

# Municipality of the District of Guysborough Solid Waste Management Partnership Project

*TITLE: Multi Region, Sustainable Waste Management Partnership Solution*

## **BACKGROUND**

In 2003 the Municipality of the District of Guysborough recognized the necessity for a regional solution to implement the Solid Waste Strategy adopted by the Province of Nova Scotia in 1995. This Provincial Strategy required that all 1st Generation (unlined) Landfills be closed by December 31, 2005 and replaced with new 2nd Generation (full containment) Waste Facilities. The challenge faced by Municipal Units and in particular landfill operators was that in order to comply with new regulations for 2nd Generation landfills, very large volumes of waste are required to allow the development of an economically feasible facility that can meet or exceed all new environmental regulations.

After completing an in-depth study of the current circumstance within our Municipality, our Region as well as adjoining Regions it was determined that if the Municipality wished to offer an economically sustainable waste management solution, that the service area must include Solid Waste Regions 1 (all of Cape Breton) and 2 (all of Pictou County, Antigonish County and Guysborough County). The existing Guysborough County Waste Management Facility is centrally located between Pictou and Sydney and therefore is considered strategically located to generate a competitive and sustainable tip fee. Within the defined target areas, which includes all of Solid Waste Regions 1 & 2, approximately 70,000 - 80,000 tonnes of municipal solid waste is generated annually. This quantity of waste allowed the Municipality to develop a 20 year business plan for the provision of solid waste services to all 17 municipal units within these two Regions.

## **EXECUTIVE SUMMARY**

The project defined in this application is primarily a long term innovative partnership developed between the Municipality of the District of Guysborough and the 16 surrounding Municipal units. This Partnership allows for the provision of solid waste services with both the risks and rewards being shared by all municipal partners. In 2005, after extensive dialogue, the

Municipality executed formal 20 year solid waste agreements with these Municipal units. The innovative strategy used in these agreements is the fact that the Municipality had guaranteed pricing within this agreement on all economically stable factors of the facility design, construction and operation and the partners will share responsibilities for the unknown factors of the construction and operation of the facility. This strategy was achieved by the Municipality guaranteeing a rate for the first five years of operation based on current economic conditions. After the first five years the partners to the agreement share the costs of new cell construction thereby reducing risk for all partners. The portion of the tip fees associated with the construction of new cells or final capping is based on actual costs and the operating costs are at a defined rate set out in the Agreement. This innovative approach ensures the lowest rates possible with all partners sharing the risks and the rewards. This method of cost sharing guarantees that the waste agreements are cost effective, sustainable and fair (for both parties) for the full 20 year term of the Agreements.

## **REASON/IMPETUS FOR INNOVATION**

The long term (20 year) waste management service Agreements executed between the Municipality of the District of Guysborough and 16 Municipal units has a very innovative pricing structure which ensures the Agreements are sustainable and fair for this extensive term. This pricing structure consists of two schedules of prices with all operations related costs being included in a **Schedule A** (attached) with fixed pricing and all construction costs (unknown) being included in **Schedule B** (attached) costs. This approach allows all Municipal units to share in risks and rewards related to tendering projects. If actual construction costs exceed estimates then the rates per tonne will increase after the initial 5 year guaranteed rate period. If the construction cost goes down then the cost per tonne for all units will go down. This pricing structure allows any and all senior government funding initiatives to be considered to reduce cell construction costs and benefit all users. An example of the fairness and effectiveness of this innovative pricing arrangement is the fact that when the federal government recently eliminated the GST portion of the HST for Municipal units the total tip fee for all units automatically reduced by \$.40 per tonne.

This pricing approach allows any and all funding scenarios for landfill cell and cap construction to be considered and any reductions in Municipal costs to be passed on to users. Also this approach is a significant improvement over either a fixed rate or cost plus contract as the risks and rewards are shared by all parties which creates incentives for all Municipal units to work regionally to reduce costs. See Table #1 Attached.

## **DESCRIPTION OF INNOVATION**

The Council of the Municipality of the District of Guysborough in 2003 recognized the need for an innovative business plan if the provincial Department of Environment's Solid Waste Strategy was to be implemented in our rural areas in a cost effective manner. Under this strategy all Municipal landfills were required to provide full containment using a double liner system referred to as 2nd Generation landfill site. The challenge for Municipal units, and in particular landfill operators, is the fact that the costs for 2nd Generation landfill liner is approximately one million dollars per acre in addition to all other machinery, equipment and operating costs. Based on extensive studies carried out by consultants, accountants and Municipal representatives, the cost per tonne to handle waste is directly related to the tonnes per year handled. In general terms, more tonnes of waste results in lower costs for all users as many of the very expensive design, construction and operating features (which are required for large or small facilities) are paid for directly or indirectly by all users.

The innovative pricing arrangement in the Waste Agreements have resulted in a strong partnership between seventeen (17) Municipal units in seven (7) counties from Pictou County to Cape Breton Regional Municipality inclusive. Whereas the financial benefits are automatically shared by all parties to the Waste Agreements there is incentive for all to find methods to reduce costs related to the on-going construction projects.

Significant environmental benefits result from this partnership as the new multi-regional 2nd Generation landfill which commenced operation January 3, 2006 has replaced seven waste facilities in Pictou County, Antigonish County, Inverness County, Richmond County and the Cape Breton Regional Municipality. The old waste facilities (1st Generation landfills) could not meet new environmental standards and therefore have been replaced with the one new 2nd Generation Waste Facility which complies with Department of Environment regulation and

protects the environment by providing 100% containment of any and all water potentially contaminated by waste. Also this partnership has allowed the garbage incinerator in Sydney to be closed. The innovative pricing arrangement resulted in 20 year agreements between the Municipal units which allowed the construction of one large scale, cost effective environmentally friendly and sustainable facility to replace all others in two Solid Waste Regions of the province. With this large scale facility which was designed to handle approximately 70,000 tonnes per year from within the two regions it is now possible to have a forty (40) tonne waste compactor which is designed to achieve waste density of approximately 750 kg per cubic meter. As a result only a small area of cell is required to accommodate a huge amount of waste. Therefore the environmental benefits are substantial reduction in amount of land used for waste disposal, reduction in green house gases, protection of ground water and dramatic reduction in air pollution.

Any water from rain, snow, or ice, from within the operating cell area at a 2nd Generation landfill is treated as leachate (contaminated water). All leachate is collected in a closed collection and storage system and transported from the site to an approved treatment facility . All storm water is treated on-site in three stages of sedimentation treatment and then released first to a man made wetland. This wetland was engineer designed with swales high grasses and cat tails to filter any storm water effluent before it is released to natural wetlands.

The pricing arrangement established in the waste agreements has already resulted in cost reductions for all users when the reduction in federal tax was applied to the agreements. In addition to this cost reduction the Municipality has applied for a \$2 million Infrastructure Grant for cell construction. It is anticipated that assistance will be available under this program. Any assistance received under this or other senior government programs will benefit all users as the tip fee will automatically be reduced.

The operation of one new large scale, hi-tech 2nd Generation landfill verses the many older smaller facilities dramatically improves the Department of Environment's ability to adequately monitor the handling of all waste to ensure compliance with provincial regulations. Also it is economically feasible to carry out regular testing of all monitoring systems in a large facility as

the significant cost of appropriate testing is supported by many tonnes of waste therefore having only a small impact on overall costs.

To some extent the project has been evaluated by the 16 Municipal units when 20 year waste agreements were signed with these agreements being based on this unique pricing arrangement. The 2nd Generation landfill has opened on January 3, 2006 and all Municipal units have now delivered waste. The 20 year sustainability of the "Partnership" established under the agreements will be the true test of the project.

## **PROJECT SUSTAINABILITY**

The Municipality of the District of Guysborough has a strategic development plan which is reviewed annually by council and staff. For the past three years the development of the multi-region 2nd Generation Waste Facility has been a priority. The acceptance of the waste Agreements for a 20 year term by the parties involved, indicates the potential sustainability of the pricing structure. The actual "Waste Agreement" is the official plan that implements the innovative pricing structure. A copy of Schedule A and Schedule B from the waste Agreement between the Municipality of the District of Guysborough and Cape Breton Regional Municipality is attached to demonstrate the effectiveness of the pricing arrangement. The same waste Agreement has been used with all Municipal units.

The negotiation phase of the waste Agreements, and in particular the pricing structure was a result of an integrated approach involving legal and financial recommendations from most parties in this Partnership. Unlike a fixed cost or cost plus Agreement there is on-going incentive for all parties to ensure costs are kept as low as possible to benefit all users.

## **CHALLENGES/SOLUTION/COMMUNICATION**

The Municipality of the District of Guysborough's decision to offer a Partnership on the handling of solid waste was triggered by the Provincial Solid Waste Strategy. To some extent the project began with the Municipality becoming a partner with the Province to implement the very proactive strategy adopted by the Provincial Department of Environment in 1995. Due to the rural nature of our solid waste region it was necessary for our Municipality to consider two solid

waste regions when looking for a cost effective solution that would assist the province in the implementation of their strategy.

The result of an extensive review by the Municipality, was the decision that if a long term cost effective solution for the handling of solid waste was to be developed by the Municipality of the District of Guysborough then a partnership with all of Region 1 (All Cape Breton) and Region 2 (All Pictou County, Antigonish County and Guysborough County) was required. Meeting/negotiations began approximately two year years ago with all Municipal units and it immediately became clear that to develop a long term (20 year) agreement that risk and reward must be shared by all parties. The need to share the risks and rewards dictated that a fixed price or standard cost plus Agreement would not be fair or sustainable. Therefore with input, advise and recommendations from numerous legal and accounting firms for the Municipality and other partners, the split pricing arrangement was developed. This split pricing ensures that all operating costs (Schedule A) which are predictable over a 20 year period are clearly established for the total term of the Agreement therefore providing a level of certainty for the partners. The Schedule B costs are primarily construction costs and not considered to be predictable for more than a five year period. The Agreement guarantees the portion of the tip fees related to Schedule B costs for a five year period but after the first five years this portion of the tip fee is directly related to construction costs. If cell construction costs decrease as a result senior government funding, favourable tenders, design or site improvements etc. all Municipal units will benefit from a reduced tip fee. If construction costs increase, then all Municipal units will share the increased costs through an increase in tip fee but the benefit is; this method ensures sustainability over the 20 year period.

Whereas the risks and rewards related to the construction of seven cells and caps designed to accommodate approximately 1.7 million tonnes of waste over 20 years are shared by 17 Municipal units the result is a very unique multi-regional Partnership. Construction costs related to the waste facility are subject to independent audits which will be provided to all partners. There is an incentive to all partners to review the audits, and recommend any possible funding or methods to reduce the overall tip fee. The innovative tip fee was the most important factor which resulted in a 17 Municipal unit Partnership which we feel will endure for the 20 year term.

In addition to the partnership on handling the waste, a partnership to treat leachate between the Municipality of the District of Guysborough, the Town of Port Hawkesbury and the County of Inverness was also formed. Leachate from the 2nd Generation landfill will be shipped to a jointly owned sewer plant in Port Hawkesbury.

## **RELATION TO AWARD CRITERIA**

This innovative waste agreement project relates directly to all aspects of the InNova award criteria/ the project presents a 20 year sustainable agreement involving 18 Municipal units providing a very cost effective waste disposal service for more than 200,000 people. The waste agreements came into effect on January 1, 2006 and waste services have been provided in accordance with these agreements for an 18 month period without any Municipal issues. The fact that risks as well as rewards are shared by all users is the key strategy of the innovative waste agreements.

## SCHEDULE "A"

During the Operating Period, the Contracting Party agrees to pay MODG fees in respect of Acceptable Municipal Solid Wastes delivered to, and accepted by MODG at the Landfill as calculated pursuant to this Schedule "A" and Schedule "B" hereto, all as adjusted pursuant to the provisions of the Agreement. Schedule A Tipping Fees pertain to the following:

- Buildings, land acquisition, roads and site maintenance;
- Equipment acquisition/disposal, maintenance and repairs;
- Wages and benefits;
- Daily cover;
- Groundwater and surface water monitoring;
- Leachate operations, transport and final treatment;
- Utilities;
- Landfill gas venting operations;
- Site hazard management;
- Closure/Post Closure;
- Hosting fee; and
- Administration

Schedule A Tipping Fees will be paid by the Contracting Party according to the following:

- (a) For the initial period of the Landfill's operation, effective from the Commencement Date to March 31, 2007, the Schedule A Tipping Fees per tonne shall be initially determined by reference to the Initial Annual Tonnage Projection described in Section 4.04(a).
- (b) For the period of the Landfill's operation during the Term, effective from April 1, 2007, the Schedule A Tipping Fees per tonne shall be determined by reference to Section 4.04(b) and the corresponding per tonne price, as adjusted, set forth in paragraph (c) of this Schedule "A" as such amount is indexed in accordance with Section 4.06 of this Agreement and, if applicable, adjusted in accordance with Section 4.05 of this Agreement).
- (c) The Schedule A Tipping Fees shall be based on the actual annual total tonnage of Acceptable Municipal Solid Wastes received from all users of the Landfill, including without limitation all Participating Municipalities at the Landfill as determined and adjusted in accordance with Section 4.04 of this Agreement.

The following table reflects the per tonne price payable by the Contracting Party for the Acceptable Municipal Solid Waste delivered to the Landfill by the Contracting Party:

THRESHOLD RANGES FOR ANNUAL ACCEPTABLE WASTES PARTICIPATING MUNICIPALITIES	TONNAGE OF MUNICIPAL SOLID WASTES FROM ALL	PRICE PER TONNE FOR SCHEDULE A TIPPING FEES UNDER THIS AGREEMENT	PRICE PER TONNE FOR SCHEDULE B TIPPING FEES UNDER THIS AGREEMENT	TOTAL PRICE PER TONNE FOR UNDER THIS AGREEMENT
40,000 tonnes to 50,000 tonnes		\$41.03	\$35.57	\$76.60
50,001 tonnes to 60,000 tonnes		\$37.36	\$32.39	\$69.75
60,001 tonnes to 80,000 tonnes		\$34.60	\$30.00	\$64.60
80,001 tonnes to 90,000 tonnes		\$34.10	\$29.50	\$63.60
Over 90,000 tonnes		\$33.00	\$28.60	\$61.60

## SCHEDULE "B"

Schedule B Tipping Fees, construction and financing costs associated with the construction of a second generation liner and cap systems that meet the requirements of all applicable Laws including the following:

### A. Landfill Liner

- Clearing and grubbing;
- Excavation;
- Geotextile and geomembrane liners; and drainage net;
- Soil, granular, and clay layers/liners;
- Leachate collection and on site preliminary treatment systems;
- Sediment and erosion control measures; and
- Engineering and design, and construction supervision and material testing; and
- Other components as required to meet all applicable Laws.

### B. Landfill Cap

- Grading pad;
- Geotextile and geomembrane liners, and drainage net;
- Soils and seeding;
- Sediment and erosion control measures;
- Landfill gas venting systems;
- Engineering and design, and construction and supervision and material testing; and
- Other components as required to meet all applicable Laws.

### C. Financing Costs

- Principal and interest payments for landfill liner and landfill cap; and
- Any directly associated fees and expenses such as Nova Scotia Municipal Finance Corporation reserve charges, commission, discount, etc.
- Third party audit costs required pursuant to paragraphs (a) (b) and (c) of the schedule.

All of the foregoing shall hereinafter be collectively referred to as the "Cost Components".

During the Operating Period, the Contracting Party agrees to pay MODG, in addition to the Schedule A Tipping Fees described in Schedule "A" hereto, the following Schedule B Tipping Fees in respect of Acceptable Municipal Solid Wastes delivered to and accepted by MODG at the Landfill:

- (a) For the initial period of the Landfill's operation effective from the Commencement Date to March 31, 2007, Schedule B Tipping Fees per tonne of

Acceptable Municipal Solid Wastes delivered to the Landfill by the Contracting Party shall be determined pursuant to the corresponding price per tonne as set forth in paragraph (d) of this Schedule "B" except that if the actual cost of the Cost Components as confirmed by a third party audit is less than the price per tonne set forth in paragraph (d) of this Schedule "B", the Schedule B Tipping Fees shall be equal to the actual cost of the Cost Components plus 25% of the difference between the actual cost of the Cost Components and the price per tonne set forth in paragraph (d) of this Schedule "B".

- (b) Effective April 1, 2007 to March 31, 2011, Schedule B Tipping Fees per tonne shall be determined pursuant to the corresponding price per tonne as set forth in paragraph (d) of this Schedule "B" except that if the actual cost of the Cost Components as confirmed by a third party audit is less than the price per tonne set forth in paragraph (d) of this Schedule "B", the Schedule B Tipping Fees shall be equal to the actual cost of the Cost Components plus 25% of the difference between the actual cost of the Cost Components and the price per tonne set forth in paragraph (d) of this Schedule "B".
- (c) Effective April 1, 2011 to December 31, 2025, the Schedule B Tipping Fees per tonne shall be determined pursuant to the corresponding price per tonne as set forth in paragraph (d) of this Schedule "B" except that if the actual cost of the Cost Components as confirmed by a third party audit is less than the price per tonne set forth in paragraph (d) of this Schedule "B", the Schedule B Tipping Fees shall be equal to the actual cost of the Cost Components plus 25% of the difference between the actual cost of the Cost Components and the price per tonne set forth in paragraph (d) of this Schedule "B". If the actual cost of the Cost Components as confirmed by a third party audit is more than the price per tonne set forth in paragraph (d) of this Schedule "B", the Schedule B Tipping Fees shall be equal to the actual cost of the Cost Components less 25% of the difference between the actual cost of the Cost Components and the price per tonne set forth in paragraph (d) of this Schedule "B".
- (d) The following table reflects the per tonne price payable by the Contracting Party for the Acceptable Municipal Solid Waste delivered to the Landfill by the Contracting Party.

THRESHOLD RANGES FOR ANNUAL ACCEPTABLE WASTES PARTICIPATING MUNICIPALITIES	RANGES OF TONNAGE FROM ALL MUNICIPAL SOLID WASTES	FOR OF ALL	PRICE PER TONNE FOR SCHEDULE A TIPPING FEES UNDER THIS AGREEMENT	PRICE PER TONNE FOR SCHEDULE B TIPPING FEES UNDER THIS AGREEMENT	TOTAL PRICE PER TONNE FOR UNDER THIS AGREEMENT
40,000 tonnes to 50,000 tonnes			\$41.03	\$35.57	\$76.60
50,001 tonnes to 60,000 tonnes			\$37.36	\$32.39	\$69.75
60,001 tonnes to 80,000 tonnes			\$34.60	\$30.00	\$64.60
80,001 tonnes to 90,000 tonnes			\$34.10	\$29.50	\$63.60
Over 90,000 tonnes			\$33.00	\$28.60	\$61.60

- (e) With the exception of paragraph (a) of this Schedule "B" all references in this Schedule "B" to the price per tonne as set forth in paragraph (d) of this Schedule "B" shall be deemed to refer to such price per tonne as adjusted for indexing as contemplated by Section 4.06 of this Agreement.
- (f) For the purposes of determining the actual cost of the Cost Components the calculation shall be made as follows.

With the exception of the initial period described in paragraph (a) of this Schedule "B" the calculation and, if applicable, adjustment of the Schedule B Tipping Fees shall be made in respect of each Fiscal Year.

For the purposes of calculating the financing costs for the Cost Components, all landfill liners other the first landfill liner will be financed over a period based on the estimated useful life of the landfill liner as adjusted hereunder. In the case of the first landfill liner the costs of such landfill liner to a maximum of two million (\$2,000,000), shall be financed over a period of ten (10) years at an interest rate of three percent (3%) per annum with the balance of the cost of such landfill liner, if any, being financed over the estimated useful life of such landfill liner at the "MFC Short Term Rate" (as defined below), the "MFC Long Term Rate" (as defined below) and/or the "MODG Long Term Rate" (as defined below) as the case may be. In the case of the second and subsequent landfill liners they will be financed over a period equal to the estimated useful life of same. Estimated useful life of a landfill liner shall be measured in years; provided that, if such period of years is not a whole number it shall be extended to not later than the next full year for the purposes of determining the financing period for such landfill liner.

Table #1

	OPERATING COSTS & FRONT END CAPITAL Year 1 to 20	CAPITAL COSTS Year 1 to 5	CAPITAL COSTS Year 6 to 15
Municipality of the District of Gaysborough (MODG)	Assumes all Risk	Beneficiary of 25% of savings below contract estimate Responsible for all costs exceeding contract estimate	Beneficiary of 25% of savings below contract estimate Responsible for 25% of costs exceeding contract estimate
Municipal Partners (16 Municipal Units)	Guaranteed Price	Beneficiary of 75% of savings below contract estimate Not responsible for cost overruns	Beneficiary of 75% of savings below contract estimate Responsible for 75% of costs exceeding contract estimate

\* All operating costs (wages, utilities, leachate transport and treatment, etc.)  
Capital costs including buildings, land acquisition and equipment costs; closure and post closure costs

\* Cost of construction of Landfill liners, Landfill caps and associated engineering and financing costs.