

is classified as mixed C&D waste which is generally sent to Try Recycling in London for recycling; the remaining 5,700 tonnes is classified as demolition waste which includes C&D waste mixed with residential garbage. This waste is not easily recycled and is landfilled.

The analysis has concluded that about 42,000 tonnes of IC&I waste are sent for disposal by IC&I generators within Oxford County. About half of this total, or 21,000 tonnes, are disposed within the County. The remaining 21,000 tonnes are exported outside the County for disposal.

The results of the hauler survey discussed in Section 6 suggest that the amount of IC&I waste exported could be substantially higher than 21,000 tonnes.

The four major haulers together disposed about 14,847 tonnes (almost 15,000 tonnes) of IC&I waste at the Oxford landfill in 2016. The major haulers report that they export more than 50% and up to 100% of IC&I waste out of the county for reasons discussed in Section 6. If the 50% is correct, these four haulers together (which account for most of the IC&I waste disposed from County sources) would export about 15,000 tonnes per year. If they export up to 75% (as one hauler commented was a guess at the total exported), then the waste disposed in the county would only be 25% of the total, and the exported amount would be 45,000 tonnes/year. However, best estimates of the total IC&I waste requiring disposal is 42,000 tonnes per year, so the 60,000 tonnes/year figure based on exporting 75% of the waste from the County is high.

It is therefore recommended that the value of 21,000 tonnes exported is reasonable for planning purposes.

To explore this issue further, County staff would need to hold meetings with each hauler to explore the extent to which they are willing to share tonnage information with the County.

5.0 IC&I SECTOR SURVEY

A survey of about 600 businesses in Oxford County was carried out in early April 2017 to collect information on the following topics:

- The nature of the business (manufacturing, warehousing, retail, service industry, etc.);
- The number of employees at the business;
- Which waste hauler is used for garbage and recycling collection;
- How many garbage, recycling, etc. bins are used: what size (2,4, 8 cu yds. and other options) of bins are used for each waste stream at the facility;
- How often the bins are picked up, and how full they are when picked up (1/4; 1/2; 3/4, etc.);
- What materials are sent directly to recycling (metals, plastics, wooden pallets, etc.), and what volumes are recycled.

The survey form is presented in Appendix A. Results of the survey are discussed in this section, and some are presented graphically in Appendix D.

5.1 IC&I Survey Responses and Results

A list of approximately 600 contacts of businesses in the County was compiled from business directories found on the websites of County municipalities, and a review of websites of local businesses.

Given the importance of the agricultural sector in Oxford County, and the observation that many farms tended to have a 4 cubic yard bin on site and tended not to use the municipal curbside garbage collection system, it was considered important to explore how the agricultural sector managed their waste. The local chapter of the Ontario Federation of Agriculture was contacted to explore sharing their mailing list with the study team. This could not be done for privacy reasons but the OFA representative offered to distribute the survey to about 1,000 members, and in fact 23 participated in the survey.

A total of 92 responses were received including 23 from farmers and the agricultural sector, and 70 from other businesses. The number of surveys by sector and the response rate are presented in Table 5.1 below.

Table 5.1 IC&I Survey Participant Response Rates

NAICS Grouping	# surveyed	# of responses	% of response	# of employee in firms who responded	Reported Garbage Rates ¹⁴ tonnes/emp/year
11 Agriculture, forestry, fishing and hunting	1,029*	23	2%	56	1.08
31-33 Manufacturing	153	14	9%	600	0.68
41 Wholesale trade	54	7	13%	42	0.91
44-45 Retail trade	78	9	12%	52	1.31
48-49 Transportation and warehousing	48	3	6%	33	0.72
54 Professional, scientific and technical services	56	6	11%	34	1.28
56 Administrative and support, waste management and remediation services	28	1	4%	5	0.10
61 Educational services	8	7	88%	240	0.45
62 Health care and social assistance	68	8	12%	70	0.17
72 Accommodation and food services	47	2	4%	12	0.29
81 Other services (except public administration)	44	11	25%	49	1.30
91 Public administration	13	1	8%	23	0.29
TOTAL	1,618	92	6%	# of employee in firms who responded	Reported Garbage Rates ¹⁵ tonnes/employee/year

Table 5.1 summarizes the number of responses received from Oxford County businesses by broad NAICS category, the number of employees reported in the companies who responded, and the estimated amount of garbage disposed, expressed as kg/employee/year. This value was calculated from information provided by survey participants on the size of bins they used, how often they were picked up and how full they were when picked up. Survey participants were asked a series of questions related to the size of garbage bins they used, how often the bins were collected, and how full the bins were when collected. Information from the responses was converted to tonnes/year and then divided by the number of employees to estimate

¹⁴ Some companies reported tonnage data but in most cases garbage tonnages were estimated from information on the fullness of bins when collected and the frequency of collection. This is a very approximate calculation as assumed densities may not have been experienced and bins may be lighter than calculated.

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kg/employee/year of garbage produced. A general rule of thumb for large IC&I studies used to be that IC&I waste generation was about 1 tonne/employee/year. This value has gone down over time with efficiency in many manufacturing industries, and more waste diversion. It is now more like 800 kg/employee/year. The values calculated from survey responses and presented in Table 5.1 are within the range expected.

It should be noted that a high response was received from contacts in the agricultural category, likely due to the cooperation and help from the local Ontario Federation of Agriculture.

While the waste quantity results are helpful, it should be noted that the survey represented a relatively small percentage of all the businesses in Oxford County (over 11,000), so that the results should be considered valuable for qualitative data. For quantitative data, larger data sets are combined with the Oxford County survey results and are used in this study.

When asked if they put residential waste in the IC&I bins, 26 of the survey respondents indicated yes, 24 responded that they did this occasionally and 43 indicated that they did not put residential waste in the IC&I bins.

Table 5.2 presents information provided on the haulers and recycling companies reported to serve the survey respondents. Generally, most garbage service to businesses in the County is provided by 4 companies:

- MCQ Handling
- Norfolk Disposal
- Progressive Waste Solutions
- Waste Management

A wider range of companies provide recycling services, with many companies specializing in a few materials (such as metals, etc.).

Table 5.2 Haulers and Recycling Companies Used by IC&I Survey Participants

NAICS Grouping	Haulers Used	Recycling Companies Used	Materials Recycled
11 Agriculture, forestry, fishing and hunting	MCQ Handling Norfolk Disposal Progressive Waste Solutions Waste Management	Dundee Recycling John Zubick Limited Scrap Metals and Recycling Progressive Waste Solution Silo Scrap Metal Switch Energy (bale wrap recycling)	Scrap metals, plastics, mixed curbside
31-33 Manufacturing	MCQ Handling Norfolk Disposal Progressive Waste Solutions Waste Management	Envirosystems Incorporated (for liquid wastes) HCM Recyclers John Zubick Limited Scrap Metals and Recycling London Metal MCQ Handling Norfolk Disposal Progressive Waste Solutions Shamrock Metal Recycling Triple M Metals (St. Thomas) Triple M Metals (Toronto) Wentworth Metal Recycling	Scrap metals, Cardboard, Wooden Pallets, some boxboard, some mixed curbside
41 Wholesale trade	MCQ Handling Norfolk Disposal Progressive Waste Solutions	Integra Shredding Progressive Waste Solutions Waste Management	Cardboard, some boxboard, some pallets, mixed curbside
44-45 Retail trade	MCQ Handling Norfolk Disposal Progressive Waste Solutions Waste Management	Fusion Youth Centre (electronic waste)	Cardboard, metal, some plastics, mixed curbside
48-49 Transportation and warehousing	MCQ Handling Waste Management	Waste Management	Boxboard, other paper, plastics
56 Administrative and support, waste management and remediation services	Waste Management	Waste Management	Mixed curbside with emphasis on cardboard and paper
61 Educational services	Waste Management	Waste Management	Cardboard, plastics, other paper
62 Health care and social assistance	Progressive Waste Solutions Stericycle Waste Management		Plastics, cardboard, boxboard, other paper, glass, metal
81 Other services (except public administration)	GFL (for waste oil) MCQ Handling Norfolk Disposal Progressive Waste Solutions Waste Management	Shamrock Metal Recycling Waste Management	
91 Public administration			Cardboard, glass, mixed curbside with emphasis on cardboard, boxboard and other paper

As would be expected, significant recycling of scrap metal occurs in the manufacturing sector in particular. Pallets and cardboard are also recycled by many sectors.

Table 5.2 also presents information provided by survey participants on the materials recycled by the business. Where information was provided on the bin sizes used and how often they were picked up, approximate values for the likely tonnage of recycling were estimated. In some cases, based on the survey responses, significant amounts of materials, estimated at up to 20,000 tonnes per year, particularly metals, are recycled by survey participants. This is not surprising given the nature of the businesses who responded. The estimated recycling rates were considered too high based on standard densities and the number of pick-ups reported by respondents so the values are not included in the report. Should a better number be needed, a different more focussed survey would be needed of specific business sectors. In many cases, the reported recycling is direct “BtoB” or “business to business” and does not involve intermediate processing.

Many farms and agricultural operations rent bins from private haulers for waste disposal. The size of containers varies, from 2 cy yds. up. The frequency of collection varies, with some collected on a weekly, every other week or monthly schedule depending on the account. The amount and type of waste set out by farmers is varied and seasonal. In spring, there is a lot of rock wool from clean out of growing containers; this can be recycled. At other times, there is significant amounts of vines when these plants are pruned. Bale wrap was also mentioned as a material disposed by farmers. The farm containers may contain residential waste also.

6.0 HAULER SURVEY RESULTS

The IC&I survey results indicated that most IC&I accounts were serviced by four haulers:

- MCQ Handling
- Norfolk Disposal
- Progressive Waste Solutions
- Waste Management

All four haulers were contacted and asked a series of questions presented in Appendix E. All haulers responded to the survey either through an interview or by email communication. Interviews were held with two haulers; a brief interview was held with a third hauler and some additional information was sent by email following the interview and a fourth hauler responded by email.

All four haulers indicated that they all export significant amounts of IC&I waste outside of Oxford County for disposal. The range quoted was from > 50% to 75% to 90% or more, depending on the hauler.