

Employment Outlook for British Columbia

COPS BC Unique Scenario for 2005 to 2015

February 2007

INTRODUCTION

This paper provides an overview and summary findings from the current Canadian Occupational Projection System (COPS) employment demand model for British Columbia (BC), the *COPS BC Unique Scenario*. An analysis of BC's employment projections by major industry and occupational groups is provided for the period 2005 to 2015. This paper updates the summary for the 2003 to 2013 BC scenario published in September 2005.

OVERVIEW

The COPS BC Unique Scenario provides information on provincial employment demand projections for a ten-year period based on the federal/provincial/territorial COPS model.¹ The 10-year projection covers macroeconomic, industrial and occupational employment growth, and replacement demand due to permanent attrition.

The COPS BC Unique Scenario is based upon a number of factors, including historical employment and labour force participation trends, macro-economic and employment forecasts from the BC Ministry of Finance, and market intelligence from industry experts. The BC scenario is prepared by the Ministry of Advanced Education and Service Canada BC/Yukon Region.

The COPS BC Unique Scenario is released on a two-year cycle, or when significant developments in the economic structure of the province make a new projection necessary. The projections do not consider aspects of future labour supply. Thus, in addition to the COPS BC Unique Scenario, analysts must also carry out estimates of future labour supply to assess potential labour market pressures.

Information from the COPS BC Unique Scenario has two primary purposes:

- To assist policy-makers and planners in identifying the most likely trends in labour and skills demand over the long-term; and,
- To assist students, job seekers and career changers in considering future labour and skills demands in their education and career decision-making.

In particular, the long-term employment projections generated by the COPS BC Unique Scenario are used by: the Ministry of Advanced Education when assessing the demand for new post-secondary planning and programming; by human resource analysts in industry; and, by post-secondary institutional researchers and program planners.

In addition, the employment outlook and trend information are key elements of provincial career and labour market information products, such as *BC Work Futures*, *A Guide to the BC Economy and Labour Market* and *High Opportunity Occupations in BC*.

¹The methodology for the COPS BC Unique Scenario is outlined in Appendix 1.

It should also be noted that the COPS BC Unique Scenario's employment demand projections are *only one source* of information available for examining and describing future employment needs. Other important information sources to consider in assessing future employment demand include historical occupational employment trends, information from industry and occupational groups (including employer surveys), local employment conditions, wage data, and employment outcomes for recent graduates from post-secondary student outcomes surveys.

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HIGHLIGHTS

- According to the current COPS BC Unique Scenario, over the 2005 to 2015 decade, total employment for BC is projected to increase by 461,100 new jobs, or 2.0 per cent per year.
- The major industry groups projected to have the largest annual average employment growth rates include: *Health Care and Social Assistance; Professional, Scientific and Technical Services; Management, Administrative and Other Support;* and, *Accommodation and Food Services*. The expectation is that these industries will continue to experience fairly strong demand and economic growth over the outlook period.
- In addition to healthy job creation in the province, a significant number of openings, 652,600, are expected due to permanent attrition (a reduction in the workforce as a result of retirements or deaths). The provincial attrition rate is estimated at 30.6 per cent.
- The impacts of an ageing workforce will not be felt equally across occupations. Relatively high retirement rates are projected in the following occupational groups: *Management Occupations; Business, Finance and Administration; Occupations Unique to Processing, Manufacturing and Utilities;* and, *Occupations Unique to Primary Industry*.
- More than 70 per cent of expected employment openings (newly created jobs and replacement openings) are expected to require some post-secondary education. Demand will be highest for occupations requiring a university degree or higher.
- When projected job opportunities due to new job growth and permanent attrition are combined, over one million job opportunities are estimated for the BC labour market during the 2005 to 2015 outlook period.

SUMMARY FINDINGS

Industry Employment Demand . . .

A major factor in the outlook for the BC economy is the projected growth of industries that make up the economic structure of the province.

Over the outlook period, job creation will be broadly based with almost all of the major industry groups projected to expand during the outlook period.² However, as illustrated by Table 1, employment growth will continue to be concentrated in the service-producing sector of the economy. Healthcare, professional, scientific and technical services, and accommodation and food services represent the industry sectors projected to have the strongest annual growth in employment demand.

Table 1 also demonstrates that projected growth rates are only one aspect of the overall employment picture; the size of an industry (in terms of employment) is also important. Larger industries with below-average annual average growth rates can generate more employment openings than small industries with above-average rates. For example, Retail and Wholesale Trade is one of the largest industry groups overall but is projected to experience below-average annual growth. However, due to the size of this industry group, an average annual growth rate of 1.7 percent will translate into an estimated 62,820 new jobs over the outlook period.

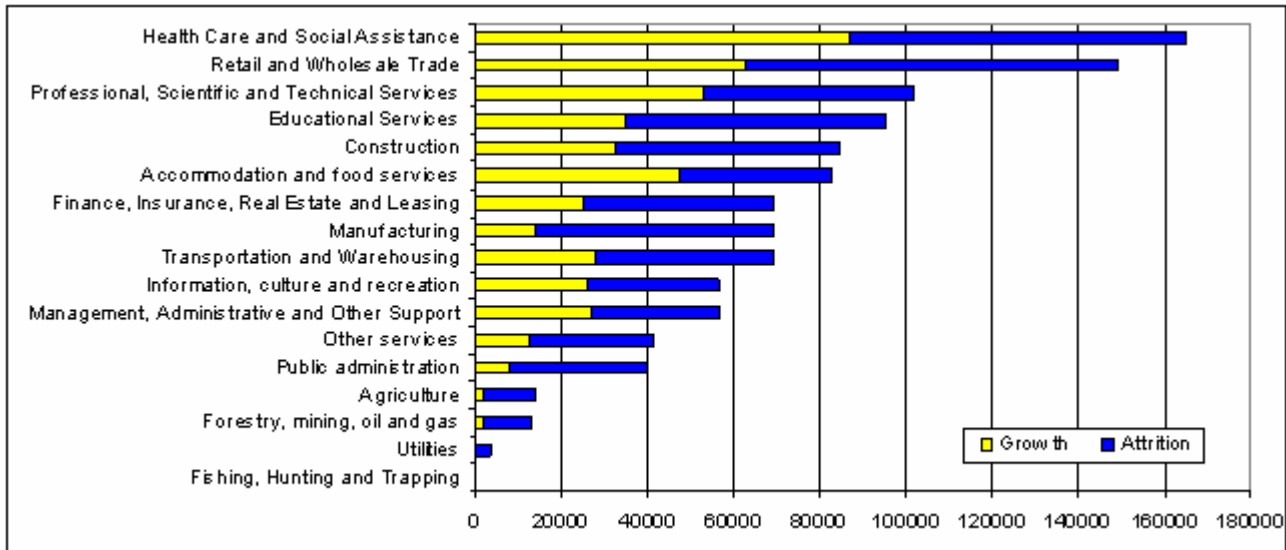
Table 1: Projected Growth in Employment Demand by Major Industrial Groups, British Columbia (2005 to 2015)

| Industry Groups | Annual Growth | New Jobs |
|---|---------------|----------------|
| Health Care and Social Assistance | 3.4% | 86,760 |
| Professional, Scientific and Technical Services | 2.8% | 52,840 |
| Management, Administrative and Other Support | 2.7% | 27,060 |
| Accommodation and food services | 2.4% | 47,140 |
| Educational Services | 2.2% | 35,020 |
| Transportation and Warehousing | 2.1% | 27,890 |
| Information, culture and recreation | 2.1% | 26,080 |
| Construction | 1.8% | 32,590 |
| Finance, Insurance, Real Estate and Leasing | 1.7% | 25,030 |
| Trade | 1.7% | 62,820 |
| Other services | 1.3% | 12,350 |
| Public administration | 0.8% | 7,890 |
| Manufacturing | 0.7% | 14,040 |
| Agriculture | 0.5% | 1,780 |
| Forestry, mining, oil and gas | 0.4% | 1,610 |
| Utilities | 0.2% | 220 |
| Fishing, Hunting and Trapping | 0.0% | 10 |
| All | 2.0% | 461,100 |
| NOTE: Estimates have been rounded and will not add to totals. | | |

²Detailed employment projection information by major industry groups is provided in Appendix 2.

Another important aspect of the overall employment picture is the need to replace workers due to permanent attrition. As illustrated in Figure 1, the impacts of an ageing workforce will not be felt equally across industry groups. For example, primary industries such as *Forestry, Mining, and Oil and Gas Extraction*, are projected to experience low employment growth but will have considerable openings available as older workers reach retirement age and withdraw from the labour force. In the Services Sector, industries with typically older workforces, such as *Public Administration (Government), Finance, Insurance, Real Estate and Leasing, and Educational Services* are also projected to experience significant openings due to replacement demand.

Figure 1: Projected Employment by Major Industry Groups, British Columbia (2005 to 2015)



When projected job opportunities due to new job growth and replacement demand are combined, a total of 1,113,700 job opportunities are estimated for the BC labour market during the 2005 to 2015 outlook period.

Occupational Employment Demand . . .

Projections of occupational employment and new job growth are based upon a number of factors, including historical employment and labour force participation trends, macro-economic and employment forecasts from the BC Ministry of Finance, and market intelligence from industry experts.

The current COPS BC Unique Scenario projections indicate that all broad occupational groups will experience job growth. However, among the ten broad occupational groups, only four will experience above-average growth in employment demand: *Health; Natural and Applied Sciences; Social Science, Education, Government Service and Religion; and, Art, Culture, Recreation and Sport* occupations.

High growth rates are one indication of new emerging knowledge fields within occupational groups, which will sustain growth for the outlook period and perhaps beyond. However, as shown in Table 2, higher average growth rates do not always translate into large numbers of new jobs. The four occupational groups with above-average growth rates, mentioned above, combine to generate less than one-half of projected new jobs between 2005 and 2015. In comparison, one large occupational group with a below-average growth rate, Sales and Services (1.9 percent), will generate approximately one-quarter of all projected new job openings during this period.³

³Detailed employment projection information by major occupational groups is provided in Appendix 3.

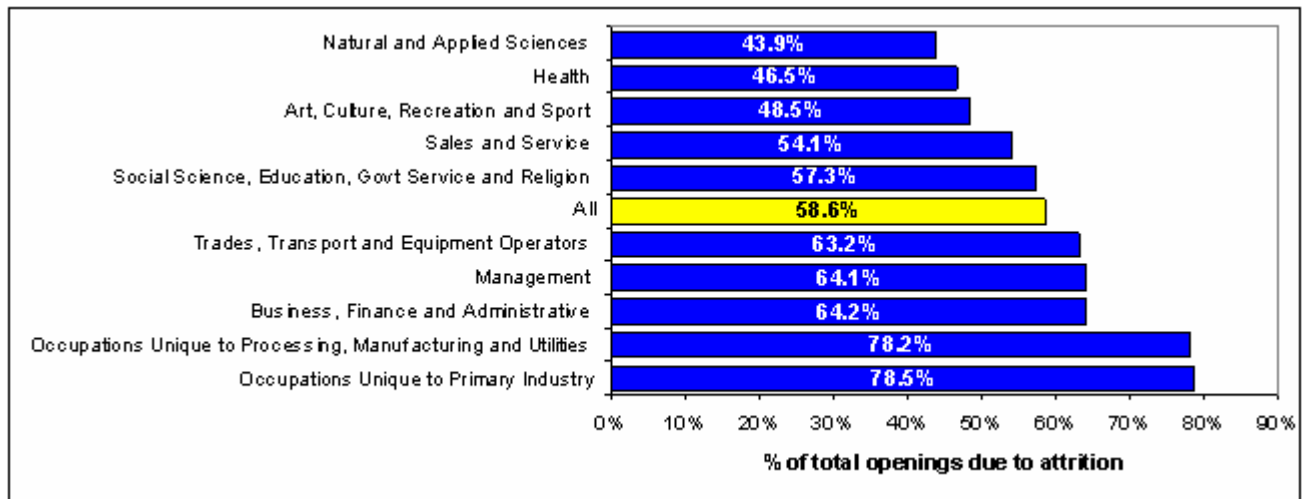
Table 2: Projected Growth in Employment Demand by Occupational Group, British Columbia (2005 to 2015)

| Major Group | Annual Growth | New Jobs |
|---|---------------|----------------|
| Health | 3.5% | 48,050 |
| Natural and Applied Sciences | 2.7% | 42,680 |
| Social Science, Education, Govt Service and Religion | 2.5% | 49,500 |
| Art, Culture, Recreation and Sport | 2.3% | 18,650 |
| Management | 2.0% | 42,700 |
| Sales and Service | 1.9% | 109,840 |
| Business, Finance and Administrative | 1.8% | 75,940 |
| Trades, Transport and Equipment Operators | 1.7% | 60,380 |
| Occupations Unique to Primary Industry | 0.8% | 6,000 |
| Occupations Unique to Processing, Manufacturing and Utilities | 0.7% | 7,450 |
| <i>All Occupations</i> | <i>2.0%</i> | <i>461,100</i> |

NOTE: Estimates have been rounded and will not add to totals

High provincial retirement rates are projected for the outlook period as by 2015 approximately 30 per cent of BC's population will be 55 years or older.⁴ As shown in Figure 2, the impacts of an ageing workforce will be felt acutely in many occupational groups, including: *Occupations Unique to Primary Industry*; *Occupations Unique to Processing, Manufacturing, and Utilities*; *Business, Finance and Administration*; and, *Management* occupations. This will result in increased demand for workers in these occupational groups to replace the large baby-boom cohort who will be retiring during the projection period.

Figure 2: Anticipated Replacement Demand by Occupational Group, British Columbia (2005 to 2015)



Education and Skills Demand . . .

The COPS BC Unique Scenario categorizes occupations based on skill level to provide an approximation of expected education and training requirements for the projected job opportunities. Each occupation is classified in at least one of four skill level categories based on historical provincial employment trends for education and skill demand and the National Occupational Classification

⁴ BC Stats, Ministry of Labour and Citizens' Services, *P.E.O.P.L.E.* 31

System. In some cases an occupation is shared between two categories (i.e. where an occupation can be reached via two education/training routes).

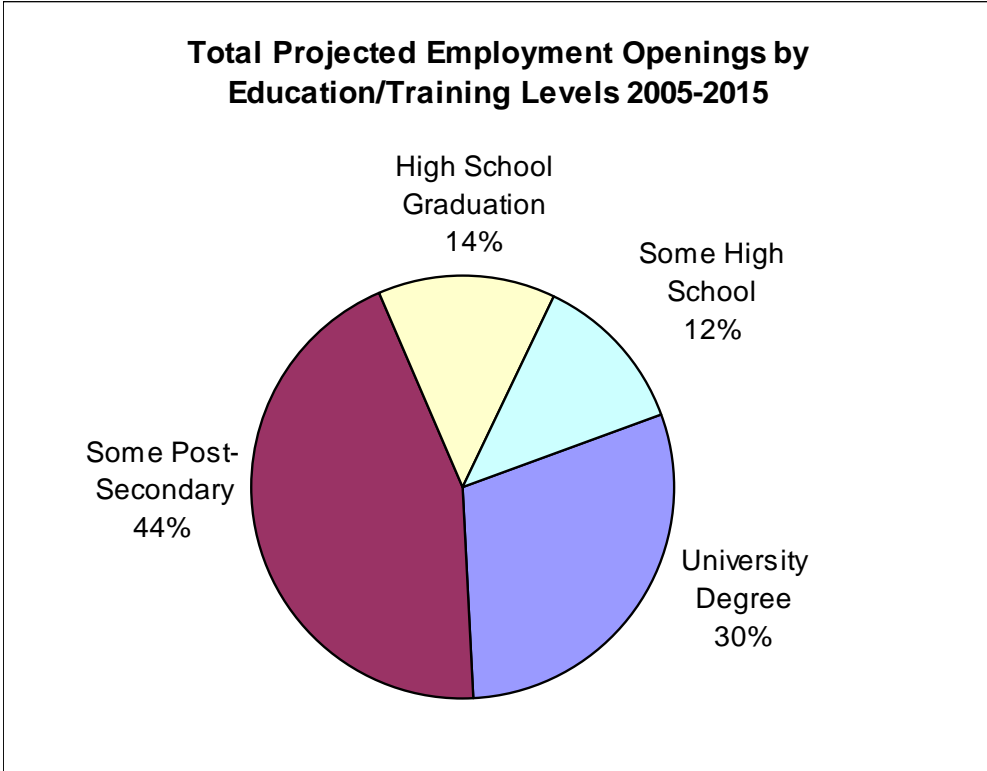
During the outlook period, new job growth will create demand for workers at all skill levels. Table 3 displays projected new job growth in BC by skill level between 2005 and 2015. New job growth for occupations such as professional and managerial occupations is expected to increase at a faster rate than other occupations over the projection period. This will result in increased demand for workers with a university education.

Table 3: Projected Employment Growth Opportunities by Skill Level, British Columbia (2005 to 2015)

| Skill Levels | Education Requirements | % Change |
|---|------------------------|----------|
| A - Professional and managerial occupations | University Degree | 21% |
| B - Technical, paraprofessional and skilled occupations | Some post-secondary | 18% |
| C - Intermediate occupations | High School Diploma | 15% |
| D - Labouring and elemental occupations | Less than High School | 14% |

According to the Statistics Canada’s Labour Force Survey, 64 per cent of the BC labour force had a “university degree”, or “some post-secondary education” in 2005. As illustrated in Figure 3, between 2005 and 2015, an estimated 74 per cent of expected employment openings (newly created jobs and replacement openings) will require a “university degree”, or “some post-secondary education.”⁵ The large proportion of projected employment openings reflects higher than average annual rates of job growth and replacement demand expected over the projection period, indicating that there will be increased demand for workers with some post-secondary education or above.

Figure 3: Projected Employment Requirements, British Columbia (2005 to 2015)



⁵Detailed employment projection information by skill level is provided in Appendix 4.

APPENDIX 1 – Methodology for the COPS BC Unique Scenario

The employment projections in the Canadian Occupational Projection System (COPS) demand model for BC, the *COPS BC Unique Scenario*, are based on the Canadian Occupational Projection System (COPS) employment demand model. The BC scenario provides long-term employment projections for 33 industries and 520 occupational groups in the BC labour market.

It should be noted that although the terms “forecast” and “projection” are used interchangeably in labour market information reporting, there are important differences. The COPS model is a simulation based primarily on historical data. Projecting employment in industry and occupational detail requires an integrated projection of the total economy and its various sectors. To contrast, an employment forecast represents adjustments to a trend based on the expert knowledge of a professional forecaster regarding the way in which future growth will be affected by current and future developments.

The employment projections in the COPS demand model for BC, the *COPS BC Unique Scenario*, are developed in 3 steps, as follows.

1. Macroeconomic and Industry Employment Scenario

Each year, the National Headquarters of Human Resources and Skills Development Canada provides a ten year macroeconomic and industry employment scenario for Canada and each of the provinces, utilizing work by The Conference Board of Canada.

The industry employment scenario is based on a forecast of employment output and productivity. The main purpose of the industry employment scenario is to provide a basis for development of the more detailed industry and occupational employment projections. The industry groupings are classified by the North American Industrial Classification System (NAICS).

2. COPS Employment Demand Model and the BC Reference Scenario

The industry employment scenario then becomes a direct input into the COPS employment demand model. The COPS model is used to generate occupational employment demand and growth projections, and also to project employment openings due to permanent attrition. The result is a Reference Scenario of occupational and industry employment projections for each province.

The COPS employment demand model uses the National Occupation Classification (NOC) system to provide detail on 520 occupations and uses the NAICS to provide detail on 33 industries. The employment projection for an individual occupation is influenced by both the expected growth in the industries where the occupation is found and by the projected change over time in its employment share within industries.

Finally, an employment attrition component in the COPS employment demand model provides expected employment openings due to retirements and deaths within particular occupations. The projection of expected employment openings due to replacement demand is based on the age distribution and typical age ranges of retirements within particular occupations.

3. COPS BC Unique Scenario

The macroeconomic and industry employment scenario for BC is reviewed and adjusted to take into account a number of factors, including BC Stats population projections, and the BC Ministry of Finance medium term economic outlook.

The ten year occupational and industry employment projections from the BC Reference Scenario are then evaluated and refined by the Ministry of Advanced Education and the BC/ Yukon Region of Service Canada. This process involves a targeted consultation with individuals who hold expert knowledge in the key industries and occupations within BC. The results of that consultation process are incorporated into the COPS demand model for BC, resulting in the "COPS BC Unique Scenario."

Notes:

1. It should be noted that the existence of short-term fluctuations in employment levels experienced by certain industries will not be accurately captured in the *COPS BC Unique Scenario* projections due to the fact that these conditions are typically not sustainable in the longer term.
2. For the 2005 to 2015 outlook period, an alternative methodology was implemented to model provincial retirement behaviour. As a result, the 2005 to 2015 BC Scenario projects an increased level of replacement demand compared to the previously published 2003 to 2013 scenario.
3. Due to limitations and reliability of data for very small occupations (fewer than 1000 employed), it is advised that these projections are interpreted in a relative sense rather than an absolute numerical sense.

APPENDIX 2 – Industry Outlook for Major Group

| Major Groups | Employed 2005 Base Year | New Jobs to 2015 | Attrition to 2015 | Total Openings | Avg. Annual Growth |
|---|-------------------------------|---------------------|----------------------|-------------------|--------------------------|
| 1 Agriculture | 38,720 | 1,780 | 12,450 | 14,230 | 0.5% |
| 2 Forestry and Logging with support activities | 21,620 | -880 | 7,010 | 6,140 | -0.4% |
| 3 Fishing, Hunting and Trapping | 2,080 | 10 | 500 | 500 | 0.0% |
| 4 Oil and Gas Extraction | 2,480 | -460 | 720 | 260 | -2.1% |
| 5 Mining (except Oil and Gas) | 6,970 | 1,940 | 2,320 | 4,260 | 2.5% |
| 6 Support Activities for Mining and Oil and Gas Extraction | 4,370 | 1,010 | 1,270 | 2,290 | 2.1% |
| 7 Utilities | 10,340 | 220 | 3,260 | 3,480 | 0.2% |
| 8 Construction | 167,990 | 32,590 | 52,100 | 84,680 | 1.8% |
| 9 Food and Beverage Products | 31,510 | 1,400 | 8,260 | 9,660 | 0.4% |
| 10 Wood Product Manufacturing | 45,790 | 2,130 | 12,280 | 14,400 | 0.5% |
| 11 Paper Manufacturing | 12,270 | -1,360 | 3,200 | 1,850 | -1.2% |
| 12 Printing and Related Support Activities | 7,940 | -340 | 2,230 | 1,890 | -0.4% |
| 13 Rubber, Plastics and Chemicals | 13,200 | 2,060 | 3,670 | 5,730 | 1.5% |
| 14 Manufactured Mineral Products | 13,670 | 700 | 4,180 | 4,870 | 0.5% |
| 15 Metal Fabrication and Machinery (excluding electrical) | 28,150 | 6,300 | 8,600 | 14,900 | 2.0% |
| 16 Computer, Electronic and Electrical Products | 11,060 | 2,220 | 3,330 | 5,550 | 1.8% |
| 17 Motor Vehicle, Body, Trailer & Parts Manufacturing | 3,520 | 0 | 940 | 940 | 0.0% |
| 18 Other Transportation Equipment Manufacturing | 5,770 | 330 | 1,660 | 1,990 | 0.6% |
| 19 Other Manufacturing | 25,280 | 600 | 7,010 | 7,620 | 0.2% |
| 20 Wholesale Trade | 79,790 | 22,190 | 24,880 | 47,060 | 2.5% |
| 21 Retail Trade | 254,820 | 40,630 | 61,400 | 102,030 | 1.5% |
| 22 Transportation and Warehousing | 118,660 | 27,890 | 41,260 | 69,150 | 2.1% |
| 23 Finance, Insurance, Real Estate and Leasing | 132,920 | 25,030 | 44,450 | 69,480 | 1.7% |
| 24 Professional Business Services | 91,430 | 25,240 | 28,610 | 53,850 | 2.5% |
| 25 Computer System Design Services | 32,420 | 15,810 | 7,030 | 22,830 | 4.1% |
| 26 Other Professional Services | 39,790 | 11,790 | 13,590 | 25,380 | 2.6% |
| 27 Management, Administrative and Other Support | 90,270 | 27,060 | 29,530 | 56,590 | 2.7% |
| 28 Educational Services | 146,080 | 35,020 | 60,490 | 95,510 | 2.2% |
| 29 Health Care and Social Assistance | 217,430 | 86,760 | 78,170 | 164,930 | 3.4% |
| 30 Information, culture and recreation | 112,120 | 26,080 | 30,600 | 56,680 | 2.1% |
| 31 Accommodation and food services | 175,770 | 47,140 | 35,880 | 83,020 | 2.4% |
| 32 Other services | 91,210 | 12,350 | 29,290 | 41,640 | 1.3% |
| 33 Public administration | 95,130 | 7,890 | 32,450 | 40,340 | 0.8% |
| All | 2,130,550 | 461,100 | 652,600 | 1,113,700 | 2.0% |
| NOTE: Estimates have been rounded and will not add to totals. | | | | | |

APPENDIX 3 – Occupational Outlook for Major Group

| NOC | Major Groups | Employed 2005 Base year | New Jobs to 2015 | Attrition to 2015 | Total Openings | Avg. Annual Growth |
|--------------------------------|--|-------------------------------|------------------------|----------------------|-------------------|--------------------------|
| 00-09 | Management | 196,070 | 42,700 | 76,260 | 118,960 | 2.0% |
| | Legislators and Senior Management | 11,450 | 2,820 | 7,260 | 10,080 | 2.2% |
| | Middle and Other Management Occs | 184,620 | 39,880 | 69,000 | 108,880 | 2.0% |
| 11/12/14 | Business, Finance & Administrative | 382,740 | 75,940 | 135,920 | 211,860 | 1.8% |
| | Professional Occupations in Business and Finance | 65,100 | 17,000 | 22,460 | 39,460 | 2.3% |
| | Skilled Administrative and Business Occupations | 122,920 | 19,590 | 54,730 | 74,320 | 1.5% |
| | Clerical Occupations | 194,720 | 39,350 | 58,730 | 98,080 | 1.9% |
| 21/22 | Natural & Applied Sciences | 142,480 | 42,680 | 33,410 | 76,090 | 2.7% |
| | Professional Occupations in Natural and Applied Sciences | 76,910 | 24,180 | 16,460 | 40,640 | 2.8% |
| | Technical Occupations Related to Natural and Applied Sciences | 65,570 | 18,500 | 16,950 | 35,450 | 2.5% |
| 31/32-34 | Health | 118,810 | 48,050 | 41,830 | 89,880 | 3.5% |
| | Professional Occupations in Health | 55,650 | 24,790 | 21,950 | 46,740 | 3.8% |
| | Technical, Assisting and Related Occupations in Health | 63,160 | 23,260 | 19,880 | 43,140 | 3.2% |
| 41/42 | Social Science, Educ., Govt Service & Relig. | 178,260 | 49,500 | 66,310 | 115,810 | 2.5% |
| | Professional Occupations in Social Science, Education, Government Services and Religion | 131,150 | 35,860 | 55,470 | 91,330 | 2.4% |
| | Paraprofessional Occupations in Law, Social Services, Education and Religion | 47,110 | 13,640 | 10,840 | 24,480 | 2.6% |
| 51/52 | Art, Culture, Recreation & Sport | 71,610 | 18,650 | 17,570 | 36,220 | 2.3% |
| | Professional Occupations in Art and Culture | 32,920 | 6,300 | 9,810 | 16,110 | 1.8% |
| | Technical and Skilled Occupations in Art, Culture, Recreation and Sport | 38,690 | 12,350 | 7,760 | 20,110 | 2.8% |
| 62/64/66 | Sales & Service | 538,480 | 109,840 | 129,210 | 239,050 | 1.9% |
| | Skilled Sales and Service Occupations | 139,450 | 35,290 | 34,790 | 70,080 | 2.3% |
| | Intermediate Sales and Service Occupations | 196,090 | 38,180 | 46,990 | 85,170 | 1.8% |
| | Elemental Sales and Service Occupations | 202,940 | 36,370 | 47,430 | 83,800 | 1.7% |
| 72/76 | Trades, Transport & Equipment Operators | 330,180 | 60,380 | 103,620 | 164,000 | 1.7% |
| | Trades and Skilled Transport and Equipment Operators | 193,130 | 32,300 | 63,540 | 95,840 | 1.6% |
| | Intermediate Occupations in Transport, Equipment Operation, Installation and Maintenance | 115,960 | 25,670 | 36,510 | 62,180 | 2.0% |
| | Trades Helpers, Construction Labourers and Related Occupations | 21,090 | 2,410 | 3,570 | 5,980 | 1.1% |
| 82/86 | Occupations Unique to Primary Industry | 70,580 | 6,000 | 21,970 | 27,970 | 0.8% |
| | Skilled Occupations in Primary Industry | 42,590 | 3,980 | 16,790 | 20,770 | 0.9% |
| | Intermediate Occupations in Primary Industry | 16,180 | 40 | 3,330 | 3,370 | 0.0% |
| | Labourers in Primary Industry | 11,810 | 1,980 | 1,850 | 3,830 | 1.6% |
| 92/96 | Occs Unique to Processing, Manuf. & Utilities | 101,360 | 7,450 | 26,650 | 34,100 | 0.7% |
| | Processing, Manufacturing and Utilities Supervisors and Skilled Operators | 14,330 | 1,290 | 6,670 | 7,960 | 0.9% |
| | Processing and Manufacturing Machine Operators and Assemblers | 63,030 | 5,370 | 14,330 | 19,700 | 0.8% |
| | Labourers in Processing, Manufacturing and Utilities | 24,000 | 790 | 5,650 | 6,440 | 0.3% |
| TOTAL - ALL OCCUPATIONS | | 2,130,550 | 461,100 | 652,600 | 1,113,700 | 2.0% |

NOTE: Estimates have been rounded and will not add to totals.

APPENDIX 4 – Projected Employment by Skill Level

| Skill Level | Education & Training Requirements | Employed 2005 Base Year | New Jobs | Attrition | Total Openings | Avg. Annual Growth |
|--------------------|--|--------------------------------|-----------------|------------------|-----------------------|---------------------------|
| A | University Degree | 526,210 | 141,640 | 190,640 | 332,280 | 2.4% |
| B | Some Post-Secondary | 919,180 | 201,840 | 290,740 | 492,580 | 2.0% |
| C | High School Diploma | 346,630 | 61,380 | 90,660 | 152,050 | 1.6% |
| D | Less Than High School | 338,540 | 56,240 | 80,590 | 136,840 | 1.5% |

NOTE: Estimates have been rounded and will not add to totals.