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Assessing Labour Market Shortages in the Sault Ste. Marie Census Agglomeration

By Alex Ross

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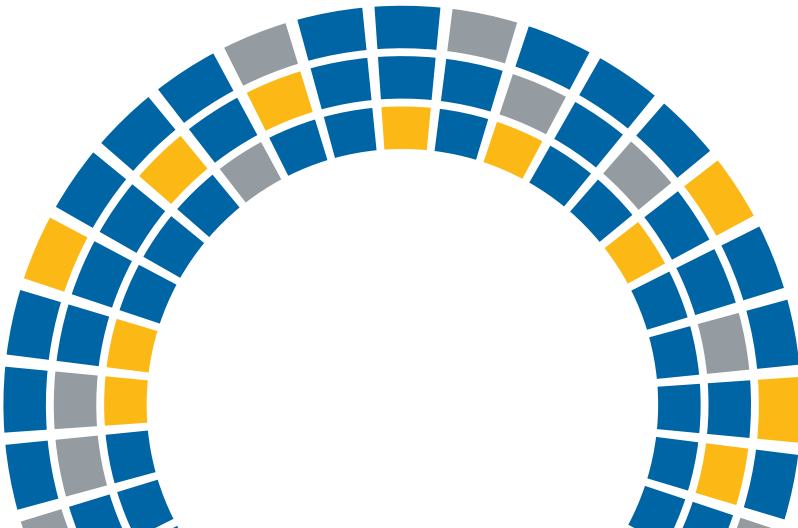
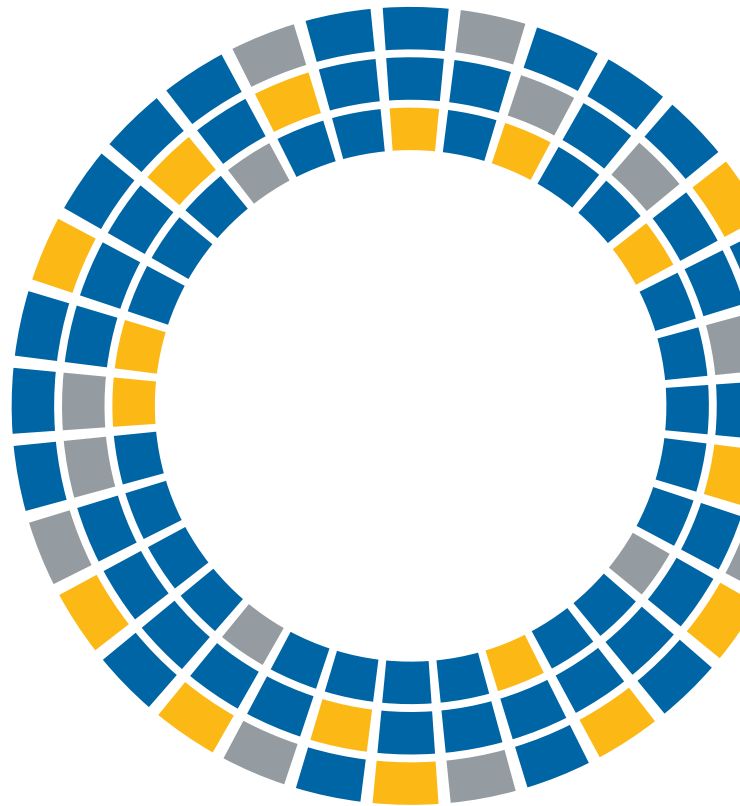
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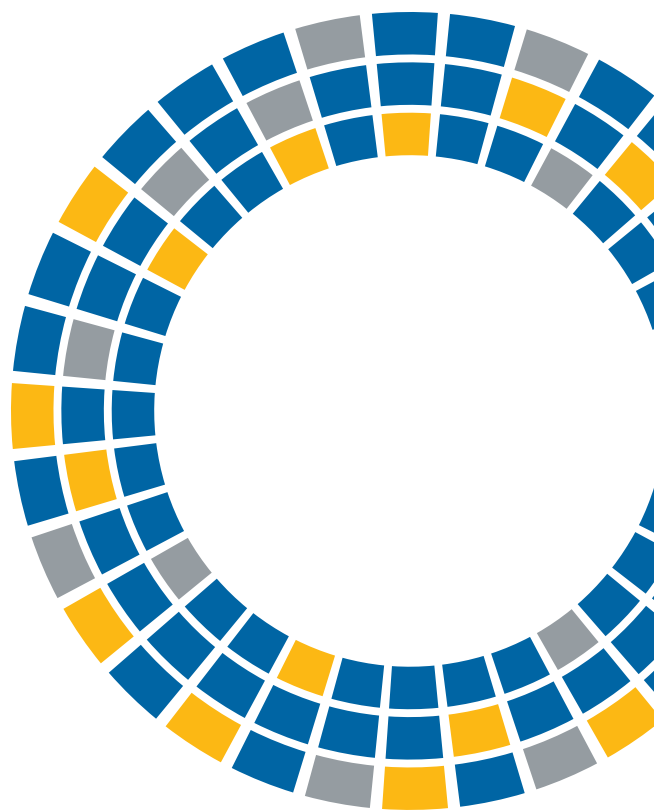
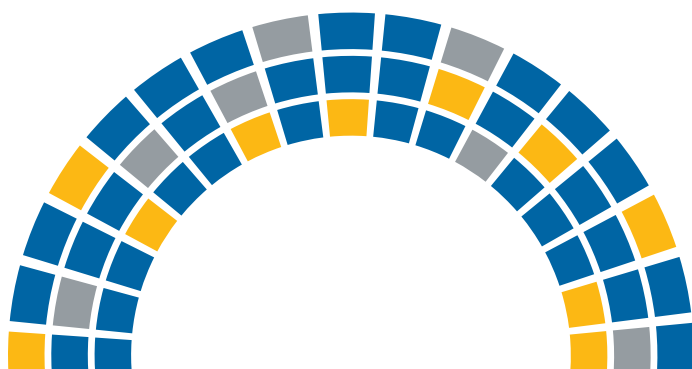


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Executive Summary

Northern Ontario is ageing. This is well known among decision makers within our communities, and multiple initiatives have been underway to counter the ageing demographic and focus on filling current and future labour force needs due to retirement and out-migration. The most recent initiative includes the Rural and Northern Immigration Pilot (RNIP), a community driven program which includes Northern Ontario's five largest cities and involves increasing immigration to these communities by creating a path to permanent residence for foreign skilled workers (Government of Canada, 2020).

With retirement and out-migration coupled with an already ageing population, it is important now than ever to understand the occupations in which these shortages fall. This briefing note provides insight into current and potential future labour market shortages in Sault Ste. Marie, in order to provide a better understanding to decision makers, potential migrants and youth on the labour market situation in Northern communities. These insights are important to ensure that skills shortages are met, in-migrants move to the North for the right jobs, and so that Northern Ontario's youth prepare themselves for careers that will allow them the option of remaining in their home cities after they graduate.

For the Sault Ste. Marie Census Agglomeration, this paper finds that multiple highly skilled positions have been identified as in need, both based on current labour market indicators and potential future retirements. In management, this includes managers in health care and customer service, as well as records management related occupations. Further, multiple health related occupations were also identified in Sault Ste. Marie, including optometrists, chiropractors, physicians and dentists.

Many business occupations were identified which may be experiencing current shortages. This included auditors, accountants and investment professionals, managers in financial and business services, human resources and business service professionals, retail and wholesale trade managers, and administrative service managers. Many of these occupations also form a relatively large proportion of the labour market and stood out when compared to the province.

Introduction

Estimating current and future labour market shortages is a struggle for governments and communities alike due to unavailability of data and variances in small datasets (Parkinson, 2019). However, determining labour market gaps is increasingly becoming a more important practice for policy planning, given projected future labour force declines in Northern Ontario (Moazzami, 2019). Gaining an understanding of occupational shortages is helpful for guiding immigration strategies, aligning future graduates with openings, and maximizing abilities of the current labour force.

This paper attempts to provide a better understanding of local labour market needs, based on the best possible information available at the local level. The paper examines three different estimators of labour market needs; two estimate projected future needs, and one measures potential current labour market gaps.



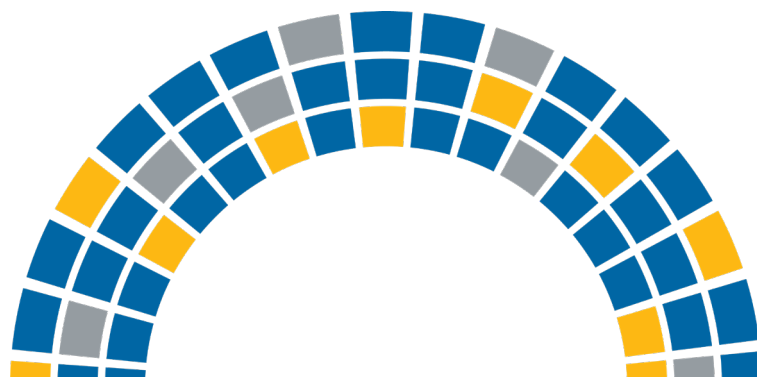
Estimating current labour market shortages

To estimate current labour market shortages we use a variant of the job vacancy rate. This rate is a regular indicator used by Statistics Canada and is defined as "the number of job vacancies or vacant positions on the last business day of the month, expressed as a percentage of labour demand (occupied positions and vacant positions)" (Statistics Canada, 2015). A high job vacancy rate typically indicates a stronger labour market for job seekers, as it demonstrates that a higher proportion of the total labour market consists of vacant jobs needing to be filled (Lindzon, 2019). Also, generally a negative correlation exists between unemployment rate and job vacancies, suggesting that a high unemployment rate corresponds with a lower job vacancy rate, and thus a higher vacancy rate typically aligns with a lower unemployment rate (Drolet, 2017). Since unemployment rates by occupation are not available at the local geographic level between census years, the job vacancy rate is used to estimate labour market strengths across occupations.

Northern Policy Institute (NPI) conducted an occupation-specific job vacancy rate analysis of the Sault Ste. Marie Census Agglomeration (CA) to determine the vacancy rates across different National Occupational Classification (NOC) categories.¹ To calculate the average job vacancy rate, the author used data from Emsi Economic Modelling, which was provided through a partnership with the Ontario Ministry of Agriculture, Food and Rural Affairs. Emsi provides an analytical platform with labour market information at the community level. Data were retrieved from Emsi on occupation-specific average job postings in the community in 2018, based on monthly postings throughout the year, and average total jobs within each occupation category in 2018, based on quarterly totals throughout the year. Average jobs and job postings were summed together to arrive at total labour demand for each occupation category. The average job vacancy rate was then determined by dividing occupation-specific job postings by occupation-specific total labour market demand. The calculation used here varies from the standard job vacancy rate calculation used by Statistics Canada in that the author

analyzes average postings and filled jobs rather than the number of postings and filled jobs at a specific point in time. The potential limitations of this approach are further discussed in the last section of this paper.²

Based on the above approach, Table 1 identifies the top 20 occupations with the highest average job vacancy rates in the Sault Ste. Marie CA in 2018. According to the below table, multiple management-related positions appear to have the highest job vacancy rates (Major NOC grouping '0'). Three of the occupational categories listed relate to health care. This includes optometrists, chiropractors, managers in health care, and physicians, dentists, and veterinarians. Further, five of the categories relate to professional occupations in business, and another three categories relate to professional engineering occupations. Items identified in red include occupations which were identified as unique to this region when compared to the same top 20 list at the provincial level.



¹ As per Statistics Canada's geographic hierarchy, the Sault Ste. Marie Census Agglomeration consists of the following communities: Garden River 14, Laird Township, Macdonald, Meridith and Aberdeen Additional township, Prince Township, Rankin Location 15D, and the City of Sault Ste. Marie.

² To test this method, the author calculated the average job vacancy rates at the provincial level and compared this to another method to potentially estimate job shortages provincially—the length of job postings. Jobs that are posted for long periods of time often indicate that those occupations are more difficult to fill (Langevin, 2018). A list of three-digit NOCs was compiled based on occupations that have the highest ratios of jobs that were posted for 30 days or longer. The occupations with the top 20 highest ratios were compared to the top 20 positions based on highest average job vacancy rates, as outlined above. The two lists had an overlap of 40 per cent, meaning that eight out of 140 three-digit National Occupation Classifications appeared on both top 20 lists.

Table 1: Occupation Categories with the Highest Average Job Vacancy Rates, Sault Ste. Marie CA

NOC	Occupation	Average Unique Postings, 2018	2018 Jobs	Total Labour Market	Job Vacancy Rate
060	Corporate sales managers	16	24	40	40.19%
065	Managers in customer and personal services, n.e.c.	9	19	27	32.49%
051	Managers in art, culture, recreation and sport	7	26	33	20.05%
011	Administrative services managers	31	148	179	17.53%
001	Legislators and senior management	10	68	78	12.77%
744	Other installers, repairers and servicers	16	118	134	11.67%
063	Managers in food service and accommodation	13	98	111	11.62%
312	Optometrists, chiropractors and other health diagnosing and treating professionals	5	39	44	11.52%
656	Other occupations in personal service	6	46	52	11.00%
125	Court reporters, transcriptionists, records management technicians and statistical officers	3	26	29	8.94%
213	Civil, mechanical, electrical and chemical engineers	12	131	143	8.48%

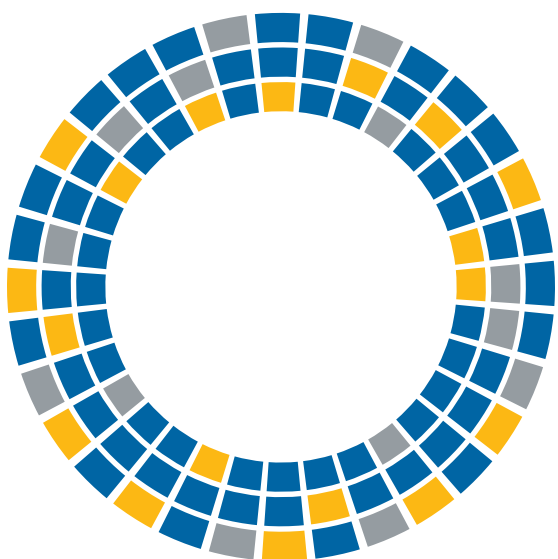
Source: Author's calculations based on Emsi – economicmodeling.com



Table 1: Continued

NOC	Occupation	Average Unique Postings, 2018	2018 Jobs	Total Labour Market	Job Vacancy Rate
012	Managers in financial and business services	12	130	142	8.26%
031	Managers in health care	6	74	80	8.01%
111	Auditors, accountants and investment professionals	27	348	374	7.12%
062	Retail and wholesale trade managers	23	310	333	6.83%
217	Computer and information systems professionals	18	239	256	6.83%
021	Managers in engineering, architecture, science and information systems	6	91	98	6.40%
311	Physicians, dentists and veterinarians	3	41	44	6.30%
112	Human resources and business service professionals	19	286	305	6.21%
214	Other engineers	8	115	122	6.14%

Source: Author's calculations based on Emsi – economicmodeling.com



Estimating future labour market shortages

The above section focused on an estimate for current vacancies broken down by three-digit NOC. The next section examines future labour market needs based on occupations that are projected to experience a high rate of growth in the coming years and those that will encounter higher comparative rates of retirement in the future. To start, the growth projections are again based on data obtained from Emsi. These estimates are projected based on historical trends and derived from "industry data, regional occupation data from the Labour Force Survey (LFS), and regional staffing patterns

taken from the Census" (Emsi, 2019). Table 2 summarizes the top five occupations as identified by Emsi based on job growth from 2018 to 2026. As we can see, two of the top 5 occupations are related to machine operator positions in processing. Another two occupations relate to transportation – managers in transportation and train crew operators. The occupation group with the highest rate of growth is train crew operating occupations at 55 per cent. The top 20 occupations based on job growth rates are listed in Appendix A.

Table 2: Top Five Occupational Categories Based on Highest Projected Growth Rates, 2018 to 2026, Sault Ste. Marie CA

NOC	Description	2018 Jobs	2026 Jobs	2018 - 2026 Change	2018 - 2026 % Change
736	Train crew operating occupations	31	48	17	55%
942	Machine operators and related workers in chemical, plastic and rubber processing	53	69	16	30%
946	Machine operators and related workers in food, beverage and associated products processing	87	111	24	28%
311	Physicians, dentists and veterinarians	41	51	10	24%
73	Managers in transportation	36	43	7	19%

Source: Emsi – economicmodeling.com

The second method used to estimate future labour market shortages includes assessing potential upcoming retirements in order to determine future replacement demand. This methodology follows a similar report published by the Far Northeast Training Board, which examines the proportion of workers 45 years and over in various occupations across Community Futures Development Corporation boundaries in the region. To do this, NPI purchased customized Statistics Canada 2016 census datasets broken down by age and occupation. An analysis of the data was conducted in order to determine the approximate number of individuals that are estimated to reach retirement age in future years based on their age in the 2016 Census of Population. The results identify several occupational groups that may experience high retirement rates in the next 10 years. Retirement rate is determined by dividing the 55 to 64 age group by the total labour force within each occupational category. A higher retirement rate indicates which occupations may require greater focus due to higher future workforce shortages. For example, a retirement rate of 40 per cent would indicate that 40 per cent of all workers in that occupation could potentially retire within the selected time frame.

Table 3 summarizes the top five occupations that will experience the highest estimated retirement rates between 2016 and 2026. Further, the top 20 occupations based on retirement rates are listed in Appendix B.

Table 3: Replacement Demand by Highest Retirement Rates, 2016 to 2026, Sault Ste. Marie CA³

NOC	Description	Total Labor Force 15 +	Labour Force Aged 55-64	Retirements %
215	Architects, urban planners and land surveyors	25	15	60.00%
211	Physical science professionals	45	25	55.56%
31	Managers in health care	60	25	41.67%
402	College and other vocational instructors	195	80	41.03%
641	Sales and account representatives - wholesale trade (non-technical)	110	40	36.36%

Source: Author's calculations, Statistics Canada, 2016 Census of Population, Custom Tabulation



³ Occupational categories with fewer than 15 people were excluded from the retirement rate analysis, due to random rounding resulting in less accurate retirement rates.

Combining Current and Future Estimates

The above tables attempt to separately estimate both current and future labour market needs. Table 1 identifies potential current labour market gaps, based on job vacancy rates, and Tables 2 and 3 demonstrate potential future labour market requirements based on occupations with either higher projected growth rates (i.e., increase in labour market demand) or a higher need for workers to replace retirees (i.e., decrease in labour market supply).

The next portion of this analysis will focus on combining the top 20 occupations as identified by the three above methods to determine where the most overlap exists among all three labour market indicators. Table 4 highlights occupational categories that were identified either in all three indicators (high job vacancy rate, high projected growth rates, and high replacement demand), or two out of three indicators, based on the top 20 occupations identified by each indicator.

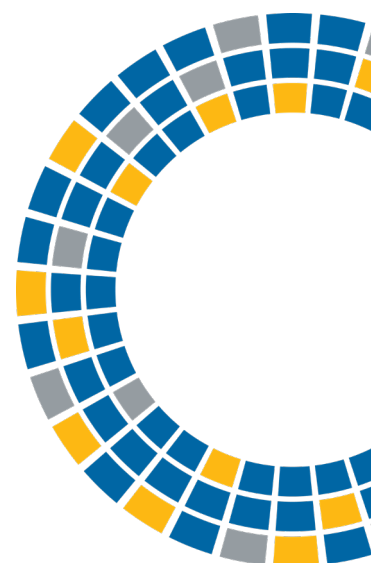
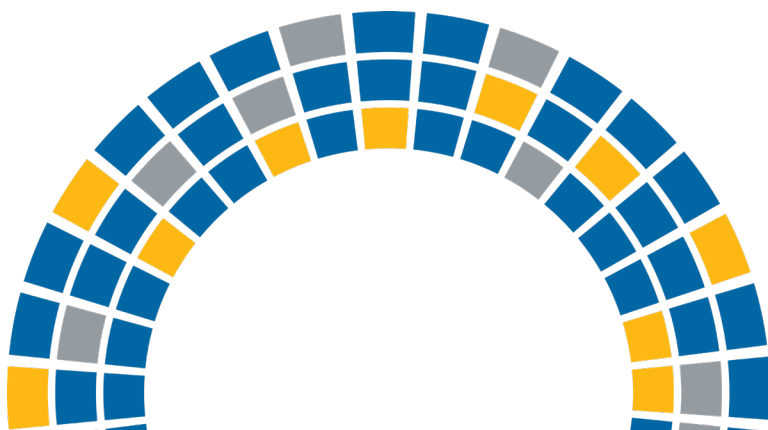
In Sault Ste. Marie, three health care-related occupations were flagged by two out of three indicators as occupational groups that are estimated to experience higher future growth, potential retirement, or higher current shortages. For these occupations, we estimate that there will be both a decrease in labour market supply and an increase in labour market demand. The high job vacancy rates for these positions potentially indicate an existing high need for these occupations. These occupations include managers in health care, physicians, dentists and veterinarians, and optometrists, chiropractors and other health diagnosing / treating professionals.



Table 4: Summary of Overlap of the Top Occupations Based on Each Method, Sault Ste. Marie CA

NOC	Description	Retirement Rate	Job Vacancy Rate	Future Job Growth	# of Jobs, 2018
031	Managers in health care	x	x		74
125	Court reporters, transcriptionists, records management technicians and statistical officers	x	x		26
065	Managers in customer and personal services, n.e.c.	x	x		19
312	Optometrists, chiropractors and other health diagnosing and treating professionals	x	x		39
641	Sales and account representatives - wholesale trade (non-technical)	x		x	286
221	Technical occupations in physical sciences	x		x	62
311	Physicians, dentists and veterinarians		x	x	41

Source: Author's calculations based on Emsi – economicmodeling.com; Author's calculations based on Statistics Canada, 2016 Census of Population, Custom Tabulation



Limitations

There are several limitations that should be noted, such as those related to the average job vacancy rate method. Since the method uses both average filled jobs in 2018 as well as average job postings in 2018, there will inevitably be overlap due to the fact that some positions that form 'average job postings' would have been posted earlier in the year and subsequently filled at some point during that year. Therefore, in some cases they will be included under both 'average job postings' and 'average filled jobs' in 2018. However, for highly seasonal positions, using 'average postings' and 'average filled jobs' may reduce the inflated effects of seasonality in certain occupations when compared to the typical job vacancy rate indicator, which is based on open positions and filled jobs on the last business day of the month. The average job vacancy rates for seasonal occupations would likely be much lower based on yearly average when compared to the same vacancy rates at specific points throughout the year when those occupations are in higher demand.

Further, estimates of replacement demand are based on a retirement age of 65. One could argue that retirement ages vary, with some individuals retiring in their late 60s or early 70s and others retiring earlier. Due to the inability to

gather average retirement ages by specific occupation, NPI used the age of 65 as an approximate indicator of retirement for the purposes of this analysis. Secondly, the projections are based on the total labour force in 2016, as well as the labour force ages 55 to 64 in 2016, rather than the total number of employed in 2016. Therefore, there seemingly would be a small proportion of individuals within each occupational category that are in the labour force but unemployed. This could cause the projected future retirement numbers to be slightly overstated. Finally, users of these data are encouraged to consider future technological change, future demand, and the potential for automation and its impact on specific occupations. Certain occupations may have more potential retirees but depending on new technology, automation, and industry changes, a portion of those retirees may not be replaced. The above analysis is therefore not short of limitations but aims to provide some indication of current and future labour market needs. This analysis should be used in conjunction with qualitative data and community input to help guide future labour market planning.

Conclusion

The above analysis is one of multiple ways to estimate labour market needs. For the Sault Ste. Marie Census Agglomeration, the analysis estimates that there is both current and future need for multiple health related occupations. This is demonstrated by both high job vacancy rates as well as high retirement / growth rates. Further, a number of the occupations identified by the job vacancy rate indicator are in professional business-related fields, indicating a potential current shortage in that industry. The job growth indicator identified two occupation categories of note for Sault Ste. Marie which are projected to grow in the near future – both are machine operator positions in processing-related industries.



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Appendix A: Growth rate

NOC	Description	2018 Jobs	2026 Jobs	2018 - 2026 Change	2018 - 2026 % Change
736	Train crew operating occupations	31	48	17	55%
942	Machine operators and related workers in chemical, plastic and rubber processing	53	69	16	30%
946	Machine operators and related workers in food, beverage and associated products processing	87	111	24	28%
311	Physicians, dentists and veterinarians	41	51	10	24%
73	Managers in transportation	36	43	7	19%
511	Librarians, archivists, conservators and curators	39	46	7	18%
861	Harvesting, landscaping and natural resources labourers	219	257	38	17%
513	Creative and performing artists	36	42	6	17%
122	Administrative and regulatory occupations	868	1,012	144	17%
751	Motor vehicle and transit drivers	985	1,141	156	16%
944	Machine operators and related workers in textile, fabric, fur and leather products processing and manufacturing	19	22	3	16%
13	Managers in communication (except broadcasting)	20	23	3	15%
301	Professional occupations in nursing	1,009	1,159	150	15%
753	Other transport equipment operators and related maintenance workers	103	118	15	15%
221	Technical occupations in physical sciences	62	71	9	15%
321	Medical technologists and technicians (except dental health)	436	499	63	14%
952	Mechanical, electrical and electronics assemblers	42	48	6	14%
843	Agriculture and horticulture workers	93	106	13	14%
641	Sales and account representatives - wholesale trade (non-technical)	286	325	39	14%
341	Assisting occupations in support of health services	912	1,036	124	14%

Appendix B: Replacement Demand

NOC	Description	Total Labour Force	55-64	Replacement Demand
215	Architects, urban planners and land surveyors	25	15	60.00%
211	Physical science professionals	45	25	55.56%
31	Managers in health care	60	25	41.67%
402	College and other vocational instructors	195	80	41.03%
641	Sales and account representatives - wholesale trade (non-technical)	110	40	36.36%
151	Mail and message distribution occupations	165	60	36.36%
731	Machinery and transportation equipment mechanics (except motor vehicles)	675	235	34.81%
941	Machine operators and related workers in mineral and metal products processing and manufacturing	495	170	34.34%
737	Crane operators, drillers and blasters	250	85	34.00%
730	Contractors and supervisors, maintenance trades and heavy equipment and transport operators	180	60	33.33%
212	Life science professionals	120	40	33.33%
125	Court reporters, transcriptionists, records management technicians and statistical officers	75	25	33.33%
312	Optometrists, chiropractors and other health diagnosing and treating professionals	80	25	31.25%
91	Managers in manufacturing and utilities	115	35	30.43%
221	Technical occupations in physical sciences	50	15	30.00%
442	Legal and public protection support occupations	170	50	29.41%
924	Utilities equipment operators and controllers	120	35	29.17%
745	Longshore workers and material handlers	210	60	28.57%
623	Insurance, real estate and financial sales occupations	325	90	27.69%
921	Supervisors, processing and manufacturing occupations	145	40	27.59%

Source: Author's calculations, Statistics Canada, 2016 Census of Population, Custom Tabulation

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