MEMORANDUM

TO:	Russ Smith, Anke Bergner, Capital Regional District	cc.	John Sedley
FROM:	Konrad Fichtner, P.Eng.	FOR INFO OF:	
PLEASE RESPOND BY:		PROJECT No.:	5130323 00
RE:	**Solid Waste System Financing**	DATE:	March 24, 2014

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1. Introduction

The Public and Technical Advisory Committee (PTAC) has discussed the 5Rs of the waste management hierarchy (reduce, reuse, recycle/composting, resource recovery and residuals management). Individual memos were presented for these technical areas and discussed with the committee in detail.

Additionally, the Committee reviewed topics including regulatory and community issues that did not fit neatly in the discussions on the 5Rs, but nevertheless could have an impact on the results and success of 5Rs strategies. All of the memos included a general discussion on the relative costs of the various technical options, but the final consolidation of costs into one comprehensive and high level memo was kept to the end. The following memo integrates all of the costs incurred by the CRD for waste management and deals with financial challenges and how these might be overcome.

The original and primary component of the waste management system is the disposal site, or landfill. This is where everything goes that cannot be reduced, reused, recycled or recovered. When regional districts were originally formed, their core service in solid waste management was the healthy, environmentally compliant and cost effective disposal of waste. While it was each regional district's choice of how to pay for waste disposal, there was a general preference to apply "user pay" principles and in many cases tipping fees were used to pay for the operation of disposal facilities. This is how the disposal at the Hartland Landfill was financed, and still is.

With the advent of regional planning in the 1990's, waste diversion became part of the strategy to manage waste, and value-added or non-core programs were introduced to divert as much waste from landfilling as possible. Some regional districts opted to pay for non-core programs on a user pay basis. There is a common misconception that recycling and other waste diversion programs are "free" or cost-neutral (i.e. they pay for themselves). However, it was often found that waste diversion programs were expensive, and a trend emerged in BC to use disposal fees at the landfill to also pay for diversion programs, thus effectively subsidizing them.

As diversion targets of 50% are being met and targets of 70% and more are gaining in popularity, this form of financing has reached some practical limits. At 50% diversion, many regional districts are already charging well over $100 per tonne at the landfill, even though the actual landfill operation costs are lower. Once recycling/diversion rates go higher than 50%, and options for saving money at the disposal site are exhausted, tipping fees would have to move towards the $200 per tonne range to cover both landfill operations and diversion program costs.

Local governments can increase tipping fees, however if tipping fees are too high, and no other controls are put in place, waste has a tendency to flow out of the system to facilities that have lower tipping fees. Regional Districts must find a balance between increasing tipping fees, keeping waste in the region, and maintaining/expanding the environmentally desirable diversion programs.

2. Methods for Financing and Waste Flow Management

FINANCING METHODS

There are a variety of ways to generate revenue and to fund solid waste programs. Potential sources of funding include:

- Tipping fees from disposal
- Tipping fees from other facilities such as transfer stations and composting facilities
- Taxes (different forms are available)
- User-pay service fees, e.g., from homes for waste collection
- Sale of compost and electricity from landfill gas use
- Waste import, i.e., generating more revenue through tipping fees
- Extended Producer Responsibility (EPR) – local governments may receive funding from stewards like Multi Material BC to deliver stewardship services
- Franchise fees – this can be applied to waste haulers whereby the local government requires that all haulers pay a flat rate or a % of revenues to do business or through applying host fees for facilities (both are common in the U.S.)

Local governments have also undertaken measures to reduce costs or share costs with other agencies or regions. Potential cost savings measures include:

- Investing in increased landfill capacity – this serves to prolong the need to site a new landfill, which is expensive and risky
- Eliminating or reducing services
- Public private partnerships – may shift some costs to the private sector
- Shared savings, i.e., sharing potential cost savings with other local governments or the private sector

Landfill tipping fees are a key element of the revenue stream for many BC local governments. Based on a survey of rates in some regions of BC, municipal solid waste tipping fees vary from $55/tonne in the Peace River Regional District to $205/tonne in the Powell River Regional District. Tipping fees for Vancouver Island regional districts are summarized below.

- Capital Regional District - $107/tonne
- Cowichan Valley Regional District - $140/tonne
- Regional District of Nanaimo - $125/tonne
- Comox Valley Regional District - $110/tonne
- Regional District of Mount Waddington - $115/tonne
- Alberni-Clayoquot Regional District - $95/tonne

Typically BC regional districts fund solid waste programs through a combination of sources. If a region has one or more disposal or diversion facilities, a key component of the revenue stream is the tipping fees associated with these facilities. In regions without these facilities, programs are funded through taxes, user fees or a combination of both (e.g. where programs consist of waste collection and diversion).

The Regional District of Nanaimo funds its programs through a combination of tipping fees from solid waste facilities (i.e., landfill and transfer station) and service fees for solid waste collection. There is also a small tax requisition component.

The Comox Valley Regional District (CVRD), facing increased capital and operating costs for its facilities and programs, recently undertook a solid waste system financial modeling exercise. The purpose was to compare long term revenues and costs to determine the potential shortfall, and to review measures for aligning revenues and costs. The modeling showed that a combination of increased tipping fees and tax requisition is required to have the system break even over the next 25 years. The regional district's solid waste fees and charges bylaw establishes an increasing tipping fee starting at $90/tonne in 2013 and going up to $110/tonne in 2014. The financial model results show that tipping fee will need to increase to $130/tonne and up to $3.8 million (in 2034) will need to be collected annually. The long term approach to funding the system has not been confirmed with the CVRD. The CVRD is also implementing cost savings measures such as suspending diversion programs for dirty wood and drywall.

In Metro Vancouver tipping fees from the region's solid waste facilities are used to pay for the solid waste management system including waste reduction and recycling initiatives and programs. Municipalities in the region provide solid waste collection services to single-family residents and the revenue for these services is generally acquired from municipal utility fees. Multi-family and commercial collection is typically provided by private haulers and paid for by the building management or business using the service. As discussed below, Metro Vancouver is implementing flow control to ensure that waste stays in the region and so that revenue from tipping fees is not lost.

Losing waste to facilities outside of the region results in a direct loss of tipping fee revenue and recycling opportunities. Without some degree of control, waste will leave the region when it is more economical to haul it to another location. For example, at the CRD's current tipping fee of $107 per tonne, and at an assumed transportation cost of $30 per tonne, it could start becoming attractive financially to take waste out of the region if there is a landfill that will accept it for less than $77 per tonne. There are landfills in BC and Washington State that charge less than that. The higher the tipping fee in the CRD is raised, the more attractive it becomes to export waste out of the region.

The survey of financing methods used in other jurisdictions can be found in a memorandum prepared by Golder Associates which is attached at the end of this memo.

WASTE FLOW MANAGEMENT

Within Metro Vancouver approximately one million tonnes of waste is taken to Metro Vancouver and City of Vancouver facilities for disposal. A percentage of the region's waste flows to facilities outside the region, where tipping fees may be lower. For example some of the waste may flow south to facilities in Washington State. Metro Vancouver estimates that this results in lost revenue of approximately $5 million. Hauling companies that ship waste out of region end up avoiding regional disposal bans that are in place to reduce waste being disposed and directing it to recycling facilities. Metro Vancouver has indicated that waste bypassing the regional system results in waste haulers not paying their fair share of the region's solid waste system costs, which places a financial burden on municipalities and tax payers.

In September 2012 the Metro Vancouver Board initiated a consultation on hauler licensing and requiring residential and commercial garbage to be delivered to MV facilities (waste flow management) as a preferred approach. In March 2013, staff reported on the Phase 1 consultation findings, and after considering industry input the Board removed hauler licensing from further consideration and initiated Phase 2 consultation on waste flow management.

Following Phase 2 consultation, Municipal Solid Waste and Recyclable Material Regulatory Bylaw No. 181, 1996, was repealed and replaced by Municipal Solid Waste and Recyclable Material Bylaw No. 280, 2013. This bylaw requires that all residential and commercial/institutional garbage to be delivered to Metro Vancouver facilities. The bylaw has been forwarded to the Ministry of Environment for review and is awaiting approval.

The issue of waste flow management has also been considered by the Regional District of Nanaimo in response to a private hauler who was exporting residual waste out of the region. In this instance, the hauler's internalized cost to haul, transfer and dispose of residual waste to its own disposal facility in Oregon was less than the cost of disposal at the regional landfill. Similar to the situation in Metro Vancouver, the loss of revenue associated with this waste flow out of the region would have had a significant impact on the financial sustainability of the solid waste system in that the rest of the waste management system users would have to pay more than their fair share of costs.

In this instance the regional district utilized their waste stream management licensing (WSML) bylaw to address the issue. Since the operator of the recycling facility used by the private hauler was neither zoned nor licensed to accept residual waste (i.e., operate a transfer station), all haulers are prohibited from delivering waste to the facility until such time as the current license is amended. Consequently, the practice was stopped by the hauler. Given the current and projected costs associated with operating the regional disposal system, the Regional District of Nanaimo will be considering waste flow management when the solid waste management plan is reviewed and updated.

When considering the long term revenue and costs for the solid waste management system, potential loss of revenue and waste flow management must be considered. When it comes to waste disposal, unless there are other incentives or controls in place, economics will be a key driver in determining how waste flows, mainly from the component of the waste stream managed by the private sector. If tipping fees are increased there will be a point at which it is more economical for waste haulers and facility operators to transport waste out of the region to a facility with lower tipping fees. It is therefore important to understand where facilities are located outside the region and the rates at these facilities. If there is a need to increase tipping fees to the point at which waste could flow out of the region, some form of waste flow management may be necessary to eliminate lost revenue.

The Golder memo attached to this document also includes a listing of tipping fees in surrounding jurisdictions.

3. Current CRD Financial Model

Environmental Resource Management staff administer and manage all municipal solid waste disposal for the Capital Region at Hartland landfill, as well as waste reduction and recycling programs. The majority of funding is drawn from Hartland tipping fees with additional revenues from the sale of recyclables and reserve funds. CRD also utilizes reserve funds that have been put aside over the years of financial surplus[1]. For 2015, forecast revenues (based on information provided by CRD[2]) are estimated to total $22,245,000 as shown in Figure 1.

Figure 1

Forecast Revenues and Costs for 2015					
Revenues	**Year 2015**	**% Contribution**	**Costs**	**Year 2015**	**% Contribution**
General Refuse	$ 11,235,000	51%	Core Functions		
Controlled Waste	$ 1,023,924	5%	Landfill Ops incl Leachate	$ 6,690,000	28%
Yard & Garden	$ 39,000	<1%	Planning	$ 190,938	1%
Bin Area	$ 453,000	2%	Power Plant Costs	$ 372,500	2%
Residential Recycle	$ 56,000	<1%	Debt Charges	$ 646,000	3%
Refridgerants	$ 20,000	<1%	Closure & Post-Closure Fund	$ 902,000	4%
Kitchen Scraps	$ 3,542,000	16%	Equipment Fund	$ 273,400	1%
Power Plant	$ 600,000	3%	Vehicle Fund	$ 55,308	<1%
MMBC Diversion Incentives	$ 5,063,000	23%	Capital Spending	$ 2,631,600	11%
Recycling Program Revenues	$ 50,000	<1%	Sub-Total	$ 11,761,746	49%
EPR Program	$ 123,500	1%			
Bylaw Fines	$ 40,000	<1%	Functions		
			SWM Plan Revision	$ 192,654	1%
TOTAL	**$ 22,245,424**	**100.0%**	Solid Waste Initiatives & Enforcemen	$ 834,305	3%
			Hartland Recycling	$ 911,968	4%
			Household Haz Waste Disposal	$ 668,537	3%
			Community Support Programs	$ 377,018	2%
			Kitchen Scraps Contract	$ 3,542,000	15%
			Collection Programs	$ 5,629,107	24%
			Sub-Total	$ 12,155,589	51%
			Total	**$ 23,917,335**	**100.0%**
			Surplus (Deficit)	**$ (1,671,911)**	

[1] Port Renfrew solid waste management is the only program in the Capital Region that is primarily funded through tax requisition.

[2] Revenue (and cost) estimates presented in this memo are not strict accounting data but are information categorized and generalized for the purpose of economic modelling

Tipping and other disposal fees are the major source of revenue for solid waste management in the CRD, comprising 51% of revenues. MMBC Diversion Incentives for 2015 account for 23% of revenues while fees on kitchen scraps add a further 16%. It is noted that the fees received on kitchen scraps cancel out the costs of kitchen scraps processing. MMBC pays for most, but not all of the recycling costs.

This level of revenue compares with 2015 forecast costs which are estimated to total $23,917,000 as shown in Figure 1. Core and non-core functions each account for 50% of operating costs.

As described earlier, the core services are for the direct management and disposal of municipal solid waste that cannot be diverted/recycled. Non-core costs are essentially for all of the diversion programs and services (such as education) that are associated with waste reduction, re-use, recycling and organics separation and composting. The costs shown include administrative costs.It is forecast that 2015 will see a budget deficit of $1,672,000. It is anticipated that there will be sufficient funds in the general reserve to cover this revenue shortfall.

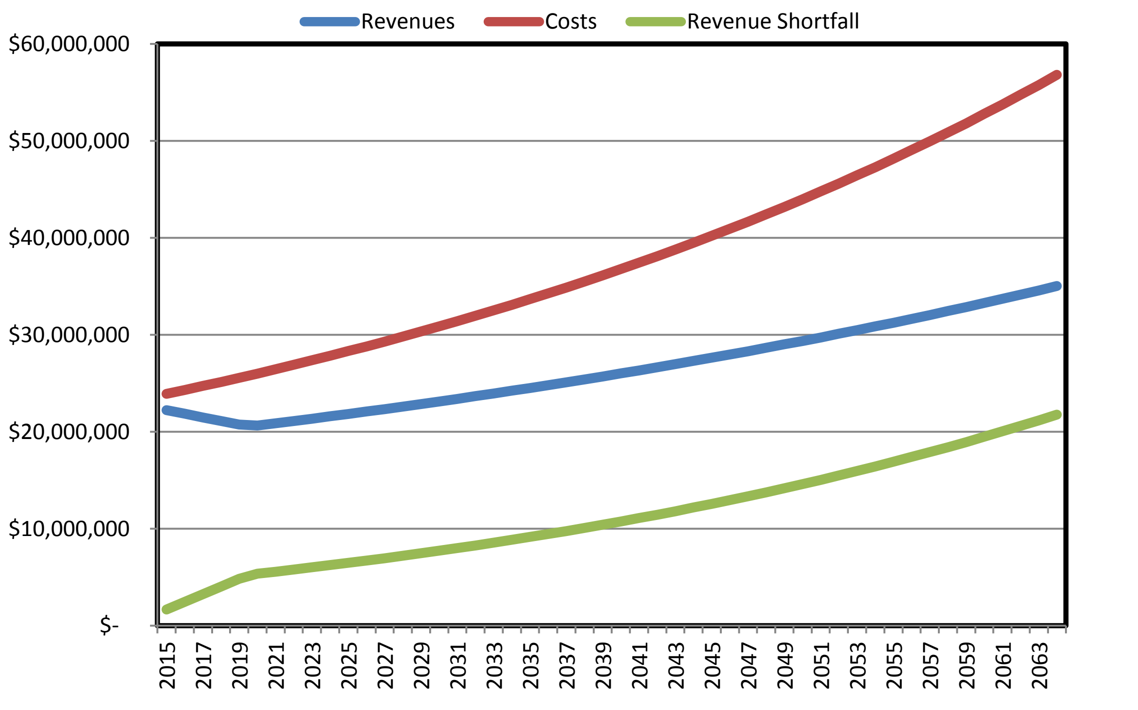
4. The Issue

As part of this exercise, CRD solid waste management revenues and costs were forecast for a 50 year period 2015 to 2064.

The forecast indicates that a budget deficit will likely continue indefinitely under current operations and programs. This is due primarily to the reduced amount of waste going to landfill. While this is environmentally desirable, it reduces the tipping fee revenue substantially and increases diversion costs. This is shown in Figure 2, which forecasts that the revenue shortfall may exceed $20,000,000 by the year 2064 (50 years from now) under current programming and revenue assumptions.

This creates the need for revenue increases, cost decreases, tax requisitions or a combination of all three to overcome these deficits. Some potential options are presented in the next section.

Figure 2 - CRD Waste Management Financial Forecast



5. The Options

The mechanisms available to the CRD to bring future finances into balance include one or all of the following:

- Option 1: Decrease spending to match revenues
- Option 2 :Increase revenues to match spending
- Option 3: Use tax requisitions to cover funding shortfalls

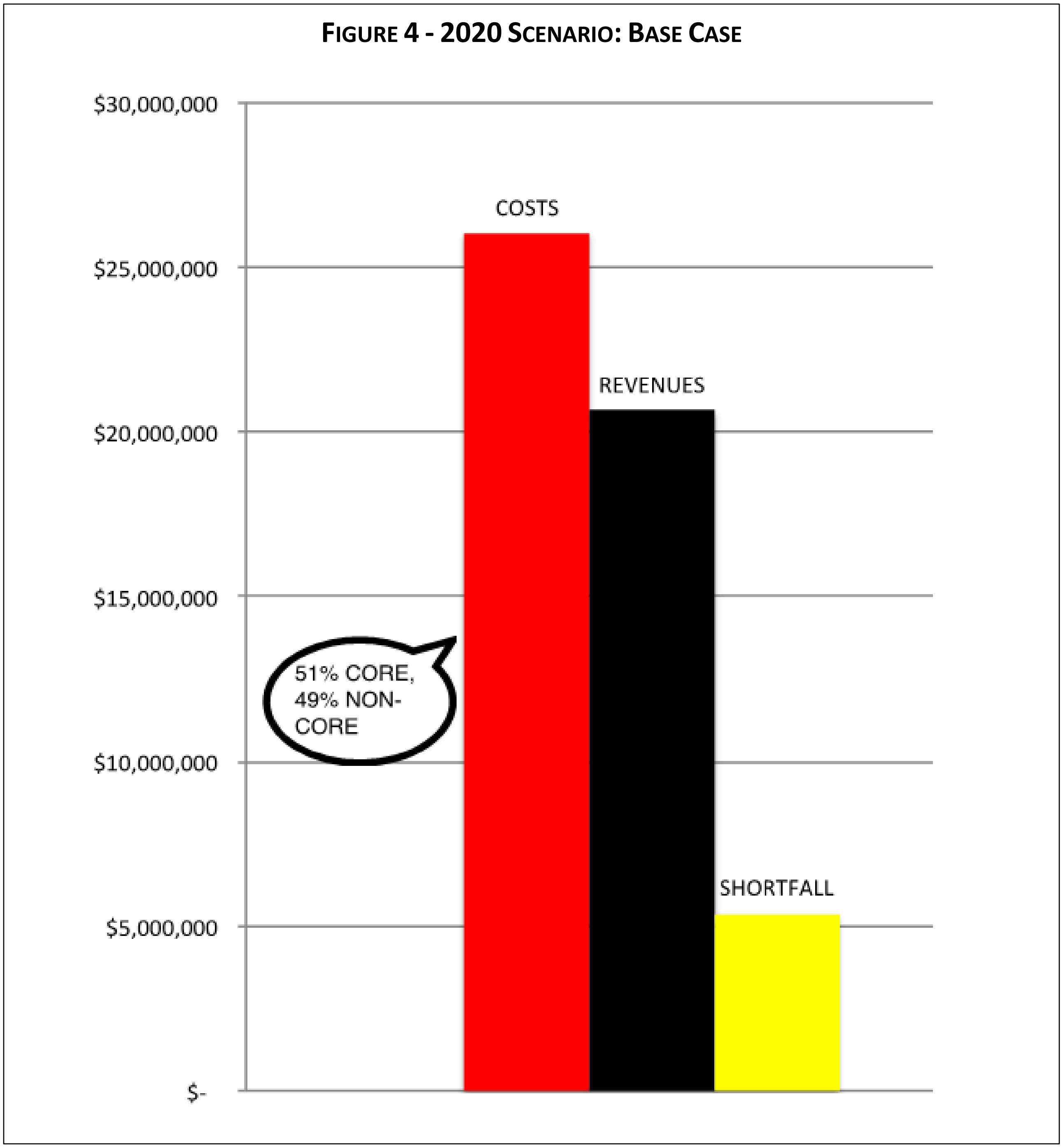
Using the financial forecast, managers can test the impact of any particular change in operations might maintain the current (2014) balance between costs and revenues.

To illustrate the impacts on the budget of potential changes to CRD operations, the following assumptions were tested using the year 2020 as the basis for comparison (2020 is the assumed target year for achieving 70% waste reduction). Figure 3 presents forecast 2020 revenues and costs and shows the revenue shortfall expected under current (or "Base Case") conditions.

Figure 3: Forecast Revenues and Costs for 2020

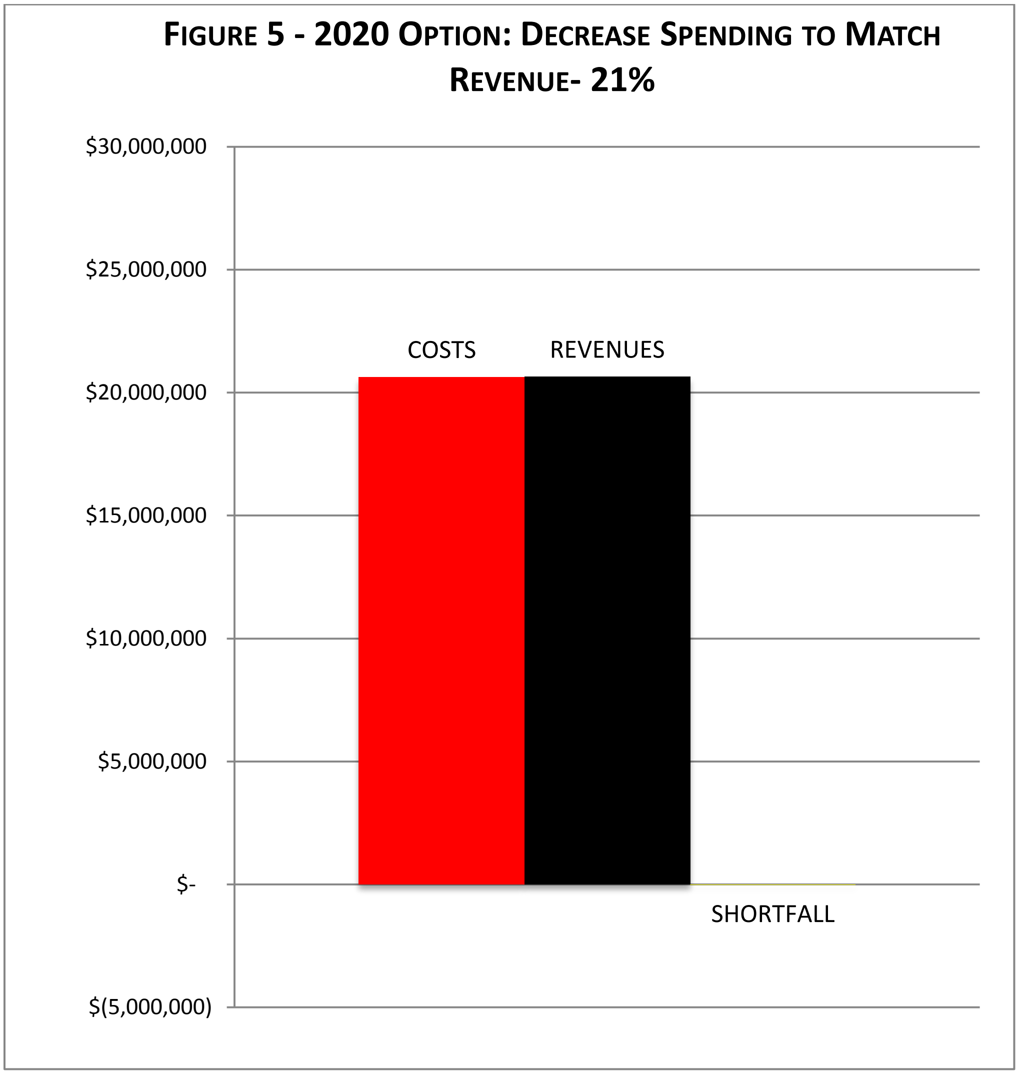
Forecast Revenues			Forecast Costs		
Tip Fees - Standard Waste	$	8,827,500	**Core Programs**		
Tip Fees - Controlled Waste	$	1,062,374	Landfill Operations Incl. Leachate	$	7,386,000
Yard & Garden Waste	$	40,231	Planning	$	210,811
Bins	$	470,353	Solid Waste Diversion	$	412,000
Residential Recycling	$	78,999	Debt Charges	$	646,000
Tip Fees - Kitchen Scraps	$	3,675,008	Closure/Post Closure Fund	$	902,000
Power Plant	$	662,448	Equipment Fund	$	273,400
MMBC Diversion Fees	$	5,589,961	Vehicle Fund	$	55,308
Recycling Fees	$	55,204	Capital Spending	$	2,906,000
EPR Program	$	136,354	Sub-Total	$	12,791,519
Fines	$	41,502			
Total	$	20,639,935	**Non-Core Programs**		
			SWM Plan Revision	$	213,000
			Solid Waste Initiatives & Enforcement	$	921,000
			Hartland Recycling	$	1,045,000
			Household Hazardous Waste	$	738,000
			Community Support Programs	$	417,000
			Kitchen Scraps Contract	$	3,675,008
			Collection Programs	$	6,214,989
			Sub-Total	$	13,223,997
			TOTAL	$	26,015,516
			SURPLUS (DEFICIT)	$	(5,375,581)

The overall financial position is illustrated in Figure 4.



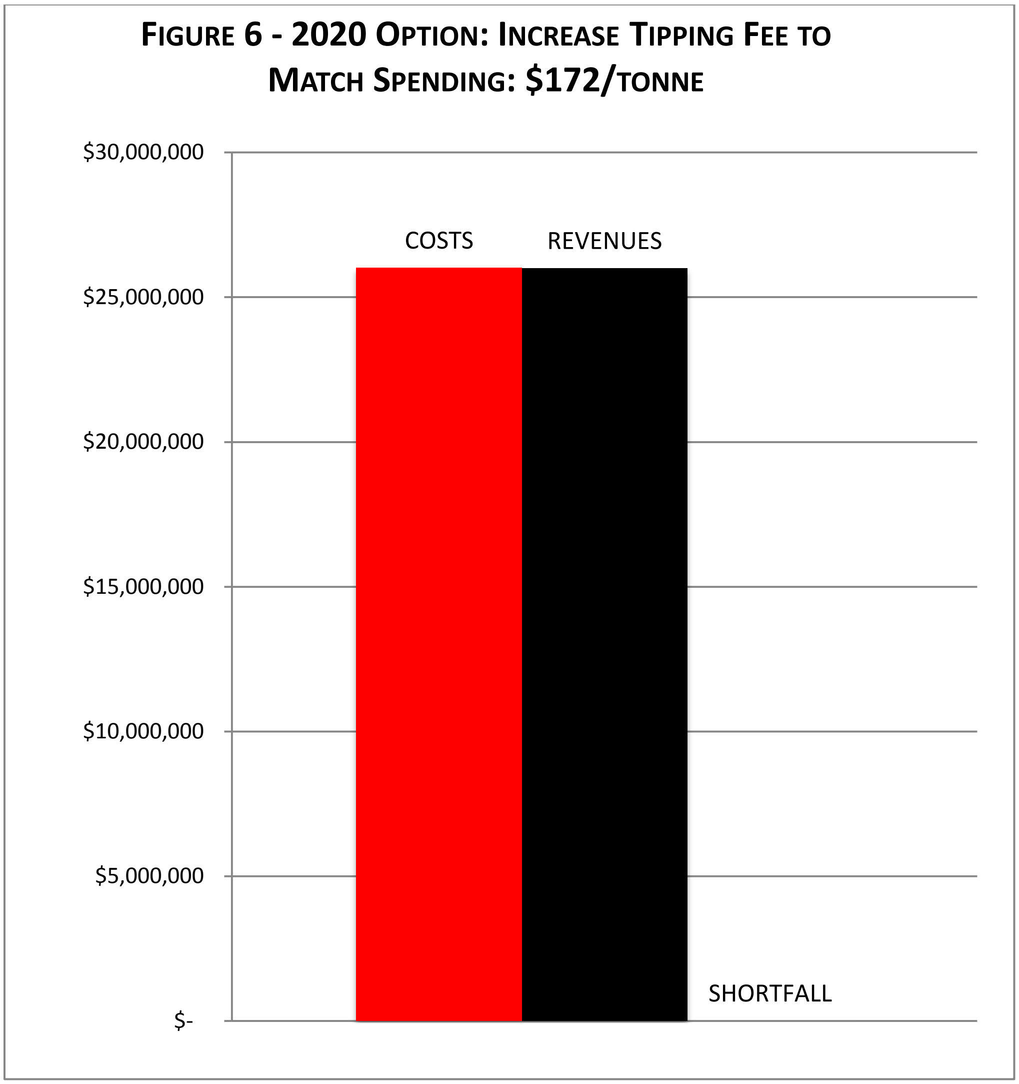
Option 1 : Decrease spending to match revenues

Under this Option, as shown in Figure 5, costs will need to be cut by 21% to eliminate the forecast 2020 budget shortfall. This would result in an evaluation and prioritization of non-core services.



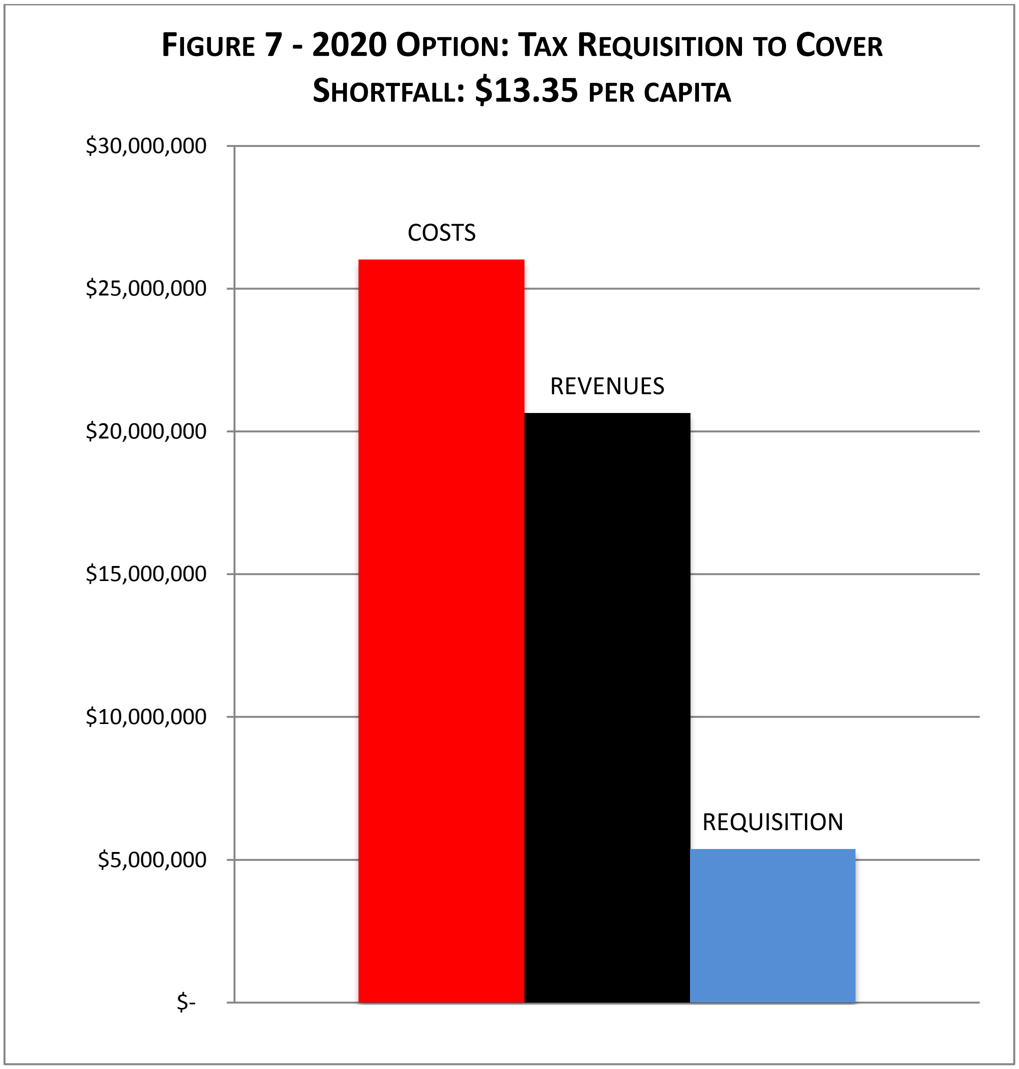
Option 2: Increase tipping fees to match spending

Under this option, as shown in Figure 6, tipping fee revenues will need to be increased to $172/tonne (up from $107/tonne currently) in order to eliminate the forecast 2020 budget shortfall. At this tipping fee level, there will likely be the need for waste flow management to avoid garbage export.



Option 3: Use Tax Requisition to cover funding shortfalls

Under this option, as shown in Figure 7, revenue shortfalls would be covered by tax requisition. A tax requisition of $13.35 per capita would eliminate the deficit.



6. IMPACT ON ISWRMP

A continued operation of the CRD's solid waste program is financially not sustainable under current and planned conditions. Tipping fees at the Hartland Landfill made up the majority of revenues in the past, but due to increased diversion of materials from landfilling, tipping fee revenues are shrinking. New sources of revenues or cost reductions are required.

By 2020, under current operations and programs, a budget deficit of approximately $5,375,000 is forecast. This could be offset by any or a combination of the following options which are presented in this memorandum:

- Option 1: Reduce spending by 21% to eliminate the deficit;
- Option 2: Increase the tipping fee from $107/tonne to $172/tonne to eliminate the deficit;
- Option 3: Introduce a tax requisition equivalent to $13.35 per capita to eliminate the deficit.

Additional options will need to be considered, alone or in combination with the above.

Other options might include the outsourcing and privatization of recycling services (over and above MMBC) so that CRD maintains an administrative and strategically important role, but non-core services could be handled solely by the private or non-profit sectors on a fee for service basis.

Important decisions will need to be made so that CRD integrated solid waste resource management becomes financially sustainable.

ATTACHMENT A - *Waste Diversion Financing Table*