COMPARISON OF THE RECYCLING POTENTIAL

OF HAMILTON-WENTWORTH WITH

By

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Abstract

This study determines the potential for expansion within Third Sector Employment Enterprises: the recycling operation in Hamilton-Wentworth. Although the company has been in existence since 1977, it has not yet reached the level of viability acheived by other firms established at that time. This study involves a comparison of Third Sector with Halton's Recycled Resources: the recycling firm in the Region of Halton. The comparison attempts to determine what factors within Third Sector and Hamilton-Wentworth are retarding the growth of the company. A quantitative comparison was used to contrast the net revenues of the two companies, and descriptive data was used to explain and qualify the quantitative findings. The analysis reveals that despite the operational differences between the two companies, it is community participation that makes Halton's Recycled Resources more viable than Third Sector. The concluding remarks make some suggestions as to how community participation, and thus Third Sector's operation can be improved.

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Introduction

Today, as waste disposal and the full utilization of the world's shrinking resources become bigger problems, recycling has grown increasingly important. A comparison of the recycling operations of Hamilton-Wentworth and Halton Regions, with emphasis on major variables such as government funding, should determine the main factors which prevent recycling in Hamilton-Wentworth's Third Sector Employment Enterprises from equalling or exceeding the level of recycling achieved by Halton's Recycled Resources.

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This paper will show whether the potential for expansion and change is present in Third Sector Recycling. This firm is a non-profit organization concerned both with paper recycling, and with providing young welfare recipients with work experience. Founded in 1977, the company is mainly involved with newspaper recycling, and this paper is collected from curbs in Hamilton, Dundas, Stoney Creek, and Ancaster over a two week period. At present, Third Sector is funded fifty percent by the federal government through its Job Development Program, and fifty percent by the sale of the material they collect.

Halton's Recycled Resources (H.R.R.) is a region-wide curbside collection program which deals with glass, paper, and cans. Residents of Burlington, Oakville, and Milton are asked to set out their recyclable materials

separately on garbage day. The firm is partially funded by the Halton Regional government and by the Ministry of the Environment. As a privately owned recycling operation, also founded in the late 1970's, Halton's Recycled Resources is an example of the scale of facility which could be realized in Hamilton-Wentworth. Eventually Third Sector hopes to expand its operation into the collection of glass and cans from the entire Hamilton-Wentworth region. One of the goals of Third Sector is however, "To gradually reduce Third Sector's dependance on government support" (Third Sector, 1985, p.3), and expansion plans cannot be implemented without some form of increased revenue. Clearly the waste diversion potential 01 Hamilton-Wentworth is not being realized, and this study will attempt to determine the reasons for this.

Chapter 1: Methodology, Literature Review, and Data

Methodology

The comparison between Hamilton-Wentworth and Halton region will be a two stage process. Both a quantitative comparison (along the lines of a cost-benefit analysis) and a written qualitative comparison will be performed, to determine the economic feasibility of a facility such as Halton's Recycled Resources existing in Hamilton-Wentworth. Concluding remarks will discuss both stages of the comparison, in order to determine the growth

potential of Third Sector.

The information to be used in the comparison is obtained from government and company publications, and from interviews with representatives of the two operations. Phil Jensen of Third Sector, and Gwen Discepolo of Halton's Recycled Resources agreed to provide statistics and background information about their respective The quantitative analysis will organizations. use: collection costs, government funding, and the market price of recyclables as variables, while the level of community involvement will be used as an assumption which affects the level of these variables. Assuming a constant level of community input the economic feasibility of the two firms will be compared in terms of surplus of benefits over costs. The written comparison will emphasize: the size and history of the operations, community involvement, government funding, pick up schedules, special containers, and the market prices of recyclables. If the advantages of Hamilton-Wentworth equal or outweigh those of Halton, then Third Sector should become at least as viable as Halton's Recycled Resources. If the advantages of Hamilton-Wentworth turn out to be substanially lower than those of Halton, then the economic feasibility analysis in conjuction with the written comparison of the two regions, should reveal potential changes which could be made to increase the advantages of Hamilton-Wentworth and

facilitate the expansion of Third Sector.

Literature Review

Since the quantitative comparison of the two firms will entail an economic feasibility study, along the lines of a cost-benefit analysis, a brief literature review of cost-benefit analysis is necessary. This literature review will both describe cost-benefit analysis, and discuss the way in which the traditional form of analysis will be modified to fit this study.

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Cost-benefit analysis is a formal procedure for comparing the advantages and disadvantages of different projects or policies. It differs from informal methods of comparison because it defines costs and benefits in narrow terms, and relies upon specialized techniques. Cost-benefit analysis measures the costs and benefits that a project will have on society as a whole, and if the net benefits of a project are positive, then it is considered acceptable. Both Fischhoff (1977), and Peskin and Seskin (1973), provide a good discussion of the way in which costs and benefits are measured and expressed in dollar terms.

The costs of a project include both the adverse impacts of a project, and the opportunity costs. Adverse consequences are expressed in dollar terms by summing the number of occurences, multiplied by the costs of each (Fischhoff, pp. 178-179). Opportunity costs on the other hand are "the value foregone of employing a resource in one activity, rather than in its next best alternative use" (Peskin and Seskin, p.4). Thus the money expended to finance a project varies in cost to society according to the alternative uses to which it could be put. The total cost of a project is found by summing the cost of adverse consequences with the opportunity costs.

The benefits of a project as a whole can be much more difficult to measure. Intangible items such as improved health and happiness may occur as the result of a project or policy, but these are impossible to express in dollar terms. When confronted with intangible benefits, analysts estimate their worth by attempting to determine the amount people would be willing to pay for them. Benefits which are not intangible can be divided into primary and secondary benefits. According to Peskin and Seskin (p.5), primary benefits are increases in well-being directly resulting from the implementation of the project, for example: increased employment. Secondary benefits are those which result from primary benefits, for example: increased spending resulting from the increase in employment. Although primary benefits are usually easy to measure or estimate, secondary and intangible benefits are difficult to obtain accurate figures for, and thus the benefits of a project will not be as precise as the costs.

Once the costs and benefits of a project have been estimated there is a basis for the comparison of several projects: namely the value of the net-benefit of each project. The ability of cost-benefit analysis to reduce a maze of facts and figures to one value is a major advantage to this method. The economic feasiblity study to compare Third Sector with H.R.R. will involve a modified version of cost-benefit analysis which will avoid the problem of intangible and secondary benefits. Cost-benefit techniques can be used "to determine whether the capacity of existing projects should be extended, and, if so, by how much" (Michan, 1976, p.17). Rather than discussing the costs and benefits of Third Sector and H.R.R. to society, the comparison will consider the costs and benefits that location provides the two facilities. The costs will therefore be the operating expenses of the two firms, while benefits will be their revenues. The calculation of the net benefit provided by each region will determine whether Third Sector has the potential for expansion, by determining if the net benefit in Hamilton-Wentworth is equal to or exceeds the net-benefit in Halton.

To ascertain what type of costs and revenues would be involved in a waste collection operation, various references were consulted. According to Small (1971, p.116), out of the billions of dollars solid waste costs North America, "approximately 80 percent of those billions

go to the collection and transportation of wastes away from homes, offices and industries." In Pearce and Walter (1977, p.167), the authors state "the main factors affecting the financial viability of a collection scheme are, the type of scheme, the minimum uptake, the resale value and the payments to the work force." In Canadian Tinplate Recycling Council (1984, p.2) the discussion of recycling in Ontario observes that in order to approach waste diversion potential throughout Ontario, "it will require strong government support, a motivated public, convenient curbside collection, promotion, and stable available markets for the materials recycled." The general costs of a recycling organization would therefore be: transportation, labour, promotion, and plant operational costs.

Costs and revenues can be both variable and fixed, and in order to make a comparison between the two regions, the variable costs and revenues must be held constant. Fixed costs and revenues are those which remain stable regardless of changes in production, while variable costs and revenues change when the level of production is increased or reduced (Woolsey, 1976). In order to make variable costs and revenues as constant as fixed costs and revenues, the level of production must be held constant. In the case of Third Sector and Halton's Recycled Resources, the level of production is affected by the level

of community participation. By holding the level of community involvement at the same rate for both regions, the other costs and revenues can be compared. This assumption will be relaxed at a later stage of the analysis, and the two facilities will be compared to determine the effect of actual community participation rates on their net-benefit ratios.

The quantitative comparison of Halton's Recycled Resources and Third Sector will therefore require a comparison of the costs and revenues of each plant, while holding production constant. The method will have the advantage of formal cost-benefit analysis in that the net-benefits will be easy to compare, and at the same time, the qualitative comparison will provide a more detailed study.

Data

When this study was proposed, Phil Jensen of Third Sector Recycling, and Gwen Discepolo of H.R.R. were approached, and both agreed to supply the necessary data for the project; fixed and variable cost data for their respective companies. Unfortunately when approached later, H.R.R. was unable to disclose all of the information necessary for the quantitative part of the analysis. However, ample quantitative data was obtained from Third Sector, and some quantitative, and a great deal of

descriptive data was received from H.R.R. Methods of analysis in this paper have therefore been designed to estimate the missing data from that provided. It may not seem useful to perform a comparison of two industries based on data estimated from one of those industries, however, such data as: the amount of diverted material, the number of workers, and the number of trucks used at H.R.R. was available for the analysis, so it will reveal such factors as the efficiency of the two firms, and the degree of community input enjoyed by each. Rather than a complete comparison of variable and fixed costs and revenues, the emphasis of the quantitative comparison will be on variable costs and revenues. These will first be compared while holding the number of tons collected per firm constant, and then will be compared using the actual collected amounts, and community paricipation rates of the two firms.

H.R.R. suggested that the study should involve 1984 data, because 1985 was a transition year for the firm. During 1985, the firm changed its methods of funding, and also its office space. H.R.R. provided a complete list of monthly waste collection amounts for 1984, as well as some general cost and revenue figures (eg: total collection costs per ton in 1984). Third Sector provided a complete financial statement for 1984, as well as monthly collection amounts, and much descriptive information about the company's functions and collection methods.

Chapter 2: Quantitative Comparison

This report will proceed with estimation of: participation rates, transportation costs, labour costs, promotion costs, government support, and market prices on a per ton collected basis. The comparison of costs and revenues will be: firstly of revenues and costs per ton, secondly of revenues per year based on actual amounts of collected material, and thirdly of revenues per year based on a constant participation rate. Estimation of participation rates follows:

Participation Rates

In order to determine and compare the participation rates of the two industries, a basis for comparison was needed in the form of the average amount of waste produced by each household. Altering the pounds per household figures by relaxing the assumptions made, has no effect on the disparity between the participation rates of the two firms.

In a 1977 study on waste management, (City of Burlington, 1977, Appendix D), the components of Burlington's solid waste are given for residential and commercial sources:

Glass 6,000 tons Metal 3,400 tons

The total solid waste is listed as 85,500 tons. The residential component of solid waste (City of Burlington, 1977, Appendix A), is listed as 39,700 tons. Thus the proportion of residential solid waste is 46%. It is assumed that residential glass and metal waste is produced in constant proportion to the rest of the waste stream. The components of Burlington solid residential waste are therefore:

Glass 2,760 tons Metal 1,564 tons

The report also states: "...the Hamilton Spectator and Burlington Post circulate 180 tons of paper per week in Burlington" (City of Burlington, 1977, p.5). The population of the City of Burlington in 1977 was

105,714 (Regional Municipality of Halton, 1978, p.9).

The average number of persons in an Ontario household are 2.9 (Census Canada, 1981). Thus the waste disposal per household can be determined:

= 9.9

GLASS:

Tons of Glass per year = 2,760Pounds of Glass per year (x 2000) = 5,520,000Pounds/Person/Year (div. 105,714) = 52.2Pounds/person/week = 1.004Pounds/household/week (x 2.9) = 2.9

CANS: Tons of Metal per year = 1,564 Pounds of Metal per year = 3,128,000 Pounds/Person/Year = 29.6 Pounds/household/week = 1.65 NEWSPAPER: Tons of Newspaper/week = 180 Pounds of Newspaper/week = 360,000 Pounds/Person/week = 3.41

Pounds/household/week

Participation rates were calculated using the above figures, along with the tons of material collected per firm per week (Perlin, 1985, p.13, and Third Sector, 1984, p.25), and the number of households serviced by each industry (information given by Jensen and Discepolo). Appendix A shows the estimated participation rate data. Rates were calculated on a geographical basis (for Oakville, Milton, and Burlington), and for cans and glass, as well as newspapers. Participation rates in Halton are much higher than those in Hamilton-Wentworth, a factor which greatly affects the actual revenues of the two firms. A complete discussion of participation rates occurs in the qualitative comparison, but for the needs of the quantitative analysis, total participation rates for Third Sector and H.R.R. were used.

Transportation Costs

Both Halton's Recycled Resources, and Third Sector obtain most of their material through curbside collection, and both firms own several trucks to fulfill this function. To determine the type of transportation costs that H.R.R. must bear from the costs given for Third Sector (Third Sector, 1984, p.31), a comparison of the use and depreciation of the equipment belonging to the two firms must be made.

THIRD SECTOR TRANSPORTATION COSTS

Type	\$Total \$	Per Ton X	\$Per Truck
Gas & Oil	17,107.00	6.36	3,421.40
Rep <mark>a</mark> irs	14,508. <mark>0</mark> 0	5.40	2,901.60
Insurance	6,683.00	2.49	1,336.60
Deprec.	12,061.00	4.49	2,412.20
	TOTAL	L 18.74	

(Total Trucks = 5)

* Tons of material collected = 2,217 tons of newspaper, 136 tons of cardboard, and 335 tons of fine paper; a total of 2,688 tons. (Third Sector, 1984, p.30)

The degree of truck usage will be calculated on an hours per week basis, using route length and number of trucks per firm as variables.

HALTON:

Route Lengths; Burlington 6 hours/day for 5 days Milton 3 hours/day for 4 days Oakville 3 hours/day for 5 days (Short hours due to garbage day pick-up) Total hours per week: 57 Total number of trucks: 8 Hours per truck per week: 7.1

THIRD SECTOR: Route Lengths; 30 routes every two weeks, at 6 hours per route Total hours per week: 90 Total number of trucks: 5 Hours per truck per week: 18.0

The type of neighbourhood from which collection takes place in Halton and Hamilton-Wentworth is very similar. The reason for the 60% longer collection time per week in Hamilton, may be the type of labor hired by Third Sector. As a job training program, the firm hires "unemployable young people" to teach them useful job skills. The people under the program may have such problems as: illiteracy, poor work attitudes, or a simple lack of work experience.

Third Sector vehicles are used 60% more per week than Halton's, and therefore, gas and oil costs, repair costs, and depreciation (which tends to increase as equipment wears out in proportion to its use) costs per truck will be 60% higher. Insurance costs per truck will be assumed the same.

H.R.R.'S TRANSPORT COSTS

Туре	\$Total	\$Per Ton*	\$Per Truck
Gas&Oil	10,947.50	1.55	1,368.56
Repairs	9,285.10	1.31	1,160.64
Insurance	10,692.80	1.51	1,336.60
Deprec.	7,717.40	1.09	964.88
	TOTAL	5.46	

(Total trucks = 8)
* Tons of material collected: (Perlin, 1985, p.13)
1. Municipal Waste = 5,994.3
2. Industrial Waste: 1,203.0 tons x 90% (90% of
transportation costs are paid by H.R.R. to businesses
bringing material) = 1,082.7 tons. Thus the total tons of
material involving transport costs equals 7,077.0

The transportation costs of Third Sector are higher than those of H.R.R. but this is mainly owing to the slow rate of collection of material. Relaxing the assumption of equal insurance rates decreases H.R.R.'s insurance cost per truck to \$534.64, and decreases the transportation cost per ton to \$4.55, thus emphasizing the difference in the transportation costs between the two firms.

Labour

The labour costs of the two firms will first be calcluated according to the wage rates of Third Sector. H.R.R. has 8 Administrative employees, and 33 Labourers, while Third Sector has 3 Administrative employees, and 21 Labourers.

THIRD SECTOR LABOUR COSTS

Wages and Benefits for Labour: \$178,948.00 Wages per person: \$8,521.30 (Third Sector, 1984,p.29) Total Tons of Material/Year: 2,688 Labour Costs per ton: \$66.60

Wages and Benefits for Administration: \$58,284.00 Wages per person: \$19,428.00 Administrative costs per ton: \$21.70

HALTON'S LABOUR COSTS

Wages and Benefits for Labour: (using Third Sector Wages per Person) \$8,521.30 x 33 = \$281,202.90 Total Tons of Material/Year: 7,197.3 (Perlin, 1985, p.13) Labour Costs per ton: \$39.10 Wages & Benefits for Admin.: = \$9,428.00 x 8 = \$155,424.00 Administrative Costs per ton: \$21.60

Thus labour costs per ton are much higher for Third Sector than for Halton when assuming similar wages for both companies. This phenomena is only to be expected however; because of the less efficient labour force hired by Third Sector. Administrative costs per ton are very similar. When the assumption of similar pay scales is relaxed, the difference in labour costs per ton becomes less noticeable. For example if the pay at H.R.R. is assumed to be 25 percent higher than Third Sector, the labour costs per ton at H.R.R. become: \$48.80 for labour and \$26.99 for administration. Third Sector's administration costs are lower but they still have higher labour costs, thus the inefficient labour force is still a cost increasing factor despite the assumption made.

Promotion

Promotional costs per ton of material collected will be calculated by the total promotional costs per year, divided by the total material collected per year.

HALTON PROMOTIONAL COSTS

Promotion: \$12,500.00 (Perlin, 1985,p.32) Total Tons of Material: 7,197.30 (Perlin, 1985, p.13) Promotional Costs/Ton: \$1.74

THIRD SECTOR PROMOTIONAL COSTS Promotion: \$5,000.00 * Total Tons of Material: 2688.00 Promotional Costs/Ton: \$1.86

*(According to Phil Jensen, the only promotional material released by the firm in 1984 were the 100,000 pamphlets produced at a cost of \$0.05 each)

Administrative Expenses

THIRD SECTOR ADMINISTRATIVE COSTS:

(Third Sector, 1984, p.29)

Administrative Expenses: \$15,123.00 Administrative Expenses/Ton: \$5.63

Since no statement of administrative expenses is given for H.R.R., it must be assumed, that, as for fixed costs, the administrative expenses are the same between the two firms. Thus Administrative Expenses per ton for Halton's Recycled Resources are \$15123.00/7197.0 = \$2.10. This assumption is tested in the summary section on Total Expenses.

Fixed Costs

THIRD SECTOR FIXED COSTS: (Third Sector, 1984, p.29)

Plant Equipment:\$ 0.00Office Equipment:\$ 0.00Automotive Equipment:\$22,335.00Total capital expense:\$22,335.00Total Tons of Material:2,688.00Capital Expense/Ton:\$8.30

Operating Expenses: \$36,180.00 (subtract \$5,000.00 promotional cost) Operating Expense: \$31,180.00 Total Tons of Material: 2,688.00 Operating Expenses/Ton: \$11.60 TOTAL FIXED COSTS PER TON: \$19.90

As no statement of fixed costs is given for H.R.R. it must be assumed that the fixed costs of this firm are similar to those of Third Sector. A different scale of operations is present in Halton, thus fixed costs per ton are used, rather than total operating expenses. The fixed cost assumption is also tested in the Total Expenses section. Total Expenses

The only statement of costs for Halton is found in (Perlin, 1985, p.19) where collection and handling costs for 1984 are given as \$72.72 per ton.

Total Halton Expenses calculated thus far are as follows:

HALTON EXPENSES PER TON

Transportation:	\$ 5.46
Administration Wage:	\$21.60
Labour Wage:	\$39.10
Promotion:	\$ 1.74
Operating Expense:	\$11.60
Administrative Expense:	\$ 2.10
Capital Expense:	\$ 8.31
TOTAL:	\$89.91

Thus the estimated costs for Halton are almost the same as those given. "The cost of \$72.72/ ton noted in Table 10 is based on a review of operating costs incurred by Halton's Recycled Resources Limited, in administration/ collection/handling of materials for the separation at Source Programs in Halton." (Perlin, p.18) The \$72.72 figure given may not include capital costs, and all operating expenses; however it is a good indication of H.R.R.'s general costs, and shows that the estimated value is not far from the true value. Thus the assumptions about operational and administrative expenses for Halton are yielding fairly accurate results.

The costs estimated per ton for Third Sector are as

follows:

THIRD SECTOR EXPENSES

Transportation	\$	18.74
Administration Wage:	\$	21.70
Lab <mark>o</mark> ur Wage:	\$	66.60
Promotion:	\$	1.86
Operating Expenses:	\$	11.60
Adm <mark>i</mark> nistrative Expenses:	\$	5.63
Capital:	\$	8.31
TOTAL:	\$1	.34.44
TUTAL:	\$1	.34.44

Thus the costs of Third Sector are very much higher than those of Halton. The next section of this report will examine the benefits of revenue and government funding received by each firm.

Government Funding

Third Sector:

During 1984, Third Sector funding came from donations, grants, and support from Employment Canada, (for their job training program) along with interest on these grants.

(Third Sector, 1984, p.29)

Don <mark>ations:</mark>		串	11,185.00
Grants:		\$	23,850.00
Interest:		串	6,213.00
Employment	Canada:	\$1	.84,100.00

TOTAL FUNDING: \$225,348.00 TOTAL TONS OF MATERIAL: 2,688.00 TOTAL FUNDING PER TON: \$ 83.83 Halton's Recycled Resources:

According to Koci, (1984, p.7) H.R.R. received \$321,000.00 in grants from the Ontario Ministry of the Environment in 1984. In addition to this amount, H.R.R. also receive diversion credits paid to them by the Region of Halton, and the cities of Oakville, Burlington, and Milton. Diversion credits are payments made to a collection company at a fixed rate per ton of collected material. These payments are due to the savings in collection and dumping costs that the Region would have ordinarily paid to dispose of the material. Both the cities, and the Region pay \$7.83 per ton of waste diverted; a total of \$15.66 per ton.

TOTAL M.O.E. FUNDING: \$321,000.00 TOTAL TONS OF MATERIAL: 7197.30 TOTAL M.O.E. FUNDING/TON: \$44.60 TOTAL DIVERSION CREDITS/TON: \$15.66 TOTAL FUNDING PER TON: \$60.26

Thus Third Sector is more highly funded than Halton, probably because the firm is in greater need of funding.

Revenues from Sales

The two firms deal in different types of materials. Third Sector collects cardboard, fine papers (such as computer paper), and newspapers. Halton collects

the same, with the addition of glass, and cans. The prices per ton of most of these items is the same throughout Ontario.

GLASS \$30.00/TON TIN \$70.00/TON CARDBOARD \$53.00/TON (Perlin, 1985, p.9)

Paper is a less stable commodity, and prices fluctuate on a weekly basis. Halton deals with five paper companies in order to stabilize the amount of material demanded. Third Sector received on average \$35.00 per ton in 1984, (Third Sector, p.30) and it is likely that Halton received the same, although with fewer fluctuations. Fine paper received \$153.00 per ton in Ontario in 1984.

NEWSPAPER \$35.00 FINE PAPER \$153.00

To calculate the average price of material collected per ton, a percentage figure must be calculated for the types of material collected by each firm.

Third Sector:	Tons Collected	Percent of Total
Newspaper:	2217.0	82.5
Cardboard:	136.0	5.0
Fine Paper:	335.0	12.5

Total price per ton (price x percent of total): \$28.88 (newspaper) + \$2.65 (cardboard) + \$19.13 (fine paper) = \$50.66

Halton:	Tons Collected	Percent of Total
New <mark>spaper:</mark>	5515.5	76.6
Cardboard:	399.0	5.5
Fine Paper:	405.0	5.6
Gla <mark>s</mark> s:	781.1	10.9
Cans/steel:	96.7	1.3

Total weighted average price per ton: \$26.81 (newspaper) + \$2.65 (cardboard) + \$8.57 (fine paper) + \$3.27 (glass) + \$0.91 (cans) = \$42.21

Third Sector is making more on their composite dollar of material because of their emphasis on fine paper

and cardboard.

TOTAL REVENUES PER TON:

THIRD SECTOR 50.66 (sales) + 83.83 (funding) = \$134.49 REVENUE:

HALTON 42.21 (sales) + 60.26 (funding) = \$102.47 REVENUE:

COMPARISON OF COSTS AND REVENUES PER TON

Third Sector Revenues: \$134.49 Third Sector Costs: \$134.44

H.R.R. Revenues: \$102.47 H.R.R. Costs: \$89.91

Net Revenues/Ton Third Sector: \$0.05 Net Revenues/Ton H.R.R.: \$12.56

Third Sector is a non-profit organization, while Halton's Recycled Resources is a private profit-making company, and this can be seen from the revenues per ton shown above.

REVENUES PER YEAR- ACTUAL PARTICIPATION RATES

Total Tons H.R.R. 7197.3 Total Revenue H.R.R.= \$90,398.09

Total Tons Third Sector 2688.0 Total Revenue Third Sector= \$134.49

REVENUES PER YEAR- CONSTANT PARTICIPATION RATES

Actual Participation Rate Third Sector= 18.2% Actual Participation Rate Halton (newspapers)= 32.9%

Increase Third Sector to 32.9% participation rate over homes in Hamilton-Wentworth.

Tons Collected = (32.9% of potential) = 4730.0

The yearly transportation, promotion, and fixed

costs would remain constant, but labour costs and government funding would increase along with revenues. Transportation costs would remain constant as trucks would be travelling the same routes; however, labour costs and therefore government funding would increase due to the heavier work load.

COSTS

 Total transportation costs:
 \$50,359.00

 Total promotion costs:
 \$5,000.00

 Total fixed costs:
 \$53,515.00

 New Total Labour Costs:
 (\$88.30/ton * 4730 tons)

 \$417,659.00

REVENUES

New Government Funding: (\$83.83/ton * 4,730 tons) \$396,515.90 New Total Revenues: (\$50.66/ton * 4,730 tons) \$239,621.80

NET REVENUE:

 Total costs =
 \$526,533.00

 Total revenues =
 \$636,137.70

 Net total Revenue =
 \$109,604.70

This increased profit would not be as dramatic in reality since government funding would be reduced as the profit margin increased. The community participation rates are however an extremely important factor in the viability of any source separation organization, and if Hamilton-Wentworth participation rates increased significantly, Third Sector would need much less government subsidization. A section of the qualitative analysis which follows discusses participation rates and the factors which appear to control them. Qualitative Comparison

Company Histories

A brief history of the two companies will help clarify their goals and therefore the type of costs they bear and funding they receive.

Halton's Recycled Resources:

Halton's recycling operation was conceived out of ecological concern; however, one of its main goals was "to have Separation at Source regarded by both citizens and municipal officials as a legitimate municipal service"(H.R.R. Ltd., 1985, p.1). True to its goal, the firm has made innovations in municipal funding in the past, and continues to do so today. Data for this history comes from interviews with Mrs. G. Discepolo, Co-Owner of H.R.R., and an unpublished outline of the company's background; (Halton's Recycled Resources Ltd., 1985).

Proposed in 1978 as a newspaper collection program known as Burlington Paper Products, H.R.R. was authorized as a one-year pilot project by Burlington City Council. Collected material from selected areas in Burlington was sold directly to businessmen requiring waste newspaper. The pilot project was a success, and in September 1979, the organization began collecting newspapers on the same day as the regular garbage day. At the same time, H.R.R. expanded

into fine paper collection, and eventually began to service the entire City of Burlington. In 1981, H.R.R. became the first separation at source operator to receive the Ontario Ministry of the Environment Source Separation Grant.

An important breakthrough for H.R.R. came in November 1981, when the Regional Municipality of Halton passed a by-law prohibiting the disposal of recyclable newspaper in any regional landfill site. A few months later, the Town of Halton Hills also began working with H.R.R. Although Halton Hills continued to collect their own newspaper, H.R.R. marketed the material. Since 1982, the company has expanded into collection from Milton and Oakville, and into curbside collection of glass and cans from all of their serviced areas.

In 1984, another breakthrough in funding occurred, when the City of Burlington began paying for its recycling service with a waste diversion credit of one third the tipping fee (fee charged to the city per ton of waste material) per ton of diverted material. The City of Milton, followed Burlington's example two months later. Halton Region provided containers for glass, steel, and newspapers at the regional landfill sites, and H.R.R. took charge of the material collected in these.

Its many acheivements made H.R.R. the first Regional Multi-Material Separation at Source Operator in

Ontario. The organizaton expanded from 3 to 41 employees, and from 59 to 7,197 tons of diverted material per year, in less than ten years. H.R.R. has not stopped striving for improved Regional support. This spring, the firm received the first Regional contract ever given to a separation at source program. Through this contract, the organization will be paid for the service they perform, not for the amount of material they divert from the Regional land-fill sites. According to Mrs. Discepolo, a recycling firm provides a valuable ecological service for a community, therefore, the community government should be willing to pay for this service.

Third Sector Employment Enterprises

Third Sector was founded as a non-profit organization designed to counteract two major problems. The first and most important concern was the high unemployment rate among young people. The secondary concern was resource depletion. Information for this overview comes from interviews with Third Sector's Mr. P. Jensen, and from an unpublished paper listing the objectives and operations of the firm (Third Sector, 1985).

Third Sector was originally established by a group of citizens and businessmen concerned over youth unemployment. The organization signed its first contract under the federal government's Local Employment Assistance

Program (L.E.A.P.) in October 1977, and was initially entirely funded by federal money. Through the program, people between the ages of 18 and 25, considered chronically unemployed, are removed from welfare assistance. These people are given employment at Third Sector for a period of six months, during which they are given training in job skills (such as punctuality and cooperation), resume writing, job interviews, and encourgaged to undertake an extensive job search. Since its inception, the Third Sector program has managed to place over half its participants in private sector employment at the end of their six month session. At the same time, Third Sector has managed to expand its revenues to the extent that it pays half of the costs of the program.

Unfortunately only 1984 data was available for the quantitative comparison between H.R.R. and Third Sector. Since that time Third Sector has attempted several pilot projects. In April of 1985, collection of glass and cans was attempted from a small areas on Hamilton's East Mountain and in Dundas, with some success. Also at this time, a project in the Mountain area studied the use of special containers for material collection. These projects will be discussed in more detail in later in this report. Third Sector has also begun to negotiate diversion credits with some parts of Hamilton-Wentworth. These will also be

discussed in the appropriate section.

Expansion of Third Sector over the next few years will proceed along the lines of the expansion in Halton. The comparison of cost and revenue variables which follows will discuss the findings of the quantitative comparison in light of which variables can be altered to create greater equality between the net revenues of the two firms, making expansion by Third Sector more feasible.

Transportation Rates

The transportation costs of Third Sector are higher than those of H.R.R. because of the labour force hired by Third Sector. This labour force is essential to the operational goals of the organization and therefore this factor cannot be altered. If a transfer to weekly collection of material on garbage day, (as in Halton), was to take place, this would entail increased transportation (and labour) costs, since the number of trips would be doubled. A review of the pilot projects in Dundas and Hamilton East Mountain, which collected on a weekly garbage day basis, showed 93 and 77 percent increases in collected paper over the same period a year before (Jensen, 1985). The cost of new trucks, and some, or all, of the increased labour costs could be exceeded by the increased revenues brought by such a large increase in participation. Third Sector's transportation cost per ton however, is not a

factor which could be decreased without a radical change in the labour force.

Labour Costs

The cost of administration and labour is another factor influenced by the nature of Third Sector's program. Eventually the organization hopes to reduce the proportion of funding they receive from the federal government, and as already shown, an increase in community participation could help to realize this goal. The efficiency of Third Sector's Labour Force is however, not going to change.

Promotion Cost

Community awareness is a major variable in the success of a source separation program. The low participation rate of Third Sector, coupled with the mere \$5,000 budgeted for promotion (as opposed to \$12,500 for H.R.R.) reveal a definite need for a change in promotional strategy. Rather than an emphasis solely on the distribution of pamphlets, the firm should branch out into newspaper and radio advertising. H.R.R. helps "Area Municipalities to develop and implement their own promotional programs and to co-ordinate those programs where beneficial." (Perlin, 1985, p.h) Third Sector should increase the pressure on Hamilton-Wentworth Municipalities to do the same. When more people know about the

organization and its goals, more people will be willing to contribute. A promotional committee has recently been established within Third Sector's Board of Directors. Hopefully they will be able to increase public awareness of the organization.

Fixed Costs

Nothing can be done to decrease the fixed costs and administrative expenses of Third Sector. As a non-profit organization, the firm has cut equipment and administrative costs to their limit. Once expansion occurs and increased revenues become available, this is the cost category requiring the most attention.

Revenues

Prices:

The market prices of recyclable materials are not controllable. Glass and tin prices are province-wide, and paper prices fluctuate tremendously. Third Sector have negotiated a contract with Ontario Paper Company but with paper prices adjusting according to demand, the contract agreement is not always stable. Lower Third Sector Revenues are not the fault of prices, but rather the lack of material collected and sold.

Government Funding:

Third Sector hopes to decrease the amount of federal government support it receives over the next few years. One way of acheiving this is by increasing the degree of support it receives from other levels of government. Provincial funding from the Ministry of the Environment could be available to the firm, but they are seeking more support from the municipal government, whose objections to the firms goals and methods would be minimal.

At present Third Sector and Hamilton-Wentworth are negotiating a system of diversion credits. A credit of \$4.50 per tonne of collected material in the area has been received from Dundas since September 1985. Accompanying the credit from Dundas is a \$4.50 credit from Hamilton-Wentworth Region, and \$1.00 from Tricil Limited. Tricil is the organization responsible for Regional Transfer Stations (where garbage is weighed, the Region is charged per tonne, and the material is transported to the Regional dump). The total diversion credit per tonne of material from Dundas is therefore \$10.00. Since January 1986, Ancaster has been paying diversion credits under the same system, and the City of Hamilton (which has been paying for areas under the pilot project since April 1985) is expected to start paying city wide in 1986. Perhaps as environmental awareness increases, the amount of funding Third Sector receives from the Region will also increase.

Participation Rates

The major factor which has affected the relative success of H.R.R. over Third Sector is the community participation rate. On average Third Sector has a participation rate of 18.2 percent (see Appendix, Table 1), while H.R.R. has a rate of 33.9 percent (when including the paper collected from the containers provided at the regional landfill sites (see Appendix, Table 3)). Households in Halton are thus contributing at a rate almost twice as high as households in Hamilton-Wentworth. As demonstrated in the quantitative comparison, a community participation rate in Hamilton-Wentworth equal to Halton's would increase Third Sector's sales revenues from \$136,174 to \$239,621. With increased community support, Third Sector could reduce their dependence on government funding, while allowing them to expand their source separation operation. Apart from the factor of promotion which has already been discussed, there are several other variables which influence participation rates. The remainder of this section will consider the participation rate data from Appendix A, and discuss methods of increasing participation rates.

When considering the data in Appendix A, (summarized in Figure 1 below), regional, seasonal, and material patterns emerge.

Figure 1

Participation Rate Data from Appendix

33

Table Location Material Rate/Yr 1 Ham.-Went News 18.2% 2 Halton 32.9% News (no con.) 3 Halton News (contain) 33.9% 4 Halton Glass(no con.) 19.0% 5 Halton Cans (no con.) 2.4% News (no con.) 47.8% 6 Oakville 7 Glass(no con.) Oakville 24.2% 8 Oakville Cans (no con.) 1.4% 9 29.4% Burlington News (no con.) Glass(no con.) 10 Burlington 19.1% 11 Burlington Cans (no con.) 0.2% News (no con.) 12 Milton 12.5% 13 Milton Glass(no con.) 8.4% 14 Milton Cans (no con.) 5.1%

The participation trends can be described as follows: Halton as a whole (along with two cities within it) has higher community participation than Hamilton-Wentworth. One major reason for the higher rate is the by-law passed by the Regional Municipality of Halton in April 1982, which prohibits the disposal of newspaper in Regional Landfill Sites. The Regional containers in Halton make very little difference to the amount of material collected, presumably since if people are going to participate in source separation, they prefer to have their material picked up rather than deliver it to the dump. There is a major difference between willingness to contribute newspaper and willingness to contribute cans and glass. This is probably due to the increased preparation time necessary for can and glass contributions.

Glass bottles and jars must be washed, and the lables removed. Cans must be washed, lables removed, both top and bottom cut off, and then flattened. It would not be economical to have employees perform these tasks with the tons of material supplied. Seasonal trends also seem to occur for both regions and all materials. Participation tends to be low in the winter, increase in spring, decrease in the summer, and peak in the fall. Seasonal trends are probably due to such things as spring cleaning, and garage cleanup rather than changes in the amount of waste material generated. As with glass and tin contribution rates, seasonal fluctuations in participation cannot be effectively controlled. Overall participaton rates are the factor which Third Sector must try to increase.

Third Sector's 1985 pilot project revealed two variables influencing participation rates. Although the main purpose of the project was to test the feasibility of the collection of glass and cans, other factors were studied. Two areas were used for the project; 1,200 homes in Dundas and 2,000 homes on Hamilton's East Mountain (Jensen, 1985). The project involved the collection of glass, paper, and cans on a weekly garbage day basis from April to October. The mountain pilot area was also tested for the use of special containers. Two thousand bright orange collection baskets were distributed in June, along

with pamphlets explaining their use. The project yeilded

According to the pilot project review, (Jensen, 1985), participation rates in both areas nearly doubled as the result of weekly collection. For example, the Dundas area contributed 38.3 tons of newspaper between April and October 1984, and 73.9 tons during the same months a year later through the pilot project. The weekly pickup, on the same day as garbage day, is much easier for people to remember than the usual non-garbage day pickup once every two weeks. Therefore people are more likely to both collect, and to remember to put their materials out to be picked up. Weekly garbage day pickup is the method used by H.R.R., and it is probably partially responsible for the higher participation rates experienced in Halton. Third Sector would be wise to expand garbage day pickup to all areas of Hamilton-Wentworth.

The collection baskets were also a successful method of boosting participation rates. For the first three months of the project, the area on the East Mountain contributed on average 10.6 tons of material per month. After the distribution of the baskets, for the last four months of the project, the area contributed an average of 23 tons per month (Jensen, 1985). The baskets also increased the amount of cans and glass contributed (from 1.42 tons of glass & 0.6 tons of tin to 4.4 tons of glass &

1.9 tons of tin (Jensen, 1985)). As well as functioning as containers for the material, by being in their homes, the baskets remind people to recycle. The baskets also create community pressure. The presence of the baskets on curbsides throughout the neighbourhood influences non-participants to become involved in the program, since they become conspicuous by their absence. The use of containers is an excellent method of increasing community participation. Unfortunately, Third Sector is unlikely to use containers throughout Hamilton without an industrial donation to help to purchase the containers, such as the one given for the containers used in the pilot project. At present, no other contribution has become available.

The main goal of the 1985 pilot project was reached with little difficulty. Although participation rates for cans and glass were low in proportion to newspaper, Third Sector collected a total of 31.5 tons of glass and 12.25 tons of tin from the area during the seven months, (Jensen, 1985). These amounts were enough to convince Third Sector of the feasibility of multi-material collection in Hamilton-Wentworth, and collection of glass and cans throughout Dundas has been taking place since October 1985. Expansion into glass and can collection from Hamilton is expected to occur in 1986, hopefully the development will create an increased awareness of Third Sector which will make further increases in participation rates possible.

Conclusion

This report set out to discuss the major factors preventing Third Sector Employment Enterprises from equalling the level of recycling acheived by Halton's Recycled Resouces Limited. Two major factors are responsible for this phenomenon. In the first place, the job training program run by Third Sector influences the costs of collecting and transporting source separation material. In the second place, the viability of Third Sector is decreased by the lack of community support it receives. The second purpose of this report was to show whether the potential for expansion and change existed in Third Sector. It determined that the employment factor cannot be altered without jeopardizing the important function of the company's retraining scheme. Community participation, however, has the potential for improvement. Third Sector could become in time as viable as H.R.R..

The quantitative comparison of the two industries showed that Third Sector's costs per ton of collected material are consistently higher than Halton's. Third Sector's 1984 transportation costs were larger than Halton's as it was taking 33 more hours per week to collect 70 percent less material. This can be explained by the type of labour force hired by Third Sector, and also by the 47% greater participation rate enjoyed by Halton. Labour costs, administrative expenses, and promotional costs were all greater for Third Sector because of the lack of community participation and the lower worker productivity it has.

A comparison of the revenues obtained by the two firms showed that while the market prices they received were similar, there were major differences in government funding. Halton's Recycled Resources receives funding from the Ontario Ministry of the Environment, and also diversion credits paid by Halton Regional government. Third Sector receives funding from Employment Canada and has recently begun receiving diversion credits from some areas of Hamilton-Wentworth. Third Sector hopes to reduce its dependence upon federal funding, and the move toward diversion credits is an advantageous one. Unfortunately, Halton still receives fifty percent higher diversion credits, but in time, Third Sector should be able to convince Hamilton-Wentworth of the increasing importance of the function they perform, and therefore may receive more regional funding.

Apart from the cost-revenue comparison, the report also included a study of community participation rates. Third Sector receives an 18.2 percent community participation rate, while H.R.R. receives 33.9 percent. A calculation of Third Sector sales revenues at Halton's participation rate showed an increase of about \$100,000.

There are several options Third Sector should consider to improve their participation rate. First they could increase the promotion of their service. Community awareness will not improve without more media exposure for Third Sector. A possible consideration would be a grant from the Ministry of the Environment to help advertise the recycling aspect of the organization. The establishment of the promotional committee is evidence that thought is being given to this problem. Two other factors which would increase participation rates are the use of special containers and the collection of material on a weekly garbage-day basis. Third Sector is presently attempting to implement these changes along with its expansion to multi-material collection.

Clearly there are major differences between the two firms considered in this study. However, the comparison of Third Sector and Halton's Recycled Resources has revealed many alterations which could be made to improve the viability of Third Sector. At the same time, this comparison has shown that there is little difference in the basic pattern of operation and expansion between two source separation organizations. The potential for expansion and development clearly exists for Third Sector, and its progression toward financial independence need not occur at the expense of the valuable program it provides for young people.

APPENDIX

COMMUNITY PARTICIPATION RATES for:Third Sector 1984 Newspapers

Date	Tons Collected	Number of Homes	Potential Tons per Month *	% Parti- cipation
		an man hing way part than tota dan hing print that diffe t		
January	160.0	59000.0	1168.2	13.7
February	175.0	59200.0	1172.2	14.9
March	185.0	59700.0	1182.1	15.7
April	220.0	59700.0	1182.1	18.6
May	268.0	59700.0	1182.1	22.7
June	245.0	60300.0	1193.9	20.5
July	207.0	60300.0	1193.9	17.3
August	210.0	60300.0	1193.9	17.6
September	217.0	60300.0	1193.9	18.2
October	260.0	60300.0	1193.9	21.8
November	278.0	<u>40300.</u> 0	1193.9	23.3
December	188.0	67000.0	1326.6	14.2
YEAR AVE.	217.7	60508.3	1198.1	18.2

Newspapers: Without Regional Containers

Date	Tons Collected	Number of Homes	Potential Tons per Month *	% Parti- cipation
January	274.0	59000.0	1168.2	23.5
February	301.0	59000.0	1168.2	25.8
March	326.0	59000.0	1168.2	27.9
April	337.0	59000.0	1168.2	28.8
May	422.0	59000.0	1168.2	36.1
June	409.0	59000.0	1168.2	35.0
July	376.0	59000.0	1168.2	32.2
August	389.0	59000.0	1168.2	33.3
September	406.0	59000.0	1168.2	34.8
October	489.5	59000.0	1168.2	41.9
November	470.0	59000.0	1168.2	40.2
December	415.0	59000.0	1168.2	35.5
YEAR AVE.	384.5	59000.0	1168.2	32.9

COMMUNITY PARTICIPATION RATES for: Halton's Recycled Resources 1984

Newspapers: Including Regional Containers

Date	Tons Collected	Number of Homes	Potential Tons per Month X	% Parti- cipation
January	286.0	59000.0	1168.2	24.5
February	305.0	59000.0	1168.2	26.1
March	333.0	59000.0	1168.2	28.5
April	341.0	59000.0	1168.2	29.2
May	433.0	59000.0	1168.2	37.1
June	413.0	59000.0	1168.2	35.4
July	382.0	59000.0	1168.2	33.0
August	394.0	59000.0	1168.2	33.7
September	444.0	59000.0	1168.2	38.0
October	504.5	59000.0	1168.2	43.2
November	485.0	59000.0	1168.2	41.5
December	425.0	59000.0	1168.2	36.4
YEAR AVE.	395.5	59000.0	1168.2	33.9

Glass: Without Regional Containers **

Date	Tons Collected	Number of Homes	Potential Tons per Month X	% Parti- cipation
		a managa dalam		
January	66.0	59000.0	342.2	19.3
February	72.0	59000.0	342.2	21.0
March	62.6	59000.0	342.2	18.3
April	74.0	59000.0	342.2	21.6
May	81.0	59000.0	342.2	23.7
June	76.0	5900 0.0	342.2	22.2
July	60.0	59000.0	342.2	17.5
August	62.0	59000.0	342.2	18.1
September	54.0	59000.0	342.2	15.8
October	66.5	59000.0	342.2	19.4
November	51.0	59000.0	342.2	14.9
December	55.0	59000.0	342.2	16.1
YEAR AVE.	65.0	59000.0	342.2	19.0

* Potential = 2.9 lbs. per household per week
** Including Regional Containers does not make a significant
 difference in amount of glass collected. Total glass in
 all regional containers = 0 tons

Table 4

COMMUNITY PARTICIPATION RATES for: Halton's Recycled Resources 1984

Cans: Without Regional Containers **

Date	Tons Collected	Number of Homes	P <mark>ote</mark> ntial Tons per Month X	% Parti- cipation
282				
January	2.5	59000.0	194.7	1.3
February	2.5	59000.0	194.7	1.3
March	5.2	59000.0	194.7	2.7
April	2.0	59000.0	194.7	1.0
May	5.0	59000.0	194.7	2.6
June	3.0	59000.0	194.7	1.5
July	3.0	59000.0	194.7	1.5
August	6.0	59000.0	194.7	3.1
September	3.0	59000.0	194.7	1.5
October	8.5	59000.0	194.7	4.4
November	8.0	59000.0	194.7	4.1
December	7.0	59000.0	194.7	3.4
YEAR AVE.	4.6	59000.0	194.7	2.4

* Potential = 1.65 lbs. per household per week
** Including Regional Containers does not make a significant
 difference in amount of cans collected. Total tin in all
 regional containers = 0 tons

Date Tons Number Potential % Parti-Collected of Homes Tons per cipation Month * 20000.0 396.0 36.4 January 144.0 February 170.0 20000.0 42.9 396.0 March 178.0 20000.0 396.0 44.9 175.0 20000.0 396.0 44.2 April 231.0 20000.0 May 396.0 58.3 206.0 20000.0 396.0 52.0 June July 185.0 20000.0 396.0 46.7 189.0 20000.0 396.0 47.7 August September 195.0 20000.0 396.0 49.2 October 225.0 20000.0 396.0 56.8 November 200.0 20000.0 396.0 50.5 396.0 December 175.00 20000.0 44.2 YEAR AVE. 189.4 20000.0 396.0 47.8

Oakville Newspapers: Without Regional Containers

Oakville Glass: Without Regional Containers **

Date	Tons Collected	Number of Homes	Potential Tons per Month X	% Parti- cipation
January	24.0	20000.0	116.0	20.7
February	22.0	20000.0	116.0	19.0
March	22.0	20000.0	116.0	19.0
April	27.0	20000.0	116.0	23.3
May	31.0	20000.0	116.0	26.7
June	28.0	20000.0	116.0	24.1
July	31.0	20000.0	116.0	26.7
August	32.0	20000.0	116.0	27.6
September	30.0	20000.0	116.0	25.9
October	35.0	20000.0	116.0	30.2
November	25.0	20000.0	116.0	21.6
December	30.0	20000.0	116.0	25.9
YEAR AVE.	28.1	20000.0	116.0	24.2

* Potential = 2.9 lbs. per household per week
** Including Regional Containers does not make a significant
 difference in amount of glass collected. Total glass in
 all regional containers = 0 tons

Oakville Cans: Without Regional Containers **

Date	Tons Collected	Number of Homes	Potential % Parti- Tons per cipation Month *	ſ
January	0.0	20000.0	<u> </u>	
February	0.0	20000.0	66.0 0.0	
March	0.0	20000.0	66.0 0.0	
April	0.0	20000.0	66.0 0.0	
May	0.0	20000.0	66.0 0.0	
June	0.0	20000.0	66.0 0.0	
July	0.0	20000.0	66.0 0.0	
August	0.0	20000.0	<u>66.0</u> 0.0	
September	0.0	20000.0	<u>66.0</u> 0.0	
October	5.0	20000.0	66.0 7.5	
November	3.0	20000.0	<u>66.0</u> 4.5	
December	3.0	20000.0	<u>66.0</u> 4.5	
YEAR AVE.	0.9	20000.0	66.0 1.4	

* Potential = 1.65 lbs. per household per week
** Including Regional Containers does not make a significant
 difference in amount of cans collected. Total tin in all
 regional containers = 0 tons

Table 8

Burlington Newspapers: Without Regional Containers

Date	Tons Collected	Number of Homes	Potential Tons per Month *	% Parti- cipation
January	125.0	29500.0	584.1	21.4
February	128.0	29500.0	584.1	21.9
March	144.0	29500.0	584.1	24.7
April	140.0	29500.0	584.1	23.9
May	162.0	29500.0	584.1	27.7
June	173.0	29500.0	584.1	29.6
July	161.0	29500.0	584.1	27.6
August	167.0	29500.0	584.1	28.6
September	177.0	29500.0	584.1	30.3
October	232.0	29500.0	584.1	39.7
November	240.0	29500.0	584.1	41.1
December	210.0	29500.0	584.1	36.0
YEAR AVE.	171.6	29500.0	584.1	29.4

COMMUNITY PARTICIPATION RATES for: Halton's Recycled Resources 1984

Burlington Glass: Without Regional Containers ** Number Potential % Parti-Date Tons Collected of Homes Tons per cipation Month * January 41.0 29500.0 171.1 24.0 February 49.0 29500.0 171.1 28.6 March 40.0 29500.0 171.1 23.4 29500.0 171.1 April 43.0 25.1 45.0 29500.0 171.1 May 26.3 June 43.0 29500.0 171.1 25.1 23.0 29500.0 171.1 July 13.4 August 24.0 29500.0 171.1 14.0 171.1 September 20.0 29500.0 11.7 October 29500.0 171.1 25.0 14.6 November 20.0 29500.0 171.1 11.7 December 20.0 29500.0 171.1 11.7 YEAR AVE. 32.8 29500.0 171.1 19.1

* Potential = 2.9 lbs. per household per week
** Including Regional Containers does not make a significant
 difference in amount of glass collected. Total glass in
 all regional containers = 0 tons

COMMUNITY PARTICIPATION RATES for: Halton's Recycled Resources 1984

Burlington Cans: Without Regional Containers **

Date	Tons Collected	Number of Homes	Potential Tons per Month X	% Parti- cipation
and the second				anna anna anna anna anna anna anna ann
January	2.5	29500.0	973.5	0.3
February	2.5	29500.0	973.5	0.3
March	5.0	29500.0	973.5	0.5
April	1.0	29500.0	973.5	0.1
May	3.0	29500.0	973.5	0.3
June	1.0	29500.0	973.5	0.1
July	1.0	29500.0	973.5	0.1
August	3.0	29500.0	973.5	0.3
September	1.0	29500.0	973.5	0.1
October	1.5	29500.0	973.5	0.2
November	2.0	29500.0	973.5	0.2
December	2.0	29500.0	973.5	0.2
YEAR AVE.	2.1	29500.0	973.5	0.2

* Potential = 1.65 lbs. per household per week
** Including Regional Containers does not make a significant
 difference in amount of cans collected. Total tin in all
 regional containers = 0 tons

COMMUNITY PARTICIPATION RATES for: Halton's Recycled Resources 1984

Milton Newspapers: Without Regional Containers

Date	Tons Collected	Number of Homes	Potential Tons per Month X	% Parti- cipation
January	5.0	9500.0	188.1	2.7
February	3.0	9500.0	188.1	1.6
March	4.0	9500.0	188.1	2.1
April	22.0	9500. 0	188.1	11.7
May	29.0	9500.0	188.1	15.4
June	30.0	9500.0	188.1	15.9
July	30.0	9500.0	188.1	15.9
August	33.0	9500.0	188.1	17.5
September	34.0	9500.0	188.1	18.1
October	32.5	9500.0	188.1	17.2
November	30.0	9500.0	188.1	15.9
December	30.0	95 <mark>00.0</mark>	188.1	15.9
YEAR AVE.	23.5	9500.0	188.1	12.5

COMMUNITY PARTICIPATION RATES for: Halton's Recycled Resources 1984

Milton Glass: Without Regional Containers **

Date	Tons Collected	Number of Homes	Potential Tons per Month *	% Parti- cipation
NAME NAME NAME AND ADDRESS AND ADDRESS				
January	1.0	9500.0	49.4	2.0
February	1.0	9500.0	49.4	2.0
March	0.6	9500.0	49.4	1.2
April	4.0	9500.0	49.4	8.1
May	5.0	9500.0	49.4	10.0
June	5.0	9500.0	49.4	10.0
July	6.0	9500.0	49.4	12.1
August	6.0	9500.0	49.4	12.4
September	4.0	9500.0	49.4	8.1
October	6.5	9500.0	49.4	13.2
November	6.0	9500.0	49.4	12.1
December	5.0	9500.0	49.4	10.0
YEAR AVE.	4.2	9500.0	49.4	8.4

* Potential = 2.9 lbs. per household per week
** Including Regional Containers does not make a significant
 difference in amount of glass collected. Total glass in
 all regional containers = 0 tons

COMMUNITY PARTICIPATION RATES for: Halton's Recycled Resources 1984

Milton Cans: Without Regional Containers **

Date	Tons Collected	Number of Homes	Potential Tons per Month X	% Parti- cipation
January	0.0	9500.0	31.4	0.0
February	0.0	9500.0	31.4	0.0
March	0.2	9500.0	31.4	0.6
April	1.0	9500.0	31.4	3.0
May	2.0	9500.0	31.4	6.4
June	2.0	9500.0	31.4	6.4
July	2.0	9500.0	31.4	6.4
August	3.0	9500.0	31.4	9.6
September	2.0	9500.0	31.4	6.4
October	2.0	9500.0	31.4	6.4
November	3.0	9500.0	31.4	9.6
December	2.0	9500.0	31.4	6.4
YEAR AVE.	1.6	9500.0	31.4	5.1

* Potential = 1.65 lbs. per household per week
** Including Regional Containers does not make a significant
 difference in amount of cans collected. Total tin in all
 regional containers = 0 tons

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