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DATE: March 27, 2015

FROM: Jane MacIntosh
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FILE: 5365-00

SUBJECT: Disposal Facility Future Cost Projections

PURPOSE

To bring forward a report on information regarding *Disposal Facility Future Cost Projections* based on two potential scenarios.

BACKGROUND

Over the past two years the Regional District of Nanaimo (RDN) has experienced a decreasing trend in the volume of waste being delivered to the Regional Landfill. The road to Zero Waste, as per our Solid Waste Management Plan, has included many initiatives to divert materials from the landfill for re-use, recycling, etc.; however, the magnitude of this decrease is attributed more to the current practice of commercial waste export than the success of waste diversion programs.

Management of the lifespan of the landfill includes the evaluation of available airspace for waste filling, a predicted annual tonnage of waste material and an overall compaction rate for the waste. What is developed is called a fill-plan that basically tells us how much waste can be fit in the space available. Based on historical events the public preference is to maximize the life of the existing landfill rather than construct a new landfill. Given this general mandate, engineers have developed a fill-plan that includes various expansions to the landfill over time to expand the available footprint and achieve the longest lifespan possible for the site. In addition to the operating costs of the landfill, there are also capital costs associated with various projects to complete engineered expansions such as berms.

There are currently no mechanisms in place to control the destination of waste generated within the RDN. Given the recent commercial practice of exporting waste outside of the RDN, the tonnages delivered to the landfill from 2010 to 2014 have dropped from approximately 70,700 metric tonnes (MTs) to 51,400 MTs. The loss of revenue associated with this change in tonnage is approximately \$2,412,500. With no means to control the leakage of residual waste from the district, the ability to forecast future projections and generate an engineered fill-plan becomes increasingly challenging.

Looking ahead, there are a number of scenarios that could occur at this point. The observed decreasing trend could continue or, conversely, management directives or changes in market conditions could result in a return of waste to the landfill. The development of the landfill site must allow for either option to ensure the landfill is prepared and there is a place for the waste should the volumes return to a "normal level." The RDN tasked the engineers to review a number of options, three of which are discussed in more detail in the following paragraphs.

Scenario 1: This scenario evaluated the effects of a continued decreasing trend in waste volume. It assumes there are no mechanisms in place to control the flow of waste from the district and the continued success of waste diversion programs would drop the annual tonnage to approximately 20,000 MTs. At this volume and with current tipping fees, which include allowances for general inflation, growth rates for garbage generation and interest rates, the landfill life could extend until the year 2075. The net present value for the site until closure in 2075 and including 25 years post-closure care is -\$67.9 million.

Scenario 2: This scenario evaluated the outcome if the Zero Waste Program achieved an 80% diversion rate and assumes 10% of waste generated is exported outside the region. At our current volume and existing tipping fees, which include allowances for general inflation, growth rates for garbage generation and interest rates, the landfill life could extend until the year 2052. The net present value for the site until closure in 2052 and including 25 years post closure care is -\$47.9 million.

Scenario 3: This scenario evaluated the outcome if the Zero Waste Program achieved an 80% diversion rate and flow control measures directed all RDN generated waste to the local landfill. At our current volume and existing tipping fees, which include a 2% tip fee increase over inflation, growth rates for garbage generation and interest rates, the landfill life could extend until the year 2048. The net present value for the site until closure in 2048 and including 25 years post-closure care is \$12.4 million.

Normalizing Net Present Values: To aid with comparing each scenario, net present values were normalized for a 25 year period (2015 to 2050). The results are summarized below:

Scenario	Alternative Description	Closure Year	Net Present Value (25 year period)	Net Present Value (closure + 25 years)
1	Waste Volume Decrease - 22,000 tonnes, no flow control	2075	-\$40.4 million	-\$67.9 million
2	80 percent waste diversion, <u>no</u> flow control in place (10% waste export)	2052	-\$37.9 million	-\$47.9 million
3	80 percent waste diversion, flow control in place	2048	-\$3.7 million	\$12.4 million

While the landfill may last a much longer time if the annual tonnage drops and waste continues to leave the district, the financial implications are stark. Each scenario has implications to waste management practices to mitigate the cost such as closing the landfill, constructing a transfer station and also exporting waste off-Island for final disposal.

ALTERNATIVES

There are no alternatives for this report.

FINANCIAL IMPLICATIONS

There are no financial implications with this report.

STRATEGIC PLAN IMPLICATIONS


Flow Management impacts the ability of the RDN Strategic Plan to consider future options for waste management, disposal and facility development to meet the needs of a growing population.


SUMMARY / CONCLUSIONS

The operation of the Regional Landfill requires preparing future fill-plan options for maximizing the use of air-space and landfill life. The fill-plan guides the day-to-day operation of the site and development of expansion areas to achieve optimal capacity within a defined footprint space. Decreasing trends in waste volumes over the past few years have generated a concern in the ability to adequately predict the future development and costs associated with operating the landfill. Realistic scenarios that evaluate the status quo and flow control measures generate significantly different cost implications and indicate further attention to managing solid waste in the district is economically imperative to the district.

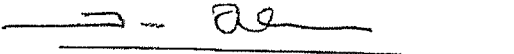
RECOMMENDATIONS

That the Board receive this report for information.


Report Writer Jane McIntosh


Manager Concurrence


A/General Manager Concurrence


A /CAO Concurrence