Comox Valley REGIONAL DISTRICT

Staff report

DATE: September 5, 2013

FILE: 5360-01

TO: Chair and Directors
Comox Valley Regional District (Comox Strathcona waste management) board

FROM: Debra Oakman, CMA
Chief Administrative Officer

RE: CSWM solid waste system financial model – long term funding options

Purpose
To provide summary information from financial analysis performed using the AECOM CSWM financial model and, a review of information on solid waste funding models from the Regional District of Nanaimo (RDN), Regional District of Mount Waddington (RDMW), Cowichan Valley Regional District (CwVRD) and the Capital Regional District (CRD).

Policy analysis
The Comox Strathcona waste management (CSWM) service area covers the Comox Valley and Strathcona regional districts' geographical areas; and is operated by the Comox Valley Regional District (CVRD) under letters patent. The service was established under Bylaw No. 1822 being "Regional Solid Waste Plan Local Service Area Establishment Bylaw No. 1822, 1996" to establish and operate a local service for the collection, removal and disposal of municipal solid waste. Fees and charges for this service are provided for under Bylaw No. 170 being "Solid Waste Fees and Charges Bylaw No. 170, 2011", so that annual costs may be recovered.

The solid waste service financial planning policy (policy reference 1700-00) was adopted by the solid waste board in September 2011. This policy provides a framework for the development, communication and approval process of the service's financial plan.

At its January 17, 2013 meeting, the CVRD (Comox Strathcona waste management) board passed the following resolution:

> *THAT a contract be awarded to AECOM, for the development of a long term funding options report, in an amount not to exceed $91,224 plus applicable taxes.*

Executive summary
In January 2013, a contract was awarded to AECOM for the development of a long term funding options report for use as a decision-making tool for determining future solid waste program elements and assessing cost recovery mechanisms. A financial model of the CSWM solid waste system was developed and calibrated, including existing and projected waste generation, waste streams, waste flows, cost flows, revenue flows, cash flows and unit costs.

Once the calibrated model was received by the CVRD, the economics of the solid waste management program was reviewed to determine several options for analysis starting with two funding sensitivity input constraints, tipping fees and taxation respectively. The Comox Strathcona SWMP conditions and constraints were fundamental in model inputs and control the extrapolated results presented. The model allows for variations in funding, operations, diversion programs,

reserve limits and financial liability. Terms can be changed as well however, the AECOM model runs uses a 37 year projection period.

It is noted that the AECOM fiscal model, Quantrix, software, has an operating format similar to Microsoft Excel and contains a flexible platform that can be applied to other similar financial structures such as water and waste water services. AECOM is currently the owner of the program model as the developer, CVRD would need to acquire the software and expertise to maintain the financial modelling system or alternatively retain AECOM to update.

To aid in the development of realistic funding constraints and long term funding options, a review of neighbouring regional district's solid waste management funding structures was conducted. The tables under "review of surrounding regional district's solid waste management services" provides a summary of each regional district's current 2013 tipping rates.

As discussed in the following report, an important model constraint includes a recommended short term cap for tipping fees of $130/tonne that the preliminary 2014 – 2018 financial plan tipping fee schedule reaches in 2017 for the CSWM service area.

The CSWM service in accordance with the CS SWMP will be undergoing a significant change in the structure of their solid waste management service in the next five years. The CSWM service's capital expenditures in the next five years, which include expenditures associated with landfill closure, landfill expansion, landfill gas collection systems, leachate collection and treatment, the construction of several transfer stations as well as diversion infrastructure, are significantly greater than the capital expenditures of surrounding regional districts. For this reason, the CSWM service needs to develop a unique funding strategy to ensure that capital improvements occur and that BC MoE legal requirements are met.

The core services of solid waste management are disposal related waste management centres, transfer stations, and transport of waste and operation of five landfills as part of the infrastructure of governmental services for residents and businesses. The effects of the funding model authorized by the solid waste board will directly affect all corporate members within the CSWM service area and the provincial government.

The following report and presentations are intended to assist the board with the discussion regarding the development of a long term funding strategy for the comox strathcona waste management service. Based on the discussion and board direction from the September 12th, 2013 CSWM board meeting staff will prepare a draft long term funding strategy for consideration at the November 2013 CSWM board meeting.

Recommendation from the chief administrative officer:
This report is for information purposes only.

Respectfully:

D. Oakman

Debra Oakman, CMA
Chief Administrative Officer

History/background factors

Budget requirements include that long term funding be reviewed to ensure sufficient reserves are maintained and are available to sustain the service over time. A detailed solid waste financial analysis was needed to determine the best funding mechanism to increase reserves and provide options to the solid waste board on capital funding going forward. The 2012 Comox Strathcona solid waste management plan (SWMP) provides a blueprint of capital projects, capital schedules and diversion programs approved on May 30, 2013 by the Minister of Environment. The Comox Strathcona SWMP permits the operation and discharge of solid waste and the diversion programs which at the present time consists of five active landfills and three transfer stations over the next ten years in accordance with and compliant to Ministry of Environment (MoE) directives.

Review of surrounding regional district's solid waste management services

To aid in the development of the long term funding plan, a review of the solid waste management services of four neighbouring regional districts, the CRD, the CwVRD, RDN, and the RDMW was conducted. The purpose of the review was to explore funding strategies currently being used by each regional district's solid waste service and to explore long term funding perspectives which may be applied to the CSWM service.

The following table provides a summary of each regional district's current 2013 tipping rates.

Regional District Tipping Rates in 2013		
Regional District	**Garbage (refuse) ($/tonne)**	**C&D Waste ($/tonne)**
Capital RD	107	107
Cowichan Valley RD	140	132
RD of Mount Waddington	115	115
RD of Nanaimo	120	120
Mean	**120.5**	**118.5**
Comox Valley RD	90	100

Table 1. A summary of the 2013 MSW and C&D waste tipping rates of neighbouring regional districts.

The following table provides a breakdown of the revenue sources of neighbouring regional district's solid waste services in 2013.

Solid Waste Service Revenue Sources in 2013 (%)			
Regional District	**Tipping Fees**	**Tax Requisition**	**Other**
Capital RD	95%	0%	5%
Cowichan Valley RD	45%	43%	12%
RD of Mount Waddington	30%	50%	20%
RD of Nanaimo	91%	4%	5%
Comox Valley RD	96%	3%	1%

Table 2. A summary of the 2013 revenue sources for the solid waste services of neighbouring regional districts.

It should be noted that the revenue from the sale of recyclables is reflected in "Other" for the CRD, CwRD, RDMW, and RDN. However for the CVRD, this revenue from recyclables is incorporated into a discount from collection services and is not considered a separate revenue source. This is the reason why the revenue from "Other" is much lower for the CVRD compared with other regional districts. Additionally, in 2013, a large portion of the CwRD's "Other" funding is from grants and M.F.A funding while a significant portion of RDMW's funding is from first nation agreements and grants.

Capital Regional District (CRD): The CRD currently manages one regional landfill, the Hartland landfill, and one small transfer station in Port Renfrew. While 95 percent of their current revenue in 2013 is from user fees, it should be noted that the user fees generated in that year will only cover approximately 70 percent of the annual costs while the other 25 percent funding is from reserve withdrawals. In the upcoming years, the CRD solid waste management system is therefore heavily funded by reserve withdrawals. During discussions with CRD staff, it was indicated that reserves will be depleted in 2016, and staff are currently exploring options to either increase revenue or decrease costs. The CRD is currently beginning an update to the CRD SWMP.

Cowichan Valley Regional District (CwVRD): The CwVRD currently manages three regional facilities (recycling depots and transfer stations). The CwVRD does not own or operate a regional landfill. The majority of the region's residual solid waste is captured at the Bings Creek Solid Waste Management Complex. From Bings Creek, the waste is shipped to a landfill in Washington State for final disposal. Without a regional landfill to generate tipping fee revenue using a disposal use model, CwVRD relies heavily on tax requisition as a revenue source for its solid waste management service. In the next few years, the CwVRD's other revenue source is projected partially through grants and M.F.A funding.

Regional District of Nanaimo (RDN): The Regional District of Nanaimo (RDN) currently manages one transfer station and one regional landfill. The majority of RDN's revenue is from tipping fee revenues however a small portion of the overall revenue is from tax requisition which goes towards funding their Zero Waste programs. The RDN are expecting their reserve funds to cover major future expenditures however borrowing is also being considered. The RDN is expected to start an update of their SWMP in the next few years.

Regional District of Mount Waddington (RDMW): The RDMW currently manages one regional landfill and three transfer stations. The solid waste management service is heavily funded by tax requisition with a smaller portion of the revenue from user fees, first nation agreements and grants. With a relatively small population in a geographically large area, user fees alone are insufficient to cover system costs. The RDMW will most likely be heavily dependent on tax requisition to fund the solid waste management system into the future.

Conclusions: The main financial issue currently being faced by regional district's solid waste management services is the increasing cost of disposal facilities (capital and operating costs) and the cost of diversion programs with a related decrease in tipping fee revenue due to the increase in diversion rates. Regional districts are looking for ways to either increase revenue or decrease system costs through efficiencies. Options discussed to increase revenue include raising tipping fees, tax requisition, importing municipal solid waste, waste stream rock extraction, and borrowing. Options discussed to reduce system costs include increasing the efficiency of landfill operations, reducing landfill operating hours, and relaxing or ending diversion programs.

The main capital expenditures for surrounding solid waste management services are for environmental controls and provincial mandated improvements to regional landfills, as well as expenditures related to diversion programs. For the most part, major capital infrastructure required for the next five years is already in place for surrounding regional districts. In contrast, the CSWM service in accordance with the CS SWMP will be undergoing a significant change in the structure of their solid waste management service in the next five years. The CSWM service's capital expenditures in the next five years, which include expenditures associated with landfill closure, landfill expansion, landfill gas collection systems, leachate collection and treatment, the construction of several transfer stations as well as diversion infrastructure, are significantly greater than the capital expenditures of surrounding regional districts. For this reason, the CSWM service needs to develop a unique funding strategy to ensure that capital improvements occur and that BC MoE legal requirements are met.

Model analysis & scenario testing

During the development of constraints and assumptions in the AECOM financial model, AECOM worked with CVRD staff to calibrate all model inputs which included all capital and operating costs, revenue streams, reserve balances and contributions, and any other information relevant to the CSWM system. The collaboration between the organizations was crucial to ensure the integrity of the model and to ensure that upon completion of the model, CVRD would have confidence in a balanced model, and then be able to run the model with complete confidence in the output.

Once the CSWM financial model was built by AECOM and received by the CVRD, a sensitivity analysis was performed. Key input constraints and assumptions, such as diversion targets and the impact of diversion program implementation and uncertainty of C&D flows over time, were varied to gain a greater appreciation of how model inputs affect key model outputs such as system cost and revenue. In other words, the sensitivity analysis provides an understanding of how potential variability in input variables affects overall model output. The purpose of the sensitivity analysis was to understand the range between the "best" and "worst" case diversion scenarios. Ultimately, the sensitivity analysis provides credibility and support for recommendations and long term decision making.

Based on the results from the sensitivity analysis, the following two diversion scenarios were selected for further analysis and form the basis of the AECOM presentation to the solid waste board at the September 2013 meeting including:

Scenario 1

- Maximum diversion scenario
- C&D diversion assumption: Entire C&D waste stream is currently being captured by the CSWM system therefore all C&D waste is able to be diverted by 2022
- Diversion increased from 51 per cent to 70 per cent by 2022 as per SWMP
- Increase in diversion achieved via diversion programs as per SWMP
- Assumes that all diversion programs will be authorized by the CSWM board

Scenario 2

- Modest/conservative diversion scenario
- Organics, C&D, ICI, HHW, and EPR diversion input streams decreased to reflect the constraints in the implementation of diversion program
- C&D diversion assumption: Status quo C&D waste is captured and no additional C&D waste diversion occurs

- Diversion increased from 51 per cent to 58 per cent by 2022
- Does not assume 100 per cent authorization of diversion programs by CSWM board

Scenario 1 represents the best case or maximum diversion scenario as outlined in the 2012 solid waste management plan. Scenario 1 does not consider the potentially significant increase in system operational cost and staffing as diversion programs increases and, assumes 100 per cent authorization of all diversion programs by the CSWM board. Therefore, scenario 1 represents the most extreme case in regards to diversion and does not reflect any limiting or constraining factors on diversion which is a reality in any solid waste system. In recognition of these limits, scenario 2 was developed. Scenario 2 represents a more conservative diversion scenario which recognizes the challenges in implementing diversion programs. Furthermore, scenario 2 does not assume that all proposed diversion programs will be authorized by the CSWM board which would be required to achieve 70 per cent diversion. The impact of diversion programs is reduced in scenario 2 to reflect more realistic conditions and as a result, diversion increases to between 58 per cent and 65 per cent by 2022 as opposed to the increase in diversion rate to the assumed 70 per cent by 2022 in scenario 1.

Since scenario 2 was developed using conservative estimates of moderate increases in diversion and fell within the range of best (70 per cent diversion) and worst (51 per cent present case diversion) case diversion scenarios and does not assume board direction, it was selected as the most representative and realistic scenario of the current CSWM system.

Options

Once the sensitivity analysis was performed and diversion scenario selected, funding options for the CSWM system were explored. The review of neighbouring regional district's solid waste services brought up many funding options which included varying tipping fees, tax requisition, importing MSW, and waste rock extraction. At this time, the most feasible revenue sources for the CSWM service are tipping fee revenue and tax requisition. In developing funding options from tipping fee revenue and tax requisition, it was important to identify the constraints or limitations on the extent to which the CVRD could pursue these revenue sources. For tipping rates, there exists a maximum rate at which point waste will begin to "leak" from the system due to the fact that it will become more economical to dispose of waste elsewhere. Two major concerns of "leakage" are increases in illegal dumping and unidentifiable discharge locations, which is in violation of MoE provincial regulations.

The mean or average tipping rate (Table 1 above) for MSW including the RDN, RDMW, CwRD and CRD in 2013 is $120.5/tonne. Based on historic data of regional tipping rates (Appendix A), the mean rate in 2017 is projected to be about $130/tonne. Therefore, to discourage trans-boundary movement and illegal dumping of waste, the constraint on the tipping rate for model analysis was set at $130/tonne. For tax requisition, the established constraint was set at $1,000,000.

After exploring several possible funding options given the above constraints, the following three funding options were developed and results presented (AECOM presentation, September 2013):

<u>Option A</u>

- 100 per cent of CSWM system revenue through tipping fee revenue.

Option B

Funding Option B					
Year	**2013**	**2014**	**2015**	**2016**	**2017**
MSW Tipping Rate ($ / tonne)	90	100	110	120	120
Tax Requisition ($)	200,000	400,000	600,000	800,000	1,000,000

Option C (recommended)

Funding Option C					
Year	**2013**	**2014**	**2015**	**2016**	**2017**
MSW Tipping Rate ($ / tonne)	90	100	110	120	130
Tax Requisition ($)	200,000	400,000	600,000	800,000	1,000,000

The above three funding options were developed with consideration to all system costs which included transportation costs, facility capital and operating costs, and landfill closure costs, as well as reserve contributions and community host agreement payments.

For Option C, analysis of the cash flow of the CSWM system indicated that tax requisition would be required to meet long term system costs. The feasibility of funding the system entirely from tipping fee revenue (option A) was explored however it was determined that this option is not feasible given significant future capital expenditures and the $130/tonne constraint previously discussed. After exploring option B, it was determined that raising the MSW tipping fee rates to $120/tonne would not be sufficient to cover long term system costs. Option C was developed to meet current and long term system costs as well as scheduled reserve contributions to fund future capital expenditures associated with the Comox Valley Waste Management Centre and represents a blend of tipping fee with a constraint of $130.00/tonne by 2017 and funding through taxation.

Conclusion

The financial model developed by AECOM for the CSWM services to explore long term funding options has proved to be a modeling and analysis tool that delivers flexibility, confidence and a level of detail into the long term forecast of the CSWM system. The CSWM disposal and diversion systems are complicated and building and balancing the basic model was very important to any future options to be determined. Using the model, long term funding options which meet the future demands of the CSWM service have been explored and analyzed as a first step towards a best practice long term funding model.

Financial factors

The purpose of developing the CSWM system financial model was to determine and present to the board the best funding option mechanisms to increase reserves and to provide funding for CSWM capital schedule, disposal operations and some level of diversion programs. The AECOM financial model may be used as a decision making tool for developing input to function #391 - solid waste service's five year financial plan which is designed to support CSWM obligations in the CS SWMP.

The model can be used to better determine the financial structure of revenues to function #391 which may impact the finances of all corporate members and CSWM services legal obligations to the province.

Legal factors
The CVRD has a legal obligation to the province to fulfill the requirements of operational certificates/permits for the continued operational management of the waste management facilities and centres. Under the MoE, these obligations include annual reporting (water quality monitoring, reports and updated engineering reports of facility operations, closure costs and post care costs). Further to this, the ministry requires the CVRD to provide updated closure plans, operations procedures, leachate management systems and landfill gas management systems and implementation schedules. The CVRD needs to ensure that these MoE facility improvements are completed and documents are submitted regularly to fully meet the MoE requirements for these obligations. The long term funding plans outlined in this report present to the solid waste board future funding options for these obligations.

Sustainability implications
The Comox Strathcona solid waste management plan contributes to diversion and composting which supports the goals and objectives of the Comox Valley sustainability strategy. Sustainability programs allow the CSWM service to move towards the long term goal of reducing waste that is landfilled through diversion which includes:

Goal 3.2: Establish a diverse network of clean and renewable local energy supply systems; energy is harnessed from waste sources in the community;

Goal 3.3: Waste diversion and recycling programs approach "zero-waste" targets including:
Objective 3.3.1. Develop a regional "zero-waste" strategy, including promotion of recycling that is aimed at waste reduction and diversion from landfill disposal;
Objective 3.3.2. Product stewardship practices are supported and promoted by businesses;
Objective 3.3.3. "Zero-waste" principals are applied in civic facilities and operations;

Goal 3.4: The waste stream associated with construction, demolition and land clearing waste is reduced;
Objective 3.4.1. Develop and implement a regional construction waste management program;
Objective 3.4.2. New multi-residential (i.e. developments without curb-side pickup) and commercial buildings have three-stream separation supportive design (garbage, recycling, organic compostable).

The CSWM financial model and the recommended long term funding plan will ensure that sufficient funds will be available to implement solid waste board approved diversion and composting programs outlined in the 2012 Comox Strathcona solid waste management plan.

Intergovernmental factors
The financial model and funding plan options help to ensure that the solid waste management function #391 is sufficiently funded to provide waste services that are not provided locally by a municipality or, may provide an enhanced service for an area or community per the letters patent of the CVRD effective February 15, 2008. The core services of solid waste management are disposal

related waste management centres, transfer stations, and transport of waste and operation of five landfills as part of the infrastructure of governmental services for residents and businesses. The effects of the funding model authorized by the solid waste board will directly affect all corporate members within the CSWM service area and the provincial government.

Interdepartmental involvement
The departments involved in the development of the financial model and long term funding plan include the community services – solid waste services, finance, legislative services, communication services and executive management department.

Citizen/public relations
All changes in solid waste board policies, bylaw No. 170 tipping fees bylaw and any changes that impact the public sector as a result of budget changes, are filtered through communications planning to ensure a seamless transition for affected municipalities and members of the public.

Prepared by:	Concurrence:	Concurrence:
C. Jung	***T. Boatman***	***T. I. Smith***
Curtis Jung Engineering Student Analyst	Thomas A. Boatman, P.E. Manager of Solid Waste	T. Ian Smith, MCE General Manager of Community Services

Attachments: Appendix A – Historic District Tipping Fee Rates Graph Over Time

Appendix A – Historic District Tipping Fee Rates Graph Over Time