

Report

Waste Diversion Ontario – Continuous Improvement Fund

**City of Timmins Recycling Transfer Facility Evaluation
and Recycling System Review – Supplemental Report**



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and Recycling System Review – Supplemental Report

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1. Introduction

Waste Diversion Ontario (WDO) through the Continuous Improvement Fund (CIF) retained AECOM to undertake a *City of Timmins Recycling Transfer Facility Evaluation & System Review* in 2008. That report considered two transfer station options for the City of Timmins (for transport of their recyclables to the Sudbury MRF); a traditional transfer station (fully enclosed un-insulated clear span pre-engineered building with a concrete tip floor) and a proprietary transfer system known as the Transtor.

The Continuous Improvement Fund subsequently requested that AECOM provide more detailed transfer station operating and maintenance cost information for a traditional transfer station with compaction (like the York Region Garfield Wright Drive Transfer Station), for the traditional transfer station proposed in the Timmins report (without compaction) and for the Transtor transfer system. That is the focus of this supplemental report.

2. Traditional Transfer Station Operations & Maintenance

York Region currently contracts Miller Waste Systems to operate their Garfield-Wright facility. The transfer station has a 300 tonne/day limit for waste and is used for transfer of both waste to landfill and organic waste for processing by others. The transfer station generally operates from Monday to Friday 7:00 a.m. to 7:00



**Garfield Wright Drive MRF &
Transfer Station**

p.m. and Saturdays following statutory holidays. Moving equipment at York's transfer station includes three wheel loaders, a skid steer and two forklifts. Stationary equipment includes two Marathon Model 1475XW high speed compactors.

No specific budget data was available but the Region pays Miller based on outbound weights for waste, organics and MRF residue. In 2008 Miller transferred 27,800 tonnes of waste and 25,000 tonnes of organics. The Region would have paid in the order of \$575,000 to Miller in 2008. York's operation, unlike Timmins, involves multi-material handling as well as significantly longer distances to landfill for the waste stream (requiring two compactors and more moving equipment).

An example of a more simplified operation (with similar design features to a proposed Timmins traditional transfer station) with the same (as York) 300 tonne/day capacity is Guelph. Guelph operates the same 12 hour days with one front-end loader (two operators split 12 hour shift), one loading bay and one compactor. Guelph also transfers both waste and organics. Guelph provided their 2009 budget projections for their transfer station operation to support this report.

Table 1 summarizes costs associated with a 10-12 tonne/day transfer with compaction operation based on some of Guelph's 2009 budget projections, compactor maintenance costs provided by Metro Waste Compactor and loader replacement costs based on manufacturer's estimates.

Table 1. Traditional Transfer Stations and Transtor Operating Budgets

Transfer Station Operating Budget Items	Timmins Transfer Station with Compaction	Transtor Transfer Station
Employee Compensation		
Salaries and Wages	\$45,936	
Overtime		
WSIB		
Benefits and Allowances	\$17,455	
Purchased Goods and Supplies		
Admin and Office Expense		
Utilities		*
Building Materials	\$1,000	
Small Tools and Equipment	\$1,000	
Plumbing Supplies	\$1,000	
Electrical Supplies	\$1,900	
Janitorial Supplies		
Operating Supplies	\$2,500	
Parts	\$20,000	
Personnel Supplies		
Safety Hats/Headgear, Vests, other)	\$750	
Purchased Services		
Compactor Repairs & Maintenance	\$1,800	
Loader Repairs & Maintenance	\$9,396**	
Loader Replacement (7 years)	\$37,500	
Transtor Repairs & Maintenance		\$4,960
Dry Cleaning & Laundry	\$500	
Janitorial Services	***	
Communications		
Radios and Pagers	\$1,000	
Training		
Health & Safety		
Other		
Total	\$141,737	\$4,960

*nominal electricity required to open bottom and top of transtor unit

**based on 5% downtime and a rate of \$90.00/hour as provided by the City

***design doesn't feature office, lunchroom, washroom facilities

Timmins could operate traditional transfer station with a compactor for approximately \$142,000/year. Various services and supplies as shown are required to maintain infrastructure regardless of facility throughput. In the case of Guelph cost items like administration, utilities and health and safety training are in a centralized administration budget and so not shown in Table 1. What is clear, however, are that these and other various costs would be real costs to Timmins that they would not bear with a Transtor transfer system.

The Guelph transfer station was sized with an approximate 15,000 ft² tipping floor, significantly higher than the 928 ft² required for Timmins to transfer both its and other municipal recyclable materials. As indicated in the Timmins system review report a traditional transfer station ends up being over sized since the sizing of the tip floor, in this case, is not driven by the quantity of materials but rather the length of the transfer trailers as well as the need for and width of the overhead door to enable the delivery trucks to back into the building.

The costs shown for the Timmins transfer station include one loader operator (based on Timmins 2009 wage and benefit rates), one loader and miscellaneous costs required for ongoing building upkeep, maintenance, personnel supplies and the like. This provides a more detailed estimate of actual operating costs for Timmins (than the initial report) should they construct and operate a traditional transfer station. This estimate shown in Table 1 allocates on full time staff and loader to the operation (although it is understood that those resources could/would be allocated over other job areas at the landfill). If, for example, only 20% of staff time and the loader were allocated to the transfer station the operating budget would be more in the order of \$54,000/year.

The cost to operate and maintain a compactor is not prohibitive, but in cases not necessary, particularly for a recycling program that utilizes compaction during curbside collection. The Transtor system utilized compaction (or non-compaction) trailers for transport. A balance between curbside compaction and trailer compaction will have to be met with Timmins new system so not to adversely affect processing at the MRF.

3. Transtor Transfer Operations & Maintenance

The Transtor system operating cost shown in Table 1 is limited to routine transtor maintenance. There are no ongoing overhead costs, no direct labour costs and so no miscellaneous related costs (staff training, radios, protective clothing etc.) as required for a traditional transfer station operation. Transtor loading is undertaken by the collection vehicle operator; trailer loading is automated and controlled by the hired contractor/trailer driver. Those costs were not included in this analysis as all transfer scenarios will required the cost of truck and trailer operation and maintenance.



4. Annual Transfer Operations & Capital Costs

The projected annual capital cost for a traditional transfer station is based on the same cost estimated provided in the initial report but with the addition of a compactor. Metro Waste Compactor indicated that the City would need a 4 to 6 yard compactor for a cost in the order of \$35,000 - \$50,000. Table 2 below assumes use of a 6 yard compactor for conservative purposes.

Table 2. Transfer Operations and Annualized Capital Costs

Transfer Option	Annual Transfer Station Cost (15 year amortization - Transtor & 20 year amortization - traditional)	Total Annual Capital Cost	Total Annual Operating Cost	Total Annual Cost	Total Cost/Tonne*
Traditional Transfer with Compaction	\$774,000	\$38,700	\$141,737	\$180,437	\$67
Transtor Transfer	\$801,925	\$53,462	\$4,960	\$58,422	\$22

*based on 2,700 recyclable tonnes

The combined annual capital and operating costs for a Transtor transfer system is approximately three times less than for a traditional transfer station in the case of Timmins. Even if the City allocates labour and loader time to the operation (e.g. 20%) and utilizes the balance for other landfill operations, the cost (\$34/tonne) is still higher. This is largely due to fixed overhead costs associated with the nature of a traditional transfer station.

5. Conclusions

From a best practices standpoint it appears that some minimum tonnage limit is required to justify construction and operation of a traditional transfer station. While the R.W. Beck & KPMG *Blue Box Program Enhancement and Best Practices Assessment Project* (May, 2007) was focused on MRF operation best practices, many of the same principles apply to any infrastructure and its operation such as a transfer station. Table 2 below assesses traditional transfer station versus Transtor transfer operations for Timmins from a number of best practices, principally the following from the R.W. Beck & KPMG report:

1. that processing options make use of the available processing capacity; that they
2. have an integrated approach to design and management of operations (to take advantage of opportunities to share facilities or other resources); that they
3. provide for a reasonable degree of redundancy to minimize down time/avoiding unnecessary duplication of infrastructure; that they
4. match the scale and nature of operations infrastructure to the tasks at hand and use appropriate technology; that they
5. balance mechanization with the use of labour; that they
6. avoid double handling of materials; and they
7. maintain a flexible design and operational approach to changing needs/circumstances.

Table 3: Timmins Best Practices Assessment: Traditional and Transtor Transfer Systems

Best Practice	Traditional Transfer Station	Transtor Transfer Station
Makes Use of Capacity	No – oversized because of design restrictions for size of loading bay/trailer space requirements	Yes
Integrated Approach	Yes – can share with other municipalities	Yes – can share with other municipalities
Redundancy	Yes – sufficient tipping floor storage capacity to minimize downtime	Yes – two trailers provide sufficient storage capacity to minimize downtime
Scale to Tasks at Hand	No - building and equipment will be underutilized	Yes
Mechanization vs. Labour	No – cannot make optimum use of labour or equipment	Yes/No – no direct labour requirement for the City/unless the City elects to control trailer loading
Double Handling	No – material tipped then loaded by staff into trailers	Yes – material tipped by hauler directly into Transtor with automated loading of trailer
Flexible Design	Yes – can accommodate new material types/changing operations	Yes – additional Trailer or Transtor units can be easily added

From a best practices standpoint Timmins is better served by a Transtor transfer system than a traditional transfer station. Not only is it more cost-effective but it meets all of the principles of industry accepted best practices for processing.

