a) Information on Mixed Waste Transfer and Pre-Sorting only;
 - b) Information on Organics Processing and Beneficial Use of By-Products/End Products;
 - c) Information on the Beneficial Use of By-Products/End Products only; and
 - d) Interest in a potential partnership for the use of the By-Products/End Products, subject to appropriate contractual terms.
- 3.5 Responses received were related to the type of service delivery model the Respondents had experience in. The majority indicated that a Design-Build-Operate-Maintain (DBOM) model would be appropriate, although were open to whichever service delivery model the Region preferred, subject to appropriate contractual terms and risk balance. Respondents did indicate a willingness to provide a private sector service delivery contract including private sector infrastructure build. Any service delivery model (private service contract or public-private partnership), is anticipated to require a guaranteed waste organic feedstock commitment from the Region.
- 3.6 The timeframe that was identified by the respondents to have an operational facility was between 18 months and four year from notice to proceed.
- 3.7 The majority of the respondents indicated that they could provide up to a 20-year solution to the Region.
- 3.8 The majority of the respondents indicated that the waste projections provided in the RFI were reasonable for the purposes of the RFI and were used for the sizing of the facility in their response. Sizing was identified as an important consideration affecting the capital cost, economies of scale, excess capacity and requirements for organic waste feedstock commitments. Staff continue to conduct economic and financial analysis based on the RFI submissions and will provide a detailed analysis to Committee and Regional Council in June 2018.
- 3.9 The submissions did not include any merchant capacity (service contract) opportunities at existing facilities that would meet the Region's 20 year needs.

4. Discussion

Mixed Waste Transfer and Pre-sorting

- 4.1 Of the ten (10) Respondents that expressed interest in Mixed Waste Transfer and Pre-Sorting, six (6) provided detailed responses to the technical questions.
- 4.2 A number of respondents indicated that these types of facilities are expandable either physically or by adding shifts to operate.
- 4.3 In recent years, consideration has been given to the construction of a centralized Transfer Station in the Region. At the time Committee directed staff to look at options. Subsequently, as part of the 2015 Servicing and Financing Study, the scope was expanded to consider a transfer station that could incorporate mixed waste pre-sort technology.
- 4.4 The advancements of mixed waste pre-sort technology have been demonstrated at several existing facilities and would provide the Region with the ability to remove organics from the waste stream and increase its diversion rate potentially beyond 70 per cent.
- 4.5 A phased scenario is being considered whereby mixed waste transfer and pre-sort facility could occur in advance of securing an organics processing facility. Proceeding with such a facility could provide a solution for the Region's waste transfer issues, optimize the capacity at the DYEC and provide a solution for the diversion of multi-residential waste. A phased option will be considered within the business case analysis with appropriate recommendations made in the June Committee of the Whole report.

Organics Processing

- 4.6 Of the fourteen (14) Respondents that provided information on organics processing, eleven (11) provided detailed responses to technical questions. Thirteen (13) Respondents provided information on AD as a potential organics processing technology. Four (4) provided information on composting as a potential organics processing technology.
- 4.7 RFI responses reflect a waste industry moving towards Anaerobic Digestion (AD) as the preferred solution for a long-term organics management strategy. This anaerobic process also provides additional benefits associated with biofuel generation.

- 4.8 The majority of the respondents showed interest in a site located within the Region on land provided by the Region.
- 4.9 The preliminary business case in June 2017 indicated that the costs of AD and in-vessel (aerobic) organics processing are comparable. The updated preliminary business case, based on RFI responses, will be provided in the June 2018 report to Committee and Council.

By-Product/End Product Opportunities

- 4.10 All the Respondents providing information on AD indicated that biogas would be produced from the system. The potential use of the biogas ranged from being used for power and heat recovery and could be cleaned and upgraded to Renewable Natural Gas (RNG) for injection into the pipeline. Some respondents also indicated that Compressed Natural Gas (CNG) could be produced to power vehicles.
- 4.11 It was also noted that digestate from the AD process could be used as a liquid fertilizer, a nutrient rich soil amendment or compost.
- 4.12 The Aerobic system (in-vessel) produces compost only. However, the Organic Fraction of the Mixed Waste (OFMW) that is recovered by the Mixed Waste Pre-Sort would be more contaminated and a high quality compost product may not be produced.
- 4.13 Biogas is not produced by an in-vessel system and there may be more revenue options associated with AD which will be explored further in conjunction with regulatory requirements in the June COW report.

5. Business Partnerships

- 5.1 The Business Partnership interest was primarily from non-waste service entities and was associated with the value and benefit of producing bio-fuel. The interest that was highlighted by entities for a business partnership did not include any detail regarding capital contribution or the assignment of risk.
- 5.2 A business partnership may be beneficial in terms of shared financing, business case and/or economic development, depending upon details, shared objectives and the sharing of available benefits, obligations and risks.

5.3 Based on the review of Corporate Services - Legal Division's (Legal) advice, the Works/Legal/Finance working group will be evaluating the various selection processes and partnership principles and will be providing recommendations for a transparent process to pursue a viable business partnership to be included in the June report to Committee and Council.

6. Legislation Update

6.1 The proposed Food and Organic Waste Framework (Framework) was released by the Ministry of Environment and Climate Change (MOECC) on November 16, 2017. The Framework outlines a Ministry Action Plan to achieve the Provincial objectives for reducing food and organic waste, recovering resources from food and organic waste, supporting resource recovery infrastructure and promoting beneficial uses of recovered products.

6.2 The second half of the Framework includes a proposed Provincial Policy Statement on food and organic waste and outlines actions others must take. For municipalities like the Region, the requirement would be to increase food and organic waste diversion to 70 per cent. Other entities such as multi-residential building owners and IC&I sectors would be required to increase food and organic waste diversion. Finally, the Framework includes the MOECC plan to enact an organics disposal ban by 2022.

6.3 The final Framework is expected to be released at the end of April 2018.

7. Preliminary Findings

7.1 The RFI process generated significant interest. The information provided in the submissions is being assessed. The preliminary technical observations suggest that:

- a) the waste industry is moving towards AD as the preferred technology to meet organics management needs and support the Province's goal of resource recovery;

- b) a business partnership may be beneficial in terms of shared financing, business case, and/or economic development, depending on details, shared objectives and the sharing of available benefits, obligations and risks;
- c) a phased scenario could be developed whereby a mixed waste transfer and pre-sort facility could be implemented in advance of securing an organics processing facility; and
- d) it will be necessary to proceed with the procurement of an interim solution for organics in advance of contracts expiring in 2019 and up to implementation of an approved longer-term solution.

8. Next Steps

- 8.1 More detailed reporting of RFI results and an updated preliminary business case, service delivery analysis and risk assessment will be provided in June including recommendations to move forward with this important initiative.
- 8.2 Staff are available to provide an education session for Regional Council. This session could occur either prior to the June 2018 report or after based on Regional Council direction.
- 8.3 This report has been reviewed by the Finance Department and Corporate Services – Legal Division.

Respectfully submitted,

Original signed by

S. Siopis, P.Eng.
Commissioner of Works

Recommended for Presentation to Committee

Original signed by

G.H. Cubitt, MSW
Chief Administrative Officer