

**City of Thunder Bay Long-Term  
Recyclable Material  
Processing Options  
Assessment  
CIF Project 870**

*This Project has been delivered with the assistance of the Continuous Improvement Fund, a fund financed by Ontario municipalities and stewards of blue box waste in Ontario. Notwithstanding this support, the views expressed are the views of the author(s) and CIF, Waste Diversion Ontario and Stewardship Ontario accept no responsibility for these views.*



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City of Thunder Bay

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## Sign-off Sheet

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Note: The Lead Author who prepared this document is no longer employed with Stantec. Thus, we are unable to include her signature below. However, Stantec stands behind the report. Accordingly, and in compliance with Stantec's QA/QC process, the report was reviewed by two professional waste management engineers as noted below. We apologize for any inconvenience.

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## Executive Summary

Stantec Consulting Ltd. (Stantec) was retained by the City of Thunder Bay (the “City”) to recommend a preferred long-term option for processing of recyclables from their blue bag curbside collection system. Currently, the processing of these recyclables is undertaken at a private material recycling facility (MRF), owned and operated by Recool Canada Inc., under a contract with the City. Stantec evaluated five options for addressing the current and future needs of the City in managing their collected recyclables. Considerations were also made for a regional approach with participation from the surrounding communities so that preferred option could be economical and sustainable. The five options were:

1. Amend Current Contract With Recool - Equipment Upgrades for Additional Plastics Processing
2. Export Recyclables for Processing Elsewhere
3. Construct City-Owned Dual Stream MRF
4. Single Stream MRF – Recool Owned
5. Single Stream MRF – City-Owned Privately Operated

When evaluating these options, the impact on the total overall cost of operation pursuant to changing the current two-stream (fibres/containers) to a single-stream collection program was also assessed. The ‘status quo’ arrangement i.e. continued operation of the Recool MRF without any equipment upgrades has not been considered in this evaluation since it was determined during the development of SWMS that this option is not in the best interest of the City due to its inability to handle additional material types from the collected blue bag recyclables waste stream.

Based on the evaluation as a first step the City should proceed with Option 1 and negotiate with Recool Canada Inc. for retro-fitting the existing MRF for a long-term contract (e.g. 10 years) as discussed in this report. While Option 2 of transferring collected recyclables to a different MRF located at a reasonable distance from the City has competitive costs; there is a level of uncertainty with this option which, however, could be eliminated with a locally-negotiated solution. The Option 2 evaluation was based on the lowest cost transfer option which considers sorting and baling of paper fibres at the proposed new waste transfer station and transport of baled containers to a potential receiving MRF for further processing.

Of note is that the costs cited by Recool are short-term costs for contract renewal with some provision for future processing of mixed plastics/additional materials. The cost estimates provided in this report do not reflect a fixed quotation for long-term processing. As such, it is reasonable for the City to enter into more formalized negotiations for pricing for the Recool retro-fit option. Failing the ability to reach a mutually agreeable contract arrangement, the City should then pursue Option 2 for transferring waste to other preferred MRF keeping a balance of both haul distance and tipping or processing fee. Since the construction of a new MRF as per Options 3,4 and 5 were evaluated as the highest cost options, these options are least recommended for consideration by the City at this time.

## 1.0 INTRODUCTION

The City of Thunder Bay (City) recently completed a new Solid Waste Management Strategy (SWMS)<sup>1</sup>. The SWMS included an evaluation of all major solid waste management programs and services and recommended a number of programs for implementation over a ten (10) year capital and operating budget cycle.

The processing of recyclables collected through the City's blue bag recycling program is currently undertaken at a private material recycling facility (MRF) under a contract with the City and is owned and operated by Recool Canada Inc. While the SWMS considered a number of advantages and disadvantages associated with various options for long-term processing including continued use of the existing Recool MRF, construction of a new City-owned MRF, transfer of recyclable materials to other MRFs outside their jurisdiction including assessment of order of magnitude capital and operating costs; it was recommended that the City undertake a more detailed assessment of these various options and their respective costs.

Given the above and as part of the City's ongoing implementation program for the SWMS, Stantec Consulting Ltd. (Stantec) was retained to recommend preferred long-term options for processing of their recyclables collected through the blue bag recycling program. Primarily, Stantec's objectives on this project were to:

1. Develop capital and operating cost estimate for the construction and operation of a City-owned MRF.
2. Develop capital and operating cost estimate for the construction and operation of a City owned transfer station for recyclables including costs associated with their transport to Ontario-based or other markets.
3. All options to consider both single stream and dual stream design; the transfer option will also consider container baling prior to shipment for the dual stream program.
4. All options to be designed to accommodate the future needs of the local watershed surrounding Thunder Bay as defined by the MIPC Optimization Study (June 2012).
5. Recommend gate rates to receive materials from the surrounding communities.
6. Make recommendations to the City for a long-term cost-effective option for processing of recyclables collected through the blue box recycling program in consideration of the current evaluation and the analysis undertaken by other consulting firms. Such recommendations to consider participation from neighboring municipalities towards a regional approach to recyclables management.

The SWMS also addressed various advantages and disadvantages of continued dual-stream versus single-stream processing and collection but no definitive recommendation was made in

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<sup>1</sup> Comprehensive Solid Waste Management Strategy for the City of Thunder Bay prepared by Stantec Consulting Ltd. (2014)

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## Introduction

that regard. Further, a final decision has yet to be made with respect to future collection methods since it was determined that the collection system would ultimately need to reflect the chosen processing system. For instance, the transfer of recyclables to other MRFs located e.g. in Winnipeg, would require a shift away from a bag-based to a box or cart based program. This report provides further consideration to those matters and evaluates a single-stream processing system.

This report thus provides detailed cost estimates for the various potential options evaluated for processing of recyclables and would assist the City in making a definitive decision with regard to long-term processing of their recyclable materials.

Background

## 2.0 BACKGROUND

Recyclables from the residential waste stream are currently collected through a blue bag curbside recycling program where the residents are required to sort out recyclables separately into two bags (or streams) – one for the containers and other for paper products. The curbside collection is provided by Recool Canada Inc. under contract with the City. The Recool Canada Inc. who owns and operates the material recycling facility (MRF) has been receiving blue bag recyclables from the City for over 10 years for its further processing.

Under a separate assignment, the City retained Marshall Industrial to complete a condition assessment of the Recool MRF. Marshall's findings help form some of the basis for Stantec's evaluation of the long-term processing options.

In addition to the Marshall report and the SWMS, Stantec has also relied upon a ten-volume report dated June 2012 prepared for Waste Diversion Ontario (WDO) titled "*A Study of the Optimization of the Blue Box Material Processing System in Ontario*" (WDO Study). Given the large size of the complete WDO Study, this report simply references the volume number when referring to data from the WDO Study. The complete WDO Study is available on the WDO website, [www.wdo.ca](http://www.wdo.ca).

### 3.0 EVALUATION OF PROCESSING OPTIONS

Stantec considered the following five potential options for processing of recyclables in order to address the current and future processing needs of the City and surrounding communities:

- (a) Option 1 - Amend Current Contract With Recool - Equipment Upgrades for Additional Current Materials and New Plastics Processing
- (b) Option 2 – Transfer collected recyclables for further processing to other in-province/out-of-province facility
- (c) Option 3 - Construct City-Owned Dual Stream MRF
- (d) Option 4 - Single Stream MRF – Recool Owned
- (e) Option 5 - Single Stream MRF – City-Owned Privately Operated

Each option was evaluated considering a receipt of approximately 10,000 tonnes of recyclables per year. This quantity considers current City tonnage, potential growth in tonnage from new materials, and contributions from neighboring municipalities. The option to maintain the status-quo contract arrangement with Recool was not considered in this report due to it not being a preferred option as evidenced during the extensive public consultation process associated with the development of the SWMS and also it does not allow processing of additional materials, in particular a full range of plastics described further in Section 3.2 below.

The City has determined during the development of the SWMS that any future commitment to a processing system or contractor might benefit from their ability to receive and process single stream (co-mingled) recyclables. The City has not made any final decisions on changing the current two-stream collection system and the findings of this report are intended to assist in that decision-making process.

Accommodating the processing needs of surrounding communities is also a goal of Waste Diversion Ontario and of the City. Developing regional processing infrastructure can reduce overall program costs provided haul distances are not excessive.

Total capital and operating costs will have a significant impact on the decision-making process as will any identified risk to the City that may arise from any of the options. Therefore, for each of the five options the following was considered:

- Ability to Accommodate a Single or Two-Stream Collection Program
- Ability to Serve Surrounding Communities
- Total Capital and Operating Cost Per Tonne Processed
- Relative Risk to City

No considerations were given to matters relating to GHG emissions associated with long-haul transfer for the transfer scenarios or to local employment or other matters whatsoever since



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these were assumed to have only a limited financial relationship considering City's long-term processing options.

### 3.1 OPTION 1 - AMEND CURRENT CONTRACT WITH RECOOL - EQUIPMENT UPGRADES FOR ADDITIONAL CURRENT MATERIALS & NEW PLASTICS PROCESSING

The City retained Marshall Industrial Inc. to undertake a Recool MRF Review & Retrofit Study earlier in 2015. The assignment was to conduct a high level review of the Recool MRF to report on the condition of the facility and associated equipment along with its ability to serve the City's future processing requirements. Future processing requirements include processing the #3 through #7 mix plastics stream and #1 PET thermoform plastic as well as additional tonnage anticipated to be collected from the City and neighboring communities. The City's current recycling program is limited to ONP, OCC & OBB in the fibre stream and #1 PET and #2 HDPE (bottles only), polycoat/gabletop, glass, aluminum and steel in the containers stream.



Marshall Industrial determined and documented various retrofits to the Recool MRF that would be required to manage additional materials and tonnage (an increase from the current approximately 6,700 tonnes/year to an approximately 10,000 tonnes/year). The report also considered the feasibility of converting the existing dual-stream facility to a single-stream operation.

The Marshall Report generally concluded that a retro-fit of the

existing facility was feasible to accomplish the objectives set out above. It determined the extent of those retro-fits including two options, a base scenario, and an upgraded scenario that adds two additional bunkers for material sorting. Capital costs were determined to be in the order of \$2.74 M for the base scenario and \$3.06 M for the additional bunker option.

This option would allow for the continued use of dual-stream processing of recyclables along with added material types. Further, since Recool already provides services to some neighboring municipalities, a retro-fitted MRF can accommodate material from these municipalities as well through increased operating hours. Additionally, this option would allow the City to stay on their current blue bag curbside collection program. However, this won't allow single-stream processing and may present some degree of risk if new contract terms cannot be readily negotiated to the satisfaction of both parties.

### 3.2 OPTION 2 - TRANSFER RECYCLABLES ELSEWHERE FOR PROCESSING

Another potential option for the City is to transfer recyclables to other existing MRFs located at reasonable haul distance. For the purpose of this report, the various MRFs considered are located in Winnipeg, Sudbury, Bracebridge, North Bay and Guelph.

The 2014 SWMS considered the possibility of transporting recyclables for processing to other MRFs. This approach is a viable concept and is currently in place in many municipalities across Ontario. Given the lightweight nature of recyclable containers, haul distance and related costs are often the determining factor as to suitability of this approach.

It should be noted that the 2012 WDO Report did not recommend transporting recyclables from Thunder Bay as part of an optimized system for processing of recyclables in Northern Ontario (Volume 7). All options considered within the 2012 WDO Report contemplated Thunder Bay as a "processing hub" to service its own needs and those of surrounding communities subject to securing favorable local processing costs. The option of transferring recyclables to a MRF outside of the Thunder Bay area was considered from the 'least cost' haul perspective whereby paper fibres are sorted at the transfer station and containers are light baled for delivery to one of the noted MRFs. Costs were originally obtained from these MRFs based on receipt of all materials (containers and fibre). However, there may be economic benefits in transporting container and fibre streams to different facilities.

The cost of Option 2 was evaluated considering three components:

- Haul cost – for transporting recyclables to the receiving MRF
- Tipping fee at the receiving MRF for processing of recyclables
- Capital and operating cost of the proposed transfer station

The transportation costs shown in Table 1 below were calculated based on a haul rate of \$125/hour plus a 15% contingency for fuel surcharges and bad weather conditions. Transportation fees were not calculated to the Bracebridge MRF as pricing is inclusive of transportation. It was assumed ½ hour loading at the transfer station and ½ hour scaling, unloading at the receiving MRF. All transfer scenarios assumes a backhaul arrangement under the premise that there is significant commodity flow into Thunder Bay to ensure empty trailers are readily available at a discount returning to Southern Ontario.

All the processing options and associated costs are based on the assumption that the receiver/processor will retain any revenue generated from the ultimate sale of the recyclables. While the revenue sharing agreements can be negotiated in some cases, those agreements would not necessarily be comparable from option to option. Both Cascades and Emterra cited

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tipping fees in the order of \$45.00/tonne. These fees were cited at the time the SWMS was being developed and would need to be reconfirmed. Sudbury quoted \$98.69/tonne with escalations each year and will be letting a new RFP for processing in the next few years. Guelph estimated in the order of \$95 to \$120/tonne. Discussions were held with the City of North Bay but North Bay requires curbside source segregation of cardboard, containers, paper, clear and coloured glass and so this option was not included in the analysis. R&D Recycling in North Bay has no existing capacity, however cited a tipping fee of \$70-\$80/tonne and an interest in negotiating if the program would not commence in the very short term.

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**Table 1 Estimated Transportation Costs Table**

MRF Location	Tonnes Per Year		Hours to Load & Travel - One Way - Containers	Hours to Load & Travel - One Way - Fibre	Cost Per Trip Containers	Cost Per Trip Fibres	Trips Per Year*		Cost Per Year		Total Cost Per Year
	Containers	Fibres					Containers	Fibres	Containers	Fibres	
<b>Winnipeg</b>	2500	7500	9	0	\$1290	\$0	156	223	\$201,240	\$0.00	\$202,140
<b>North Bay</b>	2500	7500	13	0	\$1,870	\$0	156	223	\$291,720	\$0.00	\$291,720
<b>Sudbury</b>	2500	7500	12	0	\$1,725	\$0	156	223	\$269,100	\$0.00	\$269,100
<b>Guelph</b>	2500	7500	16.5	0	\$2,370	\$0	156	223	\$369,720	\$0.00	\$369,720

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For the Bracebridge MRF, Progressive Waste developed preliminary costing based on an estimated 9,000 tonnes which would include all capital, transportation, processing and again no revenue sharing arrangement but that costing was not reflective of a long-term operating contract and so not included in this analysis. Pricing was only obtained for a five (5) year contract. Progressive would use their existing Thunder Bay facility for sorting of fibre and baling for shipment to market and light bale of containers for haul to the Bracebridge MRF for sorting.

Capital costs for a new transfer station based on mid-quality facilities were derived from engineering estimates for transfer station construction. It is assumed that the existing scale house, scales would be utilized at the City's existing site and no land purchase is necessary. It is assumed that there is no residential access to the transfer station (as public drop-off facilities already exist at the Site). This design includes a baler and feed conveyor consistent with the intent to bale fibre and light bale containers. Site works estimates are provisional estimates and a 15% contingency has been added to be consistent with contingency allowances provided for Option 1 as shown above.

**Table 2 Transfer Station Capital Cost Estimate**

<b>Capital</b>	
Transfer Building Purchase and Erection	\$ 500,000
Spill Response Equipment	\$ 500
Fire Extinguishers (3)	\$ 500
Bollards	\$ 20,000
Residential Swing Gate Sets NG	\$ -
Scales - Installed	\$ -
Scale House	\$ -
Scale House Exterior Decking/Stairs	\$ -
Truck Load Viewing Camera	\$ -
<b>Equipment</b>	
Site 4WD Loader & Forklift	\$ 380,000
Baler and Conveyor	\$ 490,000
<b>Civil Work</b>	
Mob/Demob	\$ 100,000
Clearing	\$ 15,000
Grubbing	\$ 15,000
Site Work	\$ 500,000
Oil Water Separator and Drains	\$ 25,000
Building Foundations & Misc	\$ 775,000
Gates, Fencing, Site Signage	\$ -



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<b>Electrical Work</b>	
Total Electrical Contractor	\$ 225,000
Local Power Pulls	
<b>Utilities and Mechanical</b>	
Mechanical	\$ 75,000
Water Well	\$ 100,000
Septic	
Local Permits	\$ 5,000
<b>Engineering</b>	
Project Management	\$ 17,000
Contract Administration	\$ 13,000
Construction Support	\$ 64,000
Preliminary Design	\$ 22,000
Detailed Design (65%, 100%)	
Design Drawings	\$ 41,400
Specifications	\$ 3,000
Design Report	\$ 5,000
Site Survey Layout	\$ 6,000
Supp. Geotechnical Investigations	\$ 22,000
Existing Conditions Report	\$ 3,000
Shop Drawing Review	\$ 2,000
Materials Testing/Quality Assurance	\$ 27,000
Periodic Site Inspections	\$ 48,000
Risk Management Plan	\$ 2,000
Environmental Management Plan	\$ 2,000
Health and Safety Plan	\$ 1,000
Recycling Plan	\$ 1,000
Site Operations Manuals	\$ 2,000
As-Build Survey	\$ 3,000
Commissioning and Startup	\$ 25,000
<b>Insurance</b>	\$ 8,000
<b>Bonding</b>	\$ 70,000
<b>TOTAL INITIAL CAPITAL</b>	<b>\$ 3,613,400</b>
Contingency	\$ 542,000
<b>Total</b>	<b>\$ 4,155,400</b>



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The estimate of operating costs of the transfer station is shown in Table 3. This operating cost assumes one equipment operator for the operation of both, the loader and the forklift and four sorters for quality control and sorting of fibre.

**Table 3 Transfer Station Operating Cost Estimate**

Transfer Station Operating	Annual Cost
Scale Operator	n/a
Equipment Operator	\$60,000
Sort Staff (4)	\$140,000
Loader Fuel Cost	\$6,000
Baler Electrical Power 50hp	\$4,000
Building Electrical	\$10,000
Facility Maintenance	\$5,000
Annual Scale Calibration	n/a
Forklift Fuel	\$2,000
Facility Maintenance	\$5,000
Supplies	\$3,000
<b>TOTAL SITE COST</b>	<b>\$ 235,000</b>
<b>Total Tonnes</b>	<b>\$ 10,000</b>
<b>Cost Per Tonne</b>	<b>\$ 23.50</b>

Considering the current dual-stream collection program, the estimated costs for Option 2 would be approximately \$94 to \$123 per tonne including transportation, processing/tipping fees and transfer station capital and operating costs, The capital cost of transfer station was amortized considering a design/operating life of 25 years as discussed below in Section 4.0.

The Option 2 would also allow for single-stream collection program but at a significantly higher cost attributable to a higher tipping fee at the receiving facility due to co-mingled recyclables. The materials collected through the single-stream collection system can be shipped to any of the neighboring MRFs located in Winnipeg, Guelph or Sudbury for further processing. It is estimated that all conditions remaining same, the single stream collection system will cost City approximately \$175 to \$290 per tonne depending on the receiving MRF.

The Option 2 also permits the City to receive recyclables from other Northwestern Ontario municipalities at the transfer station for shipment elsewhere. From the risk perspective, there is relatively low risk to the City if a suitable contract can be negotiated with a receiving MRF. However, this option would not allow the City to remain on the current bag-based collection program without paying a premium to debag the recyclables at the receiving MRF.



### **3.3 OPTION 3 – CONSTRUCT CITY-OWNED DUAL-STREAM MRF**

This option would accomplish the City's objective of adding additional materials to their recycling waste stream i.e. mixed plastics as well as their processing. It is assumed that the City would construct a new MRF at its existing Site which would eliminate the need for land purchase and enable shared use of existing scales and scale house, etc. It is a straightforward approach in which the municipality is an active participant in all aspects of the project and the City managing the design, construction and operation processes to ensure costs are well managed.

The MRF can be designed to accommodate the current dual-stream collection program but also to not preclude a shift to a single-stream program in the future, much like the City of London model where there is sufficient front-end MRF space to add additional equipment if necessary, e.g. star screens. etc. This option also allows the City to receive recyclables from neighbouring municipalities.

Capital and operating cost estimates for Option 3 were derived from the estimates provided in Volume 7 of the WDO Study; the estimates provided by Marshall Industries and Stantec's experience with similar works for the design, construction and operation of a new dual-stream MRF. Based on this information and recognizing the required infrastructure, the capital cost of constructing a new dual-stream MRF would be approximately \$9.50 M. The annual cost of operating the MRF was derived from the WDO study and is estimated to be approximately \$1.28 M.

### **3.4 OPTIONS 4 AND 5 – SINGLE-STREAM MRF – RECOOL OWNED AND CITY-OWNED PRIVATELY OPERATED**

A new MRF Site would need to be constructed to support this option, either at the Recool site or at the City's Site. The existing Recool MRF cannot be retrofitted to accommodate a single stream recycling program. Capital and operating costs would be similar with the site works varying by site chosen for construction. This is the highest cost option at an estimated \$11.94 M in capital and annual operating (taken from WDO study) costs estimated in the order of \$1.46 M.

This option enables the City to shift to a single-stream program, could enable a continued-bag based collection program if bag-breaking equipment is added and would allow processing of materials from other municipalities in Northwestern Ontario. In either the Recool MRF or a City-owned MRF scenario, financing could be supported by the private sector. There are some inherent advantages to a new MRF at the existing City Site as it enables greater control of operations by the City and may also facilitate co-collection of recyclables and waste depending on future contract arrangements.

Again this is the highest cost option and the impact of new Waste Reduction and Resource Recovery legislation should be understood prior to investing in substantial new waste recycling infrastructure.



Summary of Costs

## 4.0 SUMMARY OF COSTS

The following table summarizes order of magnitude capital costs associated with each of the options considered. Buildings/structures were amortized over 25 years, mobile equipment over 7 years and stationary equipment over 10 years at a borrowing rate of 6%.

**Table 4 Order of Magnitude Capital Costs – All Options**

Long Term Processing Option	Total Capital Cost	Annual Capital Cost
<b>Retro-Fit Existing Re-Cool MRF</b>		
Structures	\$789,000	
Mobile Equipment Costs:	\$450,000	
Other Equipment Related Costs:	\$1,656,000	
Site Construction/Permitting/Engineering	\$165,000	
<b>TOTAL EQUIPMENT COST:</b>	<b>\$3,060,000</b>	<b>\$380,000</b>
<b>City - Owned Dual - Stream MRF</b>		
Structures	\$2,842,400	
Mobile Equipment Costs:	\$450,000	
Other Equipment Related Costs:	\$2,400,000	
Site Construction/Permitting/Engineering	\$3,890,000	
<b>TOTAL EQUIPMENT COST:</b>	<b>\$9,582,400</b>	<b>\$933,000</b>
<b>Re-Cool or City Owned Single Stream MRF</b>		
Structures	\$3,500,000	
Mobile Equipment Costs:	\$450,000	
Other Equipment Related Costs:	\$4,100,000	
Site Construction/Permitting/Engineering	\$3,890,000	
<b>TOTAL EQUIPMENT COST:</b>	<b>\$11,940,000</b>	<b>\$1,216,000</b>
<b>Transfer to Out-of Jurisdiction</b>		
Structures	\$1,266,500	
Mobile Equipment Costs:	\$380,000	
Other Equipment Related Costs:	\$486,500	
Site Construction/Permitting/Engineering	\$1,980,838	
<b>TOTAL EQUIPMENT COST:</b>	<b>\$4,113,838</b>	<b>\$2,529,000</b>

Table 5 below summarizes total costs for Options 1 through 5 and includes various costs associated with transportation, capital infrastructure and operation for the each Option. This cost reflects the cost per tonne for 10,000 tonnes of which 7,500 of fibre is sorted and shipped to market. The cost per tonne for the Recool retro-fit option is adapted from recent pricing provided by Recool for short-term processing, for addition of mixed plastics, for administration of capital. Costs are translated from the current range of tonnes managed to what will be an estimated 10,000 TPY to ensure capture of variable costs.

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Summary of Costs

Table 5 Annual Processing, Transportation & Capital Costs – All Options

Processing Scenarios	Annual Operating/Processing Cost*	Annual Cost Per Tonne	Annual Transportation Costs	Annual Transportation Cost Per Tonne	Amortized Annual Capital Costs	Annual Capital Cost Per Tonne	Total Annual Cost	Total Cost Per Tonne	Total Revenue Per Tonne	Net Cost Per Tonne
Retro-Fit Existing Re-Cool MRF	\$708,100	\$71	\$0.00	\$0.00	\$380,200	\$38	\$1,088,000	\$109	\$0	\$109
City - Owned Dual - Stream MRF	\$1,280,000	\$128	\$0.00	\$0.00	\$933,300	\$93	\$2,213,000	\$221	\$80	\$141
Re-Cool or City Owned Single Stream MRF	\$1,461,000	\$146	\$0.00	\$0.00	\$1,216,000	\$122	\$2,677,000	\$268	\$80	\$188
Transfer to Out-of Jurisdiction										
City of Winnipeg/Cascades	\$347,000	\$35	\$202,000	\$20	\$388,000	\$39	\$937,000	\$94	\$0	\$94
City of Guelph	\$472,000	\$47	\$371,000	\$37	\$388,000	\$39	\$1,231,000	\$123	\$0	\$123
City of Sudbury	\$482,000	\$48	\$270,000	\$27	\$388,000	\$39	\$1,140,000	\$114	\$0	\$114
R&D Recycle - North Bay	\$435,000	\$43	\$292,000	\$29	\$388,000	\$39	\$1,115,000	\$112	\$0	\$112

\*consists of operating costs or applicable transfer operating and processing/tipping fee costs applied by others as applicable

As shown, the lowest cost option based on available information at the time of this study is a transfer scenario to Winnipeg. The best local option appears to be a retro-fit of the Recool MRF. The most expensive option as predicted is the construction of a new single-stream MRF.

## 5.0 GATE RATE CONSIDERATIONS FOR OTHER MUNICIPALITIES

The overall intent of this assignment was to recommend a preferred recyclables processing solution for the City of Thunder Bay. In order to obtain the greatest economics of scale, it is preferred that neighboring municipalities utilize whatever solution is ultimately implemented by the City because economies of scale and improved bargaining positions can be achieved by consolidating larger volumes of recyclables under one contract. To that end, it is strongly suggested that during any negotiations with processors that the concept of the “same terms, fees and conditions” apply to any other participating municipalities as would apply to the City of Thunder Bay. This will allow for a transparent relationship between all municipalities and the processing contractor.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

As a first step the City should undertake negotiations with respect to a retro-fit of the Recool MRF for a long-term (e.g. 10 years) contract for processing of its recyclable materials. While one of the transfer options has competitive costs, there is a level of uncertainty with the transfer option which can be eliminated with a locally negotiated solution.

The transfer options considered were based on what was deemed likely to be the lowest cost transfer option, that is, sorting and baling of fibre at a new waste transfer station and light baling of containers. Commingled containers are light baled in the transfer station scenarios and delivered to potential receiving MRFs.

As such, it is reasonable for the City to enter into more formalized negotiations for pricing for the Recool retro-fit option. Failing the ability to reach a mutually agreeable contract arrangement the City should then enter into negotiation with respect to the transfer options. Given that construction of a new facility (dual-stream or single-stream) are the highest cost options those options are not recommended for further consideration at this time.