

Niagara Region and the City of Hamilton - Working together for shared solutions

REPORT TO: Co-Chairs and Members of the Joint Working Group

SUBJECT: Report on '*Addendum to Draft Report on Evaluation of "Alternatives To" and Selection of a Preferred Disposal System*' and Next Steps

DATE: August 9, 2007

RECOMMENDATION(S)

It is recommended that this staff report be received and that:

- (1) The '*Addendum Report to Draft Report on Evaluation of "Alternatives To" and Selection of a Preferred Disposal System*', dated July 20, 2007, be received;
- (2) The WastePlan Environmental Assessment (EA) Study process recess for a period of nine (9) months to allow for staff to follow up on matters that potential impact on future of the EA study;
- (3) The WastePlan Joint Working Group reconvene in May of 2008 to consider the next steps to be taken (time, date and location to be determined by staff);
- (4) The WastePlan website be maintained through the recess by the City of Hamilton, at a cost to be shared by Niagara and Hamilton;
- (5) The e-mail contact information be shared by Niagara and Hamilton staff; and
- (6) The consulting arrangement with MacViro be concluded; any future work to be determined through an appropriate purchasing process.

PURPOSE

The purpose of this report is to provide members of the Niagara-Hamilton WastePlan's Joint Working Group with staff comments on the '*Addendum to the Draft Report on the Evaluation of "Alternatives To" and Selection of a Preferred Disposal System*' and recommended next steps in the process.

In this report the '*Draft Report on the Evaluation of "Alternatives To" and Selection of a Preferred Disposal System*' dated December 5, 2005 will be referred to as the "Draft Report". The '*Addendum to Draft Report on the Evaluation of "Alternatives To" and Selection of a Preferred Disposal System*' dated July 20, 2007 will be referred to as the "Addendum Report".

BACKGROUND

In 2003, the Niagara Region and the City of Hamilton began to have discussions about working together to address waste disposal capacity needs. Niagara had done some preliminary studies on disposal options. Hamilton had closed SWARU and was looking to begin consideration of alternatives to landfill. After several months of discussion, a formal agreement to proceed was signed in March 2004, with an effective date of January 1, 2004.

The WastePlan Environmental Assessment (EA) Study of alternative waste disposal systems was initiated in 2004 with the preparation of the Terms of Reference for the study. The Terms of Reference was developed through a public consultation process that determined priorities and

**Report on Addendum to Draft Report on Evaluation of “Alternatives to” and Selection of a Preferred Disposal System
August 9, 2007**

criteria to guide the study. The Terms of Reference was approved by the Minister of the Environment in February 2005.

The first step of the EA study was the evaluation of “Alternatives To”, which are the alternative systems that were considered in the process. Eight systems were identified and a public consultation process was undertaken to determine the preferred system.

Based on the priorities, criteria and public consultation, a Draft Report on the Evaluation of “Alternatives To” and Selection of a Preferred Disposal System was completed in December 2005 indicating that the preferred system was system 2B, thermal technology with the recovery of recyclable materials. The report was received by the Joint Working Group and issued for a sixty day public commenting period. Following the public consultation process, the Joint Working Group received the report on “Consideration of Substantive Issues Identified by Public on Recommended Long-term Disposal System, Issues Discussion Paper, March 9, 2006” on March 9, 2006. At that time the Joint Working Group also decided to undertake additional initiatives including a tour of the Otter Lake Facility in Halifax, screening of landfill opportunities, a sensitivity analysis to address the public comments, detailed response to the public comments and the Stabilized Landfill Study.

The results of this work and the public consultation have been considered and incorporated into the *‘Addendum to the Draft Report on the Evaluation of “Alternatives To” and Selection of a Preferred Disposal System’*.

REPORT

This section of the report will provide staff comments on the public consultation process around the Draft Report, the Halifax Tour, the Stabilized Landfill Study and the Addendum Report.

1. Public Consultation on the Draft Report

In the public consultation process, comments were received questioning the adequacy of the EA process. This is a matter that should be addressed with the Ministry of the Environment. The EA process is a legislated and regulated process developed by the Province. Municipalities follow the guidelines provided in developing the Terms of Reference for and implementation of the EA study process with a great deal of scrutiny from the province and the public.

The study criteria, its application and the evaluation methodology are contained in the EA Study Terms of Reference which was developed through a public consultation process. In addition the criteria, application and evaluation methodology were verified at the beginning of the step to evaluate ‘Alternatives To’ through a further public process. The public process determined that the criteria and methodology were appropriate.

Technical issues related to substantive issues (nature and fate of contaminants, impact on diversion, system design and siting assumptions, costs and affordability and consideration of System 2c) will be addressed in the comments on the Addendum Report.

2. Halifax Tour

The tour of the Otter Lake Solid Waste Management Facility indicated that the facility receives approximately 155,000 tonnes of waste per year which is similar to the amount of waste projected for WastePlan. There are bans on construction and demolition waste, curbside organics, and certain recyclable materials and household hazardous waste.

The design of the facility was for a processing retention time of twenty-one days for the organic fraction although the actual retention time is only about sixteen days.

The facility is located in a rural area quite remote from a built up urban area. The landfill and processing facilities occupy approximately 81 hectares on a site held by the Halifax Regional Municipality of approximately 2,430 hectares. This site size is much larger than the site size estimated in the EA Study and extremely larger than the industrial sites revealed in the screening

of industrial lands, where the average site size is 2.3 hectares in Hamilton and 4 hectares in Niagara.

The nearest residence is about 3 kilometres away and with a restriction that no new dug well be located within 3 kilometres of the landfill, the impacts should be minimal now and in future.

The tour was an example of a Mechanical Biological Treatment (MBT)/stabilized landfill facility with a similar capacity to that required in WastePlan, however it did not answer the question about the feasibility of siting a stabilized landfill in an urban/industrial area in the WastePlan study area.

3. Stabilized Landfill Study Final Report

The intent of the stabilized landfill study was to respond to the public consultation comments that a stabilized landfill might be able to locate in an urban/industrial land use setting.

On March 8, 2007 the Joint Working Group received a presentation from Gartner Lee Limited on the study. There was discussion and questions and the Joint Working Group received the report and referred it to staff along with any comments received for a report back to the Joint Working Group. A comment was received expressing concerns about the lack of depth and completeness of the review considering there are 200 stabilized landfills, that the degree of stabilization should be considered in reviewing site size and location and questioning the consultant’s (Gartner Lee) approach to the study.

A number of the study conclusions relate to emissions issues that are addressed in the Addendum report. The key conclusions related to location and size of a stabilized landfill are:

- a stabilized landfill is an engineered landfill that accepts waste that has been processed through mechanical and biological treatment processes;
- variation on the biological treatment (composting) time impacts on the characteristics of the stabilized materials;
- stabilized waste reduces certain nuisance issues such as odours and birds but can increase wind-blown material if refuse derived fuel is not removed; and
- the assumption in the Draft Report that a stabilized landfill could not likely be located in an urban/industrial area cannot be refuted or substantiated based on the limited number of landfills examined and the lack of information on the siting process for those landfills; the siting of a highly stabilized landfill is possible in a variety of land use settings.

Staff has considered the locational issue relative to our own geography. The WastePlan study area is quite different from the sites reviewed in the stabilized landfill. Staff is of the opinion that there may be opportunities to site a stabilized landfill in an urban/industrial setting in Niagara, but that this is not likely the case in Hamilton.

It is the opinion of staff that Gartner Lee fulfilled the terms of the request for proposals and fulfilled the terms of their proposal to WastePlan. The information obtained from the study provided input to the WastePlan consultants for the purpose of carrying out the sensitivity analysis in the Addendum Report and will be discussed in later sections of this report.

4. Addendum Report

This section will focus on the results of the sensitivity analysis and the conclusions and recommendations from the Addendum Report. The Executive Summary of the Addendum Report provides a good overview to the full report.

The Addendum Report addresses the following:

- public consultation received on the Draft Report;
- the tour of the Halifax Otter Lake Facility, the Stabilized Landfill Study;
- screening of lands for stabilized landfill;

**Report on Addendum to Draft Report on Evaluation of “Alternatives to” and Selection of a Preferred Disposal System
August 9, 2007**

- the sensitivity analysis through the application of improved system assumptions;
- long term landfill utilization in Niagara; and
- conclusions and recommendations.

The sensitivity analysis was carried out for the original study assumptions by utilizing a set of improved assumptions that represent best case systems. The analysis was carried out for the first level systems identified in the pair wise comparison in the Draft Report, being:

- Mechanical Biological Treatment with Stabilized Landfill (System 1);
- Municipal Solid Waste Landfill with Landfill Gas Recovery (System 3b);
- Thermal Treatment of Municipal Solid Waste with Metal Recovery (System 2b); and
- Thermal Treatment of Alternative Fuel (System 2c).

The model used for the analysis of the improved assumptions is different than the model used in the original assumptions. The original assumptions were evaluated using the Integrated Waste Management Model (IWM) however it has some limitations around its use with the improved assumptions. As such the model used in the analysis of the improved assumptions is the Municipal Solid Waste Decision Support Tool (MSW-DST). This model facilitates direct and indirect modeling for air and water parameters for all components of the system, which are parameters that are missing in the IWM model. To ensure a fair and reasonable comparison, the consulting team has run the original assumptions through the MSW-DST model as well.

A summary of the Comparison of Improved Systems based on the improved assumptions is included on Table 1 of this Report.

In the relative comparison of the systems, the results indicate that variations on the assumptions have some, but not significant impact on the ranking of the systems. If all improved assumptions were considered to have a reasonable probability of occurring, System 2c) Thermal Treatment of Alternative Fuel would be the preferred system. However if a market for the Refused Derived Fuel (RDF) does not become available, then System 2b) Thermal Technology with the Recovery of Metals continues to be the preferred system. In addition if a contract between the Niagara Region and Niagara Waste Systems Ltd. was to be finalized, System 1 MBT/Stabilized Landfill becomes more attractive.

The Addendum Report concludes that the original assumptions applied in the evaluation of “Alternatives To” were conservative and credible. All of the systems have the ability to manage the residual waste, can meet the provincial regulatory requirements and have representative facilities located in North America or Europe.

However variables on assumptions are made to test the sensitivity of the original assumptions. In this case those improved assumptions may be less conservative and represent the best case analysis of the systems. The nature of these variables raises a number of “what if” questions which lead to an inconclusive determination surrounding a preferred system. Issues surrounding the Region’s negotiations with Niagara Waste Systems Ltd., securing an industrial user of heat energy and more secure markets for RDF would facilitate a decision on a preferred system.

It is concluded that it may be appropriate to recess the WastePlan study process to allow for some of these variables to emerge further.

As such the Addendum Report recommends that:

- The EA Study activity on the Evaluation of “Alternatives To” and Selection of a Preferred Disposal System be concluded with the retention of Systems 1, 2b) and 2c) remaining for future consideration, as these three systems have the greater advantages than the landfill only system 3b) and the outcome varies based on improved but uncertain assumptions;
- If and when the Niagara Region and the City of Hamilton wish to resume the study, a final preferred system should be selected; and

**Report on Addendum to Draft Report on Evaluation of “Alternatives to” and Selection of a Preferred Disposal System
August 9, 2007**

- If and when the Niagara Region and the City of Hamilton resume the study, an initial public consultation should be undertaken to determine if community priorities need to be changed prior to completing the selection of the preferred system.

Staff is satisfied that the Addendum Report has been undertaken appropriately and that the sensitivity analysis was based on reasonable improved assumptions, although some questions remain. Staff is in agreement with the conclusions and recommendations of the Addendum Report and this is reflected in the Recommendations section of this report.

With regard to the recess, staff has considered an appropriate period for this before reconvening the Joint Working Group to determine next steps. Six months seemed short but one year seemed to be too long. As such we are suggesting a recess of nine months to allow for Niagara to tend to diversion needs and negotiations with Niagara Waste Services Ltd.

5. 2007 Work Plan and Budget and Consulting Services

On February 22, 2007 the 2007 Work Plan and Budget for the consulting team was presented to the Joint Working Group by MacViro Consultants Inc. for information. The 2007 budget amount of \$165,000 for the completion of the Evaluation of the “Alternatives To” step of the EA Study was approved at the April 12, 2007 Joint Working Group meeting. Of this budgeted amount, \$10,000 for the review of long term waste quantities will not be undertaken at this time.

The balance of \$155,000 was for activities directly related to the evaluation of “Alternatives To” which have been done with the completion of the Addendum Report. The summary of the budget and estimated expenditures are shown in the following Table 2:

Table 2 - Summary of 2007 Budget and Work Plan and Expenditures		
Work Plan Item	Budget	Expenditures
Stabilized Landfill Study Participation and Review (Complete)	\$15,000	\$16,157
Screening of Industrial Lands (Complete)	\$30,000	\$28,073
Sensitivity Analysis	\$25,000	\$25,000
Addendum Report	\$45,000	\$45,000
Consultation/Meetings		
Joint Working Group Meetings (\$5,000 per meeting)	\$40,000	\$15,000
Joint Staff Meetings (\$4,000 per meeting)		\$20,000
Total	\$155,000	\$149,230

The completion of the Addendum Report and the associated activities will be under budget for 2007.

Recognizing that if the project moves forward in the future, there will be a need for public consultation around the final selection of a preferred system, the evaluation of the “Alternatives To” relative to the consulting work plan is considered to be complete.

With the recess of nine months, it is considered appropriate to also end the working arrangement with MacViro Consultants Inc. so that they are free to go about their business planning as necessary in private industry. The consulting team has been diligent in ensuring that the EA Study process has been traceable and replicable in accordance with the Environmental Assessment Act.

A possible return to the process in the future would require that consulting services would have to be secured through appropriate purchasing avenues to continue the EA process.

CONCLUSIONS

In conclusion, there are circumstances that have changed since the Joint Working Group received the "Consideration of Substantive Issues Identified by Public on Recommended Long-term Disposal System, Issues Discussion Paper, March 9, 2006".

The most specific change is the approval of Niagara Waste Systems (Walker Industries) Environmental Assessment for the expansion of their landfill in the City of Niagara Falls, and the more recent decision by the Region to negotiate an agreement to utilize this available private sector landfill capacity.

In conjunction with this the Region indicated that it wished to continue with the WastePlan study. However there is less urgency for Niagara to proceed with the WastePlan study than there has been in the past. Niagara wishes to focus over the next months on improving its diversion programs.

Hamilton is prepared to continue with the WastePlan study, however only if this could proceed in an expeditious manner that makes efficient use of time and resources. Hamilton is also continuing to implement diversion programs.

As a result staff has determined that the best approach for both municipalities would be to suspend the process for a period of time to allow both municipalities to focus on improvements to their diversion programs. It was also determined that the period of time should be more than six months but not more than a year to allow for progress on diversion initiatives. Therefore it is considered appropriate that the study process be suspended for nine months, after which time, the Joint Working Group would reconvene to consider staff input on how to proceed.

Given the nine month recess and uncertainty as to next steps, it would be appropriate to relieve the consultants of the remainder of the work plan identified for 2007. WastePlan would then re-issue an RFP/tender in accordance with appropriate purchasing practices for any future services should the project resume.

The Addendum Report will be posted on the WastePlan website. The website will continue to be maintained through the recess until a decision is made on the disposition of the EA study process.



Pat Parker, MCIP, RPP
Manager of Solid Waste Planning
City of Hamilton



Lydia Torbicki
Manager, Waste Policy and Planning
Niagara Region

c.c. Scott Stewart, General Manager of Public Works, City of Hamilton
Barry Friesen, Acting Commissioner of Public Works, Niagara Region
Beth Goodger, Director, Waste Management Division, City of Hamilton

attachment

Table 1 - Comparison of Improved Systems

Category	System 1	System 2b	System 2c	System 3b
Natural:				
1. Environmental burden at a global or macro-environmental scale (emissions to Air and Water)	<ul style="list-style-type: none"> ✓ Lowest net emissions of heavy metals and dioxins to air ✗ Highest net emissions of BOD to water* (based on LCA of total system, not just landfill portion) 	<ul style="list-style-type: none"> ✓ Lowest net emissions to water of heavy metals and BOD* ✗ Highest net emissions to air of heavy metals and dioxins* 	<ul style="list-style-type: none"> ✓ Lowest net emissions of GHG, acid gases, smog precursors to air* (depends on the marketing of RDF for industrial uses) ✗ Highest net emissions of heavy metals to water* 	<ul style="list-style-type: none"> ✓ Highest net emissions of GHG, acid gases and smog precursors to air* (as lower overall recovery of resources and due to increased efficiency of energy recovery from Systems 2b and c)
2. Consumption/preservation of non-renewable environmental resources	<ul style="list-style-type: none"> ✗ Greatest net electrical energy consumption* 	<ul style="list-style-type: none"> ✓ Highest net electrical energy generation* 	<ul style="list-style-type: none"> ✓ Highest net LCA energy generation* (depends on the marketing of RDF for industrial uses) 	<ul style="list-style-type: none"> ✗ Lowest net LCA energy generation*
3. Potential for destruction or disruption of sensitive terrestrial and/or aquatic habitats	<ul style="list-style-type: none"> ✗ Highest land requirements (59 hectares) for new MBT (12 hectares) and stabilized landfill (47 hectares). *However, reduced impacts to the Natural Environment through use of urban/industrial land assumes a new stabilized landfill is sited to manage the residual waste from both Niagara and Hamilton. Land requirements can be further reduced by use of NWS site for disposal of Niagara residue making System 1 and 3b equivalent as having highest land requirements. Recovery of Class B compost could reduce land requirements by another 7 Ha. 	<ul style="list-style-type: none"> ✓ Lowest land requirements, lowest potential to impact sensitive natural habitats 	<ul style="list-style-type: none"> ✓ Lowest land requirements, lowest potential to impact sensitive natural habitats 	<ul style="list-style-type: none"> ✓ Highest potential to impact land resources* ✗ Highest potential to impact sensitive natural habitats*

Table 1 - Comparison of Improved Systems				
Category	System 1	System 2b	System 2c	System 3b
4. Potential to increase disposal diversion rate and/or make best use of residual (post-diversion) waste materials	✓ Highest potential for diversion from disposal*	✓ Greatest reduction in materials sent to landfill *(related to thermal treatment and marketing of granular materials) ✗ Need for hazardous residue management*	No unique advantages or disadvantages	✗ No potential for additional diversion*
Social/Cultural:				
5. Potential for land use conflicts from siting of facilities required for system	✗ Highest amount of new landfill capacity required (if new Niagara/Hamilton stabilized landfill is sited and no Class B compost recovered) ✗ Greatest land area required in urban/industrial setting, potential conflict with use of employment lands*	✓ Lowest potential for facility siting impacts ✓ Smallest amount of landfill capacity required, avoid need to site additional approved landfill capacity*	✓ Lowest potential for facility siting impacts ✓ May avoid need to site additional approved landfill capacity	✗ Greatest land area required in rural/agricultural setting* ✗ Greatest potential for land use conflicts*
Technical:				
6. Technical risks associated with waste management system	No unique advantages or disadvantages	✗ Least flexible to changes in waste stream managed*	✗ Lowest system reliability* (depends on market for RDF)	✓ Highest system reliability*
Economic/Financial:				
7. Net system costs per tonne of waste managed - in a systems context	✗ Highest net cost per tonne	No unique advantages or disadvantages	No unique advantages or disadvantages	✓ Lowest cost per tonne*
8. Sensitivity of system costs and affordability to external financial influences	No unique advantages or disadvantages	No unique advantages or disadvantages	✗ Greatest sensitivity of costs to influence of external revenues* (depends on market for RDF)	No unique advantages or disadvantages
Economic/Financial:				
9. Legal/contractual risks associated with waste management system	No unique advantages or disadvantages	✗ Greatest reliance on partnerships/contracts (sale of heat, marketing of granular materials)	✓ Greatest potential for a successful approval process* ✗ Greatest reliance on partnerships/contracts (sale of RDF)	✗ Lowest potential for a successful approval process