

Calgary Economic Development

INDUSTRY REPORT: AGRICULTURE

January 2008

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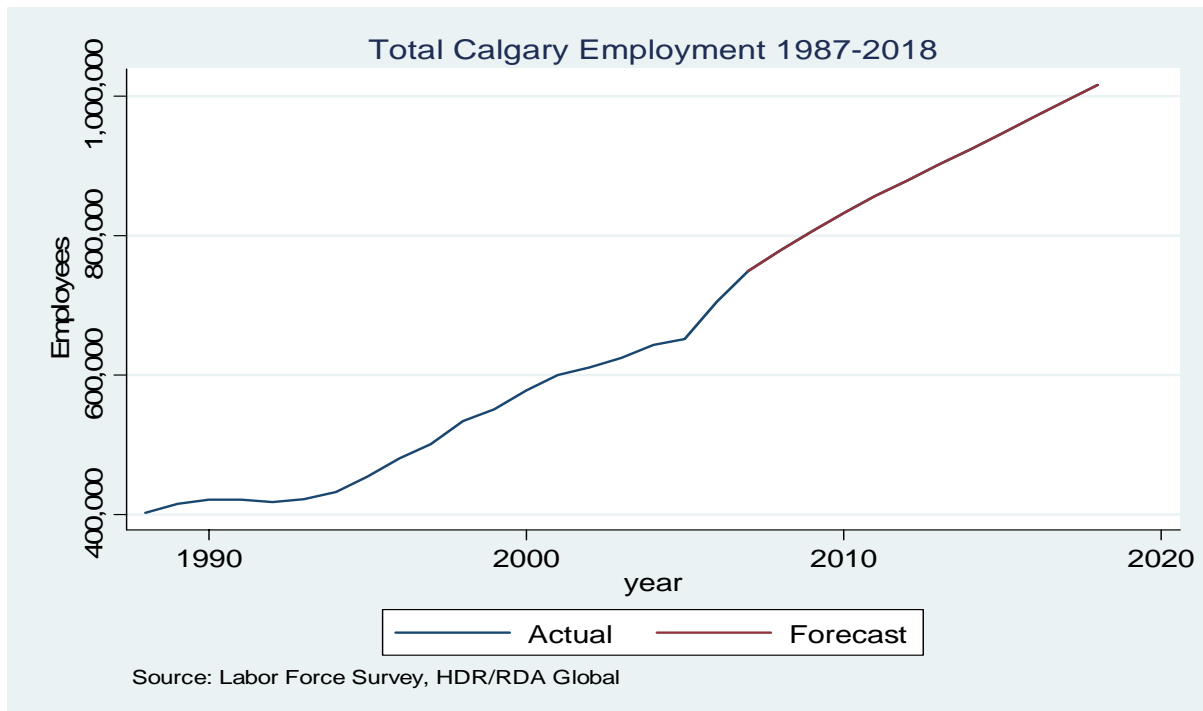
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Figure 1: Total Calgary Employment Forecast (All Industries)



The Calgary economy has seen tremendous growth in labour demand over the previous decade with employment growth reaching an all-time high of 8.1%¹ in 2006. The recent strong growth in the Calgary economy has been driven by a combination of economic factors spurring growth in specific industries and generally throughout the Calgary economy. Energy prices are a significant driver with West Texas Intermediate oil price rising 17%² in 2006. Investment levels in major construction projects have risen significantly compared to historical levels. Housing starts have risen from 13,700³ starts in 2005 to 17,000 starts in 2006, an increase of 25%. Calgary GDP grew at 7.7% in 2006.

Recent increases in employment levels have been highest in sectors of the Calgary economy which are related to energy, in particular in the professional services industry. However, overall growth has been relatively balanced among industries with significant growth in most industries of the economy.

As Figure 1 shows, labour demand in the Calgary Economic Region is expected to continue to grow at a healthy rate throughout the forecast, albeit at a lower, more sustainable level. The overall growth in employment in Calgary is expected to decline over the next several years settling at a more sustainable long-term employment growth rate of 2.4%, in line with historical average growth. However, this lower growth rate continue to result in strong job creation. Over the previous ten years (1996-2006) Calgary employment increased adding 224,000 new jobs.

¹ Source: Labor Force Survey

² Source: US Energy Information Administration

³ Source for housing starts statistics and Metro GDP at basic prices was the Conference Board of Canada

Over the ten year forecast period (2007-2017) Calgary employment growth will result in the creation of an additional 244,000 new jobs. This growth in the Calgary economy will be driven by a number of factors including expectations that oil prices will remain at or near historically high levels. Energy prices are expected to be volatile in the near term, with possible spikes in prices, partially due to the declining value of the US dollar. However, for the long-term forecast, an average annual 1.7% growth rate in oil prices has been forecasted, which is consistent with conservative expectations of energy analysts⁴. Calgary GDP growth will moderate to a strong long term compound annual real growth rate of 3.8%.

Figure 2 Calgary Job Creation in Each Industry

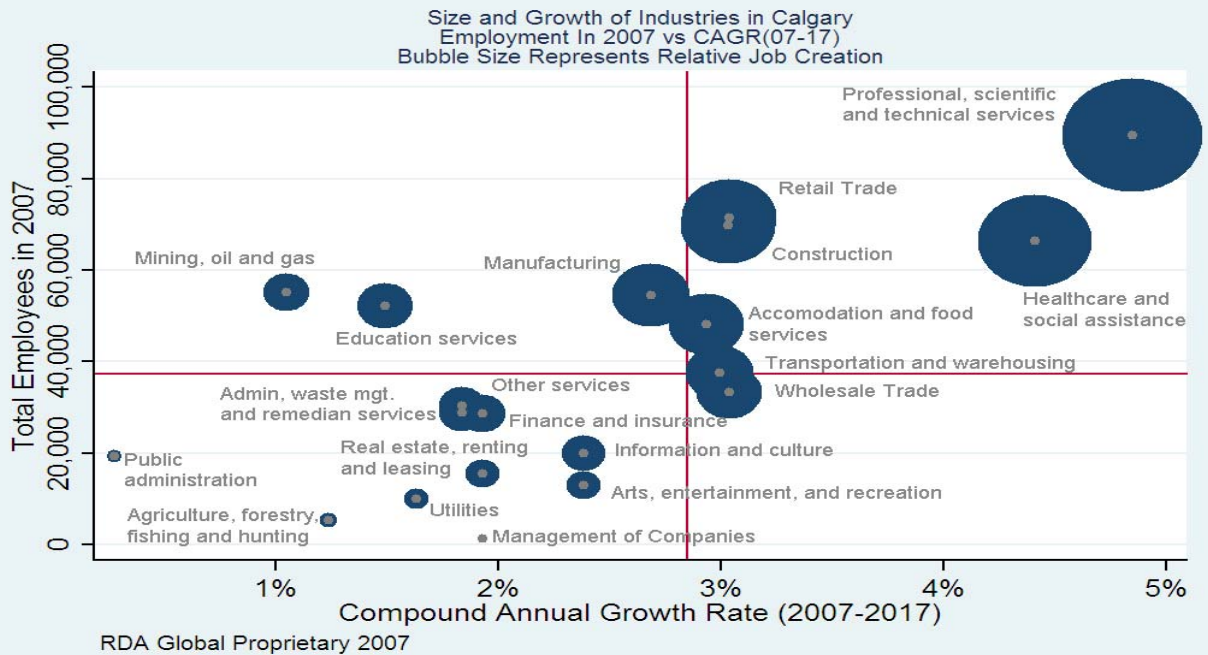


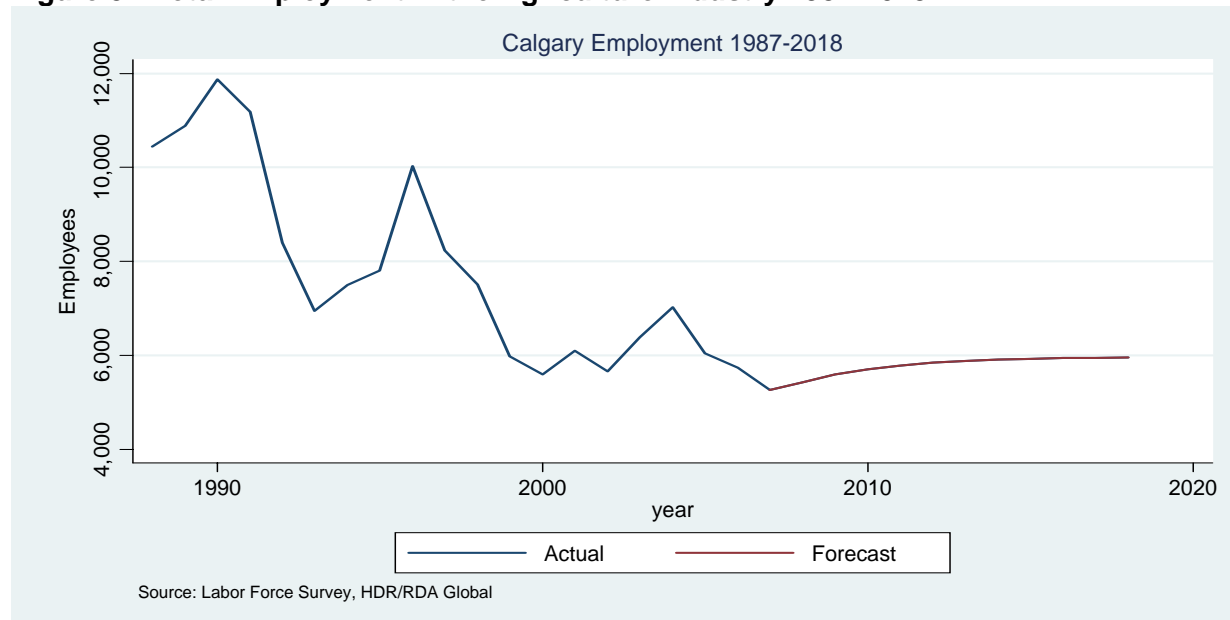
Figure 2 highlights the differences in job creation across industries in Calgary, with the larger circles representing industries with more job creations. Significant gains in employment will be somewhat distributed among economic industries. However, there will be particularly strong expansion in the professional services industry, which is tied to continued demand for technical and engineering services in the energy sector. There will also be strong job growth in healthcare, driven by overall population growth and growth in the older segments of the population. Job expansion will also continue to be robust in retail, construction, accommodation & food services, transportation, manufacturing, and wholesale. Population growth is expected to drive up demand for education services. Most segments of the economy are expected to continue to see positive growth with employment growth rates in the 1% to 2.5% long-term growth range. However, total job creation in niche industries will be constrained by the relatively smaller size of these segments.

⁴ In development of this forecast, oil price forecasts of the Energy Information Administration and Sproule and Associates were consulted, however, final assumptions in the forecast model were based on a nominal annual growth rate of 1.7%.

AGRICULTURE INDUSTRY

Employment in the Agriculture industry has been volatile over the last ten years and is expected to be essentially flat over the forecast period with a nominal growth of 1.2% over the next ten years. The industry will grow at a rate that is far below the overall employment growth in Calgary of 2.9% over the same forecast period. Growth in the industry will result in an additional 700 new jobs created over the forecast period driven mainly through increased demand for bio-fuel inputs and general population increase.

Figure 3: Total Employment in the Agriculture Industry 1987-2018



The Agriculture industry ranks nineteenth out of twenty industries for total employment, employing about 5,200 workers today. The industry ranked nineteenth for job creation over the 1997-2007 period, losing about 3,000 jobs.

Table 1: Agriculture Industry Compared with Other CED Industries

| NAICS Industry | Total Employment | | | | Compound Annual Growth | | | Jobs Added | | |
|--|------------------|----------------|----------------|----------------|------------------------|-------------|-------------|----------------|----------------|----------------|
| | 1987 | 1997 | 2007 | 2017 | 1987-97 | 1997-07 | 2007-17 | 1987-97 | 1997-07 | 2007-17 |
| 11 Agriculture, forestry, fishing and hunting | 10,357 | 8,230 | 5,262 | 5,951 | -2.3% | -4.4% | 1.2% | (2,127) | (2,968) | 689 |
| 21 Mining and oil and gas extraction | 34,043 | 32,970 | 55,092 | 61,154 | -0.3% | 5.3% | 1.0% | (1,073) | 22,122 | 6,062 |
| 22 Utilities | 4,700 | 3,800 | 9,881 | 11,621 | -2.1% | 10.0% | 1.6% | (900) | 6,081 | 1,740 |
| 23 Construction | 21,500 | 36,600 | 69,847 | 94,177 | 5.5% | 6.7% | 3.0% | 15,100 | 33,247 | 24,331 |
| 31-33 Manufacturing | 30,500 | 42,900 | 54,380 | 70,890 | 3.5% | 2.4% | 2.7% | 12,400 | 11,480 | 16,510 |
| 41 Wholesale trade | 21,375 | 22,041 | 33,228 | 44,815 | 0.3% | 4.2% | 3.0% | 666 | 11,187 | 11,586 |
| 44-45 Retail trade | 46,025 | 47,459 | 71,546 | 96,493 | 0.3% | 4.2% | 3.0% | 1,434 | 24,087 | 24,948 |
| 48-49 Transportation and warehousing | 21,300 | 30,400 | 37,452 | 50,295 | 3.6% | 2.1% | 3.0% | 9,100 | 7,052 | 12,844 |
| 51 Information and cultural industries | 11,317 | 16,489 | 19,961 | 25,271 | 3.8% | 1.9% | 2.4% | 5,172 | 3,472 | 5,310 |
| 52 Finance and insurance | 16,662 | 21,266 | 28,538 | 34,543 | 2.5% | 3.0% | 1.9% | 4,603 | 7,272 | 6,006 |
| 53 Real estate and rental and leasing | 9,038 | 11,534 | 15,479 | 18,736 | 2.5% | 3.0% | 1.9% | 2,497 | 3,944 | 3,258 |
| 54 Professional, scientific and technical services | 27,200 | 43,700 | 89,591 | 143,873 | 4.9% | 7.4% | 4.9% | 16,500 | 45,891 | 54,282 |
| 55 Management of companies and enterprises | 501 | 879 | 1,169 | 1,415 | 5.8% | 2.9% | 1.9% | 378 | 289 | 246 |
| 56 Admin & support, waste mgmt & remediation svcs. | 11,299 | 19,821 | 28,790 | 34,543 | 5.8% | 3.8% | 1.8% | 8,522 | 8,969 | 5,753 |
| 61 Educational services | 23,800 | 31,900 | 52,154 | 60,488 | 3.0% | 5.0% | 1.5% | 8,100 | 20,254 | 8,334 |
| 62 Health care and social assistance | 33,700 | 43,200 | 66,471 | 102,326 | 2.5% | 4.4% | 4.4% | 9,500 | 23,271 | 35,855 |
| 71 Arts, entertainment and recreation | 7,283 | 10,611 | 12,845 | 16,262 | 3.8% | 1.9% | 2.4% | 3,328 | 2,234 | 3,417 |
| 72 Accommodation and food services | 20,200 | 32,100 | 48,100 | 64,248 | 4.7% | 4.1% | 2.9% | 11,900 | 16,000 | 16,148 |
| 81 Other services (except public administration) | 17,800 | 21,900 | 30,408 | 36,484 | 2.1% | 3.3% | 1.8% | 4,100 | 8,508 | 6,076 |
| 91 Public administration | 21,200 | 22,900 | 19,176 | 19,712 | 0.8% | -1.8% | 0.3% | 1,700 | (3,724) | 536 |
| Grand Total | 389,800 | 500,700 | 749,368 | 993,298 | 2.5% | 4.1% | 2.9% | 110,900 | 248,668 | 243,930 |

JOBS CREATED BY OCCUPATION – AGRICULTURE INDUSTRY

Figure 4: Total Jobs by Occupation 2007 and 2017 – Agriculture Industry

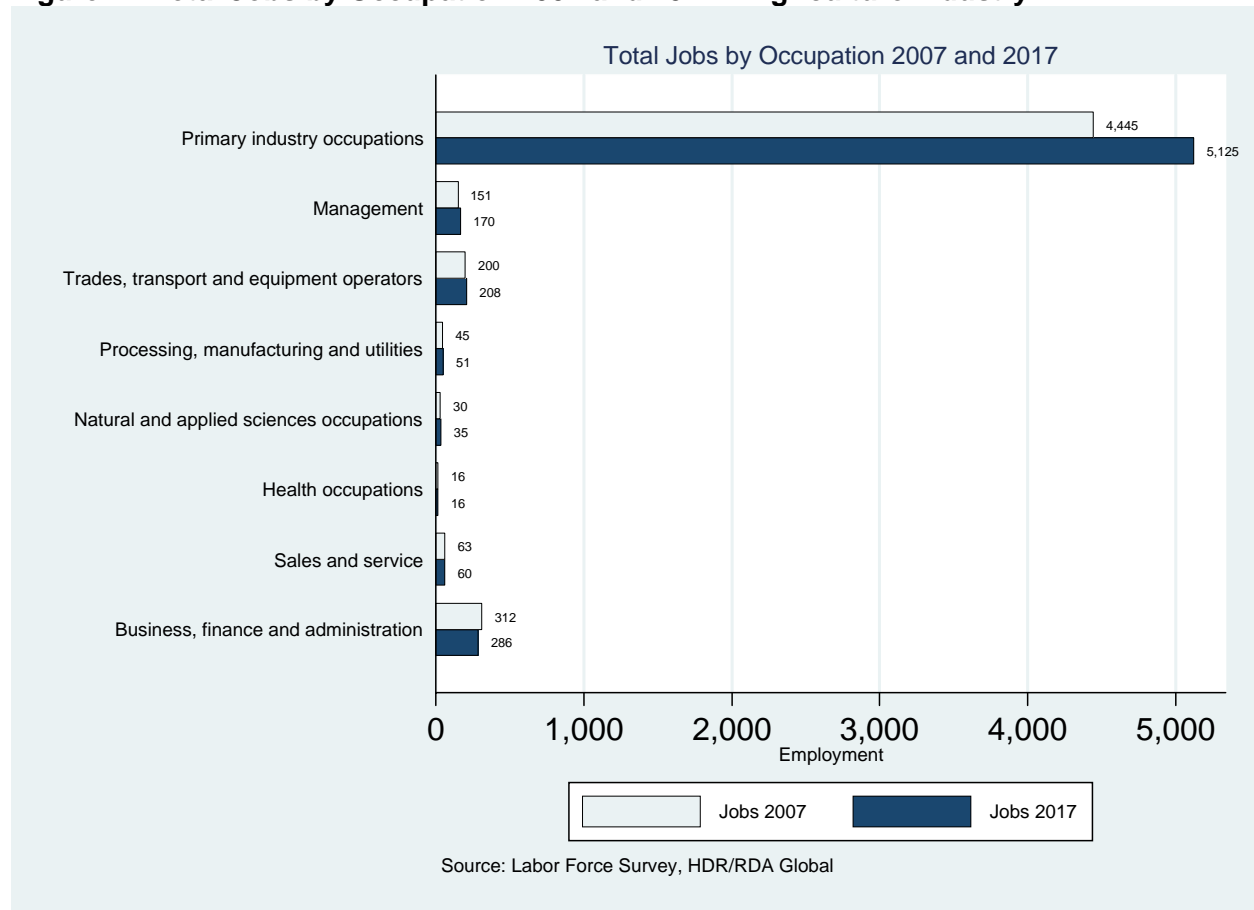


Table 2: 30-Year Occupational Growth for the Agriculture Industry

| Occupation (1 Digit NOC) | Total Employees | | | | Compound Annual Growth | | |
|---|-----------------|--------------|--------------|--------------|------------------------|--------------|-------------|
| | 1987 | 1997 | 2007 | 2017 | 1987-97 | 1997-07 | 2007-17 |
| A Management occupations | 165 | 134 | 151 | 170 | -2.0% | 1.2% | 1.2% |
| B Business, finance and administration occupations | 1,251 | 559 | 312 | 286 | -7.7% | -5.7% | -0.9% |
| C Natural and applied sciences and related occupations | 75 | 43 | 30 | 35 | -5.4% | -3.6% | 1.6% |
| D Health occupations | 59 | 32 | 16 | 16 | -6.0% | -6.6% | 0.1% |
| G Sales and service occupations | 216 | 108 | 63 | 60 | -6.7% | -5.3% | -0.4% |
| H Trades, transport and equipment operators and related occupations | 425 | 249 | 200 | 208 | -5.2% | -2.2% | 0.4% |
| I Occupations unique to primary industry | 8,040 | 7,043 | 4,445 | 5,125 | -1.3% | -4.5% | 1.4% |
| J Occupations unique to processing, manufacturing and utilities | 125 | 61 | 45 | 51 | -6.9% | -3.1% | 1.3% |
| Grand Total | 10,357 | 8,230 | 5,262 | 5,951 | -2.3% | -4.4% | 1.2% |

There are nearly 5,300 employees in the Agriculture industry today. About 4,400 of these workers have occupations unique to the primary industry, representing the largest share of occupations; practically all of these workers are farmers, farm managers and general farm workers. Demand for these jobs will rise to nearly 5,100 over the forecast period. The next largest occupational category is business, finance, and administration jobs, which currently employ about 300 workers and will employ about 300 workers in 2017. Trades, transport and equipment operators and related occupations is the third largest category with 200 employees today and representing about 200 workers in 2017.

Table 3: Ten-Year Forecast of Jobs by Major Occupational Group – Agriculture Industry

| Occupation (1 Digit NOC) | Annual Employment | | | | | | | | | | | |
|---|-------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
| A Management occupations | 168 | 151 | 158 | 162 | 166 | 169 | 171 | 172 | 172 | 171 | 170 | 170 |
| B Business, finance and administration occupations | 369 | 312 | 324 | 327 | 328 | 326 | 322 | 316 | 309 | 302 | 294 | 286 |
| C Natural and applied sciences and related occupations | 373 | 303 | 323 | 343 | 343 | 353 | 353 | 353 | 353 | 353 | 353 | 353 |
| D Health occupations | 213 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 | 163 |
| G Sales and service occupations | 747 | 633 | 653 | 643 | 653 | 663 | 653 | 643 | 633 | 623 | 613 | 603 |
| H Trades, transport and equipment operators and related occupations | 223 | 200 | 207 | 213 | 215 | 216 | 216 | 215 | 214 | 212 | 210 | 208 |
| I Occupations unique to primary industry | 4,794 | 4,445 | 4,578 | 4,725 | 4,830 | 4,906 | 4,964 | 5,010 | 5,047 | 5,077 | 5,103 | 5,125 |
| J Occupations unique to processing, manufacturing and utilities | 503 | 453 | 483 | 503 | 513 | 523 | 533 | 533 | 523 | 523 | 523 | 513 |
| Grand Total | 5,736 | 5,262 | 5,428 | 5,591 | 5,705 | 5,785 | 5,842 | 5,881 | 5,909 | 5,928 | 5,941 | 5,951 |

Table 4: Top 50 Occupations Adding Jobs From 2007-2017⁵

| Rank | Occupation (4 Digit NOC) | Employees | | | | Jobs Created |
|------|---|-----------|-------|-------|-------|--------------|
| | | 1987 | 1997 | 2007 | 2017 | 2007-2017 |
| 1 | I011 Farmers and farm managers | 5,404 | 4,674 | 2,769 | 3,202 | 434 |
| 2 | I021 General farm workers | 1,713 | 1,504 | 964 | 1,121 | 157 |
| 3 | I012 Agricultural and related service contractors and managers | 168 | 206 | 314 | 350 | 35 |
| 4 | I211 Harvesting labourers | 232 | 199 | 112 | 129 | 17 |
| 5 | I013 Farm supervisors and specialized livestock workers | 245 | 216 | 135 | 149 | 14 |
| 6 | I022 Nursery and greenhouse workers | 194 | 167 | 93 | 106 | 13 |
| 7 | A381 Primary production managers (except agriculture) | 28 | 29 | 38 | 45 | 8 |
| 8 | A391 Manufacturing managers | 45 | 42 | 57 | 64 | 7 |
| 9 | I151 Logging machinery operators | 6 | 10 | 21 | 26 | 5 |
| 10 | A016 Senior managers - Goods production, utilities, transportation and construction | 40 | 26 | 26 | 29 | 3 |
| 11 | H523 Other trades and related occupations | 44 | 29 | 36 | 40 | 3 |
| 12 | C124 Conservation and fishery officers | 7 | 5 | 7 | 10 | 3 |
| 13 | I014 Nursery and greenhouse operators and managers | 40 | 35 | 19 | 22 | 3 |
| 14 | H412 Heavy-duty equipment mechanics | 73 | 40 | 33 | 35 | 2 |
| 15 | J175 Testers and graders, food and beverage processing | 26 | 13 | 12 | 13 | 2 |
| 16 | H411 Construction millwrights and industrial mechanics (except textile) | 8 | 8 | 12 | 13 | 1 |
| 17 | J172 Industrial butchers and meat cutters, poultry preparers and related workers | 56 | 25 | 13 | 14 | 1 |
| 18 | H611 Heavy equipment operators (except crane) | 29 | 19 | 16 | 17 | 1 |
| 19 | C125 Landscape and horticultural technicians and specialists | 18 | 10 | 7 | 8 | 1 |
| 20 | J317 Labourers in food, beverage and tobacco processing | 24 | 14 | 8 | 9 | 1 |
| 21 | I016 Supervisors, landscape and horticulture | 26 | 22 | 11 | 12 | 1 |
| 22 | J171 Process control and machine operators, food and beverage processing | 15 | 7 | 6 | 7 | 1 |
| 23 | I212 Landscaping and grounds maintenance labourers | 11 | 10 | 7 | 8 | 1 |
| 24 | J146 Lumber graders and other wood processing inspectors and graders | 2 | 2 | 3 | 4 | 1 |
| 25 | J141 Sawmill machine operators | 1 | 1 | 3 | 3 | 1 |
| | Others | 1,899 | 918 | 540 | 513 | (27) |
| | Grand Total | 10,357 | 8,230 | 5,262 | 5,951 | 689 |

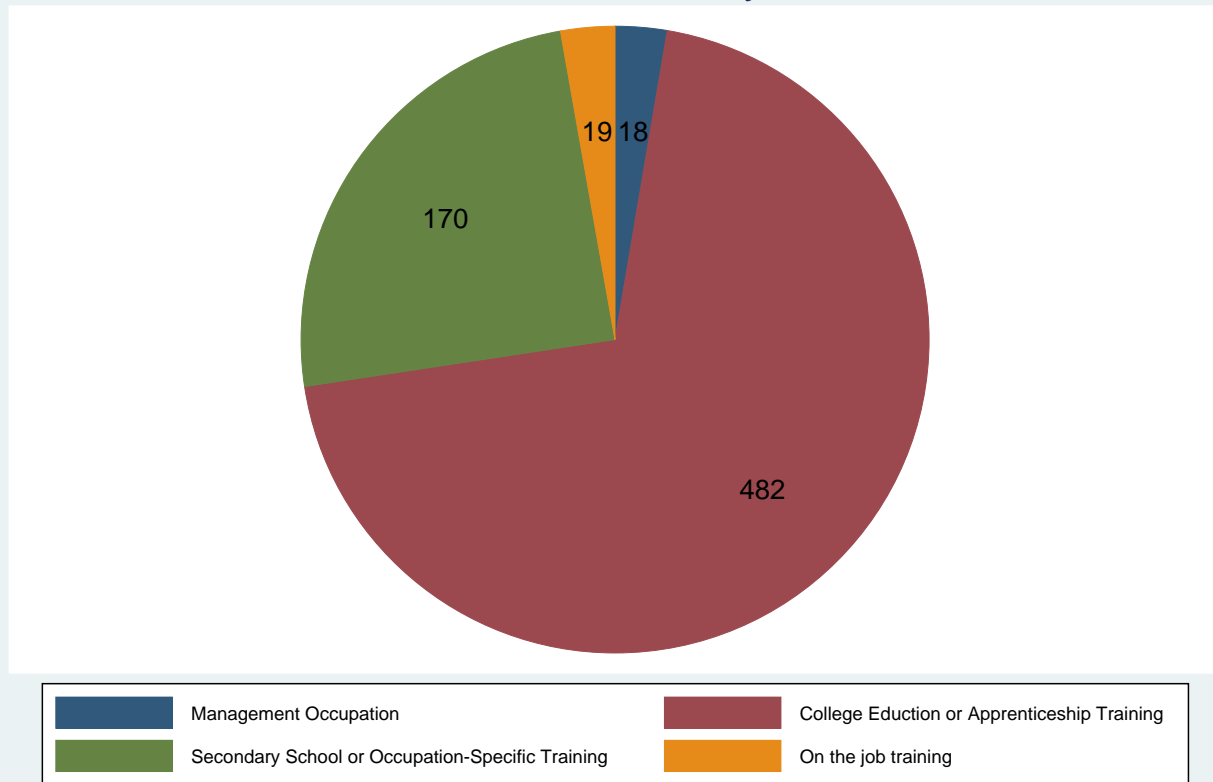
⁵ Note that these job creations in Figure 6 capture only jobs created in the Agriculture industry and do not represent total job creations for all of Calgary. Jobs with these occupations will also be created in other industries.

EMPLOYMENT GROWTH BY SKILL LEVEL – AGRICULTURE INDUSTRY

From a skill level perspective, there will be about 18 new management occupations, 480 jobs requiring some college education or apprenticeship training, 170 jobs which require secondary school or occupation-specific training, and about 19 that require only on the job training

Figure 6: Jobs Added by Skill Level in the Agriculture Industry

Jobs Added 2007-2017 by Skill Level



Source: Labor Force Survey, 2001 Census, HDR/RDA Global

APPENDIX 1: INDUSTRY DEFINITION – AGRICULTURE

This industry comprises establishments primarily engaged in growing crops, raising animals, harvesting timber, harvesting fish and other animals from their natural habitats and providing related support activities.

Establishments primarily engaged in agricultural research or that supply veterinary services are not included in this industry