

BRITISH COLUMBIA

LABOUR MARKET OUTLOOK:

2018 EDITION



**BRITISH
COLUMBIA**



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Minister's Message

AS MINISTER OF ADVANCED EDUCATION, SKILLS AND TRAINING, I want everyone to have access to affordable education and training so that they can get good-paying jobs, build a bright future, and help British Columbia move forward with a strong, innovative economy.

Deciding on a career path is challenging, but access to information helps. Looking ahead at what jobs will be in demand over the next ten years, and the skills needed to get them, are at the core of the *B.C. Labour Market Outlook: 2018 Edition*.

My hope is that students, parents, educators and employers will use the Outlook to guide their passions for the future. Students can use it to find a career path and turn their passion into a plan, employers can see where the workforce is heading and what skills will be needed, and post-secondary educators can make sure they are empowering students with the skills and knowledge to succeed.

British Columbia's workforce is evolving. The baby boomer generation is retiring, millennials are a driving force in the labour market and, in the next 10 years, most job openings will require post-secondary credentials. Indigenous communities are a fast-growing demographic in British Columbia. These future opportunities have the chance to benefit Indigenous people and their communities and support their goals in life. Without enough British Columbians to fill our expected jobs, immigrants and in-migrants to B.C. will be vital.

Everyone has a vital role to play in B.C.'s economy and prosperity over the next decade, and we want to ensure that people have the skills to take part. We're striving to make education more accessible and affordable so that people can unlock their full potential, adapt to our growing labour market, and thrive.



Melanie Mark

MELANIE MARK

Hli Haykwhl Wii Xsgaak
**Minister of Advanced Education,
Skills and Training**

“ **Everyone** has an important role to play in B.C.'s economy and prosperity over the next decade, and we want to ensure that people have the skills to take part. ”

Acknowledgements

WE RESPECTFULLY ACKNOWLEDGE THE TERRITORIES OF THE COAST SALISH PEOPLES, WHICH IS WHERE THE B.C. LABOUR MARKET INFORMATION OFFICE AT THE MINISTRY OF ADVANCED EDUCATION, SKILLS AND TRAINING IS LOCATED.

As an office of the Province of British Columbia, we acknowledge the diversity of Indigenous Nations, cultures and languages in B.C., and that our work pertains to all of the Indigenous communities in this Province. We would like to thank the people in Indigenous communities across the province who provided us with valuable information and insight about Indigenous labour market issues.

We are committed to the implementation of the U.N. Declaration on the Rights of Indigenous Peoples (UNDRIP)¹ and the Truth and Reconciliation Commission (TRC) Calls to Action². We will specifically seek to advance the positive role that labour market information could play in supporting the implementation of UNDRIP Articles 5, 8, 11, 14, 15, 17, 18, 19, 20, 21, 23, 31, 32, and 39, as well as TRC Calls to Action 7, 23, 43, 55, and 92. These are listed in full in Appendix 8.

We also acknowledge the valuable information and feedback provided by representatives of industry associations, employer associations, unions, training organizations, federal and local governments, labour market consultants, business groups, education institutions and associations, and colleagues across the provincial government.



This is a camas field in Coast Salish territory.

The Coast Salish cultivated the shrub-free grasslands for centuries. They worked to maintain and enhance the growth of camas, their staple root crop, and other edible native plants.

1 http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

2 http://www.trc.ca/websites/trcinstitution/File/2015/Findings/Calls_to_Action_English2.pdf

Executive Summary

The people of British Columbia can look forward to a wide choice of job opportunities and possible career paths. Individuals looking to get their first job, to move to a new position, or to get back into the workforce will see strong demand from employers over the next 10 years.

Planning for the future will be important for those looking for work today. Jobs will continue to change and evolve. Some will become more complicated as a result of innovation and changes in technology. Some will involve tasks that are not yet invented. For our economy to continue to develop and prosper, it is important that B.C. workers understand what type of education will be required for the careers of today and tomorrow. In addition, job seekers need opportunities to build and expand their personal skills and competencies, which will allow them to succeed and to be adaptable moving into the future.

After two years of strong employment growth in 2016 and 2017, unemployment in British Columbia has fallen. More people have been able to find employment. However, the number of people available for work is growing more slowly and a wide range of indicators—including reports from employers—show that having enough trained workers to meet future needs will be a challenge. The strong demand for trained workers also represents an

opportunity for people throughout B.C. to build rewarding careers.

The people of B.C. can look forward to growth in the economy over the next 10 years to 2028. Full- and part-time employment are expected to grow an average of 1.1 percent per year. However, population growth overall will also slowly decrease as the gap between births and deaths narrows. This further points to a growing need for workers with varied skill sets and experience.

A GROWING DEMAND FOR WORKERS

It is predicted that there will be 903,000 job openings between now and 2028. This includes the creation of 288,000 new jobs due to economic growth and the need to replace 615,000 workers who will permanently leave the workforce, mainly due to retirements.

MATCHING PEOPLE TO JOBS

Along with a large percentage (50 percent) of expected job openings to be filled by workers starting their careers, immigrants will fill about 27 percent of the job openings with eight percent being filled by migrants from other provinces. Even with these assumed levels of new workers entering the province, there remains a need to fill another 130,000 job openings throughout B.C., which is 15 percent of the total forecast job openings.

As we move into the future, it is predicted that nearly 80 percent of job openings will require individuals with post-secondary education.

While automation may play a role in relieving some labour shortages, it is clear that many of these jobs will need to be filled through other means. This includes more people joining and staying longer in the workforce and more under-represented people finding jobs.

For B.C.'s economy to continue to grow and prosper, strategies will be required to bring people into the province's labour force to meet employers' needs for workers. Educators and employers will need to provide training to ensure that workers have relevant skills and competencies that make them resilient as jobs evolve and as yet-unheard-of roles come into existence.

It is important for all of us to recognize the importance of being open to lifelong learning. The Outlook helps to develop a picture of the skills, competencies and personal characteristics that the people of British Columbia can use to help them succeed into the 21st Century.

HIGH DEMAND OCCUPATIONS

This edition of the Outlook provides an updated list of High Demand Occupations. The list is made up of the top 100 non-health occupations, plus 13 high demand health professions. While the job openings in all 500 occupations need workers, these High Demand Occupations are in greater demand and are experiencing a tighter supply of new workers. Some jobs that were on last year's list have been dropped in favour of adding occupations that are in higher demand.

AUTOMATION

Emerging technologies have revolutionized our personal and professional lives. They are making life easier and the economy more efficient. They will also continue to shape career options in the future.

Automation is the use of technology to replace, change or assist physical or mental tasks traditionally done by people. It makes life and work easier. Yet, it also creates a concern that machines could replace people - that automation might result in job loss.

In fact, automation can allow individuals to accomplish repetitive or mundane tasks more quickly and effectively and with fewer errors. This can open doors for people to take on more rewarding duties as a part of their job. It could also mean higher wages.

It is expected that the majority of workers in the province will likely be affected by automation in some way. In particular, the greatest impact will be on lower skilled occupations, many of which are in tight supply today. As a result, it will be key for those in the labour force to adapt to changing job requirements and to learn new skills and competencies. Employers need to play a critical role in providing opportunities for people to do this.

DEMAND FOR SKILLS AND COMPETENCIES

This Outlook includes an expanded section on skills and competencies, taking a closer look at future demand in these areas. The Outlook forecast assists us in understanding which skills and competencies will be in demand as we move through the next decade. It can provide insights for educators, helping to shape what they teach and can provide current and future workers with the knowledge necessary to make informed decisions about which strengths to develop.

It can help employers define more clearly what skills and competencies are important to them and support personal development plans for their employees. It can also help learners and workers understand their strengths and decide how to spend their time and energy in developing their skills and competencies.

This year's Outlook reveals a strong demand for people skills, especially those in communication areas such as active listening, speaking and reading comprehension as well as critical thinking.

Active listening is identified as a "very important" skill for 73 percent of total projected job openings. Social perceptiveness, judgement and decision making are also deemed as "very important" competencies for almost 40 percent of total projected job openings by 2028.

The Outlook forecasts that **166,000 job openings** over the next 10 years will be in occupations that **have a high chance of being affected by automation.**

THE MEANING OF WORK

This report covers a wide range of factors for people to consider when planning their working life. Understanding which careers will be in high demand will help an individual to build out a job “road map” for the future. Most workers in B.C. need to work in order to afford today’s cost of living. Still, to the extent that it is possible, job seekers can also take stock of what they value in life and use that as a guide for their career choices. For example, acknowledging and addressing individual requirements around work/life balance helps create success in the long run.

The Outlook’s forecast is based on the conventional definition of “work” captured by official labour market statistics—paid work for an employer (employment) or customers (self-employment).

In reality, there are many other types of work that generate personal and social benefits and satisfaction. Examples include caring for children and the elderly, harvesting and hunting, and fulfilling cultural, community, religious, family, and other duties or responsibilities that don’t fall into the traditional description of “work”.

In addition, taking stock of personal characteristics such as abilities, work values, work styles and occupational interests is an important element in planning and building a successful career, no matter what the industry or job title.

REGIONAL DIFFERENCES

The people of British Columbia are spread across a large geographic area and face a range of 21st Century opportunities and challenges, relevant to their location.

The Outlook projects that 65 percent of job openings will be in the Mainland/Southwest region with another 17 percent in the Vancouver Island/Coast region. These two regions will see an increase in population and strong job demand from diverse industries, resulting in broad-based job growth.

In the Northeast, recovery in the energy sector will see above average growth and a modest recovery in mining and other natural resource industries will result in an increase in North Coast/Nechako. While the other regions—Kootenay, Cariboo, and Thompson-Okanagan—will see job openings across a range of industries.

Each region has its own mix of industries that will determine what kind of jobs are available. Appendix 2 provides a specific view of opportunities in each region.

THE EVOLVING WORKPLACE

A strong base of skills and competencies will help workers to adapt to the changes and opportunities that will occur such as a response to a major workplace or industry change.

For many, changes in the global economy and shifts in demand for British Columbia’s industries present an exceptional opportunity for professional growth. With any shift in the labour market, there will be those who need support—either through learning new tasks related to their jobs or changing their occupation. Targeted training provided by employers and government programs will help these people thrive.



About This Report

THE LABOUR MARKET IS THE SUPPLY OF AVAILABLE WORKERS IN RELATION TO AVAILABLE JOB OPENINGS.

British Columbia's labour market is a two-way street where people are matched to jobs. Demand for and supply of workers shifts back and forth, depending on required education, skills and competencies and the availability of people with those skills. In addition, changes in specific industries, advances in 21st Century technology and innovation and shifts in economic, environmental and cultural landscapes combined with a changing workforce all influence the province's labour market. And all of this affects the personal and professional lives of the people of B.C.

WHAT IS THE LABOUR MARKET OUTLOOK?

In our ever-changing world, knowledge is power.

The *Outlook: 2018 Edition* is a 10-year forecast of the expected flow of supply and demand for labour in the province. It is revised every year with the most up-to-date information available. The

purpose is to provide British Columbians with the knowledge required to make informed decisions on careers, hiring, training and education.

The Outlook covers the period from 2018 through 2028. It estimates future supply and demand by industry, occupation, education, skill level and geographic region. It also provides an assessment of potential demand for the skills and competencies needed to succeed during the next 10 years.

This Outlook provides the best available information about the kinds of jobs and skills that will be most in-demand regionally and province-wide over the coming decade.

WHO IS THE OUTLOOK FOR?

The Outlook helps young people to plan their careers and assists more mature workers looking to shift jobs or change careers. It is a useful resource for educators as they develop courses;

will help lead to jobs for learners; and supports employers and government in the development of training strategies and investment plans.

Students, families, school counsellors and people looking for work use the projections in this report to make informed decisions about their future—from education to training to charting their career paths.

Employers and investors use the information for long-term planning and industry leaders apply it when identifying skill needs. Employment projections can help to inform a wide variety of government decisions and policies to build the best B.C.

A range of professionals—from entrepreneurs to public and private sector planners—can use the raw data posted on the B.C. Data Catalogue for analysis and planning in their specific fields (see page 8 for the location of this and other resources).



WHERE DO THE NUMBERS COME FROM?

The Outlook uses the most reliable, relevant and up-to-date data from sources including BC Stats, B.C. Ministry of Finance, Statistics Canada and other federal departments.

A sophisticated economic modelling system is used to analyze the data collected, as well as other factors affecting labour market supply and demand. Data is also reviewed based on geographic region, industry, occupation, skills and competencies.

The model looks at projections for economic growth, productivity trends and the need to replace retiring workers. It considers factors related to population

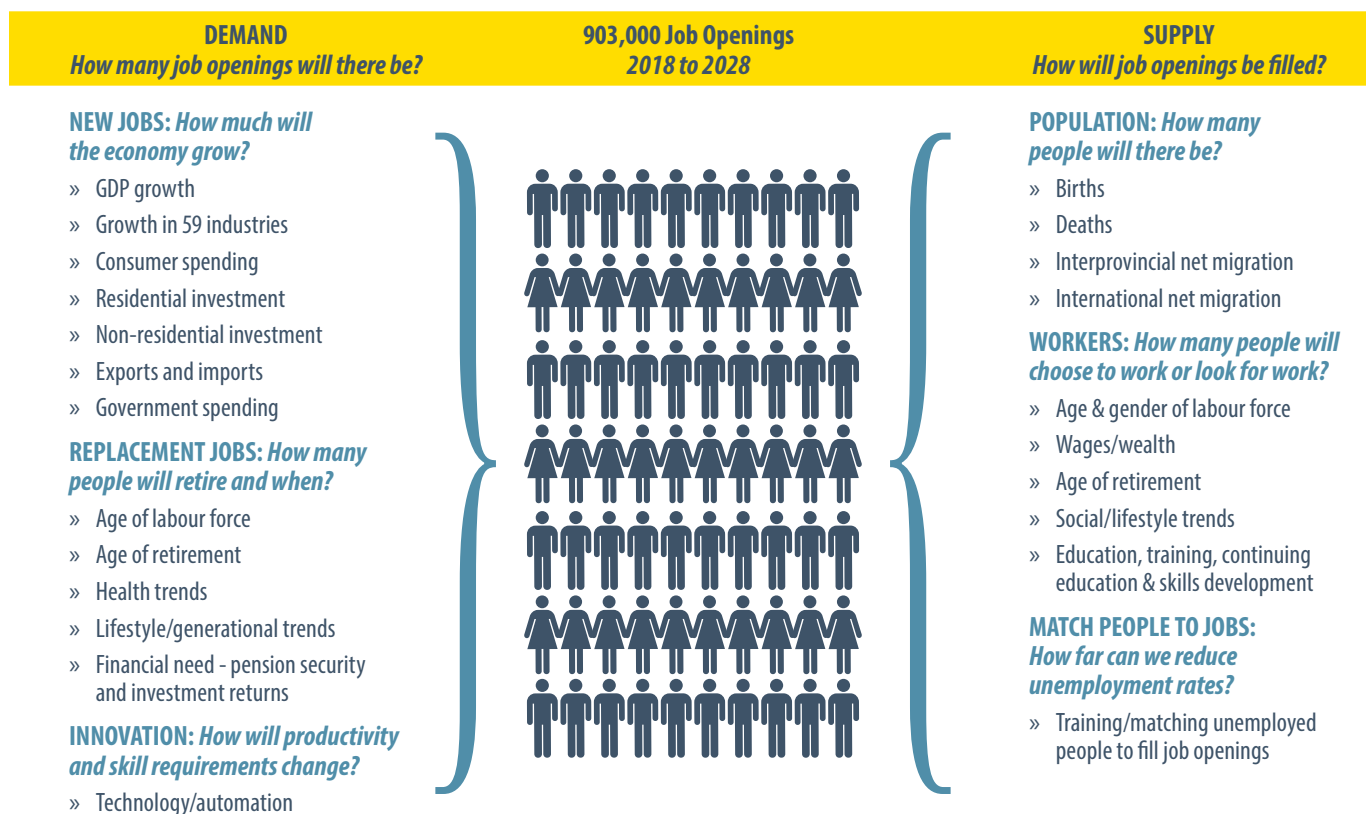
growth, the number of people seeking work and the impact of training and job matching on unemployment (please see Figure 1-1 below).

The projections are tested with employers, unions, industry groups and post-secondary institutions. For example, elements of this testing are done through individual meetings with stakeholders, participation in large group meetings, presenting at conferences, and contributing to sector or occupation-specific task forces or committees. In addition, Sector Labour Market Partnership³ projects undertaken by the Ministry of Advanced Education, Skills and Training provide valuable input and opportunities to evaluate Outlook forecasts.

The evidence-based, industry-tested projections included in the Outlook provides individuals, Indigenous communities, businesses and governments with a high degree of confidence in their decision making ability related to the labour force within their area of focus.

Innovations in technology bring opportunity and risk—and both can be unpredictable. This is one of the reasons why the Outlook's data and assumptions are reviewed and updated each year.

FIGURE 1-1: Capturing Complex Labour Market Dynamics



3 Please see: <https://www.workbc.ca/Labour-Market-Industry/Industry-and-Sector-Information/Sector-Labour-Market-Partnerships.aspx>

WHAT ARE THE MAJOR CHANGES IN THIS REPORT?

A significant change in this report is the incorporation of Statistics Canada data from the 2016 Census. This information provides an industry-specific updated view on the job/occupation changes that occurred between 2011 and 2016.

It also offers an updated assessment on the age structure of the population and labour force, occupational unemployment rates, the labour force participation and occupations of recent immigrants, and typical education requirements of occupations.

Custom analysis of detailed Labour Force Survey data provided an updated view of the average age of retirement for each occupation as well as current occupational unemployment rates. This source also provided industry employment levels in each of B.C.'s seven regions.

For the first time, the Outlook provides estimates of the potential effect of automation on future job openings as well as the demand for specific skills and competencies.

For more on the methodology and assumptions behind this report, please see Appendix 5.

For access to the full set of forecast data for all 500 occupations, 59 industries and seven regions, please go to <http://catalogue.data.gov.bc.ca/dataset/labour-market-outlook>

For a broader look at employment, hiring and training opportunities, please visit www.WorkBC.ca

Supplementary reports providing more industry, occupation group and region detail are available at www.WorkBC.ca/industry

To share your input on the Outlook and how we can continue building a reliable labour market information system for B.C., please email us at workbcinformation@gov.bc.ca



INDIGENOUS LABOUR MARKET INFORMATION

Currently, there is a lack of quality Labour market Information (LMI) on Indigenous communities—First Nations, Inuit and Métis. Labour market data collection efforts, such as the Census or Labour Force Survey, do not collect data of adequate quality about Indigenous communities.

For some Indigenous communities, there are low Census participation rates and the Labour Force Survey does not cover on-reserve populations. These tools have been designed and delivered without sufficient input and participation from Indigenous communities and as a result provide a limited snapshot of the experience and contribution of Indigenous communities to the labour market.

Indigenous communities have a wide range of activity that is often not covered under official definitions of “work.” For example, some Indigenous communities spend substantial time harvesting, fishing and/or hunting for food during specific seasons throughout the year.

Indigenous people also often undertake duties contributing to community, ceremonial and other cultural events. These activities are often left out of official labour market statistics.

In recognition of the need for LMI that meets the needs of Indigenous communities, the B.C. Labour Market Information Office at the Ministry of Advanced Education, Skills and Training is beginning the process of building partnerships with Indigenous Nations and organizations. This is being undertaken to explore

collaborative and Indigenous-led approaches to LMI. The intention of these partnerships is to provide a more relevant and inclusive picture of labour market experiences and outcomes in future reports.

Through this process, the Province recognizes the need for Indigenous data sovereignty, in alignment with the Truth and Reconciliation Commission Calls to Action and United Nations Declaration on the Rights of Indigenous Peoples.

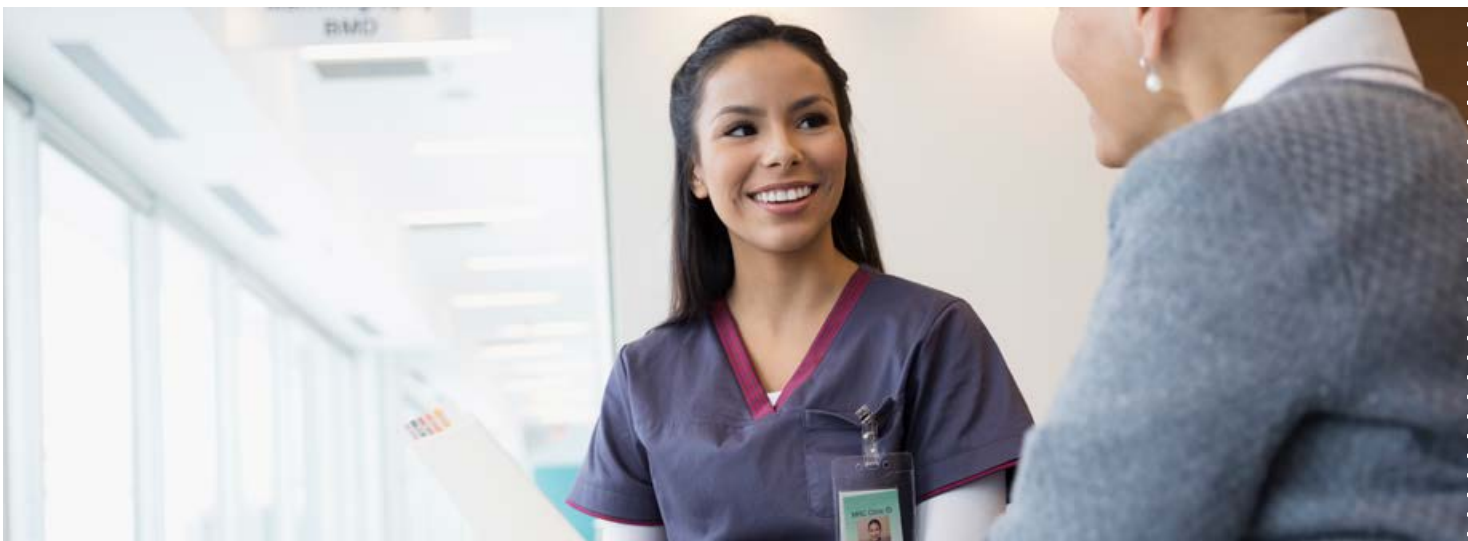
For example, data governance measures that align with the First Nations Information Governance Centre’s OCAP® principles (Ownership, Control, Access and Possession) will be a critical element of focus for the partners involved in supporting the development of improved LMI on Indigenous communities.

The key principles of the OCAP® framework (expressed from the perspective of First Nations) are:

- ▶ Ownership: A First Nation owns information collectively.
- ▶ Control: First Nations must control how information about them is collected and shared.
- ▶ Access: First Nations must have access to information that is related to them.
- ▶ Possession: First Nations have a right to steward data; having data within their possession allows them to assert their control.⁴

The Province also recognizes the need for capacity-building efforts to move towards an approach in which the decisions are made by Indigenous communities, with full self-determination, on how LMI on their community is collected, managed and shared.

.....
⁴ For more information see www.fnigc.ca/ocapr.html



Labour Market Outlook

IN BRITISH COLUMBIA, THE DEMOGRAPHIC SHIFT OF AN OLDER POPULATION FOLLOWED BY THE MILLENNIAL GENERATION MOVING INTO ITS PRIME WORKING YEARS IS SET TO CONTINUE.

Over the past 50 years, baby boomers (people born between 1946 and 1965) have made up the largest segment of the B.C. workforce. The oldest baby boomers are now 72 and the youngest will be 63 in 2028 (the end of this Outlook's forecast period). Over the next 10 years, a majority of this generation will be focusing on life after work.

At the same time, people in the large millennial generation are moving into their 30's, with a smaller generation—GenZ—following them. The result is a decline in the number of people in their 20's in the province over the next decade.

The workforce in B.C. continues to grow and evolve. As a result of two years of strong employment growth in 2016 and 2017, unemployment has fallen.

While more people have joined the labour force, there continues to be an ongoing challenge with having enough

qualified workers in certain occupations and regions.

One of the factors that allowed the recent growth in employment was a surge of migration from other provinces. This peaked in 2016 and has started to decline because improved economic conditions in the rest of the country means that there are more jobs in many provinces and territories. A strong surge of immigration from outside of Canada has helped to offset this, resulting in total in-migration to B.C. reaching 60,000 in 2017—the highest since 2008 when in-migration reached 62,000 people.

From this all-time high in economic activity and employment, people in B.C. can look forward to positive growth over the next 10 years. High demand for labour will also mean strong wage growth. The availability of jobs combined with rising wages and access

to education and training will be a key driver of economic growth and poverty reduction in British Columbia.

With unemployment currently low and labour force participation high, employment growth will be closely tied to population growth. The gap between births and deaths will continue to decline, resulting in a lower rate of natural population increase over the next decade. Immigration will only partially counteract this trend and as a result population growth overall will also decline. (Please see Appendix 5 for more detail on the key assumptions underlying the forecast.)

If B.C.'s economy is to continue to expand, it will be crucial to maintain or increase the availability of skilled workers in the province.



Key questions for educators, employers and policy makers in addressing this challenge include:

- ▶ Could post-secondary education be completed in a faster, more efficient manner so that learners can start their careers sooner?
- ▶ Would a greater focus on developing applied skills and competencies result in faster, more efficient matching of workers to demand?
- ▶ Can the flow of required in-migrants with the in-demand skills be increased?
- ▶ Is it possible to have more people in a position that allows them to delay retirement if that is what they want?
- ▶ Is there a way to more effectively and efficiently match individuals to jobs in order to achieve lower than projected unemployment rates?
- ▶ Could barriers to increased labour force participation be reduced?
- ▶ Is there a role for more rapid adoption of automation technologies?

Making sure that there are enough trained workers to meet the needs of employers will be an ongoing challenge. At the same time, this challenge means

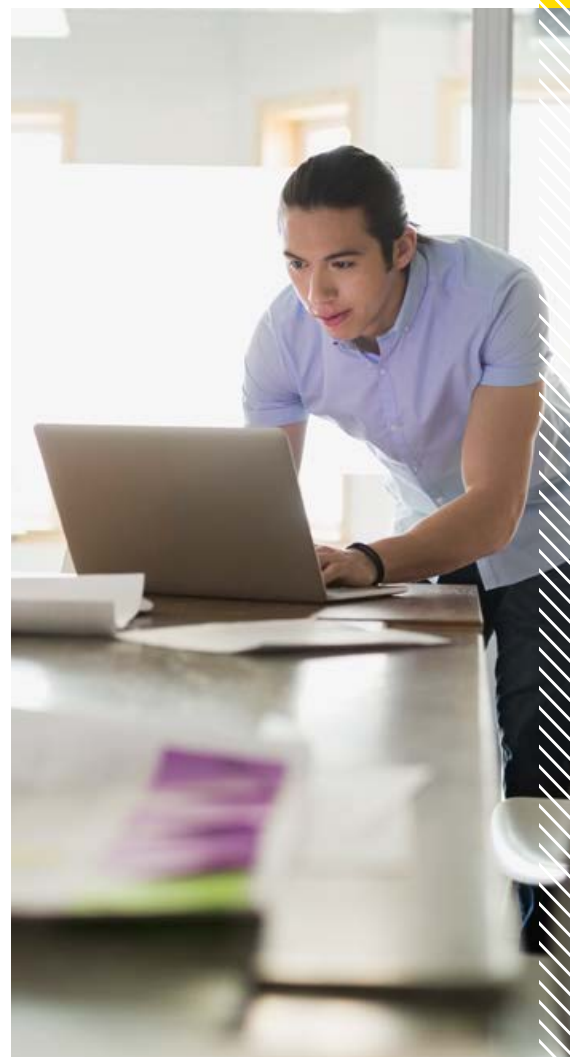
that people throughout B.C. have exciting opportunities to build the careers they want.

It is expected that about 77 percent of job openings will require individuals with post-secondary education.

In addition, learners and their educators share a responsibility to focus on building a strong foundation of skills and competencies to complement their formal education credentials. Creating a solid base of employability will help people adapt and thrive as their lives change in response to a transforming local and global economy. Employers also have a critical role to play in providing their workers with training opportunities.

Lifelong learning will be a key element of success going forward.

The *Outlook: 2018 Edition* helps to develop a picture of the education credentials, skills and competencies that workers can use to achieve success in the 21st Century economy.



A 10-YEAR OVERVIEW

On the labour demand side, the *Outlook: 2018 Edition* forecasts that there will be 903,000 total job openings between 2018 and 2028 (please see Table 2-1).

- About 68 percent of these openings will be to replace workers leaving the labour force (mainly due to retirements).
- The remaining 32 percent will be new jobs created through economic growth.

Currently, the average age of a worker within the B.C. labour force is 42 years of age. As the population and the labour force ages, the majority of future job openings are anticipated to happen because retiring workers will need to be replaced.

With an annual average employment growth of 1.1 percent, employment in B.C. is expected to reach almost 2.8 million by 2028. This is based on the predicted 1.9 percent average annual growth in B.C.'s real Gross Domestic Product (GDP) plus a 0.8 percent productivity growth each year on average over the 10-year period of this report.

TABLE 2-1: Labour Market Outlook Highlights, B.C., 2018-2028

Total Job Openings	903,000	100%
Economic growth (Expansion)	288,000	32%
Replacement	615,000	68%
Supply Additions	903,000	100%
Young people starting work	454,000	50%
Immigrants	243,000	27%
Migrants from other provinces	76,000	8%
Additional supply requirement	130,000	15%

Note: values are rounded; percentages are shares of the total job openings; additional supply requirement is assumed to be met through a mix of higher labour force participation, lower unemployment and/or higher productivity/automation.

On the supply side, young people starting work (B.C. residents aged 29 or younger who are entering the labour force) are expected to fill 50 percent of future job openings. Immigrants will fill 27 percent and workers coming from other parts of Canada will fill eight percent of the jobs. Additional workers will be needed to fill the other 15 percent of positions available.

This forecast includes construction projects outlined in the B.C. Major Projects Inventory (www.majorprojectsinventory.com) that are considered to have a high probability of proceeding and aligns to B.C. Ministry of Finance macroeconomic forecasts, which do not include the impact of potential LNG investments.



YEAR-OVER-YEAR OUTLOOK

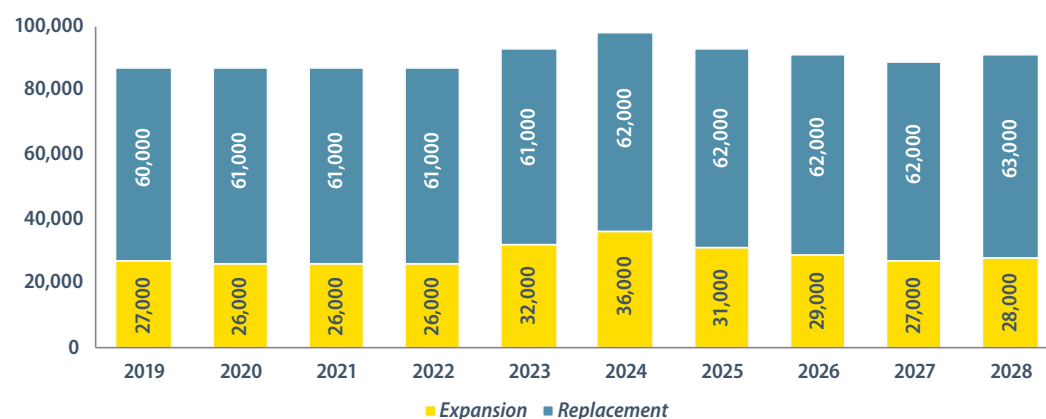
The total number of job openings each year over the 10-year period of this Outlook will fall as low as 86,000 jobs in 2020 and as high as 97,000 in 2024, with the final year of this report (2028) falling in between the two at 91,000 open positions.

As older workers exit the workforce, the number of replacement job openings will grow gradually year over year. On average, 61,500 workers are forecast to leave the labour force permanently each year until 2028.

Job openings that are created by economic expansion will fluctuate over the 10-year period, ranging from 26,000 in the early 2020s, increasing to 36,000 in 2024 (due to growth in non-residential construction) and decreasing to 28,000 in 2028 (please see Figure 2-1). Additional industry detail for these job openings is provided in Figure 2-5 on page 16. A list of High Demand Occupations is provided in this report on page 20. Also, the number of projected job openings for all 500 occupations is provided in Appendix 6.

For more information, please see the industry outlook on Page 15 and occupational outlook on Page 17.

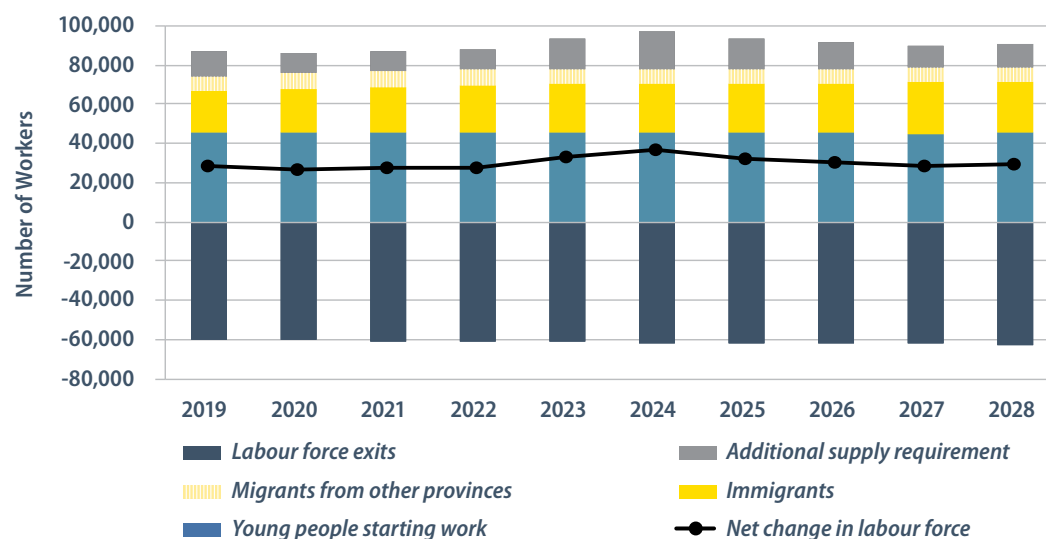
FIGURE 2-1: Job Openings, B.C., 2018-2028, Annual



Note: values are rounded

Multiple sources of workers are needed to fill the demand for labour each year. This is demonstrated in Figure 2-2.

FIGURE 2-2: Sources of New Workers, B.C., 2018-2028, Annual

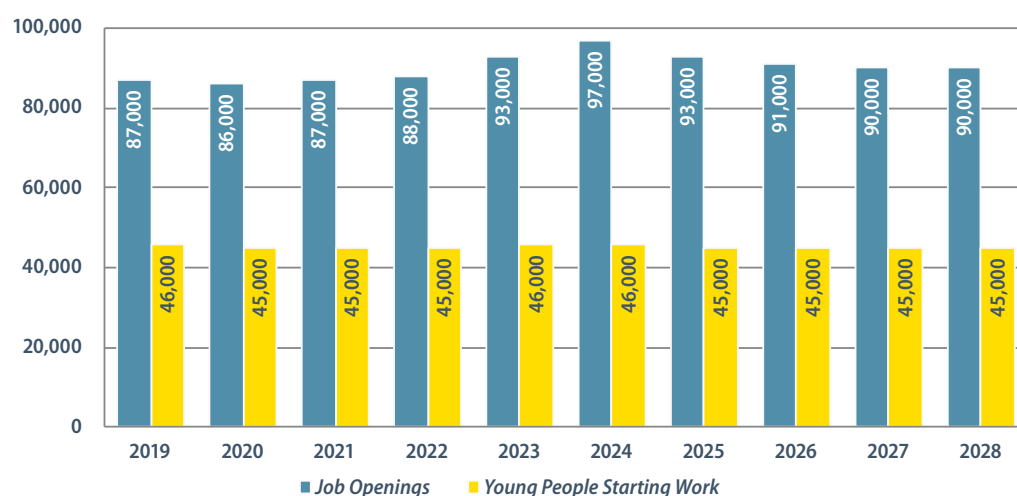


Young people entering the workforce for the first time will be the largest source of new workers, filling over 45,000 job openings each year during this 10-year period.

As shown in Figure 2-3, young people joining the workforce for the first time can only fill about half of the anticipated job openings. Immigrants from outside of Canada and migrants from within the country are also important in meeting the expected demand for workers. It is forecast that, on average, over 24,000 immigrants from other countries and nearly 8,000 migrants from other provinces will join B.C.'s labour force each year over the next decade.

While substantial, this is not enough to meet the anticipated needs of the workforce going forward. An average of an additional 13,000 people each year will be required to fill future job openings. These additional workers will join the labour force through greater labour force participation or reduced unemployment. Increased use of automation to address labour shortages could also play a role in addressing this supply gap.

FIGURE 2-3: Young People Starting Work vs. Job Openings, B.C., 2018-2028, Annual



The ongoing test being faced in B.C. each year is filling the large gap between new entrants and the surplus of job openings that are forecast. In spite of these challenges, B.C.'s labour market is expected to be in balance over the next 10 years, as people adjust and respond to rising wages and ongoing education and skills training opportunities. As discussed in this report, an increase in automation will also have a role to play in helping to balance this out.

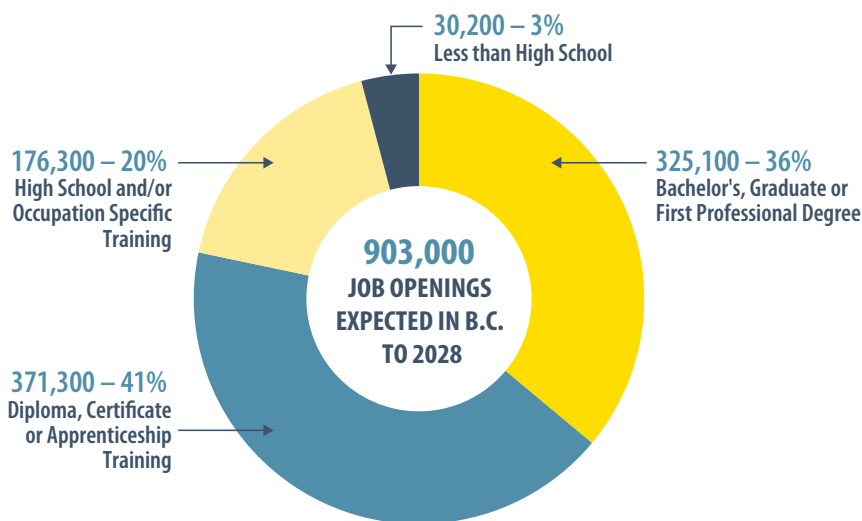


EDUCATION AND TRAINING NEEDS

Education and training will play an increasingly important role in the labour market over the next 10 years. In an ever-changing world experiencing new technology, innovation and industry disruption, there is a shift in recognizing the value of learning new career skills. A broader base of knowledge and the ability to adapt to a changing work environment opens up more opportunities for students and workers alike.

A majority—77 percent—of the job openings expected in the next 10 years will require some level of post-secondary education or training. Forty-one percent will be in occupations requiring a diploma, certificate or apprenticeship training and 36 percent will be in positions requiring a bachelor's, graduate or first professional degree. In contrast, only three percent will be available for those with less than a high school education. The good news is that young British Columbians understand the opportunities that education will open up for them. Only a moderate increase in the percentage of young people in post-secondary education will be required to match people to the projected job openings.

FIGURE 2-4: Job Openings by Education Requirements, B.C., 2018-2028



INDUSTRY OUTLOOK

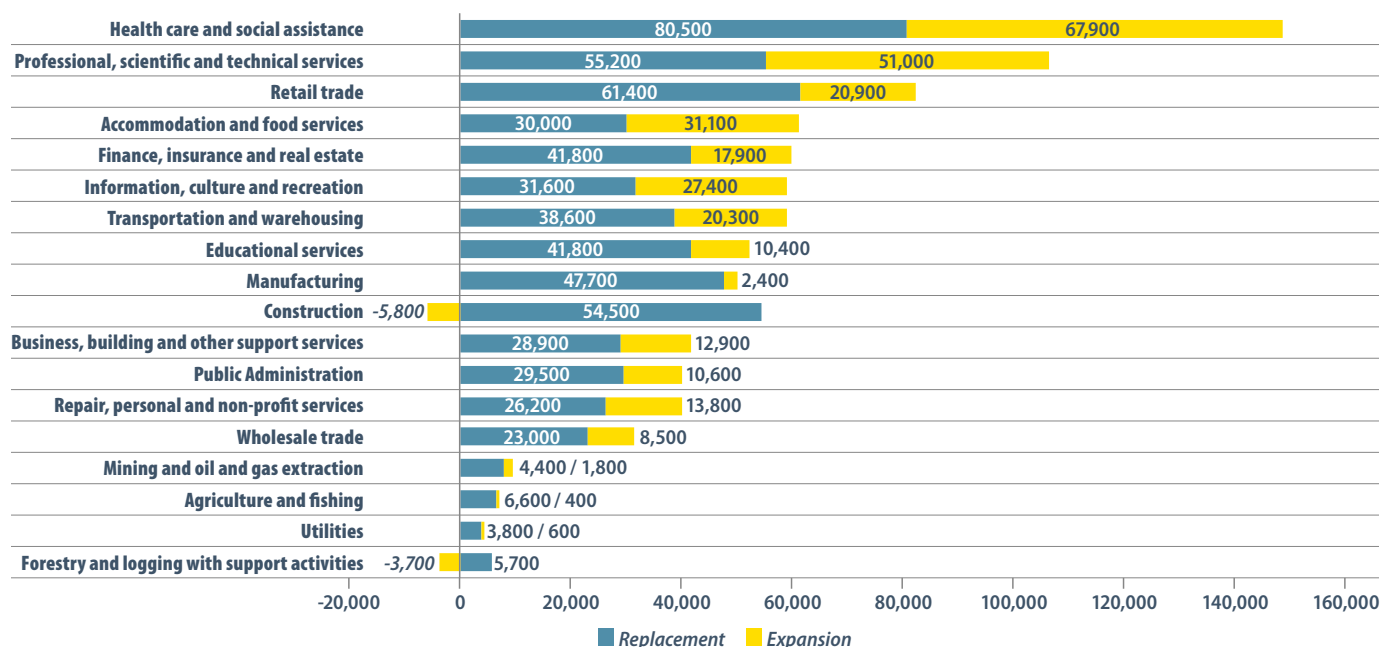
In British Columbia, five industries will account for about half of the total job openings projected over the next 10 years. They are:

- ▶ Health Care and Social Assistance (148,400 job openings; 16.4 percent of total job openings)
- ▶ Professional, Scientific and Technical Services (106,200 job openings; 11.8 percent of total job openings)
- ▶ Retail Trade (82,300 job openings; 9.1 percent of total job openings)
- ▶ Accommodation and Food Services (61,000 job openings; 6.8 percent of total job openings)
- ▶ Finance, Insurance and Real Estate (59,700 job openings; 6.6 percent of total job openings)

As B.C.'s population continues to age, health care and social assistance will see the largest increase in job openings in the next 10 years. Fifty-four percent of these will come from the need to replace retiring workers, while an additional 46 percent will be as a result of expansion of the health system in response to the growing medical needs of an aging population.

Professional, Scientific and Technical Services has been a fast-growing industry and this trend will continue into the next decade. It is expected that economic growth will generate 48 percent of the job openings in this industry, compared to 32 percent of openings for all industries.

FIGURE 2-5: Job Openings by Major Industry Group, B.C., 2018-2028



Future job openings come from the wide range of opportunities that will open up due to the growth in B.C.'s economy. In addition, even more opportunities will be available to replace retiring workers.

As seen in Figure 2-5, the requirement to replace retiring workers will create more than half of the job openings for almost every major B.C. industry over the next 10 years.

Several industries will see more job openings because of economic growth and industry expansion. These include:

- ▶ Accommodation and Food Services (51 percent of job openings are due to economic growth)
- ▶ Professional, Scientific and Technical Services (48 percent of job openings are due to economic growth)
- ▶ Information, Culture and Recreation (46 percent of job openings are due to economic growth)
- ▶ Health Care and Social Assistance (46 percent of job openings are due to economic growth)

A more detailed forecast of employment and job openings for each of B.C.'s 18 major industry categories and the 59 more specific industry subsets can be found in Appendix 3. Profiles of each industry and industry category are also available at WorkBC.ca/industry.

OCCUPATIONAL OUTLOOK

Within the 10 major occupational groups that are defined by Canada's National Occupational Classification, more than half (51 percent) of the projected job openings in B.C. over the next 10 years will come from the top three occupational categories (Sales and Service, Business, Finance and Administration and Management).

Nearly three quarters of those job openings are expected to be in the top five occupational groups, as shown in Figure 2-6:

- ▶ Sales and Service (186,100 job openings; 20.6 percent of total job openings)
- ▶ Business, Finance and Administration (151,400 job openings; 16.8 percent of total job openings)
- ▶ Management (124,400 job openings; 13.8 percent of total job openings)
- ▶ Trades, Transport and Equipment Operators and Related (106,700 job openings; 11.8 percent of total job openings)
- ▶ Education, Law and Social, Community and Government Services (103,200 job openings; 11.4 percent of total job openings)

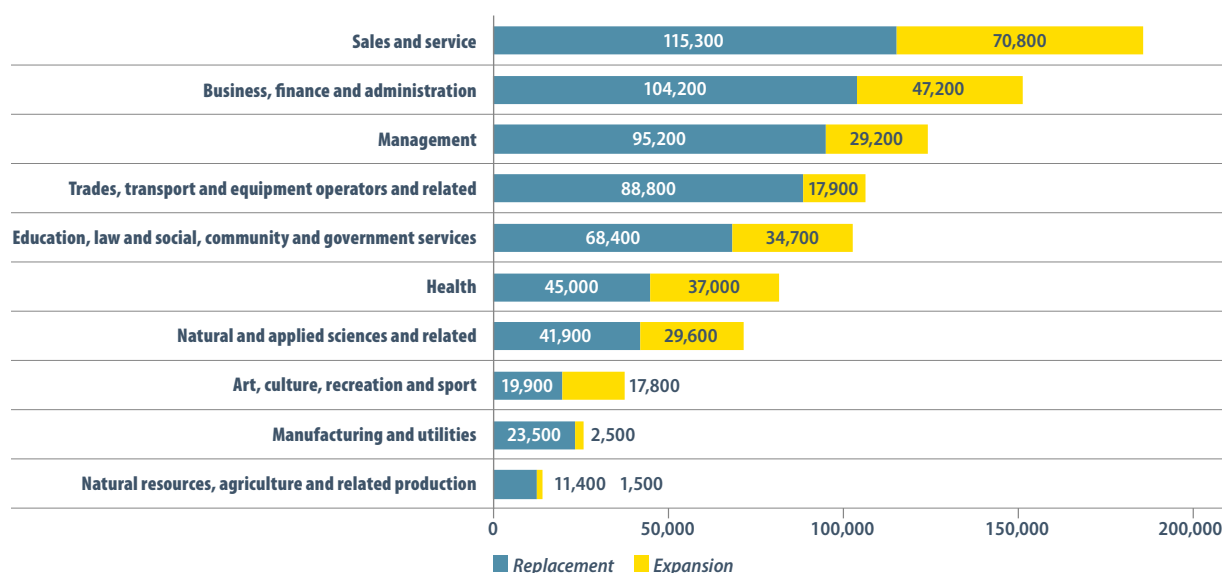
The replacement of retiring workers in the Sales and Service industry accounts for 62 percent of the 10-year forecasted job openings. Sales and Service positions are often thought of as an entry point into the workforce, providing new workers with opportunities to develop skills and competencies. However, that is not true. In addition to the more junior/entry-level jobs, there are many sales and service roles that require significant education and extensive experience.

Management has a greater share of older workers among the major occupational groups. In this category, the need to replace workers will account for 77 percent of total job openings.

The labour force in Business, Finance and Administration is also a relatively older group of workers. The forecast shows that 69 percent of the job openings in this area are to fill positions that will come open due to retirement.

Business, Finance and Administration as well as Management occupational groups offer workers wide-ranging employment opportunities that are important to nearly every organization in the province.

FIGURE 2-6: Job Openings by Major Occupational Group, B.C., 2018-2028



Detailed labour market outlooks for selected occupational groups are available on WorkBC.ca/industry.



REGIONAL OUTLOOK

From the coast to the mountains, each of British Columbia's regions reflects different economies and labour market conditions. This edition of the Outlook provides a closer look at each area's labour market and the job opportunities that are offered. More details are provided in Appendix 2.

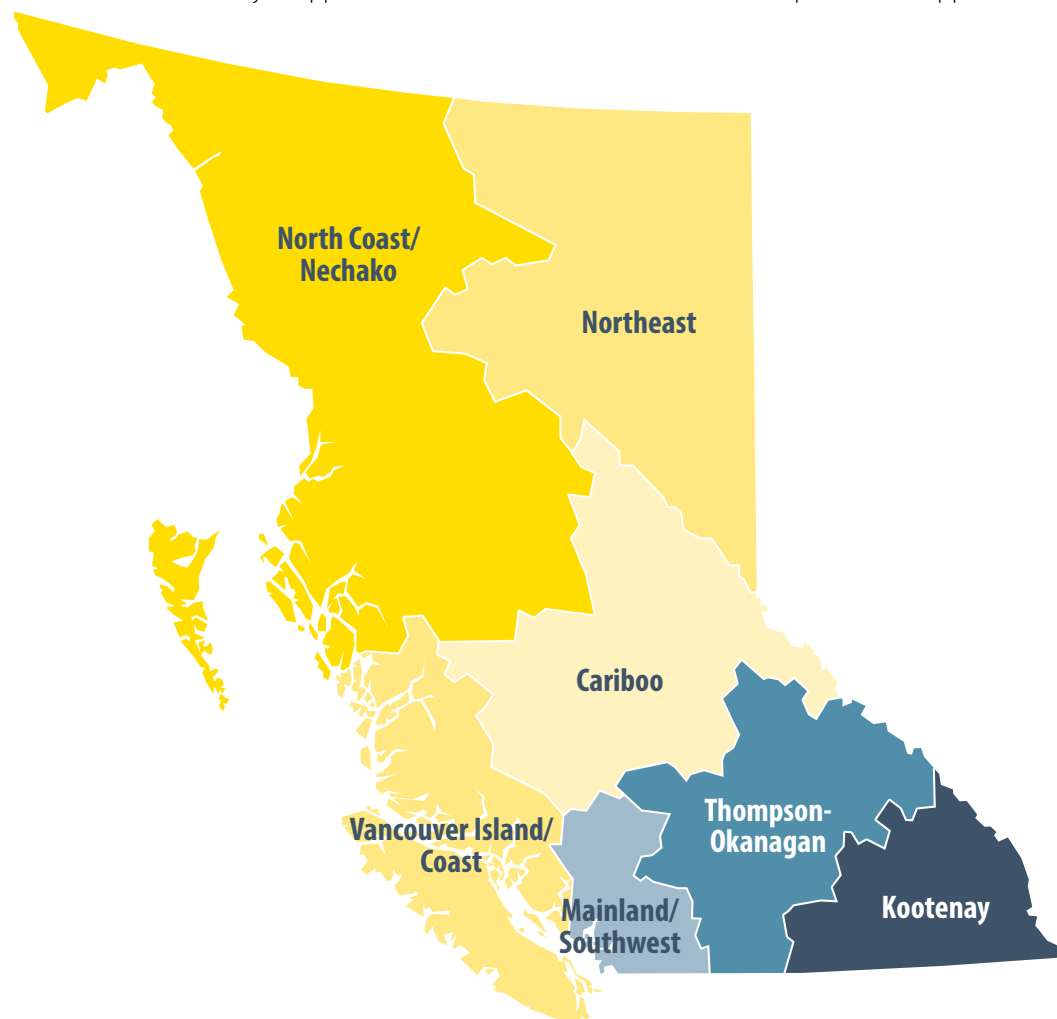


TABLE 2-2: Employment and Job Openings by Development Region

Region	Employment 2018	10-year Employment Growth Rate 2018-2028	Job Openings		
			Expansion 2018-2028	Replacement 2018-2028	Total 2018-2028
Vancouver Island/Coast	390,000	1.1%	44,600	109,220	153,820
Mainland/Southwest	1,609,000	1.2%	208,200	380,270	588,470
Thompson-Okanagan	266,000	0.7%	19,460	71,730	91,190
Kootenay	71,000	0.6%	4,390	19,690	24,080
Cariboo	82,000	0.3%	1,820	16,260	18,080
North Coast/Nechako	43,000	0.9%	3,810	9,180	12,990
Northeast	40,000	1.4%	5,980	8,390	14,380
British Columbia	2,501,000	1.1%	288,000	615,000	903,000

Total of regions do not sum to the B.C. total due to rounding.

HIGH DEMAND OCCUPATIONS

The entire B.C. workforce is grouped into 500 occupations and all are important to the economy of the province. All projected job openings need to be matched to people so that there is continued growth in the prosperity of British Columbians.

The job openings forecast for each of the 500 occupations is provided in Appendix 6. However, some of the occupations do offer better future prospects than others. To help people in B.C. to make more informed and effective career, education or training decisions, all 500 occupations have been ranked to show their relative position in terms of future job opportunities. This ranking was then used to make a list of High Demand Occupations.⁵

Using the data from the High Demand Occupations list provides the opportunity to focus on occupations that have a stronger need for additional workers than many other occupations. The list is developed by asking the three questions in Figure 3.1.

FIGURE 3-1: Criteria of High Demand Occupations List



Information on how the list is developed and the methodology used is included in Appendix 4.

When considering career options, there are many factors to keep in mind. This is discussed later in this report in the “Work as a Personal Choice” section of the Emerging Themes chapter.

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5 The B.C. Labour Market Outlook 2017 Edition included a list of 73 High Demand Occupations plus eight priority health occupations. This year, the list is expanded to 100 occupations plus 13 priority health occupations.



HIGH DEMAND OCCUPATIONS LIST

TABLE 3-1: *List of High Demand Occupations, B.C., 2018-2028*

Occupation	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	NOC Code
High Demand Occupations in Management Usually Requiring a Combination of Education and Work Experience (33 Occupations)					
Retail and wholesale trade managers	20,600	\$14.42	\$28.00	\$52.88	0621
Restaurant and food service managers	7,800	\$12.67	\$18.75	\$38.46	0631
Senior managers - financial, communications and other business services	5,100	N/A	N/A	N/A.	0013
Facility operation and maintenance managers	4,800	\$19.85	\$35.10	\$57.00	0714
Computer and information systems managers	4,800	\$26.44	\$43.27	\$69.40	0213
Financial managers	4,700	\$21.03	\$40.86	\$67.31	0111
Corporate sales managers	4,700	\$17.79	\$36.35	\$49.04	0601
Banking, credit and other investment managers	4,100	\$24.04	\$41.03	\$60.10	0122
Senior managers - construction, transportation, production and utilities	3,900	\$21.50	\$47.65	\$90.77	0016
Advertising, marketing and public relations managers	3,500	\$19.64	\$38.00	\$75.00	0124
Senior managers - trade, broadcasting and other services	3,500	\$20.00	\$36.91	\$76.91	0015
Insurance, real estate and financial brokerage managers	3,300	\$21.00	\$42.56	\$75.90	0121
Managers in agriculture	3,200	N/A	N/A	N/A	0821
Managers in transportation	3,000	\$19.75	\$35.00	\$64.90	0731
Home building and renovation managers	2,900	\$14.00	\$20.00	\$32.61	0712
Accommodation service managers	2,900	\$15.00	\$24.00	\$36.06	0632
Other administrative services managers	2,700	N/A	N/A	N/A	0114
Managers in social, community and correctional services	2,500	\$23.47	\$38.46	\$62.50	0423
Human resources managers	2,300	\$22.85	\$34.19	\$57.69	0112
Senior managers - health, education, social and community services and membership organizations	2,100	\$16.31	\$37.29	\$75.50	0014
Other business services managers	2,100	\$20.00	\$32.31	\$51.28	0125
Managers in customer and personal services	2,000	\$15.00	\$21.63	\$35.00	0651
School principals and administrators of elementary and secondary education	1,700	\$24.00	\$41.96	\$52.88	0422
Purchasing managers	1,600	\$20.10	\$37.56	\$65.22	0113
Administrators - post-secondary education and vocational training	1,300	\$17.86	\$36.89	\$61.10	0421
Engineering managers	1,200	\$33.00	\$50.75	\$72.31	0211
Senior government managers and officials	1,200	\$24.66	\$48.52	\$79.51	0012
Recreation, sports and fitness program and service directors	1,000	\$11.35	\$26.03	\$47.07	0513
Managers - publishing, motion pictures, broadcasting and performing arts	800	\$18.33	\$29.42	\$49.04	0512
Utilities managers	800	\$15.13	\$45.05	\$85.39	0912
Architecture and science managers	600	\$16.31	\$39.44	\$75.39	0212
Government managers - economic analysis, policy development and program administration	500	\$25.98	\$41.66	\$62.39	0412
Other managers in public administration	500	\$30.77	\$47.80	\$62.50	0414
High Demand Occupations Usually Requiring Bachelor's, Graduate or First Professional Degree (26 Occupations)					
Financial auditors and accountants	10,800	\$17.00	\$27.88	\$47.00	1111
Elementary school and kindergarten teachers	10,100	\$20.51	\$32.05	\$46.63	4032
Information systems analysts and consultants	8,700	\$23.08	\$38.46	\$52.88	2171
Computer programmers and interactive media developers	8,000	\$22.00	\$38.46	\$55.77	2174
Other financial officers	6,600	\$20.19	\$32.31	\$57.69	1114
Lawyers*	5,400	\$39,811*	\$106,361*	\$269,702*	4112
Professional occupations in business management consulting	4,800	\$20.00	\$36.00	\$51.43	1122

Occupation	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	NOC Code
Software engineers and designers	4,800	\$24.04	\$38.46	\$52.88	2173
Professional occupations in advertising, marketing and public relations	4,300	\$16.00	\$27.00	\$48.08	1123
College and other vocational instructors	4,000	\$17.00	\$33.65	\$50.48	4021
Civil engineers	3,900	\$20.19	\$35.00	\$67.00	2131
University professors and lecturers	3,800	\$17.31	\$38.46	\$69.23	4011
Business development officers and marketing researchers and consultants	3,300	\$16.00	\$31.25	\$43.59	4163
Human resources professionals	3,100	\$17.58	\$32.05	\$54.87	1121
Producers, directors, choreographers and related occupations	3,000	\$15.81	\$26.44	\$60.00	5131
Social workers	2,800	\$19.00	\$30.00	\$42.00	4152
Family, marriage and other related counsellors	2,600	\$18.00	\$26.74	\$37.45	4153
Web designers and developers	2,300	\$16.00	\$25.00	\$50.00	2175
Authors and writers	2,100	\$11.35	\$25.48	\$37.50	5121
Health policy researchers, consultants and program officers	1,800	\$19.00	\$30.42	\$49.45	4165
Architects	1,700	\$22.66	\$30.77	\$40.00	2151
Financial and investment analysts	1,600	\$18.46	\$33.52	\$50.00	1112
Natural and applied science policy researchers, consultants and program officers	1,300	\$24.62	\$35.00	\$53.37	4161
Securities agents, investment dealers and brokers	1,300	N/A	N/A	N/A	1113
Computer engineers (except software engineers and designers)	1,100	\$25.48	\$40.50	\$50.61	2147
Psychologists	1,000	\$16.00	35.35	\$51.00	4151
High Demand Occupations Usually Requiring Diploma, Certificate or Apprenticeship Training (33 Occupations)					
Administrative officers	17,100	\$15.00	\$23.38	\$33.00	1221
Social and community service workers	11,800	\$15.00	\$19.50	\$28.85	4212
Accounting technicians and bookkeepers	10,600	\$13.13	\$20.83	\$32.05	1311
Administrative assistants	9,700	\$14.42	\$22.00	\$30.00	1241
Early childhood educators and assistants	8,900	\$13.00	\$16.95	\$24.04	4214
Real estate agents and salespersons*	7,100	\$23,016*	\$44,753*	\$103,667*	6232
Automotive service technicians, truck and bus mechanics and mechanical repairers	6,400	\$14.00	\$28.00	\$38.46	7321
Graphic designers and illustrators	5,000	\$15.38	\$25.50	\$37.00	5241
Hairstylists and barbers	5,000	\$11.35	\$14.00	\$22.50	6341
Program leaders and instructors in recreation, sport and fitness	4,900	\$12.00	\$20.00	\$27.92	5254
Technical sales specialists - wholesale trade	4,600	\$14.00	\$25.38	\$46.63	6221
Property administrators	4,000	\$11.54	\$20.00	\$33.76	1224
Police officers (except commissioned)	3,800	\$25.50	\$40.00	\$50.71	4311
Insurance agents and brokers	3,500	\$14.00	\$22.00	\$35.90	6231
Financial sales representatives	3,300	\$13.75	\$23.08	\$33.65	6235
Computer network technicians	3,300	\$21.60	\$33.65	\$57.69	2281
Electronic service technicians (household and business equipment)	3,000	\$15.70	\$23.00	\$38.31	2242
Retail sales supervisors	2,800	\$11.51	\$18.27	\$33.65	6211
Supervisors, supply chain, tracking and scheduling co-ordination occupations	2,700	\$15.00	\$22.00	\$40.06	1215
Legal administrative assistants	2,700	\$15.00	\$24.00	\$32.00	1242
Executive assistants	2,200	\$17.50	\$25.50	\$31.28	1222
User support technicians	2,200	\$18.00	\$28.97	\$48.08	2282
Medical administrative assistants	2,000	\$15.00	\$22.00	\$31.25	1243
Airline pilots, flight engineers and flying instructors	1,600	N/A	N/A	N/A	2271
Paralegal and related occupations	1,500	\$13.85	\$27.00	\$45.67	4211
Insurance adjusters and claims examiners	1,500	\$14.00	\$31.00	\$48.00	1312

Occupation	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	NOC Code
Firefighters	1,400	\$27.00	\$40.00	\$52.00	4312
Aircraft mechanics and aircraft inspectors	1,400	\$20.90	\$34.00	\$45.19	7315
Human resources and recruitment officers	1,400	\$17.79	\$27.00	\$38.46	1223
Supervisors, finance and insurance office workers	1,300	\$17.87	\$28.72	\$46.15	1212
Photographers	1200	N/A	N/A	N/A	5221
Non-commissioned ranks of the Canadian Armed Forces	1200	\$16.21	\$28.21	\$37.38	4313
Customs, ship and other brokers	300	\$11.35	\$21.85	\$39.50	1315

High Demand Occupations Usually Requiring High School and/or Occupation Specific Training (8 Occupations)

Receptionists	9,600	\$11.35	\$17.58	\$25.00	1414
Food and beverage servers	8,200	\$11.35	\$11.35	\$15.69	6513
Home support workers, housekeepers and related occupations	7,100	\$11.35	\$16.75	\$23.00	4412
Home childcare providers	4,700	\$11.35	\$12.00	\$21.60	4411
Taxi and limousine drivers and chauffeurs	2,900	\$11.35	\$15.38	\$30.00	7513
Couriers, messengers and door-to-door distributors	1,800	\$11.35	\$12.50	\$25.00	1513
Letter carriers	1,600	\$18.00	\$25.00	\$28.00	1512
Mail, postal and related workers	1,300	\$11.35	\$18.00	\$26.00	1511

High Demand Health Occupations (Priority Health Occupations identified by the B.C. Ministry of Health) (13 Occupations)

Occupation	Employment 2018	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	NOC Code
Family physicians*	6,218**	\$41,800*	\$209,000*	\$405,800*	3112
Nurse Practitioners	N/A	N/A	N/A	N/A	-
Health care assistants	34,717	\$16.00	\$21.00	\$27.00	3413
Physiotherapists	3,758	\$20.00	\$37.00	\$44.76	3142
Occupational therapists	2,200	\$31.00	\$38.42	\$42.00	3143
Geriatricians*	49**	\$107,300*	\$282,900*	\$434,200*	-
Licensed practical nurses	9,612	\$22.60	\$27.00	\$29.50	3233
Perfusionists	59**	\$48.60	\$50.37	\$52.43	-
Specialty registered nurses	47,396	\$23.00	\$37.00	\$43.00	3012
Psychiatrists*	838**	\$70,900*	\$239,700*	\$480,200*	-
Sonographers	743	\$20.21	\$37.11	\$48.56	3216
Paramedics	3,182	\$17.00	\$26.78	\$39.66	3234
Dermatologists*	66**	\$76,800*	\$320,600*	\$643,900*	-

Notes:

- Occupations **highlighted** refer to moving to balance occupations. These are occupations that have fallen in the ranking relative to other occupations and will be monitored for possible elimination from the list in the next edition if current conditions continue.
- The wage rate refers to the Job Bank hourly wage rate (from Employment and Social Development Canada) which was updated in 2017, unless otherwise noted. For occupations with a "*", the annual wage rate is provided as the hourly wage rate is not available. In some cases, no wage data is available and this is indicated with "N/A".
- Employment figures marked with a "**" refer to 2017 employment estimates from the B.C. Ministry of Health. Employment data for other health occupations refer to 2018 employment estimates from the Labour Market Outlook.
- Wage data for Perfusionists, Family physicians, Geriatricians, Psychiatrists, and Dermatologists is from the B.C. Ministry of Health, representing gross earnings before the payment of office and other overhead expenses.

Which industries contain the largest number of High Demand Occupations?

The total employment of High Demand Occupations is estimated to be over 1,062,000 in 2018. They are spread across a wide range of industries and there is not a strong concentration in a small number of industries. The top industry accounts for about six percent of High Demand Occupation employment, which is not a large share. Even the top 10 industries only represent about half of total employment (please see Table 3-2).

TABLE 3-2: Top 10 Industries with the Largest Employment of High Demand Occupations, 2018

Industry	Employment 2018	Share to All Industries
Hospitals	65,900	6.2%
Legal, accounting, design, research, and advertising services	65,500	6.2%
Other retail trade (excluding cars and personal care)	64,400	6.1%
Repair, personal and non-profit services	59,100	5.6%
Social assistance	56,700	5.3%
Food services and drinking places	49,500	4.7%
Ambulatory health care services	49,400	4.6%
Finance	49,200	4.6%
Elementary and secondary schools	45,700	4.3%
Real estate rental and leasing	42,500	4.0%
Other industries	514,600	48.4%
All industries	1,062,400	100.0%

Table 3-3 shows the top 10 industries with the highest share of High Demand Occupations as part of their employment. These are the industries that have the highest dependence on these occupations. Overall, the High Demand Occupations represent 42 percent of total employment in 2018. However, they represent 88 percent of employment in both Social assistance and Computer systems design and related services.

TABLE 3-3: Top 10 Industries with the Highest Concentration of Employment of High Demand Occupations, 2018

Industry	Employment High Demand Occupations Total	Employment All 500 Occupations Total	Employment Share of High Demand Occupations
Social assistance	56,700	64,100	88%
Computer systems design and related services	42,100	47,800	88%
Insurance carriers and related activities	25,200	32,000	79%
Real estate rental and leasing	42,500	54,700	78%
Community colleges	7,900	10,300	77%
Finance	49,200	65,800	75%
Nursing and residential care facilities	38,500	51,800	74%
Legal, accounting, design, research, and advertising services	65,500	91,900	71%
Publishing industries	8,700	12,300	71%
Hospitals	65,900	101,200	65%
Other industries	660,300	1,969,500	34%
All industries	1,062,400	2,501,100	42%

Emerging Themes

AUTOMATION OF WORK

Emerging technologies have revolutionized our personal and professional lives for decades. They also have the potential to make life easier and increase the efficiency of the province's economy. Smartphones, tablets, web-based applications, self-serve kiosks, online banking and even artificial intelligence (AI) are a large part of what we rely on day to day. Automation is so prevalent in our lives that it is often taken for granted and goes unnoticed.

Automation is the use of technology to replace, change or assist physical or mental tasks done by human beings. In many ways, it makes life and work easier. Yet, with it comes an underlying fear that machines will replace people; that automation will cause unemployment. In fact, it can increase the productivity of workers, allowing individuals to accomplish repetitive or mundane tasks more quickly or effectively and with fewer errors. And it can open doors for the person to undertake more interesting, rewarding and valuable duties as a part of their job. History shows that automation creates new tasks and new types of jobs.⁶ The nature of these new tasks and the speed at which they are adopted will both be shaped by the decisions of individual workers and employers.

As discussed in Appendix 5, the Outlook forecast incorporates an assumption that some basic level of automation will take place in such a way that the historical labour productivity⁷ growth trend will continue over the next 10 years. However, analysts have highlighted the possibility that we could see more rapid rates of automation than what is assumed in this forecast.⁸ This section of the *Outlook: 2018 Edition* investigates the possible impact.

Over the next 10 years, employment is not expected to be reduced as a result of automation. Based on the findings of Frey and Osborne (2013), specific positions will only be affected in that some tasks will be automated, not the whole job. Still, it is realistic to recognize that the process of automation and the transition to new technologies by employers can impact industries and occupations positively or negatively or a combination of both.

Industries struggling with labour shortages can benefit from automation. For example, even with young people starting out in the workforce, in-migration and immigration, the province is still facing a gap of about 130,000 job openings. There is a need to find additional people or ways to meet this need. More rapid automation could play a role in filling this gap.

Some workers may find it challenging to adapt to changes that come from increased automation. They may lack specific skills and competencies that would allow them to take on new tasks or new positions. Others may not be able to change their place of residence in order to be closer to better job opportunities; a lack of transportation or concerns about losing specific benefits through a job change could also be barriers in this area.

Overall, the prospect of increased automation in British Columbia is expected to be positive. It will help to address shortages. It will also help workers to focus on higher value tasks that rely on more innate human traits such as communication, critical thinking and social perceptiveness.

Automation will open up new opportunities. Certainly workers will be needed to develop, install and maintain the new technologies. Also, the nature of jobs will shift and increase demand for new skills. For example, in the banking industry, the adoption of Artificial Intelligence (AI) Platforms such as Robo-advisory services and e-transfers did not result in the elimination of front line jobs. However, it did dramatically change the duties of customer representatives shifting from typical tasks of answering basic questions to undertaking a broader and more complex range of sales and customer service responsibilities.

6 Daron Acemoglu and Pascual Restrepo (2018), *Artificial Intelligence, Automation and Work*.

7 Labour productivity is the amount of Gross Domestic Product produced per worker.

8 Creig Lamb (2016), *The Talented Mr. Robot: The impact of automation on Canada's workforce*. Brookfield Institute and Carl Frey and Michael Osborne (2013), *The Future of Employment: How susceptible are jobs to computerisation?* University of Oxford.

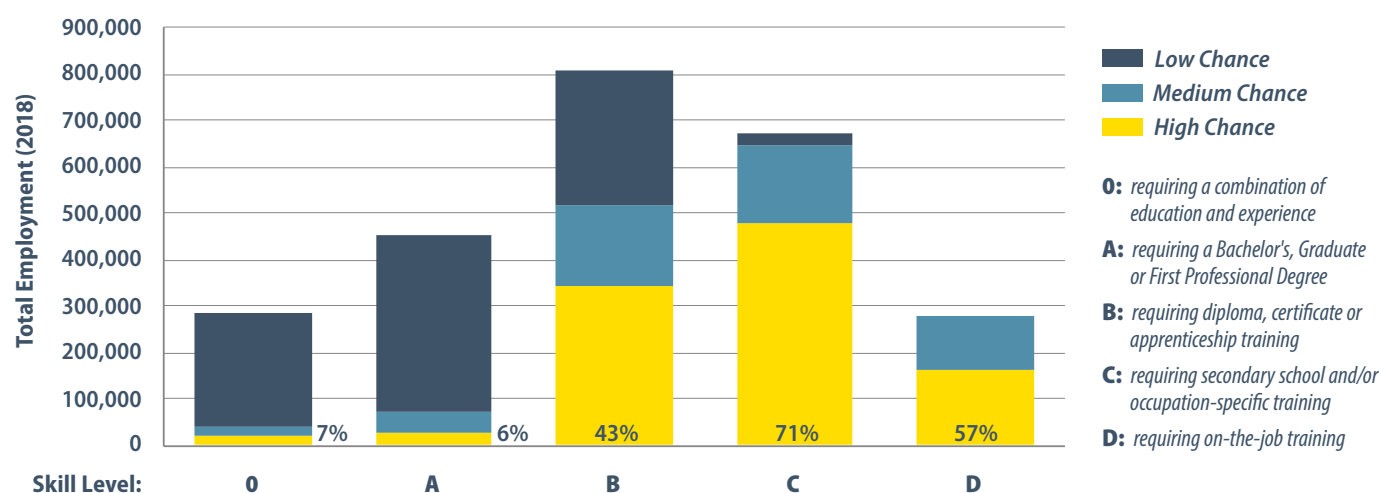
Government can help raise awareness of the benefits and risks of automation so that the education and training system is ready to help people prepare for and adjust to changes.

WHAT COULD THE IMPACT BE?

Based on the findings of Frey and Osborne (2013)⁹ and Lamb (2016)¹⁰ (researchers who reported on the likelihood of automation being adopted for each occupation), it is estimated that 36 percent of the 500 occupations in B.C. have a high chance of being affected by automation. These occupations represent 166,000 of projected job openings over the next 10 years. This potential for change offers both challenges and tremendous opportunities for the people of B.C.

As illustrated in Figure 4-1, the impact of automation is likely to be concentrated in lower-skilled jobs. Among the occupations that typically require only high school, over 70 percent of workers have a high chance of being affected by automation in part of or the entire job. For those that usually require less than high school, 57 percent of workers have a high chance of being affected. Occupations that, as a rule, need a degree generally have a low chance—six percent of current employment—of facing the possibility of being affected.

FIGURE 4-1: Estimated Automation Impact on the Number of Employment by Skill Level



Automation continues to be a topic of research interest around the world. Some researchers point to the risk that dramatic advances in artificial intelligence (AI) and machine learning could change or eliminate jobs at a much higher rate of change than an average worker or workforce can adapt to. At the other end of the spectrum, some studies contend that impacts based on the Frey & Osborne analysis of automation are over-estimated.¹¹

However, most studies are consistent in showing that the likelihood of being automated are not distributed equally across occupations. The importance in establishing policies and programs to facilitate retraining and, when needed, provide social protection for those unable to adapt is also highlighted.

The research shows general agreement about “bottlenecks to automation.” There is a range of skills and competencies that are difficult to automate. These include: “social intelligence, such

⁹ Carl Frey and Michael Osborne (2013).

¹⁰ Creig Lamb (2016).

¹¹ See the literature survey (and their own estimates) in Nedelkoska, L. and G. Quintini (2018), “Automation, skills use and training”, *OECD Social, Employment and Migration Working Papers*, No. 202, OECD Publishing, Paris. <http://dx.doi.org/10.1787/2e2f4eea-en>

as the ability to effectively negotiate complex social relationships, including caring for others or recognizing cultural sensitivities; cognitive intelligence, such as creativity and complex reasoning; and perception and manipulation, such as the ability to carry out physical tasks in an unstructured work environment.”¹²

In B.C., many of the occupations that have a high chance of automation are currently experiencing labour shortages.¹³

Automation could offer an opportunity for workers to earn higher wages and is an example of the importance of an individual’s ability to adapt to changing technologies and the needs of employers. Going forward, a person’s long-term success in the labour market will rely on their adaptability and capacity to develop transferable skills and competencies.

This information points to the importance of British Columbians understanding the skills and competencies that will be in highest demand in the future, so that they can be as resilient and adaptable as possible.

DEMAND FOR SKILLS AND COMPETENCIES

The people of this province will need a strong foundation of skills and workforce competencies as they plan their career paths and go after the opportunities offered in the 21st Century economy.¹⁴ As discussed in the previous section, technological advancements such as artificial intelligence, robotics and automation are shaping the future demand for skills and competencies. Additionally, it is expected that about 77 percent of job openings will require people with post-secondary education.

Job seekers and workers can benefit from a greater understanding of the skills and competencies that are needed by employers. As a contribution to this understanding, this section describes the skills and competencies necessary for the future job openings in British Columbia. Demand for skills and competencies for 500 NOC occupations¹⁵ is estimated by linking B.C.’s projected job openings to the U.S. Labour Department dataset called O*NET¹⁶ (Occupational Network Information). This projection is based on the current structure of the skills and competencies required to match people to good jobs. These results are summarized in Figure 4-2.

The study reveals a strong demand for people skills—namely **communication skills** such as **active listening, speaking and reading comprehension**—as well as **critical thinking** (please see definitions in Appendix 1).

The findings show that demand for STEM¹⁷-related skills and competencies, such as **programming, science, mathematics (or numeracy), and technology design**, are critical for particular occupations such as computer programmers, software engineers, mathematicians,

As measured by future B.C. job openings, these are some of the top occupations with a high chance of being affected by automation:

- » Retail salespersons
- » Food counter attendants & kitchen helpers
- » Accounting technicians and bookkeepers
- » Administrative officers
- » General office support workers
- » Drivers
- » Cooks
- » Accounting and related clerks
- » Administrative assistants
- » Food and beverage servers
- » Receptionists
- » Cashiers
- » Carpenters
- » Shippers and receivers
- » Heavy equipment operators
- » Welders

These are all jobs that employers are currently having difficulty in filling, based on above average reported vacancy rates.

12 Ibid. p. 6.

13 Based on analysis of data from Statistics Canada’s Job Vacancy and Wage Survey. The top 16 occupations in terms of future job openings, with high a chance of being affected by automation all currently are ranked above average in terms of vacancies.

14 “Skills” is the ability to perform tasks due to one’s knowledge, learning or practice. “Competencies” is the ability to apply skills and knowledge to perform complex tasks well and to adapt easily to the activities of a variety of jobs. See Appendix 1 for additional definitions.

15 NOC stands for National Occupational Classification. Three occupations have been dropped through the process of mapping the O*NET dataset in SOC (Standard Occupational Classification) to NOC, including Commissioned Officers of the Canadian Armed Forces (NOC 0433), Other religious occupations (NOC 4217) and Non-Commissioned ranks of the Canadian Armed Forces (NOC 4313).

16 U.S. Department of Labor, Employment and Training Administration, O*NET database version 22.3 released in May 2018, <https://www.onetcenter.org/database.html>. See Appendix 1 for additional information about the concepts in this data set.

17 STEM stands for Science, Technology, Engineering and Mathematics.

statisticians and actuaries, physicists, and chemists. However, these skills are not ranked highly across the wide range of other occupations.

The competencies required to do a job vary across occupational groups as a result of the nature of the work. For instance, **social perceptiveness** and **service orientation** are very important for health and sales & service occupations, while **operation and control** are essential for natural resources, agriculture and related production occupations as well as those in manufacturing and utilities. Likewise, 100 percent of projected job openings for management occupations highly require active listening skills, compared to 19 percent for manufacturing and utilities occupations (please see Figure 4-3).

As the types of skills and competencies needed in the labour market continually shift and evolve, it is crucial to proactively align B.C.'s workforce to meet the demands of a changing world. Employees looking for new ways to differentiate themselves in the labour market can add value to their credentials by learning new skills and competencies and by gaining higher levels of proficiency in their existing ones. Continuing education and training programs, at all levels, are necessary to give the existing workforce the opportunities to upgrade their abilities in order to succeed in today's and tomorrow's economy.

Top skills of the future

- » *Active listening is identified as a "very important" skill for 73 percent of total projected job openings in B.C.*
- » *Speaking is "very important" for 65 percent of job openings.*
- » *Reading comprehension is "very important" for 56 percent of job openings.*
- » *Critical thinking is "very important" for 55 percent of job openings.*

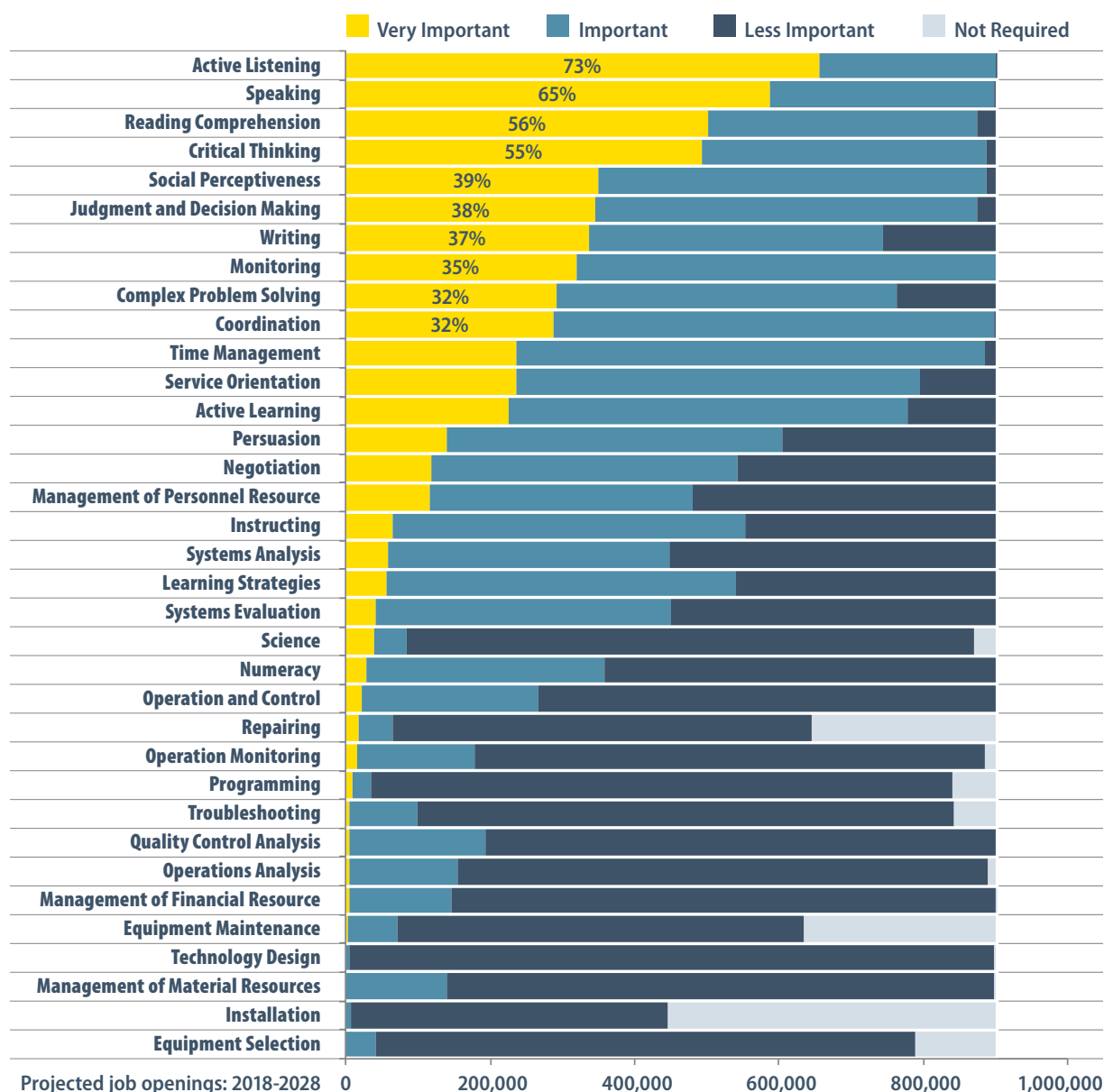
Top competencies of the future

- » *Social perceptiveness and judgement and decision making are identified as "very important" for almost 40 percent of job openings.*

(Please see Figure 4-2 for more details.)



FIGURE 4-2: Projected Demand for Skills and Competencies, B.C., 2018-2028



Source: The analysis was based on the U.S. Department of Labor, Employment and Training Administration's O*NET database version 22.3, released in May 2018, <https://www.onetcenter.org/database.html> and British Columbia Labour Market Outlook: 2018 Edition.

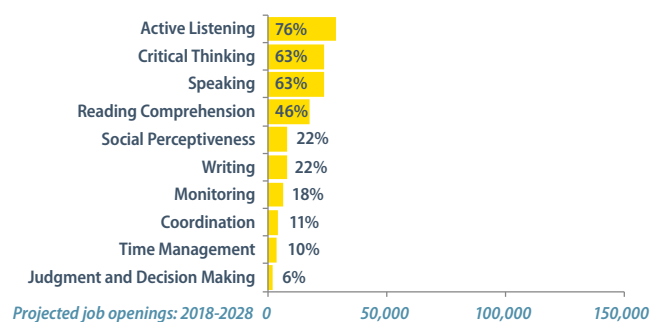
Note: The chart indicates the share of projected job openings for each of the 35 work-related skills and competencies identified as "very important" in descending order.

FIGURE 4-3: Projected Demand for Skills and Competencies by Occupational Group, B.C., 2018-2028

Management occupations



Occupations in art, culture, recreation and sport



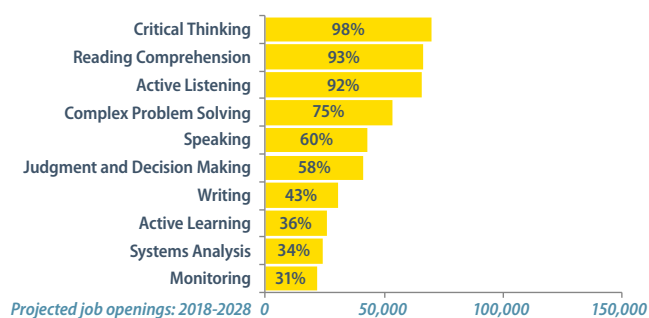
Business, finance and administration occupations



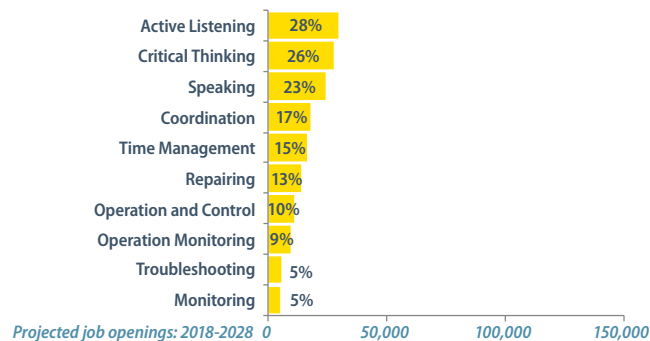
Sales and service occupations



Natural and applied sciences and related occupations



Trades, transport and equipment operators and related occupations



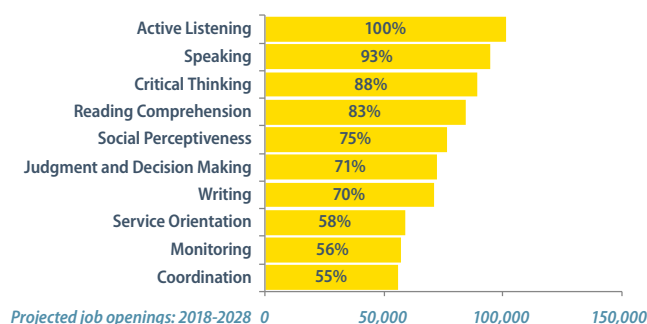
Health occupations



Natural resources, agriculture and related production occupations



Occupations in education, law and social, community and government services



Occupations in manufacturing and utilities



Source: The analysis was based on the U.S. Department of Labor, Employment and Training Administration's O*NET database version 22.3, released in May 2018, <https://www.onetcenter.org/database.html> and British Columbia Labour Market Outlook: 2018 Edition.

Note: The chart indicates the share of projected job openings for each of the 35 work-related skills and competencies identified as "very important" in descending order.

THE MEANING OF WORK

This report covers a wide range of factors for people to consider when planning their working life. Identifying which jobs will be in high demand in the future is one step. Understanding the education, skill and competency requirements can help pinpoint what is needed to succeed on a chosen career path. And, establishing a clear view on a person's current education credentials, skills and competencies can help each person to more fully decide on the right career choice for them moving forward.

Another set of factors for both learners and job seekers to consider is how they—as individuals—define work and how career decisions can be shaped by their personal characteristics. Most workers in B.C. need to work in order to afford today's cost of living. Still, to the extent that it is possible, job seekers can also take stock of what they value in life and use that as a guide for their career choices. For example, acknowledging and addressing individual requirements around work/life balance helps create success in the long run.

Key questions to ask include:

- ▶ What does work mean to you?
- ▶ How does work factor into the other things you want to do in life?
- ▶ What are your abilities, work styles, values and occupational interests and how do these affect your career plans?

Defining the Meaning of "Work"

Much of traditional labour market analysis is based on the concept of working for an employer (employment) or customers/clients (self-employment) that involves both:

- ▶ the exchange of labour for money; and
- ▶ being measured by official labour market statistics.

In reality, there are many other types of work that generate personal and social benefits. Examples include:

- ▶ Caring for children, the elderly and other people with other needs
- ▶ Running a home
- ▶ Harvesting and hunting for food or other goods
- ▶ Fulfilling cultural, community, religious, family and other duties or responsibilities
- ▶ Charitable work/volunteering

With this in mind, there are many people who are not officially counted as being "employed" or in the "labour force," yet they are generating real benefits in other types of unmeasured or non-professional work.

In addressing the need to identify “additional supply requirements” referred to in Chapter 2, it is important to acknowledge this. It could be the case that because individuals have other responsibilities and preferences outside of conventional employment, they have less time available for “official” work than might be presumed.

Personal Characteristics

A person’s history, experiences, preferences and interests are key factors to take into consideration when making career decisions. From thinking about which jobs most suit an individual’s experience, skill sets and abilities to which position would offer the most professional or personal satisfaction—taking a holistic rather than segmented view is important. Understanding—on a personal level—what would enable a person to thrive in their work life is also a key factor for success.

Employers realize the value of understanding these elements and typically consider them when reviewing whether a prospective candidate is a good fit for a role and the organization.

The O*Net content model, referred to in the previous section on skills and competencies, provides one example of how to categorize, measure and define personal characteristics. These are enduring personality traits that may influence work performance and the capacity to acquire the knowledge and skills necessary for effective work performance.

The O*Net framework for personal characteristics has four main categories:

- ▶ **Abilities** are a person’s foundational qualities that influence job performance.
- ▶ **Work values** are aspects of work that are made up of specific personal, professional, ethical or emotional requirements that are important to a worker to achieve a sense of satisfaction from their job.
- ▶ **Work styles** are individual elements of how an individual performs tasks and can affect how well they do a specific job.
- ▶ **Occupational interests** address a person’s preferences for their work focus and environment.

Example: Linking Career Decisions To Occupational Interests

The High Demand Occupations list provided earlier in this report is based on criteria that is distinct from personal characteristics—and separate from skills and competencies.

The High Demand Occupations list is based purely on the number of expected job opportunities and how easy it is currently and will be moving forward to get a job in each occupation. While it is a useful list to consider in career planning, it does not reflect any individual’s particular mix of abilities, styles, values and interests. Since it is projected that there will be opportunities in all of the occupations listed over next the 10 years, it also means that there are employment prospects for workers with wide-ranging interests.

For example, a person might consider a range of elements within the context of their occupational interests when career planning. They would do this by taking the search beyond what jobs are available and digging deeper to find out what work would fit with their interests, knowledge, skills and longer-term plans. Figure 4-4 provides for each category of O*Net occupational interests, a sample of some of the larger occupations that have a high connection to each occupational interest category.

FIGURE 4-4: Sample Occupations by O*Net Occupational Interest Group¹⁸

HANDS-ON <i>"practical, hands-on"</i>	SOCIAL <i>"working with and helping people"</i>	ARTISTIC <i>"design and self-expression"</i>
<ul style="list-style-type: none"> » Electrical and electronics engineers » Aerospace engineers » Cooks » Carpenters » Automotive service technicians » Electricians » Electronic service technicians » Welders » Painters » Heavy-duty equipment mechanics » Material handlers » Drivers » Heavy equipment operators » Sawmill machine operators » General farm workers 	<ul style="list-style-type: none"> » Teachers » Social workers » Family, marriage and other related counsellors » Professional occupations in religion » Post-secondary teaching and research assistants » Physiotherapists » Educational counsellors » Occupational therapists » Early childhood educators and assistants » Licensed practical nurses » Massage therapists » Paramedical occupations » Practitioners of natural healing » Nurse aides, orderlies and patient service associates » Food and beverage servers 	<ul style="list-style-type: none"> » Teachers » Producers, directors, choreographers and related occupations » Web designers and developers » Musicians and singers » Authors and writers » Painters, sculptors and other visual artists » Architects » Editors » Actors and comedians » Journalists » Urban and land use planners » Early childhood educators and assistants » Graphic designers and illustrators » Drafting technologists and technicians » Interior designers and interior decorators
INVESTIGATIVE <i>"thinking and working with ideas"</i>	ENTERPRISING <i>"business and risk taking"</i>	ROUTINIZED <i>"established rules and procedures"</i>
<ul style="list-style-type: none"> » Computer programmers and interactive media developers » Software engineers and designers » Civil engineers » General practitioners and family physicians » Electrical and electronics engineers » Specialist physicians » Mechanical engineers » Pharmacists » Biologists and related scientists » Dentists » Psychologists » Geoscientists and oceanographers » Dietitians and nutritionists » Urban and land use planners » Industrial and manufacturing engineers 	<ul style="list-style-type: none"> » Retail and wholesale trade managers » Restaurant and food service managers » Construction managers » Corporate sales managers » Manufacturing managers » Real estate agents and salespersons » Chefs » Retail sales supervisors » Insurance agents and brokers » Retail and wholesale buyers » Conference and event planners » Retail salespersons » Sales and account representatives—wholesale trade (non-technical) » Tour and travel guides » Outdoor sport and recreational guides 	<ul style="list-style-type: none"> » Financial auditors and accountants » Database analysts and data administrators » Librarians » Administrative officers and assistants » Accounting technicians and bookkeepers » Executive assistants » General office support workers » Receptionists » Accounting and related clerks » Storekeepers and parts persons » Data entry clerks » Casino occupations » Survey interviewers and statistical clerks » Cashiers » Store shelf stockers, clerks and order fillers

¹⁸ Note: occupations can be aligned to more than one interest category. See Appendix 1 for description of each category.

APPENDIX 1: *Definitions*

LABOUR MARKET DEFINITIONS

- ▶ **Expansion Job Openings:** New job openings that arise due to economic growth between 2018 and 2028.
- ▶ **Immigrants:** Net in-migration from persons moving to British Columbia from outside of Canada.
- ▶ **Labour Demand:** The number of employed people plus unfilled positions.
- ▶ **Labour Supply:** The labour force, encompassing those who work and those who are actively looking for work.
- ▶ **Net Additional Supply Requirements:** This concept captures different types of mobility in the labour market, such as people re-entering the labour market after a period of absence or increasing their skills later in life.
- ▶ **Net In-Migration:** Net of the inflow and outflow of persons from/to B.C. Persons could be moving from/to other provinces or from outside of Canada.
- ▶ **People from other provinces:** Net in-migration from jurisdictions in Canada outside of the province of British Columbia.
- ▶ **Replacement Job Openings:** Job openings to fill positions that are generated by a permanent exit from the labour force from 2018-2028. This includes exits due to retirements, illness, disabilities, deaths and other reasons.
- ▶ **Young People Starting Work:** Persons, 17-29 years old, starting work for the first time after graduating from/leaving the education system.



O*NET SKILLS AND COMPETENCIES DEFINITIONS ¹⁹

The O*NET is a comprehensive database that contains information on occupational characteristics as well as worker characteristics and requirements for almost 1000 occupations based on the Standard Occupational Classification (SOC). The O*NET database is collected and updated through ongoing surveys of workers in each occupation supplemented in some cases by occupation experts. The database describes occupations in terms of the skills, knowledge, education, abilities and work values required as well as how the work is performed in terms of tasks, work activities and other work characteristics.

The O*NET dataset identified a total of 35 work-related skills.

- ▶ 10 basic skills (called skills in this report)
 - ▶ Reading Comprehension, Active Listening, Writing, Speaking, Numeracy, Science, Critical Thinking, Active Learning, Learning Strategies, and Monitoring; and
- ▶ 25 cross-functional skills (called competencies in this report)
 - ▶ Social Perceptiveness, Coordination, Persuasion, Negotiation, Instructing, Service Orientation, Judgment and Decision Making, Systems Analysis, Systems Evaluation, Time Management, Management of Financial Resources, Management of Material Resources, Management of Personnel Resources, Operations Analysis, Technology Design, Equipment Selection, Installation, Programming, Operation Monitoring, Operation and Control, Equipment Maintenance, Troubleshooting, Repairing, and Quality Control Analysis.
- ▶ **Active Learning:** *Understanding how new information could be used to solve current and future problems in making decisions.*
- ▶ **Active Listening:** *Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.*
- ▶ **Competencies:** *Ability to perform specific tasks well and to adapt easily to the activities of a variety of jobs.*
- ▶ **Complex Problem Solving:** *Being able to solve novel, ill-defined problems in complex, real-world settings.*
- ▶ **Co-ordination:** *the organization of the different elements of a complex initiative or activity so as to enable items, tasks and people to work together effectively.*
- ▶ **Critical Thinking:** *Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.*
- ▶ **Equipment Maintenance:** *Performing routine maintenance on equipment and determining when and what kind of maintenance is needed.*
- ▶ **Equipment Selection:** *Determining the kinds of tools and equipment needed to do a job.*
- ▶ **Installation:** *Installing equipment, machines, wiring, or programs to meet specifications.*
- ▶ **Instructing:** *Teaching others how to do something.*
- ▶ **Judgement and Decision Making:** *Considering the relative costs and benefits of potential actions to choose the most appropriate one.*
- ▶ **Learning Strategies:** *Choosing and using training, instructional methods and procedures appropriate for the situation when learning or teaching new things.*
- ▶ **Management of Financial Resources:** *Determining how money will be spent to get the work done and accounting for these expenses.*
- ▶ **Management of Material Resources:** *Ensuring the appropriate use of equipment, facilities and materials needed to do identified tasks and projects.*
- ▶ **Management of Personnel Resources:** *Motivating, developing and directing people as they work, and identifying the best people and skill sets for the job.*
- ▶ **Monitoring:** *Keeping track of and assessing your performance, other individuals, or organizations to make improvements or take corrective action.*

¹⁹ Source: The definitions related to skills and competencies are adapted from the U.S. Department of Labor, Employment and Training Administration's O*NET Content Model, <https://www.onetcenter.org/content.html>

- ▶ **Negotiation:** Bringing others together and trying to reconcile differences.
- ▶ **Numeracy:** Using mathematics to solve problems.
- ▶ **Operation and Control:** Controlling operations of equipment or systems.
- ▶ **Operation Monitoring:** Watching gauges, dials or other indicators to make sure that a machine is working properly.
- ▶ **Operation Analysis:** Analyzing operational and product needs to create a design.
- ▶ **Persuasion:** Convincing others to change their mind or behaviour.
- ▶ **Programming:** Writing computer programs for various purposes.
- ▶ **Quality Control Analysis:** Conducting tests and inspections of products, services or processes to evaluate quality or performance.
- ▶ **Reading Comprehension:** Understanding written sentences and paragraphs in work-related documents.
- ▶ **Repairing:** Repairing machines or systems using the needed tools.
- ▶ **Science:** Using scientific rules and methods to solve problems.
- ▶ **Service Orientation:** Actively looking for ways to help people.
- ▶ **Skills:** Ability to perform tasks as a result of one's knowledge, learning or practice.
- ▶ **Social Perceptiveness:** Being aware of others' reactions and understanding why they react as they do.
- ▶ **Speaking:** Talking to others to share information effectively.
- ▶ **Systems Analysis:** Determining how a system should work and how changes in conditions, operations and the environment will affect outcomes.
- ▶ **Systems Evaluation:** Identifying measures or indicators of system performance and the actions needed to improve or correct performance, while meeting the goals of the system.
- ▶ **Technology Design:** Creating or adapting equipment and technology to serve user needs.
- ▶ **Time Management:** Managing one's own time and the time of others.
- ▶ **Troubleshooting:** Determining causes of operating errors and identifying solutions.
- ▶ **Writing:** Communicating effectively through composing text as appropriate for the needs of the audience.

The O*NET dataset is measured in two different scale types, a five-point importance scale and a seven-point level scale. Importance scale indicates the degree of importance a particular "skill" is to the occupation. Level scale indicates the degree to which a particular "skill" is required or needed to perform the occupation. The importance scale was used in the analysis.

O*NET OCCUPATIONAL INTERESTS DEFINITIONS

- ▶ **Hands-on** – Realistic occupations frequently involve work activities that include practical, hands-on problems and solutions. They often deal with plants, animals and real-world materials like wood, tools and machinery. Many of the occupations require working outside and do not involve a lot of paperwork or working closely with others.
- ▶ **Social** – Social occupations usually involve working with, communicating with, and teaching people. These occupations often involve helping or providing service to others.
- ▶ **Investigative** – Investigative occupations typically include working with ideas and require an extensive amount of thinking. These occupations can involve searching for facts and figuring out problems mentally.
- ▶ **Enterprising** – Enterprising occupations are often comprised of starting up and carrying out projects. These occupations can involve leading people and making many decisions. Sometimes they require risk taking and they often deal with business.
- ▶ **Artistic** – Artistic occupations often require working with forms, designs and patterns. They typically require self-expression and the work can be done without following a clear set of rules.
- ▶ **Routinized** – Routinized occupations frequently require following set procedures and routines. These occupations can include working with data and details more than with ideas. Usually there is a clear line of authority to follow.

APPENDIX 2: Detailed Regional Outlook

VANCOUVER ISLAND/COAST

This region encompasses all of Vancouver Island and the coastal region spanning from Powell River to Bella Coola and Bella Bella in the north.

Despite being British Columbia's second most populated region, much of this pristine area remains rural and sparsely populated. The vast majority of residents live in the capital region around Victoria and in the mid-island region stretching from Nanaimo north to Campbell River.

In part because of the temperate coastal climate, the region is known to be popular among retirees and its labour market numbers reflect this. The region's population is older than the province average overall and labour force participation here is the lowest among regions (at 60.8 percent in 2017).

About 15.7 percent of B.C.'s workers are employed in the Vancouver Island/Coast region, with the unemployment rate in 2017 (5 percent) just slightly below the B.C. average.

The main sources of employment are in the Health Care and Social Assistance, Wholesale and Retail Trade and Construction sectors.

Over the 10-year forecast horizon, the Vancouver Island/Coast economic region is expected to have 153,820 job openings, of which 71 percent will replace retiring workers. Employment demand is projected to increase by an annual average of 1.1 percent, at the same pace as the provincial average.

Employment in the region remains heavily weighted toward services-based employment and this is reflected in the top 10 industries with forecast job openings through 2028:

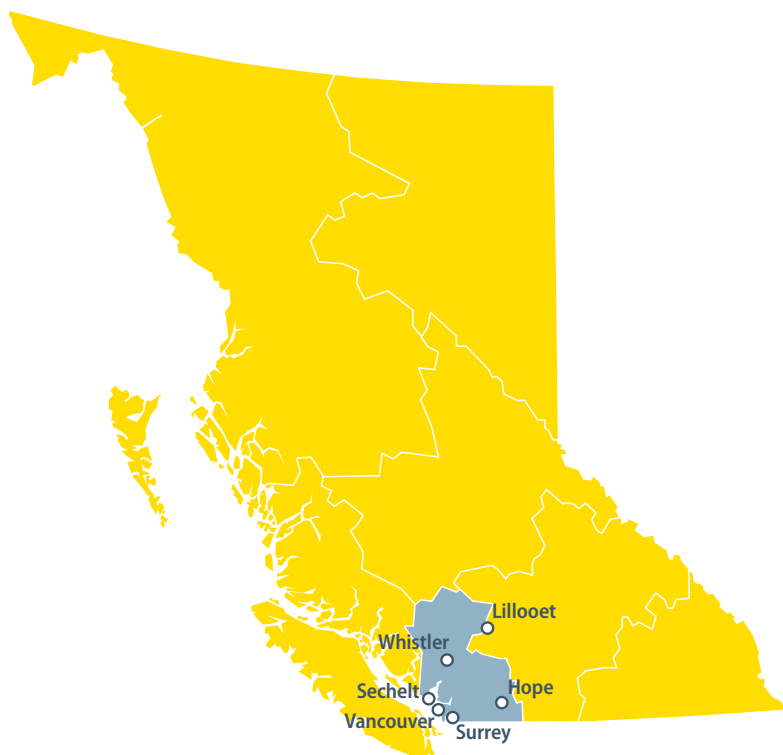
Industry	Employment 2018	Employment Growth (average annual %)			Job Openings 2018-2028		
		2018-2023	2023-2028	2018-2028	Expansion	Replacement	Total
Construction	37,520	-1.8%	-0.6%	-1.2%	-4,820	9,400	4,580
Other retail trade (excluding cars and personal care)	38,710	1.0%	0.5%	0.7%	2,880	8,890	11,780
Hospitals	19,220	1.2%	1.4%	1.3%	2,740	5,520	8,260
Ambulatory health care services	17,820	1.9%	1.9%	1.9%	3,800	5,410	9,200
Provincial and territorial public administration	15,730	0.8%	0.9%	0.8%	1,300	5,390	6,690
Repair, personal and non-profit services	18,490	3.0%	1.9%	2.5%	5,180	5,160	10,340
Management of companies and enterprises & administrative and support	16,120	1.3%	1.1%	1.2%	2,030	4,790	6,820
Elementary and secondary schools	14,050	1.0%	1.1%	1.0%	1,500	4,220	5,720
Legal, accounting, design, research and advertising services	13,130	2.0%	-0.9%	0.6%	710	4,180	4,890
Nursing and residential care facilities	12,210	2.8%	3.1%	2.9%	4,190	3,610	7,800



The region's fastest growth sectors are expected to be: Computer Systems Design and Related Services, Publishing Industries, and Nursing and Residential Care Facilities. This reflects the area's older population, but also an anticipated overspill as a result of a younger demographic moving from the lower mainland area.

The occupations with the largest number of job openings in the region are:

Skill Level	NOC	Occupation Title	Employment 2018	Expansion 2018-2028	Replacement 2018-2028	Total Job Openings 2018-2028
0	0621	Retail and wholesale trade managers	9,480	940	2,970	3,910
	0631	Restaurant and food service managers	2,970	520	850	1,380
	0714	Facility operation and maintenance managers	1,450	170	670	850
	0111	Financial managers	1,320	150	580	730
	0213	Computer and information systems managers	1,090	260	460	720
A	3012	Registered nurses and registered psychiatric nurses	9,400	1,630	2,660	4,290
	4032	Elementary school and kindergarten teachers	5,180	540	1,390	1,930
	2171	Information systems analysts and consultants	3,030	730	990	1,720
	2174	Computer programmers and interactive media developers	2,160	680	640	1,310
	1111	Financial auditors and accountants	3,160	260	960	1,220
B	1221	Administrative officers	6,170	710	2,570	3,280
	4212	Social and community service workers	5,430	1,190	1,690	2,880
	6322	Cooks	6,270	1,100	1,070	2,170
	1311	Accounting technicians and bookkeepers	4,110	320	1,680	2,000
	1241	Administrative assistants	4,090	400	1,300	1,700
C	6421	Retail salespersons	15,900	1,440	3,250	4,700
	3413	Nurse aides, orderlies and patient service associates	7,770	1,970	2,120	4,090
	1411	General office support workers	5,600	630	1,810	2,440
	4412	Home support workers, housekeepers and related occupations	3,430	770	1,110	1,890
	1414	Receptionists	3,900	660	990	1,650
D	6711	Food counter attendants, kitchen helpers and related support occupations	9,350	1,670	970	2,640
	6733	Janitors, caretakers and building superintendents	5,250	620	1,880	2,510
	6731	Light duty cleaners	5,860	820	1,470	2,290
	6611	Cashiers	6,850	660	1,000	1,660
	8612	Landscaping and grounds maintenance labourers	3,970	510	770	1,270



MAINLAND/SOUTHWEST

B.C.'s smallest region is also its most populated and economically significant. The Mainland/Southwest comprises Metro Vancouver on the southwest tip, through the Fraser Valley to Hope, and north to Lillooet.

The Mainland/Southwest is among the youngest regions in the province, with a participation rate (66.7 percent in 2017) above the provincial average.

Home to 62.7 percent of B.C.'s entire population, the region is also where 65 percent of British Columbians work. In 2017, the unemployment rate hit 4.6 percent, the lowest of all regions and this region's lowest point since 2008.

The largest industries, by employment size, are: Wholesale and Retail Trade, Health Care and Social Assistance, and Professional, Scientific and Technical Services.

Over the next 10 years, a total of 588,470 job openings are anticipated. About two-thirds of these job

openings are needed to replace exiting workers, the remaining one-third is due to economic growth.

Up to 2028, employment demand is anticipated to increase 1.2 percent on average every year, which is faster than the B.C. average annual growth of 1.1 percent and the second fastest growth rate of all economic regions. Mainland/Southwest makes up two-thirds of B.C.'s total forecasted job openings over the next 10 years.

The 10 industries forecast to have the largest number of job openings in the region:

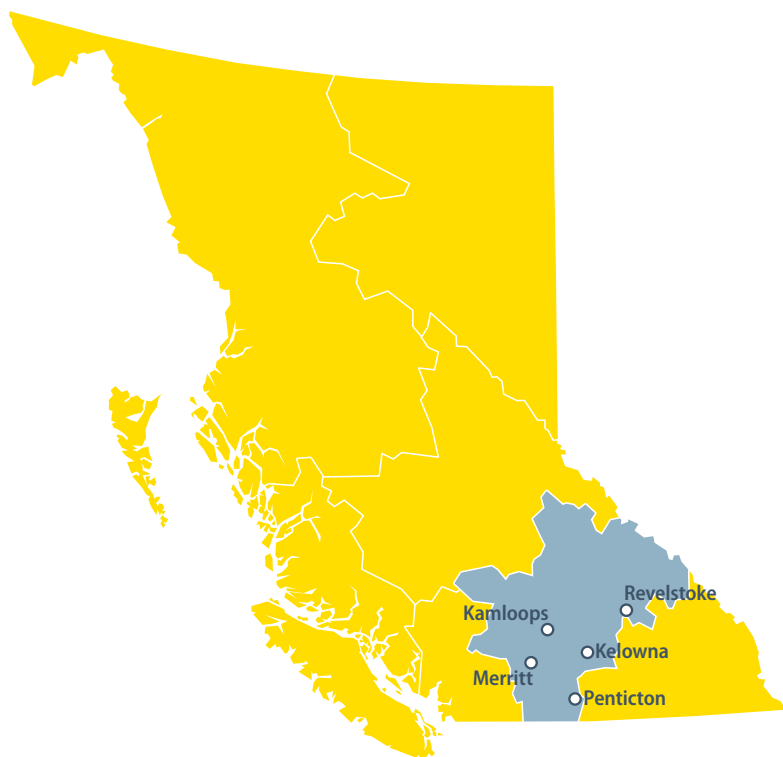
Industry	Employment 2018	Employment Growth (average annual %)			Job Openings 2018-2028		
		2018-2023	2023-2028	2018-2028	Expansion	Replacement	Total
Other retail trade (excluding cars and personal care)	147,910	0.5%	0.6%	0.5%	8,230	28,660	36,890
Construction	144,980	-1.1%	1.8%	0.3%	4,550	31,950	36,500
Legal, accounting, design, research and advertising services	65,630	2.0%	2.1%	2.0%	15,050	15,990	31,040
Food services and drinking places	93,870	1.7%	1.6%	1.7%	17,230	13,310	30,540
Ambulatory health care services	58,240	2.2%	2.3%	2.3%	15,000	14,720	29,730
Management of companies and enterprises & administrative and support	71,510	1.6%	0.7%	1.1%	8,840	19,210	28,040
Computer systems design and related services	37,440	2.6%	4.1%	3.4%	15,120	9,700	24,810
Wholesale trade	67,640	1.1%	0.7%	0.9%	6,470	17,350	23,820
Hospitals	59,910	1.1%	1.3%	1.2%	7,700	14,490	22,190
Repair, personal and non-profit services	67,610	1.0%	0.6%	0.8%	5,700	15,460	21,160

While the fastest growing industry is forecast to be Nursing and Residential Care Facilities, B.C.'s high-tech influence is expected to continue to gain ground. Computer Systems Design and Related Services is anticipated to be one of the quickest growing industries to 2028, reflecting B.C.'s advances in technology-based employment and attraction of tech companies to the province.



The occupations with the largest number of job openings in the region are:

Skill Level	NOC	Occupation Title	Employment 2018	Expansion 2018-2028	Replacement 2018-2028	Total Job Openings 2018-2028
O	0621	Retail and wholesale trade managers	37,780	2,820	9,440	12,250
	0631	Restaurant and food service managers	11,870	2,110	2,810	4,920
	0711	Construction managers	11,940	590	3,710	4,300
	0013	Senior managers - financial, communications and other business services	7,000	1,550	2,430	3,980
	0213	Computer and information systems managers	6,660	1,490	2,270	3,760
A	3012	Registered nurses and registered psychiatric nurses	29,200	5,010	6,720	11,730
	1111	Financial auditors and accountants	22,080	3,580	4,840	8,420
	2171	Information systems analysts and consultants	13,080	3,030	3,290	6,320
	2174	Computer programmers and interactive media developers	11,720	3,510	2,770	6,290
	4032	Elementary school and kindergarten teachers	20,240	1,290	4,580	5,870
B	1221	Administrative officers	22,340	2,970	7,580	10,550
	6322	Cooks	19,720	3,610	3,440	7,050
	4212	Social and community service workers	13,960	2,810	3,660	6,470
	1241	Administrative assistants	16,660	1,870	4,310	6,180
	4214	Early childhood educators and assistants	13,620	3,080	2,900	5,980
C	6421	Retail salespersons	65,230	4,610	10,440	15,040
	3413	Nurse aides, orderlies and patient service associates	18,510	5,700	5,350	11,060
	1411	General office support workers	24,380	3,020	6,360	9,390
	7511	Transport truck drivers	24,070	3,730	5,440	9,170
	1414	Receptionists	16,130	2,900	3,070	5,970
D	6711	Food counter attendants, kitchen helpers and related support occupations	31,560	5,910	3,560	9,470
	6733	Janitors, caretakers and building superintendents	16,950	1,970	5,980	7,950
	6731	Light duty cleaners	17,460	2,710	4,820	7,520
	6611	Cashiers	25,540	2,310	2,970	5,280
	6622	Store shelf stockers, clerks and order fillers	13,850	850	2,700	3,560



THOMPSON-OKANAGAN

The Thompson-Okanagan is located in the southern interior of the province, concentrated around the major urban centers of Kelowna and Kamloops. However, the region spans as far east as Golden and Revelstoke in the Columbia region, as far west as Lytton and then south through the Okanagan Valley to Osoyoos and the Canada/U.S. border.

The region is home to 11 percent of B.C. residents who, on average, are older compared to the rest of the province. As a result, labour force participation was 63.3 percent in 2017, below the provincial average of 65.3 percent.

While statistics show that 10 percent of B.C. workers call the Thompson-Okanagan home, it is believed that many find employment in other regions in the province and in Alberta. As a result, the unemployment rate in 2017 was 7.1 percent, sitting above B.C.'s 5.1 percent average.

In terms of employment size, the Thompson-Okanagan's top industries are Wholesale and Retail Trades, Health Care and Social Assistance and Construction.

Over the 10-year forecast period, employment demand is anticipated to increase by 0.7 percent on average each year. Over the next 10 years, 91,190 job openings are expected, of which 79 percent are needed to replace retirees and 21 percent are due to economic growth.

The 10 industries forecast to have the largest number of job openings in the region:

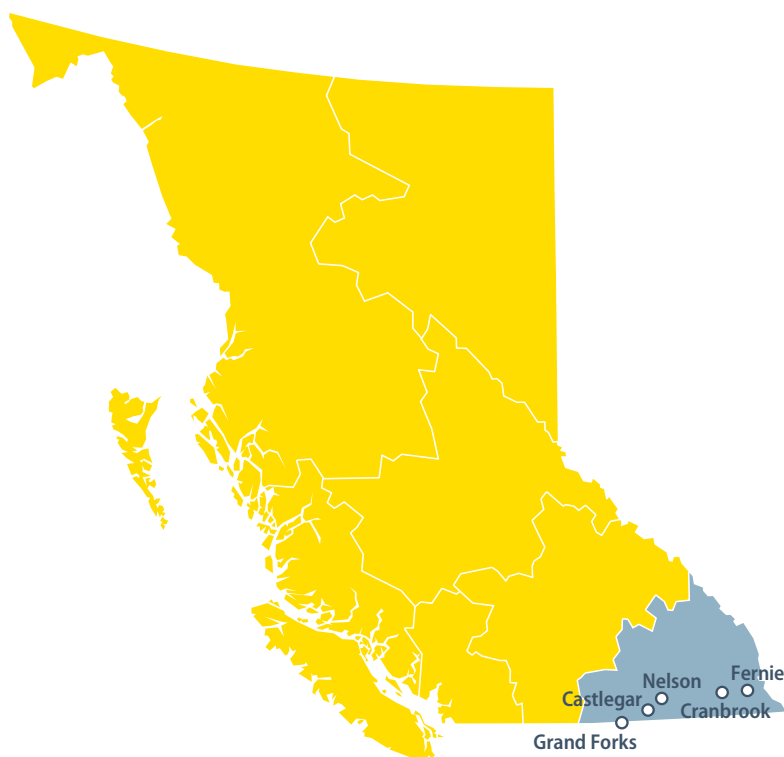
Industry	Employment 2018	Employment Growth (average annual %)			Job Openings 2018-2028		
		2018-2023	2023-2028	2018-2028	Expansion	Replacement	Total
Other retail trade (excluding cars and personal care)	25,310	0.4%	0.4%	0.4%	940	5,850	6,790
Hospitals	13,000	1.2%	1.6%	1.4%	1,990	3,650	5,640
Nursing and residential care facilities	9,220	2.5%	2.9%	2.7%	2,880	2,580	5,460
Food services and drinking places	18,960	1.4%	1.2%	1.3%	2,600	2,780	5,370
Ambulatory health care services	8,730	2.1%	2.7%	2.4%	2,370	2,620	5,000
Repair, personal and non-profit services	11,810	1.6%	1.2%	1.4%	1,750	3,110	4,860
Management of companies and enterprises & administrative and support	10,330	1.1%	1.3%	1.2%	1,290	3,040	4,330
Elementary and secondary schools	10,960	0.8%	1.0%	0.9%	980	3,140	4,130
Legal, accounting, design, research, and advertising services	8,330	1.4%	1.1%	1.2%	1,090	2,480	3,570
Accommodation services	6,450	1.9%	1.2%	1.5%	1,070	1,730	2,800

The fastest growing industries from now until 2028 are anticipated to be Warehousing and Storage, Telecommunications and Nursing and Residential Care Facilities.



The occupations with the largest number of job openings in the region are:

Skill Level	NOC	Occupation Title	Employment 2018	Expansion 2018-2028	Replacement 2018-2028	Total Job Openings 2018-2028
O	0621	Retail and wholesale trade managers	6,400	350	1,930	2,280
	0631	Restaurant and food service managers	2,340	310	610	930
	0821	Managers in agriculture	2,870	110	760	860
	0632	Accommodation service managers	1,180	190	450	640
	0714	Facility operation and maintenance managers	1,080	90	470	560
A	3012	Registered nurses and registered psychiatric nurses	5,280	920	1,400	2,320
	4032	Elementary school and kindergarten teachers	3,920	350	970	1,320
	1111	Financial auditors and accountants	2,230	230	620	860
	4031	Secondary school teachers	2,330	210	640	850
	1114	Other financial officers	1,610	210	430	630
B	1221	Administrative officers	3,860	310	1,690	2,000
	1311	Accounting technicians and bookkeepers	3,350	250	1,270	1,520
	6322	Cooks	4,330	630	690	1,320
	4212	Social and community service workers	2,620	410	820	1,230
	1241	Administrative assistants	2,710	150	890	1,040
C	3413	Nurse aides, orderlies and patient service associates	5,560	1,340	1,480	2,820
	6421	Retail salespersons	10,860	550	2,250	2,800
	7511	Transport truck drivers	4,410	260	1,570	1,830
	1411	General office support workers	3,480	320	1,030	1,350
	1414	Receptionists	2,610	460	710	1,170
D	6731	Light duty cleaners	4,430	630	1,120	1,750
	6711	Food counter attendants, kitchen helpers and related support occupations	6,700	990	720	1,710
	6733	Janitors, caretakers and building superintendents	3,630	380	1,280	1,660
	6611	Cashiers	5,070	310	850	1,160
	8612	Landscaping and grounds maintenance labourers	2,890	260	530	780



KOOTENAY

The Kootenay economic region, in B.C.'s southeast corner, is the second smallest region in land size, covering an area from Grand Forks in the west to the Rockies in the east, and encompassing the communities of Castlegar, Nelson and Cranbrook.

With three percent of the province's workforce, the region's population is also comparatively older than the rest of B.C. and less likely to participate in the labour market. In 2017, Kootenay had the second lowest participation rate in the province at 63.1 percent, 2.2 points lower than the B.C. average.

In 2017, the unemployment rate was the second highest in B.C. with 7.3 percent—well above the B.C. average of 5.1 percent.

The region's major employers reflect its demographics and resource-rich landscape; the major industries in terms of employment size are: Construction, Other Retail Trade and Ambulatory Health Care Services.

Over the Outlook period to 2028, 24,080 job openings are expected in this region. About 18 percent of these are forecast to be generated through economic growth, and the rest as a result of retirements.

Employment demand is forecasted to increase at an average of 0.6 percent each year for the next 10 years, below the provincial rate of 1.1 percent.

The 10 industries forecast to have the largest number of job openings in the region:

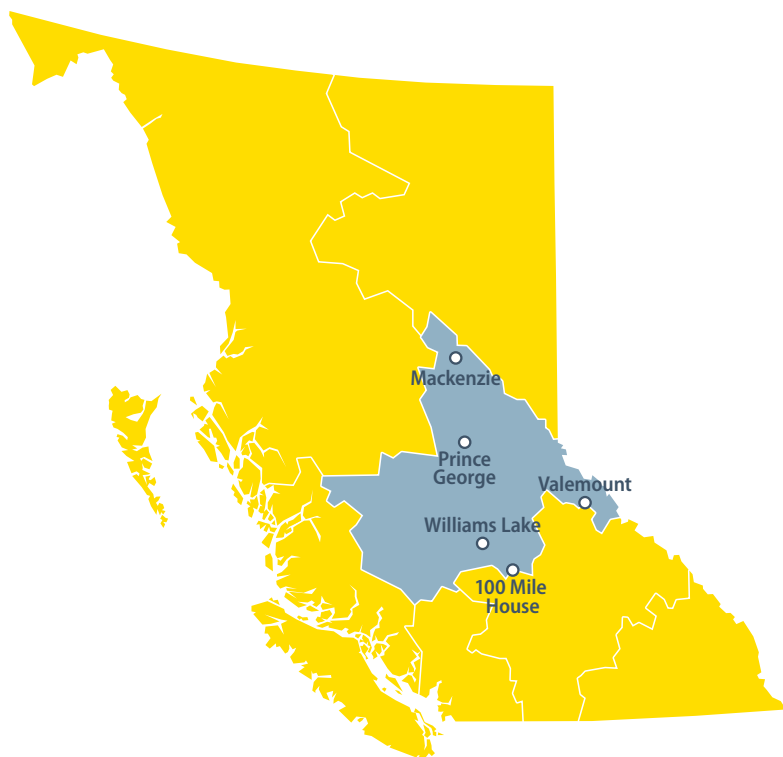
Industry	Employment 2018	Employment Growth (average annual %)			Job Openings 2018-2028		
		2018-2023	2023-2028	2018-2028	Expansion	Replacement	Total
Construction	6,190	1.4%	-0.4%	0.5%	260	1,820	2,080
Other retail trade (excluding cars and personal care)	6,650	1.1%	0.0%	0.5%	340	1,590	1,920
Ambulatory health care services	2,860	1.7%	2.3%	2.0%	650	840	1,490
Repair, personal and non-profit services	3,960	1.1%	-0.2%	0.5%	170	1,010	1,180
Mining	4,970	0.0%	-1.3%	-0.6%	-350	1,460	1,110
Management of companies and enterprises & administrative and support	2,480	2.6%	0.1%	1.3%	350	750	1,100
Hospitals	2,560	1.1%	1.6%	1.4%	380	700	1,070
Nursing and residential care facilities	1,570	2.8%	3.4%	3.1%	560	450	1,010
Food services and drinking places	3,090	2.2%	0.8%	1.5%	490	480	970
Elementary and secondary schools	2,950	0.5%	0.4%	0.4%	120	830	950

The industries anticipated to have the fastest growth rate in employment over the next 10 years are: Computer Systems Design and Related Services, Machinery Manufacturing and Fabricated Metal Product Manufacturing.



The occupations with the largest number of job openings in the region are:

Skill Level	NOC	Occupation Title	Employment 2018	Expansion 2018-2028	Replacement 2018-2028	Total Job Openings 2018-2028
O	0621	Retail and wholesale trade managers	2,060	150	640	790
	0631	Restaurant and food service managers	550	80	150	230
	0711	Construction managers	420	20	170	190
	0632	Accommodation service managers	350	40	130	170
	0714	Facility operation and maintenance managers	350	10	150	160
A	3012	Registered nurses and registered psychiatric nurses	1,100	190	290	480
	4032	Elementary school and kindergarten teachers	1,150	50	280	330
	4031	Secondary school teachers	510	20	140	160
	4021	College and other vocational instructors	320	10	130	140
	3112	General practitioners and family physicians	230	50	60	110
B	1221	Administrative officers	940	80	420	500
	4212	Social and community service workers	840	90	260	350
	1311	Accounting technicians and bookkeepers	940	--	350	350
	7271	Carpenters	1,150	50	300	350
	6322	Cooks	830	130	130	270
C	7511	Transport truck drivers	1,660	120	610	730
	6421	Retail salespersons	2,510	150	530	690
	3413	Nurse aides, orderlies and patient service associates	1,030	250	270	520
	7521	Heavy equipment operators (except crane)	1,700	-50	510	460
	1411	General office support workers	820	70	250	310
D	6733	Janitors, caretakers and building superintendents	1,130	100	410	500
	6731	Light duty cleaners	1,010	140	260	400
	6711	Food counter attendants, kitchen helpers and related support occupations	1,240	200	140	340
	6611	Cashiers	1,180	70	200	280
	8612	Landscaping and grounds maintenance labourers	880	70	170	230



CARIBOO

The Cariboo is situated in the centre of the province and is the third largest of B.C.'s economic regions. It encompasses Prince George and communities along Highway 97 from 100 Mile House, Williams Lake and Quesnel north to Mackenzie, the region's northernmost point.

The Cariboo population (3.2 percent of B.C. residents) is younger than the provincial average and it has the second highest participation rate (68.4 percent in 2017).

The unemployment rate in 2017 was 7.4 percent, the highest in the province, well above the B.C. average of 5.1 percent.

The region's largest employment industries are: Wholesale and Retail Trade, Manufacturing and Health Care and Social Assistance.

Over the Outlook period to 2028, the Cariboo region is expected to have 18,080 job openings. Only 10 percent

of these openings are forecast to be generated through economic growth, with the vast majority due to retirements.

Employment demand is expected to grow at an average of 0.3 percent annually during the next 10 years, the lowest growth rate among all regions.

The 10 industries forecast to have the largest number of job openings in the region:

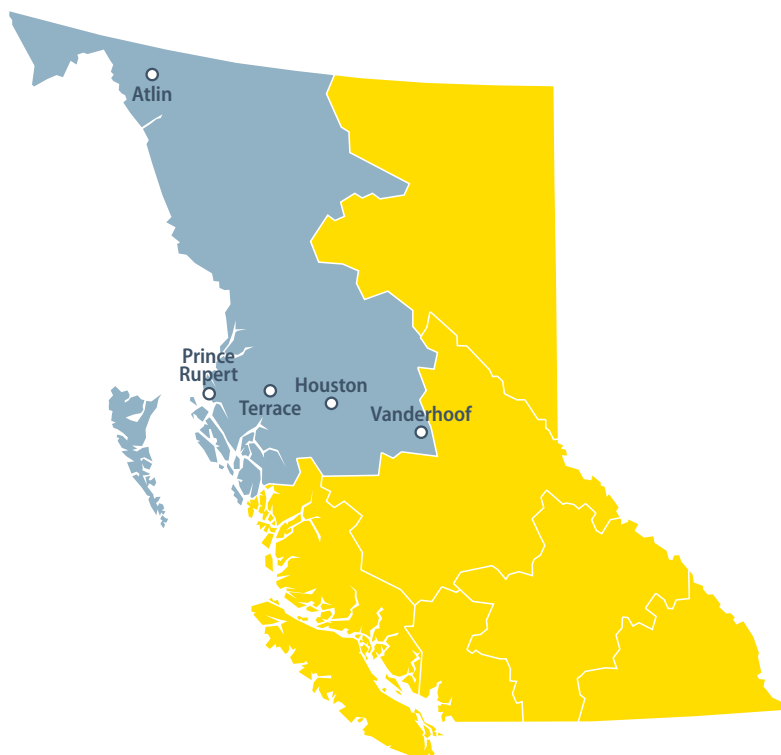
Industry	Employment 2018	Employment Growth (average annual %)			Job Openings 2018-2028		
		2018-2023	2023-2028	2018-2028	Expansion	Replacement	Total
Other retail trade (excluding cars and personal care)	8,110	1.0%	-0.1%	0.4%	310	1,360	1,680
Hospitals	3,960	0.8%	0.9%	0.9%	360	750	1,120
Wood product manufacturing	4,930	0.0%	-0.7%	-0.4%	-220	1,240	1,020
Repair, personal and non-profit services	3,540	1.6%	-0.1%	0.8%	270	660	920
Ambulatory health care services	2,250	1.8%	2.1%	1.9%	490	430	920
Social assistance	3,290	1.0%	0.8%	0.9%	310	600	910
Wholesale trade	2,820	1.6%	0.0%	0.8%	230	590	820
Food services and drinking places	4,410	1.2%	0.3%	0.7%	330	490	820
Management of companies and enterprises & administrative and support	2,770	1.2%	0.1%	0.6%	170	640	810
Nursing and residential care facilities	1,570	2.5%	2.7%	2.6%	460	330	790

To better highlight employment expansion in the region, it is best to focus on the fastest growing industries in terms of employment. During the next 10 years, these are expected to be: Computer Systems Design and Related Services, Warehousing and Storage, and Fabricated Metal Product Manufacturing.



The occupations with the largest number of job openings in the region are:

Skill Level	NOC	Occupation Title	Employment 2018	Expansion 2018-2028	Replacement 2018-2028	Total Job Openings 2018-2028
0	0621	Retail and wholesale trade managers	2,070	100	450	550
	0821	Managers in agriculture	740	10	190	210
	0631	Restaurant and food service managers	520	40	100	130
	0714	Facility operation and maintenance managers	280	20	90	110
	0632	Accommodation service managers	210	30	70	100
A	3012	Registered nurses and registered psychiatric nurses	1,450	160	230	390
	4032	Elementary school and kindergarten teachers	1,120	20	210	230
	4031	Secondary school teachers	730	10	140	150
	1111	Financial auditors and accountants	560	10	110	120
	4152	Social workers	420	40	80	120
B	4212	Social and community service workers	1,630	200	310	510
	1221	Administrative officers	1,030	30	300	330
	6322	Cooks	1,250	100	200	290
	7311	Construction millwrights and industrial mechanics	1,220	-40	290	240
	1311	Accounting technicians and bookkeepers	930	10	230	240
C	6421	Retail salespersons	3,140	130	430	570
	7511	Transport truck drivers	2,610	-80	630	550
	3413	Nurse aides, orderlies and patient service associates	1,090	190	210	390
	1411	General office support workers	1,130	70	250	320
	7452	Material handlers	1,240	-10	220	210
D	6733	Janitors, caretakers and building superintendents	1,500	70	370	440
	6731	Light duty cleaners	1,240	90	240	340
	6611	Cashiers	1,600	50	200	250
	6711	Food counter attendants, kitchen helpers and related support occupations	1,620	110	130	240
	9614	Labourers in wood, pulp and paper processing	1,160	-70	260	200



NORTH COAST AND NECHAKO

Located at the northwestern corner of British Columbia, the two regions of North Coast and Nechako are combined together into one economic region, North Coast/Nechako. Bordering the Yukon, Alaska and the Pacific Coast, the area encompasses Haida Gwaii, the cities of Prince Rupert inland to Terrace, Smithers, Houston and as far east as Vanderhoof.

The economic region is the largest in terms of land size, yet the population is one of the smallest in B.C., with about 1.7 percent of B.C.'s population living here, leading to the lowest population density of any region. Yet, it has the youngest population in the province.

About 1.7 percent of B.C. workers reside in the region. Given the young population, the economic region had the second highest participation rate among regions in 2017 at 68.0 percent, higher than the provincial average. The unemployment rate was the third highest in B.C. in 2017 (at 7.7 percent).

The North Coast/Nechako's largest industries in terms of employment size are: Wholesale and Retail Trade, Health Care and Social Assistance and Manufacturing.

Employment demand in the region is forecast to increase each year by 0.9 percent on average until 2028, lower than the provincial average. Over the next 10 years to 2028, a total of 12,990 job openings are anticipated, of which the majority (70.7 percent) are needed to replace retiring workers.

The 10 industries forecast to have the largest number of job openings in the region:

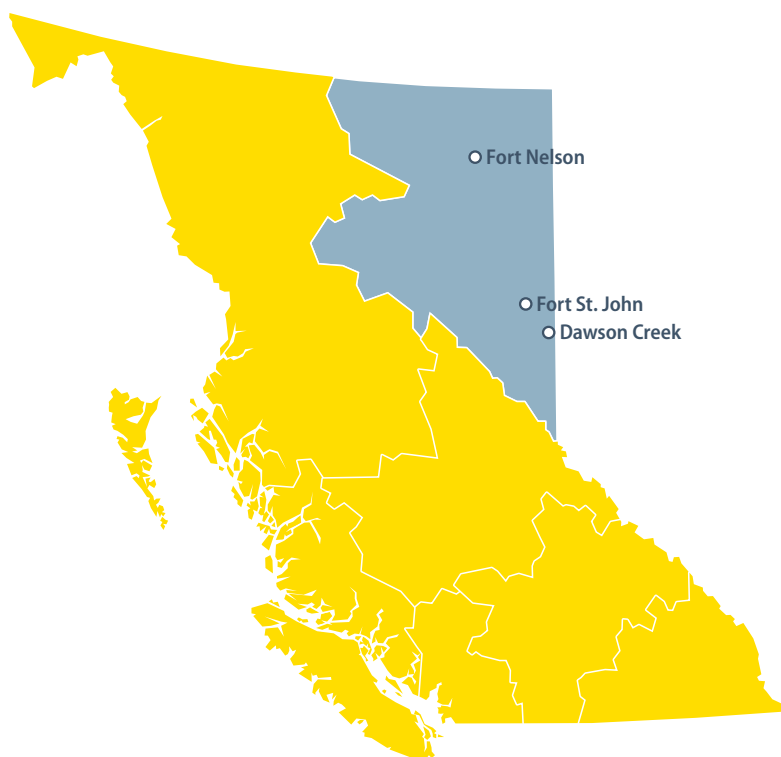
Industry	Employment 2018	Employment Growth (average annual %)			Job Openings 2018-2028		
		2018-2023	2023-2028	2018-2028	Expansion	Replacement	Total
Other retail trade (excluding cars and personal care)	4,150	2.2%	0.5%	1.4%	600	770	1,370
Construction	5,890	8.8%	-8.6%	-0.3%	-230	1,350	1,120
Repair, personal and non-profit services	2,320	1.0%	1.5%	1.2%	300	420	720
Ambulatory health care services	970	4.0%	3.5%	3.8%	450	220	660
Hospitals	1,390	2.2%	1.8%	2.0%	310	270	580
Food services and drinking places	1,990	1.9%	1.1%	1.5%	330	250	580
Wood product manufacturing	2,050	0.1%	-0.2%	0.0%	-20	530	520
Elementary and secondary schools	2,740	0.6%	-0.8%	-0.1%	-40	550	510
Social assistance	1,640	2.0%	-0.5%	0.7%	120	310	440
Truck transportation	950	3.1%	0.2%	1.7%	180	260	430

However, these industries are not necessarily expanding the fastest. Over the next ten years, the following three industries are forecasted to grow the fastest: Insurance Carriers and Related Services and Computer Systems Design and Related Services.



The occupations with the largest number of job openings in the region are:

Skill Level	NOC	Occupation Title	Employment 2018	Expansion 2018-2028	Replacement 2018-2028	Total Job Openings 2018-2028
0	0621	Retail and wholesale trade managers	1,140	150	270	410
	0821	Managers in agriculture	250	20	70	90
	0631	Restaurant and food service managers	240	40	50	90
	0714	Facility operation and maintenance managers	160	30	50	80
	0632	Accommodation service managers	170	20	60	80
A	3012	Registered nurses and registered psychiatric nurses	440	110	80	180
	4032	Elementary school and kindergarten teachers	940	-10	170	160
	4031	Secondary school teachers	500	-10	100	90
	4152	Social workers	220	20	40	70
	4021	College and other vocational instructors	180	--	50	50
B	6322	Cooks	700	120	120	230
	4212	Social and community service workers	690	90	140	230
	7311	Construction millwrights and industrial mechanics	660	30	170	200
	1311	Accounting technicians and bookkeepers	570	40	150	190
	1221	Administrative officers	470	40	150	190
C	7511	Transport truck drivers	1,220	100	330	430
	6421	Retail salespersons	1,450	200	210	420
	7521	Heavy equipment operators (except crane)	670	60	190	250
	1411	General office support workers	640	60	150	210
	3413	Nurse aides, orderlies and patient service associates	400	100	80	180
D	6733	Janitors, caretakers and building superintendents	870	70	220	290
	6611	Cashiers	790	120	110	230
	6731	Light duty cleaners	570	70	120	190
	6622	Store shelf stockers, clerks and order fillers	580	80	100	180
	6711	Food counter attendants, kitchen helpers and related support occupations	700	120	60	180



NORTHEAST

Sitting along the Alberta, Northwest and Yukon Territories boundaries, B.C.'s Northeast economic region encompasses the communities of Dawson Creek, Fort St. John and Fort Nelson.

As the largest of B.C.'s seven regions, it also has one of the lowest population densities in the province, with only 1.4 percent of B.C. residents living there and 1.6 percent of B.C.'s employed workers. Compared to the B.C. average, the population in the Northeast is younger. As a result, the region has the province's highest participation rate, at 72.6 percent. However, the unemployment rate in 2017 (5.9 percent) is slightly above the B.C. rate (5.1 percent).

As the epicentre of B.C.'s oil and gas operations, the Northeast remains a resource-based economy, with the main sources of employment in the region falling within Forestry, Fishing, Mining, Quarrying, Oil and Gas industry, wholesale and retail trade and construction.

Over the next 10 years, employment demand is set to

increase at an average of 1.0 percent annually. A total of 16,420 job openings are expected in the region to 2028. Only 27 percent is due to economic growth and the rest are to replace retired workers.

The 10 industries forecast to have the largest number of job openings in the region:

Industry	Employment 2018	Employment Growth (average annual %)			Job Openings 2018-2028		
		2018-2023	2023-2028	2018-2028	Expansion	Replacement	Total
Construction	6,380	4.3%	0.1%	2.2%	1,570	1,470	3,040
Other retail trade (excluding cars and personal care)	3,110	2.7%	0.5%	1.6%	550	570	1,120
Repair, personal and non-profit services	2,120	2.1%	1.3%	1.7%	400	390	790
Oil and gas extraction	1,400	4.8%	-0.7%	2.0%	310	340	650
Elementary and secondary schools	1,910	1.6%	0.7%	1.1%	230	410	640
Truck transportation	1,840	1.4%	0.4%	0.9%	170	460	630
Food services and drinking places	2,130	2.1%	0.4%	1.3%	290	260	550
Support activities for mining and oil and gas extraction	1,890	1.4%	-0.5%	0.5%	80	400	480
Wholesale trade	1,370	1.3%	0.5%	0.9%	130	290	420
Ambulatory health care services	760	2.2%	3.4%	2.8%	240	150	390

In terms of employment growth, the following three industries are anticipated to have the fastest growth in the region: Mining, Oil and Gas Extraction and Nursing and Residential Care Facilities.



The occupations with the largest number of job openings in the region are:

Skill Level	NOC	Occupation Title	Employment 2018	Expansion 2018-2028	Replacement 2018-2028	Total Job Openings 2018-2028
0	0621	Retail and wholesale trade managers	990	140	230	370
	0821	Managers in agriculture	700	60	180	240
	0711	Construction managers	360	80	100	180
	0631	Restaurant and food service managers	340	50	70	110
	0811	Managers in natural resources production and fishing	250	20	80	100
	4032	Elementary school and kindergarten teachers	750	90	150	240
A	3012	Registered nurses and registered psychiatric nurses	530	100	90	180
	4031	Secondary school teachers	280	30	60	90
	1111	Financial auditors and accountants	160	40	40	70
	1114	Other financial officers	90	40	20	60
	1311	Accounting technicians and bookkeepers	740	140	200	340
	1221	Administrative officers	620	90	190	280
B	7271	Carpenters	670	150	120	270
	1241	Administrative assistants	610	80	140	220
	7321	Automotive service technicians, truck and bus mechanics and mechanical repairers	630	100	110	210
	7511	Transport truck drivers	1,710	180	450	630
	6421	Retail salespersons	1,290	200	190	390
	7521	Heavy equipment operators (except crane)	690	130	180	310
C	1411	General office support workers	660	100	150	250
	3413	Nurse aides, orderlies and patient service associates	360	80	70	150
	6733	Janitors, caretakers and building superintendents	850	90	210	300
	7611	Construction trades helpers and labourers	680	150	110	260
	6711	Food counter attendants, kitchen helpers and related support occupations	780	110	60	180
	6731	Light duty cleaners	620	40	120	160
D	6611	Cashiers	480	80	60	140

APPENDIX 3: Detailed Industry Outlook

Industry	Employment 2018	Employment Growth (average annual growth rate)			Expansion 2018-2028	Replacement 2018-2028	Total Job Openings 2018-2028
		2018-2023	2023-2028	2018-2028			
All industries	2,501,100	1.1%	1.1%	1.1%	288,300	614,700	903,000
Agriculture and fishing	26,100	0.3%	0.2%	0.2%	400	6,600	7,000
Farms	24,200	0.4%	0.2%	0.3%	500	6,200	6,700
Fishing, hunting and trapping	1,800	-1.1%	-0.2%	-0.7%	-100	500	300
Forestry and logging with support activities	20,800	-1.5%	-1.9%	-1.7%	-3,700	5,700	2,000
Forestry and logging	12,200	-1.6%	-2.8%	-2.2%	-2,700	3,600	900
Support activities for agriculture and forestry	8,600	-1.4%	-0.7%	-1.1%	-1,000	2,100	1,100
Mining and oil and gas extraction	27,800	1.1%	0.2%	0.7%	1,800	7,800	9,600
Oil and gas extraction	4,800	1.7%	0.1%	0.9%	400	1,300	1,700
Support activities for mining and oil and gas extraction	7,300	1.1%	-0.2%	0.4%	300	1,900	2,200
Mining	15,700	0.9%	0.5%	0.7%	1,100	4,600	5,700
Utilities	13,700	0.5%	0.4%	0.4%	600	3,800	4,300
Construction	237,200	-0.8%	0.4%	-0.2%	-5,800	54,500	48,700
Manufacturing	176,100	0.2%	0.1%	0.2%	2,400	47,700	50,100
Food, beverage and tobacco manufacturing	33,500	1.0%	0.9%	1.0%	3,500	8,700	12,200
Wood product manufacturing	28,600	-0.1%	-0.6%	-0.4%	-1,200	8,700	7,400
Paper manufacturing	10,300	-1.2%	-0.8%	-1.0%	-1,100	3,100	2,000
Primary metal manufacturing	3,900	1.1%	-0.1%	0.5%	200	1,000	1,200
Fabricated metal product manufacturing	13,600	0.8%	0.2%	0.5%	700	3,600	4,300
Machinery manufacturing	9,900	-0.1%	0.1%	0.0%	0	2,600	2,600
Ship and boat building	4,600	2.0%	1.0%	1.5%	800	1,300	2,100
Transportation equipment manufacturing (excluding shipbuilding)	5,800	1.2%	0.1%	0.7%	400	1,600	2,000
Other manufacturing	65,900	-0.2%	0.1%	-0.1%	-800	17,100	16,300
Wholesale trade	87,900	1.2%	0.6%	0.9%	8,500	23,000	31,600
Retail trade	294,500	0.8%	0.6%	0.7%	20,900	61,400	82,300
Motor vehicle and parts dealers	34,500	1.5%	1.1%	1.3%	4,700	8,200	12,900
Health and personal care stores	26,100	1.1%	0.6%	0.9%	2,400	5,500	7,800
Other retail trade (excluding cars and personal care)	234,000	0.6%	0.5%	0.6%	13,900	47,700	61,500
Transportation and warehousing	141,400	1.4%	1.2%	1.3%	20,300	38,600	58,900
Air transportation	15,000	1.6%	1.3%	1.4%	2,300	4,400	6,800
Rail transportation	5,400	1.7%	0.8%	1.2%	700	1,600	2,300
Water transportation	7,000	0.5%	0.6%	0.6%	400	1,900	2,300
Truck transportation	39,400	1.7%	1.2%	1.4%	6,100	10,500	16,600
Support activities for transportation	24,900	1.9%	1.3%	1.6%	4,300	7,200	11,500
Postal service, couriers and messengers	15,300	1.4%	1.2%	1.3%	2,100	4,300	6,400
Transit, sightseeing and pipeline transportation	24,200	1.4%	1.5%	1.5%	3,800	6,500	10,400
Warehousing and storage	10,100	-0.4%	1.4%	0.5%	500	2,200	2,700
Finance, insurance and real estate	152,600	1.2%	1.0%	1.1%	17,900	41,800	59,700
Insurance carriers and related activities	32,000	1.2%	1.0%	1.1%	3,800	8,300	12,100
Finance	65,800	1.6%	1.1%	1.3%	9,500	17,900	27,400
Real estate rental and leasing	54,700	0.6%	1.0%	0.8%	4,600	15,700	20,300
Professional, scientific and technical services	205,700	2.2%	2.2%	2.2%	51,000	55,200	106,200
Architectural, engineering and related services	40,800	2.5%	1.7%	2.1%	9,700	11,300	21,000
Computer systems design and related services	47,800	2.8%	4.1%	3.4%	19,600	13,100	32,700
Management, scientific and technical consulting services	25,200	1.8%	1.6%	1.7%	4,700	7,000	11,800

Industry	Employment 2018	Employment Growth (average annual growth rate)			Expansion 2018-2028	Replacement 2018-2028	Total Job Openings 2018-2028
		2018-2023	2023-2028	2018-2028			
Legal, accounting, design, research and advertising services	91,900	1.9%	1.5%	1.7%	17,000	23,800	40,700
Business, building and other support services	105,400	1.5%	0.7%	1.1%	12,900	28,900	41,800
Educational services	167,700	0.5%	0.8%	0.6%	10,400	41,800	52,300
Elementary and secondary schools	91,900	0.7%	0.7%	0.7%	6,500	23,900	30,400
Community colleges	10,300	0.3%	1.2%	0.7%	800	2,800	3,500
Universities	35,600	0.2%	1.2%	0.7%	2,700	8,900	11,600
Private and trades education	29,900	0.1%	0.3%	0.2%	500	6,300	6,700
Health care and social assistance	308,700	1.9%	2.1%	2.0%	67,900	80,500	148,400
Ambulatory health care services	91,600	2.2%	2.3%	2.2%	23,000	24,400	47,400
Hospitals	101,200	1.2%	1.4%	1.3%	13,700	25,600	39,200
Nursing and residential care facilities	51,800	3.3%	3.6%	3.5%	21,600	14,900	36,500
Social assistance	64,100	1.4%	1.4%	1.4%	9,700	15,600	25,300
Information, culture and recreation	138,200	1.8%	1.7%	1.8%	27,400	31,600	59,100
Publishing industries	12,300	2.8%	1.4%	2.1%	2,800	3,400	6,300
Motion picture and sound recording industries	26,800	3.3%	3.2%	3.2%	10,400	6,100	16,500
Telecommunications	17,700	0.7%	1.2%	0.9%	1,700	4,400	6,100
Broadcasting, data processing, and information	10,000	2.1%	1.4%	1.7%	1,900	2,700	4,600
Performing arts, spectator sports and related industries	21,200	1.4%	1.4%	1.4%	3,200	4,800	8,000
Amusement, gambling and recreation industries	46,600	1.3%	1.4%	1.3%	6,700	9,200	15,800
Heritage institutions	3,600	2.2%	1.4%	1.8%	700	1,000	1,700
Accommodation and food services	185,000	1.7%	1.4%	1.5%	31,100	30,000	61,000
Accommodation services	37,600	1.5%	1.3%	1.4%	5,700	8,900	14,600
Food services and drinking places	147,400	1.8%	1.4%	1.6%	25,400	21,100	46,400
Repair, personal and non-profit services	109,900	1.4%	0.9%	1.2%	13,800	26,200	40,000
Public administration	102,600	0.9%	1.1%	1.0%	10,600	29,500	40,100
Federal government public administration	36,800	1.1%	1.1%	1.1%	4,300	10,400	14,700
Provincial and territorial public administration	30,600	0.8%	0.8%	0.8%	2,500	9,400	12,000
Local and Indigenous public administration	35,300	0.7%	1.4%	1.0%	3,800	9,700	13,500

Note: components may not add to totals due to rounding

In this edition, some of the industry names have been changed to better reflect the nature of the industry. These changes are provided below.

Industry name in 2017 edition	Industry name in 2018 edition
Transportation equipment manufacturing	This industry has been split into two industries: "Ship and boat building" and "Transportation equipment manufacturing (excluding shipbuilding)"
Other transportation equipment manufacturing	Transportation equipment manufacturing (excluding shipbuilding)
Other retail trade	Other retail trade (excluding cars and personal care)
Other transportation	Transit, sightseeing and pipeline transportation
Other professional, scientific and technical services	Legal, accounting, design, research and advertising services
Other information	Broadcasting, data processing and information
Other arts, entertainment and recreation	Heritage institutions
Other education	Private and trades education
Other private services	Repair, personal and non-profit services
Other public administration	Local and Indigenous public administration

APPENDIX 4: High Demand Occupations List Methodology

APPROACH

In this 2018 edition of the report, the methodology of the High Demand Occupations list has been reviewed and redeveloped, in addition to using the new 2016 Census data.

All occupations are assessed and examined with a set of six labour market indicators, which are grouped into three categories: expected job opportunities, expected labour market tightness and current labour market tightness. These indicators provide information on current and future labour market conditions for each occupation.

Each indicator is assigned a weight (from 10 to 25 percent) to reflect its relative impact on the occupational labour market conditions. An opportunity indicator score is calculated for each occupation based on these indicators and weights.

A “High Demand Occupation” refers to an occupation which, relatively, has more job opportunities and where it is easier to obtain a job.

Shown here is an illustration of the methodology of the High Demand Occupations list.



OPPORTUNITY INDICATOR RANKING SCORE COMPONENTS

INDICATOR AND WEIGHT	RATIONALE
How many jobs will be available? <ul style="list-style-type: none">» Forecasted number of job openings (25 percent)» Ratio of job openings to employment (10 percent)» Forecasted employment growth rate (20 percent)	Absolute and relative job opportunities <ul style="list-style-type: none">» Occupations with a larger number of job openings, both in terms of the level and the ratio to employment, offer more opportunities to job seekers and have a bigger impact on the overall economy.» Occupations with faster forecasted employment growth offer more new job opportunities to job seekers.
How easy will it be to get a job in the future? <ul style="list-style-type: none">» Forecasted unemployment rate (25 percent)	Occupations with more limited supply in the future relative to demand <ul style="list-style-type: none">» Occupations with a lower expected unemployment rate implies that it will be easier to find a job in the future.
How easy is it to get a job now? <ul style="list-style-type: none">» Ratio of EI beneficiaries to employment (10 percent)» Recent unemployment rate (10 percent)	Occupations with more limited current supply relative to demand <ul style="list-style-type: none">» Occupations with a lower unemployment rate and a lower ratio of Employment Insurance (EI) beneficiaries to employment offer more opportunities to job seekers.

In the list selection process, a ranking of all 500 occupations is first produced based on the opportunity indicator score. Then, skill level D occupations are excluded as these occupations do not usually need post-secondary education and training. Health professions, because of their highly specialized nature, are presented separately, based on expert analysis from the B.C. Ministry of Health.

CHANGES TO THE HIGH DEMAND OCCUPATIONS LIST

Last year's list includes 73 occupations, excluding health professions. This year, the list of High Demand Occupations has expanded to a total of 100 occupations.

Five occupations from last year's list are removed from the list in this year's BC Labour Market *Outlook: 2018 Edition*. These are occupations that have been identified in both previous and current forecast editions as “moving to balance” occupations, with other occupations considered as offering greater opportunities. A “moving to balance” occupation is a high demand occupation that is offering relatively fewer opportunities than before. If this trend continues, the occupation may be removed in future updates to the list—as has been done with the five occupations that have now been removed. They are:

NOC	Occupation Title
1411	General office support workers
1431	Accounting and related clerks
4012	Post-secondary teaching and research assistants
6421	Retail salespersons
7302	Contractors and supervisors, heavy equipment operator crews

Thirty-two new occupations that ranked sufficiently high, according to the opportunity indicator, have been added to the 2018 edition of the High Demand Occupations list. They are:

NOC	Occupation Title
0012	Senior government managers and officials
0014	Senior managers—health, education, social and community services and membership organizations
0113	Purchasing managers
0114	Other administrative services managers
0125	Other business services managers
0211	Engineering managers
0212	Architecture and science managers
0412	Government managers—economic analysis, policy development and program administration
0414	Other managers in public administration
0422	School principals and administrators of elementary and secondary education
0512	Managers—publishing, motion pictures, broadcasting and performing arts
0651	Managers in customer and personal services
0821	Managers in agriculture
0912	Utilities managers
1112	Financial and investment analysts
1113	Securities agents, investment dealers and brokers
1212	Supervisors, finance and insurance office workers
1215	Supervisors, supply chain, tracking and scheduling co-ordination occupations
1223	Human resources and recruitment officers
1243	Medical administrative assistants
1315	Customs, ship and other brokers
1511	Mail, postal and related workers
1512	Letter carriers
1513	Couriers, messengers and door-to-door distributors
4032	Elementary school and kindergarten teachers
4211	Paralegal and related occupations
4313	Non-commissioned ranks of the Canadian Armed Forces
5221	Photographers
5241	Graphic designers and illustrators
6221	Technical sales specialists—wholesale trade
6235	Financial sales representatives
7315	Aircraft mechanics and aircraft inspectors

Another 11 occupations that were on last year's High Demand Occupations list have been identified as "moving to balance" occupations. These occupations will not be removed from the list at this point, but are being monitored and could be subject to removal if these trends continue. These occupations are:

NOC	Occupation Title
0112	Human resources managers
1241	Administrative assistants
2242	Electronic service technicians (household and business equipment)
2271	Air pilots, flight engineers and flying instructors
2282	User support technicians
4021	College and other vocational instructors
4151	Psychologists
4163	Business development officers and marketing researchers and consultants
4411	Home child care providers
5254	Program leaders and instructors in recreation, sport and fitness
6513	Food and beverage servers

HIGH DEMAND HEALTH PROFESSIONS

An updated list of the top priority health professions is provided by the B.C. Ministry of Health. Similar to the 2017 edition of the Outlook, the top priority health professions are integrated into the High Demand Occupations list, along with employment and wage information. Job openings forecasts are not available for these occupations.

These professions are listed below along with their assignment of the National Occupational Classification occupations.

1. Family physicians (NOC 3112 General practitioners and family physicians)
2. Nurse practitioners (a part of NOC 3124 Allied primary health practitioners)
3. Health care assistants (NOC 3413 Nurse aides, orderlies and patient service associates)
4. Physiotherapists (NOC 3142 Physiotherapists)
5. Occupational therapists (NOC 3143 Occupational therapists)
6. Geriatricians (a part of NOC 3111 Specialist physicians)
7. Licensed practical nurses (NOC 3233 Licensed practical nurses)
8. Perfusionists (a part of NOC 3214 Respiratory therapists, clinical perfusionists and cardiopulmonary technologists)
9. Specialty registered nurses (a part of NOC 3012 Registered nurses and registered psychiatric nurses)
10. Psychiatrists (a part of NOC 3111 Specialist physicians)
11. Sonographers (NOC 3216 Medical sonographers)
12. Paramedics (NOC 3234 Paramedical occupations)
13. Dermatologists (a part of NOC 3111 Specialist physicians)

APPENDIX 5: Methodology and Assumptions

MODEL STRUCTURE AND METHODOLOGY

The B.C. labour market forecasting model is a labour market forecasting system used to generate 10-year projections of labour demand and supply for 500 occupations for B.C. and its economic development regions.

The forecasting system is composed of three sets of regional models: macroeconomic models, industry employment models and occupational models. The results of the regional models are combined to generate the provincial forecast.

Macroeconomic Models

- ▶ There are seven regional macroeconomic models. Two main sections in each regional macroeconomic model are economic and demographic components.
- ▶ The economic component generates industry employment estimates and forecast and ultimately links to the labour demand projections in the occupational model. The demographic component links to the labour supply projections in the occupational model.
- ▶ In each regional macroeconomic model, the entire regional economy is split into 15 high-level industries based on the 2012 North American Industry Classification System (NAICS) structure.

Industry Employment Models

- ▶ There are seven regional industry employment models. For each region, the industry employment model converts employment for high-level industries from the macroeconomic model into employment estimates and forecast for 59 industries.

Occupational Models

- ▶ Produce labour demand projections for 500 occupations at the four-digit NOC level for the seven development regions.
- ▶ Produce labour supply forecast for 500 occupations at the four-digit NOC level for the four aggregated regions—Mainland/Southwest, Vancouver Island/Coast, Southeast (Thompson-Okanagan and Kootenay combined) and North (Cariboo, North Coast and Nechako, and Northeast combined).

Three simplified steps illustrate how the B.C. labour market forecasting model works:

- ▶ Economic and industry growth as well as major projects drive labour demand in each region. Labour demand is determined by expected economic and industry performance, as well as labour productivity.
- ▶ Labour supply and its components of change are primarily driven by demographic shifts, economic performance and labour force participation.
- ▶ Labour market conditions for each occupation are determined by both supply of and demand for labour in that particular occupation.

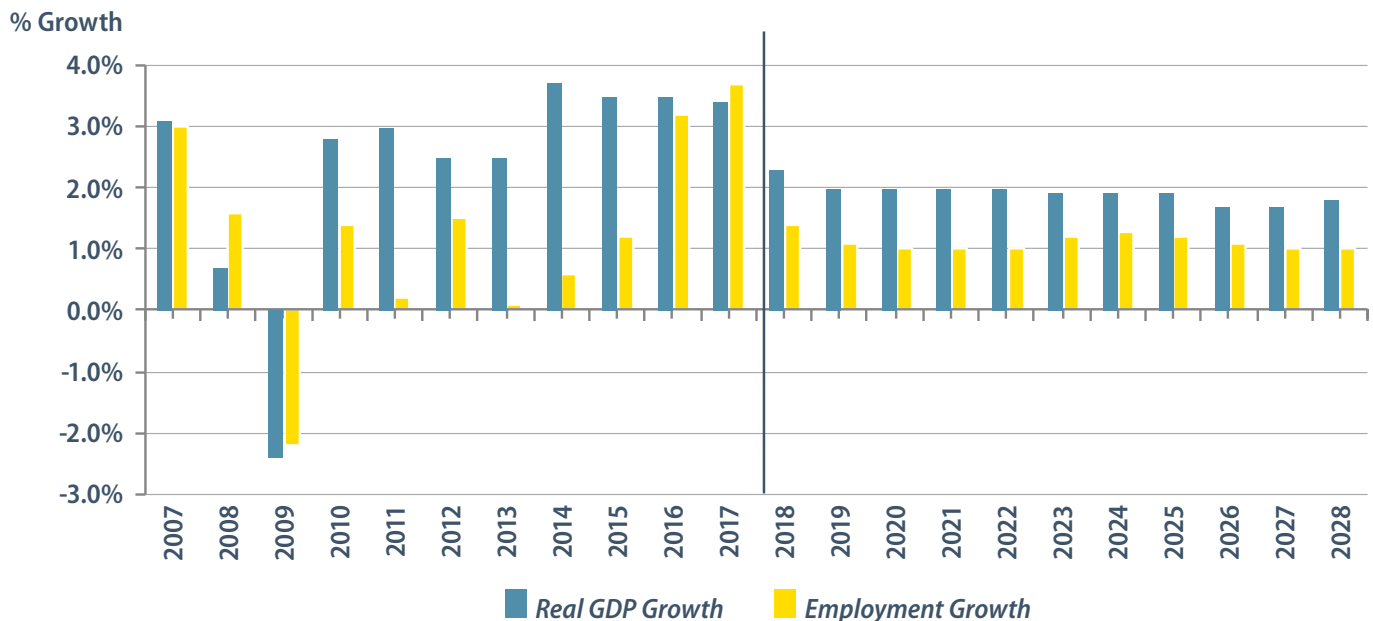
KEY DRIVERS FOR LABOUR DEMAND

Gross Domestic Product, Employment and Productivity Growth

The B.C. economy recovered from the 2008/09 recession with relatively strong real Gross Domestic Product (GDP) growth, which further accelerated in 2014. The figure shows how employment recovered at a much slower pace than real GDP until mid-2015, when employment began a period of strong growth that has continued into 2017.

For the forecast period, employment growth is expected to average 1.1 percent, closely following the projected 1.2 percent population growth. Employment grows slightly slower than population growth because of the increasing share of people in age brackets with lower employment rates. GDP is expected to grow at an average annual rate of 1.9 percent—driven by the growth in employment and 0.8 percent annual growth in labour productivity.

FIGURE 5-1: Real GDP and Employment Growth, B.C., 2007-2028



The large gap between real GDP and employment growth from 2010-2015 indicates that B.C. employers were able to increase sales without a matching increase in employment. In simple terms, the productivity of B.C. workers, measured as real GDP per worker, increased significantly. During the 2009 to 2015 period, labour productivity grew at an annual pace of 2.0 percent—nearly double the 1.1 percent growth experienced over the previous 14 years (1995 to 2009).

However, in 2016, real GDP growth hit 3.7 percent²⁰ and employment increased by 3.2 percent—indicating significantly lower productivity growth (0.5 percent). The Outlook's 2018-2028 forecast factors in differences in all industry groups and assumes an overall return to longer-term productivity trends of 0.9 percent per year, with average GDP growth of 2.0 percent and employment growth of 1.1 percent.

Replacement Demand

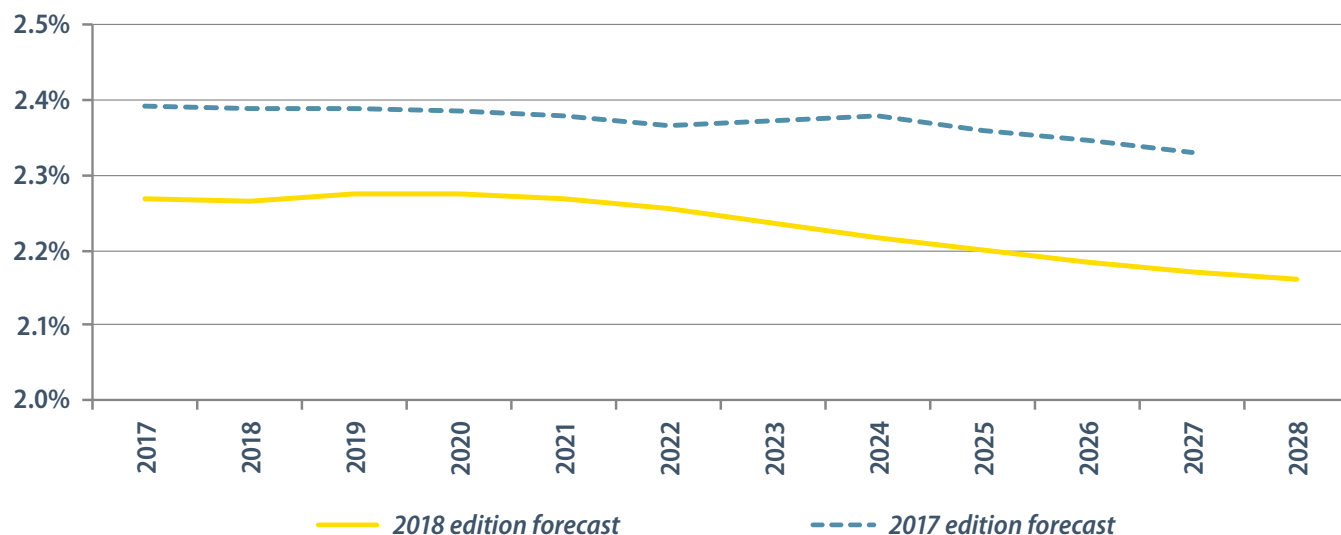
In this forecast, replacement demand accounts for 68 percent of job openings over the next 10 years. Replacement demand represents people permanently exiting the labour force due to retirement, layoff/redundancy, illness, disability or death. The Labour Market Outlook forecast uses average age and average age of retirement data by occupation as well as general mortality rates to estimate the rate of replacements for each occupation. These assumptions were updated with data from the 2016 Census and the Labour Force Survey.

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²⁰ As measured by GDP by Industry.

Analysis of retirement trends resulted in a conclusion that today, people are expected to extend their working lives in comparison to historical patterns. Many find meaning from work and improvements in health and strong labour demand are allowing people to delay their retirement. There are also those who are not yet in a financial position that allows them to retire.

FIGURE 5-2: Revised Forecast for B.C. Average Replacement Rate, 2017-2028

Replacements (retirements and deaths) as a share of labour force



The current forecast projects an average replacement rate of 2.23 percent of the labour force over the next 10 years. This is down from the 2.37 percent rate assumed in last year's B.C. Labour Market Outlook, 2017 edition. In this year's forecast, the replacement rate is projected to peak at 2.28 percent in 2020. With roughly half of the baby boom generation already retired, the replacement rate trends lower to reach 2.16 percent in 2028.

KEY DRIVERS FOR LABOUR SUPPLY

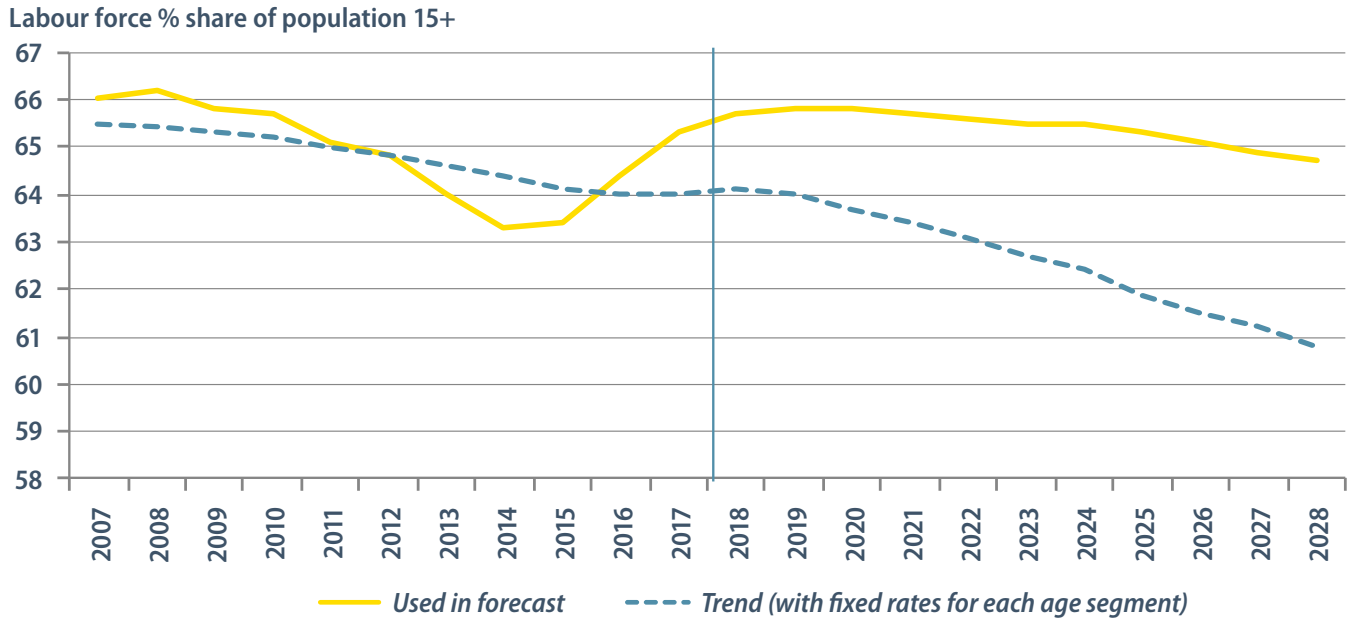
Labour Force Participation

The labour force participation rate (the share of the population 15 years and older in the labour force), is an important component of the labour supply forecast. It represents a wide range of factors in an individual's choice or ability to be a part of the labour force. For example, younger people are more likely to attend school full-time and that means more likely to work part time or to have lower participation rates. Similarly, people approaching retirement will tend to have lower participation rates.

The dotted line in the figure below represents what the participation rate would be if consistent with historically average levels. The downward slope to this "trend" rate is primarily driven by the baby boom generation steadily reaching an age at which their labour force participation rates drop.

Notably, labour force participation is also affected by factors such as economic growth, wages, costs of child care, and education and training opportunities. The labour force participation rate used in the Outlook's forecast takes these other factors into account and is shown in the solid line in the figure.

FIGURE 5-3: B.C. Labour Force Participation Rate Forecast, British Columbia, 2007-2028



In 2007 and 2008, the participation rate rose in response to strong economic growth that pulled people into the workforce. Similarly, the financial crisis and slow recovery resulted in more workers leaving the labour force and the participation rate fell below the trend rate.

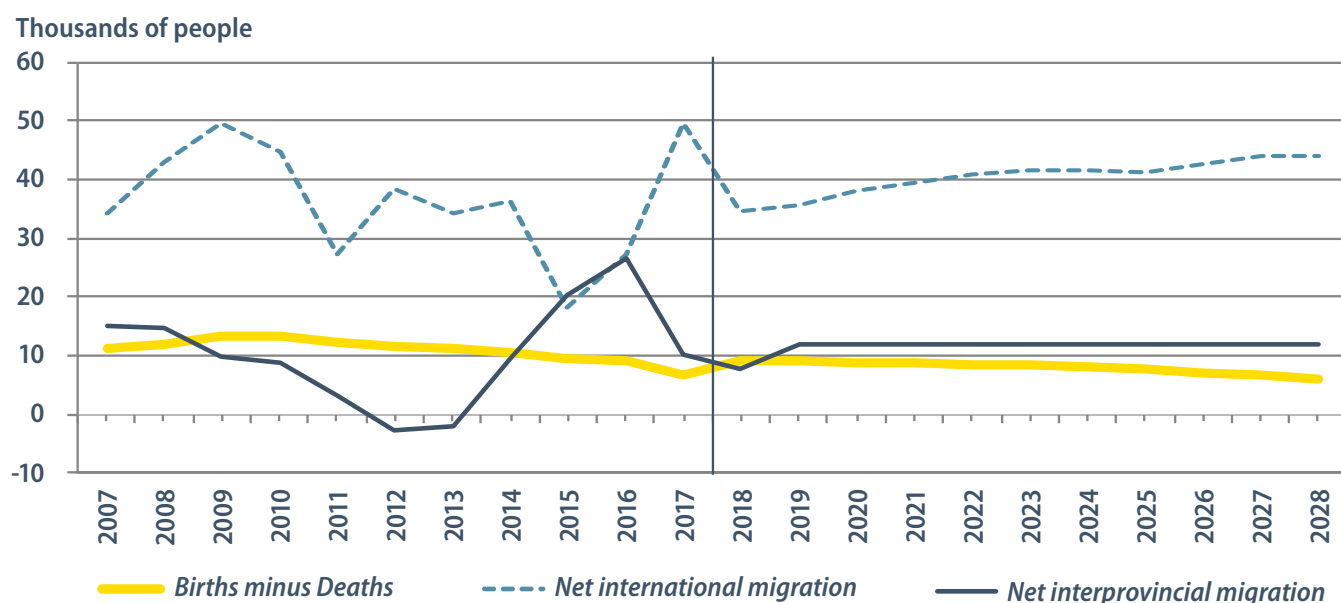
Since 2015, the participation rate has been increasing in line with stronger economic growth. Part of the increase also appears to be a result of more mature workers delaying retirement. Over the next 10 years, it is assumed that continued economic growth, tighter labour supply/demand balance and continued skills training and employment support programs will keep the participation rate above the trend rate.

Demographic Growth

A fundamental constraint in the forecast is the slowing down of population growth. In the context of new entrants to the workforce filling only 48 percent of job openings over the next 10 years, the demographic assumptions are important to understand.

The three main components of demographic growth are the rate of natural increase (births minus deaths), immigration and in-migration from other provinces. These three factors result in B.C.'s population growing at an annual rate of 1.2 percent over the forecast period.

FIGURE 5-4: Key Sources of Demographic Growth, British Columbia, 2007-2028



While the number of births per year is forecast to grow at an average annual rate of 1.0 percent over the next 10 years, the number of deaths is forecast to grow at a faster rate of 1.9 percent. Therefore, the natural rate of increase (births minus deaths) will decline over the forecast period.

Net international migration, defined as immigration minus emigration plus net change in non-permanent residents, is forecast to increase gradually over the period to reach about 44,000 per year by 2028. This is comprised of 2028 gross immigration levels of 49,600, emigration of 13,800 and net change in non-permanent residents of 8,200.

In recent years, net interprovincial migration has been historically high because of the better economic performance of B.C. compared to other provinces, in particular Alberta and Ontario. With improved prospects in those provinces, the forecast assumes that net interprovincial migration will return to 12,000 for most of the forecast period.

These projections are considered to be conservative in that they assume that migration from both sources will shift down from recent highs. Furthermore, up-to-date data from the 2016 Census showing the labour force participation and occupation of recent immigrants helps to ensure that the assumptions about labour supply impact are as accurate as possible.

The in-migration assumptions are not guaranteed. For example, economic growth could be stronger in other provinces with the result that fewer migrants (domestic or international) may choose to come to B.C. and more B.C. residents than expected may move out of the province. In addition, while it is expected that Canada as a whole will easily hit its targeted immigration levels over the next 10 years, it is possible that developments in key immigration source countries could mean that fewer people than expected will choose to come to Canada.

Additions to the Labour Supply

This edition of the forecast has implemented further refinements in the integration of the 5th Edition of the B.C. Post-Secondary Supply Model (PSSM) forecasts to provide more detailed labour supply projections.²¹

The supply composition model focuses on the inflows of the three different supply streams: Young people starting work (called New Entrants), Net In-Migration and a combined group of flows referred to as Additional Supply Requirements.

The majority of labour supply additions (50.3 percent) over the next 10 years will be young people, age 17 to 29 years old, starting work typically after finishing high school or graduating from post-secondary education. A portion of these young

²¹ Overview and summary data file for the PSSM available at: <https://www2.gov.bc.ca/gov/content/data/statistics/employment-labour/labour-market-statistics>

workers will gain certification through a B.C. public post-secondary institution, while others will be trained in private institutions or training organizations.

The labour force additions from young workers graduating from post-secondary education are forecast to decline on average 0.9 percent each year over the next 10 years. This is mainly a result of an anticipated decline in B.C.'s younger population. In the first half of the forecast, the effect of the shrinking younger population is counteracted by a higher share of students in post-secondary education. However, in the second half of the forecast, the effect of the lower youth population accounts for an actual drop in additional post-secondary young workers.

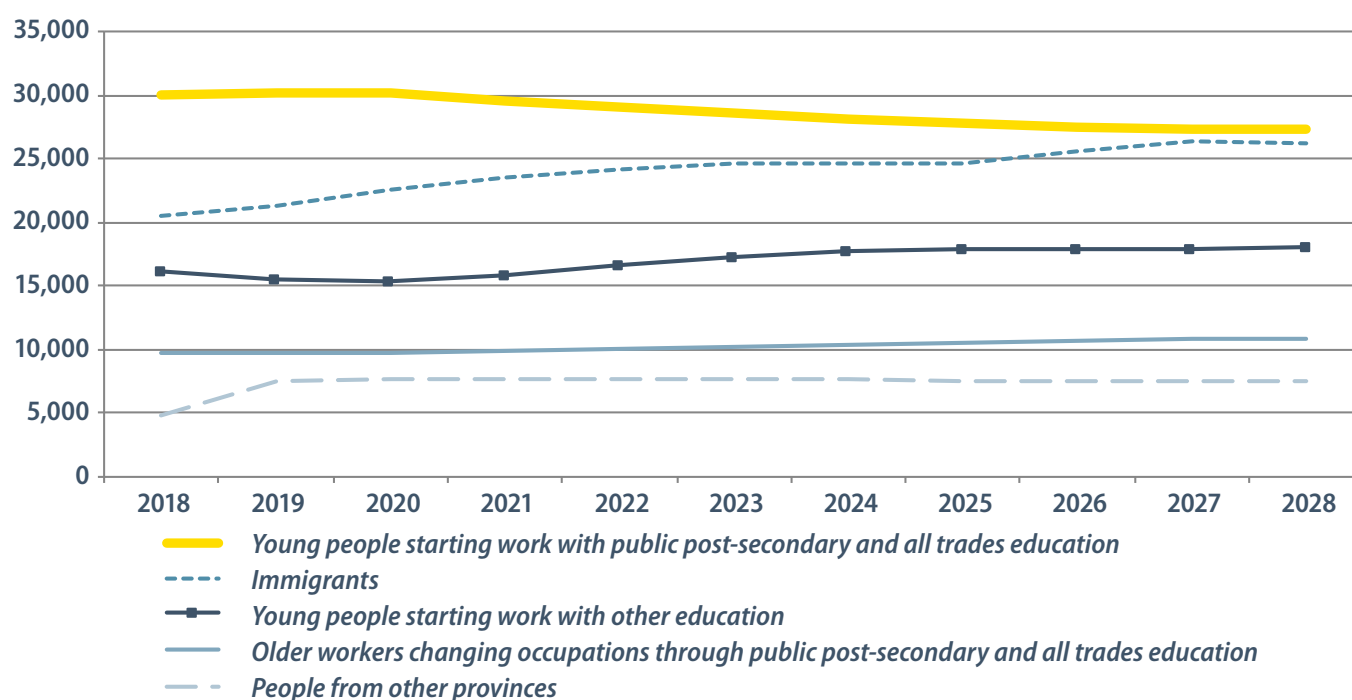
With more job openings than the size of the labour force in B.C., B.C. employers will need to attract 35.3 percent of future employees from other provinces and territories and from outside Canada. The supply composition model captures both streams, migrants from other provinces and international immigrants, with greater growth anticipated from this group during the second half of the forecast period.

The third stream is Additional Supply Requirements. It combines a diverse range of workers who are re-entering the labour market for reasons such as a change in occupation, rediscovering employment/work options due to a stable economy or other elements that pull them back into the job market.

An example of a group in this stream is workers who leave their jobs to pursue an education later in life (30+ years) within the public post-secondary system. They are referred to as Additional Supply Requirements—Public Post-Secondary & All Trades.

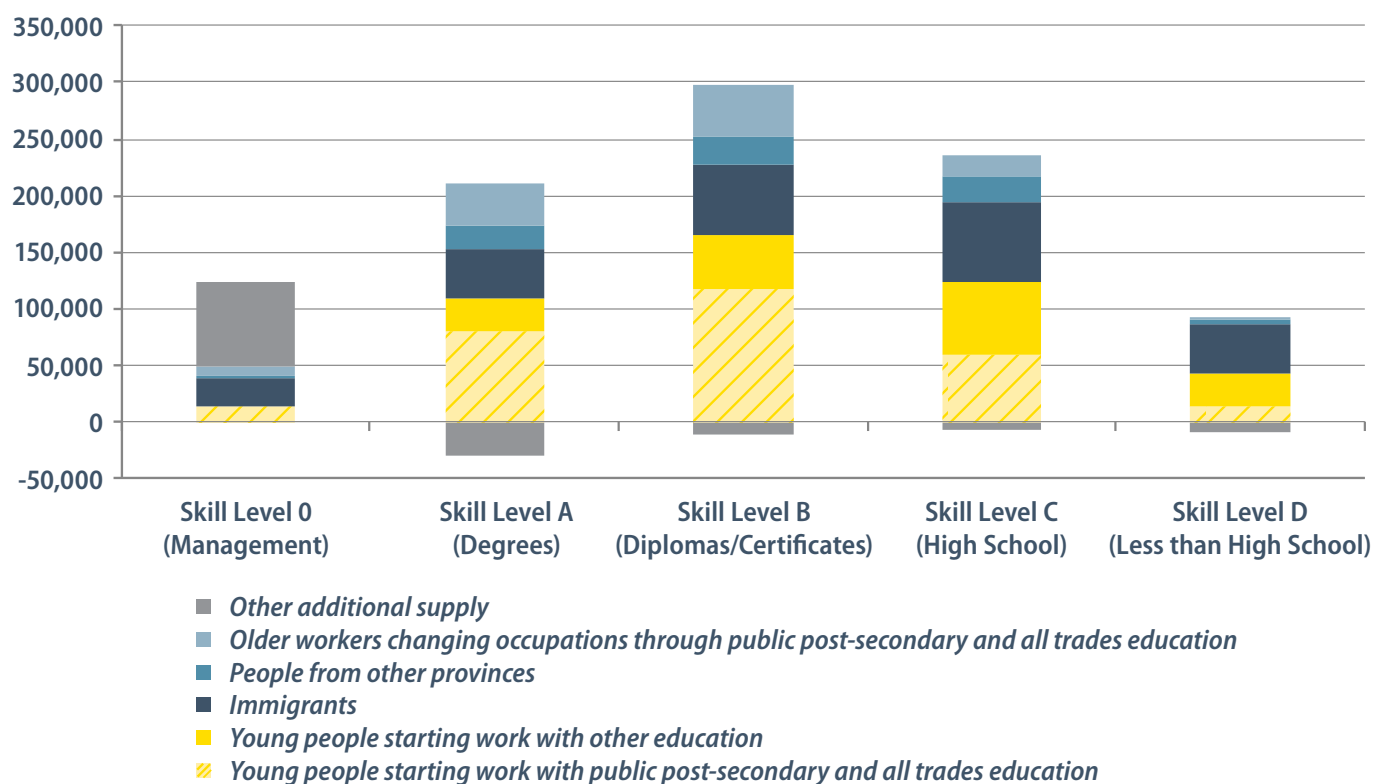
Others may change their occupation based on skills gained through short-term training or work experience and promotion, which is not captured by the post-secondary system. These are picked up in the Supply Composition Model under Additional Supply Requirements—Others. Included in this category are workers re-entering the labour market after a time of absence. The workers who re-enter the labour market after a time of absence lead to increased labour force participation rates overall.

FIGURE 5-5: Sources of Labour Supply Additions, B.C., 2018-2028



The sources of supply can also be analyzed by the typical education requirements for the occupations, also called skill level.

FIGURE 5-6: Composition of Supply by Skill Level, B.C., 2018-2028



As can be seen in Figure 5-6, the sources of supply vary across the skill levels.

For example, for management occupations (Skill Level 0), the main source of supply is “other additional supply”. This is largely made up of workers moving into management from other occupations as well as older workers delaying retirement. For the other occupations, “other additional supply” is actually negative in total, reflecting people moving from these occupations into management.

For occupations that require less than high school (Skill Level D), the main sources of labour are immigrants and young people starting work with education other than a public post-secondary education. Occupations that typically require degrees (Skill Level A) or diplomas/certificates (Skill Level B) are more dependent on young people starting work with a public post-secondary education. Also important to these groups of occupations: people who switch occupations, which is often facilitated by public post-secondary education.

The Supply Composition Model provides information for each of the 500 individual occupations. It also allows a look at major occupational groups and skill sets. Where each of these six groups enters the workforce is of interest.

Table 5-1 shows the spread of the six groups among the 10 major occupational groups. Over the 10-year forecast, about 63 percent of the total additional labour supply is anticipated to have a post-secondary education from a B.C. institution. This matches with the high numbers of job openings in higher-skilled occupations throughout the next 10 years.

However, for management occupations, a majority of the additional labour supply is anticipated to come from a different occupation. Among major occupational groups, the inter-occupational mobility of untrained workers into management occupations is the highest; the second and third largest group is expected to move to Business, Finance and Administration occupations as well as occupations in Art, Culture, Recreation and Sport respectively. For the rest of the major occupational groups, untrained workers are leaving the labour market.

TABLE 5-1: Labour Supply Sources for Occupational Groups, B.C., 2018-2028

NOC	Occupational Group	Young people starting work (17 to 29 years old)		Net in-migration (all ages)		Net additional supply requirements		Total additional supply
		With public post-secondary education	Other education	Immigrants	People from other provinces	Older people (30 yrs +) with public post-secondary education	Other additional supply	
0	Management occupations	13,700	0	24,100	3,100	9,100	74,400	124,400
1	Business, finance and administration occupations	49,900	24,100	27,700	18,600	14,800	16,400	151,400
2	Natural and applied sciences and related occupations	28,800	13,800	21,100	6,600	8,400	-7,300	71,500
3	Health occupations	27,200	14,400	13,700	16,200	15,700	-5,100	82,100
4	Occupations in education, law and social, community and government services	45,900	17,000	22,700	14,800	31,000	-28,300	103,200
5	Occupations in art, culture, recreation and sport	12,900	6,400	8,700	2,100	3,100	4,500	37,700
6	Sales and service occupations	52,100	54,900	79,300	13,100	7,500	-20,700	186,100
7	Trades, transport and equipment operators and related occupations	49,900	28,100	27,100	-1,400	20,300	-17,400	106,700
8	Natural resources, agriculture and related production occupations	2,700	4,100	7,800	-400	500	-600	14,000
9	Occupations in manufacturing and utilities	2,300	5,800	11,000	3,200	900	2,900	26,100
—	All occupations	285,400	168,500	243,400	75,800	111,300	18,700	903,000

Note: Private trades training is included under public post-secondary education. Net additional supply requirements includes the net in-flow from people changing occupations and those aged 30 or above entering or re-entering the labour force.

APPENDIX 6: Job Openings for 500 Occupations

NOC	Occupation Title	Employment 2018	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	Skill Level
0011	Legislators*	760	390	\$23,016.00	\$55,083.00	\$141,794.00	0
0012	Senior government managers and officials	1,810	1,160	\$24.66	\$48.52	\$79.51	0
0013	Senior managers - financial, communications and other business services	8,750	5,070				0
0014	Senior managers - health, education, social and community services and membership organizations	3,580	2,100	\$16.31	\$37.29	\$75.50	0
0015	Senior managers - trade, broadcasting and other services, n.e.c.	6,630	3,480	\$20.00	\$36.91	\$76.91	0
0016	Senior managers - construction, transportation, production and utilities	8,280	3,870	\$21.50	\$47.65	\$90.77	0
0111	Financial managers	9,350	4,670	\$21.03	\$40.86	\$67.31	0
0112	Human resources managers	5,640	2,320	\$22.85	\$34.19	\$57.69	0
0113	Purchasing managers	2,570	1,640	\$20.10	\$37.56	\$65.22	0
0114	Other administrative services managers	4,610	2,680				0
0121	Insurance, real estate and financial brokerage managers	6,550	3,270	\$21.00	\$42.56	\$75.90	0
0122	Banking, credit and other investment managers	8,490	4,080	\$24.04	\$41.03	\$60.10	0
0124	Advertising, marketing and public relations managers	9,900	3,490	\$19.64	\$38.00	\$75.00	0
0125	Other business services managers	3,750	2,070	\$20.00	\$32.31	\$51.28	0
0131	Telecommunication carriers managers	1,580	740	\$34.87	\$41.03	\$57.00	0
0132	Postal and courier services managers	440	140				0
0211	Engineering managers	2,700	1,240	\$33.00	\$50.75	\$72.31	0
0212	Architecture and science managers	1,180	640	\$16.31	\$39.44	\$75.39	0
0213	Computer and information systems managers	8,340	4,780	\$26.44	\$43.27	\$69.40	0
0311	Managers in health care	5,100	3,050	\$19.66	\$38.46	\$53.85	0
0411	Government managers - health and social policy development and program administration	510	280	\$28.84	\$43.11	\$62.50	0
0412	Government managers - economic analysis, policy development and program administration	870	500	\$25.98	\$41.66	\$62.39	0
0413	Government managers - education policy development and program administration	130	70	\$34.77	\$48.40	\$64.79	0
0414	Other managers in public administration	810	470	\$30.77	\$47.80	\$62.50	0
0421	Administrators - post-secondary education and vocational training	2,870	1,320	\$17.86	\$36.89	\$61.10	0
0422	School principals and administrators of elementary and secondary education	3,430	1,680	\$24.00	\$41.96	\$52.88	0
0423	Managers in social, community and correctional services	4,590	2,480	\$23.47	\$38.46	\$62.50	0
0431	Commissioned police officers	140	120				0
0432	Fire chiefs and senior firefighting officers	340	310	\$34.37	\$55.58	\$64.84	0
0433	Commissioned officers of the Canadian Armed Forces	770	340	\$18.24	\$35.10	\$50.87	0
0511	Library, archive, museum and art gallery managers	560	270	\$11.35	\$30.26	\$51.03	0
0512	Managers - publishing, motion pictures, broadcasting and performing arts	1,280	820	\$18.33	\$29.42	\$49.04	0
0513	Recreation, sports and fitness program and service directors	2,360	1,000	\$11.35	\$26.03	\$47.07	0
0601	Corporate sales managers	9,350	4,660	\$17.79	\$36.35	\$49.04	0
0621	Retail and wholesale trade managers	59,910	20,560	\$14.42	\$28.00	\$52.88	0
0631	Restaurant and food service managers	18,830	7,780	\$12.67	\$18.75	\$38.46	0
0632	Accommodation service managers	5,930	2,890	\$15.00	\$24.00	\$36.06	0
0651	Managers in customer and personal services, n.e.c.	4,870	2,000	\$15.00	\$21.63	\$35.00	0
0711	Construction managers	17,840	5,870	\$19.85	\$38.46	\$57.69	0

NOC	Occupation Title	Employment 2018	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	Skill Level
0712	Home building and renovation managers	10,910	2,900	\$14.00	\$20.00	\$32.61	0
0714	Facility operation and maintenance managers	9,650	4,830	\$19.85	\$35.10	\$57.00	0
0731	Managers in transportation	6,310	3,010	\$19.75	\$35.00	\$64.90	0
0811	Managers in natural resources production and fishing	2,070	1,090	\$25.00	\$41.93	\$72.41	0
0821	Managers in agriculture	10,240	3,160				0
0822	Managers in horticulture	830	250	\$11.35	\$15.09	\$35.75	0
0823	Managers in aquaculture	380	70	\$11.35	\$24.10	\$34.27	0
0911	Manufacturing managers	10,350	3,970	\$17.00	\$38.46	\$61.54	0
0912	Utilities managers	1,420	770	\$15.13	\$45.05	\$85.39	0
1111	Financial auditors and accountants	28,740	10,830	\$17.00	\$27.88	\$47.00	A
1112	Financial and investment analysts	4,260	1,620	\$18.46	\$33.52	\$50.00	A
1113	Securities agents, investment dealers and brokers	2,530	1,270				A
1114	Other financial officers	16,860	6,630	\$20.19	\$32.31	\$57.69	A
1121	Human resources professionals	7,980	3,140	\$17.58	\$32.05	\$54.87	A
1122	Professional occupations in business management consulting	10,320	4,790	\$20.00	\$36.00	\$51.43	A
1123	Professional occupations in advertising, marketing and public relations	12,050	4,300	\$16.00	\$27.00	\$48.08	A
1211	Supervisors, general office and administrative support workers	1,700	760	\$18.27	\$25.64	\$36.00	B
1212	Supervisors, finance and insurance office workers	2,240	1,260	\$17.87	\$28.72	\$46.15	B
1213	Supervisors, library, correspondence and related information workers	350	230	\$11.35	\$25.20	\$36.53	B
1214	Supervisors, mail and message distribution occupations	690	360	\$17.38	\$29.86	\$33.11	B
1215	Supervisors, supply chain, tracking and scheduling co-ordination occupations	6,400	2,700	\$15.00	\$22.00	\$40.06	B
1221	Administrative officers	35,430	17,130	\$15.00	\$23.38	\$33.00	B
1222	Executive assistants	5,600	2,190	\$17.50	\$25.50	\$31.28	B
1223	Human resources and recruitment officers	3,130	1,360	\$17.79	\$27.00	\$38.46	B
1224	Property administrators	9,010	4,010	\$11.54	\$20.00	\$33.76	B
1225	Purchasing agents and officers	5,230	2,160	\$15.18	\$27.47	\$40.87	B
1226	Conference and event planners	3,600	1,190	\$14.00	\$22.36	\$40.00	B
1227	Court officers and justices of the peace	300	160	\$20.39	\$29.39	\$50.84	B
1228	Employment insurance, immigration, border services and revenue officers	3,180	1,340	\$17.31	\$28.46	\$38.00	B
1241	Administrative assistants	26,040	9,720	\$14.42	\$22.00	\$30.00	B
1242	Legal administrative assistants	6,600	2,690	\$15.00	\$24.00	\$32.00	B
1243	Medical administrative assistants	3,980	2,010	\$15.00	\$22.00	\$31.25	B
1251	Court reporters, medical transcriptionists and related occupations	1,680	720	\$18.00	\$21.47	\$27.63	B
1252	Health information management occupations	600	320	\$19.84	\$30.41	\$39.55	B
1253	Records management technicians	490	230				B
1254	Statistical officers and related research support occupations	440	160	\$18.35	\$27.23	\$40.49	B
1311	Accounting technicians and bookkeepers	23,600	10,550	\$13.13	\$20.83	\$32.05	B
1312	Insurance adjusters and claims examiners	3,950	1,470	\$14.00	\$31.00	\$48.00	B
1313	Insurance underwriters	1,340	460	\$18.27	\$24.04	\$37.69	B
1314	Assessors, valuers and appraisers	1,440	550	\$20.07	\$33.59	\$43.04	B
1315	Customs, ship and other brokers	630	310	\$11.35	\$21.85	\$39.50	B
1411	General office support workers	36,710	14,280	\$13.08	\$21.35	\$29.30	C
1414	Receptionists	24,980	9,590	\$11.35	\$17.58	\$25.00	C
1415	Personnel clerks	1,740	700	\$13.50	\$22.68	\$28.64	C
1416	Court clerks	380	130	\$18.22	\$24.26	\$30.63	C
1422	Data entry clerks	4,070	1,490	\$11.50	\$18.50	\$25.00	C

NOC	Occupation Title	Employment 2018	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	Skill Level
1423	Desktop publishing operators and related occupations	290	130	\$14.42	\$30.00	\$51.00	C
1431	Accounting and related clerks	19,520	7,730	\$13.30	\$21.00	\$30.00	C
1432	Payroll administrators	4,870	1,970	\$15.00	\$23.80	\$30.77	C
1434	Banking, insurance and other financial clerks	2,760	1,060	\$14.42	\$20.00	\$25.00	C
1435	Collectors	1,270	460	\$12.38	\$22.39	\$30.05	C
1451	Library assistants and clerks	1,750	780	\$15.50	\$22.40	\$25.91	C
1452	Correspondence, publication and regulatory clerks	3,140	1,430	\$11.35	\$22.90	\$31.25	C
1454	Survey interviewers and statistical clerks	1,450	730	\$11.35	\$18.71	\$33.85	C
1511	Mail, postal and related workers	3,090	1,350	\$11.35	\$18.00	\$26.00	C
1512	Letter carriers	3,450	1,550	\$18.00	\$25.00	\$28.00	C
1513	Couriers, messengers and door-to-door distributors	3,910	1,770	\$11.35	\$12.50	\$25.00	C
1521	Shippers and receivers	12,360	3,420	\$11.40	\$16.83	\$28.22	C
1522	Storekeepers and partpersons	5,050	1,840	\$11.35	\$19.88	\$29.81	C
1523	Production logistics co-ordinators	3,200	1,110	\$15.00	\$21.89	\$37.50	C
1524	Purchasing and inventory control workers	3,560	1,210	\$11.35	\$18.00	\$30.00	C
1525	Dispatchers	4,920	1,790	\$15.00	\$25.00	\$36.64	C
1526	Transportation route and crew schedulers	720	280	\$12.86	\$23.84	\$42.16	C
2111	Physicists and astronomers	380	150	\$16.29	\$43.69	\$74.71	A
2112	Chemists	1,220	490	\$17.00	\$30.29	\$64.90	A
2113	Geoscientists and oceanographers	1,860	770	\$21.46	\$44.87	\$95.18	A
2114	Meteorologists and climatologists	140	50	\$34.99	\$44.58	\$54.12	A
2115	Other professional occupations in physical sciences	200	60	\$13.45	\$43.34	\$78.10	A
2121	Biologists and related scientists	3,750	1,220	\$22.00	\$35.71	\$50.00	A
2122	Forestry professionals	1,920	420	\$26.00	\$33.65	\$43.96	A
2123	Agricultural representatives, consultants and specialists	380	160	\$11.35	\$35.52	\$42.75	A
2131	Civil engineers	8,750	3,940	\$20.19	\$35.00	\$67.00	A
2132	Mechanical engineers	6,040	2,140	\$23.65	\$42.31	\$57.69	A
2133	Electrical and electronics engineers	6,130	2,340	\$26.44	\$38.46	\$67.31	A
2134	Chemical engineers	1,170	390	\$25.37	\$42.00	\$74.62	A
2141	Industrial and manufacturing engineers	1,330	460	\$21.21	\$35.90	\$60.62	A
2142	Metallurgical and materials engineers	370	130				A
2143	Mining engineers	830	320	\$23.24	\$54.88	\$122.98	A
2144	Geological engineers	1,070	450				A
2145	Petroleum engineers	210	80	\$16.91	\$49.10	\$106.27	A
2146	Aerospace engineers	310	120	\$17.75	\$37.16	\$52.73	A
2147	Computer engineers (except software engineers and designers)	2,550	1,150	\$25.48	\$40.50	\$50.61	A
2148	Other professional engineers, n.e.c.	1,020	350	\$21.63	\$39.10	\$61.54	A
2151	Architects	3,590	1,670	\$22.66	\$30.77	\$40.00	A
2152	Landscape architects	400	210				A
2153	Urban and land use planners	1,710	670	\$24.60	\$38.20	\$57.00	A
2154	Land surveyors	1,190	470	\$21.00	\$31.00	\$42.93	A
2161	Mathematicians, statisticians and actuaries	820	270	\$19.92	\$38.32	\$53.57	A
2171	Information systems analysts and consultants	17,490	8,660	\$23.08	\$38.46	\$52.88	A
2172	Database analysts and data administrators	2,420	960	\$16.00	\$31.25	\$48.08	A
2173	Software engineers and designers	10,290	4,760	\$24.04	\$38.46	\$52.88	A
2174	Computer programmers and interactive media developers	14,740	8,050	\$22.00	\$38.46	\$55.77	A
2175	Web designers and developers	5,020	2,280	\$16.00	\$25.00	\$50.00	A
2211	Chemical technologists and technicians	2,400	830	\$12.27	\$26.68	\$41.46	B
2212	Geological and mineral technologists and technicians	970	330	\$12.42	\$31.35	\$53.61	B
2221	Biological technologists and technicians	1,440	480	\$13.84	\$26.56	\$38.70	B
2222	Agricultural and fish products inspectors	660	220	\$18.92	\$29.72	\$42.48	B
2223	Forestry technologists and technicians	2,670	470	\$19.00	\$24.00	\$34.00	B

NOC	Occupation Title	Employment 2018	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	Skill Level
2224	Conservation and fishery officers	730	310	\$12.12	\$32.23	\$42.65	B
2225	Landscape and horticulture technicians and specialists	3,540	1,190	\$17.50	\$23.75	\$33.65	B
2231	Civil engineering technologists and technicians	2,590	960	\$21.58	\$34.62	\$45.64	B
2232	Mechanical engineering technologists and technicians	2,020	750	\$19.00	\$30.00	\$50.00	B
2233	Industrial engineering and manufacturing technologists and technicians	1,770	540				B
2234	Construction estimators	3,340	710	\$23.56	\$37.00	\$50.77	B
2241	Electrical and electronics engineering technologists and technicians	5,240	1,910	\$17.00	\$26.44	\$37.80	B
2242	Electronic service technicians (household and business equipment)	7,820	3,040	\$15.70	\$23.00	\$38.31	B
2243	Industrial instrument technicians and mechanics	1,030	340				B
2244	Aircraft instrument, electrical and avionics mechanics, technicians and inspectors	740	310	\$23.54	\$34.23	\$44.04	B
2251	Architectural technologists and technicians	1,390	670	\$16.66	\$29.03	\$44.22	B
2252	Industrial designers	1,310	530	\$20.00	\$32.63	\$63.66	B
2253	Drafting technologists and technicians	3,900	1,580				B
2254	Land survey technologists and technicians	510	190				B
2255	Technical occupations in geomatics and meteorology	1,620	640	\$23.40	\$35.00	\$68.03	B
2261	Non-destructive testers and inspection technicians	570	270	\$21.38	\$34.01	\$47.00	B
2262	Engineering inspectors and regulatory officers	630	270	\$16.68	\$38.46	\$67.09	B
2263	Inspectors in public and environmental health and occupational health and safety	4,180	1,640	\$20.79	\$32.00	\$46.00	B
2264	Construction inspectors	2,490	1,270	\$21.00	\$36.32	\$44.68	B
2271	Air pilots, flight engineers and flying instructors	4,050	1,610				B
2272	Air traffic controllers and related occupations	750	320	\$22.72	\$48.97	\$104.89	B
2273	Deck officers, water transport	1,660	620	\$27.38	\$38.46	\$47.31	B
2274	Engineer officers, water transport	620	270	\$28.00	\$37.00	\$49.73	B
2275	Railway traffic controllers and marine traffic regulators	180	70	\$26.15	\$35.70	\$45.30	B
2281	Computer network technicians	7,490	3,300	\$21.60	\$33.65	\$57.69	B
2282	User support technicians	5,380	2,180	\$18.00	\$28.97	\$48.08	B
2283	Information systems testing technicians	1,130	500	\$14.42	\$28.29	\$45.29	B
3011	Nursing co-ordinators and supervisors	2,630	1,700	\$22.68	\$42.00	\$48.50	A
3012	Registered nurses and registered psychiatric nurses	47,400	19,580	\$23.00	\$37.00	\$43.00	A
3111	Specialist physicians*	6,640	2,880	\$49,944.00	\$124,209.00	\$334,897.00	A
3112	General practitioners and family physicians*	7,720	3,350	\$40,144.00	\$104,451.00	\$242,695.00	A
3113	Dentists*	3,290	1,590	\$24,155.00	\$84,991.00	\$179,832.00	A
3114	Veterinarians*	1,360	550	\$32,764.00	\$78,026.00	\$139,403.00	A
3121	Optometrists*	620	320	\$23,016.00	\$78,464.00	\$145,093.00	A
3122	Chiropractors*	1,090	590	\$23,016.00	\$64,316.00	\$100,199.00	A
3124	Allied primary health practitioners	890	430				A
3125	Other professional occupations in health diagnosing and treating*	500	290	\$23,016.00	\$54,201.00	\$89,531.00	A
3131	Pharmacists*	4,650	1,380	\$60,129.00	\$95,455.00	\$128,235.00	A
3132	Dietitians and nutritionists	1,760	950	\$17.54	\$36.49	\$39.66	A
3141	Audiologists and speech-language pathologists	1,220	520	\$31.80	\$38.90	\$45.95	A
3142	Physiotherapists	3,760	1,920	\$20.00	\$37.00	\$44.76	A
3143	Occupational therapists	2,200	1,160	\$31.00	\$38.42	\$42.00	A
3144	Other professional occupations in therapy and assessment	2,070	680	\$18.95	\$24.75	\$36.87	A
3211	Medical laboratory technologists	3,140	1,590	\$16.83	\$32.05	\$39.50	B
3212	Medical laboratory technicians and pathologists' assistants	3,960	1,600	\$21.00	\$24.57	\$35.00	B
3213	Animal health technologists and veterinary technicians	2,160	630	\$13.00	\$20.50	\$26.27	B

NOC	Occupation Title	Employment 2018	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	Skill Level
3214	Respiratory therapists, clinical perfusionists and cardiopulmonary technologists	1,370	640	\$23.00	\$33.00	\$36.00	B
3215	Medical radiation technologists	2,680	1,100	\$29.00	\$34.50	\$38.80	B
3216	Medical sonographers	740	370	\$20.21	\$37.11	\$48.56	B
3217	Cardiology technologists and electrophysiological diagnostic technologists, n.e.c.	480	190	\$15.50	\$31.17	\$36.00	B
3219	Other medical technologists and technicians (except dental health)	5,580	1,590	\$11.50	\$20.00	\$27.00	B
3221	Denturists*	190	70	\$25,480.00	\$85,069.00	\$121,269.00	B
3222	Dental hygienists and dental therapists	3,000	1,390	\$23.08	\$41.00	\$45.00	B
3223	Dental technologists, technicians and laboratory assistants	1,040	460	\$14.64	\$25.08	\$38.21	B
3231	Opticians	1,100	510	\$11.35	\$20.11	\$30.85	B
3232	Practitioners of natural healing	2,300	1,310				B
3233	Licensed practical nurses	9,610	4,610	\$22.60	\$27.00	\$29.50	B
3234	Paramedical occupations	3,180	1,390	\$17.00	\$26.78	\$39.66	B
3236	Massage therapists	5,090	2,880	\$11.60	\$27.07	\$55.00	B
3237	Other technical occupations in therapy and assessment	960	400	\$13.60	\$21.30	\$40.66	B
3411	Dental assistants	5,190	2,050	\$18.00	\$24.00	\$28.00	C
3413	Nurse aides, orderlies and patient service associates	34,720	19,210	\$16.00	\$21.00	\$27.00	C
3414	Other assisting occupations in support of health services	5,230	2,200	\$14.00	\$22.00	\$27.00	C
4011	University professors and lecturers	9,730	3,840	\$17.31	\$38.46	\$69.23	A
4012	Post-secondary teaching and research assistants	8,210	1,430	\$11.54	\$21.50	\$37.98	A
4021	College and other vocational instructors	10,960	3,990	\$17.00	\$33.65	\$50.48	A
4031	Secondary school teachers	20,250	6,520	\$20.02	\$32.97	\$46.15	A
4032	Elementary school and kindergarten teachers	33,310	10,070	\$20.51	\$32.05	\$46.63	A
4033	Educational counsellors	3,100	1,040	\$18.46	\$28.10	\$50.00	A
4111	Judges	290	170	\$68.75	\$111.16	\$133.46	A
4112	Lawyers and Quebec notaries*	12,570	5,380	\$39,811.00	\$106,361.00	\$269,702.00	A
4151	Psychologists	2,550	1,000	\$16.00	\$35.36	\$51.00	A
4152	Social workers	7,120	2,830	\$19.00	\$30.00	\$42.00	A
4153	Family, marriage and other related counsellors	5,470	2,640	\$18.00	\$26.74	\$37.45	A
4154	Professional occupations in religion	4,800	1,650	\$11.35	\$24.05	\$39.47	A
4155	Probation and parole officers and related occupations	960	350	\$20.61	\$34.42	\$42.43	A
4156	Employment counsellors	2,330	940	\$21.00	\$23.50	\$28.21	A
4161	Natural and applied science policy researchers, consultants and program officers	3,470	1,330	\$24.62	\$35.00	\$53.37	A
4162	Economists and economic policy researchers and analysts	1,560	600	\$27.97	\$37.44	\$49.06	A
4163	Business development officers and marketing researchers and consultants	9,690	3,280	\$16.00	\$31.25	\$43.59	A
4164	Social policy researchers, consultants and program officers	4,000	1,630	\$20.00	\$32.97	\$46.42	A
4165	Health policy researchers, consultants and program officers	4,140	1,850	\$19.00	\$30.42	\$49.45	A
4166	Education policy researchers, consultants and program officers	3,300	1,160				A
4167	Recreation, sports and fitness policy researchers, consultants and program officers	1,710	630	\$15.00	\$22.50	\$33.27	A
4168	Program officers unique to government	1,190	580	\$15.97	\$33.76	\$65.43	A
4169	Other professional occupations in social science, n.e.c.	930	340	\$17.67	\$31.33	\$50.29	A
4211	Paralegal and related occupations	3,770	1,480	\$13.85	\$27.00	\$45.67	B
4212	Social and community service workers	25,580	11,800	\$15.00	\$19.50	\$28.85	B
4214	Early childhood educators and assistants	20,250	8,870	\$13.00	\$16.95	\$24.04	B
4215	Instructors of persons with disabilities	1,300	450				B
4216	Other instructors	6,410	1,720	\$11.35	\$18.00	\$38.46	B

NOC	Occupation Title	Employment 2018	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	Skill Level
4217	Other religious occupations	1,160	490	\$12.00	\$19.78	\$41.50	B
4311	Police officers (except commissioned)	9,470	3,840	\$25.50	\$40.00	\$50.71	B
4312	Firefighters	3,650	1,400	\$27.00	\$40.00	\$52.00	B
4313	Non-commissioned ranks of the Canadian Armed Forces	3,550	1,170	\$16.21	\$28.21	\$37.38	B
4411	Home child care providers	14,300	4,660	\$11.35	\$12.00	\$21.60	C
4412	Home support workers, housekeepers and related occupations	14,280	7,070	\$11.35	\$16.75	\$23.00	C
4413	Elementary and secondary school teacher assistants	14,420	5,110	\$17.00	\$23.96	\$27.00	C
4421	Sheriffs and bailiffs	540	210	\$22.05	\$29.08	\$41.23	C
4422	Correctional service officers	2,850	1,210	\$21.00	\$30.00	\$40.87	C
4423	By-law enforcement and other regulatory officers, n.e.c.	1,110	470	\$12.45	\$28.70	\$43.65	C
5111	Librarians	970	430	\$19.71	\$27.47	\$42.31	A
5112	Conservators and curators	250	100	\$11.35	\$26.08	\$36.64	A
5113	Archivists	120	60				A
5121	Authors and writers	4,820	2,080	\$11.35	\$25.48	\$37.50	A
5122	Editors	2,280	1,250				A
5123	Journalists	1,300	620				A
5125	Translators, terminologists and interpreters	1,590	670	\$15.00	\$26.29	\$38.90	A
5131	Producers, directors, choreographers and related occupations	5,000	2,950	\$15.81	\$26.44	\$60.00	A
5132	Conductors, composers and arrangers	630	240				A
5133	Musicians and singers	6,710	1,700	\$19.50	\$27.00	\$50.00	A
5134	Dancers	1,850	290	\$19.25	\$35.00	\$45.00	A
5135	Actors and comedians	3,130	1,350				A
5136	Painters, sculptors and other visual artists	5,110	1,940	\$15.97	\$28.50	\$38.86	A
5211	Library and public archive technicians	820	390	\$19.44	\$23.72	\$33.82	B
5212	Technical occupations related to museums and art galleries	720	280	\$13.00	\$18.00	\$26.11	B
5221	Photographers	3,030	1,230				B
5222	Film and video camera operators	1,060	510	\$16.66	\$31.55	\$50.00	B
5223	Graphic arts technicians	1,060	410	\$16.00	\$25.00	\$48.66	B
5224	Broadcast technicians	150	50	\$11.35	\$25.33	\$42.83	B
5225	Audio and video recording technicians	3,150	1,490	\$17.00	\$28.62	\$39.64	B
5226	Other technical and co-ordinating occupations in motion pictures, broadcasting and the performing arts	4,210	2,200	\$15.00	\$28.00	\$52.88	B
5227	Support occupations in motion pictures, broadcasting, photography and the performing arts	3,830	1,920	\$14.00	\$23.54	\$35.00	B
5231	Announcers and other broadcasters	700	350	\$15.00	\$22.55	\$48.98	B
5232	Other performers, n.e.c.	1,190	510				B
5241	Graphic designers and illustrators	11,430	5,010	\$15.38	\$25.50	\$37.00	B
5242	Interior designers and interior decorators	4,350	1,530	\$11.54	\$22.00	\$31.49	B
5243	Theatre, fashion, exhibit and other creative designers	2,880	720	\$13.26	\$25.00	\$38.02	B
5244	Artisans and craftspersons	3,490	1,440	\$12.50	\$17.00	\$26.45	B
5245	Patternmakers - textile, leather and fur products	160	50				B
5251	Athletes	680	150				B
5252	Coaches	2,360	700	\$11.35	\$20.00	\$32.69	B
5253	Sports officials and referees	950	170				B
5254	Program leaders and instructors in recreation, sport and fitness	20,260	4,860	\$12.00	\$20.00	\$27.92	B
6211	Retail sales supervisors	9,230	2,830	\$11.51	\$18.27	\$33.65	B
6221	Technical sales specialists - wholesale trade	10,570	4,630	\$14.00	\$25.38	\$46.63	B
6222	Retail and wholesale buyers	4,720	1,420	\$14.00	\$23.40	\$34.62	B
6231	Insurance agents and brokers	10,110	3,480	\$14.00	\$22.00	\$35.90	B
6232	Real estate agents and salespersons*	20,180	7,100	\$23,016.00	\$44,753.00	\$103,667.00	B

NOC	Occupation Title	Employment 2018	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	Skill Level
6235	Financial sales representatives	8,970	3,340	\$13.75	\$23.08	\$33.65	B
6311	Food service supervisors	5,760	1,790	\$11.35	\$13.95	\$22.97	B
6312	Executive housekeepers	900	470	\$12.00	\$16.00	\$21.84	B
6313	Accommodation, travel, tourism and related services supervisors	1,300	440	\$14.42	\$19.00	\$29.54	B
6314	Customer and information services supervisors	1,100	460	\$11.35	\$21.00	\$35.00	B
6315	Cleaning supervisors	1,310	700	\$12.00	\$23.59	\$34.30	B
6316	Other services supervisors	2,180	1,020	\$14.00	\$19.80	\$35.18	B
6321	Chefs	9,590	3,290	\$11.50	\$17.31	\$25.96	B
6322	Cooks	33,620	11,490	\$11.35	\$13.75	\$20.00	B
6331	Butchers, meat cutters and fishmongers - retail and wholesale	2,410	640	\$11.35	\$14.00	\$25.00	B
6332	Bakers	7,110	2,270	\$11.35	\$13.00	\$25.00	B
6341	Hairstylists and barbers	13,990	4,970	\$11.35	\$14.00	\$22.50	B
6342	Tailors, dressmakers, furriers and milliners	2,580	800	\$11.35	\$15.00	\$25.00	B
6343	Shoe repairers and shoemakers	220	100				B
6344	Jewellers, jewellery and watch repairers and related occupations	850	260				B
6345	Upholsterers	610	290	\$12.00	\$20.00	\$28.41	B
6346	Funeral directors and embalmers	500	160	\$14.62	\$24.53	\$189.51	B
6411	Sales and account representatives - wholesale trade (non-technical)	17,460	6,440	\$13.74	\$24.04	\$41.83	C
6421	Retail salespersons	100,390	24,610	\$11.35	\$12.50	\$23.00	C
6511	Maitres d'hôtel and hosts/hostesses	4,650	930	\$11.35	\$13.00	\$21.35	C
6512	Bartenders	5,190	1,250	\$11.35	\$11.50	\$15.50	C
6513	Food and beverage servers	33,790	8,170	\$11.35	\$11.35	\$15.69	C
6521	Travel counsellors	4,460	1,930	\$12.00	\$16.00	\$23.00	C
6522	Pursers and flight attendants	3,370	1,540	\$14.42	\$23.00	\$50.00	C
6523	Airline ticket and service agents	2,940	1,460	\$11.35	\$16.35	\$26.50	C
6524	Ground and water transport ticket agents, cargo service representatives and related clerks	650	240	\$12.00	\$18.14	\$26.00	C
6525	Hotel front desk clerks	4,610	1,430	\$11.35	\$14.00	\$20.00	C
6531	Tour and travel guides	830	380	\$12.00	\$15.00	\$21.75	C
6532	Outdoor sport and recreational guides	1,280	480	\$12.00	\$18.00	\$30.00	C
6533	Casino occupations	3,570	1,240	\$11.35	\$18.50	\$20.95	C
6541	Security guards and related security service occupations	15,280	6,300	\$11.35	\$14.28	\$24.04	C
6551	Customer services representatives - financial institutions	9,340	3,240	\$14.00	\$17.26	\$25.00	C
6552	Other customer and information services representatives	22,820	6,690	\$12.00	\$20.00	\$30.00	C
6561	Image, social and other personal consultants	470	200	\$11.35	\$17.43	\$39.14	C
6562	Estheticians, electrologists and related occupations	8,980	2,490	\$11.35	\$12.82	\$22.00	C
6563	Pet groomers and animal care workers	4,000	1,110	\$11.35	\$12.00	\$17.00	C
6564	Other personal service occupations	500	240				C
6611	Cashiers	41,510	9,000	\$11.35	\$11.35	\$18.82	D
6621	Service station attendants	1,970	380	\$11.35	\$11.50	\$27.88	D
6622	Store shelf stockers, clerks and order fillers	22,770	5,880	\$11.35	\$12.20	\$25.00	D
6623	Other sales related occupations	3,990	1,260	\$11.35	\$12.60	\$28.00	D
6711	Food counter attendants, kitchen helpers and related support occupations	51,940	14,740	\$11.35	\$11.35	\$16.00	D
6721	Support occupations in accommodation, travel and facilities set-up services	1,140	370	\$11.35	\$15.67	\$25.00	D
6722	Operators and attendants in amusement, recreation and sport	4,520	1,280	\$11.35	\$13.00	\$26.00	D
6731	Light duty cleaners	31,180	12,650	\$11.35	\$15.00	\$20.60	D
6732	Specialized cleaners	6,360	2,540	\$11.35	\$13.50	\$25.00	D

NOC	Occupation Title	Employment 2018	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	Skill Level
6733	Janitors, caretakers and building superintendents	30,190	13,650	\$11.35	\$17.00	\$25.91	D
6741	Dry cleaning, laundry and related occupations	2,960	1,070	\$11.35	\$14.00	\$19.24	D
6742	Other service support occupations, n.e.c.	3,490	970	\$11.35	\$13.50	\$18.90	D
7201	Contractors and supervisors, machining, metal forming, shaping and erecting trades and related occupations	2,040	820	\$26.00	\$40.00	\$51.00	B
7202	Contractors and supervisors, electrical trades and telecommunications occupations	3,160	990	\$26.00	\$39.00	\$50.00	B
7203	Contractors and supervisors, pipefitting trades	1,290	330	\$27.50	\$43.00	\$53.50	B
7204	Contractors and supervisors, carpentry trades	4,660	1,210	\$19.23	\$30.00	\$43.27	B
7205	Contractors and supervisors, other construction trades, installers, repairers and servicers	8,610	2,410	\$15.00	\$29.17	\$40.00	B
7231	Machinists and machining and tooling inspectors	3,230	1,150	\$20.00	\$30.75	\$40.35	B
7232	Tool and die makers	350	150	\$16.15	\$26.78	\$39.92	B
7233	Sheet metal workers	3,140	600	\$14.00	\$30.00	\$37.00	B
7234	Boilermakers	1,110	310	\$29.16	\$41.18	\$45.50	B
7235	Structural metal and platework fabricators and fitters	1,600	590	\$17.00	\$32.00	\$42.00	B
7236	Ironworkers	2,070	350	\$18.00	\$34.00	\$38.43	B
7237	Welders and related machine operators	9,340	2,450	\$16.00	\$28.50	\$40.76	B
7241	Electricians (except industrial and power system)	16,920	2,380	\$15.00	\$26.00	\$41.00	B
7242	Industrial electricians	4,820	1,140	\$21.00	\$35.00	\$44.00	B
7243	Power system electricians	770	200	\$33.35	\$41.08	\$57.44	B
7244	Electrical power line and cable workers	1,560	350	\$27.00	\$40.00	\$54.00	B
7245	Telecommunications line and cable workers	1,360	470	\$19.46	\$26.00	\$42.14	B
7246	Telecommunications installation and repair workers	2,920	1,050	\$19.83	\$32.00	\$41.50	B
7247	Cable television service and maintenance technicians	140	50	\$19.00	\$31.00	\$53.00	B
7251	Plumbers	11,040	1,710	\$15.90	\$26.00	\$39.18	B
7252	Steamfitters, pipefitters and sprinkler system installers	3,160	650	\$17.00	\$30.00	\$42.00	B
7253	Gas fitters	1,300	350	\$11.35	\$27.24	\$46.59	B
7271	Carpenters	29,450	5,260	\$16.00	\$25.00	\$35.00	B
7272	Cabinetmakers	2,700	570	\$15.00	\$20.00	\$28.29	B
7281	Bricklayers	2,100	430	\$21.00	\$30.35	\$42.00	B
7282	Concrete finishers	2,150	390	\$20.00	\$28.00	\$37.00	B
7283	Tilesetters	2,430	480	\$15.00	\$23.50	\$32.03	B
7284	Plasterers, drywall installers and finishers and lathers	5,600	990	\$15.00	\$23.00	\$35.00	B
7291	Roofers and shinglers	3,780	1,030	\$15.00	\$21.00	\$34.62	B
7292	Glaziers	2,610	650	\$11.35	\$25.19	\$39.14	B
7293	Insulators	1,430	210	\$18.00	\$30.12	\$42.55	B
7294	Painters and decorators (except interior decorators)	10,820	2,220	\$13.50	\$20.00	\$35.79	B
7295	Floor covering installers	3,460	670	\$16.59	\$24.00	\$31.50	B
7301	Contractors and supervisors, mechanic trades	2,900	1,180	\$15.16	\$34.00	\$47.00	B
7302	Contractors and supervisors, heavy equipment operator crews	6,090	2,150	\$23.80	\$34.00	\$50.48	B
7303	Supervisors, printing and related occupations	320	120	\$14.44	\$26.38	\$38.46	B
7304	Supervisors, railway transport operations	280	210	\$25.45	\$37.47	\$50.93	B
7305	Supervisors, motor transport and other ground transit operators	1,310	740	\$16.00	\$30.00	\$46.00	B
7311	Construction millwrights and industrial mechanics	9,040	3,010	\$18.50	\$35.00	\$40.00	B
7312	Heavy-duty equipment mechanics	5,800	1,580	\$17.00	\$30.00	\$45.00	B
7313	Heating, refrigeration and air conditioning mechanics	3,210	690	\$20.00	\$35.00	\$43.50	B
7314	Railway carmen/women	430	200	\$29.16	\$33.46	\$35.31	B
7315	Aircraft mechanics and aircraft inspectors	3,210	1,400	\$20.90	\$34.00	\$45.19	B
7316	Machine fitters	160	60	\$11.41	\$40.18	\$49.59	B
7318	Elevator constructors and mechanics	1,170	270	\$22.00	\$43.73	\$55.45	B

NOC	Occupation Title	Employment 2018	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	Skill Level
7321	Automotive service technicians, truck and bus mechanics and mechanical repairers	19,190	6,380	\$14.00	\$28.00	\$38.46	B
7322	Motor vehicle body repairers	4,330	1,310	\$14.00	\$25.00	\$39.64	B
7331	Oil and solid fuel heating mechanics	120	30				B
7332	Appliance servicers and repairers	1,050	430	\$14.75	\$21.00	\$30.99	B
7333	Electrical mechanics	450	170	\$15.85	\$35.34	\$48.29	B
7334	Motorcycle, all-terrain vehicle and other related mechanics	1,020	350	\$11.35	\$24.28	\$36.53	B
7335	Other small engine and small equipment repairers	400	160	\$14.00	\$20.00	\$26.75	B
7361	Railway and yard locomotive engineers	970	500	\$14.37	\$40.14	\$54.27	B
7362	Railway conductors and brakemen/women	1,210	420	\$18.50	\$31.25	\$40.00	B
7371	Crane operators	2,460	720	\$25.00	\$32.00	\$42.75	B
7372	Drillers and blasters - surface mining, quarrying and construction	660	130	\$25.00	\$31.57	\$40.00	B
7373	Water well drillers	20	10	\$19.80	\$26.00	\$33.00	B
7381	Printing press operators	1,640	440	\$12.81	\$25.00	\$31.63	B
7384	Other trades and related occupations, n.e.c.	2,670	730	\$15.00	\$24.00	\$38.01	B
7441	Residential and commercial installers and servicers	9,040	1,740	\$15.00	\$21.00	\$35.00	C
7442	Waterworks and gas maintenance workers	610	220	\$16.55	\$26.89	\$49.71	C
7444	Pest controllers and fumigators	600	230	\$12.15	\$26.05	\$33.33	C
7445	Other repairers and servicers	2,550	750	\$12.00	\$19.00	\$35.00	C
7451	Longshore workers	3,730	1,880	\$23.23	\$39.00	\$50.00	C
7452	Material handlers	26,870	7,210	\$11.35	\$17.00	\$31.00	C
7511	Transport truck drivers	39,610	14,740	\$15.00	\$25.00	\$36.06	C
7512	Bus drivers, subway operators and other transit operators						
7513	Taxi and limousine drivers and chauffeurs	7,820	2,930	\$11.35	\$15.38	\$30.00	C
7514	Delivery and courier service drivers	11,160	3,900	\$11.35	\$15.00	\$28.66	C
7521	Heavy equipment operators (except crane)	13,190	3,330	\$21.00	\$28.00	\$35.00	C
7522	Public works maintenance equipment operators and related workers	2,490	790	\$23.00	\$28.57	\$32.00	C
7531	Railway yard and track maintenance workers	1,120	420	\$20.81	\$27.50	\$32.00	C
7532	Water transport deck and engine room crew	1,460	460	\$14.00	\$28.85	\$36.50	C
7533	Boat and cable ferry operators and related occupations	1,090	480	\$15.00	\$25.27	\$44.00	C
7534	Air transport ramp attendants	2,150	890	\$11.35	\$18.21	\$24.04	C
7535	Other automotive mechanical installers and servicers	2,530	610	\$12.00	\$16.80	\$30.00	C
7611	Construction trades helpers and labourers	26,010	4,300	\$13.00	\$18.00	\$30.10	D
7612	Other trades helpers and labourers	1,250	240	\$13.00	\$20.00	\$31.66	D
7621	Public works and maintenance labourers	2,610	900	\$11.35	\$25.00	\$35.00	D
7622	Railway and motor transport labourers	570	170	\$13.00	\$20.00	\$28.00	D
8211	Supervisors, logging and forestry	1,490	570	\$20.00	\$30.00	\$40.00	B
8221	Supervisors, mining and quarrying	1,130	510	\$24.13	\$41.46	\$63.64	B
8222	Contractors and supervisors, oil and gas drilling and services	980	370	\$23.43	\$37.30	\$78.11	B
8231	Underground production and development miners	1,440	420	\$25.00	\$36.00	\$41.86	B
8232	Oil and gas well drillers, servicers, testers and related workers	890	140	\$18.00	\$31.73	\$50.00	B
8241	Logging machinery operators	2,380	530	\$22.50	\$30.00	\$34.55	B
8252	Agricultural service contractors, farm supervisors and specialized livestock workers	1,160	310	\$11.35	\$15.00	\$21.00	B
8255	Contractors and supervisors, landscaping, grounds maintenance and horticulture services	3,700	1,650	\$15.00	\$23.08	\$33.00	B
8261	Fishing masters and officers	130	40				B
8262	Fishermen/women	920	200	\$15.00	\$30.00	\$85.00	B
8411	Underground mine service and support workers	280	70	\$19.00	\$30.90	\$38.27	C

NOC	Occupation Title	Employment 2018	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	Skill Level
8412	Oil and gas well drilling and related workers and services operators	560	140	\$25.00	\$34.10	\$40.50	C
8421	Chain saw and skidder operators	1,840	370	\$19.38	\$28.50	\$46.00	C
8422	Silviculture and forestry workers	1,370	110	\$11.35	\$22.98	\$39.45	C
8431	General farm workers	6,990	1,590	\$11.35	\$15.00	\$24.04	C
8432	Nursery and greenhouse workers	2,630	730	\$11.35	\$12.50	\$26.92	C
8441	Fishing vessel deckhands	230	10	\$15.00	\$25.00	\$50.00	C
8442	Trappers and hunters	20	10				C
8611	Harvesting labourers	1,270	410	\$11.35	\$11.35	\$20.00	D
8612	Landscaping and grounds maintenance labourers	18,120	5,310	\$12.00	\$15.38	\$26.00	D
8613	Aquaculture and marine harvest labourers	350	80	\$12.00	\$16.00	\$24.30	D
8614	Mine labourers	610	100	\$18.00	\$25.88	\$39.00	D
8615	Oil and gas drilling, servicing and related labourers	420	80	\$21.00	\$28.00	\$32.78	D
8616	Logging and forestry labourers	2,290	220	\$15.00	\$25.00	\$36.00	D
9211	Supervisors, mineral and metal processing	690	240	\$17.01	\$38.21	\$58.35	B
9212	Supervisors, petroleum, gas and chemical processing and utilities	1,120	470	\$21.00	\$40.00	\$57.69	B
9213	Supervisors, food and beverage processing	1,590	620	\$17.00	\$23.08	\$38.00	B
9214	Supervisors, plastic and rubber products manufacturing	280	110	\$17.39	\$26.42	\$42.88	B
9215	Supervisors, forest products processing	1,840	1,030	\$23.00	\$32.00	\$48.08	B
9217	Supervisors, textile, fabric, fur and leather products processing and manufacturing	130	50	\$11.35	\$25.49	\$52.64	B
9221	Supervisors, motor vehicle assembling	70	30				B
9222	Supervisors, electronics manufacturing	210	100	\$19.25	\$25.73	\$42.07	B
9223	Supervisors, electrical products manufacturing	100	50				B
9224	Supervisors, furniture and fixtures manufacturing	230	70	\$14.87	\$27.54	\$40.42	B
9226	Supervisors, other mechanical and metal products manufacturing	210	100	\$21.00	\$35.00	\$42.00	B
9227	Supervisors, other products manufacturing and assembly	390	200				B
9231	Central control and process operators, mineral and metal processing	400	160	\$24.72	\$38.67	\$59.92	B
9232	Central control and process operators, petroleum, gas and chemical processing	1,370	440				B
9235	Pulping, papermaking and coating control operators	620	180	\$11.35	\$41.93	\$52.19	B
9241	Power engineers and power systems operators	3,930	1,320	\$25.38	\$34.00	\$43.00	B
9243	Water and waste treatment plant operators	1,410	470	\$14.75	\$29.50	\$41.77	B
9411	Machine operators, mineral and metal processing	800	220	\$19.17	\$32.06	\$48.98	C
9412	Foundry workers	180	80	\$20.54	\$26.00	\$29.88	C
9413	Glass forming and finishing machine operators and glass cutters	600	110	\$12.88	\$16.00	\$21.78	C
9414	Concrete, clay and stone forming operators	960	140	\$16.00	\$22.39	\$31.60	C
9415	Inspectors and testers, mineral and metal processing	110	40	\$13.50	\$27.10	\$41.22	C
9416	Metalworking and forging machine operators	1,200	350	\$12.50	\$18.00	\$29.00	C
9417	Machining tool operators	330	100	\$14.80	\$21.00	\$31.49	C
9418	Other metal products machine operators	470	120	\$12.50	\$19.00	\$31.68	C
9421	Chemical plant machine operators	720	180				C
9422	Plastics processing machine operators	1,000	320	\$12.00	\$16.86	\$23.24	C
9423	Rubber processing machine operators and related workers	540	140	\$14.00	\$19.13	\$31.27	C
9431	Sawmill machine operators	3,130	1,250	\$21.84	\$28.00	\$33.00	C
9432	Pulp mill machine operators	720	250	\$24.00	\$29.39	\$33.44	C
9433	Papermaking and finishing machine operators	500	250	\$11.35	\$34.70	\$44.75	C
9434	Other wood processing machine operators	1,760	630	\$11.99	\$27.55	\$38.99	C
9435	Paper converting machine operators	270	90	\$18.96	\$29.79	\$40.42	C

NOC	Occupation Title	Employment 2018	Job Openings 2018-2028	Wage Rate Low 2017	Wage Rate Median 2017	Wage Rate High 2017	Skill Level
9436	Lumber graders and other wood processing inspectors and graders	1,180	430	\$16.00	\$27.11	\$33.03	C
9437	Woodworking machine operators	970	350	\$13.00	\$18.00	\$28.63	C
9441	Textile fibre and yarn, hide and pelt processing machine operators and workers	250	60	\$11.54	\$16.00	\$24.65	C
9442	Weavers, knitters and other fabric making occupations	430	180	\$11.75	\$14.50	\$21.94	C
9445	Fabric, fur and leather cutters	180	80	\$11.35	\$14.00	\$19.15	C
9446	Industrial sewing machine operators	1,900	630	\$11.35	\$13.00	\$21.00	C
9447	Inspectors and graders, textile, fabric, fur and leather products manufacturing	220	80	\$11.35	\$11.36	\$15.00	C
9461	Process control and machine operators, food and beverage processing	3,970	1,370	\$11.50	\$15.65	\$27.00	C
9462	Industrial butchers and meat cutters, poultry preparers and related workers	1,370	530	\$11.35	\$17.94	\$28.66	C
9463	Fish and seafood plant workers	1,190	560	\$11.35	\$14.50	\$19.00	C
9465	Testers and graders, food and beverage processing	560	190	\$11.35	\$21.14	\$29.63	C
9471	Plateless printing equipment operators	780	220	\$12.00	\$16.45	\$27.00	C
9472	Camera, platemaking and other prepress occupations	390	120	\$15.62	\$25.29	\$39.83	C
9473	Binding and finishing machine operators	500	150	\$12.00	\$17.00	\$26.00	C
9474	Photographic and film processors	370	140	\$11.50	\$16.38	\$26.00	C
9521	Aircraft assemblers and aircraft assembly inspectors	140	40				C
9522	Motor vehicle assemblers, inspectors and testers	730	300	\$11.35	\$24.69	\$32.74	C
9523	Electronics assemblers, fabricators, inspectors and testers	1,660	440	\$11.35	\$16.50	\$48.08	C
9524	Assemblers and inspectors, electrical appliance, apparatus and equipment manufacturing	680	200	\$13.40	\$20.65	\$35.32	C
9525	Assemblers, fabricators and inspectors, industrial electrical motors and transformers	150	50	\$14.00	\$22.84	\$41.40	C
9526	Mechanical assemblers and inspectors	650	170	\$14.10	\$20.02	\$31.13	C
9527	Machine operators and inspectors, electrical apparatus manufacturing	110	30	\$13.50	\$20.00	\$33.53	C
9531	Boat assemblers and inspectors	510	210	\$15.00	\$19.00	\$28.00	C
9532	Furniture and fixture assemblers and inspectors	1,240	210	\$12.00	\$17.00	\$28.19	C
9533	Other wood products assemblers and inspectors	1,580	370	\$12.75	\$18.18	\$26.88	C
9534	Furniture finishers and refinishers	970	250	\$13.00	\$19.00	\$25.00	C
9535	Plastic products assemblers, finishers and inspectors	840	230	\$11.35	\$19.12	\$28.08	C
9536	Industrial painters, coaters and metal finishing process operators	1,530	490	\$15.00	\$25.00	\$38.40	C
9537	Other products assemblers, finishers and inspectors	2,870	650	\$13.25	\$15.25	\$25.00	C
9611	Labourers in mineral and metal processing	720	200	\$14.00	\$20.05	\$33.00	D
9612	Labourers in metal fabrication	1,250	240	\$15.00	\$20.00	\$28.57	D
9613	Labourers in chemical products processing and utilities	880	190	\$13.75	\$21.00	\$30.99	D
9614	Labourers in wood, pulp and paper processing	5,980	1,510	\$14.00	\$26.00	\$30.00	D
9615	Labourers in rubber and plastic products manufacturing	500	110	\$12.00	\$17.00	\$27.00	D
9616	Labourers in textile processing	270	90				D
9617	Labourers in food and beverage processing	8,170	2,870	\$11.50	\$14.00	\$25.00	D
9618	Labourers in fish and seafood processing	980	390	\$11.35	\$13.00	\$18.25	D
9619	Other labourers in processing, manufacturing and utilities	6,760	1,840	\$11.35	\$16.72	\$27.90	D

Skill Level Definition

- ▶ Skill Level 0: Usually requires a combination of education and experience
- ▶ Skill Level A: Usually requires a Bachelor's, Graduate or First Professional Degree
- ▶ Skill Level B: Usually requires diploma, certificate or apprenticeship training
- ▶ Skill Level C: Usually requires secondary school and/or occupation-specific training
- ▶ Skill Level D: Usually requires on-the-job training

Wage Data

- ▶ The wage rate refers to the Job Bank hourly wage rate which was updated in 2017, unless otherwise noted. For occupations with a "*", the annual wage rate is provided as the hourly wage rate is not available. The data source is Employment and Social Development Canada.

APPENDIX 7: Sources of New Supply for 500 Occupations

NOC	Occupation Title	Young People Starting Work (17 to 29 years old) 2018-2028		Net In-Migration (All Ages) 2018-2028		Net Additional Supply Requirements 2018-2028		Total Additional Supply 2018-2028	Skill Level
		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
0011	Legislators	0	0	0	18	0	374	393	0
0012	Senior government managers and officials	21	0	45	53	143	902	1,165	0
0013	Senior managers - financial, communications and other business services	0	0	893	71	223	3,886	5,073	0
0014	Senior managers - health, education, social and community services and membership organizations	127	0	170	53	256	1,497	2,103	0
0015	Senior managers - trade, broadcasting and other services, n.e.c.	0	0	701	55	146	2,573	3,475	0
0016	Senior managers - construction, transportation, production and utilities	55	0	565	67	115	3,066	3,868	0
0111	Financial managers	0	0	678	96	543	3,350	4,668	0
0112	Human resources managers	0	0	384	50	484	1,406	2,324	0
0113	Purchasing managers	0	0	373	25	10	1,231	1,640	0
0114	Other administrative services managers	313	0	418	59	335	1,558	2,683	0
0121	Insurance, real estate and financial brokerage managers	222	0	746	52	244	2,007	3,271	0
0122	Banking, credit and other investment managers	878	0	509	91	221	2,379	4,077	0
0124	Advertising, marketing and public relations managers	1,726	0	1,243	42	403	74	3,488	0
0125	Other business services managers	355	0	271	49	152	1,243	2,071	0
0131	Telecommunication carriers managers	0	0	158	11	30	541	741	0
0132	Postal and courier services managers	0	0	34	2	0	105	141	0
0211	Engineering managers	57	0	260	16	86	817	1,236	0
0212	Architecture and science managers	0	0	147	9	40	445	641	0
0213	Computer and information systems managers	275	0	1,108	64	310	3,022	4,778	0
0311	Managers in health care	160	0	181	80	313	2,315	3,049	0
0411	Government managers - health and social policy development and program administration	67	0	23	11	107	72	279	0

NOC	Occupation Title	Young People Starting Work (17 to 29 years old) 2018-2028		Net In-Migration (All Ages) 2018-2028		Net Additional Supply Requirements 2018-2028		Total Additional Supply 2018-2028	Skill Level
		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
0412	Government managers - economic analysis, policy development and program administration	0	0	34	16	124	323	497	0
0413	Government managers - education policy development and program administration	0	0	0	2	10	55	67	0
0414	Other managers in public administration	0	0	23	19	76	349	466	0
0421	Administrators - post-secondary education and vocational training	0	0	237	28	414	642	1,321	0
0422	School principals and administrators of elementary and secondary education	171	0	158	53	1,233	63	1,678	0
0423	Managers in social, community and correctional services	0	0	147	72	0	2,259	2,478	0
0431	Commissioned police officers	0	0	0	2	0	116	118	0
0432	Fire chiefs and senior firefighting officers	0	0	0	11	0	298	308	0
0433	Commissioned officers of the Canadian Forces	0	0	0	20	0	322	342	0
0511	Library, archive, museum and art gallery managers	40	0	23	7	75	130	274	0
0512	Managers - publishing, motion pictures, broadcasting and performing arts	0	0	158	17	32	613	820	0
0513	Recreation, sports and fitness program and service directors	0	0	170	31	80	716	997	0
0601	Corporate sales managers	556	0	689	74	201	3,144	4,664	0
0621	Retail and wholesale trade managers	4,370	0	4,691	619	840	10,039	20,559	0
0631	Restaurant and food service managers	1,935	0	3,312	215	381	1,942	7,784	0
0632	Accommodation service managers	346	0	689	139	83	1,636	2,894	0
0651	Managers in customer and personal services, n.e.c.	264	0	475	55	112	1,099	2,005	0
0711	Construction managers	957	0	1,017	103	372	3,420	5,870	0
0712	Home building and renovation managers	206	0	543	48	126	1,978	2,901	0
0714	Facility operation and maintenance managers	0	0	576	138	204	3,909	4,827	0
0731	Managers in transportation	0	0	486	57	103	2,368	3,014	0

NOC	Occupation Title	Young People Starting Work (17 to 29 years old) 2018-2028		Net In-Migration (All Ages) 2018-2028		Net Additional Supply Requirements 2018-2028		Total Additional Supply 2018-2028	Skill Level
		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
0811	Managers in natural resources production and fishing	0	0	136	50	0	900	1,086	0
0821	Managers in agriculture	164	0	610	174	104	2,110	3,163	0
0822	Managers in horticulture	30	0	113	9	20	74	246	0
0823	Managers in aquaculture	0	0	0	4	10	54	67	0
0911	Manufacturing managers	383	0	836	88	205	2,458	3,971	0
0912	Utilities managers	54	0	79	23	129	487	772	0
1111	Financial auditors and accountants	6,774	0	2,961	685	1,686	-1,278	10,828	A
1112	Financial and investment analysts	0	238	463	156	245	517	1,620	A
1113	Securities agents, investment dealers and brokers	0	241	249	104	57	620	1,271	A
1114	Other financial officers	2,140	1,294	1,255	705	406	828	6,627	A
1121	Human resources professionals	1,307	0	678	393	595	171	3,144	A
1122	Professional occupations in business management consulting	1,157	851	1,119	664	601	394	4,786	A
1123	Professional occupations in advertising, marketing and public relations	6,493	0	1,062	322	1,029	-4,605	4,301	A
1211	Supervisors, general office and administrative support workers	178	0	124	20	30	411	764	B
1212	Supervisors, finance and insurance office workers	0	0	226	25	82	926	1,259	B
1213	Supervisors, library, correspondence and related information workers	0	0	0	6	24	195	225	B
1214	Supervisors, mail and message distribution occupations	0	0	0	14	0	341	355	B
1215	Supervisors, supply chain, tracking and scheduling co-ordination occupations	349	0	463	34	50	1,807	2,704	B
1221	Administrative officers	2,098	0	2,283	484	965	11,298	17,128	B
1222	Executive assistants	843	0	294	500	328	221	2,186	B
1223	Human resources and recruitment officers	1,136	0	350	345	212	-681	1,362	B
1224	Property administrators	316	0	814	1,274	280	1,322	4,007	B
1225	Purchasing agents and officers	321	0	441	729	35	632	2,158	B
1226	Conference and event planners	774	0	339	321	167	-415	1,186	B
1227	Court officers and justices of the peace	0	0	0	43	0	117	160	B

NOC	Occupation Title	Young People Starting Work (17 to 29 years old) 2018-2028		Net In-Migration (All Ages) 2018-2028		Net Additional Supply Requirements 2018-2028		Total Additional Supply 2018-2028	Skill Level
		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
1228	Employment insurance, immigration, border services and revenue officers	608	0	102	323	181	130	1,344	B
1241	Administrative assistants	3,790	3,655	1,888	1,254	1,329	-2,196	9,720	B
1242	Legal administrative assistants	2,366	0	373	190	693	-929	2,693	B
1243	Medical administrative assistants	411	0	170	452	96	886	2,014	B
1251	Court reporters, medical transcriptionists and related occupations	125	171	34	161	88	145	724	B
1252	Health information management occupations	0	38	23	38	0	222	321	B
1253	Records management technicians	0	44	34	38	10	105	231	B
1254	Statistical officers and related research support occupations	0	27	23	15	0	98	163	B
1311	Accounting technicians and bookkeepers	1,066	2,536	1,729	2,010	695	2,516	10,552	B
1312	Insurance adjusters and claims examiners	301	369	102	175	10	515	1,471	B
1313	Insurance underwriters	234	132	79	28	40	-49	465	B
1314	Assessors, valuers and appraisers	345	0	34	120	10	43	552	B
1315	Customs, ship and other brokers	86	79	34	6	0	101	306	B
1411	General office support workers	3,891	3,288	2,261	1,796	1,356	1,683	14,275	C
1414	Receptionists	3,875	2,935	1,763	1,538	895	-1,416	9,590	C
1415	Personnel clerks	562	0	79	131	148	-223	697	C
1416	Court clerks	0	36	0	23	0	73	132	C
1422	Data entry clerks	315	429	362	153	100	136	1,495	C
1423	Desktop publishing operators and related occupations	0	16	23	13	10	64	126	C
1431	Accounting and related clerks	3,449	1,668	1,662	743	1,401	-1,192	7,732	C
1432	Payroll clerks	343	409	181	251	0	782	1,966	C
1434	Banking, insurance and other financial clerks	681	343	237	75	0	-274	1,062	C
1435	Collectors	121	133	57	53	45	52	461	C
1451	Library assistants and clerks	246	233	68	188	156	-113	778	C
1452	Correspondence, publication and regulatory clerks	541	284	237	195	148	27	1,431	C
1454	Survey interviewers and statistical clerks	82	346	136	228	53	-117	727	C
1511	Mail, postal and related workers	106	446	124	252	42	378	1,348	C
1512	Letter carriers	0	476	90	292	66	629	1,554	C

NOC	Occupation Title	Young People Starting Work (17 to 29 years old) 2018-2028		Net In-Migration (All Ages) 2018-2028		Net Additional Supply Requirements 2018-2028		Total Additional Supply 2018-2028	Skill Level
		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
1513	Couriers, messengers and door-to-door distributors	70	443	362	333	0	567	1,775	C
1521	Shippers and receivers	863	1,349	983	122	118	-10	3,425	C
1522	Storekeepers and partspersons	472	633	136	238	130	228	1,836	C
1523	Production logistics co-ordinators	0	216	316	88	20	474	1,115	C
1524	Purchasing and inventory control workers	461	360	497	119	87	-317	1,207	C
1525	Dispatchers	468	415	305	99	68	432	1,787	C
1526	Transportation route and crew schedulers	103	0	45	24	20	92	284	C
2111	Physicists and astronomers	50	39	57	7	0	-2	151	A
2112	Chemists	171	122	158	9	61	-30	492	A
2113	Geoscientists and oceanographers	392	219	226	61	125	-253	769	A
2114	Meteorologists and climatologists	0	11	23	8	0	5	46	A
2115	Other professional occupations in physical sciences	53	27	23	-4	0	-43	56	A
2121	Biologists and related scientists	468	372	396	81	475	-574	1,218	A
2122	Forestry professionals	0	321	23	-62	0	135	416	A
2123	Agricultural representatives, consultants and specialists	40	26	23	49	0	25	162	A
2131	Civil engineers	1,859	874	1,017	219	345	-378	3,935	A
2132	Mechanical engineers	1,570	0	904	12	211	-560	2,138	A
2133	Electrical and electronics engineers	1,163	541	927	119	321	-733	2,337	A
2134	Chemical engineers	202	0	192	-5	30	-30	389	A
2141	Industrial and manufacturing engineers	0	112	249	22	0	80	463	A
2142	Metallurgical and materials engineers	0	23	79	16	0	13	131	A
2143	Mining engineers	208	110	203	-32	20	-191	319	A
2144	Geological engineers	295	0	158	15	78	-97	450	A
2145	Petroleum engineers	0	24	79	10	0	-29	84	A
2146	Aerospace engineers	82	0	0	12	0	23	117	A
2147	Computer engineers (except software engineers and designers)	0	317	486	96	0	247	1,145	A
2148	Other professional engineers, n.e.c.	295	0	215	24	0	-181	353	A
2151	Architects	252	353	746	58	215	46	1,669	A
2152	Landscape architects	20	36	57	6	47	41	207	A
2153	Urban and land use planners	0	140	158	89	271	7	666	A
2154	Land surveyors	159	150	79	38	64	-19	471	A

NOC	Occupation Title	Young People Starting Work (17 to 29 years old) 2018-2028		Net In-Migration (All Ages) 2018-2028		Net Additional Supply Requirements 2018-2028		Total Additional Supply 2018-2028	Skill Level
		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
2161	Mathematicians, statisticians and actuaries	106	61	124	15	46	-87	266	A
2171	Information systems analysts and consultants	1,104	1,842	2,419	1,105	479	1,713	8,662	A
2172	Database analysts and data administrators	391	0	396	97	195	-122	956	A
2173	Software engineers and designers	2,132	997	2,701	302	397	-1,770	4,759	A
2174	Computer programmers and interactive media developers	3,524	1,757	2,453	891	777	-1,353	8,049	A
2175	Web designers and developers	1,315	0	769	383	266	-451	2,281	A
2211	Chemical technologists and technicians	937	0	305	17	95	-523	831	B
2212	Geological and mineral technologists and technicians	386	0	45	5	124	-232	328	B
2221	Biological technologists and technicians	913	0	113	33	10	-593	476	B
2222	Agricultural and fish products inspectors	0	40	45	25	0	107	217	B
2223	Forestry technologists and technicians	562	312	45	-161	219	-506	472	B
2224	Conservation and fishery officers	0	47	23	105	0	131	306	B
2225	Landscape and horticulture technicians and specialists	631	323	328	150	328	-571	1,189	B
2231	Civil engineering technologists and technicians	741	0	170	88	216	-255	959	B
2232	Mechanical engineering technologists and technicians	662	0	147	48	173	-284	746	B
2233	Industrial engineering and manufacturing technologists and technicians	0	139	158	40	39	164	540	B
2234	Construction estimators	377	240	249	-132	0	-26	707	B
2241	Electrical and electronics engineering technologists and technicians	795	469	384	154	40	65	1,907	B
2242	Electronic service technicians (household and business equipment)	437	808	452	397	206	740	3,039	B
2243	Industrial instrument technicians and mechanics	345	0	45	-8	176	-221	337	B
2244	Aircraft instrument, electrical and avionics mechanics, technicians and inspectors	113	145	23	34	33	-32	315	B

NOC	Occupation Title	Young People Starting Work (17 to 29 years old) 2018-2028		Net In-Migration (All Ages) 2018-2028		Net Additional Supply Requirements 2018-2028		Total Additional Supply 2018-2028	Skill Level
		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
2251	Architectural technologists and technicians	463	0	316	63	110	-279	673	B
2252	Industrial designers	160	0	203	50	20	98	531	B
2253	Drafting technologists and technicians	928	468	452	88	198	-551	1,583	B
2254	Land survey technologists and technicians	177	0	34	16	94	-131	190	B
2255	Technical occupations in geomatics and meteorology	537	0	68	102	105	-176	636	B
2261	Non-destructive testers and inspection technicians	0	88	23	49	10	97	267	B
2262	Engineering inspectors and regulatory officers	30	52	34	19	20	111	266	B
2263	Inspectors in public and environmental health and occupational health and safety	692	351	158	275	449	-281	1,645	B
2264	Construction inspectors	121	235	90	236	180	405	1,267	B
2271	Air pilots, flight engineers and flying instructors	268	471	147	236	40	449	1,612	B
2272	Air traffic controllers and related occupations	67	106	34	17	0	97	321	B
2273	Deck officers, water transport	57	0	45	284	125	113	624	B
2274	Engineer officers, water transport	10	79	45	44	0	90	267	B
2275	Railway traffic controllers and marine traffic regulators	0	10	0	-1	0	64	73	B
2281	Computer network technicians	893	818	802	442	377	-33	3,299	B
2282	User support technicians	1,675	0	656	236	571	-955	2,182	B
2283	Information systems testing technicians	0	105	170	41	42	142	501	B
3011	Nursing co-ordinators and supervisors	115	0	45	55	70	1,417	1,702	A
3012	Registered nurses and registered psychiatric nurses	10,252	5,445	2,159	3,596	5,128	-6,995	19,584	A
3111	Specialist physicians	80	558	723	479	185	852	2,877	A
3112	General practitioners and family physicians	0	714	678	616	0	1,342	3,350	A
3113	Dentists	30	327	226	218	52	736	1,589	A
3114	Veterinarians	0	115	102	34	10	289	550	A
3121	Optometrists	0	64	57	98	0	101	320	A
3122	Chiropractors	0	88	45	156	0	305	594	A
3124	Allied primary health practitioners	156	0	45	97	264	-133	429	A
3125	Other professional occupations in health diagnosing and treating	0	40	0	66	10	176	291	A
3131	Pharmacists	1,209	0	554	86	227	-699	1,377	A

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		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
3132	Dietitians and nutritionists	374	0	102	224	106	139	945	A
3141	Audiologists and speech-language pathologists	0	111	68	99	231	9	517	A
3142	Physiotherapists	429	355	396	413	161	166	1,920	A
3143	Occupational therapists	435	203	136	247	126	15	1,163	A
3144	Other professional occupations in therapy and assessment	0	161	68	48	160	243	680	A
3211	Medical laboratory technologists	595	360	90	405	158	-16	1,593	B
3212	Medical laboratory technicians and pathologists' assistants	660	497	203	240	404	-408	1,596	B
3213	Animal health technologists and veterinary technicians	610	0	102	-13	165	-233	631	B
3214	Respiratory therapists, clinical perfusionists and cardiopulmonary technologists	393	0	23	139	149	-65	638	B
3215	Medical radiation technologists	743	0	79	222	271	-213	1,103	B
3216	Medical sonographers	172	0	23	82	68	28	372	B
3217	Cardiology technologists and electrophysiological diagnostic technologists, n.e.c.	275	0	0	31	96	-215	187	B
3219	Other medical technologists and technicians (except dental health)	650	621	554	196	226	-659	1,588	B
3221	Denturists	0	24	23	20	10	-4	73	B
3222	Dental hygienists and dental therapists	485	349	57	279	240	-21	1,388	B
3223	Dental technologists, technicians and laboratory assistants	0	136	283	61	0	-20	460	B
3231	Opticians	215	138	23	146	80	-95	507	B
3232	Practitioners of natural healing	0	179	192	255	0	682	1,308	B
3233	Licensed practical nurses	2,392	0	418	1,100	2,061	-1,366	4,606	B
3234	Paramedical occupations	950	0	79	375	619	-637	1,386	B
3236	Massage therapists	0	332	237	700	70	1,539	2,879	B
3237	Other technical occupations in therapy and assessment	199	0	124	77	80	-80	401	B
3411	Dental assistants	1,785	0	316	351	402	-808	2,047	C
3413	Nurse aides, orderlies and patient service associates	2,815	3,541	5,165	4,465	3,057	170	19,214	C
3414	Other assisting occupations in support of health services	1,158	0	350	542	805	-655	2,200	C
4011	University professors and lecturers	329	1,232	1,628	528	999	-878	3,837	A

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		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
4012	Post-secondary teaching and research assistants	3,347	0	1,752	-131	653	-4,196	1,426	A
4021	College and other vocational instructors	1,300	1,475	1,074	474	2,510	-2,849	3,985	A
4031	Secondary school teachers	6,784	0	418	880	0	-1,560	6,522	A
4032	Elementary school and kindergarten teachers	8,566	0	667	1,235	0	-397	10,071	A
4033	Educational counsellors	633	342	249	126	622	-934	1,037	A
4111	Judges	0	0	0	4	0	162	166	A
4112	Lawyers and Quebec notaries	1,582	1,103	362	345	715	1,273	5,379	A
4151	Psychologists	0	281	215	148	230	128	1,002	A
4152	Social workers	1,200	694	226	573	984	-849	2,828	A
4153	Family, marriage and other related counsellors	0	531	170	529	1,100	313	2,643	A
4154	Professional occupations in religion	0	533	588	331	203	-9	1,645	A
4155	Probation and parole officers and related occupations	331	0	0	36	140	-155	352	A
4156	Employment counsellors	336	281	203	179	199	-262	936	A
4161	Natural and applied science policy researchers, consultants and program officers	581	362	170	228	512	-520	1,333	A
4162	Economists and economic policy researchers and analysts	425	0	226	81	112	-248	596	A
4163	Business development officers and marketing researchers and consultants	1,623	0	1,356	241	349	-292	3,277	A
4164	Social policy researchers, consultants and program officers	654	323	396	247	477	-462	1,635	A
4165	Health policy researchers, consultants and program officers	1,222	0	316	367	384	-444	1,845	A
4166	Education policy researchers, consultants and program officers	346	269	271	149	371	-250	1,156	A
4167	Recreation, sports and fitness policy researchers, consultants and program officers	356	0	57	116	103	1	633	A
4168	Program officers unique to government	85	180	45	144	20	110	584	A
4169	Other professional occupations in social science, n.e.c.	328	0	57	28	138	-215	335	A
4211	Paralegal and related occupations	0	301	170	53	437	521	1,481	B

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		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
4212	Social and community service workers	6,653	0	1,481	2,445	3,871	-2,648	11,801	B
4214	Early childhood educators and assistants	3,501	2,474	1,842	932	1,896	-1,771	8,874	B
4215	Instructors of persons with disabilities	272	0	79	91	172	-166	449	B
4216	Other instructors	635	575	791	143	126	-548	1,723	B
4217	Other religious occupations	0	86	124	67	30	179	487	B
4311	Police officers (except commissioned)	432	846	57	537	30	1,937	3,839	B
4312	Firefighters	292	383	0	169	0	559	1,403	B
4313	Non-commissioned ranks of the Canadian Forces	236	213	23	286	40	375	1,172	B
4411	Home child care providers	401	1,267	3,933	406	97	-1,446	4,658	C
4412	Home support workers, housekeepers and related occupations	1,092	1,483	3,029	1,584	1,120	-1,234	7,074	C
4413	Elementary and secondary school teacher assistants	1,790	1,601	599	886	2,959	-2,729	5,106	C
4421	Sheriffs and bailiffs	50	45	0	28	28	63	214	C
4422	Correctional service officers	560	0	102	172	0	378	1,212	C
4423	By-law enforcement and other regulatory officers, n.e.c.	0	105	68	100	0	199	472	C
5111	Librarians	252	176	90	80	426	-590	434	A
5112	Conservators and curators	0	9	57	16	20	3	104	A
5113	Archivists	0	4	34	8	59	-41	64	A
5121	Authors and writers	478	500	373	315	256	160	2,082	A
5122	Editors	381	0	226	28	119	499	1,253	A
5123	Journalists	438	0	102	106	65	-88	623	A
5125	Translators, terminologists and interpreters	165	113	396	12	70	-89	665	A
5131	Producers, directors, choreographers and related occupations	793	0	362	13	150	1,636	2,954	A
5132	Conductors, composers and arrangers	35	71	23	29	0	80	238	A
5133	Musicians and singers	835	654	486	88	281	-644	1,700	A
5134	Dancers	196	129	102	-54	28	-112	288	A
5135	Actors and comedians	202	248	260	13	0	631	1,354	A
5136	Painters, sculptors and other visual artists	138	449	486	290	50	527	1,939	A
5211	Library and public archive technicians	0	88	34	52	91	127	392	B
5212	Technical occupations related to museums and art galleries	232	0	34	41	0	-29	278	B
5221	Photographers	238	241	294	63	0	395	1,230	B

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		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
5222	Film and video camera operators	138	109	79	6	32	144	508	B
5223	Graphic arts technicians	154	149	147	27	10	-80	407	B
5224	Broadcast technicians	34	0	0	-1	0	18	51	B
5225	Audio and video recording technicians	298	279	520	28	38	325	1,487	B
5226	Other technical and co-ordinating occupations in motion pictures, broadcasting and the performing arts	442	275	328	-7	60	1,103	2,201	B
5227	Support occupations in motion pictures, broadcasting, photography and the performing arts	371	238	305	-1	40	968	1,921	B
5231	Announcers and other broadcasters	130	72	79	71	0	3	354	B
5232	Other performers, n.e.c.	65	61	90	57	10	222	505	B
5241	Graphic designers and illustrators	2,461	0	1,582	276	486	208	5,013	B
5242	Interior designers and interior decorators	590	351	339	5	276	-29	1,532	B
5243	Theatre, fashion, exhibit and other creative designers	497	0	271	1	91	-139	722	B
5244	Artisans and craftspersons	0	256	181	351	58	594	1,440	B
5245	Patternmakers - textile, leather and fur products	34	0	23	2	0	-7	52	B
5251	Athletes	140	68	68	-4	0	-121	150	B
5252	Coaches	293	185	249	66	0	-96	697	B
5253	Sports officials and referees	0	86	23	-29	0	88	168	B
5254	Program leaders and instructors in recreation, sport and fitness	2,826	1,568	1,096	145	358	-1,133	4,861	B
6211	Retail sales supervisors	1,323	0	949	81	105	376	2,835	B
6221	Technical sales specialists - wholesale trade	1,657	0	565	73	323	2,016	4,634	B
6222	Retail and wholesale buyers	421	0	520	36	0	446	1,422	B
6231	Insurance agents and brokers	712	949	701	313	112	692	3,480	B
6232	Real estate agents and salespersons	853	1,592	848	1,212	86	2,511	7,101	B
6235	Financial sales representatives	1,231	678	938	318	81	98	3,344	B
6311	Food service supervisors	1,053	0	1,243	48	30	-581	1,793	B
6312	Executive housekeepers	0	0	170	19	0	283	471	B
6313	Accommodation, travel, tourism and related services supervisors	114	0	102	7	30	184	436	B
6314	Customer and information services supervisors	118	0	57	8	20	253	456	B
6315	Cleaning supervisors	0	0	113	21	56	512	702	B

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6316	Other services supervisors	319	0	147	21	30	500	1,017	B
6321	Chefs	1,148	1,000	2,905	190	344	-2,302	3,285	B
6322	Cooks	4,222	3,647	5,810	923	1,148	-4,264	11,486	B
6331	Butchers, meat cutters and fishmongers - retail and wholesale	448	224	260	-16	0	-278	638	B
6332	Bakers	1,763	0	1,119	71	520	-1,208	2,265	B
6341	Hairstylists and barbers	977	1,430	1,289	867	243	165	4,971	B
6342	Tailors, dressmakers, furriers and milliners	74	188	497	76	0	-32	803	B
6343	Shoe repairers and shoemakers	0	16	23	15	0	46	99	B
6344	Jewellers, jewellery and watch repairers and related occupations	0	68	57	24	0	114	263	B
6345	Upholsterers	0	63	23	67	0	140	292	B
6346	Funeral directors and embalmers	60	43	0	38	100	-76	165	B
6411	Sales and account representatives - wholesale trade (non-technical)	2,356	2,066	1,334	559	320	-191	6,443	C
6421	Retail salespersons	8,267	10,358	10,478	814	1,038	-6,348	24,606	C
6511	Mâitres d'hôtel and hosts/ hostesses	312	445	328	-86	0	-71	928	C
6512	Bartenders	788	512	283	3	85	-418	1,252	C
6513	Food and beverage servers	4,558	3,424	5,335	-379	397	-5,162	8,172	C
6521	Travel counsellors	404	473	588	174	0	291	1,930	C
6522	Pursers and flight attendants	123	342	68	61	20	923	1,536	C
6523	Airline ticket and service agents	0	337	260	126	0	734	1,457	C
6524	Ground and water transport ticket agents, cargo service representatives and related clerks	0	61	34	23	0	122	241	C
6525	Hotel front desk clerks	947	513	893	141	123	-1,191	1,426	C
6531	Tour and travel guides	115	104	147	38	0	-26	378	C
6532	Outdoor sport and recreational guides	179	0	45	115	10	128	478	C
6533	Casino occupations	153	318	475	50	10	238	1,243	C
6541	Security guards and related security service occupations	1,758	1,601	2,430	775	276	-539	6,302	C
6551	Customer services representatives - financial institutions	2,294	1,077	882	374	220	-1,603	3,243	C
6552	Other customer and information services representatives	3,062	1,856	1,741	332	417	-721	6,686	C
6561	Image, social and other personal consultants	85	0	34	39	10	30	197	C

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6562	Estheticians, electrologists and related occupations	534	664	1,707	257	119	-795	2,486	C
6563	Pet groomers and animal care workers	188	267	316	100	10	230	1,111	C
6564	Other personal service occupations	0	12	158	28	0	41	239	C
6611	Cashiers	1,929	4,380	6,578	-254	177	-3,807	9,003	D
6621	Service station attendants	153	318	237	-51	0	-273	385	D
6622	Store shelf stockers, clerks and order fillers	1,670	1,989	2,611	99	117	-604	5,882	D
6623	Other sales related occupations	104	429	463	66	0	193	1,256	D
6711	Food counter attendants, kitchen helpers and related support occupations	4,028	5,384	12,060	115	451	-7,294	14,744	D
6721	Support occupations in accommodation, travel and facilities set-up services	58	82	113	3	0	113	369	D
6722	Operators and attendants in amusement, recreation and sport	0	441	147	114	10	565	1,276	D
6731	Light duty cleaners	387	3,160	6,431	1,887	126	662	12,653	D
6732	Specialized cleaners	370	683	814	406	0	265	2,538	D
6733	Janitors, caretakers and building superintendents	360	3,020	3,063	2,517	329	4,363	13,653	D
6741	Dry cleaning, laundry and related occupations	0	285	633	192	10	-46	1,074	D
6742	Other service support occupations, n.e.c.	405	359	271	33	0	-95	973	D
7201	Contractors and supervisors, machining, metal forming, shaping and erecting trades and related occupations	200	0	90	20	150	359	820	B
7202	Contractors and supervisors, electrical trades and telecommunications occupations	600	0	90	26	450	-177	989	B
7203	Contractors and supervisors, pipefitting trades	270	0	34	6	250	-228	332	B
7204	Contractors and supervisors, carpentry trades	674	0	215	23	255	46	1,213	B
7205	Contractors and supervisors, other construction trades, installers, repairers and servicers	387	0	576	44	155	1,246	2,408	B
7231	Machinists and machining and tooling inspectors	962	0	170	36	403	-421	1,149	B
7232	Tool and die makers	0	30	0	19	0	105	154	B
7233	Sheet metal workers	1,194	0	113	-131	499	-1,076	600	B

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		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
7234	Boilermakers	304	0	0	-26	143	-115	306	B
7235	Structural metal and platework fabricators and fitters	0	212	45	44	440	-152	589	B
7236	Ironworkers	1,002	0	271	-110	374	-1,189	348	B
7237	Welders and related machine operators	4,565	0	644	-79	1,920	-4,598	2,453	B
7241	Electricians (except industrial and power system)	6,666	0	1,130	-1,249	2,327	-6,497	2,378	B
7242	Industrial electricians	1,810	0	158	-204	1,086	-1,705	1,144	B
7243	Power system electricians	0	56	23	1	80	45	205	B
7244	Electrical power line and cable workers	328	151	45	-42	250	-380	351	B
7245	Telecommunications line and cable workers	153	223	23	64	30	-27	465	B
7246	Telecommunications installation and repair workers	266	266	158	149	106	99	1,046	B
7247	Cable television service and maintenance technicians	0	29	0	6	0	16	51	B
7251	Plumbers	3,422	0	656	-518	1,609	-3,460	1,709	B
7252	Steamfitters, pipefitters and sprinkler system installers	770	0	57	-119	326	-387	646	B
7253	Gas fitters	210	112	68	-7	290	-324	349	B
7271	Carpenters	5,123	3,147	2,068	-1,556	1,911	-5,430	5,263	B
7272	Cabinetmakers	541	313	271	33	248	-833	573	B
7281	Bricklayers	180	213	249	-61	83	-236	427	B
7282	Concrete finishers	134	179	316	-81	60	-218	391	B
7283	Tiles setters	70	197	418	-56	0	-152	477	B
7284	Plasterers, drywall installers and finishers and lathers	281	595	712	-297	110	-406	995	B
7291	Roofers and shinglers	311	505	271	-59	216	-215	1,029	B
7292	Glaziers	180	225	215	10	140	-120	650	B
7293	Insulators	65	125	68	-122	0	80	215	B
7294	Painters and decorators (except interior decorators)	284	973	1,300	-413	120	-42	2,222	B
7295	Floor covering installers	135	321	226	-106	10	80	666	B
7301	Contractors and supervisors, mechanic trades	0	0	90	39	0	1,049	1,178	B
7302	Contractors and supervisors, heavy equipment operator crews	0	0	226	62	70	1,792	2,150	B
7303	Supervisors, printing and related occupations	0	0	23	3	10	89	124	B
7304	Supervisors, railway transport operations	0	0	0	4	0	204	208	B

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7305	Supervisors, motor transport and other ground transit operators	0	0	34	19	0	688	741	B
7311	Construction millwrights and industrial mechanics	1,733	956	283	346	1,164	-1,475	3,007	B
7312	Heavy-duty equipment mechanics	2,376	0	158	-59	921	-1,820	1,576	B
7313	Refrigeration and air conditioning mechanics	887	0	79	-84	751	-940	694	B
7314	Railway carmen/women	0	48	0	9	10	137	204	B
7315	Aircraft mechanics and aircraft inspectors	742	374	102	129	104	-51	1,400	B
7316	Machine fitters	0	35	34	9	0	-20	59	B
7318	Elevator constructors and mechanics	23	85	68	-18	0	117	275	B
7321	Automotive service technicians, truck and bus mechanics and mechanical repairers	3,834	1,944	1,232	679	1,133	-2,445	6,378	B
7322	Motor vehicle body repairers	827	433	203	173	341	-664	1,313	B
7331	Oil and solid fuel heating mechanics	0	8	0	1	0	19	28	B
7332	Appliance servicers and repairers	113	96	124	72	40	-16	429	B
7333	Electrical mechanics	85	0	0	24	20	43	171	B
7334	Motorcycle, all-terrain vehicle and other related mechanics	213	0	23	45	55	18	354	B
7335	Other small engine and small equipment repairers	0	22	23	44	0	72	160	B
7361	Railway and yard locomotive engineers	0	0	0	304	0	199	503	B
7362	Railway conductors and brakemen/women	497	0	23	217	168	-480	424	B
7371	Crane operators	133	219	68	-1	126	174	720	B
7372	Drillers and blasters - surface mining, quarrying and construction	0	59	45	-24	0	53	133	B
7373	Water well drillers	0	22	0	0	0	-17	5	B
7381	Printing press operators	0	105	79	29	22	202	436	B
7384	Other trades and related occupations, n.e.c.	163	266	90	3	0	206	728	B
7441	Residential and commercial installers and servicers	247	738	791	-278	86	157	1,742	C
7442	Waterworks and gas maintenance workers	0	51	23	17	0	127	218	C
7444	Pest controllers and fumigators	0	34	45	39	0	113	230	C
7445	Other repairers and servicers	0	176	237	26	0	315	754	C
7451	Longshore workers	134	349	68	31	0	1,303	1,885	C

NOC	Occupation Title	Young People Starting Work (17 to 29 years old) 2018-2028		Net In-Migration (All Ages) 2018-2028		Net Additional Supply Requirements 2018-2028		Total Additional Supply 2018-2028	Skill Level
		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
7452	Material handlers	1,358	2,511	3,052	46	190	57	7,214	C
7511	Transport truck drivers	414	4,544	2,860	1,934	257	4,731	14,740	C
7512	Bus drivers, subway operators and other transit operators	0	872	147	515	118	2,805	4,456	C
7513	Taxi and limousine drivers and chauffeurs	0	581	678	245	0	1,429	2,934	C
7514	Delivery and courier service drivers	713	1,194	916	249	30	799	3,901	C
7521	Heavy equipment operators (except crane)	526	1,276	237	-163	265	1,190	3,332	C
7522	Public works maintenance equipment operators and related workers	0	241	90	111	30	322	795	C
7531	Railway yard and track maintenance workers	0	0	79	188	0	153	419	C
7532	Water transport deck and engine room crew	74	159	23	70	0	133	459	C
7533	Boat and cable ferry operators and related occupations	0	107	23	108	0	243	480	C
7534	Air transport ramp attendants	238	208	192	19	0	238	895	C
7535	Other automotive mechanical installers and servicers	540	0	192	-72	50	-103	607	C
7611	Construction trades helpers and labourers	1,929	2,256	3,526	-1,746	283	-1,949	4,299	D
7612	Other trades helpers and labourers	696	0	90	-71	10	-483	243	D
7621	Public works and maintenance labourers	283	262	136	98	0	124	902	D
7622	Railway and motor transport labourers	60	41	34	-12	0	51	174	D
8211	Supervisors, logging and forestry	0	0	23	37	33	478	571	B
8221	Supervisors, mining and quarrying	0	0	0	33	0	478	511	B
8222	Contractors and supervisors, oil and gas drilling and services	0	0	23	22	0	324	369	B
8231	Underground production and development miners	0	171	0	40	26	181	418	B
8232	Oil and gas well drillers, servicers, testers and related workers	103	130	34	-110	40	-59	137	B
8241	Logging machinery operators	40	265	34	-18	0	206	527	B
8252	Agricultural service contractors, farm supervisors and specialized livestock workers	0	0	113	11	35	154	313	B

NOC	Occupation Title	Young People Starting Work (17 to 29 years old) 2018-2028		Net In-Migration (All Ages) 2018-2028		Net Additional Supply Requirements 2018-2028		Total Additional Supply 2018-2028	Skill Level
		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
8255	Contractors and supervisors, landscaping, grounds maintenance and horticulture services	247	0	294	51	146	911	1,649	B
8261	Fishing masters and officers	0	0	0	1	0	40	41	B
8262	Fishermen/women	0	0	45	57	0	98	201	B
8411	Underground mine service and support workers	70	0	23	-2	0	-21	70	C
8412	Oil and gas well drilling and related workers and services operators	118	68	34	-40	0	-43	136	C
8421	Chain saw and skidder operators	0	156	34	-36	0	221	374	C
8422	Silviculture and forestry workers	272	148	79	-201	0	-185	113	C
8431	General farm workers	281	633	2,769	-109	0	-1,988	1,586	C
8432	Nursery and greenhouse workers	150	279	1,175	-3	0	-872	730	C
8441	Fishing vessel deckhands	0	15	0	-28	0	27	15	C
8442	Trappers and hunters	0	4	0	1	0	0	5	C
8611	Harvesting labourers	0	166	2,001	-33	0	-1,722	411	D
8612	Landscaping and grounds maintenance labourers	1,024	1,707	1,040	359	171	1,007	5,308	D
8613	Aquaculture and marine harvest labourers	0	22	0	-2	0	64	84	D
8614	Mine labourers	0	67	0	-116	0	147	99	D
8615	Oil and gas drilling, servicing and related labourers	229	0	23	-48	20	-145	79	D
8616	Logging and forestry labourers	148	222	68	-299	0	83	222	D
9211	Supervisors, mineral and metal processing	0	0	23	10	0	208	241	B
9212	Supervisors, petroleum, gas and chemical processing and utilities	30	0	57	20	0	367	474	B
9213	Supervisors, food, beverage and associated products processing	0	0	79	6	25	507	617	B
9214	Supervisors, plastic and rubber products manufacturing	0	0	23	1	0	86	110	B
9215	Supervisors, forest products processing	0	0	34	61	20	911	1,025	B
9217	Supervisors, textile, fabric, fur and leather products processing and manufacturing	0	0	0	0	0	51	51	B
9221	Supervisors, motor vehicle assembling	0	0	0	1	0	34	34	B
9222	Supervisors, electronics manufacturing	0	0	23	0	0	79	101	B

NOC	Occupation Title	Young People Starting Work (17 to 29 years old) 2018-2028		Net In-Migration (All Ages) 2018-2028		Net Additional Supply Requirements 2018-2028		Total Additional Supply 2018-2028	Skill Level
		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
9223	Supervisors, electrical products manufacturing	0	0	0	1	0	46	47	B
9224	Supervisors, furniture and fixtures manufacturing	0	0	23	2	0	45	69	B
9226	Supervisors, other mechanical and metal products manufacturing	0	0	23	1	0	77	101	B
9227	Supervisors, other products manufacturing and assembly	0	0	34	3	10	149	196	B
9231	Central control and process operators, mineral and metal processing	65	0	0	171	34	-108	162	B
9232	Petroleum, gas and chemical process operators	0	103	34	133	109	62	441	B
9235	Pulping, papermaking and coating control operators	0	0	0	123	10	46	179	B
9241	Power engineers and power systems operators	548	0	136	420	407	-192	1,319	B
9243	Water and waste treatment plant operators	141	85	45	218	108	-128	469	B
9411	Machine operators, mineral and metal processing	58	0	57	161	0	-55	221	C
9412	Foundry workers	0	28	0	30	0	26	84	C
9413	Glass forming and finishing machine operators and glass cutters	0	18	226	1	0	-133	113	C
9414	Concrete, clay and stone forming operators	0	33	147	1	10	-51	141	C
9415	Inspectors and testers, mineral and metal processing	0	0	45	20	0	-26	39	C
9416	Metalworking and forging machine operators	0	70	113	42	0	129	353	C
9417	Machining tool operators	0	0	23	14	0	66	102	C
9418	Other metal products machine operators	0	19	23	19	0	57	117	C
9421	Chemical plant machine operators	0	15	170	28	0	-32	180	C
9422	Plastics processing machine operators	0	54	170	30	0	65	319	C
9423	Rubber processing machine operators and related workers	0	7	45	50	0	36	138	C
9431	Sawmill machine operators	65	192	136	592	0	269	1,254	C
9432	Pulp mill machine operators	0	0	0	230	0	16	246	C
9433	Papermaking and finishing machine operators	0	0	23	126	0	98	247	C
9434	Other wood processing machine operators	20	79	170	269	29	63	630	C

NOC	Occupation Title	Young People Starting Work (17 to 29 years old) 2018-2028		Net In-Migration (All Ages) 2018-2028		Net Additional Supply Requirements 2018-2028		Total Additional Supply 2018-2028	Skill Level
		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
9435	Paper converting machine operators	0	18	34	-3	0	40	89	C
9436	Lumber graders and other wood processing inspectors and graders	50	153	68	63	0	97	432	C
9437	Woodworking machine operators	38	66	79	83	10	70	346	C
9441	Textile fibre and yarn, hide and pelt processing machine operators and workers	0	8	0	1	0	47	56	C
9442	Weavers, knitters and other fabric making occupations	0	16	23	21	0	116	176	C
9445	Fabric, fur and leather cutters	0	12	23	5	0	38	78	C
9446	Industrial sewing machine operators	0	156	170	27	0	283	635	C
9447	Inspectors and graders, textile, fabric, fur and leather products manufacturing	0	21	34	-1	0	25	79	C
9461	Process control and machine operators, food, beverage and associated products processing	87	398	644	83	0	154	1,365	C
9462	Industrial butchers and meat cutters, poultry preparers and related workers	0	145	373	3	0	11	532	C
9463	Fish and seafood plant workers	0	171	181	13	0	192	557	C
9465	Testers and graders, food, beverage and associated products processing	73	51	102	14	0	-48	191	C
9471	Plateless printing equipment operators	44	129	113	4	0	-67	223	C
9472	Camera, platemaking and other prepress occupations	65	42	23	3	5	-19	119	C
9473	Binding and finishing machine operators	36	54	0	6	0	51	146	C
9474	Photographic and film processors	0	105	23	24	0	-13	138	C
9521	Aircraft assemblers and aircraft assembly inspectors	60	0	23	-1	0	-39	42	C
9522	Motor vehicle assemblers, inspectors and testers	0	80	57	29	0	136	301	C
9523	Electronics assemblers, fabricators, inspectors and testers	103	120	350	-20	0	-117	437	C
9524	Assemblers and inspectors, electrical appliance, apparatus and equipment manufacturing	20	68	124	6	0	-18	200	C

NOC	Occupation Title	Young People Starting Work (17 to 29 years old) 2018-2028		Net In-Migration (All Ages) 2018-2028		Net Additional Supply Requirements 2018-2028		Total Additional Supply 2018-2028	Skill Level
		With Public Post-secondary Education	Other education	Immigrants	People from Other Provinces	Older People (30 yrs +) with Public Post-secondary Education	Other Additional Supply		
9525	Assemblers, fabricators and inspectors, industrial electrical motors and transformers	0	11	0	4	0	32	48	C
9526	Mechanical assemblers and inspectors	50	72	79	12	30	-69	174	C
9527	Machine operators and inspectors, electrical apparatus manufacturing	20	11	23	0	0	-22	31	C
9531	Boat assemblers and inspectors	0	71	23	50	0	69	212	C
9532	Furniture and fixture assemblers and inspectors	60	176	249	-1	10	-281	212	C
9533	Other wood products assemblers and inspectors	0	206	192	-13	15	-32	368	C
9534	Furniture finishers and refinishers	0	82	249	30	10	-116	254	C
9535	Plastic products assemblers, finishers and inspectors	0	46	102	8	0	69	226	C
9536	Industrial painters, coaters and metal finishing process operators	0	160	147	31	40	113	491	C
9537	Other products assemblers, finishers and inspectors	97	159	588	42	0	-235	651	C
9611	Labourers in mineral and metal processing	42	76	102	7	44	-75	196	D
9612	Labourers in metal fabrication	0	90	102	-52	0	98	237	D
9613	Labourers in chemical products processing and utilities	0	38	158	3	0	-7	193	D
9614	Labourers in wood, pulp and paper processing	535	593	373	-130	0	137	1,508	D
9615	Labourers in rubber and plastic products manufacturing	0	18	57	5	0	27	105	D
9616	Labourers in textile processing	0	6	57	6	0	19	87	D
9617	Labourers in food, beverage and associated products processing	0	872	2,645	-26	0	-617	2,874	D
9618	Labourers in fish and seafood processing	0	68	192	7	0	128	394	D
9619	Other labourers in processing, manufacturing and utilities		495	1,334	61	10	-61	1,838	D
—	All occupations	285,400	168,500	243,400	75,800	111,300	18,700	903,000	—

Note: Private trades training is included under public post-secondary education. Net additional supply requirements includes the net in-flow from people changing occupations and those aged 30 or above entering or re-entering the labour force.

APPENDIX 8: *In Support of UNDRIP and TRC*

We are committed to the implementation of the U.N. Declaration on the Rights of Indigenous Peoples (UNDRIP) and the Truth and Reconciliation Commission (TRC) Calls to Action. We will specifically seek to advance the positive role that labour market information (LMI) could play in supporting the implementation of UNDRIP Articles 5, 8, 11, 14, 15, 17, 18, 19, 20, 21, 23, 31, 32, and 39 as well as TRC Calls to Action 7, 23, 43, 55, and 92.

UNDRIP ARTICLES RELEVANT TO LMI ²²

Article 5

Indigenous peoples have the right to maintain and strengthen their distinct political, legal, economic, social and cultural institutions, while retaining their right to participate fully, if they so choose, in the political, economic, social and cultural life of the State.

Article 8

1. Indigenous peoples and individuals have the right not to be subjected to forced assimilation or destruction of their culture.
2. States shall provide effective mechanisms for prevention of, and redress for:
 - (a) Any action which has the aim or effect of depriving them of their integrity as distinct peoples, or of their cultural values or ethnic identities;
 - (b) Any action which has the aim or effect of dispossessing them of their lands, territories or resources;
 - (c) Any form of forced population transfer, which has the aim or effect of violating or undermining any of their rights;
 - (d) Any form of forced assimilation or integration;
 - (e) Any form of propaganda designed to promote or incite racial or ethnic discrimination directed against them.

Article 11

1. Indigenous peoples have the right to practise and revitalize their cultural traditions and customs. This includes the right to maintain, protect and develop the past, present and future manifestations of their cultures, such as archaeological and historical sites, artefacts, designs, ceremonies, technologies and visual and performing arts and literature.
2. States shall provide redress through effective mechanisms, which may include restitution, developed in conjunction with indigenous peoples, with respect to their cultural, intellectual, religious and spiritual property taken without their free, prior and informed consent or in violation of their laws, traditions and customs.

²² Language and spelling reflect usage in the original United Nations document. http://www.un.org/esa/socdev/unpfii/documents/DRIPS_en.pdf

Article 14

1. Indigenous peoples have the right to establish and control their educational systems and institutions providing education in their own languages, in a manner appropriate to their cultural methods of teaching and learning.
2. Indigenous individuals, particularly children, have the right to all levels and forms of education of the State without discrimination.
3. States shall, in conjunction with indigenous peoples, take effective measures, in order for indigenous individuals, particularly children, including those living outside their communities, to have access, when possible, to an education in their own culture and provided in their own language.

Article 15

1. Indigenous peoples have the right to the dignity and diversity of their cultures, traditions, histories and aspirations which shall be appropriately reflected in education and public information.
2. States shall take effective measures, in consultation and cooperation with the indigenous peoples concerned, to combat prejudice and eliminate discrimination and to promote tolerance, understanding and good relations among indigenous peoples and all other segments of society.

Article 17

1. Indigenous individuals and peoples have the right to enjoy fully all rights established under applicable international and domestic labour law.
2. States shall in consultation and cooperation with indigenous peoples take specific measures to protect indigenous children from economic exploitation and from performing any work that is likely to be hazardous or to interfere with the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral or social development, taking into account their special vulnerability and the importance of education for their empowerment.
3. Indigenous individuals have the right not to be subjected to any discriminatory conditions of labour and, inter alia, employment or salary.

Article 18

Indigenous peoples have the right to participate in decision-making in matters which would affect their rights, through representatives chosen by themselves in accordance with their own procedures, as well as to maintain and develop their own indigenous decision-making institutions.

Article 19

States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free, prior and informed consent before adopting and implementing legislative or administrative measures that may affect them.

Article 20

1. Indigenous peoples have the right to maintain and develop their political, economic and social systems or institutions, to be secure in the enjoyment of their own means of subsistence and development, and to engage freely in all their traditional and other economic activities.
2. Indigenous peoples deprived of their means of subsistence and development are entitled to just and fair redress.

Article 21

1. Indigenous peoples have the right, without discrimination, to the improvement of their economic and social conditions, including, inter alia, in the areas of education, employment, vocational training and retraining, housing, sanitation, health and social security.
2. States shall take effective measures and, where appropriate, special measures to ensure continuing improvement of their economic and social conditions. Particular attention shall be paid to the rights and special needs of indigenous elders, women, youth, children and persons with disabilities.

Article 23

Indigenous peoples have the right to determine and develop priorities and strategies for exercising their right to development. In particular, indigenous peoples have the right to be actively involved in developing and determining health, housing and other economic and social programmes affecting them and, as far as possible, to administer such programmes through their own institutions.

Article 31

1. Indigenous peoples have the right to maintain, control, protect and develop their cultural heritage, traditional knowledge and traditional cultural expressions, as well as the manifestations of their sciences, technologies and cultures, including human and genetic resources, seeds, medicines, knowledge of the properties of fauna and flora, oral traditions, literatures, designs, sports and traditional games and visual and performing arts. They also have the right to maintain, control, protect and develop their intellectual property over such cultural heritage, traditional knowledge, and traditional cultural expressions.
2. In conjunction with indigenous peoples, States shall take effective measures to recognize and protect the exercise of these rights.

Article 32

1. Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources.
2. States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of mineral, water or other resources.
3. States shall provide effective mechanisms for just and fair redress for any such activities, and appropriate measures shall be taken to mitigate adverse environmental, economic, social, cultural or spiritual impact.

Article 39

Indigenous peoples have the right to have access to financial and technical assistance from States and through international cooperation, for the enjoyment of the rights contained in this Declaration.

TRUTH AND RECONCILIATION COMMISSION CALLS TO ACTION RELEVANT TO LMI ²³

7. We call upon the federal government to develop with Aboriginal groups a joint strategy to eliminate educational and employment gaps between Aboriginal and non-Aboriginal Canadians.
23. We call upon all levels of government to:
 - i. Increase the number of Aboriginal professionals working in the health-care field.
 - ii. Ensure the retention of Aboriginal health-care providers in Aboriginal communities.
 - iii. Provide cultural competency training for all healthcare professionals.
43. We call upon federal, provincial, territorial, and municipal governments to fully adopt and implement the United Nations Declaration on the Rights of Indigenous Peoples as the framework for reconciliation.
55. We call upon all levels of government to provide annual reports or any current data requested by the National Council for Reconciliation so that it can report on the progress towards reconciliation. The reports or data would include, but not be limited to:
 - i. The number of Aboriginal children—including Métis and Inuit children—in care, compared with non-Aboriginal children, the reasons for apprehension, and the total spending on preventive and care services by child-welfare agencies.
 - ii. Comparative funding for the education of First Nations children on and off reserves.
 - iii. The educational and income attainments of Aboriginal peoples in Canada compared with non-Aboriginal people.
 - iv. Progress on closing the gaps between Aboriginal and non-Aboriginal communities in a number of health indicators such as: infant mortality, maternal health, suicide, mental health, addictions, life expectancy, birth rates, infant and child health issues, chronic diseases, illness and injury incidence, and the availability of appropriate health services.
 - v. Progress on eliminating the overrepresentation of Aboriginal children in youth custody over the next decade.
 - vi. Progress on reducing the rate of criminal victimization of Aboriginal people, including data related to homicide and family violence victimization and other crimes.
 - vii. Progress on reducing the overrepresentation of Aboriginal people in the justice and correctional systems.
92. We call upon the corporate sector in Canada to adopt the United Nations Declaration on the Rights of Indigenous Peoples as a reconciliation framework and to apply its principles, norms, and standards to corporate policy and core operational activities involving Indigenous peoples and their lands and resources. This would include, but not be limited to, the following:
 - i. Commit to meaningful consultation, building respectful relationships, and obtaining the free, prior, and informed consent of Indigenous peoples before proceeding with economic development projects.
 - ii. Ensure that Aboriginal peoples have equitable access to jobs, training, and education opportunities in the corporate sector, and that Aboriginal communities gain long-term sustainable benefits from economic development projects.
 - iii. Provide education for management and staff on the history of Aboriginal peoples, including the history and legacy of residential schools, the United Nations Declaration on the Rights of Indigenous Peoples, Treaties and Aboriginal rights, Indigenous law, and Aboriginal–Crown relations. This will require skills-based training in intercultural competency, conflict resolution, human rights, and anti-racism.

23 http://www.trc.ca/websites/trcinstitution/File/2015/Findings/Calls_to_Action_English2.pdf



BRITISH
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