

**Conestoga College Institute of Technology
and Advanced Learning**

**Adapting for Prosperity II
*2016 Update***

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1.0 Executive Summary

By helping both younger and older workers adapt to the changing and challenging economic environment, Conestoga College Institute of Technology and Advanced Learning is indispensable to local prosperity and the health and competitiveness of the labour force. Conestoga is the predominant adult educator in the local area; no other institution can rival the scale of its contribution. Moreover, it directly addresses the needs of the area's most vulnerable workers and residents.

Conestoga College has provided educational and training services to more than half the local adult population. The College has educated or trained at least 48 per cent of local resident employment. Here are the specifics:

1. 64.8 per cent of Conestoga's graduates from its regular programs live in the local area, defined as Waterloo Region, Guelph and Stratford.
2. These 73,874 graduates equal 13.7 per cent of the local adult population
3. Since 1980, 220,811 unique individuals were students of Conestoga's Continuing Education (CE) or Corporate Training (CT) courses.
4. These CE & CT students equal 40.9 per cent of the local adult population.
5. Together Conestoga graduates and students of CE & CT equal more than half of the local adult population (54.6 per cent).
6. Since 1990, CE has delivered 633,000 separate career-related training experiences.
7. Since 2002, the School of Career and Academic Access has served 64,213 individuals.
8. 3,509 Conestoga graduates are local business owners.
9. Conestoga graduates, who are working, represent 13.6 per cent of local resident employment.

10. CE students from career-related studies, who are working, represent 26.2 per cent of local resident employment; combined with CT students, all of whom are working, represent 34.8% of local resident employment.
11. Together Conestoga's graduates, CE and CT students represent at least 45 per cent (48.4) of local resident employment.
12. The annual employment income of local Conestoga graduates is at least 2.3 billion dollars, and therefore the economic contribution to their employers and to the community is much more than 2.3 billion dollars each year into the future.

In spite of this exceptional contribution to the adaptability and prosperity of the local area, the training needs of the local area are so high that about one-half of the area's employed college graduates are drawn from elsewhere – the demands on Conestoga of our growing local economy continue to be very strong.

Ontario Impact

Even when viewed in the context of Ontario economy, Conestoga makes a noteworthy and increasing contribution. Including the local area, there are now 110,113 Conestoga graduates living within Ontario, 80,659 of which are working. They add more than 3.4 billion to the Ontario economy each year.

Conestoga graduates include 5,231 Ontario business owners. In addition, 251,099 individual Ontario residents participated in at least one continuing education course from Conestoga.

2.0 Introduction

In order to better understand the evolving contribution of Conestoga College to the local and provincial economy, the College commissioned research reports for both 2002 and 2011. The present report for 2016 follows the precedent of the earlier documents and concentrates on the development of the labour market.

This approach differs from some that have been used elsewhere. We chose not to document the value of Conestoga's injection of spending into the local economy, through employee salaries and other expenditures, since this treats the college as if it were not different from a private enterprise. However, Conestoga is an educational institution and its primary mandate is to serve the needs of the labour market. The earlier reports therefore addressed these needs as directly as possible.

The present report updates the earlier two reports and takes advantage of improved database technology and the enhanced data provided by Statistics Canada. Given rising competitive conditions and ever changing technology, this updated study maintains a focus on the strengthening and adaptation of the labour force. While contributions to the local labour force remain the central focus of the report, Conestoga's transformation into a Polytechnic institution which began in 2001, coincides with a shift towards a broader provincial impact that is also noted.

The methodology is straightforward. We document the number of persons who have been trained by Conestoga College, and set this number into the context of the overall supply of labour. In other words, we describe how many persons have taken advantage of Conestoga's

training programs and what proportion of local employment they represent. This approach provides clear, easily understood and reliable measurements.

The principal challenge involves the great variety of ways in which Conestoga offers training. There are full time programs, continuing education programs, access and upgrading services and specific training contracted directly with employers. Some of the students are young; others are older. Some programs lead to certificate, diploma, degree or graduate certificates; others do not. All of them serve the development of the labour market. All of them must be measured.

In addition to the scale and variety of training, the adaptation of Conestoga's training services to the changing needs of the economy further adds to the measurement challenges. Where there are limitations in the data, we always adopt a conservative stance, believing it is better to under-estimate Conestoga's contribution than to risk exaggerating it.

Fortunately, the quality and detail of the data has continued to improve from the earliest report. This allows us, for example, to distinguish between those who received training and are employed from those who are not employed. We also can document for the first time, the number of Conestoga students who have received training through employer-arranged courses (Corporate Training) and that have had no previous interaction with the College.

While data quality has improved since 2011, comparability of results to the previous reports, in many cases, remains strong. Where comparisons are appropriate, they are included in the body of the report. However, it should be noted that improved data quality makes some of the comparisons no longer appropriate. These occasions are also noted.

The strong growth witnessed between 2001 and 2011 has been maintained to 2016. Conestoga College has provided its training services to a disproportionately large proportion of the local labour force. Indeed, it is one Conestoga's most defining attributes: that it serves so many persons in so many different ways.

3.0 Conestoga's Graduates

3.1 Number and Residential Location

In December 2016, there were 114,014 graduates of Conestoga's certificate, diploma, degree and graduate certificate programs recorded in Alumni Services' database. This represents a 36.7 per cent increase since January 2011 and a 108.2 per cent increase since July 2002. Conestoga has continued to expand to meet the growing needs of the local economy.

Since Conestoga offers a very wide and changing array of training services and designations, a small number of graduates are missing from the above number. However, preferring to underestimate we will use the above number going forward.

Conestoga's graduates, who represent the highest expression of Conestoga's training and educational programs, can be found in all of Canada's major cities and in many of its smaller communities.

Nevertheless, 110,113 (96.6 per cent) live in Ontario and 73,874 or 64.8 per cent, are estimated to live in the local area, defined as Waterloo Region, Guelph and Stratford. Moreover, the proportion of graduates living in the local area has remained very consistent since 2011 (64.6%).

Details are presented in Table 1.

Table 1
Conestoga's Graduates
Number and Assigned Location¹
2016

Location	Number
Total	114,014
Canada	112,590
Ontario	110,113
Catchment Area ²	82,519
Local Area ³	73,874
Waterloo Region	60,496
Kitchener CMA ⁴	57,379
Guelph	11,497
Stratford	1,881

1: See Technical Note 1

2: Traditional definition outlined when college was formed in 1967; includes Waterloo Region and the Counties of Huron, Perth and Wellington

3: Waterloo Region, Guelph and Stratford

4: Kitchener, Waterloo, Cambridge, North Dumfries and Woolwich

Source: Conestoga College Alumni Services and Office of Institutional Research and Planning

3.2 Employment

We can begin to document the scale of Conestoga's contribution to the local economy by estimating the number of Conestoga graduates who are living locally and are employed.

While Table 1 tells us how many local residents are Conestoga graduates, it is not the case that all of the local Conestoga graduates are actually employed. However, given the demographic profile of the graduates and their graduate status, we can assume that they are employed at the same rate as college graduates in Ontario.

Using this assumption, we can estimate that Conestoga graduates who are employed equal 13.6 per cent of the total employment of local residents. Clearly this constitutes a strongly significant and growing part of local employment as this figure represents a 3.0 percentage point increase since 2011.

Details are presented in Table 2.

In order to estimate the economic contribution of Conestoga's working graduates, we assume that the contribution to their employers is greater than their total employment compensation. Since the total annual employment income of Conestoga's graduates is *at least* 2.3 billion dollars, the economic contribution of Conestoga's working graduates to their employers, and therefore to the community, is therefore much more than 2.3 billion dollars each year into the future. See Technical Note 3.

Using this same approach, we can determine that of the 110,113 Conestoga graduates living in Ontario, including those in the local area, 80,659 are employed and contributing much more than \$3.4 billion dollars each year to the economy of Ontario.

Table 2
Conestoga Graduates¹ Employed
2016

Location	Number of Graduates Employed³	Total Estimated Employment⁴	Conestoga Graduates as Per cent of Estimated Employment
Local Area ²	54,113	398,626	13.6%
Ontario	80,659	6,164,245 ⁵	1.3%

1: See Technical Note 1

2: Waterloo Region, Guelph and Stratford

3: See Technical Note 3

4: See Technical Note 2

5: Statistics Canada: <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/labor40a-eng.htm>

Source: Conestoga College Alumni Services and Office of Institutional Research and Planning

While Table 2 demonstrates that Conestoga's graduates represent a significant share of local employment, it is especially relevant to note the College's contribution to the pool of local college graduates, including the skilled trades.

Of the estimated 158,408 persons in the local area with college diplomas or certificates (including the skilled trades), 46.6 per cent of them graduated from Conestoga. In 2011, this figure was 34.6 per cent. In other words, Conestoga has been serving a very important local need by supplying an increasing number of college educated individuals to this community and thereby saving more and more employers the need to recruit from outside our local economy; the proportion of college educated individuals being drawn from other areas has decreased from two-thirds to about one-half.

Details are presented in Table 3.

Table 3
Conestoga's Graduates
Number and Per cent of Total College Graduates (Including Skilled Trades)
2016

Location	Total Number of College Graduates²	Number of Conestoga Graduates³	Conestoga Graduates as Per cent of Total
Waterloo Region	110,738	60,496	54.6%
Guelph	40,675	11,497	28.3%
Stratford	6,994	1,881	26.9%
Local Area ⁴	158,408	73,874	46.6%

1: College certificate and diploma holders, including skilled trades

2: See Technical Note 4

3: See Technical Note 1

4: Waterloo Region, Guelph and Stratford

Source: Conestoga College Alumni Services and Office of Institutional Research and Planning

3.3 Conestoga's Enterprising Graduates

Those who create and operate business enterprises represent the lifeblood of a local economy. They nurture and renew existing activity and adaptively explore new avenues of opportunity.

Fortunately, we can now estimate the scale of this enterprising activity by Conestoga's graduates. Conestoga's Alumni database has valid employment information for 22,889 alumni, a full 20.1 per cent of all alumni (up from 17.5% in 2010). This sample size is easily large enough to be broadly representative of the total of the alumni.

From the database, we identified 1,088 business owners or equivalent. In other words, 4.8 per cent of all alumni with known employment information are business owners. Assuming that these alumni are representative of the entire alumni pool, we estimate that there are 5,416 business owners among Conestoga's total alumni, and that 5,231 of them live in Ontario and 3,509 of them are in the local area. See Technical Note 5.

The businesses that these graduates operate cover a wide variety of sizes and industrial types. They range from single proprietorships to enterprises with hundreds of employees, from professional health services to construction services.

Taken together, Conestoga's enterprising graduates make a vital *and* major contribution to the prosperity and adaptation of the local economy.

4.0 Conestoga's Continuing Education Students

Conestoga's Continuing Education activities are as important as its regular certificate, diploma, degree and graduate certificate programs. As documented in Conestoga's 25th anniversary book "*Twenty-five Years of Education that Works*" published in 1992, the continuing education program began in 1968 at Doon campus. Detailed electronic student records are available from 1990 onwards. Between 1990 and 2016, the College had 811,709 course registrations by 490,262 individuals. Considering that many CE students take multiple courses over a number of years, counting each of these students only once during this 25 year period shows that 204,579 unique individuals have taken at least one continuing education course during this time span; the average would be four courses per CE student.

Included in the above number are 19,930 individuals who were awarded a certificate or diploma through Continuing Education and became CE graduates; of these 16,262 are first-time graduates of Conestoga while the remaining 3,668 recognized the benefits of Conestoga training and have come for an additional credential. These certificate or diploma graduates were counted in the previous total of graduates in Table 1.

Details are presented in Table 4.

Table 4
Conestoga's Continuing Education Students
1990-2016

Year	Total CE Course Registrations	Number of Individual Students Registering for CE Course(s)¹	NEW Unique Individuals²	Total CE Graduates	First-time CE Graduates³
1990	24,702	17,735	12,005	232	224
1991	26,997	18,792	11,815	322	309
1992	31,286	20,724	11,880	84	79
1993	31,817	20,435	10,889	500	436
1994	31,679	20,409	9,867	631	555
1995	33,040	20,838	9,874	797	701
1996	33,148	20,037	8,875	734	612
1997	31,280	19,124	8,015	798	628
1998	32,129	19,808	8,344	752	607
1999	31,950	19,461	7,946	731	554
2000	34,764	20,341	8,113	608	420
2001	34,657	20,803	8,186	970	788
2002	35,163	20,504	7,593	863	715
2003	32,795	19,431	7,157	1,004	835
2004	31,960	19,068	6,981	836	699
2005	30,417	17,906	6,406	1,294	1,069
2006	27,581	16,303	5,388	841	638
2007	26,943	15,827	5,133	780	612
2008	27,953	16,227	5,254	772	612
2009	27,412	15,839	5,384	806	639
2010	27,093	15,423	5,223	926	749
2011	26,710	14,888	4,809	741	596
2012	26,575	15,549	5,486	816	661
2013	27,508	15,834	5,733	650	514
2014	28,060	15,902	5,809	761	658
2015	28,356	16,268	6,357	828	671
2016	29,734	16,786	6,058	853	681
Total	811,709	490,262	204,579	19,930	16,262

1: The number of CE students registering for one or more courses in the particular year

2: Each individual CE student is counted only once over the entire 25 year period – the figure for each year represents the number of students who have no previous student record at Conestoga

3: The number of students who have no previous credential from Conestoga

Source: Conestoga College, Continuing Education, Academic Systems

Having detailed electronic student records also allows for the review of Continuing Education students by region. This is becoming increasingly important as more and more CE offerings are available online, participation in Conestoga's CE courses is not limited to our local region. Of the 204,579 new unique CE students between 1990 and 2016, 149,289 (73 per cent) had addresses in our local region and 201,099 (98.3 per cent) had addresses within Ontario. Indeed the proportion of CE students from outside the local region has increased from 22 per cent in 1990 to about 40 per cent in 2016.

While Conestoga's CE activity began in 1968, it is difficult to conservatively estimate local CE participation levels back to 1968. However, to develop an estimate that more fairly represents the level of activity, we will use a figure that is about half of that for the earliest year of data (5,000 new students per year) and project back to the ten years prior between 1980 and 1990. Using this approach, we can estimate that 199,289 local unique individuals partook of Conestoga CE courses since 1980. This remains a conservative estimate as the population of Waterloo region, as a proportion of the Ontario population has actually risen during that time period.

Since Continuing Education courses were offered before 1980, we can say with certainty that *at least* 199,289 local individuals took advantage of Conestoga's Continuing Education courses.

Details are presented in Table 5.

Table 5
Conestoga's New Unique Continuing Education Students by Region
1980-2016

Year	New In Local Region	New in Ontario (Excl. Local Region)	New Outside Ontario	Local Region	Ontario (Excl. Local Region)	Outside Ontario
1980	5000					
1981	5000					
1982	5000					
1983	5000					
1984	5000					
1985	5000					
1986	5000					
1987	5000					
1988	5000					
1989	5000					
Sub-total¹	50,000					
1990	9,404	2,441	160	78.3%	20.3%	1.3%
1991	9,313	2,350	152	78.8%	19.9%	1.3%
1992	9,230	2,470	180	77.7%	20.8%	1.5%
1993	8,308	2,450	131	76.3%	22.5%	1.2%
1994	7,640	2,094	133	77.4%	21.2%	1.3%
1995	7,495	2,230	149	75.9%	22.6%	1.5%
1996	6,803	1,946	126	76.7%	21.9%	1.4%
1997	6,185	1,699	130	77.2%	21.2%	1.6%
1998	6,594	1,592	158	79.0%	19.1%	1.9%
1999	6,004	1,750	192	75.6%	22.0%	2.4%
2000	6,190	1,719	204	76.3%	21.2%	2.5%
2001	6,024	1,934	228	73.6%	23.6%	2.8%
2002	5,615	1,750	228	73.9%	23.0%	3.0%
2003	5,309	1,734	114	74.2%	24.2%	1.6%
2004	5,237	1,632	112	75.0%	23.4%	1.6%
2005	4,616	1,695	95	72.1%	26.5%	1.5%
2006	3,943	1,351	94	73.2%	25.1%	1.7%
2007	3,750	1,311	72	73.1%	25.5%	1.4%
2008	3,664	1,557	33	69.7%	29.6%	0.6%
2009	3,580	1,734	70	66.5%	32.2%	1.3%
2010	3,422	1,745	56	65.5%	33.4%	1.1%
2011	3,226	1,533	50	67.1%	31.9%	1.0%
2012	3,557	1,833	96	64.8%	33.4%	1.7%
2013	3,591	2,022	120	62.6%	35.3%	2.1%
2014	3,304	2,325	180	56.9%	40.0%	3.1%
2015	3,652	2,576	129	57.4%	40.5%	2.0%
2016	3,633	2,337	88	60.0%	38.6%	1.5%
Sub-total	149,289	51,810	3,480	73.0%	25.3%	1.7%
Total	199,289	51,810	3,480	73.0%	25.3%	1.7%

1: Years 1980 through 1989 are estimates

Source: Conestoga College, Continuing Education, Academic Systems

It is important to understand why so many members of the community are involved with Conestoga. The continuing education students offer two main sets of reasons for furthering their education: advancing their career or satisfying their personal interests.

A survey of CE students taken in 2015 indicated that 22 per cent were pursuing a personal interest, seeking personal development or fulfillment. The other 78 per cent were taking courses to advance their career success or employability. This means that an estimated 155,445 local CE students took career-related courses and 43,843 local CE students took courses to pursue their personal interests.

We assume the 19,930 CE students who are also graduates earned their certificate or diploma for career-related purposes and that the tendency of these graduates to live in the local region is similar to that Conestoga graduates overall. As such, 12,914 CE graduates are estimated to be in the local region and are included in the total of 155,445 local career-related CE students. See Technical Note 6.

As is the case with Conestoga's graduates, not all the workplace-related CE students are actually employed. We assume that their tendency to work matched that of Conestoga graduates. As a result, 9,466 local CE graduates are working and 104,475 local CE students are estimated to be working. See Technical Notes 3 and 6.

Since the CE graduates have already been counted in the regular graduate total (Table 1), an adjustment to avoid double-counting will be undertaken in the Summary section.

Therefore, those local residents who used Continuing Education to advance their career or workplace skills equal 28.6 per cent of local employment in 2016. That a single institution could serve so large a proportion of the area's population is remarkable. As a purely descriptive

matter, Conestoga is at the centre of the community's economic life. Moreover, Conestoga touches this large number of persons in pursuit of its high mandate: career-related training and education.

As a result, continuing education plays a critical role in the renewal and adaptation of the local labour market. In other words, 155,445 unique persons have used the Conestoga's continuing education courses to become more productive or to change their career to meet changed market conditions.

Of course, the renewal of labour market must be ongoing, and individuals must retrain repeatedly. The total number of career-related course registrations provides an indication of the scale of Conestoga's retaining activity. Since 1990, Conestoga has delivered 633,000 separate training experiences. Each one adds to the adaptability of the local economy and its long-term potential.

Clearly the continuing education courses are an indispensable tool to help the workers adapt to the changing economy. It is impossible to overstate the importance of this function: the older worker adapts or is unemployed. Indeed, for those who lack the appropriate educational background, Conestoga offers them help to prepare for their studies. By providing this absolutely minimum condition for economic and social success, Conestoga makes a vital and intangible contribution to those who would otherwise be disadvantaged.

Those who pursued their personal interests equal 8.1 per cent of the local adult population. It should be emphasized that by helping this many persons pursue their personal development, Conestoga is making a major contribution to the local community's well-being

and intangible quality of life. Indeed, access to a facility that contributes to personal fulfillment directly contributes to a community's quality of life.

Details are presented in Table 6.

Table 6
Continuing Education Summary
Local Area
2016

Type of Conestoga Continuing Education (CE) Student	Cumulative Number 1980-2016	Estimated Number Working³	Per cent of Estimated Local Employment⁴	Per cent of Estimated Local Adult Population⁵
CE graduates ¹	12,914	9,466	2.4%	Na
CE students who pursued career or workplace skills courses ²	142,531	104,475	26.2%	Na
Total career-related CE students	155,445	113,941	28.6%	Na
CE students who pursued personal interest courses ²	43,843	Na	Na	8.1%
Total career and personal interest CE students	199,288	Na	Na	37.0%

Na: not applicable

1: These graduates have been included in Table 1.

2: See Technical Note 6

3: See Technical Note 3

4: See Technical Note 2

5: See Technical Note 7

Source: Conestoga College Continuing Education; Office of Institutional Research & Planning from Statistics Canada data

5.0 Corporate Training

In addition to the role played by Continuing Education, Conestoga's Training activities also contribute to labour force renewal by directly serving the specific training needs of regional employers. Conestoga provides training-needs analysis, training-plan development and custom designed courses delivered in highly flexible formats. Courses can be delivered either in Conestoga facilities or at the employer's workplace and the needs of shift workers can also be accommodated. These training sessions can be as short as several hours or as long as an intensive 44-week course.

It should be noted that these custom-designed and highly flexible approaches are absolutely necessary to accommodate the rapidly shifting and varied demands of the labour markets. Moreover, it is important not to undervalue the contributions made by short training sessions. Indeed, when trying to facilitate either social or economic change, it is often as important to affect a large number of persons in a small way as to affect a few people in a major way. Given the range of demands placed on the labour market, each approach is valuable in its own context.

Of course, the active involvement of many employers, as partners, validates Conestoga's approach, and their willingness to pay for this training confirms that value is indeed being delivered.

Digitized records from 1990 to 2016, show the College had 86,330 corporate training (CT) course registrations by 58,552 individuals. Of these individuals 34,437 are new unique students with no previous student record (of any kind) at Conestoga. By definition, corporate

training is organized on the part of employers and as such, all 34,437 of these individuals are known to be employed and working in the local labour force. See Table 7.

The corporate training activity mentioned above captures only that activity that involves individual student registrations within Conestoga's internal Student Information System. In addition to this activity, employers also rely on Conestoga to provide training, usually onsite, to groups of employees in a format that is not conducive to requiring formal registration with the college (e.g., attendance is tracked through employer's internal record keeping). A review of this type of training, over the last five years, reveals approximately 4,400 course registrations by about 2,200 individuals. As it is not possible to cross-reference the identity of these individuals with those in our system, and preferring to under estimate, we will exclude these numbers from our overall impact calculation.

While recording keeping process do not allow for an accounting of all employer contracts back to 1990, a review of corporate training contracts over the past five years reveals that more than 170 employers have relied on Conestoga to support the upskilling of their employee base.

Table 7
Conestoga's Corporate Training Students
1990-2016

Year	Total CT Course Registrations	Number of Individual Students Registering for CT Course(s)¹	NEW Unique CT Individuals²
1990	0	0	0
1991	652	542	449
1992	350	267	207
1993	420	306	212
1994	814	556	398
1995	788	542	353
1996	815	521	319
1997	1,154	783	477
1998	1,395	1,100	706
1999	3,090	2,466	1,584
2000	3,774	2,766	1,648
2001	3,999	2,913	1,741
2002	4,662	3,276	1,941
2003	5,277	3,881	2,338
2004	4,891	3,290	1,938
2005	5,239	3,348	1,899
2006	5,311	3,481	1,922
2007	6,325	3,888	2,109
2008	4,995	3,383	1,787
2009	3,209	2,374	1,342
2010	3,741	2,582	1,385
2011	3,688	2,425	1,240
2012	4,619	2,631	1,348
2013	3,161	2,202	1,303
2014	4,515	3,169	2,071
2015	5,415	3,611	2,484
2016	4,031	2,249	1,236
Total	86,330	58,552	34,437

1: The number of CT students registering for one or more courses in the particular year

2: Each individual CT student is counted only once over the entire period – the figure for each year represents the number of students who have no previous student record at Conestoga – it therefore excludes anyone already counted as a full-time or CE student or graduate

Source: Conestoga College, Continuing Education, Academic Systems

6.0 School of Career and Academic Access

Conestoga's School of Career and Academic Access (CAA) provides a vital contribution to the economic and social health of the local area. CAA does not just help the local area to adapt to changing conditions; it particularly helps those most at risk in these challenging and rapidly changing times. In particular, it targets unemployed and underemployed youth and adults who need retraining, those who want to change careers and high school graduates who want to upgrade or address deficiencies.

CAA offers a very wide range of services, funded under an array of public programs. However, broadly defined, its services include academic upgrading, employment information and referral, employment preparation workshops, work placements, career guidance and research, goal setting and pathways to education and training.

Examples of its specific programs include Essential Skills testing and assessment, targeted initiatives for older workers, literacy and basic skills, advising internationally trained workers as well as services to support the settlement and economic contributions of newcomers to Canada.

From 2002 to 2016, CAA served 64,213 students or clients. Some of them have now entered the College's regular programs where they tend to do well. While we do not have the data to describe how many of them (students or clients) are presently employed, we can say that this number of persons represent a potential impact on total local employment of 16.1 per cent (up from 11.6 per cent in 2011).

Apart from the scale of this activity, it must be emphasized that the intangible benefit to the community lies in the fact that many of CAA's students/clients may have stayed or become unemployed without its assistance. Their talent and energy would therefore have been wasted.

Details are presented in Table 8.

Table 8
Number of Students/Clients
School of Career and Academic Access
2002 to 2016

Year¹	Academic Upgrading	Employment and Career Services	Total
2002	929	1,154	2,083
2003	1,043	2,472	3,515
2004	971	2,335	3,306
2005	1,078	2,497	3,575
2006	970	2,398	3,368
2007	1,051	2,587	3,638
2008	1,117	2,761	3,878
2009	1,408	4,654	6,062
2010	1,709	7,505	9,214
2011	1,541	2,218	3,759
2012	1,529	1,511	3,040
2013	898	1,768	2,666
2014	999	2,820	3,819
2015	942	3,059	4,001
2016	938	3,045	3,983
Apr-Dec '16	786	2,673	3,459
Total	17,909	46,304	64,213

1: School year running April 1st to March 31st

Source: Conestoga College, School of Career and Academic Access

7.0 Summary Contribution

Conestoga makes a major and indispensable contribution to the adaptability of the local economy and to the community's intangible well-being. Simply put, it is the primary adult educator in the local area. Conestoga has such an extensive effect because of both its scale and diversity of activity. Moreover, it serves a wide range of community members from high school graduates to university graduates to older workers, from those academically well prepared and those less prepared and from those facing few barriers to employment to those facing more obstacles.

When we look at those Conestoga has educated, trained or helped develop personal interests or workplace skills, we find that it has had an impact on slightly more than half (54.6 per cent) of the local adult population. If we focus on workplace skills only and only those who are estimated to be working, we find that the College has had an impact on *at least* 48.4 per cent of local resident employment.

No other local institution can rival or replace this contribution to the economic and social success of the local area.

Details are presented in Table 9.

Table 9
Conestoga's Summary Contribution to the Local Area¹

	Number	Per cent of Estimated Adult Population
College Graduates ²	73,874	13.7%
CE Students	186,374	34.6%
Corporate Training Participants	34,437	6.4%
Total	294,685	54.6%⁶
School of Career and Academic Access ^{3,4}	64,213	11.9%
	Number	Per cent of Estimated Employment
College Graduates Employed ²	54,113	13.6%
CE Students Employed	104,475	26.2%
Corporate Training Participants ⁵	34,437	8.6%
Total	193,026	48.4%⁶
School of Career and Academic Access ^{3,4}	64,213	16.1%

1: Waterloo Region, Guelph and Stratford

2: Includes CE Graduates

3: Starting in 2002; year running April 1st to March 31st. Note: The goal of many CAA students is further education or training, not direct employment.

4: May include individuals counted above.

5: All CT participants are employed as training is arranged by their employer

6: May not sum exactly because of rounding

Source: Conestoga College, Office of Institutional Research and Planning, Statistics Canada

Technical Note 1

Estimated Residential Location of Conestoga Graduates

Alumni Services at Conestoga track the contact information and location of certificate, diploma, degree and graduate certificate holders. Alumni listed in the database as "active" have current addresses and these addresses can be searched by municipal location. Of Conestoga's 114,014 graduate alumni, 90,198 are listed as active. That represents 79.1 per cent of the total and should be considered a significant success with regard to maintaining contact between Conestoga and its alumni, especially since this represents a twelve percentage-point increase over the past five years.

Since Conestoga offers a very wide and changing array of training services and designations, a small number of graduates are missing from the above numbers. However, preferring to under estimate we will use these numbers going forward.

Graduates are listed as "inactive" when their addresses are no longer current. Inactives represent 21 per cent of the graduates. In order to accurately reflect the residential location of Conestoga's graduates, the inactive graduates are assigned to various locations in the same proportion as the active graduates actually are. In other words, it is assumed that the distribution of the inactives reflects the same residential choices as do the actives.

This is a realistic approach since the number of active graduates is so large a proportion of the total that it is a more than an adequate sample. Secondly, there is no reason to believe that the inactive graduates exhibit any different residential preferences from the active graduates.

If anything, local residents might have a greater tendency to let their addresses lapse because they are confident that they can stay in touch with Conestoga's activities through the local media. To the extent that this is true, the above assignment procedure underestimates the number of Conestoga graduates actually living in the local area.

Moreover, Alumni Services' records also list the last known address of the graduates who are inactive (whose last known addresses are not current). We can therefore compare the last known addresses of the inactive graduates to the current addresses of the active graduates. The distribution of last known addresses by residential location, expressed as the proportion of the total, is very similar to the distribution of the current addresses by the same residential locations.

For example, 53.1 per cent of the active graduates live in Waterloo Region while 52.4 per cent of the inactive graduate addresses were in Waterloo Region. Similarly, 64.8 per cent of the active graduates live in the local area (Waterloo Region, Guelph and Stratford), while 65.0 per cent of the inactive addresses were in the local core area.

The similarity of the distribution of active and inactive addresses strongly suggests that the behaviour of these two groups, with respect to location, is also similar. The assignment procedure should therefore represent a realistic estimate of the location of all of the Conestoga's graduates.

Details are presented in Technical Table 1.

Note Regarding Rounding: When a calculated percentage is being applied to a pool of persons, the value is not rounded, and the original whole number is reported. Otherwise, rounding can result in a total of more persons than in the pool itself.

Technical Table 1
Conestoga Graduates by Address and Assigned Location
2016

Location	Active Addresses	Per cent of Total Active Addresses	Inactive Addresses	Per cent of Total Inactive Addresses	Inactive Addresses Assigned by Active Per cent	Graduates by Assigned Location
Total	90,198	100%	23,816	100%	23,816	114,014
Canada	89,072	98.8%	23,673	99.4%	23,518	112,590
Ontario	87,112	96.6%	23,271	97.7%	23,001	110,113
Catchment Area	65,282	72.4%	18,243	76.6%	17,237	82,519
Local Core Area	58,443	64.8%	15,476	65.0%	15,431	73,874
Waterloo Region	47,859	53.1%	12,473	52.4%	12,636	60,495
Kitchener CMA	45,394	50.3%	11,966	50.2%	11,985	57,379
Guelph	9,096	10.1%	2,343	9.8%	2,401	11,497
Stratford	1,488	1.6%	660	2.8%	392	1,880

Source: Conestoga College Alumni Services and Office of Institutional Research and Planning

Another way to look at the validity of the assigned numbers is to compare the assigned totals by location to the result produced by simply adding together the active and inactive addresses by location. Except for Stratford, the numbers are not materially different because, as we noted above, the distribution of inactive addresses approximately matches that of the active addresses. For Stratford, because of its smaller base, the difference is relatively larger, suggesting that the Stratford assignment may be an under-estimate.

Details are presented in Technical Table 2.

Technical Table 2
Conestoga Graduates by Assigned Location
and the Sum of Active and Inactive Addresses by Location
2016

Location	Active Addresses	Inactive Addresses	Total Active and Inactive	Graduates by Assigned Location
Total	90,198	23,816	114,014	114,014
Canada	89,072	23,673	112,745	112,590
Ontario	87,112	23,271	110,383	110,113
Catchment Area	65,282	18,243	83,525	82,519
Local Core Area	58,443	15,476	73,919	73,874
Waterloo Region	47,859	12,473	60,332	60,495
Kitchener CMA	45,394	11,966	57,360	57,379
Guelph	9,096	2,343	11,439	11,497
Stratford	1,488	660	2,148	1,880

Source: Conestoga College Alumni Services and Office of Institutional Research and Planning

Technical Note 2 Estimated Employment of Local Residents

Unfortunately, Statistics Canada does not provide current employment data for the entire local area. Except for the Census, employment data for areas smaller than a Census Metropolitan Area (CMA) are unavailable.

Fortunately, the Kitchener CMA (Kitchener, Waterloo, Cambridge, North Dumfries and Woolwich) includes most of the employment in Waterloo Region. And the Guelph CMA covers all of the City of Guelph and only a small part of the area outside of the City of Guelph. Indeed, only Stratford and Townships of Wilmot and Wellington are omitted. As a result, we can take trends in the Kitchener CMA and Guelph CMA as representative of the entire local area.

Using known Census data in 2006 and 2011, and comparing total CMA employment (Kitchener and Guelph) to the total local employment (Waterloo Region, Guelph and Stratford), we find the ratio is very consistent at 1.076 in 2006 and 1.065 in 2011.

In 2016, the Labour Force Survey provides the most reliable and up-to-date employment information available. However, the information is only available at the CMA level. Total local employment is therefore calculated by using the 2016 CMA total for Kitchener and Guelph and multiplying by the average of the ratios found in 2006 and 2011 (1.071). Estimated 2016 total local employment for the Conestoga region is therefore 398,626.

It should be noted that we are estimating the number of persons who live locally and are employed. This is not the same as the number of persons working *in* the local area; that is, this estimate does not account for those who commute to work out of the local area.

Details are presented in Technical Table 3.

Technical Table 3
Local CMA Employment and Estimated Resident Employment
2016

Location	Census 2006	Census/ NHS 2011	Labour Force Survey 2016
Kitchener CMA	243,340 ¹	248,170 ²	281,600 ³
Guelph CMA	69,700	74,835	90,600
Total CMA	313,040	323,005	372,200
Waterloo Region	257,655	263,815	Na
City of Guelph	62,875	64,280	Na
Stratford	16,320	15,955	Na
Total Local	336,850	344,050	398,626
Total Local/Total CMA	1.076	1.065	1.071

Na: not available

Source: Statistics Canada and Office of Institutional Research and Planning

1: <http://www12.statcan.ca/census-recensement/2006/dp-pd/prof/92-597/P3.cfm?Lang=E&ctcode=4707&cacode=541>

2: <https://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/details/Page.cfm?Lang=E&Geo1=CMA&Code1=541&Data=Count&SearchText=Kitchener%20-%20Cambridge%20-%20Waterloo&SearchType=Begins&SearchPR=01&A1=All&B1=All&GeoLevel=PR&GeoCode=10>

3: <http://www.statcan.gc.ca/tables-tableaux/sum-som/l01/cst01/labor35-eng.htm>

Technical Note 3

Estimated Number of Local Graduates Employed

While we know how many Conestoga graduates live in the local area, we need to estimate how many are employed. Clearly not everyone living in the area is working, or working locally.

An estimation of the number of graduates working can be made by assuming that the ratio of Conestoga graduates who are working is equal to the ratio for Ontario. In 2016, for those 25 to 44 years old, 85.0 per cent of Ontario college graduates are working; for those 45 years and over, 58.3 per cent are working¹. There is no reason to assume that the percentages for Conestoga graduates are different from those for Ontario, especially since the total employment ratio for the Kitchener CMA exceeds the ratio for Ontario.

We then need to know how many of Conestoga's graduates are over the age of 44 and how many are below. The Alumni database has valid ages for 88% (100,279) of graduates. In order to accurately reflect the probable age distribution of graduates without valid age information, the known average age of graduates by graduating year has been applied to those without this information. This is a realistic approach since the number of graduates with a valid age is so large a proportion of the total and it is a more than adequate sample. The assignment procedure should therefore represent a realistic estimate of the age distribution of all Conestoga graduates.

Details are presented in Technical Table 4.

¹ <http://www5.statcan.gc.ca/cansim/a26?lang=eng&retrLang=eng&id=2820004&&pattern=&stByVal=1&p1=1&p2=-1&tabMode=dataTable&csid=>

Using this procedure, we estimated that of the 73,874 graduates living locally, 54,113 are presently employed. In other words, overall 73.3 per cent of local graduates are working.

(This is not an estimate of the number of Conestoga graduates who are working locally, that is, not commuting to work outside the local area. However, we do not need to correct for this factor since we are comparing the number of local Conestoga graduates who are working to the total number of local residents who are working, including those who also commute. Therefore, we are comparing similar groups of persons. Since we can assume that the tendency to work outside the area is the same for Conestoga graduates as it is for the local labour pool, if we compared non-commuting Conestoga graduates to the total of non-commuting local residents, the percentage comparison would not be significantly different.)

Details are presented in Technical Tables 5 and 6.

In order to estimate the economic contribution of Conestoga's working graduates, we assume that the contribution to their employers is greater than their total employment compensation. Since the average employment income of Ontario college graduates, including the skilled trades (postsecondary certificate or diploma below bachelor, including the skilled trades), was over 42,000 dollars in 2011, we can say that total annual employment income of Conestoga's graduates is at least 2.3 billion dollars today [the number of local working graduates multiplied by \$42,780 dollars = \$2,314,954,140]².

As a result, we can estimate the economic contribution of Conestoga's working graduates to their employers, and therefore to the community, to be much more than 2.3 billion dollars each year into the future.

² [2011 National Household Survey: Data tables | Employment Income](#)

Using this same approach, we can determine that of the 110,113 Conestoga graduates living in Ontario, 80,659 are employed and contributing much more than \$3.4 billion dollars each year to the economy of Ontario.

[Given the number of methodological constraints and the depth of Statistics Canada data on educational attainment and associated income, a more specific estimate is beyond the scope of this report.]

Technical Table 4
Assignment of Conestoga Graduates by Age Group
2016

Graduating Year	# of Graduates Valid Age = Yes	# of Graduates Valid Age = No	Average Age of Valid (Years)	# of Graduates Assigned to 45yrs+	# of Graduates Assigned to 24-44yrs	Grand Total
1969	12	69	70	81		81
1970	28	168	68	196		196
1971	32	239	66	271		271
1972	61	310	66	371		371
1973	54	317	65	371		371
1974	68	301	65	369		369
1975	140	552	63	692		692
1976	142	576	62	718		718
1977	160	537	61	697		697
1978	131	505	60	636		636
1979	146	524	58	670		670
1980	207	605	59	812		812
1981	210	587	58	797		797
1982	370	1514	58	1884		1884
1983	431	1273	58	1704		1704
1984	1018	647	56	1665		1665
1985	1421	605	55	2026		2026
1986	1370	554	55	1924		1924
1987	1311	724	54	2035		2035
1988	1165	567	54	1732		1732
1989	1316	614	54	1930		1930
1990	1464	674	53	2138		2138
1991	1459	769	53	2228		2228
1992	1717	96	51	1813		1813
1993	2450	5	52	2455		2455
1994	2486	11	52	2497		2497
1995	2675	7	51	2682		2682
1996	2426	18	50	2444		2444
1997	2247	8	49	2255		2255
1998	2528	10	47	2538		2538
1999	2412	6	46	2418		2418
2000	2192	9	44	2201		2201
2001	2697	7	45	2704		2704
2002	2710	2	43		2712	2712
2003	3056	19	42		3075	3075
2004	3169	12	40		3181	3181
2005	2889	51	39		2940	2940
2006	2847	57	38		2904	2904
2007	3464	107	37		3571	3571
2008	3979	72	36		4051	4051
2009	4596	1	35		4597	4597
2010	4881		35		4881	4881
2011	4951	3	33		4954	4954
2012	5251	2	31		5253	5253
2013	5119		29		5119	5119
2014	5532		29		5532	5532
2015	5581	1	28		5582	5582
2016	5708		27		5708	5708
Grand Total	100279	13735		49954	64060	114014
% of Total	88%	12%		44%	56%	

Source: Conestoga College Alumni Services and Office of Institutional Research and Planning

Technical Table 5
Conestoga Graduates Employed
2016

Location of Residence	Number of Graduates	Applicable Ratio²	Number Employed
Stratford (24-44yrs)	1,053	0.850	895
(45+ yrs)	828	0.583	482
Total	1,881		1,377
Guelph (24-44yrs)	6438	0.850	5,473
(45+ yrs)	5059	0.583	2,949
Total	11,497		8,422
Waterloo Region (24-44yrs)	33,878	0.850	28,796
(45+ yrs)	26,618	0.583	15,518
Total	60,496		44,314
Total Local Area¹	73,874	Na	54,113
Ontario (24-44yrs)	61,663	0.850	52,413
(45+ yrs)	48,450	0.583	28,246
Total Ontario	110,113		80,659

Na: not applicable

1: Waterloo Region, Guelph and Stratford

2: See Technical Note 3

Source: Conestoga College Alumni Services, Statistics Canada and Office of Institutional Research and Planning

Technical Table 6
Conestoga Graduates¹ Employed
As Per cent of Resident Employment
2016

Location	Number of Graduates	Number of Graduates Employed³	Total Estimated Resident Employment⁴	Conestoga Graduates as Per cent of Resident Employment
Local Area ²	73,874	54,113	398,626	13.6%
Ontario	110, 113	80,659	6,164,245	1.3%

- 1: See Technical Note 1
- 2: Waterloo Region, Guelph and Stratford
- 3: See Technical Note 3
- 4: See Technical Note 2

Source: Conestoga College Alumni services, Statistics Canada and Office of Institutional Research and Planning

Technical Note 4 Estimated College Graduates (Including Skilled Trades) in the Local Area

Educational attainment figures for the local area are not available for 2016. In order to estimate the figures for 2016, the 2011 Census/National Household Survey figures for the local areas were increased by the rate at which each educational category rose in the same area from the 2006 Census to the 2011 Census/National Household Survey. This assumes that the rate of educational increase in the local area is sustained into 2016.

Details are presented in Technical Table 7.

Technical Table 7
Estimated Total Number of Local College Graduates
2016

Location	Census 2006		Census/NHS 2011 ²		% Change		Estimated Total in 2016		Estimated Total in 2016 Including Skilled Trades
	College Graduates excluding Trades	Trades	College Graduates excluding Trades	Trades	College Graduates excluding Trades	Trades	College Graduates Excluding Trades	Trades	
Waterloo Region	70,465	30,920	76,870	28,830	9.1%	-6.8%	83,857	26,881	110,738
Guelph	15,860	6,725	22,075	8,180	39.2%	21.6%	30,725	9,950	40,675
Stratford	5,160	1,990	4,960	2,105	-3.9%	5.8%	4,768	2,227	6,994
Local Area ¹	91,485	39,635	103,905	39,115			119,350	39,058	158,408

1: Waterloo Region, Guelph and Stratford.

Source: Statistics Canada³ and Office of Institutional Research and Planning

³ [2011 National Household Survey: Data Tables | Educational Attainment](#)

Technical Note 5 Conestoga's Enterprising Graduates

Conestoga's Alumni database has valid employment information for 22,889 alumni, a full 20.1 per cent of the total universe of alumni, strongly suggesting that the sample should be broadly representative (up from 17.5% in 2010). This is especially the case if we use the sample to infer a characteristic that is itself strongly present in the sample.

The Alumni database indicates that 1,088, 4.8 per cent of sample who could be in the labour force, who described themselves as owner, founder, employer or partner. Applying this proportion to the total alumni population, we estimate that there are 5,416 business owners among Conestoga's graduates and that 5,231 of them live in Ontario and 3,509 of them live in the local area.

Details are presented in Technical Table 8.

However, it was still important to determine that there is not a bias in the Alumni database. In other words, we must ask whether the validated employment information is not abnormally clustered.

The best way to check for possible bias was to review the distribution of employment validated information by year of graduation. This technique both addresses the evolution of the College's programs over time and the ages of the participants. On this basis, we can say that the validated employment information is distributed broadly across the range of years of graduation.

Indeed the per cent of alumni with validated employment information is highly similar ranging from a low of 14.8 per cent to a high of 24.7 per cent in 38 of the 48 years; eight of the

remaining 10 years have information for an even higher proportion of graduates – upwards of 30 per cent to 40 per cent. Given the recent entry into the labour market for graduates in 2015 and 2016, validated employment information is understandably lower among this group. Our estimate therefore based on a sample that is highly representative.

Details are presented in Technical Table 9.

Technical Table 8
Estimated Total Number of Alumni Business Owners
2016

	Alumni with Validated Employment Information
Total	22,889
Business Owners	1,088
Per cent Business Owners	4.75
	Total
Conestoga Graduates ¹	114,014
Estimated Conestoga Business Owners ²	5,416
Per cent of graduates in Local Area ³	64.8
Estimated Business Owners in Local Area ⁴	3,509
Per cent of graduates in Ontario ¹	96.6
Estimated Business Owners in Ontario ⁵	5,231

1: See Technical Note 1

2: Conestoga graduates multiplied by 4.7%

3: See Technical Note 1

4: Waterloo Region, Guelph and Stratford; Conestoga business owners multiplied by 64.8%

5: Ontario; Conestoga business owners multiplied by 96.6%

Technical Table 9
Valid Employment Information by Year of Graduation
2016

Years	Total Alumni	Alumni with Valid Employment	Percentage of Year
1969	81	12	14.8%
1970	196	37	18.9%
1971	271	45	16.6%
1972	371	75	20.2%
1973	371	62	16.7%
1974	369	77	20.9%
1975	692	144	20.8%
1976	718	126	17.5%
1977	697	147	21.1%
1978	636	134	21.1%
1979	670	159	23.7%
1980	812	194	23.9%
1981	797	218	27.4%
1982	1884	322	17.1%
1983	1704	260	15.3%
1984	1665	290	17.4%
1985	2026	324	16.0%
1986	1924	376	19.5%
1987	2035	403	19.8%
1988	1732	727	42.0%
1989	1930	594	30.8%
1990	2138	599	28.0%
1991	2228	414	18.6%
1992	1813	370	20.4%
1993	2455	486	19.8%
1994	2497	716	28.7%
1995	2682	490	18.3%
1996	2444	928	38.0%
1997	2255	927	41.1%
1998	2538	551	21.7%
1999	2418	473	19.6%
2000	2201	453	20.6%
2001	2704	492	18.2%
2002	2712	496	18.3%
2003	3075	534	17.4%
2004	3181	536	16.9%
2005	2940	568	19.3%
2006	2904	577	19.9%
2007	3571	655	18.3%
2008	4051	716	17.7%
2009	4597	910	19.8%
2010	4881	904	18.5%
2011	4954	1079	21.8%
2012	5253	1296	24.7%
2013	5119	1061	20.7%
2014	5532	1256	22.7%
2015	5582	383	6.9%
2016	5688	293	5.2%

Source: Conestoga College Alumni Services and Office of Institutional Research and Planning

Technical Note 6 Work-related Continuing Education

Having determined the cumulative number of individuals who have taken Conestoga's Continuing Education courses, it is important to identify those who also took these courses to advance their careers and/or to further develop their workplace skills.

Fortunately, Conestoga's Continuing Education students were surveyed (2015) concerning a number of matters, including the main reason they took a Continuing Education course. This provincial survey is administered repeatedly, used by other colleges and conducted by CCI Research Inc. While we will use the responses from 2015, this will be a reliable indicator for the entire pool of Continuing Education students since the results have been consistent into the 1990s. Survey details are presented in Technical Table 10.

Since the 2015 survey indicated that 78 per cent of respondents were taking courses mainly to advance their career and/or improve their workplace skills and 22 per cent were pursuing personal interests or fulfillment, the 199,289 local individual Continuing Education students were allocated in these proportions. Therefore, we estimated that 155,445 local CE students took career-related courses and 43,843 local CE students took courses to pursue their personal interests.

We assume the 19,930 CE students who are also graduates earned their certificate or diploma for career-related purposes and that the tendency of these graduates to live in the local region is similar to that Conestoga graduates overall. As such, 12,914 CE graduates are estimated to be in the local region and are included in the total of 155,445 local career-related CE students. This means that of the total of career-related local CE students, 12,914 were CE

graduates and 142,531 took career-related courses, but have not as of yet moved to a certificate or diploma.

In the absence of full demographic information about the CE students, we assume that the tendency of CE students to work is the same as that for Conestoga's graduates overall (73.3 per cent). See Technical Note 3. This percentage was applied to the CE students and graduates to estimate that 9,466 local CE graduates are working and 104,475 local CE students are working.

Since the CE graduates are included in the graduate total (Table 1), we will omit these CE graduates from the Summary Contribution to avoid double counting.

Technical Table 10
Reasons for Taking Continuing Education
Conestoga College 1996 to 2008
Per cent of Responses

	1996	1998	2000	2002	2005	2008	2012	2015
Looking for a job	6	6	5	6	9	6	9	9
Improving myself in my career	47	48	45	42	39	39	37	41
Preparing for a change of careers	19	19	22	23	24	25	25	24
Seeking a credit toward a full-time program	6	5	5	5	6	5	6	4
Total Career-Related	78	78	77	76	78	75	77	78
Personal Development and fulfillment	16	15	16	16	15	17	16	15
Pursuing a hobby or interest	6	7	7	7	7	8	7	7
Total Personal Development	22	22	23	23	22	25	23	22

Source: Ontario Colleges of Applied Arts and Technology – Continuing Education Survey, CCI Research Inc.

Technical Note 7 Local Population Estimates

Statistics Canada does not provide population data for the local area as defined except for the Census year 2011. In order to estimate the 2016 adult (20 years and over) population for the local area (Waterloo Region, Guelph and Stratford), we used two approaches. First, we examined the population data (15 years and over) that Statistics Canada provides for the Kitchener CMA and the Guelph CMA in 2011 (Census) and 2016 (Labour Force Survey).

Since the Kitchener CMA includes most of Waterloo Region, the adult population of Waterloo Region in 2016 is estimated by increasing the adult population in 2011 by the rate at which the population (15 years and over) of the Kitchener CMA increased (9.1 per cent).

Since Guelph CMA includes all of the City of Guelph and a small additional area, the adult population Guelph in 2016 is estimated by increasing the adult population in 2011 at the rate at which the population (15 years and over) of the Guelph CMA increased (12.2 per cent).

A different approach was used for Stratford because it is not part of a CMA and no data for 2016 is available. As a result, the adult population of Stratford was estimated by increasing the adult population in 2011 by the rate at which the total Stratford population rose from 2006 to 2011, (1.2 per cent).

Details are presented in Technical Tables 11, 12 and 13.

Technical Table 11
Local CMA Population and Estimated Adult Population
Waterloo Region and Guelph
2016

	Population 15 years and Over		
Location	Census 2011	Labour Force Survey 2016	Per centage Change 2011-2016
Kitchener CMA	390,810	426,200	9.1%
Guelph CMA	116,315	130,500	12.2%
	Population 20 years and Over		
Location	Census 2011	Labour Force Survey 2016	Estimated Population 2016
Waterloo Region	379,525	Na	413,893 ¹
City of Guelph	90,015	Na	100,993 ²

Na: not available

1: Census figure increased by 9.1 per cent

2: Census figure increased by 12.2 per cent

Source: Statistics Canada and Office of Institutional Research and Planning

Technical Table 12
Census Population and Estimated Adult Population
Stratford
2016

Census Population in 2006	30,516
Census Population in 2011	30,885
Per cent Change 2006 to 2011	1.2%
Census Adult Population ¹ in 2011	24,055
Estimated Adult Population in 2016	24,346

1: 20 years and over

2: Census figure increased by 1.2 per cent (consistent 5-year timespan)

Source: Statistics Canada and Office of Institutional Research and Planning

Technical Table 13
Local Estimated Adult Population¹
2016

Location	Estimated Adult Population
Waterloo Region	413,893 ²
Guelph	100,993 ²
Stratford	24,346 ³
Total Local Area	539,232

1: 20 years and over

2: See Technical Note 7 and Technical Table 11

3: See Technical Note 7 and Technical Table 12

Source: Statistics Canada and Office of Institutional Research and Planning