



**CONESTOGA**  
Connect Life and Learning

Conestoga College Institute of Technology  
and Advanced Learning

# ADAPTING FOR PROSPERITY



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# 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 almost half the local adult population. The College has educated or trained at least 40 per cent of local residents who are currently employed. Here are the specifics:

1. 64.6 per cent of Conestoga graduates live in the local area, defined as Waterloo Region, Guelph and Stratford.
2. These 53,887 graduates represent 10.7 per cent of the local adult population.
3. 2,155 Conestoga graduates are business owners.
4. Since 1990, 197,299 unique individuals were students of Conestoga's Continuing Education (CE) courses.
5. These CE students represent 36.4 per cent of the local adult population.
6. Together the graduates and the CE students represent nearly half of the local adult population (47 per cent).
7. Since 2002, the School of Career and Academic Access has served 42,398 individuals.
8. At least 30,000 individuals have received customized training from Conestoga at over 500 employers.
9. Conestoga graduates who are working represent 10.6 per cent of local resident employment.
10. CE students from career-related studies who are working represent 26.5 per cent of local resident employment.

Together Conestoga's graduates, CE students and trainees represent at least 40.6 per cent of local resident employment.

The annual employment income of Conestoga graduates is at least one billion dollars, and therefore the economic contribution to their employers and to the community exceeds one billion dollars each year.

In spite of this exceptional contribution to the adaptability and prosperity of the local area, the training needs are so high that two-thirds of the area's employed college graduates are drawn from elsewhere. This has occurred because as of 2006/2007, Conestoga was undersized compared to its peers in Ontario and compared to the demands of a growing local economy.

# Introduction

In 2002 in order to better understand its contribution to the community, Conestoga College Institute of Technology and Advanced Learning commissioned a report on its impact on the local economy. While Conestoga serves the community in many ways, the report concentrated 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 report therefore addressed these needs as directly as possible.

The present report updates the earlier report 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 local labour force.

The methodology is straightforward. We document the number of persons who have been trained by Conestoga, 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 or degree; 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 underestimate Conestoga's contribution than to risk exaggerating it.

Fortunately, the quality and detail of the data has improved from the earlier report. This allows us, for example, to distinguish 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 graduates who own enterprises.

However, this increased precision of observation limits our ability to compare data between the earlier report and this one. Changed definitions and approaches account for most of this lack of comparability. Where we can compare the data appropriately, we do so in the body of the report.

Nevertheless, it is entirely clear that Conestoga has grown substantially since 2002 and that it has provided its training services to a large proportion of the local labour force. Indeed, it is one of Conestoga's most defining attributes: that it serves so many persons in so many different ways.

# Conestoga Graduates

## Number and Residential Location

In January 2011, there were 83,398 graduates of Conestoga's diploma, certificate and degree programs recorded in Alumni Services' database. This represents a 52.3 per cent increase since July 2002, as Conestoga expanded to meet the growing needs of the local economy.

Since Conestoga offers a 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 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, the majority live in Ontario and 53,887, or 64.6 per cent, are estimated to live in the local area, defined as Waterloo Region, Guelph and Stratford. Moreover, the number of graduates living in the local area rose by 63.3 per cent from the estimated total of 32,993 graduates in July 2002.

Details are presented in Table 1.

**Table 1**

**Conestoga Graduates - Number and Assigned Location<sup>1</sup>  
2010**

<b>Location</b>	<b>Number</b>
Total	83,398
Canada	82,251
Ontario	81,070
Catchment Area <sup>2</sup>	58,891
Local Area <sup>3</sup>	53,887
Waterloo Region	44,103
Kitchener CMA <sup>4</sup>	41,854
Guelph	8,087
Stratford	1,697

1: See Technical Note 1

2: 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 Essential Economics Corporation

## 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 across Canada.

Using this assumption, we can estimate that Conestoga graduates who are employed equal 10.6 per cent of the total employment of local residents, and 11.4 per cent of Waterloo Region employment. Clearly this constitutes a strongly significant part of local employment.

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 one billion dollars, the economic contribution of Conestoga's working graduates to their employers, and therefore to the community, exceeds one billion dollars each year. See Technical Note 3.

### Table 2

#### Conestoga Graduates<sup>1</sup> Employed Locally 2010

Location	Number of Graduates Employed <sup>3</sup>	Total Estimated Employment <sup>4</sup>	Conestoga Graduates as Per Cent of Estimated Employment
Local Area <sup>2</sup>	38,796	364,807	10.6
Waterloo Region	31,753	279,040	11.4
Guelph	5,822	68,093	8.5
Stratford	1,221	17,674	6.9

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 and Essential Economics Corporation

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 155,837 persons in the local area with college diplomas or certificates (including the skilled trades), 34.6 per cent of them graduated from Conestoga. In other words, the needs of the local economy are so strong that two-thirds of its college-educated population was drawn from other areas.

Details are presented in Table 3.

### Table 3

**Conestoga Graduates - Number and Per cent of Total College Graduates  
(Including Skilled Trades)  
2010**

<b>Location</b>	<b>Total Number of College Graduates<sup>2</sup></b>	<b>Number of Conestoga Graduates<sup>3</sup></b>	<b>Conestoga Graduates as Per Cent of Total</b>
Waterloo Region	120,452	44,103	36.6
Guelph	26,859	8,087	30.1
Stratford	8,526	1,697	19.9
Local Area <sup>4</sup>	155,837	53,887	34.6

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 Essential Economics Corporation



## Service Coverage

We must examine why it has been necessary for the local area to draw so extensively on college graduates from outside the area. While Conestoga serves a wide mandate, a central function is to offer education and training to secondary school graduates and young adults in its catchment area.

A review of 15 Ontario colleges revealed that Conestoga is least able to provide service to this critically important group of potential students because it is undersized compared to its counterparts elsewhere in Ontario.

The review used a straightforward approach. It compared the number of college student spaces and the size of the college-age population in each college's catchment area.

College spaces were measured as full-time equivalent post-secondary students enrolled at November 1, 2007 (OCAS data). Apprentices, continuing education students and contract training students were excluded.

The college-age population was measured as the number of persons between the ages 20 and 24 in 2006 in each college catchment area.

Service coverage was measured as enrollment spaces divided by the college-age population of the catchment area.

Of the 15 campuses considered, Conestoga's service coverage equals 10.3 per cent of the college-age pool, the lowest of all the colleges.

Moreover, many of the differences in coverage are dramatic. Lambton, for example, serves 27.7 per cent of its college-aged population. Fanshawe serves 23.5 per cent of the equivalent demographic, and St. Lawrence serves 22.8 per cent.

Even Loyalist, the next lowest service level to Conestoga, accommodates 12.8 per cent of its college-age population.

There are a number of limitations in the data. The college populations of some of the college catchment areas are affected by obsolete boundaries, especially for Niagara and St. Lawrence. This results in slightly exaggerated populations and slightly lower service coverage proportions. In addition, the catchment areas of both Algonquin and St. Lawrence are also served by La Cité. Finally, while a more precise college-age population, such as 18 to 24, would have been helpful, the data did not support this breakdown.

Details are presented in Table 4.

**Table 4****Service Coverage - Selected Ontario Colleges  
2006/2007**

<b>College</b>	<b>Full-Time Post-Secondary Students</b>	<b>College-Age Population 20 to 24</b>	<b>Student Enrollment as a Per cent of College-Age Population</b>
Algonquin	15,438	75,380	20.5
Canadore	2,412	5,625	42.9
Cambrian	3,408	11,935	28.5
Conestoga	6,003	58,095	10.3
Confederation	2,770	14,855	18.6
Durham	6,135	35,185	17.4
Fanshawe	11,087	47,170	23.5
Fleming	4,925	15,440	31.9
Georgian	6,143	41,505	14.8
Lambton	2,235	8,060	27.7
Loyalist	2,652	13,050	12.8
Mohawk <sup>1</sup>	8,720	53,035	16.4
Niagara <sup>1</sup>	5,747	27,090	21.2
St. Clair	5,940	33,275	17.8
St. Lawrence	4,885	21,395	22.8

1: Obsolete boundaries exaggerate populations slightly and lower proportions slightly.

Source: Full-time Students from OCAS; population from Census Canada

# 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 graduates. Harris Connect conducted a survey of Conestoga graduates in 2009 and 14,613 alumni participated, a surprisingly high 17.5 per cent of the total number of alumni. This sample size is easily large enough to be broadly representative of the total of the alumni. While the Harris Connect survey asked a number of questions, we are only concerned with whether the respondents identified themselves as a business owner or equivalent.

From the Harris Connect data, we identified 585 business owners or equivalent. In other words, 4.0 per cent of the Harris Connect alumni are business owners. Assuming that the Harris Connect participants are representative of the entire alumni, we estimate that there are 3,335 business owners among Conestoga alumni, and that 2,155 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.

# Conestoga's Continuing Education Students

Conestoga's Continuing Education activities are as important as its full-time certificate, diploma and degree programs. From 1990 to 2010, the College had 706,722 course registrations. That represents 197,299 unique individuals taking at least one continuing education course. [These individuals are unique because each person has been counted only once.]

Included in the above number are 13,760 individuals who were awarded a certificate or diploma through Continuing Education and became CE graduates. These certificate or diploma graduates were counted in the previous total of graduates in Table 1.

Since Continuing Education courses were offered before 1990, we can say with certainty that more than 197,299 individuals took advantage of Continuing Education courses. Due to database changes, it is difficult to count individuals in this way prior to 1990. To maintain a conservative stance when calculating the total impact of Conestoga's contribution, we will use the figure of 197,299 individuals.

Details are presented in Table 5.

**Table 5**

**Conestoga's Continuing Education Students  
1990-2010**

Year	Total Course Registrations	Course Registrations by Unique Individuals <sup>1</sup>	Unique Individuals <sup>2</sup>	CE Graduates
1990	24,702	15,125	11,691	225
1991	27,649	15,280	11,860	313
1992	31,636	15,442	11,658	79
1993	32,237	15,032	10,874	486
1994	32,493	13,864	10,154	607
1995	33,828	14,065	10,170	758
1996	33,963	13,019	9,164	677
1997	32,434	11,614	8,454	706
1998	33,524	12,192	8,989	674
1999	35,040	12,839	9,528	646
2000	38,538	13,585	9,794	543
2001	38,656	13,660	10,016	903
2002	39,825	13,177	9,677	779
2003	38,072	12,954	9,644	885
2004	36,851	12,595	9,113	756
2005	35,727	11,658	8,539	1,149
2006	33,095	10,371	7,699	735
2007	33,459	10,830	7,660	673
2008	33,014	10,386	7,477	664
2009	30,785	10,222	7,369	695
2010	31,194	10,957	7,769	807
<b>Total</b>	<b>706,722</b>	<b>268,867</b>	<b>197,299</b>	<b>13,760</b>

1: A course registration related to a new individual CE student

2: Each individual CE student is unique, counted only once over the entire period.

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 2008 indicated that 25 per cent were pursuing a personal interest, seeking personal development or fulfillment. The other 75 per cent were taking courses to advance their career success or employability. This means that an estimated 147,974 CE students were taking career-related courses and 49,325 were pursuing personal interests.

We assume that the 13,760 CE graduates took their courses for career advantage and are included in the 147,974 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, 96,634 CE students and 9,907 CE graduates were estimated to be working in 2010. 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 who used continuing education to advance their career or workplace skills equal 29.2 per cent of local employment in 2010. 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, 147,974 persons have used the Conestoga's continuing education courses to become more productive or to change their career to meet changed market conditions. Clearly the continuing education courses are an indispensable tool to help 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 help to prepare for their studies. By providing this absolutely minimum condition for economic and social success, Conestoga makes a vital and invaluable contribution to those who would otherwise be disadvantaged.

Those who pursued their personal interests through continuing education courses equal 9.8 per cent of the local adult population. It should be emphasized that by helping this many individuals pursue personal development, Conestoga is making a major contribution to the local community's well-being and quality of life. Indeed, access to a facility that provides opportunities for personal fulfillment contributes directly to a community's quality of life.

Details are presented in Table 6.

## Table 6

### Continuing Education Summary - Local Area 2010

Type of Conestoga Continuing Education (CE) Student	Cumulative Number 1990-2010	Estimated Number Working <sup>3</sup>	Per cent of Estimated Local Employment <sup>4</sup>	Per cent of Estimated Local Adult Population <sup>5</sup>
CE graduates <sup>1</sup>	13,760	9,907	2.7	Na
CE students who pursued career or workplace skills courses <sup>2</sup>	134,214	96,634	26.5	Na
<b>Total career-related CE students</b>	<b>147,974</b>	<b>106,541</b>	<b>29.2</b>	<b>Na</b>
CE students who pursued personal interest courses <sup>2</sup>	49,325	Na	Na	9.8
<b>Total career and personal interest CE students</b>	<b>197,299</b>	<b>Na</b>	<b>Na</b>	<b>39.1</b>

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; Essential Economics Corporation from Statistics Canada data

# Corporate Training

In addition to the role played by Continuing Education, Conestoga's Corporate Training activities also contribute to labour force renewal by directly serving the specific training needs of 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. The needs of shift workers can also be accommodated. These training sessions can be as short as several hours or as long as intensive 44-week courses.

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 market. 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.

Over the past decade, Conestoga estimates that it has trained at least 30,000 individuals for at least 500 employers. Of course, some of these trainees are also Conestoga graduates or CE students. Since some of these trainees may have participated in more than one training session, to be conservative, we will assume that unique trainees equal only 20,000 individuals.

We also know that Conestoga graduates and CE students equal 37.1 per cent of local employment. Assuming that the trainees match the characteristics of local employment [and there is no reason to believe otherwise], the number of trainees who are Conestoga graduates or CE students is approximately 7,420 [37.1 per cent of 20,000]. That leaves approximately 12,580 trainees who participated only in Conestoga's training programs.

# 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, and advising internationally trained workers.

From 2002 to 2011, CAA served 42,398 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 represents a potential impact on total local employment of 11.6 per cent.

Apart from the scale of this activity, it must be emphasized that the further 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 7.

**Table 7**

**Number of Students/Clients - School of Career and Academic Access  
2002 to 2011**

Year <sup>1</sup>	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
<b>Total</b>	<b>11,817</b>	<b>30,581</b>	<b>42,398</b>

1: School year ending March 31/April 1

Source: Conestoga College, School of Career and Academic Access



# Summary Contribution

Conestoga makes a major and indispensable contribution to the adaptability of the local economy and to the community's 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 its diversity of activity. Moreover, it serves a wide range of community members, from high school graduates to older workers, from those academically well prepared to 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 nearly half 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 40 per cent of residents employed in the local area.

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

Details are presented in Table 8.

## Table 8

### Conestoga's Summary Contribution to the Local Area<sup>1</sup>

	Number	Per cent of Estimated Adult Population
College Graduates <sup>2</sup>	53,887	10.7
CE Students 1990-2010	183,539	36.4
Total	237,426	47.05
School of Career and Academic Access 2002-2011 <sup>3</sup>	42,398	8.44
	Number	Per cent of Estimated Employment
College Graduates Employed <sup>2</sup>	38,796	10.6
CE Students Employed 1990-2010	96,634	26.5
Trainees	12,580	3.4
Total	148,010	40.6 <sup>5</sup>
School of Career and Academic Access 2002-2011 <sup>3</sup>	42,398 <sup>4</sup>	11.6 <sup>4</sup>

1: Waterloo Region, Guelph and Stratford

2: Includes CE Graduates

3: School year ending March 31/April 1. Note: The goal of many CAA students is further education or training, not direct employment.

4: May include individuals counted above.

5: May not sum exactly because of rounding

Source: Conestoga College, Statistics Canada and Essential Economics Corporation

# Technical Notes

# Technical Note 1

## Estimated Residential Location of Conestoga Graduates

Alumni Services at Conestoga tracks the location of diploma, certificate and degree holders according to the addresses used to mail Conestoga publications. Alumni listed in the database as “active” have current addresses which can be searched by municipal location. Of Conestoga’s 83,398 graduate alumni, 55,948 are listed as active. That represents 67.1 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 7 percentage-point increase over the past decade.

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

Graduates are listed as “inactive” when their addresses are no longer current. Inactives represent 33 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, 52.9 per cent of the active graduates live in Waterloo Region while 49.9 per cent of the inactive graduate addresses were in Waterloo Region. Similarly, 64.6 per cent of the active graduates live in the local area (Waterloo Region, Guelph and Stratford), while 62.8 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 2010

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	55,948	100.0	27,450	100.0	27,450	83,398
Canada	55,186	98.6	27,274	99.3	27,065	82,251
Ontario	54,389	97.2	26,765	97.5	26,681	81,070
Catchment Area	39,649	70.1	19,570	71.3	19,242	58,891
Local Core Area	36,155	64.6	17,233	62.8	17,732	53,887
Waterloo Region	29,582	52.9	13,699	49.9	14,521	44,103
Kitchener CMA	28,075	50.2	13,016	47.4	13,779	41,854
Guelph	5,425	9.7	2,718	9.9	2,662	8,087
Stratford	1,148	2.0	816	3.0	549	1,697

Source: Conestoga College Alumni Services and Essential Economics Corporation

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 underestimate.

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 2010

Location	Active Addresses	Inactive Addresses	Total Active and Inactive	Graduates by Assigned Location
Total	55,948	27,450	83,398	83,398
Canada	55,186	27,274	82,460	82,251
Ontario	54,389	26,765	81,154	81,070
Catchment Area	39,649	19,570	59,219	58,891
Local Core Area	36,155	17,233	53,388	53,887
Waterloo Region	29,582	13,699	43,281	44,103
Kitchener CMA	28,075	13,016	41,091	41,854
Guelph	5,425	2,718	8,143	8,087
Stratford	1,148	816	1,964	1,697

Source: Conestoga College Alumni Services and Essential Economics Corporation

# 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.

Total employment of Waterloo Region residents is therefore calculated by increasing the 2006 Census figure (257,655) by the rate that employment in the Kitchener CMA grew between 2006 and 2010 (8.3 per cent). This assumes that there is no significant difference in the employment performance of the Kitchener CMA and that of Waterloo Region. This is a valid approach since the Kitchener CMA constituted 94.4 per cent of Waterloo Region's employment in 2006.

Similarly, employment of Guelph residents is calculated by increasing the 2006 Census figure (62,875) by the rate that employment in the Guelph CMA grew between 2006 and 2010 (8.3 per cent). This assumes that there is no significant difference in the employment performance of the Guelph CMA and the City of Guelph. This is a valid approach since the larger Guelph CMA constituted 111.0 per cent of the City of Guelph's employment in 2006.

Since employment in both the Kitchener CMA and the Guelph CMA increased 8.3 per cent, it is reasonable to estimate the employment of Stratford residents in 2010 by increasing its 2006 level by 8.3 per cent, the employment growth rate of the larger urban economy of which it is a part.

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 2010

Location	Census 2006	Labour Force Survey 2010	Per cent Change 2006 to 2010
Kitchener CMA	243,340	263,700	8.3
Guelph CMA	69,700	75,500	8.3
Location	Census 2006	Labour Force Survey 2010	Estimated Employment In 2010
Waterloo Region	257,655	Na	279,040
City of Guelph	62,875	Na	68,093
Stratford	16,320	Na	17,674
Total Local	336,850	Na	364,807

Na: not available

Source: Statistics Canada and Essential Economics Corporation

# 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 estimate 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 Canada. In 2010, for those 25 to 44 years old, 84.6 per cent of Canadian college graduates were working; for those 45 years and over, 59.4 per cent were working. There is no reason to assume that the percentages for Conestoga graduates are different from those for Canada, especially since the total employment ratio for the Kitchener CMA exceeds the ratio for Canada.

Since 52 per cent of Conestoga's graduates completed their educations in the past 8 years, the age cohort 25 to 44 is broadly representative of half of Conestoga's graduates; the other half by those 45 years and over. We will therefore apply the 25 to 44 percentage (84.6) to half the Conestoga graduates living locally, and the over 45 percentage (59.4) to the other half. The result is an estimate of Conestoga graduates who are living locally and working.

Using this procedure, we estimated that of the 53,887 graduates living locally, 38,796 are presently employed. In other words, overall 72.0 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 4 and 5.

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 Canadian college graduates, including the skilled trades, was over 30,000 dollars in 2006, we can say that total annual employment income of Conestoga's graduates is at least one billion dollars today [the number of working graduates multiplied by 30,000 dollars].

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 one billion dollars annually. [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

### Conestoga Graduates Employed - Local Area 2010

Location of Residence	Number of Graduates	Applicable Ratio <sup>2</sup>	Number Employed
Stratford	848	0.846	717
	849	0.594	504
<b>Total</b>	<b>1,697</b>		<b>1,221</b>
Guelph	4,043	0.846	3,420
	4,044	0.594	2,402
<b>Total</b>	<b>8,087</b>		<b>5,822</b>
Waterloo Region	22,051	0.846	18,655
	22,052	0.594	13,098
<b>Total</b>	<b>44,103</b>		<b>31,753</b>
<b>Total Local Area<sup>1</sup></b>	<b>53,887</b>	<b>Na</b>	<b>38,796</b>

Na: not applicable

1: Waterloo Region, Guelph and Stratford

2: See Technical Note 3

Source: Conestoga College Alumni Services, Statistics Canada and Essential Economics Corporation

## Technical Table 5

### Conestoga Graduates<sup>1</sup> Employed as Per cent of Resident Employment 2010

Location	Number of Graduates	Number of Graduates Employed <sup>3</sup>	Total Estimated Resident Employment <sup>4</sup>	Conestoga Graduates as Per cent of Resident Employment
Local Area <sup>2</sup>	53,887	38,796	364,807	10.6
Waterloo Region	44,103	31,753	279,040	11.4
Guelph	8,087	5,822	68,093	8.5
Stratford	1,697	1,221	17,674	6.9

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 Essential Economics Corporation

# Technical Note 4

## Estimated College Graduates (Including Skilled Trades) in the Local Area

Educational attainment figures for the local area are not available for 2010. In order to estimate the figures for 2010, the 2006 Census figures for the local areas were increased by the rate at which each educational category rose in Canada from the 2001 Census to the 2006 Census. This assumes that the rate of educational increase in Canada was sustained into 2010 and is representative of the local area.

Rather than using the educational trend of Canada, it would have been preferable to compare the educational attainment of each of the local jurisdictions separately. However, changes in educational practice and Statistics Canada's treatment of educational attainment made this approach impractical.

Details are presented in Technical Table 6.

## Technical Table 6

### Estimated Total Number of Local College Graduates 2010

Location	Census 2006		Estimated Total in 2010		Total in 2010 Including Skilled Trades
	College Graduates Excluding Trades	Trades	College Graduates Excluding Trades <sup>2</sup>	Trades <sup>3</sup>	
Waterloo Region	70,465	30,920	87,306	33,146	120,452
Guelph	15,860	6,725	19,650	7,209	26,859
Stratford	5,160	1,990	6,393	2,133	8,526
Local Area <sup>1</sup>	91,485	39,635	113,349	42,488	155,837

1: Waterloo Region, Guelph and Stratford.

2: College graduates, excluding trades were increased by the rate of increase of this educational category from Census 2001 to Census 2006 for Canada. (23.9 per cent)

3: Trades were increased by the rate of increase of this educational category from Census 2001 to Census 2006. (7.2 per cent)

Source: Statistics Canada and Essential Economics Corporation



# Technical Note 5

## Conestoga's Enterprising Graduates

The Harris Connect survey of Conestoga's alumni had 14,613 participants, a full 17.5 per cent of the total universe of alumni, strongly suggesting that the sample should be broadly representative. This is especially the case if we use the sample to infer a characteristic that is itself strongly present in the sample.

The Harris Connect survey data produced 585 alumni, 4.0 per cent of sample, who described themselves as owner, business owner, freelancer, self-employed or proprietor.

However, it was still important to determine that there was not a bias in the Harris Connect data. In other words, we must ask whether the Harris Connect sampled across the alumni and that the responses were not abnormally clustered.

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

Indeed the per cent of survey participants is highly similar from 1969 to 2004, ranging from a low of 14.1 per cent to a high of 23.8 per cent, with most years in the 15.0 to 18.0 per cent range.

However, the years from 2005 forward (not considering 2010 which was not complete because of the survey deadline) all had a participation rate of over 20.0 per cent and 2009 was over 30.0 per cent.

As a result, we can say that the sample, while broadly representative, may have had a bias toward more recent, rather than less recent, graduates. However, since we are using the sample to infer the number of graduates who own businesses and since business ownership is often undertaken by those who are older with greater resources and experience, the Harris Connect sample, if anything, might underestimate the incidence of graduate business ownership. Our estimate based on the sample is therefore representative and conservative.

The details of the survey participation rates are presented in Technical Table 7.

## Technical Table 7

### Harris Connect Response Rate by Year of Graduation 2009

Years	Total Alumni	Participated in Harris Connect Survey	Percentage of Year
1969	83	17	20.5
1970	205	33	16.1
1971	286	54	18.9
1972	383	69	18.0
1973	382	61	16.0
1974	379	72	19.0
1975	707	143	20.2
1976	735	122	16.6
1977	713	170	23.8
1978	652	123	18.9
1979	683	147	21.5
1980	824	159	19.3
1981	813	157	19.3
1982	1,911	299	15.6
1983	1,750	269	15.4
1984	1,711	270	15.8
1985	2,072	308	14.9
1986	1,989	336	16.9
1987	2,101	358	17.0
1988	1,794	297	16.6
1989	2,001	283	14.1
1990	2,213	353	15.9
1991	2,337	339	14.5
1992	1,899	328	17.3
1993	2,631	433	16.5
1994	2,727	465	17.0
1995	2,950	540	18.3
1996	2,766	486	17.6
1997	2,590	520	20.1
1998	2,835	521	18.4
1999	2,755	495	18.0
2000	2,570	477	18.6
2002	3,065	553	18.0
2003	3,420	682	19.9
2004	3,497	635	18.2
2005	3,273	691	21.1
2006	2,972	692	23.3
2007	3,549	837	23.6
2008	4,091	1,198	29.3
2009	4,287	1,498	34.7
2010	4,561	191	4.1

Note: Some alumni are listed more than once since those who graduated from more than one program are included in each year they graduated

Source: Conestoga College Alumni Services and Harris Connect

# 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 (2008) concerning a number of matters, including the main reason they took a continuing education course. This survey is administered repeatedly, used by other colleges and conducted by CCI Research Inc. While we will use the responses from 2008, 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 8.

Since the 2008 survey indicated that 75 per cent of respondents were taking courses mainly to advance their career and/or improve their workplace skills and 25 per cent were pursuing personal interests or fulfillment, the 197,299 individual continuing education students were allocated in these proportions. Therefore, we estimated that 147,574 CE students took career-related courses and 49,325 CE students took courses to pursue their personal interests.

We assume the 13,760 CE students who are also graduates earned their certificate or diploma for career-related purposes and are included in the total of 147,974 career-related CE students. This means that of the total of career-related CE students, 13,760 were CE graduates and 134,214 took career-related courses, but did not move 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 (72.0 per cent). See Technical Note 3. This percentage was applied to the CE students and graduates to estimate the number of those 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 8

**Reasons for Taking Continuing Education - Conestoga College 1996 to 2008 Per cent of Responses**

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

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 2006. In order to estimate the 2010 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 2006 and 2010.

Since the Kitchener CMA includes most of Waterloo Region, the adult population of Waterloo Region in 2010 is estimated by increasing the adult population in 2006 by the rate at which the population (15 years and over) of the Kitchener CMA increased (10.2 per cent).

Since Guelph CMA includes all of the City of Guelph and a small additional area, the adult population Guelph in 2010 is estimated by increasing the adult population in 2006 at the rate at which the population (15 years and over) of the Guelph CMA increased (8.3 per cent).

A different approach was used for Stratford because it is not part of a CMA and no data for 2010 is available. As a result, the adult population of Stratford was estimated by increasing the adult population in 2006 by the rate at which the total Stratford population rose from 2001 to 2006, proportionate to the four years from 2006 to 2010 (1.8 per cent).

Details are presented in Technical Tables 9, 10 and 11.

## Technical Table 9

### Local CMA Population and Estimated Adult Population - Waterloo Region and Guelph 2010

Population 15 years and Over			
Location	Census 2006	Labour Force Survey 2010	Percentage Change 2006-2010
Kitchener CMA	364,995	402,400	10.2
Guelph CMA	103,410	112,000	8.3
Population 20 years and Over			
Location	Census 2006	Labour Force Survey 2010	Estimated Population 2010
Waterloo Region	351,855	Na	387,744 <sup>2</sup>
City of Guelph	86,205	Na	93,360 <sup>3</sup>

Na: not available

1: 20 years and over

2: Census figure increased by 10.2 per cent

3: Census figure increased by 8.3 per cent

Source: Statistics Canada and Essential Economics Corporation

## Technical Table 10

### Census Population and Estimated Adult Population - Stratford 2010

Census Population in 2001	29,780
Census Population in 2006	30,461
Per cent Change 2001 to 2006	2.3
Census Adult Population <sup>1</sup> in 2006	23,200
Estimated Adult Population in 2010	23,617 <sup>2</sup>

1: 20 years and over

2: Census figure increased by 1.8 per cent, proportionate to 4 years, based on 2.3 per cent increase over 5 years.

Source: Statistics Canada and Essential Economics Corporation

## Technical Table 11

### Local Estimated Adult Population<sup>1</sup> 2010

Location	
Waterloo Region	387,744 <sup>2</sup>
Guelph	93,360 <sup>2</sup>
Stratford	23,617 <sup>3</sup>
Total Local Area	504,721

1: 20 years and over

2: See Technical Note 7 and Technical Table 8

3: See Technical Note 7 and Technical Table 9

Source: Statistics Canada and Essential Economics Corporation