Who Works Where in Peterborough: Part 3

Prosperity*Institute* 

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# **Occupational and Industrial Distribution in Peterborough:**

A Benchmark and Comparison Study

Martin Prosperity Institute March 2013

# **INTRODUCTION**

The following analysis provides a detailed examination of the occupations which have the largest employment present in Peterborough in comparison to its Canadian benchmarks in 2006<sup>1</sup>. These occupations are examined in two ways: by occupations with the largest number employed; and the three occupational classifications of creative class, service class and working class. The occupations for the United States benchmarks are also provided, however, comparisons are not allowable due to the differences in occupational classifications<sup>2</sup>. Canada uses the National Occupational Classification<sup>5</sup> (SOC) system<sup>6</sup>.

The first section highlights top ten occupations by number employed and compares these employment numbers to the Canadian benchmarks. The second section examines the top ten creative class, service class and working class in Peterborough and compares these to its Canadian benchmarks. The third section examines the location quotients<sup>7</sup> of the top ten occupations and top ten creative class, service class and working class examined in the first section for Peterborough and the Canadian benchmarks with the province of Ontario as its base. The fourth section uses Human Resources and Skills Development Canada's Canadian Occupational Projection System to provide one potential growth scenario for 2020 for the top ten occupations and top ten creative class, service class and working class occupations of Peterborough in 2006. The fifth section examines occupational clustering among Canada's CMAs in 2011.

# DATA AND METHODOLOGY

Occupational data for Canada is derived from Statistic Canada's 2006 Census<sup>8</sup> while occupational data for the United States is derived from Bureau of Labor Statistics<sup>9 10</sup>. This section uses the level 2-digit code NOC-S 2006 when examining occupations in Canada.

<sup>1 2006</sup> data is used for all sections with the exception of the occupational clustering analysis which uses data from 2011.

<sup>2</sup> See selected corresponding United States tables in the appendix.

<sup>3</sup> See Statistics Canada website for further information on NOC-S classification system (http://www.statcan.gc.ca/subjects-sujets/standard-norme/soc-cnp/2006/noc2006-cnp2006-eng.htm)

<sup>4</sup> This section of the analysis is based on the NOC-S 2006 classification system.

<sup>5</sup> See United States Bureau of Labor Statistics for further information on SOC classification system (http://www.bls.gov/soc/)

<sup>6</sup> Currently there is no concordance table publicly available which would allow for the concordance of the occupations within the two occupational classification systems. Therefore, the corresponding tables for the United States benchmarks are provided for reference only.

<sup>7</sup> Location quotient compares the CMA share of employment activity in a particular industry to the provincial share of employment in the same industry.

<sup>8</sup> The data used has been downloaded from the Statistics Canada website. The topic-base tabulation table used is referenced as follows: Occupation – National Occupational Classification for Statistics 2006 (720C), Sex (3) and Selected Demographic, Cultural, Labour Force, Educational and Income Characteristics (273) for the Population 15 Years and Over of Canada, Provinces, Territories, Author: 2006 Census Statistics Canada 97-564-XCB2006005

<sup>9</sup> Data for the United States has been downloaded from The Bureau of Labor Statistics May 2006 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates has been downloaded from the following website – <u>http://www.bls.gov/oes/2006/may/oessrcma.htm</u>

<sup>10</sup> Data for the United States has been downloaded from the US County Business Patterns Website (http://www.census.gov/econ/cbp/download/06\_data/index.htm)

# TOP TEN OCCUPATIONS BY TOTAL EMPLOYMENT

#### **Peterborough Top Ten Occupations**

The top ten occupations by total employment comprise almost half of all employment (46.89%) in Peterborough in 2006. Sales and service occupations category is the largest number employed with 5,880 or 9.81 percent of total employment in Peterborough. This occupational category is closely followed by clerical occupation (5,180 or 8.65% of total employment) (**Exhibit 3.1**). However, beyond the top two occupations, the next eight occupations comprise a much smaller share of the total employment in Peterborough. In order, the other top occupations are: teachers and professors; retail salespersons and sales clerks; managers in retail trade, food and accommodation services; technical occupations related to natural and applied sciences; transportation equipment operators and related workers, excluding labourers; construction trades; assemblers in manufacturing; and other managers.

In terms of education level, most of the top ten occupations in Peterborough have only a small percentage of employed with a bachelor's degree or higher. The third largest occupation of teachers and professors has the largest share of their employed with a bachelor's degree at 82.02 percent.

For all occupations in Peterborough the median employment income is \$41,082. The top occupation of sales and service occupations has a median income of \$24,431 which is the lowest median income of all occupations within the top ten occupations. The highest median income is in the teachers and professors occupational category at \$65,923 followed closely by the other managers occupation (\$64,484).



### **Canadian Benchmarks Top Ten Occupations**

Peterborough's top ten occupations comprise 49.39 percent of total employed which is higher than the Ontario average (45.45%) (**Exhibit 3.2**). However, Kingston, ON is slightly less occupationally diversified than Peterborough with 50.71 percent employed in the top ten occupations, followed by Guelph, ON (50.05%) and Sudbury, ON (49.31%).

The five Canadian benchmark CMAs have the same top two occupations as Peterborough; however, the largest occupational category is clerical occupations followed by sales and service occupations (**Exhibit 3.2**). Barrie, ON has the same top ten occupations as Peterborough with the exception of Peterborough's addition of the paralegals, social services workers and occupations in education and religion. Brantford, ON is the most occupationally different from Peterborough with four occupations in its top ten that are not present in Peterborough's top ten. Guelph, ON and Kingston, ON differ by three occupational categories while Sudbury, ON and Thunder Bay, ON differ by two occupational categories from Peterborough's top ten occupations.

Peterborough has the lowest median employment income in comparison to its Canadian benchmark counterparts. However, among the Canadian benchmarks, Brantford, ON has the lowest median employment income (\$41,701). Guelph, ON has the highest median employment income of all Canadian benchmarks (\$46,008) followed by Barrie, ON (\$45,668) and Sudbury, ON (\$45,112).

Top ten occupations by employment in Canadian benchmarks, 2006

#### Exhibit 3.2.1







Exhibit 3.2.2

#### Top ten occupations by employment in Canadian benchmarks, 2006, (cont.)



#### Brantford, ON

Percentage of Total Employment



#### Guelph, ON

Exhibit 3.2.3

Top ten occupations by employment in Canadian benchmarks, 2006, (cont.)

#### Kingston, ON



Percentage of Total Employment



#### Sudbury, ON

Exhibit 3.2.4

Top ten occupations by employment in Canadian benchmarks, 2006, (cont.)



Exhibit 3.3 Top ten Creative class occupations by employment in Peterborough, 2006 E1 Teachers and professors 3,170 C1 Technical occupations related to 1,905 natural and applied sciences E0 Judges, lawyers, psychologists, social workers, 1,350 ministers of religion, and policy and program officers D1 Nurse supervisors and registered nurses 1,225 C0 Professional occupations in 1,220 natural and applied sciences A1 Specialist managers 1,095 B0 Professional occupations in business and finance 1,025 D2 Technical and related occupations in health 965 F1 Technical occupations in art, 840 culture, recreation and sport D0 Professional occupations in health 770 All Occupations 59,910 Total Top 10 Creative Occupations 13,565 0 50 100%

Percentage of Total Employment

# TOP TEN OCCUPATIONS BY OCCUPATIONAL CLASSIFICATION BY TOTAL EMPLOYMENT

### **CREATIVE CLASS OCCUPATIONS**

### Peterborough Top Ten Creative Class Occupations

Peterborough's top ten creative class occupations comprise less than a quarter of all employment (22.64%) (**Exhibit 3.3**, previous page). Teachers and professors comprise the largest number of creative class occupations in Peterborough (5.29%) followed by technical occupations related to natural and applied sciences (3.18%) and judges, lawyers, psychologists, social workers, ministers of religion, and policy and program officers (2.25%). The remaining seven occupational categories in the top ten creative classes occupations: nurse supervisors and registered nurses; professional occupations in natural and applied sciences; specialist managers; professional occupations in business and finance; technical and related occupations in health; technical occupations in art, culture, recreation and sport; and professional occupations in health, comprise a little over half of the creative occupations in Peterborough.

When examining the percentage employed in each occupational category with a Bachelor's degree or higher, four creative class occupational categories have over half employed with a Bachelor's degree or higher. Professional occupations in health had the highest rate of having a Bachelor's degree or higher (94.16%) followed by teachers and professors (82.02%). Technical and related occupations in health had the lowest rate of having a Bachelor's degree or higher with only 13.99 percent employed in this occupational category with a Bachelor's degree.

The median employment income of creative occupations within the top ten creative class occupations ranges from a low of \$34,120 for technical occupations in art, culture, recreation and sport to a high of \$71,476 for professional occupations in health. With the exception of technical occupations in art, culture, recreation and sport, all other occupational categories in the top ten creative occupations have median employment incomes higher than the median employment income of all occupations in Peterborough. Half of the creative class occupations within the top ten earn more than \$60,000 per year.

### **Canadian Benchmark Top Ten Creative Class Occupations**

Peterborough has a smaller share employed in the top ten creative class occupations than the Ontario average (22.64% versus 27.05%) (**Exhibit 3.4**). Among the Canadian benchmarks only Brantford, ON has a smaller share of employed in creative class occupations than Peterborough (19.44%) while Barrie, ON has a similar share (22.68%). Kingston, ON has a much larger share

employed in the top ten creative class occupations than Peterborough (29.97%). Similar to Peterborough, all Canadian benchmarks have teachers and professors as the largest share of creative class occupations. However, the share that teachers and professors comprise of total employment varies. Peterborough's teachers and professors occupational category comprises 5.29 percent of total employment which is higher than Barrie, ON (3.88%), Brantford, ON (3.62%), Sudbury (5.11%) and Thunder Bay (4.74%).

The top ten creative class occupations of the Canadian benchmarks are similar to Peterborough. With the exception of Barrie, ON, the Canadian benchmarks differ by only one occupational category from Peterborough's the top ten creative class occupations. The Canadian benchmarks include other managers among their top ten creative class occupations while Peterborough's top ten includes professional occupations in health.

Similar to Peterborough, several creative class occupations among the Canadian benchmarks have high levels employed with a Bachelor's degree or higher. However, the share of those employed with a Bachelor's degree or higher ranges among the Canadian benchmarks. For example, of those employed in the judges, lawyers, psychologists, social workers, ministers of religion, and policy and program officers occupational category in Peterborough 63.70 percent have a Bachelor's degree or higher. Peterborough's proportion of judges, lawyers, psychologists, social workers, ministers of religion, and policy and program officers occupational category with a Bachelor's degree or higher is higher than Barrie, ON (62.76%), Brantford, ON (60.53%), Guelph, ON (51.13%), and Sudbury, ON (60.57%). However, Peterborough's share in this occupational category of those with a Bachelor's degree or higher is smaller than the Ontario average (63.70% versus 74.42%).

The median employment income also varies among similar creative class occupational categories. For example, for those employed in professional occupations in natural and applied sciences in Peterborough the median employment income is \$69,698 which is the highest among the Canadian benchmarks with those employed in Brantford, ON earning the least (\$57,747). In addition, the creative class occupational category of teachers and professors in Peterborough earn the highest median employment income (\$65,923) among the Canadian benchmarks with those in Guelph, ON earning the least (\$59,510). However, those employed in technical occupations related to natural and applied sciences in Peterborough (\$48,094) earn less than the Canadian benchmarks and considerably less than those in Sudbury, ON (\$57,572). How the median employment income among creative class occupations in Peterborough fares in comparison to its Canadian benchmarks depends on the creative class occupation.

Top ten Creative class occupations by employment in Canadian benchmarks, 2006

#### Exhibit 3.4.1



Percentage of Total Employment

E1 Teachers and professors	3,810
A3 Other managers, n.e.c. 50/50 split	3,300
C1 Technical occupations related to natural and applied sciences	2,630
A1 Specialist managers	2,585
CO Professional occupations in natural and applied sciences	2,120
B0 Professional occupations in business and finance	1,835
D1 Nurse supervisors and registered nurses	1,695
E0 Judges, lawyers, psychologists, social workers, ministers of religion, and policy and program officers	1,665
F1 Technical occupations in art, culture, recreation and sport	1,450
B1 Finance and insurance administration occupations	1,150
All Occupations	98,075
- Total Top 10 Creative Occupations -	22,240
(	50 100%
	Percentage of Total Employment

#### Barrie, ON

Exhibit 3.4.2

Top ten Creative class occupations by employment in Canadian benchmarks, 2006, (cont.)

#### Brantford, ON



Percentage of Total Employment

#### Guelph, ON



Top ten Creative class occupations by employment in Canadian benchmarks, 2006, (cont.)

Exhibit 3.4.3

#### Kingston, ON E1 Teachers and professors 5,835 A3 Other managers, n.e.c. 3,140 CO Professional occupations in 2,470 natural and applied sciences E0 Judges, lawyers, psychologists, social workers, 2,315 ministers of religion, and policy and program officers C1 Technical occupations related 2,290 to natural and applied sciences D1 Nurse supervisors and registered nurses 2,160 D0 Professional occupations in health 1,620 F1 Technical occupations in art, culture, recreation and sport 1,305 A1 Specialist managers 1,295 B0 Professional occupations in business and finance 1,260 79,035 All Occupations Total Top 10 Creative Occupations 23,690 0 50 100%

Percentage of Total Employment

#### Sudbury, ON



Top ten Creative class occupations by employment in Canadian benchmarks, 2006, (cont.)

Thunder Bay, ON E1 Teachers and professors 2,985 C1 Technical occupations related 2,080 to natural and applied sciences D1 Nurse supervisors and registered nurses 1.715 E0 Judges, lawyers, psychologists, social workers, 1,540 ministers of religion, and policy and program officers A3 Other managers, n.e.c. 1,535 CO Professional occupations in 1,200 natural and applied sciences D2 Technical and related occupations in health 1,145 A1 Specialist managers 1,095 B0 Professional occupations in business and finance 1,040 F1 Technical occupations in art, culture, recreation and sport 920 All Occupations 62,930 Total Top 10 Creative Occupations 15,255 0 50 100%

#### Percentage of Total Employment

Exhibit 3.4.4

### SERVICE CLASS OCCUPATIONS

#### **Peterborough Top Ten Service Class Occupations**

The top ten service class occupations comprise 38.79 percent of the total employment in Peterborough. The sales and service occupational category is the largest service occupation category (9.81%) followed closely by clerical occupations (8.65%) (**Exhibit 3.5**). The eight remaining top ten service class occupations each comprise less than five percent of total employment in Peterborough. The remaining eight are: retail salespersons and sales clerks; managers in retail trade, food and accommodation services; paralegals, social services workers and occupations in education and religion; wholesale, technical, insurance, real estate sales specialists, and retail, wholesale and grain buyers; assisting occupations in support of health services; child care and home support workers; administrative and regulatory occupations; and cashiers.

Individuals employed in the service occupation category of paralegals, social services workers and occupations in education and religion have the highest share with a Bachelor's degree or higher (20.00%) followed closely by administrative and regulatory occupations (19.16%). Six of



the top ten service class occupations have less than ten percent employed with a Bachelor's degree or higher. Individuals employed in sales and service occupations have the lowest share with a Bachelor's degree or higher (3.66%).

Median employment income ranges from \$17,456 for cashiers to a high of \$45,838 for wholesale, technical, insurance, real estate sales specialists, and retail, wholesale and grain buyers. With the exception of wholesale, technical, insurance, real estate sales specialists and retail, wholesale and grain buyers occupational category, the median employment income of the remaining nine service class occupational categories are lower than the median employment income of all occupations.

#### **Canadian Benchmark Top Ten Service Class Occupations**

Peterborough's top ten service class occupations comprise 38.79 percent of its total employment which is higher than its counterparts of Brantford, ON (36.46%) and Guelph, ON (35.37%) (**Exhibit 3.6**). Kingston, ON has the largest share of total employment in its top ten service class occupations among the Canadian benchmarks. The top three service class occupations in Peterborough sales and service occupations; clerical occupations; and retail salespersons and sales clerks are also the top three for each of the Canadian benchmarks although not in the same order. Brantford, ON is the most similar to Peterborough with nine of the same top ten service class occupations. Brantford, ON has occupations in protective services in its top ten rather than child care and home support workers like Peterborough. Sudbury, ON differs the most from Peterborough with three different service class occupations in its top ten.

Of the service class occupations that are common to Peterborough and its Canadian benchmarks, the service class occupation category of paralegals, social services workers and occupations in education and religion have the highest share with a Bachelor's degree or higher. While Peterborough's service class occupation category of paralegals, social services workers and occupations in education and religion had 20 percent employed with a Bachelor's degree or higher with the proportion with a Bachelor's degree or higher ranges from a low in Barrie, ON (15.46%) to a high in Guelph, ON (34.18%). In several service class occupation categories Guelph, ON and Kingston, ON have a much larger proportion employed that have a Bachelor's degree or higher than in Peterborough. For example, 8.98 percent employed in clerical occupations in Peterborough have a Bachelor's degree or higher compared to 15.57 percent in Guelph, ON and 11.37 percent in Kingston, ON.

When examining the median employment incomes of service class occupations, there is much variation within the top ten across the Canadian benchmarks. For example, retail salespersons and sales clerks have a median employment income of \$25,054 in Peterborough which is much lower than Barrie, ON's \$34,404 but similar to Thunder Bay, ON (\$26,919), Sudbury, ON (\$26,298), and Kingston, ON (\$26,259). Managers in retail trade, food and accommodation services earn a median employment income of \$33,332 in Peterborough which is lower than all of the Canadian benchmarks with managers in retail trade, food and accommodation services earning the largest employment income in Guelph, ON (\$40,671). While those employed in wholesale, technical, insurance, real estate sales specialists, and retail, wholesale and grain buyers in Peterborough earn the highest median income in Peterborough among its top ten service occupations (\$45,838) this median employment income is the lowest of all Canadian benchmarks. Wholesale, technical, insurance, real estate sales specialists, and retail, wholesale and grain buyers in Guelph, ON and Barrie, ON earn more than \$10,000 more median employment income than those in Peterborough (\$56,831 and \$56,019 respectively).

Top ten Service class occupations by employment in Canadian benchmarks, 2006



Percentage of Total Employment



#### Barrie, ON

Exhibit 3.6.1

Top ten Service class occupations by employment in Canadian benchmarks, 2006, (cont.)

#### Exhibit 3.6.2



Brantford, ON

Percentage of Total Employment



#### Guelph, ON

Top ten Service class occupations by employment in Canadian benchmarks, 2006, (cont.)

#### Exhibit 3.6.3



#### Thunder Bay, ON

## **WORKING CLASS OCCUPATIONS**

#### Peterborough Top Ten Working Class Occupations

The top ten working class occupations have the smallest share of employed in Peterborough among the three occupational classes (19.80%) (Exhibit 3.7). Among the top ten working class occupations with the exception of the top ranked occupation of transportation equipment operators and related workers, excluding labourers, each of the remaining nine working class occupations comprise less than three percent of the total employment in Peterborough. The top five working class occupations of: transportation equipment operators and related workers, excluding labourers; construction trades; assemblers in manufacturing; mechanics; and trades helpers, construction and transportation labourers and related occupations have between 1,300 and 2,000 employed in each occupational category. The remaining top five working class occupations of: machine operators in manufacturing; stationary engineers, power station operators and electrical trades and telecommunications occupations; machinists, metal forming, shaping and erecting occupations; labourers in processing, manufacturing and utilities; and primary production labourers have less than 1,000 employed in each.

Occupations in the working class have lower shares of employed with a Bachelor's degree or higher than the other two occupational classes. Primary production labourers had the largest proportion employed with a Bachelor's degree or higher (8.46%) with most top ten working class occupations ranging between two to three percent.

Among the top ten working class occupations in Peterborough, stationary engineers, power station operators and electrical trades and telecommunications occupations had by far the largest median employment income (\$67,939). The median employment income is lowest for primary production labourers (\$31,367) followed closely by construction trades (\$32,877).



#### **Canadian Benchmark Top Ten Working Class Occupations**

Canadian benchmarks differ greatly in regards to the proportion of their total employed that the top ten working class occupations comprise. Kingston, ON had the lowest share employed in the working class occupations (13.73%) while Brantford, ON had the highest (26.97%) with Peterborough in between these two CMAs (19.80%) (Exhibit 3.8). In regards to similarity between Peterborough's top ten working class occupations and the Canadian benchmarks, with the exception of Thunder Bay, ON all the other Canadian benchmarks differ from Peterborough by one working class occupation though with different rankings. Four of the benchmarks- Barrie, ON, Brantford, ON, Sudbury, ON and Thunder Bay, ON have the same top working class occupation of transportation equipment operators and related workers, excluding labourers.

Similar to Peterborough, working class occupations of the Canadian benchmarks have lower shares of employed with a Bachelor's degree or higher than the other two occupational classes. Among the Canadian benchmarks top ten working class occupations Guelph, ON had the highest proportion in a Bachelor's degree in primary production labourers (14.41%). Machine operators in manufacturing in Guelph, ON (10.49%) and Kingston, ON (8.11%) had substantially higher proportions with a Bachelor's degree or higher than Peterborough (3.74%). In general, in Peterborough and its Canadian benchmarks, machinists, metal forming, shaping and erecting occupations had the lowest proportion employed with a Bachelor's degree or higher.

Among Peterborough and its Canadian benchmarks, median employment incomes for the top ten working class occupations may vary to a large extent. For example, for transportation equipment operators and related workers, excluding labourers in Peterborough earn \$42,327 which is similar to that of Brantford, ON (\$42,888) and Barrie, ON (\$43,915) and Guelph, ON (\$42,569). However, Peterborough's median income for transportation equipment operators and related workers, excluding labourers is higher than Kingston, ON's (\$37,533) but lower than Sudbury, ON (\$44,294) and Thunder Bay, ON (\$44,854). Also, for example, there is a larger range in median employment incomes for those employed in the working class occupation of assemblers in manufacturing from a high of \$55,891 in Barrie, ON to a low of \$44,946 in Guelph, ON.

Exhibit 3.8.1



#### Barrie, ON

H7 Transportation equipment operators and related workers, excluding labourers	4,010
J2 Assemblers in manufacturing	3,190
H1 Construction trades	3,165
H8 Trades helpers, construction and transportation labourers and related occupations	2,590
H4 Mechanics	2,335
J1 Machine operators in manufacturing	2,115
H3 Machinists, metal forming, shaping and erecting occupations	1,520
J3 Labourers in processing, manufacturing and utilities	1,140
H2 Stationary engineers, power station operators and electrical trades and telecommunications occupations	1,115
H5 Other trades, n.e.c.	1,070
All Occupations	98,075
Total Top 10 Working Occupations	22,250
_	
C	50 100%
	Percentage of Total Employment

Exhibit 3.8.2

Top ten Working class occupations by employment in Canadian benchmarks, 2006, (cont.)



Percentage of Total Employment



#### Guelph, ON

Top ten Working class occupations by employment in Canadian benchmarks, 2006, (cont.)

#### Exhibit 3.8.3

#### Kingston, ON



Percentage of Total Employment

#### Sudbury, ON



Top ten Working class occupations by employment in Canadian benchmarks, 2006, (cont.) Exhibit 3.8.4



#### Thunder Bay, ON

Percentage of Total Employment

# TOP TEN OCCUPATIONS BY OCCUPATIONAL CLASSIFICATION – LOCATION QUOTIENTS

Using the province of Ontario as the base, location quotients are used to examine the occupational shares of the top ten occupations of Peterborough and its Canadian benchmarks. A location quotient larger than 1 can be interpreted that Peterborough has a larger proportion employed in a particular occupation than the Ontario average while a location quotient less than 1 can be interpreted that Peterborough has a smaller proportion employed in a particular occupation than the Ontario average.

#### **Location Quotients of Top Ten Occupations**

Of the top ten occupations by employment in Peterborough, although clerical occupations is the second largest occupational category based on total employment numbers, there are less than would be expected (0.85) based on the Ontario average (**Exhibit 3.9**). Seven of the top ten occupations have a larger share of total employment than would be expected based on the Ontario average. The occupations of teachers and professors (1.32), sales and service occupations (1.30) and construction trades (1.31) have a much larger share of total employment than would be expected as exhibited by their location quotients.

Using location quotients highlights the differences in rankings when examining the top ten occupations by employment in Peterborough in 2006. When examining by total employed only, sales and service occupations; and clerical occupations are the top two ranked occupations; however, when ranking the top ten total employed by their location quotient, this results in teachers and professors; and construction trades as the top two (**Exhibit 3.10.1**). **Exhibit 3.10.2** shows the top ten occupations in Peterborough by location quotients.

Examination of the Canadian benchmarks finds quite varying results (**Exhibit 3.9**). For example, while there are more employed in construction trades in Peterborough (1.31) than would be expected, Barrie, ON has a larger location quotient (1.43) while there are fewer employed than expected in Guelph, ON (0.74). While Peterborough has the provincial average in transportation equipment operators and related workers, excluding labourers, with the exception of Guelph, ON (0.82) all other Canadian benchmarks have a larger number employed than would be expected. The Canadian benchmarks differ in terms of location quotients for assemblers in manufacturing ranging from a high in Guelph, ON (1.67) to a low in Sudbury, ON and Thunder Bay, ON (0.15 and 0.16 respectively).



Exhibit 3.9

Peterborough and Canadian benchmarks of top ten occupations by employment location quotients, 2006

Notes:

This exhibit is based on the top ten occupations by employment of Peterborough in 2006.

Peterborough top ten occupations by employment by total employment and location quotients, 2006



**Ontario Average** E1 Teachers and professors 1.32 H1 Construction trades 1.31 G9 Sales and service occupations, n.e.c. 1.30 A2 Managers in retail trade, 1.20 food and accommodation services J2 Assemblers in manufacturing 1.19 C1 Technical occupations related 1.11 to natural and applied sciences G2 Retail salespersons and sales clerks 1.10 H7 Transportation equipment operators 0.99 and related workers, excluding labourers **B5** Clerical occupations 0.85 A3 Other managers, n.e.c. 0.81 0 2.0 1.0 Location Quotient

Notes:

This exhibit is based on the top ten occupations by employment of Peterborough in 2006.

#### Exhibit 3.10.1

#### Peterborough top ten occupations by location quotients, 2006



Notes: This exhibit is based on the top ten calculated by location quotients using Ontario as the base in 2006

#### **Location Quotients of Top Ten Creative Class Occupations**

The location quotients of the top ten creative class occupations vary to a large degree in Peterborough and its Canadian benchmarks. In Peterborough, the largest absolute number are employed in the teachers and professors occupational category which has the second largest location quotient (1.32) behind technical and related occupations in health (1.36) among the top ten creative class occupations (**Exhibit 3.11**). Half of the top ten creative occupations — teachers and professors; technical occupations related to natural and applied sciences; nurse supervisors and registered nurses; technical and related occupations in health; and professional occupations in health have larger than expected employed in Peterborough. Among Peterborough's top ten creative class occupations, professional occupations in natural and applied sciences has the lowest location quotient (0.49) followed by specialist managers (0.61) and professional occupations in business and finance (0.61).

Peterborough has the its largest location quotient in technical and related occupations in health (1.36), Thunder Bay, ON has a larger location quotient (1.54). Peterborough's second largest location quotient in the teachers and professors occupational category (1.32), it is lower than both Kingston, ON (1.84) and Guelph, ON (1.64). Professional occupations in natural and applied sciences has the lowest location quotient in Peterborough which is the same for Barrie, ON, Brantford, ON, Kingston, ON and Thunder Bay, ON.

#### Exhibit 3.10.2



Peterborough and Canadian benchmarks of top ten Creative class occupations by employment location quotients, 2006

Notes:

This exhibit is based on the top ten Creative class occupations by employment of Peterborough in 2006.

Exhibit 3.11

#### **Location Quotients of Top Ten Service Class Occupations**

Among Peterborough's top ten service class occupations — assisting occupations in support of health services has the largest location quotient (1.33), followed by sales and service occupations (1.30) and child car and home support workers (1.25) (**Exhibit 3.12**). Peterborough has fewer than expected employed in the service occupations of administrative and regulatory occupations (0.78); clerical occupations (0.85); and cashiers (0.94). Among its top ten service class occupations, Peterborough has six occupational categories that have more employed than would be expected based on the Ontario average.

The Canadian benchmarks have a large range in the number of the top ten service class occupations that have more employed than the Ontario average. For example, Barrie, ON only has four service class occupations with location quotients greater than one; however, Thunder Bay, ON has seven service class occupations greater than one. Peterborough has the largest location quotient (1.30) is sales and service occupations with Guelph, ON the lowest (0.98). Similarly, Peterborough has the largest location quotient amongst its peers in managers in retail trade, food and accommodation services (1.20); and paralegals, social services workers and occupations in education and religion (1.21). Peterborough has the lowest location quotient among its benchmarks peers in clerical occupations (0.85); and administrative and regulatory occupations (0.78).





Notes:

This exhibit is based on the top ten Service class occupations by employment of Peterborough in 2006.

#### **Location Quotients of Top Ten Working Class Occupations**

Among the top ten working class occupations, Peterborough has five categories which have a larger number employed than would be expected when compared to Ontario (**Exhibit 3.13**). Peterborough has its largest location quotient in construction trades (1.31) followed by primary production labourers (1.28) and stationary engineers, power station operators and electrical trades and telecommunications occupations (1.20). Peterborough has its lowest location quotient in machine operators in manufacturing (0.62) followed by labourers in processing, manufacturing and utilities (0.68). While the working class occupation of construction trades is the largest location quotient in Peterborough (1.31), the location quotient is larger in Barrie, ON (1.43) and smallest in Guelph, ON (0.74). Machine operators in manufacturing occupational category has the lowest location quotient among the working class occupation quotient (2.11). The location quotient range among the Canadian benchmarks is quite large for labourers in processing, manufacturing and utilities with the ranging from a low in Sudbury, ON (0.29) to a high in Brantford, ON (1.81). Peterborough has the largest location quotient in primary production labourers among its Canadian benchmark peers (1.28), followed by Thunder Bay, ON (1.24).



Peterborough and Canadian benchmarks of top ten Working class occupations by employment location quotients, 2006

Notes:

This exhibit is based on the top Working class occupations by employment of Peterborough in 2006.

Exhibit 3.13

# **PETERBOROUGH OCCUPATION PROJECTIONS TO 2020**

The section uses Human Resources and Skills Development Canada (HRSDC)'s Canadian Occupational Projection System<sup>11</sup> (COPS) which projects the Canadian occupation numbers between 2010 and 2020 to estimate the growth of occupations in Peterborough<sup>12</sup>. The occupation projections provided by COPS is based on coding from the National Occupational Classification (NOC) 2011 while the occupation employment numbers available for Peterborough are based on the coding system of the National Occupational Classification for Statistics (NOC-S) 2006. Concordance<sup>13</sup> between these two occupational classification systems is matched at the very highly aggregated first major group level<sup>14</sup>.

The estimated occupation numbers in this section are show only one potential growth scenario<sup>15</sup> of the occupations based on a highly strict assumptions. This section estimates the number employed in Peterborough's 2006 top ten occupations, creative class occupations, service class occupations and working class occupations for 2020<sup>16</sup>.

For the top ten occupations in Peterborough in 2006, they are all expected to have a positive growth rate until 2020. While the top ten occupations had a total number employed of 28,090 in 2006 this is expected to increase to 32,888 for a growth of over 17 percent over the 14 year period (**Exhibit 3.14**). Sales and service occupations are expected to have the largest absolute increase of 1,150 jobs, followed by clerical occupations (829), and teachers and professors (708).

<sup>11</sup> For detailed information on HRSDC's Canadian Occupational Projection System see http://www23.hrsdc.gc.ca/w.2lc.4me@-eng.jsp.

<sup>12</sup> The COPS estimates the number likely to be employed by occupation for Canada. COPS is representative of the Canadian average and does not provide geographically specific projections. Therefore, the Canadian average is as a proxy for the Peterborough estimates.

<sup>13</sup> For information on concordance between NOC-S 2006 and NOC 2011, see Statistics Canada for detail information.

<sup>(</sup>http://www.statcan.gc.ca/subjects-sujets/standard-norme/noc-cnp/2011/cnp-noc2011-cnp-s-noc-s2006-eng.htm)

<sup>14</sup> Growth rate for each one digit major group level for NOC 2011 from 0 to 9 is calculated from the projections of each of the two digit level occupations within each one digit major group.

<sup>15</sup> From the estimated growth rate of the one digit major group for NOC 2011, the growth rates for the one digit major group level for NOC-S 2006 from A to J are estimated. The growth rate of each NOC-S 2006 major group is estimated by weighting equally the growth rate of each of the NOC 2011 major groups (0 to 9) that occur in each NOC-S 2006 major group. For example, NOC-S 2006 major group A matches to NOC 2011 major group 0 and 1, therefore, 50 percent of the growth rate of group A is attributed to the growth rate of major group 0 and the other 50 percent is attributed to the growth rate of major group 1. This 2010 to 2020 (10 year rate) is then annualized This annualized rate is then applied to the 14 years from 2006 to 2020 to estimate the growth in each occupation based on their NOC-S 2006 major grouping. This is a very aggregated method of estimation due to the challenges of occupational concordance of the two occupational classifications.

<sup>16</sup> These estimates are not meant to be used as forecasts but instead allows for identifying potential occupational growth trends. These estimates rely on a very strict set of assumptions for the concordance as well as the strict assumptions that are inherent in COPS.



Notes:

These estimates rely on a very strict set of assumptions and represent only one potential growth scenario. These estimates are not meant to be used as forecasts.

The top ten creative class occupations of Peterborough in 2006 are expected to increase from 13,565 to 16,668 between 2006 and 2020 (**Exhibit 3.15**). The creative class occupation of teachers and professors is expected to have the largest absolute increase of 708 to 3,878 by 2020 among the top ten creative class. Following teachers and professors, the nurse supervisors and registered nurses occupational category is expected to have the second largest absolute increase (402), followed by technical occupations related to natural and applied sciences (388).



Total Employment for Creative Class Occupations

Notes:

These estimates rely on a very strict set of assumptions and represent only one potential growth scenario. These estimates are not meant to be used as forecasts.

The top ten service class occupations of Peterborough in 2006 are expected to have the largest absolute number increase among the three occupational classes by 2020. This is not unexpected as the service class comprised the largest share of Peterborough's employed among the three occupational classes in 2006. The top ten service class occupations are expected to increase by 4,428 jobs to 27,668 (**Exhibit 3.16**). The occupations with the expected largest absolute increase are sales and service occupations (1,150), clerical occupations (879), and retail salesperson (579).



Notes:

These estimates rely on a very strict set of assumptions and represent only one potential growth scenario. These estimates are not meant to be used as forecasts. The top ten working class occupations of Peterborough in 2006 are expected to have the smallest absolute increase of 1,338 to 12,198 by 2020 (**Exhibit 3.17**). The transportation equipment operators and related workers, excluding labourers working class occupational category is expected to have the largest increase (250) followed closely be construction trades (235). Half of the top ten working class occupations - machine operators in manufacturing; stationary engineers, power station operators and electrical trades and telecommunications occupations; machinists, metal forming, shaping and erecting occupations; labourers in processing, manufacturing and utilities; and primary production labourers are expected to grow by less than 100 jobs by 2020.



Notes:

These estimates rely on a very strict set of assumptions and represent only one potential growth scenario. These estimates are not meant to be used as forecasts.

# OCCUPATIONAL CLUSTERING AMONG CENSUS METROPOLITAN AREAS, 2011

**Exhibits 3.18** and **3.19** show those industries with a positive, strong (>0.60) significant (p<0.05) correlation between occupational employment by occupation among Canadian CMAs in 2011. There are no occupations that have a strong, negative (<-0.60) significant (p<0.05) correlation. **Exhibit 3.19** shows those pairs of occupations that have a manager/worker relationship. For example, places that have higher numbers of "Other Occupations in Protective Service" also have higher numbers of "Managers in Protective Service". These are to be expected, but that relationship isn't always positive, strong and significant for all worker/manager pairs. Every pair is listed twice so that the list can be sorted by occupation code and shows all the strong relationships. **Exhibit 3.18** shows those of its total workforce in the first occupation, that region would have a corresponding high or low share in the second occupation.

In general the results for Canada are what would be expected. Various occupations associated with logging and forestry are often together. Professional occupations of various types often co-located across Canada's metropolitan areas. A few of the more interesting correlations which would not necessarily be expected are worth mentioning: technical life sciences (C12) is associated with logging and forestry (I15, I16); finance and insurance administrative occupations (B11) is associated with primary production labour (I21); and technical life sciences (C12) is associated with life sciences professionals (C02). There are also general clusters around public service professionals (A11, A33, B02, B31, E01, D03, F02) and computer and related occupations (C07, B01, C06). An interesting link between computer professionals (C07) and judges and lawyers (E01) is less expected but may just be general clustering of professionals. Some clustering around manufacturing and production occupations (H31, J19, J21, J22) also can been seen.

These tables allow for additional analysis of the top ten occupations in Peterborough. In Peterborough, among the 2006 top ten occupation categories, the four occupational categories: technical occupations related to natural and applied sciences (C1); transportation equipment operators and related workers (H7): assemblers in manufacturing (J2); and Other managers, n.e.c.(A3) have occupations within the pairs (**Exhibit 3.18**). Occupations within these four occupational categories may have similar correlations as the Canadian CMA average.

Similarily, Peterborough's 2006 top ten occupational categories: clerical occupations (B5); technical occupations related to natural and applied sciences (C1); transportation equipment operators and related workers (H7); assemblers in manufacturing (J2); and other managers, n.e.c.(A3) are among the strong manager/worker relationship (**Exhibit 3.19**). Occupations within these five occupational categories may have similar manager/worker relationship as the Canadian CMA average.

#### Strong significant positive occupation correlations of Canadian CMAs, 2011

#### Exhibit 3.18

Occupation 1	Occupation 2	Correlation
A11 Administrative services managers	A12 Managers in engineering, architecture, science and infor- mation systems	0.663
A11 Administrative services managers	B02 Human resources and business service professionals	0.609
A11 Administrative services managers	F02 Writing, translating and public relations professionals	0.600
A12 Managers in engineering, architecture, science and information systems	A11 Administrative services managers	0.663
A33 Managers in public administration	B02 Human resources and business service professionals	0.628
A37 Managers in construction and transportation	B11 Finance and insurance administrative occupations	0.634
B01 Auditors, accountants and investment professionals	C07 Computer and information systems professionals	0.673
B02 Human resources and business service professionals	A11 Administrative services managers	0.609
B02 Human resources and business service professionals	A33 Managers in public administration	0.628
B02 Human resources and business service professionals	C07 Computer and information systems professionals	0.650
B02 Human resources and business service professionals	E01 Judges, lawyers and Quebec notaries	0.602
B02 Human resources and business service professionals	E03 Policy and program officers, researchers and consultants	0.704
B02 Human resources and business service professionals	F02 Writing, translating and public relations professionals	0.736
B11 Finance and insurance administrative occupations	A37 Managers in construction and transportation	0.634
B11 Finance and insurance administrative occupations	I21 Primary production labourers	0.703
B31 Administrative and regulatory occupations	E03 Policy and program officers, researchers and consultants	0.661
C02 Life science professionals	C12 Technical occupations in life sciences	0.680
C06 Mathematicians, statisticians and actuaries	C07 Computer and information systems professionals	0.628
C07 Computer and information systems professionals	B01 Auditors, accountants and investment professionals	0.673
C07 Computer and information systems professionals	B02 Human resources and business service professionals	0.650
C07 Computer and information systems professionals	C06 Mathematicians, statisticians and actuaries	0.628
C07 Computer and information systems professionals	E01 Judges, lawyers and Quebec notaries	0.603
C07 Computer and information systems professionals	E03 Policy and program officers, researchers and consultants	0.617
C07 Computer and information systems professionals	F02 Writing, translating and public relations professionals	0.735
C12 Technical occupations in life sciences	C02 Life science professionals	0.680
C12 Technical occupations in life sciences	111 Supervisors, logging and forestry	0.716
C12 Technical occupations in life sciences	I15 Logging machinery operators	0.703
C12 Technical occupations in life sciences	116 Logging and forestry workers	0.768
C12 Technical occupations in life sciences	J14 Machine operators and related workers in pulp and paper production and wood processing	0.654
E01 Judges, lawyers and Quebec notaries	B02 Human resources and business service professionals	0.602
E01 Judges, lawyers and Quebec notaries	C07 Computer and information systems professionals	0.603
E01 Judges, lawyers and Quebec notaries	F02 Writing, translating and public relations professionals	0.648
E03 Policy and program officers, researchers and consultants	B02 Human resources and business service professionals	0.704
E03 Policy and program officers, researchers and consultants	B31 Administrative and regulatory occupations	0.661
E03 Policy and program officers, researchers and consultants	C07 Computer and information systems professionals	0.617
E03 Policy and program officers, researchers and consultants	F02 Writing, translating and public relations professionals	0.758
F02 Writing, translating and public relations professionals	A11 Administrative services managers	0.600
F02 Writing, translating and public relations professionals	B02 Human resources and business service professionals	0.736
F02 Writing, translating and public relations professionals	C07 Computer and information systems professionals	0.735
F02 Writing, translating and public relations professionals	E01 Judges, lawyers and Quebec notaries	0.648

Occupation 1	Occupation 2	Correlation
F02 Writing, translating and public relations professionals	E03 Policy and program officers, researchers and consultants	0.758
H31 Machinists and related occupations	J19 Machining, metalworking, woodworking and related machine operators	0.648
H31 Machinists and related occupations	J21 Mechanical, electrical and electronics assemblers	0.713
H41 Machinery and transportation equipment mechanics (except motor vehicle)	J11 Central control and process operators in manufacturing and processing	0.610
H62 Crane operators, drillers and blasters	J12 Machine operators and related workers in metal and mineral products processing	0.633
H73 Other transport equipment operators and related workers	117 Fishing vessel masters and skippers and fishermen/women	0.693
H73 Other transport equipment operators and related workers	I18 Other fishing and trapping occupations	0.741
I11 Supervisors, logging and forestry	C12 Technical occupations in life sciences	0.716
111 Supervisors, logging and forestry	J14 Machine operators and related workers in pulp and paper production and wood processing	0.695
113 Underground miners, oil and gas drillers and related workers	114 Mine service workers and operators in oil and gas drilling	0.682
114 Mine service workers and operators in oil and gas drilling	I13 Underground miners, oil and gas drillers and related work- ers	0.682
I15 Logging machinery operators	C12 Technical occupations in life sciences	0.703
I15 Logging machinery operators	116 Logging and forestry workers	0.783
115 Logging machinery operators	J14 Machine operators and related workers in pulp and paper production and wood processing	0.722
I16 Logging and forestry workers	C12 Technical occupations in life sciences	0.768
I16 Logging and forestry workers	I15 Logging machinery operators	0.783
116 Logging and forestry workers	J14 Machine operators and related workers in pulp and paper production and wood processing	0.746
117 Fishing vessel masters and skippers and fishermen/women	H73 Other transport equipment operators and related workers	0.693
118 Other fishing and trapping occupations	H73 Other transport equipment operators and related workers	0.741
I21 Primary production labourers	B11 Finance and insurance administrative occupations	0.703
J11 Central control and process operators in manufacturing and processing	H41 Machinery and transportation equipment mechanics (except motor vehicle)	0.610
J12 Machine operators and related workers in metal and mineral products processing	H62 Crane operators, drillers and blasters	0.633
J14 Machine operators and related workers in pulp and paper production and wood processing	C12 Technical occupations in life sciences	0.654
J14 Machine operators and related workers in pulp and paper production and wood processing	111 Supervisors, logging and forestry	0.695
J14 Machine operators and related workers in pulp and paper production and wood processing	115 Logging machinery operators	0.722
J14 Machine operators and related workers in pulp and paper production and wood processing	116 Logging and forestry workers	0.746
J19 Machining, metalworking, woodworking and related machine operators	H31 Machinists and related occupations	0.648
J19 Machining, metalworking, woodworking and related machine operators	J21 Mechanical, electrical and electronics assemblers	0.734
J19 Machining, metalworking, woodworking and related machine operators	J22 Other assembly and related occupations	0.600
J21 Mechanical, electrical and electronics assemblers	H31 Machinists and related occupations	0.713
J21 Mechanical, electrical and electronics assemblers	J19 Machining, metalworking, woodworking and related machine operators	0.734
J22 Other assembly and related occupations	J19 Machining, metalworking, woodworking and related machine operators	0.600

# Strong significant positive occupation correlations of Manager/Worker relationships in Canadian CMAs, 2011

Exhibit 3.19

Occupation 1	Occupation 2	Correlation
A11 Administrative services managers	E03 Policy and program officers, researchers and consultants	0.622
A12 Managers in engineering, architecture, science and information systems	C07 Computer and information systems professionals	0.725
A33 Managers in public administration	E03 Policy and program officers, researchers and consultants	0.724
A35 Managers in protective service	G62 Other occupations in protective service	0.963
A38 Managers in primary production (except agriculture)	I12 Supervisors, mining, oil and gas	0.756
A38 Managers in primary production (except agriculture)	114 Mine service workers and operators in oil and gas drilling	0.800
A38 Managers in primary production (except agriculture)	I21 Primary production labourers	0.641
B41 Clerical supervisors	B55 Library, correspondence and related information clerks	0.651
B55 Library, correspondence and related information clerks	B41 Clerical supervisors	0.651
C07 Computer and information systems professionals	A12 Managers in engineering, architecture, science and infor- mation systems	0.725
C17 Transportation officers and controllers	H73 Other transport equipment operators and related workers	0.721
E03 Policy and program officers, researchers and consultants	A11 Administrative services managers	0.622
E03 Policy and program officers, researchers and consultants	A33 Managers in public administration	0.724
G62 Other occupations in protective service	A35 Managers in protective service	0.963
H31 Machinists and related occupations	J02 Supervisors, assembly and fabrication	0.675
H73 Other transport equipment operators and related workers	C17 Transportation officers and controllers	0.721
I01 Contractors, operators and supervisors in agriculture, horticulture and aquaculture	I02 Agriculture and horticulture workers	0.699
I02 Agriculture and horticulture workers	I01 Contractors, operators and supervisors in agriculture, horticulture and aquaculture	0.699
111 Supervisors, logging and forestry	I15 Logging machinery operators	0.700
111 Supervisors, logging and forestry	116 Logging and forestry workers	0.717
112 Supervisors, mining, oil and gas	A38 Managers in primary production (except agriculture)	0.756
I12 Supervisors, mining, oil and gas	113 Underground miners, oil and gas drillers and related work- ers	0.744
112 Supervisors, mining, oil and gas	114 Mine service workers and operators in oil and gas drilling	0.903
113 Underground miners, oil and gas drillers and related workers	I12 Supervisors, mining, oil and gas	0.744
114 Mine service workers and operators in oil and gas drilling	A38 Managers in primary production (except agriculture)	0.800
114 Mine service workers and operators in oil and gas drilling	I12 Supervisors, mining, oil and gas	0.903
115 Logging machinery operators	I11 Supervisors, logging and forestry	0.700
116 Logging and forestry workers	I11 Supervisors, logging and forestry	0.717
117 Fishing vessel masters and skippers and fishermen/women	I18 Other fishing and trapping occupations	0.901
118 Other fishing and trapping occupations	117 Fishing vessel masters and skippers and fishermen/women	0.901
I21 Primary production labourers	A38 Managers in primary production (except agriculture)	0.641
J01 Supervisors, processing occupations	J12 Machine operators and related workers in metal and mineral products processing	0.613
J02 Supervisors, assembly and fabrication	H31 Machinists and related occupations	0.675
J02 Supervisors, assembly and fabrication	J19 Machining, metalworking, woodworking and related machine operators	0.782
J02 Supervisors, assembly and fabrication	J21 Mechanical, electrical and electronics assemblers	0.775

Occupation 1	Occupation 2	Correlation
J02 Supervisors, assembly and fabrication	J22 Other assembly and related occupations	0.690
J12 Machine operators and related workers in metal and mineral products processing	J01 Supervisors, processing occupations	0.613
J19 Machining, metalworking, woodworking and related machine operators	J02 Supervisors, assembly and fabrication	0.782
J21 Mechanical, electrical and electronics assemblers	J02 Supervisors, assembly and fabrication	0.775
J22 Other assembly and related occupations	J02 Supervisors, assembly and fabrication	0.690

**Exhibit 3.20** shows the Canadian CMAs and CAs clustered together according to occupational employment at the three digit level. CMAs in the same cluster have a distribution of occupations that are more like the others in the same cluster while the differences among the clusters is maximized. The clusters are based on occupation mix so places with a similar mix of occupations are grouped together. While not exactly matching, metropolitans in the same cluster will have more common elements than with metropolitans other clusters. Thompson, Canmore, Brooks, Wood Buffalo, Kitimat, Cold Lake, Petawawa are each clusters of one and are effectively unique.

The number of clusters to select is subjective. In this case if the number of clusters was reduced from 10 to 9, more would be added to cluster 1. That and other statistical guidelines suggest that this number of clusters is a good choice.

The occupational cluster results basically suggest that Canada's metropolitan areas either are all mostly the same in their occupational make up or are all rather uniformly different from each other. Often a single dominate cluster will result when there really aren't any significant clusters. So, while the earlier correlation results showed that some occupations are more likely to be together (or not) in regions across Canada, regions do not have similar occupational profiles.

Canadian CMAs clustered by industry establishment shares, 2011

#### Exhibit 3.20

Cluster 1
St. John's, NL
Grand Falls-Windsor, NL
Corner Brook, NL
Charlottetown, PE
Summerside, PE
Halifax, NS
Kentville, NS
Truro, NS
New Glasgow, NS
Cape Breton, NS
Moncton, NB
Saint John, NB
Fredericton, NB
Bathurst, NB
Miramichi, NB
Campbellton, NB
Edmundston, NB
Matane, QC
Rimouski, QC
Rivière-du-Loup, QC
Baie-Comeau, QC
Saguenay, QC
Alma, QC
Dolbeau-Mistassini, QC
Sept-Îles, QC
Québec, QC
Saint-Georges, QC
Thetford Mines, QC
Sherbrooke, QC
Cowansville, QC
Victoriaville, QC
Trois-Rivières, QC
Shawinigan, QC
La Tuque, QC
Drummondville, QC
Granby, QC
Saint-Hyacinthe, QC
Sorel-Tracy, QC

Cluster 1
Joliette, QC
Saint-Jean-sur-Richelieu, QC
Montréal, QC
Salaberry-de-Valleyfield, QC
Lachute, QC
Val-d'Or, QC
Amos, QC
Rouyn-Noranda, QC
Cornwall, ON
Hawkesbury, ON
Ottawa - Gatineau, ON
Brockville, ON
Pembroke, ON
Kingston, ON
Belleville, ON
Cobourg, ON
Port Hope, ON
Peterborough, ON
Kawartha Lakes, ON
Centre Wellington, ON
Oshawa, ON
Ingersoll, ON
Toronto, ON
Hamilton, ON
St. Catharines - Niagara, ON
Kitchener, ON
Brantford, ON
Woodstock, ON
Tillsonburg, ON
Guelph, ON
Stratford, ON
London, ON
Chatham-Kent, ON
Windsor, ON
Sarnia, ON
Owen Sound, ON
Collingwood, ON
Barrie, ON

Cluster 1
Orillia, ON
Midland, ON
North Bay, ON
Greater Sudbury / Grand Sudbury, ON
Elliot Lake, ON
Temiskaming Shores, ON
Timmins, ON
Sault Ste. Marie, ON
Thunder Bay, ON
Kenora, ON
Winnipeg, MB
Brandon, MB
Regina, SK
Yorkton, SK
Moose Jaw, SK
Swift Current, SK
Saskatoon, SK
North Battleford, SK
Prince Albert, SK
Estevan, SK
Medicine Hat, AB
Lethbridge, AB
Okotoks, AB
Calgary, AB
Red Deer, AB
Camrose, AB
Edmonton, AB
Lloydminster, AB
Grande Prairie, AB
Wetaskiwin, AB
Cranbrook, BC
Penticton, BC
Kelowna, BC
Vernon, BC
Salmon Arm, BC
Kamloops, BC
Chilliwack, BC

### **Cluster 1** Abbotsford, BC Vancouver, BC Squamish, BC Victoria, BC Duncan, BC Nanaimo, BC Parksville, BC Port Alberni, BC Courtenay, BC Campbell River, BC Powell River, BC Williams Lake, BC Quesnel, BC Terrace, BC Prince George, BC Dawson Creek, BC Fort St. John, BC Whitehorse, YT Yellowknife, NT **Cluster 2** Norfolk, ON Leamington, ON Portage la Prairie, MB **Cluster 3** Bay Roberts, NL Prince Rupert, BC Not in Any Cluster Thompson, MB Canmore, AB Brooks, AB Wood Buffalo, AB Kitimat, BC Cold Lake, AB Petawawa, ON

## **APPENDIX**

Top ten occupations by employment in United States benchmarks, 2006

Exhibit A3.1.1



#### Battle Creek, MI



#### Bloomington, IL

Notes:

The United States benchmarks can not be compared to the Canadian counterparts due to differences in occupational coding. This is for reference only.

Top ten occupations by employment in United States benchmarks, 2006, (cont.)

Exhibit A3.1.2







Notes:

The United States benchmarks can not be compared to the Canadian counterparts due to differences in occupational coding. This is for reference only.

Top ten occupations by employment in United States benchmarks, 2006, (cont.)

#### 41-2031 Retail Salespersons 1,440 53-7064 Packers and Packagers, Hand 1,340 41-2011 Cashiers 1,310 29-1111 Registered Nurses 950 45-2041 Graders and Sorters, Agricultural Products 870 43-9061 Office Clerks, General 860 35-3021 Combined Food Preparation and 820 Serving Workers, including Fast Food 43-3031 Bookkeeping, Accounting, and Auditing Clerks 730 37-2011 Janitors and Cleaners, except 700 Maids and Housekeeping Cleaners 35-3031 Waiters and Waitresses 660 All Occupations 39,080 Total Top 10 Occupations 9,680 Г 0 50 100%

Notes:

The United States benchmarks can not be compared to the Canadian counterparts due to differences in occupational coding. This is for reference only.

Percentage of Total Employment

#### Wenatchee, WA

Exhibit A3.1.3

50 | Occupational and Industrial Distribution in Peterborough: A Benchmark Comparison Study

Top ten Creative class occupations by employment in United States benchmarks, 2006

#### Exhibit A3.2.1

,
1,430
710
590
550
470
450
450
440
370
360
57,750
5,820
50 100%
Percentage of Total Employment

#### Battle Creek, MI

#### Bloomington, IL

- 25-9041 Teacher Assistants	880		
29-1111 Registered Nurses	720		
11-1021 General and Operations Managers	690		
17-0000 Architecture and Engineering Occupations	690		
41-4012 Sales Representatives, Wholesale and Manufacturing, except Technical and Scientific Products	650		
15-1051 Computer Systems Analysts	630		
41-1011 First-Line Supervisors/ Managers of Retail Sales Workers	580		
13-2011 Accountants and Auditors	510		
- 15-1041 Computer Support Specialists	470		
11-9199 Managers, All Other	440		
All Occupations			83,710
Total Top 10 Creative Class Occupations	6,260		
	[		тт
(	0	50	100%
	Percentage of	Total Employm	ent

Notes: The United States benchmarks can not be compared to the Canadian counterparts due to differences in occupational coding. This is for reference only.

.) Exhibit A3.2.2

Top ten Creative class occupations by employment in United States benchmarks, 2006, (cont.)

#### Decatur, AL



#### 29-1111 Registered Nurses 1,060 11-1021 General and Operations Managers 790 29-2061 Licensed Practical and Licensed Vocational Nurses 630 41-1011 First-Line Supervisors/ 580 Managers of Retail Sales Workers 41-4012 Sales Representatives, Wholesale and 580 Manufacturing, except Technical and Scientific Products 25-9041 Teacher Assistants 550 13-2011 Accountants and Auditors 280 13-1199 Business Operations Specialists, All Other 220 19-4031 Chemical Technicians 150 29-2052 Pharmacy Technicians 140 All Occupations 48,020 Total Top 10 Creative Class Occupations 4,980 0 50 100% Percentage of Total Employment

#### Victoria, TX

Notes:

The United States benchmarks can not be compared to the Canadian counterparts due to differences in occupational coding. This is for reference only.

Top ten Creative class occupations by employment in United States benchmarks, 2006, (cont.)

Exhibit A3.2.3

_	,
29-1111 Registered Nurses	950
25-9041 Teacher Assistants	600
25-2021 Elementary School Teachers, except Special Education	370
41-1011 First-Line Supervisors/ Managers of Retail Sales Workers	340
41-4012 Sales Representatives, Wholesale and Manufacturing, except Technical and Scientific Products	340
25-2022 Middle School Teachers, except Special and Vocational Education	250
13-2011 Accountants and Auditors	230
25-2031 Secondary School Teachers, except Special and Vocational Education	210
19-4093 Forest and Conservation Technicians	200
11-1021 General and Operations Managers	170
- All Occupations	39,080
Total Top 10 Creative Class Occupations	3,660
(	50 100%
	Percentage of Total Employment

#### Wenatchee, WA

Notes:

The United States benchmarks can not be compared to the Canadian counterparts due to differences in occupational coding. This is for reference only.

Top ten Service class occupations by employment in United States benchmarks, 2006

#### Exhibit A3.3.1



### Battle Creek, MI

41-2031 Retail Salespersons	2,650
41-2011 Cashiers	2,450
43-4051 Customer Service Representatives	2,310
35-3021 Combined Food Preparation and Serving Workers, including Fast Food	1,760
37-2011 Janitors and Cleaners, except Maids and Housekeeping Cleaners	1,740
35-3031 Waiters and Waitresses	1,690
43-3031 Bookkeeping, Accounting, and Auditing Clerks	1,410
43-9061 Office Clerks, General	1,390
37-3011 Landscaping and Groundskeeping Workers	1,080
43-6011 Executive Secretaries and Administrative Assistants	1,020
All Occupations	83,710
Total Top 10 Service Class Occupations	17,500
	0 50 100%
	Percentage of Total Employment

#### Bloomington, IL

Top ten Service class occupations by employment in United States benchmarks, 2006, (cont.) Exhibit A3.3.2

Decatur, AL 41-2031 Retail Salespersons 1,850 41-2011 Cashiers 1,450 35-3021 Combined Food Preparation and 1,300 Serving Workers, including Fast Food 43-9061 Office Clerks, General 1,010 43-6014 Secretaries, except Legal, Medical, and Executive 870 35-3031 Waiters and Waitresses 690 37-2011 Janitors and Cleaners, except 680 Maids and Housekeeping Cleaners 43-1011 First-Line Supervisors/Managers of 630 Office and Administrative Support Workers 43-3031 Bookkeeping, Accounting, and Auditing Clerks 620 43-4051 Customer Service Representatives 540 All Occupations 55,750 Total Top 10 Service Class Occupations 9,640 0 50 100%

Percentage of Total Employment



#### Victoria, TX

Top ten Service class occupations by employment in United States benchmarks, 2006, (cont.)

Exhibit A3.3.3



Notes:

The United States benchmarks can not be compared to the Canadian counterparts due to differences in occupational coding. This is for reference only.

Top ten Working class occupations by employment in United States benchmarks, 2006

Exhibit A3.4.1

#### 51-2092 Team Assemblers 890 49-9042 Maintenance and Repair Workers, General 740 51-9111 Packaging and Filling Machine 680 **Operators and Tenders** 51-1011 First-Line Supervisors/Managers 550 of Production and Operating Workers 51-4011 Computer-Controlled Machine 550 Tool Operators, Metal and Plastic 53-3032 Truck Drivers, Heavy and Tractor-Trailer 490 53-7064 Packers and Packagers, Hand 420 51-9061 Inspectors, Testers, Sorters, 340 Samplers, and Weighers 53-3033 Truck Drivers, Light or Delivery Services 340 49-1011 First-Line Supervisors/Managers 310 of Mechanics, Installers, and Repairers 57,750 All Occupations Total Top 10 Working Class Occupations 5,310 .... 0 50 100% Percentage of Total Employment

#### Bloomington, IL

Battle Creek, MI



Notes:

The United States benchmarks can not be compared to the Canadian counterparts due to differences in occupational coding. This is for reference only.

Top ten Working class occupations by employment in United States benchmarks, 2006, (cont.)

Exhibit A3.4.2

#### Decatur, AL 51-2092 Team Assemblers 1,840 53-3032 Truck Drivers, Heavy and Tractor-Trailer 1,590 53-7062 Laborers and Freight, Stock, 950 and Material Movers, Hand 51-9198 Helpers – Production Workers 890 49-9042 Maintenance and Repair Workers, General 860 51-9111 Packaging and Filling 740 Machine Operators and Tenders 51-1011 First-Line Supervisors/Managers 600 of Production and Operating Workers 51-4121 Welders, Cutters, Solderers, and Brazers 500 53-3033 Truck Drivers, Light or Delivery Services 420 53-7051 Industrial Truck and Tractor Operators 420 All Occupations 55,750 Total Top 10 Working Class Occupations 8,810 Т Т 0 50 100% Percentage of Total Employment



Victoria, TX

Notes:

The United States benchmarks can not be compared to the Canadian counterparts due to differences in occupational coding. This is for reference only. Top ten Working class occupations by employment in United States benchmarks, 2006, (cont.)

Wenatchee, WA

Exhibit A3.4.3

#### 53-7064 Packers and Packagers, Hand 1,340 53-7062 Laborers and Freight, Stock, 650 and Material Movers, Hand 53-3032 Truck Drivers, Heavy and Tractor-Trailer 580 47-2031 Carpenters 480 49-9042 Maintenance and Repair Workers, General 480 53-7051 Industrial Truck and Tractor Operators 360 47-2073 Operating Engineers and Other 260 **Construction Equipment Operators** 47-2061 Construction Laborers 250 51-9111 Packaging and Filling 190 Machine Operators and Tenders 49-1011 First-Line Supervisors/Managers 180 of Mechanics, Installers, and Repairers All Occupations 39,080 Total Top 10 Working Class Occupations 4,770 Γ Т 0 50 100% Percentage of Total Employment

#### Notes:

The United States benchmarks can not be compared to the Canadian counterparts due to differences in occupational coding. This is for reference only.

### ACKNOWLEDGMENTS

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