

Calgary Economic Development

INDUSTRY REPORT: PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES

January 2008

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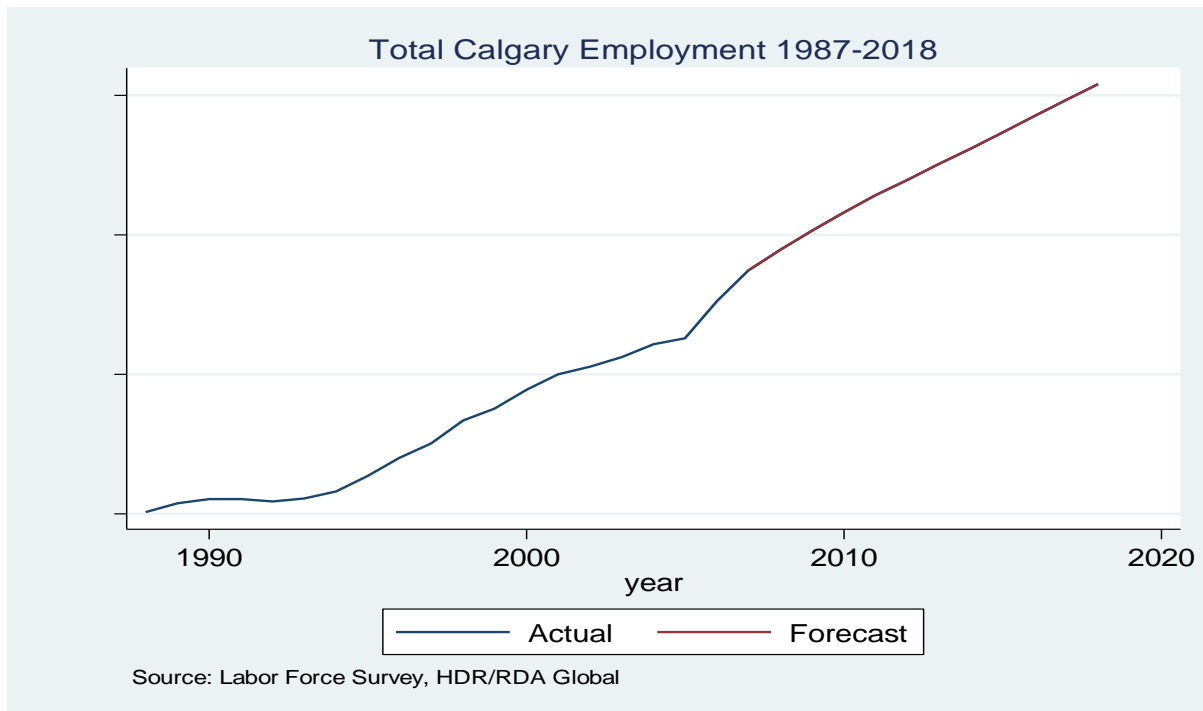
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Figure 1: Total Calgary Employment Forecast (All Industries)



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 sectors 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 sector. However, overall growth has been relatively balanced among industries with significant growth in most sectors 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 will continue to result in strong job creation. Over the previous ten years (1996-2006) Calgary employment increased adding 224,000 new

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

jobs. 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

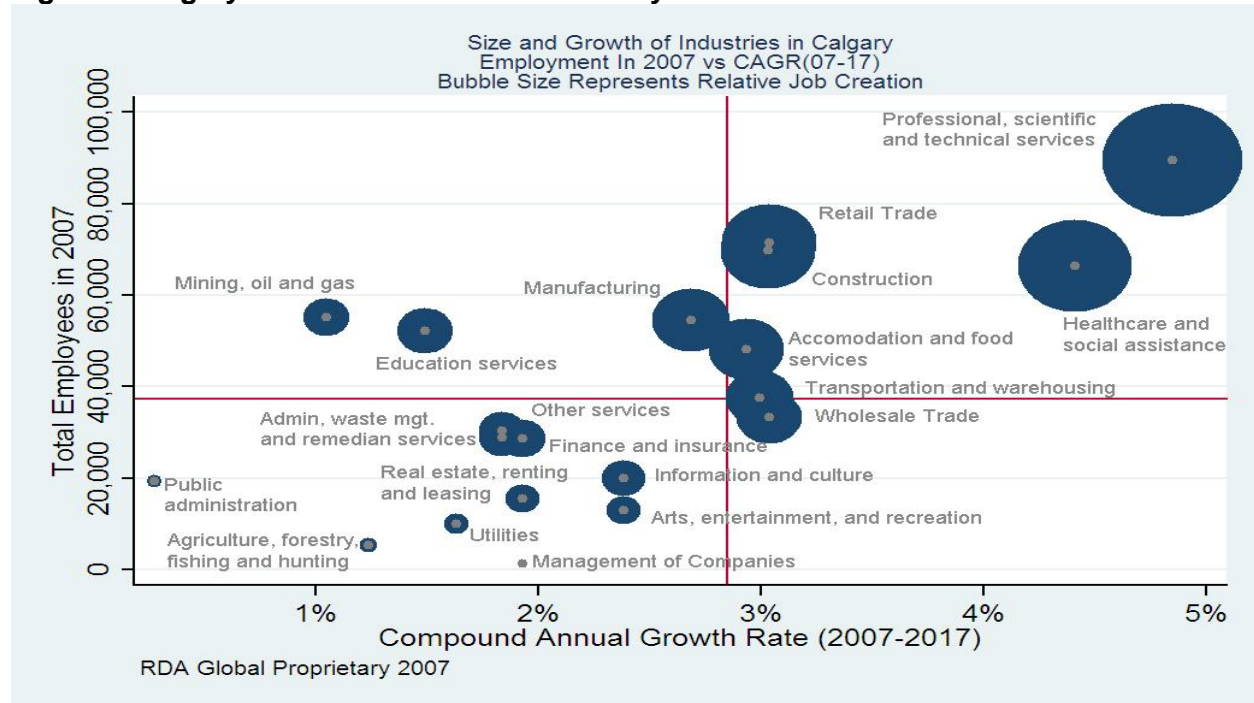


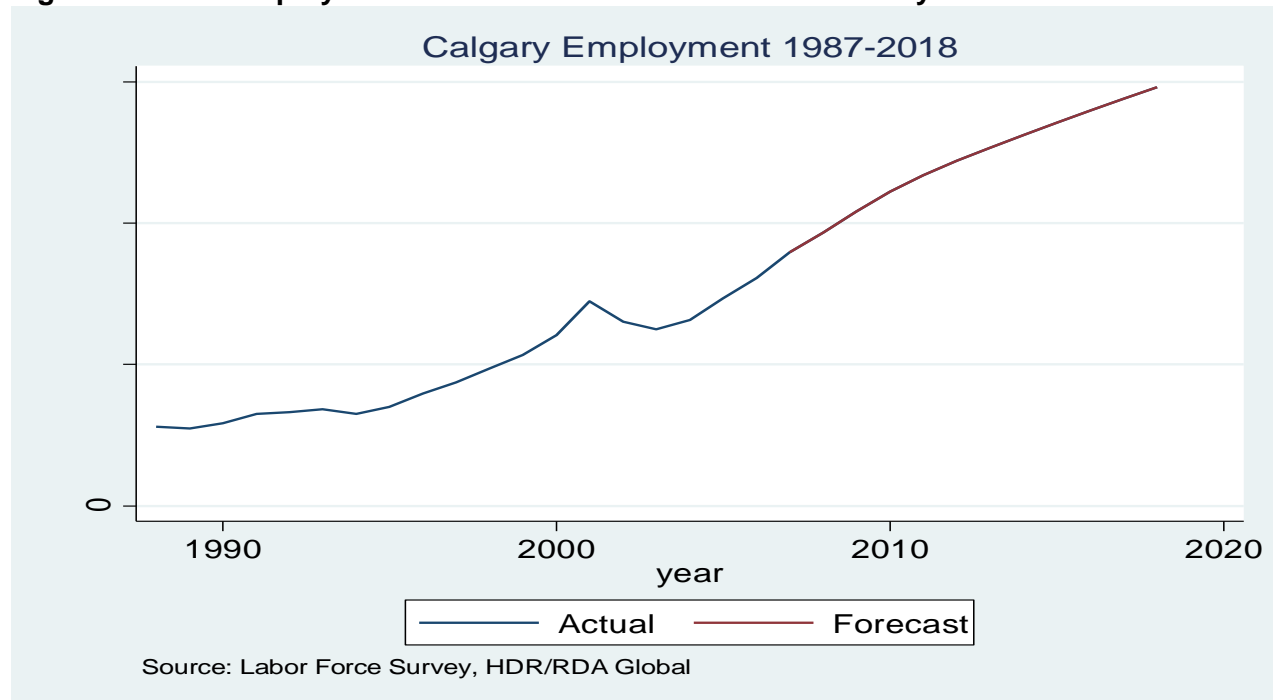
Figure 2 highlights the differences in job creation across industries in Calgary, with the larger circles representing industries with more job creations. Significant gains in employment will be somewhat distributed among economic sectors. However, there will be particularly strong expansion in the professional services sector, 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%.

PROFESSIONAL, SCIENTIFIC AND TECHNICAL SERVICES INDUSTRY

The Professional, Scientific and Technical Services industry is expected to continue to expand at a compound annual growth rate of 4.9% over the next ten years. This will outpace the overall employment growth in Calgary of 2.9% over the same forecast period. Growth in the industry will result in an additional 54,300 jobs added to the industry over the forecast period.

Figure 3: Total Employment in the Professional Services Industry 1987-2018



The Professional Services industry ranks first out of twenty industries in total employment. Historically, growth in this industry has outpaced that of the region and will continue to outpace the overall regional growth. In terms of jobs created, the industry ranked first over the 1997-2007 period, creating nearly 45,900 jobs. The industry will continue to be the largest contributor to job creation in the 2007-2017 forecast period, creating nearly 54,300 new jobs. One in every five new jobs created in the next ten years will be in the Professional Services industry.

Table 1: Professional Services Industry Compared with Other 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 – PROFESSIONAL SERVICES

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

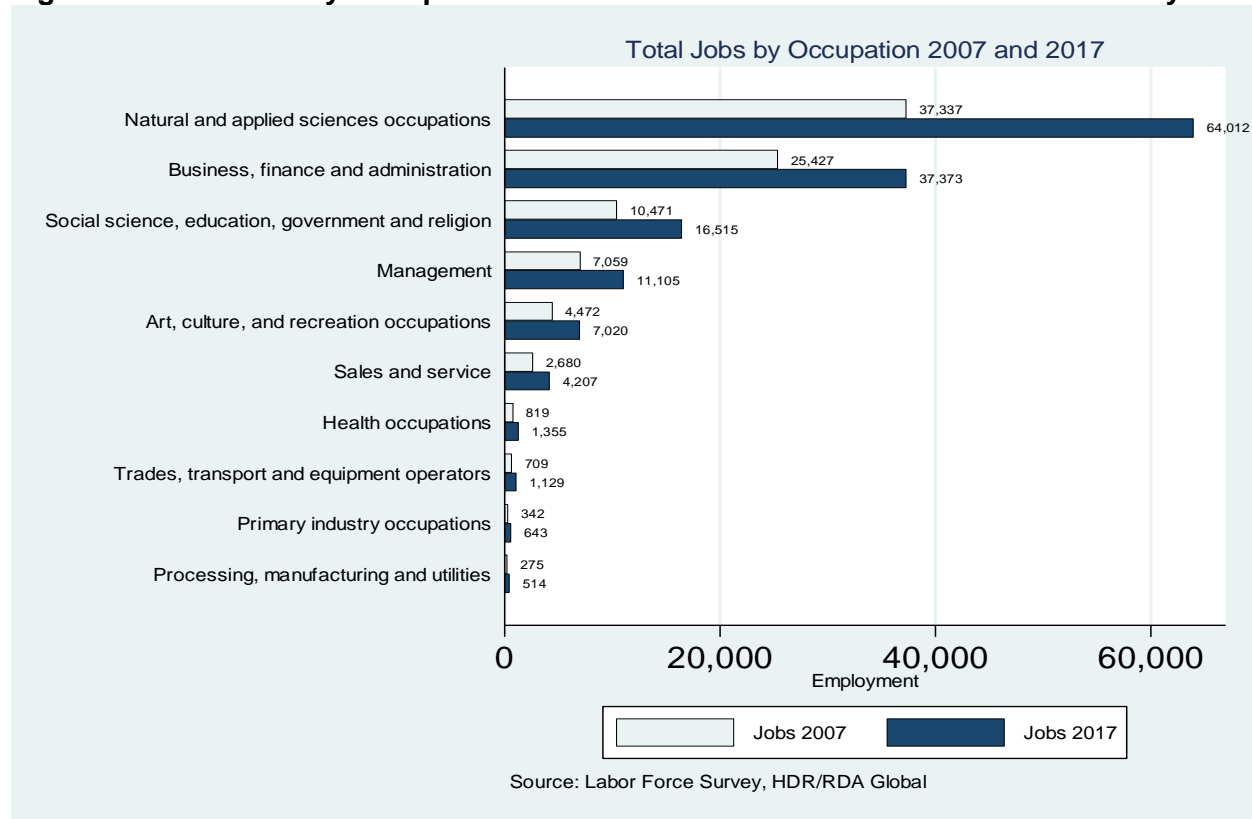
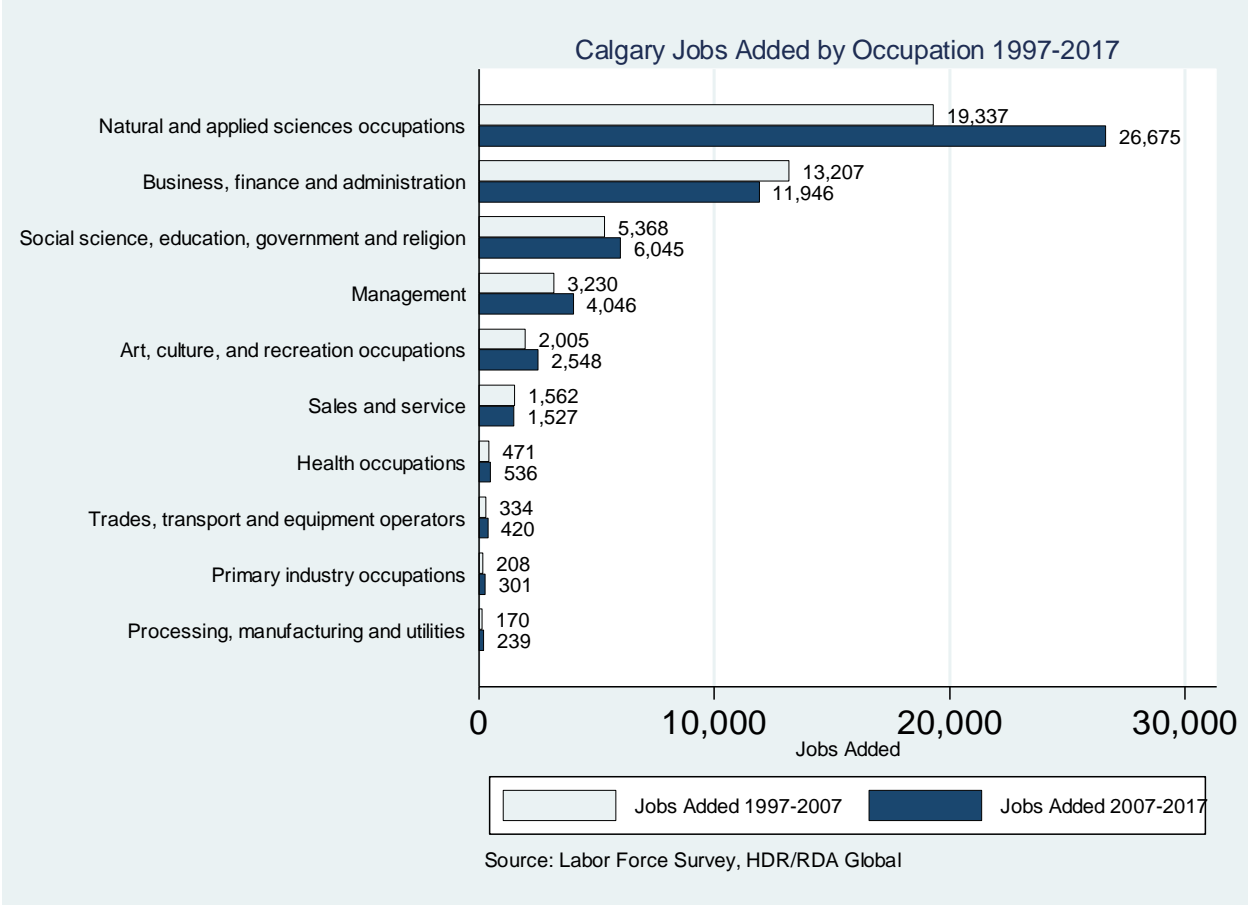


Table 2: 30-Year Occupational Growth for the Professional Services Industry

Occupation (1 Digit NOC)	Total Employees				Compound Annual Growth		
	1987	1997	2007	2017	1987-97	1997-07	2007-17
A Management occupations	2,140	3,829	7,059	11,105	4.2%	7.6%	3.9%
B Business, finance and administration occupations	8,103	12,220	25,427	37,373	4.2%	7.6%	3.9%
C Natural and applied sciences and related occupations	11,189	18,000	37,337	64,012	4.9%	7.6%	5.5%
D Health occupations	229	348	819	1,355	4.2%	8.9%	5.2%
E Occupations in social science, education, government service and religion	2,844	5,103	10,471	16,515	6.0%	7.5%	4.7%
F Occupations in art, culture, recreation and sport	1,591	2,467	4,472	7,020	4.5%	6.1%	4.6%
G Sales and service occupations	730	1,118	2,680	4,207	4.4%	9.1%	4.6%
H Trades, transport and equipment operators and related occupations	245	375	709	1,129	4.4%	6.6%	4.8%
I Occupations unique to primary industry	50	134	342	643	10.3%	9.8%	6.5%
J Occupations unique to processing, manufacturing and utilities	78	106	275	514	3.1%	10.0%	6.4%
Grand Total	27,200	43,700	89,591	143,873	4.9%	7.4%	4.9%

There are nearly 89,600 employees in the Professional Services industry today. About 37,300 of these workers have natural and applied sciences and related occupations, representing the largest share of occupations. Demand for workers in natural and applied sciences and related occupations will rise to nearly 64,000 workers over the forecast period. The next largest occupational category is business, finance, and administration jobs, which currently employ about 25,400 workers and will employ about 37,400 workers in 2017. Occupations in social science, education, government service and religion is the third largest category with about 10,500 employees today growing to about 16,500 workers in 2017.

Figure 5: Jobs Added in the Professional Services Industry by Occupation



About 45% of all jobs created in this industry will be natural and applied sciences and related occupations, a total of about 26,700 new jobs by 2017. The industry will generate about 11,900 jobs for workers in business and finance occupations and about 6,000 jobs for workers in occupations in social science, education, government service and religion.

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

Occupation (1 Digit NOC)	Annual Employment											
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
A Management occupations	6,106	7,059	7,646	8,206	8,806	9,307	9,662	9,967	10,283	10,583	10,851	11,105
B Business, finance and administration occupations	22,333	25,427	27,436	29,190	31,168	32,718	33,754	34,562	35,398	36,156	36,796	37,373
C Natural and applied sciences and related occupations	34,663	37,337	40,904	44,634	47,588	50,014	52,616	55,098	57,321	59,485	61,757	64,012
D Health occupations	785	819	840	875	926	979	1,030	1,084	1,147	1,214	1,283	1,355
E Occupations in social science, education, government service and religion	9,357	10,471	11,119	11,781	12,549	13,240	13,784	14,303	14,868	15,434	15,975	16,515
F Occupations in art, culture, recreation and sport	3,892	4,472	4,422	4,871	5,082	5,447	5,654	5,926	6,182	6,470	6,737	7,020
G Sales and service occupations	2,317	2,680	2,887	3,011	3,261	3,468	3,608	3,713	3,848	3,978	4,096	4,207
H Trades, transport and equipment operators and related occupations	617	709	748	802	861	913	952	989	1,028	1,065	1,098	1,129
I Occupations unique to primary industry	297	342	367	401	442	479	510	538	565	592	618	643
J Occupations unique to processing, manufacturing and utilities	234	275	304	335	366	394	416	436	457	477	496	514
Grand Total	80,600	89,591	96,674	104,105	111,050	116,960	121,986	126,616	131,097	135,454	139,706	143,873

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

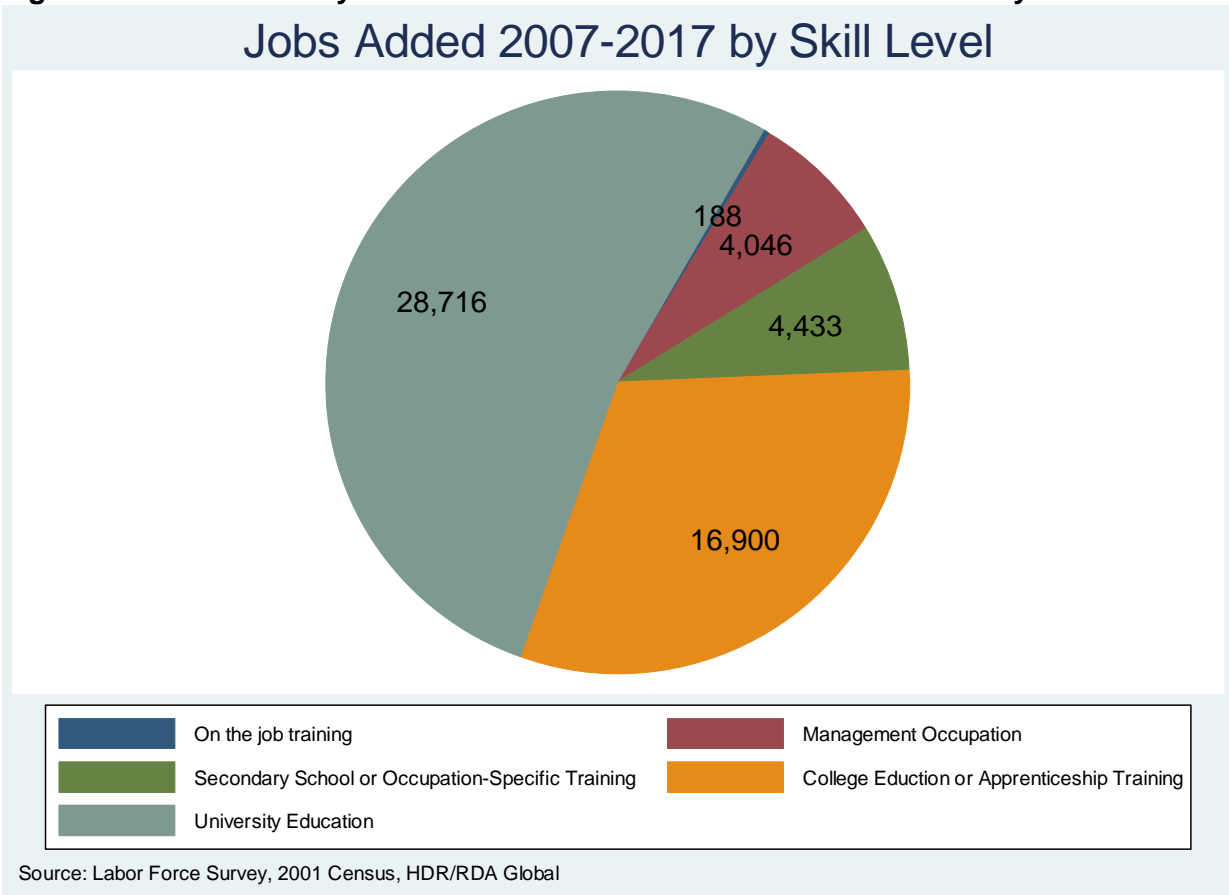
Rank	Occupation (4 Digit NOC)	Employees				Jobs Created
		1987	1997	2007	2017	2007-2017
1	B011 Financial auditors and accountants	1,820	3,513	7,631	11,260	3,629
2	C071 Information systems analysts and consultants	1,442	2,320	4,843	8,257	3,414
3	E012 Lawyers and Quebec notaries	1,359	2,440	4,992	7,657	2,665
4	C074 Computer programmers and interactive media developers	1,203	1,935	4,012	6,610	2,598
5	C013 Geologists, geochemists and geophysicists	547	880	1,870	3,640	1,770
6	C031 Civil engineers	771	1,240	2,540	4,247	1,707
7	E211 Paralegal and related occupations	763	1,369	2,796	4,335	1,539
8	C153 Drafting technologists and technicians	684	1,101	2,243	3,652	1,410
9	C045 Petroleum engineers	382	615	1,312	2,627	1,315
10	C181 Computer and network operators and web technicians	493	792	1,662	2,938	1,276
11	C112 Geological and mineral technologists and technicians	340	548	1,159	2,207	1,048
12	F141 Graphic designers and illustrators	652	1,011	1,831	2,863	1,032
13	C033 Electrical and electronics engineers	430	691	1,402	2,390	988
14	B511 General office clerks	560	771	1,751	2,693	942
15	C182 User support technicians	352	567	1,192	2,100	908
16	B022 Professional occupations in business services to management	568	1,096	2,358	3,213	855
17	B531 Accounting and related clerks	487	671	1,530	2,328	798
18	B311 Administrative officers	716	892	1,615	2,409	794
19	E033 Business development officers and marketing researchers and consultants	292	524	1,093	1,879	786
20	C032 Mechanical engineers	325	523	1,069	1,843	774
21	A122 Computer and information systems managers	394	728	1,333	2,021	688
22	A131 Sales, marketing and advertising managers	329	608	1,123	1,801	677
23	C073 Software engineers	339	545	1,125	1,797	671
24	C047 Computer engineers (except software engineers)	287	461	970	1,641	671
25	B212 Legal secretaries	969	1,208	2,122	2,755	633
26	B211 Secretaries (except legal and medical)	535	666	1,206	1,833	628
27	C075 Web designers and developers	299	481	989	1,567	578
28	C034 Chemical engineers	228	367	765	1,309	543
29	C051 Architects	304	490	989	1,516	527
30	G121 Technical sales specialists, wholesale trade	224	357	902	1,420	518
31	E031 Natural and applied science policy researchers, consultants and program officers	232	416	855	1,367	512
32	C054 Land surveyors	268	431	875	1,352	476
33	B111 Bookkeepers	414	516	928	1,352	423
34	A121 Engineering managers	230	424	776	1,191	415
35	C141 Electrical and electronics engineering technologists and technicians	154	248	516	931	414
36	G111 Sales representatives, wholesale trade (non-technical)	180	286	728	1,141	414
37	C072 Database analysts and data administrators	148	238	503	898	395
38	A013 Senior managers - Financial, communications and other business services	307	442	829	1,222	393
39	A111 Financial managers	169	312	577	959	382
40	F142 Interior designers	266	412	737	1,113	376
41	G211 Retail salespersons and sales clerks	208	297	651	1,015	364
42	C131 Civil engineering technologists and technicians	165	265	543	887	344
43	B514 Receptionists and switchboard operators	252	347	788	1,130	342
44	C048 Other professional engineers, n.e.c.	162	260	535	876	340
45	F121 Photographers	258	401	717	1,058	340
46	D213 Veterinary and animal health technologists and technicians	110	184	465	795	331
47	C111 Chemical technologists and technicians	117	188	391	714	323
48	B553 Customer service, information and related clerks	178	245	563	865	302
49	C132 Mechanical engineering technologists and technicians	123	198	412	698	286
50	C155 Mapping and related technologists and technicians	109	176	369	650	281
	Others	5,058	8,005	16,406	26,854	10,448
	Grand Total	27,200	43,700	89,591	143,873	54,282

⁵ Note that these job creations in Figure 6 capture only jobs created in the Professional Services 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 – PROFESSIONAL SERVICES INDUSTRY

From a skill level perspective, there will be about 4,000 new management occupations, 16,900 jobs requiring some college education or apprenticeship training, 4,400 jobs which require secondary school or occupation-specific training, about 28,700 that require university training and about 200 that require only on the job training

Figure 6: Jobs Added by Skill Level in the Professional Services Industry



APPENDIX 1: INDUSTRY DEFINITION – PROFESSIONAL SERVICES INDUSTRY

This industry is comprised of establishments primarily engaged in activities in which human capital is the major input. These establishments make available the knowledge and skills of their employees, often on an assignment basis. The individual industries of this sector are defined on the basis of the particular expertise and training of the service provider.

The main components of this sector are legal services industries, accounting and related services industries, architectural, engineering and related services industries, surveying and mapping services industries, design services industries, management, scientific and technical consulting services industries, scientific research and development services industries, and advertising services industries.

The distinguishing feature of this sector is the fact that most of the industries grouped in it have production processes that are almost wholly dependent on worker skills. In most of these industries, equipment and materials are not of major importance. Thus, the establishments classified in this sector sell expertise. Much of the expertise requires a university or college education, though not in every case.

Establishments primarily engaged in providing instruction and training in a wide variety of subjects and those primarily engaged in providing health care by diagnosis and treatment are not included in this sector.