

## 2.4 Estimated IC&I and C&D Waste Available for Disposal and Exported

The amount of IC&I waste disposed was estimated using Statistics Canada data on IC&I waste disposed from Ontario sources and pro-rating the values to Oxford County based on relative populations.

The amount exported was estimated by subtracting the IC&I waste that is received at the Oxford County landfill from the estimated total IC&I waste available for disposal. The amount of IC&I waste received was estimated using landfill records for 2016, and excluding loads not considered to be true IC&I waste from the estimates. Any loads identified as “mixed C&D” or demolition waste were also excluded from the calculations.

Waste from C&D (construction and demolition) activities was addressed separately for reasons described later in the text.

## 2.5 IC&I Model

The Kelleher Environmental Waste Allocation Model (KE-WAM) is customized and updated for use by different clients, the most recent being the City of Calgary (in 2010 and 2014). The model was updated and re-calibrated for Oxford County using the following information:

- Number of employees by 2 and 3 digit NAICS code in the County, which was provided to the study team by Oxford County staff;
- Updated waste audit and waste composition information, as well as kg/employee/year data from recent audits and studies.

The output of the model allows Oxford County to see which businesses generate the most waste relative to other business types in the county, and the composition of the waste disposed.

Output from the model is generally used by clients to target policies (bans, etc.) to reduce the amount of ICI waste (excluding C&D waste) disposed.

For Oxford County, this information will be particularly useful as disposal bans currently being contemplated by the Province under the new *Waste Free Ontario Act* come into effect. This is expected to occur over the next few years, with a food waste ban possibly coming into effect in 2022.

## 3.0 IC&I SECTOR PROFILE

The following section describes the IC&I sector in Oxford County.

### 3.1 Employment in the IC&I Sector in Oxford County

Employment by industry or business sector is an effective way to characterize a community, and identify the type of IC&I waste that is likely to be produced. Employment by 2-digit NAICS (North American Industry Classification Code) in Oxford County as of December 2016 was obtained from Oxford County staff and is presented in Table 3.1.

**Table 3.1 Employment by IC&I Category in Oxford County at 2-Digit NAICS Level<sup>1</sup>**

Industry - North American Industry Classification System (NAICS) 2007 (425)	Total - Class of worker	Employee	Self-employed [2]	Percent of total employment
<b>TOTAL - Industry - North American Industry Classification System (NAICS) 2007</b>	53,425	46,610	6,810	
<b>11 Agriculture, forestry, fishing and hunting</b>	3,945	1,820	2,125	7.4%
<b>21 Mining, quarrying, and oil and gas extraction</b>	125	125	0	0.2%
<b>22 Utilities</b>	285	290	0	0.5%
<b>23 Construction</b>	3,335	2,465	870	6.2%
<b>31-33 Manufacturing</b>	11,225	10,960	265	21.0%
<b>41 Wholesale trade</b>	2,175	2,060	115	4.1%
<b>44-45 Retail trade</b>	5,295	4,985	310	9.9%
<b>48-49 Transportation and warehousing</b>	2,980	2,605	375	5.6%
<b>51 Information and cultural industries</b>	530	510	15	1.0%
<b>52 Finance and insurance</b>	1,845	1,760	85	3.5%
<b>53 Real estate and rental and leasing</b>	670	500	170	1.3%
<b>54 Professional, scientific and technical services</b>	1,800	1,265	535	3.4%
<b>55 Management of companies and enterprises</b>	20	25	0	0.0%
<b>56 Administrative and support, waste management and remediation services</b>	2,280	1,760	520	4.3%
<b>61 Educational services</b>	3,030	2,980	50	5.7%
<b>62 Health care and social assistance</b>	5,220	4,785	430	9.8%
<b>71 Arts, entertainment and recreation</b>	980	885	100	1.8%
<b>72 Accommodation and food services</b>	3,285	3,110	170	6.1%
<b>81 Other services (except public administration)</b>	2,420	1,765	655	4.5%
<b>91 Public administration</b>	1,980	1,970	15	3.7%

The table shows that Oxford County provides employment to 53,425 workers, of which most (46,610) are employees and 6,810 are self-employed. Of this total, about 21% are employed in the manufacturing sector, 9.9% are employed in the retail sector, 9.8% are employed in the

<sup>1</sup> Source: Statistics Canada - 2011 National Household Survey. Catalogue Number 99-012-X2011052.

health care and social assistance sector, and 7.4% are in the agricultural sector. Other large employers in the county include: construction (3,335 employees or 6.2% of the total); accommodation and food services (3,285 employees or 6.1% of the total), and education (3,030 employees or 5.7% of total employment).

Table 3.2 below identifies more specific sectors that are large employers in the County. This information is presented at the 3-digit NAICS code level which provides more specific descriptions of the categories of business that employ significant numbers of people in the County.

Key observations from the table of note in characterizing the IC&I sector within Oxford County include:

- The manufacturing sector is the largest employer, with 11,225 employees. Within this sector, the largest employers fall into 4 categories: 336 Transportation equipment with 4,675 employees, followed by 332 Fabricated metal product manufacturing with 1,410 employees and 333 Machinery manufacturing, with 995 employees.
- Most of the employment within NAICS 21 (Agriculture) is on farms;
- About 2/3 of the employment in the construction sector is in speciality trade contractors;
- NAICS 311 Food manufacturing with 1,250 employees is another significant employer in the County
- Most of the employment in the transportation and warehousing category is in truck transportation;
- About ¼ of the employment in the retail sector is in the food and beverage category;
- The health care and social assistance sector employs 5,220 in total. Of this total, 1,505 employees are at residential care and nursing facilities; 1,395 are in hospitals; 1,305 are in ambulatory care services and 1,025 are employed in social assistance jobs.

These observations show the wide variety of activity within each of the broad IC&I categories used for classifying IC&I activity in the County.

**Table 3.2 Employment by IC&I Category in Oxford County<sup>2</sup>**

	Industry - North American Industry Classification System (NAICS)	Total	Employee	Self-employed
<b>11 Agriculture, forestry, fishing and hunting</b>		3,945	1,820	2,125
	111-112 Farms (111 to 112)	<b>3,820</b>	<b>1,715</b>	<b>2,100</b>
<b>23 Construction</b>		3,335	2,465	870
	238 Specialty trade contractors	<b>2,460</b>	<b>1,775</b>	<b>680</b>
<b>31-33 Manufacturing</b>		11,225	10,960	265
	311 Food manufacturing	<b>1,250</b>	<b>1,210</b>	<b>40</b>
	332 Fabricated metal product manufacturing	<b>1,410</b>	<b>1,355</b>	<b>50</b>
	333 Machinery manufacturing	<b>995</b>	<b>950</b>	<b>45</b>
	336 Transportation equipment manufacturing	<b>4,675</b>	<b>4,670</b>	<b>0</b>
<b>41 Wholesale trade<sup>3</sup></b>		2,175	2,060	115
<b>44-45 Retail trade<sup>4</sup></b>		5,295	4,985	310
	445 Food and beverage stores	<b>1,525</b>	<b>1,500</b>	<b>20</b>
<b>48-49 Transportation and warehousing</b>		2,980	2,605	375
	484 Truck transportation	<b>1,795</b>	<b>1,480</b>	<b>315</b>
<b>52 Finance and insurance</b>		1,845	1,760	85
	524 Insurance carriers and related activities	<b>1,040</b>	<b>1,000</b>	<b>45</b>
<b>56 Administrative and support, waste management &amp; remediation services</b>		2,280	1,760	520
	561 Administrative and support services <sup>5</sup>	<b>2,045</b>	<b>1,640</b>	<b>395</b>
<b>62 Health care and social assistance</b>		5,220	4,785	430
	621 Ambulatory health care services	<b>1,305</b>	<b>1,080</b>	<b>225</b>
	622 Hospitals	<b>1,395</b>	<b>1,390</b>	<b>0</b>
	623 Nursing and residential care facilities	<b>1,505</b>	<b>1,485</b>	<b>0</b>
	624 Social assistance	<b>1,025</b>	<b>825</b>	<b>195</b>
<b>71 Arts, entertainment and recreation</b>		980	885	100
	713 Amusement, gambling and recreation industries	<b>805</b>	<b>760</b>	<b>40</b>
<b>72 Accommodation and food services</b>		3,285	3,110	170
	722 Food services and drinking places	<b>2,950</b>	<b>2,795</b>	<b>155</b>
<b>91 Public administration</b>		1,980	1,970	15
	913 Local, municipal and regional public administration	<b>1,085</b>	<b>1,075</b>	<b>0</b>

<sup>2</sup> Source: Statistics Canada - 2011 National Household Survey. Catalogue Number 99-012-X2011052.

<sup>3</sup> Major contributors Motor vehicle & parts; Machinery

<sup>4</sup> Other major contributors are Motor vehicle & parts dealers; General merchandise stores

<sup>5</sup> Almost 1/2 of this number is "Services to Buildings & Dwellings"

## 3.2 Number of Businesses by Category in Oxford County

Information on the number of businesses in different NAICS codes in Oxford County was purchased from Statistics Canada as part of this study. The information is presented in Table 3.3. The table shows that Oxford County has an estimated 11,462 businesses, of which 3,674 have employees and an additional 7,815 do not have employees.

The table shows that there are a significant number of businesses in the agricultural, construction and real estate sectors, many of which do not have employees. These are likely sole proprietor type of businesses.

**Table 3.3 Number of Businesses by NAICS Code (IC&I Category) in Oxford County<sup>6</sup>**

Businesses in Oxford County	Without employees	Total, with employees
<b>Total</b>	7,815	3,647
<b>Unclassified</b>	746	116
<b>Sub-total, classified</b>	7,069	3,531
<b>11 - Agriculture, forestry, fishing and hunting</b>	1,740	566
<b>21 - Mining, quarrying, and oil and gas extraction</b>	7	7
<b>22 - Utilities</b>	43	6
<b>23 - Construction</b>	618	469
<b>31-33 - Manufacturing</b>	147	247
<b>41 - Wholesale trade</b>	165	195
<b>44-45 - Retail trade</b>	388	425
<b>48-49 - Transportation and warehousing</b>	424	231
<b>51 - Information and cultural industries</b>	33	23
<b>52 - Finance and insurance</b>	471	100
<b>53 - Real estate and rental and leasing</b>	1,576	103
<b>54 - Professional, scientific and technical services</b>	425	196
<b>55 - Management of companies and enterprises</b>	51	9
<b>56 - Administrative and support, waste management and remediation services</b>	196	116
<b>61 - Educational services</b>	41	24
<b>62 - Health care and social assistance</b>	234	229
<b>71 - Arts, entertainment and recreation</b>	60	49
<b>72 - Accommodation and food services</b>	71	198
<b>81 - Other services (except public administration)</b>	375	329
<b>91 - Public administration</b>	4	9

<sup>6</sup> December 2016 Location Counts by CD (3532) Oxford County Census District, NAICS and Employment Size Ranges, purchased from Statistics Canada

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