Comments on Metro Vancouver Response to Issues Raised by Fraser Valley Regional District

The following comments have been prepared at the request of the Fraser Valley Regional District (FVRD) in relation to a document entitled "Metro Vancouver Response to Issues Raised by Fraser Valley Regional District Chair" dated May 11, 2010.

Starting on page six of the referenced document, Metro Vancouver (MV) presents a number of comments on KPMG presentations and analyses from various forums and correspondence over the period July 2009 to January 2010. Page six deals with some general issues, while pages seven through ten cover some more specific issues.

General Comments

Page 6 – Second Paragraph – MV suggests that KPMG was critical of AECOM's assessment of disposal options in a July 23, 2009 presentation to a forum sponsored by the Vancouver Board of Trade. KPMG's comments were not directed at AECOM. Rather, KPMG's comments were focused on the use that was being made of AECOM's work by MV. In every presentation or forum I have been involved in, I have noted that AECOM presumably completed its mandate in accordance with their terms of reference. Any criticism was thus focused on the scope of the work that AECOM was asked to undertake relative to the uses to which the data and analyses were being put.

Page 6 – Third Paragraph - MV takes exception to KPMG' statement that the financial risks for a waste-to-energy (WTE) facility are likely greater than those for a landfill. While AECOM[1] looked at WTE facilities around the world (primarily Europe), these are not necessarily relevant to Canada, let alone Vancouver. The financial risks we identified included the following:

- There have been very few WTE facilities built in North America over the past 15 to 20 years. Hence the experience with respect to costs, design and construction is minimal.
- MV has not identified a particular site for a WTE facility. Each site will have risks associated with soil conditions, construction access, adjacent activities, traffic, security requirements and siting of key components that cannot be known at this point in time. Without a specific site, it is difficult to do detailed cost estimates.
- The regulatory environment in Canada may be different from that of other countries, which could result in additional costs. There are significant regulatory risks, as evidenced by the significant changes in air emission standards over the past couple of decades. These changes have added significant costs to the current WTE facility in Burnaby.
- The economic environment in Canada is quite different from that in Europe, which could affect both costs and revenues. Costs will be driven by local labour, material

[1] Management of Municipal Solid Waste in Metro Vancouver – A Comparative Analysis of Options for Management of Waste After Recycling, AECOM Canada Ltd., June 2009.

and equipment considerations, not those in place in Europe. Further, in Europe, the economic incentive for the development of WTE was to displace high cost oil for the generation of electricity and heat. Due to the presence of carbon offsets, the market price for heat and electricity is thus significantly higher than in British Columbia. The same economic incentive and certainty of revenues does not exist in BC.

On a comparative basis, the risks associated with landfill operations are well understood. MV has used the existing Cache Creek landfill for an extended period of time and based on the recent decisions to allow the landfill to expand, there are very few unknowns with respect to future costs.

Page 6 – Fourth Paragraph – MV suggests that one of the largest cost centers for landfills is that of trucks / heavy equipment and related fuel consumption and that fuel costs are expected to rise faster than general inflation. Landfills, including Cache Creek, are moving to capture landfill gas and convert it into a useable form. Belkorp has determined that the landfill gas captured could be economically processed into transportation fuels for trucks and heavy equipment, thus reducing their reliance on petroleum products, reducing their fuel costs and minimizing their exposure to inflation.

Page 6 – Sixth Paragraph – MV notes that they conducted a multi-criteria analysis. This is a relatively recent disclosure by MV and was not referenced in earlier documentation (including the AECOM report). Two comments with respect to the multi-criteria analysis are as follows:

- The multi-criteria analysis reportedly completed by MV does not cover the full range of criteria as suggested by KPMG in our July 23 presentation to the Vancouver Board of Trade
- The criteria are not brought together through a structured process to allow discussion of trade-offs and ranking of the options.

Specific Comments

Page 7 – Projected 35 year Net Cost – While MV claims that the WTE facility will generate a profit, their conclusion appear to be based on very high level estimates of costs and revenues. Furthermore, AECOM reported their financial results on a levelized cost basis. The literature KPMG reviewed suggests that levelized costs are not useful if:

- There are differential risks between options
- The relative prices of the options are close.

As noted above, there is a potentially significant risk differential between the options, and as noted in the AECOM report, the relative costs of WTE and landfill are very close.

Page 8 – Capital and Operating Cost Benchmarks – The capital cost estimate contained in the AECOM report is based on one number - $940 per tonne of annual capacity. There is no detail of the various cost components or any information on how this number was derived. When questioned at a Vancouver Board of Trade forum on waste management AECOM noted that it was a high level cost estimate and it was not suitable for making an investment decision. Cost estimates are typically rated as Class A, B, C and D, with Class A cost estimates being the most accurate in terms of actual cost to construct and Class D being the least accurate.

The table below illustrates the nature of information required for Class C and D estimates. A close read of the AECOM report does not indicate that any of the minimum information for a Class D estimate was available or used in developing the cost estimate. Accordingly, it is questionable how useful the cost estimate in the AECOM report is for screening the options.

Minimum Requirements for Construction Estimate Preparation - Checklist

Estimate Category	Minimum Requirements (should be supplemented where additional information exists)	
Class 'D' Estimate	❑ project plan detailing the project function, purpose and characteristics including information relating to the gross floor area of prime building spaces, equipment, and building systems ❑ floor-to-floor heights and general information about the exterior building elevations and floor elevations and floor plan configuration project ❑ geographical location, site configuration, planning limitations, known soil and rock information, availability of utility services to the building, as-found drawings and intrusive investigations for existing building (if applicable) ❑ procurement methodology and notional timing ❑ cost limitations and allowances	
Class 'C' Estimate	**Building and Specialty Structures**	**Site Development**
	❑ principal floor plans ❑ as-found drawings for existing building (if applicable) ❑ demolition drawings (if renovation), including clear indication of existing materials to remain ❑ structural foundation system and typical framing system ❑ exterior wall sections ❑ roof system selections ❑ finish schedule by rooms ❑ mechanical/electrical/plumbing systems outline (suggested equipment requirements) ❑ specialty structure type, height and plan dimensions, ❑ outline specification	❑ paving and parking requirements ❑ finish building grades ❑ original site drawings and investigations ❑ storm drainage solution ❑ existing utility location ❑ site retaining walls ❑ site lighting requirements

Source: Public Works and Government Services website (http://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/procedure-eng.html), NPMS Procedure, April 28, 2010

In the absence of any recently completed WTE facilities in North America, the only available information that we were able to access was that presented by the Canadian Energy from Waste Coalition and that contained in the Covanta bid that was accepted by Durham (admittedly for a smaller facility). We note in our report and presentation that the costs **<u>may</u>** be significantly higher based on the available comparatives and that further work is required to develop a better estimate of costs

MV has not produced any information of what the costs for a comparable facility would be. The unsolicited bid by Veolia needs to be carefully considered. There is no information about the proposed facility, how they arrived at the stated capital and operating cost estimates or what is included or not included in those costs. Further, there is no apparent commitment by Veolia to that price, as it was just an expression of interest, not a formal proposal.

The **final paragraph on Page 8** suggests that KPMG erroneously applied a 50% cost increase to the whole system costs for the wrong scenario. That is not correct. We actually modeled both WTE scenarios that only increased the capital and operating costs for the facilities by 50%. This was intended to provide an indication of what the comparative costs would look like if those cost assumptions were correct.

Page 9 – Incremental Landfill Cost – MV suggests that KPMG's contention about landfill costs are incorrect and notes that the costs of Cache Creek are actually higher than those for the proposed bioreactor landfill in the Highland Valley. As an aside, the Highland Valley landfill is no longer on the table.

A recent KPMG analysis of the potential costs of Cache Creek versus WTE is shown below in Table 1. The analysis is based on AECOM estimates for capital and operating costs for WTE and Sheltair[2] estimates for steam and electricity sales. The Cache Creek landfill costs were derived through discussion with Belkorp. The costs include the factors mentioned by MV (royalties, post closure sureties, equipment and transfer station operations) under the heading "**3. Metro Vancouver's Projected Net 35 Year Cost for an Out-of-Region Landfill**" on page 9 of their response.

Table 1

	Waste to Energy		Landfill	
Cost Element		**$ per Tonne**		
Facility Capital Cost	$470 million financed for 25 years at 5.2%	**$67.26**	**$6.21**	$15.0/$14.0/$13.0 million in years 1, 8 and 14 respectively financed for 25 years at a weighted average cost of capital of 8.8% (after tax)
Landfill and B-Train Equipment Replacement		**$0.00**	**$2.80**	Averages about $1.4 million per year over the expected life of the Cache Creek Landfill Expansion
Operating Costs	Includes local transportation ($10 per tonne) or eco-centre operations where required for direct haul volumes	**$50.00**	**$47.40**	Includes long-haul transportation (plus credit for backhaul of woodchips from Cache Creek)
Electricity Revenue Offset	429 kWh (gross) per tonne of MSW per Sheltair and $0.10 per kWh per AECOM	**($42.90)**	**$0.00**	
Steam Revenue Offset	3.2 GJ per tonne of steam, 1.09 tonnes of steam per tonne of MSW, $6.00 per GJ at 70% of natural gas value - per Sheltair report on Burnaby	**($14.65)**	**$0.00**	
Landfill Gas Revenue Offset		**$0.00**	**($7.78)**	Assumes 75% capture of landfill gas at Cache Creek Extension with incremental gas production for 20 years and conversion to LNG. Conversion at 1.7 litres of LNG to 1.0 litres of diesel.
Net Cost		**$59.71**	**$48.63**	

This table above suggests that the WTE costs are about $11 per tonne more than those for the landfill. The analysis does not include consideration of the potentially higher capital and operating costs identified for the WTE facility in our previous analyses. Table 2 provides an indication of the impact of some of the other factors, such as higher capital costs, that could affect the cost comparison.

[2] Life Cycle Assessment of Solid Waste Management: Evaluation of Two Waste Disposal Scenarios for the Metro Vancouver Region, Sheltair Group, February 2008.

Table 2

Potential Adjustments	Waste to Energy	$ per Tonne	Landfill	
Capital Cost - Initial	Capital cost higher than estimated, as discussed in Appendix 1	**$21.97 to $75.85**	**$0.00**	
Capital Cost - Ongoing	Ongoing major capital required to remain compliant with regulatory standards and for replacement of major components. Assumes $100 million (21% of initial capital) in each of years 10 and 20 with same public sector financing assumptions as original capital.	**$12.59**	**$1.41**	Ongoing major capital required to remain compliant with regulatory standards. Assumes $8.1 million (21% of initial capital) in each of years 10 and 20 with same private sector financing assumptions as original capital.
Operating Cost	Operating costs higher than estimated, as discussed in Appendix 2	**$19.00 to $64.00**	**$0.00**	
Steam Revenue Offset	MV able to achieve greater efficiency from steam sales - 8.0 GJ vs 3.5 GJ per tonne of MSW - per AECOM	**($18.84)**	**$0.00**	
Private Sector Financing	Incremental cost of $470 million financed for 25 years at 8.8% versus 5.2%. Will be higher if initial capital cost is low and ongoing capital cost is included	**$25.86**	**$0.00**	
Property Taxes (private ownership)	Depends on assessment and municipality - estimate of $2.5 million per year	**$5.00**	**$0.00**	
Total Adjustments		**$65.58 to $164.46**	**$1.41**	
ADJUSTED COST		**$125.29 to $224.17**	**$50.04**	

We do not suggest that all of these factors would come into play, or in the precise amounts shown, but they are indicative of the range of potential outcomes.