

Appendix B contains a table which shows a more detailed breakout of the specific areas within each broader category where business is concentrated (e.g. in animal production and aquaculture and crop production for agriculture). The very large number of businesses without employees in the real estate sector (1,269 without employees in real estate leasing) is worth noting.

### 3.3 Number of Farms in Oxford County

Table 3.4 presents the number of farms in Oxford County, measured by Statistics Canada in 2011. At that time, there were 205,730 farms and operators recorded in Canada, with 1,815 in Oxford County. The largest number of farms are recorded in Norwich and Zorra, with over 460 farms recorded in each census tract. Farms were included in the IC&I survey (discussed in Section 5) as many of them rent bins from waste management companies and appear to manage their waste separately from the County residential system.

**Table 3.4 Number of Farms and Operators in Oxford County in 2011 (Statistics Canada)**

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Census Division Within Oxford County <sup>8</sup>	Census Tract Number	Number of Farms and Operators in Oxford County in 2011
Oxford	CD350132000 <sup>9</sup>	1,815
Norwich	CCS350132002	466
South-West Oxford	CCS350132012	307
Zorra	CCS350132027	464
East Zorra-Tavistock	CCS350132038	264
Blandford-Blenheim	CCS350132045	314

## 4.0 ESTIMATE OF IC&I AND C&D WASTE QUANTITIES

The likely amount of IC&I waste expected to be disposed from County sources was estimated by pro-rating known quantities from Statistics Canada surveys and studies completed in other municipalities to Oxford County using a mix of population and employment statistics. The approach to the estimates is presented in this section, with a summary of the likely range at the end of the section. The estimated total IC&I waste disposed was used for the IC&I model analysis presented in Section 6 of this document.

<sup>7</sup> Statistics Canada. Table 004-0237 - Census of Agriculture, total number of farms and farm operators, every 5 years (number)

<sup>8</sup> Due to confidentiality constraints, the data for one or more geographic areas having very few farms may be combined with the data from another census consolidated subdivision or census division.

<sup>9</sup> The nine-digit geographic code at the end of the geographic names comprises two digits for the province, two for the census agricultural region, two for the census division and three for the census consolidated subdivision. [Reference maps](http://www.statcan.gc.ca/ca-ra2011/110006-eng.htm) provide the geographic boundaries, codes and names for all geographic areas appearing in the data tables

C&D (construction and demolition) or CRD (construction, renovation, demolition) waste generation is a function of construction and demolition activity in the County and varies significantly from one year to the next, depending on economic activity and general development activity. C&D waste estimates are considered separately from IC&I estimates as they are not directly related to number of employees.

#### **4.1 Estimate of IC&I and C&D Waste Quantities Using Statistics Canada Data**

Statistics Canada surveys waste haulers across Canada every two years using the WMIS (Waste Management Industry Survey). The survey estimates total waste generated, diverted and disposed across Canada by Province, split into the residential and non-residential sector. The most recently available data are for 2014. Data are also available for 2010 and 2012. It is more accurate to work with IC&I waste where C&D waste is excluded, and then deal with C&D waste as a separate category, because the production of C&D waste varies greatly from one year to another based on construction and demolition activity, which is based on development patterns and the economy. IC&I waste also varies somewhat depending on the economy, but the changes from one year to another are less dramatic.

The 2010 data have been used as a starting point for the estimates in this report because a break-out of C&D (construction and demolition) waste was available from the total non-residential waste reported in that year only. Statistics Canada reported in the WMIS (2010) that 6,043,151 tonnes of waste were disposed from non-residential sources (IC&I and C&D) in Ontario in 2010. Some of this waste was disposed in Ontario and the remainder was disposed at landfills in a few neighbouring US states (mostly Michigan and New York).

Discussions with Statistics Canada staff during a separate Kelleher Environmental project indicated that about 400,700 tonnes of the 6,043,151 tonnes disposed from Ontario non-residential sources are C&D waste, therefore the actual amount of IC&I waste disposed is estimated at 5,642,451 tonnes.

Oxford County population is about 0.8% of Ontario's population<sup>10</sup>, therefore Ontario IC&I waste disposed data were multiplied by 0.8% to develop approximate estimates of the amount of IC&I waste disposed for Oxford County.

Estimates of waste disposed from non-residential sources (IC&I and C&D) in Oxford County are presented in Table 4.1 below based on pro-rating to Ontario totals. The table shows that total

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<sup>10</sup> In 2016, the census population for Oxford County was 110,862, which was a 4.9% increase from 2011 when the population was 105,719 (Statistics Canada Census 2016: Watson and Associates Economists Ltd. 2014)

wastes disposed are going down somewhat in every 2-year cycle. This is related to lower manufacturing in Ontario, increased recycling and waste diversion, and innovation and efficiencies which have reduced manufacturing and other waste in general.

**Table 4.1 Estimated C&D and IC&I Waste Disposed from Oxford County Sources Based on Statistics Canada Data**

	2010	2012	2014
<b>Ontario Non-Residential Waste Disposed</b>	6,043,151	5,820,338	5,674,507
<b>Ontario C&amp;D Waste Disposed</b>	400,900	386,119	376,444
<b>Ontario IC&amp;I Waste Disposed</b>	5,642,451	5,434,219	5,298,063
<b>Oxford IC&amp;I Waste Disposed Pro-rate From Ontario By Population (0.8%)</b>	45,140	43,474	42,385
<b>Ontario C&amp;D Waste Disposed</b>	400,900	386,119	376,444
<b>Oxford C&amp;D Waste Disposed Pro-rate From Ontario By Population (0.8%)</b>	3,200	3,089	3,012
<b>Total Non-Residential Waste Disposed from Oxford County Sources</b>	48,340	46,563	45,396

The table shows that about 45,000 to 47,000 (average 46,000) tonnes of waste would have been disposed from Oxford County non-residential sources in the last few years, if Oxford County produces waste at the same rate as other communities in Ontario.

Figures presented later in this section show that the actual C&D waste is considerably more than the value from the Statistics Canada estimate. Statistics Canada acknowledge that their methodology likely misses a lot of C&D waste.

## 4.2 Estimate of IC&I Waste Disposal Using Owen Sound Study Data

Results from an Owen Sound IC&I Study were used as the basis of a second estimate for Oxford County. The City of Owen Sound has a population of about 22,000, with an additional 10,000 living in the surrounding area. The City instituted a mandatory recycling by-law in 2006, requiring all IC&I establishments to submit a waste audit report identifying the amount of waste produced, diverted and disposed. A project was initiated by the Ministry of Environment in partnership with the Ontario Waste Management Association to support Kelleher Environmental in the analysis of the City of Owen Sound data on a confidential basis<sup>11</sup>.

<sup>11</sup> The City of Owen Sound Council approved the May 6, 2008. Minutes of the *Environment and Waste Management Advisory Committee*, recommending that the City participate in the waste audit data analysis project. The City of Owen Sound agreement provided Kelleher Environmental with access to the City of Owen Sound's IC&I waste audits; the information provided to Kelleher Environmental remained confidential under the *Municipal Freedom of Information and Privacy Act*.

Data from 687 waste audit reports submitted by businesses in Owen Sound were analysed. Information on waste density, and the quantities of waste and recyclables generated by City of Owen Sound businesses was provided by Miller Waste, a waste management company which provides most of the IC&I waste collection service to City of Owen Sound businesses, and operates a transfer station in City of Owen Sound through which most of the City of Owen Sound IC&I waste is handled.

The City of Owen Sound provided a unique opportunity to capture all of the IC&I waste generated and disposed within the community because there are no other waste disposal options (besides the Miller Transfer Station) for waste disposal, hence all of the IC&I waste disposal data can be captured. This is different to almost all other communities in Ontario except Ottawa (discussed below), as other communities have transfer stations from which IC&I waste is often exported to the US or to landfills outside of the municipality where the waste is generated, therefore accurate IC&I waste quantities are not known. This situation may change over time with regulations which may be enacted under the *Waste Free Ontario Act* requiring the reporting of IC&I waste quantities to the new Registry being established by the Resource Productivity and Recovery Authority (RPRA).

**Table 4.2 Amount of Waste Disposed and Diverted by Number of Employees and Business Size in City of Owen Sound, From Self Reported Waste Audit Information (2007)**

Employee Size Range	Number of Companies	Employees in these companies	Waste Disposed per Employee (tonnes)	Waste Disposed (T/yr.)	% of Total Waste Disposed
1 - 5	333	915	2.45	2,246	19%
6 - 10	137	1,014	1.94	1,970	16%
11-15	41	537	1.86	998	8%
16- 20	24	437	0.76	334	3%
21- 30	28	740	0.75	554	5%
31-40	12	502	1.48	742	6%
41-50	4	169	1.29	218	2%
51-100	21	1,653	1.02	1,684	14%
101-200	10	1,455	0.91	1,320	11%
> 200	5	2,820	0.37	1,045	9%
Un-known	47	Un-known		908 <sup>12</sup>	8%
<b>Total</b>	<b>662</b>	<b>10,242</b>	<b>1.17</b>	<b>12,020</b>	<b>100%</b>

Table 4.2 shows the volume of waste disposed and diverted by companies of different sizes in City of Owen Sound. The table shows that about half of the disposed waste is from companies with less than 20 employees; 30% of the disposed waste is from companies with greater than 50

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<sup>12</sup> Totals were adjusted to account for unknowns

employees and the remainder (20%) is from companies with 21 to 50 employees. Most of these companies are below the triggers in the current MOECC 3Rs Regulations which are now under review and are expected to be updated with implementation of the Provincial Strategy.

Based on the employment triggers used by MOECC for IC&I establishments to come under the requirements of the Ontario 3Rs Regulations (currently being updated), and employment data and business size data for City of Owen Sound, very few City of Owen Sound businesses would have been subject to the 3Rs regulations in place when the study was carried out, as the 3Rs regulations capture large businesses but do not apply to small businesses.

Table 4.3 shows waste disposed by NAICS code based on self-reported audits by City of Owen Sound businesses. Disposal rates for NAICS 56 – administrative support, and NAICS 71 – Arts, Entertainment and Recreation are likely unreliable as they are significantly higher than for other sectors, and likely reflect a lack of reliable data reported by the staff at Owen Sound businesses filling in the audit forms.

**Table 4.3 Estimated Amount of Waste Disposed and Diverted by Business Sector in City of Owen Sound, From Self Reported Waste Audit Information (2007)**

NAICS Code	Industry Sector	Waste Disposed (T/y)	Waste Disposed (t/emp/year)	% of Total Waste Disposed
44-45	Retail Trade	3,313	2.10	28%
72	Accommodation & Food Services	2,234	2.31	19%
62	Health Care & Social Assistance	1,432	0.57	12%
31-33	Manufacturing	1,358	0.66	11%
71	Arts, Entertainment & Recreation	1,084	5.00	9%
56	Admin & Support, Waste Mgmt & Remediation Services	619	12.89	5%
81	Other Services (except Public Administration)	618	1.53	5%
61	Education Services	553	0.73	5%
52-53	Finance, Insurance, Real Estate, Renting, Leasing	182	0.36	2%
23	Construction	157	4.90	1%
92	Public Admin., Government	117	0.30	1%
48-49	Transportation & Warehousing	112	0.56	1%
541	Professional, Scientific & Technical Services	107	0.35	1%
42	Wholesale Trade	75	1.03	1%
51	Information	26	0.14	0.2%
221	Utilities	12		0%
		<b>12,000</b>	1.17	<b>100%</b>

Table 4.4 presents estimates of likely range of IC&I waste disposed by Oxford County businesses based on pro-rating measured totals in Owen Sound to Oxford County using both population

and employment. The calculation based on population estimates a total of 44,345 tonnes, whereas the calculations based on employment vary from 56,400 to 62,600 tonnes. The higher part of the range is calculated excluding employment from 70 businesses in Owen Sound where employment was either not measured or reported, or where the reported data were considered unreliable. It applies the average rate of 1.17 tonnes/employee disposed which was calculated from City of Owen Sound data.

**Table 4.4 Estimated IC&I Waste Disposed from IC&I Sector in Oxford County Based on City of Owen Sound Data**

<b>Owen Sound Based Calculations</b>	
Oxford County Population (2016)	110,862
Owen Sound Population (2007)	30,000
Proportion of Oxford to Owen Sound Based on Population	3.6954
IC&I Waste Disposed by Owen Sound (2007)	12,000 tonnes
Estimate of IC&I Waste Disposed by Oxford County (direct proportion) in 2016	44,345 tonnes
Oxford County Employment (2016)	53,425
Owen Sound disposal rate	1.17 t/employee/year
Estimate of IC&I Waste Disposed by Oxford County (direct proportion) in 2016	62,595 tonnes

### 4.3 Estimate of IC&I Waste in Oxford County Using Results of City of Ottawa IC&I Study

The City of Ottawa embarked on a comprehensive IC&I study in 2006-2007. Results from the City of Ottawa are presented in this section to use them as another source to estimate the amount of IC&I waste disposed from Oxford County businesses. In the case of the City of Ottawa, the disposed tonnages, split between IC&I and C&D tonnages, were known, as there is a mandatory requirement for private sector landfill owners to report annual tonnages as part of the Compensation Agreement established a number of years ago.

Approximately 30% of the total disposed (192,000 tonnes) was from C&D activities; the remaining 70% (438,000 tonnes) was from all other IC&I activities. The waste quantities do not include contaminated soils. These amounts vary substantially from one year to the next and come from sources located within and outside the City of Ottawa. The material is often stockpiled for use in landfill operations such as cover or for road or other construction.

Table 4.5 presents the estimated contribution of various sectors to the total IC&I disposed stream in City of Ottawa. Of note in the table is the different employment mix in Ottawa (where manufacturing is only 7% of employment, and categories such as professional services and public administration are significant employers in the City), and Oxford County where manufacturing is responsible for 21% of total employment.

**Table 4.5 Employment and IC&I Residual Waste Disposal by NAICS Code in City of Ottawa<sup>13</sup>**

NAICS Code	Sector	No. of Employees	Percentage of Total Employment	Tonnes of Waste Disposed	Percentage of Total IC&I Waste Stream (excluding C&D)
11	Agriculture, forestry, fishing, hunting	2,600	0.5%	1,540 to 1,950	<1%
21	Mining and oil and gas extraction	1,300	0.3%	210 to 270	<1%
22	Utilities (Electricity, Gas, Water Sewage, Steam, AC)	3,000	0.6%	1,280 to 1,350	<1%
23	Construction Industry	19,400	4.1%	Addressed separately	<b>Addressed separately</b>
31-33	Manufacturing	34,000	7.1%	38,860 to 65,730	<b>9% to 15%</b>
41	Wholesale Trade	10,200	2.1%	9,990 to 16,160	<b>2% to 4%</b>
44-45	Retail Trade	50,800	10.6%	74,170 to 103,670	<b>17% to 24%</b>
48-49	Transportation and Warehousing	15,000	3.1%	9,060 to 21,630	<b>2% to 5%</b>
51	Information and Cultural Industries	17,600	3.7%	9,340 to 18,410	<b>2% to 4%</b>
52-53	FIRE (Financial, Insurance, Real Estate)	18,600	3.9%	6,680 to 7,490	<b>1% to 2%</b>
54	Professional Scientific and Technical Services	56,100	11.7%	29,770 to 30,810	<b>7%</b>
56	Admin & Support, Waste Management & Remediation Services	18,500	3.9%	4,760 to 9,820	<b>1% to 2%</b>
61	Education Services	32,500	6.8%	11,450 to 14,450	<b>3%</b>
62	Health Care, Social Assistance	45,400	9.5%	47,600 to 60,050	<b>11% to 14%</b>
71	Arts, Entertainment, Recreation	11,300	2.4%	11,820 to 31,360	<b>3% to 7%</b>
72	Accommodation, Food Service	30,000	6.3%	63,620 to 83,260	<b>15% to 19%</b>
81	Other Services (not public administration)	21,100	4.4%	11,200 to 17,990	<b>3% to 4%</b>
91	Public Administration	91,300	19.1%	30,060 to 32,790	<b>7%</b>
	<b>TOTAL</b>	<b>478,658</b>		<b>438,000</b>	<b>100%</b>

Table 4.6 presents estimates of Oxford County IC&I waste disposed based on City of Ottawa 2005 reported quantities using both per employee and per capita values. The estimates range from 48,884 to 59,777 tonnes/year total IC&I disposed. C&D waste is estimated to be 26,209 tonnes/year based on Ottawa per capita values. This value is significantly different to the 3,000 tonne/year range estimated using Statistics Canada values, and which is acknowledged to be an underestimate. The actual value is likely between these two values, which gives a very wide possible range.

<sup>13</sup> Genivar, Kelleher Environmental, Jacques Whitford, IC&I Waste Characterization Report IC&I 3Rs Strategy Project for The City of Ottawa Dept of Public Works, June 2007. City of Ottawa Task 2 Report, June, 2008

**Table 4.6 Estimated IC&I Waste Disposed from IC&I Sector in Oxford County Based on City of Ottawa Data**

<b>City of Ottawa Based Calculations</b>	
Oxford County Population (2016)	110,862
Tonnes per capita IC&I waste disposed in Ottawa (2005) Population 812, 129 (2006 census)	0.5393 tonnes/cap/year
Oxford County Tonnes IC&I waste disposed based on Ottawa per capita rate (2005)	59,777 tonnes/year
Tonnes per employee disposed in City of Ottawa	0.915 tonnes/employee/year
Oxford County Employment (2016)	53,425
Estimate of IC&I Waste Disposed by Oxford County (direct proportion) in 2016 based on City of Ottawa 2005 tonnes per employee	48,884 tonnes
Tonnes per capita C&D waste disposed in Ottawa (2005)	0.2364 tonnes/cap/year
Estimate of C&D Waste Disposed by Oxford County (direct proportion) in 2016 based on City of Ottawa 2005 tonnes per capita	26,209 tonnes

#### 4.4 Summary of IC&I and C&D Waste Disposal Estimates for Oxford County

Estimates of the total IC&I waste disposed by the IC&I sector in Oxford County were developed using three different approaches and sources:

- Statistics Canada data for Ontario, 2010, 2012 and 2014
- City of Owen Sound 2007 data from a mandatory requirement for all IC&I locations to report their disposed waste to the City and
- City of Ottawa data for 2005. The City requires all landfills within their boundaries to report disposed IC&I and C&D wastes and has reliable data for this reason.

Both per capita and per employee values were used to pro-rate data from other communities to Oxford County.

The results are summarized in Table 4.7.

**Table 4.7 Summary of Estimated IC&I Waste Disposed from IC&I Sector in Oxford County Based on Three Approaches**

	t/cap/year	t/employee/year	Based on t/cap/year	2016 Oxford County Estimate Based on t/emp/year
<b>Statistics Canada</b>		0.8413 (2010) 0.8025 (2012) 0.7695 (2014)	45,100 43,474 42,385	44,946 42,873 41,110
<b>City of Owen Sound</b>		1.0567 - 1.172 (2007)	44,345	56,400 to 62,595
<b>City of Ottawa</b>	0.5393	0.915 (2005)	59,777	48,883



Based on the three approaches, a value of 42,000 tonnes has been used for IC&I waste disposed by Oxford County businesses in 2016. It is within the range calculated by pro-rating Statistics Canada data by both population and employment in the County. It is close to 0.8 tonnes/employee/year on average for all business activity in the County

C&D (construction and demolition) or CRD (construction, renovation, demolition) waste generation is a function of construction and demolition activity in the County and varies significantly from one year to the next, depending on economic activity and general development activity. C&D waste estimates are considered separately from IC&I estimates as they are not directly related to number of employees.

C&D waste estimates range from 3,200 tonnes per year based on Statistics Canada data (which is acknowledged to be an underestimate) to 29,000 tonnes/year based on Ottawa data. The actual value depends on construction and demolition activity in the County and can vary significantly from one year to another.

#### **4.5 Staff Estimate of IC&I Waste Leaving the County**

The focus of this study is to identify to the extent possible the amount of IC&I waste which is leaving the County. This section presents an estimate developed by County staff.

Table 4.8 presents an estimate of the IC&I waste leaving the county by County staff in October 2016. The methodology was the basis of an estimate of 10,000 to 45,000 tonnes of waste leaving the county, with a most likely value of about 20,000 tonnes of waste leaving the county.

Three scenarios were considered in the staff analysis:

- Option 1: Assumes all residential waste (curbside) generated in Oxford County is landfilled at the OCWMF Landfill;
- Option 2: Assumes all of the residential waste (curbside and transfer station) generated in Oxford County is landfilled at the OCWMF Landfill and
- Option 3: Assumes that not all of the residential waste generated in Oxford County is landfilled at the OCWMF Landfill.

The analysis is based on 2014 waste records from the County scale. The values for IC&I waste include loads from businesses and private waste haulers. The hauler tonnages may contain both residential and IC&I waste.

The value of 29,537 tonnes in Options 2 and 3 are the staff estimate of waste tonnage received from IC&I paying customers in 2014 using County scale data.

**Table 4.8 Oxford County Staff Estimate of IC&I Waste Leaving the County in 2014**

	Option 1		Option 2		Option 3	
	Tonnes	%	Tonnes	%	Tonnes	%
Residential curbside collected waste and landfilled by the County	14,800	32%	14,800	32%	14,800	27%
IC&I waste landfilled at the OCWMF Landfill	32,040	68%	29,537	63%	29,537	53%
Residential transfer station waste that is generated and landfilled at the OCWMF Landfill	N/A	N/A	2,503	5%	2,503	4%
Residential waste that is generated in Oxford County but is not landfilled at the OCWMF Landfill	N/A	N/A	N/A	N/A	8,834	16%
Total Waste Landfilled at the OCWMF Landfill	46,840	100%	46,840	100%	55,674	100%
Estimated tonnes of residential waste generated and should be landfilled at the OCWMF Landfill	17,986	32%	24,584	37%	47,195	47%
Estimated tonnes of IC&I waste generated and should be landfilled at OCWMF Landfill if no export	38,937	68%	41,966	63%	53,333	53%
Estimated total tonnes of residential and IC&I waste generated in the county which would be landfilled at OCWMF Landfill if no export	56,923	100%	66,550	100%	100,528	100%
Adjusted estimated tonnes of residential waste that are generated and should be landfilled at OCWMF Landfill if no export	14,800	26%	17,303	26%	26,137	26%
Adjusted estimated tonnes of IC&I waste that are generated in the County and should be landfilled at OCWMF Landfill if no export	42,123	74%	49,247	74%	74,391	74%
Estimated total tonnes of residential and IC&I waste that are generated in the County and should be landfilled at the OCWMF Landfill if no export	56,923	100%	66,550	100%	100,528	100%
Estimated IC&I tonnage leaving Oxford County in 2014	10,083		19,710		44,854	

The Option 2 and Option 3 estimates by County staff estimate are within the range estimated in this study (presented in the next section).

## 4.6 Estimated IC&I Waste Exported from Oxford County

The amount of IC&I waste exported from Oxford County was estimated by reviewing landfill records for 2016 to identify the waste received at the landfill which should legitimately be considered pure IC&I waste (generated at non-residential locations), and subtracting this from

the 42,000 tonne total to estimate the amount of IC&I waste generated in the County which is disposed outside of the county. The 2016 landfill records have 128 separate customers. The analysis focussed on customers that dropped off at least 100 tonnes/year. Some specific customer records were excluded from the analysis:

- Customers that dispose of less than 10 tonnes per year. These amounts were not considered material to the analysis and were excluded;
- Loads dropped off by municipalities or contractors to municipalities. This accounted for a number of customers: Township of Blandford-Blenheim, Township of East Zorra-Tavistock, HCG Management Inc; Town of Ingersoll Treasurer; Township of Norwich; County of Oxford Treasurer; County Wastewater Treatment; County of Oxford Roads; Oxford County EMS, Oxford County Water Treatment; Township of Southwest Oxford; City of Woodstock; Township of Zorra;
- Customers that dropped off only loads classified as “compost site material” or ‘clean brush” as these materials are not of interest to the development of the pure IC&I waste total;
- Customers where most of their loads were categorized as “non-hazardous soil”. This category includes contaminated soils.

Table 4.9 presents the loads above 100 tonnes/year which were included in the analysis. A larger table with all loads over 10 tonnes/year is presented in Appendix C.

**Table 4.9 Summary of Loads Considered IC&I and C&D Waste at OCWMF Landfill (2016)**

Customer at Oxford Landfill	Total Recorded by Landfill Customer (tonnes, 2016)	Amount Recorded as Demolition (tonnes, 2016)	Amount Recorded as Mixed C&D (tonnes, 2016)	Amount Recorded as Mixed MSW (tonnes, 2016)	Amount Recorded as Non Haz Solid Industrial (including brake linings) (tonnes, 2016)
Cash Account	6,647	1,690	2,182	2,460	
Charge Accounts	4,654	8	25	625	
ART Crushing and Recycling	568	510	57	0	
BFI/Progressive	6,946	649	389	1,425	4,255
WMI	3,646	142	99	2,101	1,303
Cascades	239				239
Handy Bins	484	132	108	231	
LaFleche Roofing	123	123			
MCQ	2,674	141	49	768	1,715
Norfolk Disposal	3,507	59	167	3,141	139
C.L Routenburg and Sons	241	54	20	39	
Pre-paid cash	219	88	109	22	
Been There Dump That	1,031	470	37	515	
Heavy Haul Ontario	118	79	32	9	
Jonkers Lawn Care	567	133	53	374	
Jeffery Roofing	136	136			
Junk Chasers	759	189	2	573	3
Oakwood Services	101	32	23	45	
Rent A Bin Disposal	259	213		45	
R&S Roofing	442	11	423	7	
Supersave Disposal	465	7		457	1
STS Roofing	105	58	29	18	
thames River Melons	151			151	
Haines Group	216	8	207	1	
The Stoneplace	319	232	2	86	
<b>Totals</b>	<b>35,703</b>	<b>5,720</b>	<b>4,347</b>	<b>13,315</b>	<b>7,659</b>

The table shows that about 21,000 tonnes of waste disposed at the OCWMF Landfill are classified as IC&I waste, with an additional 10,000 classified as C&D waste. About 4,350 tonnes

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.