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Assessing Labour Market Shortages in the City of Timmins

By Alex Ross

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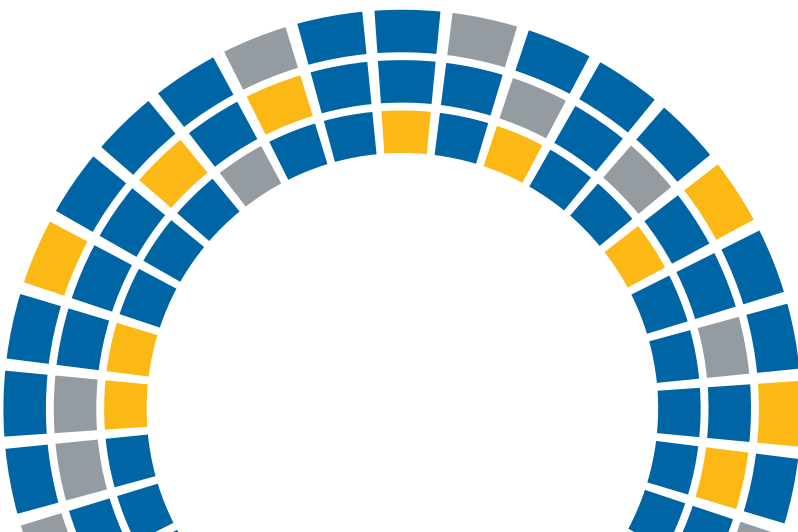
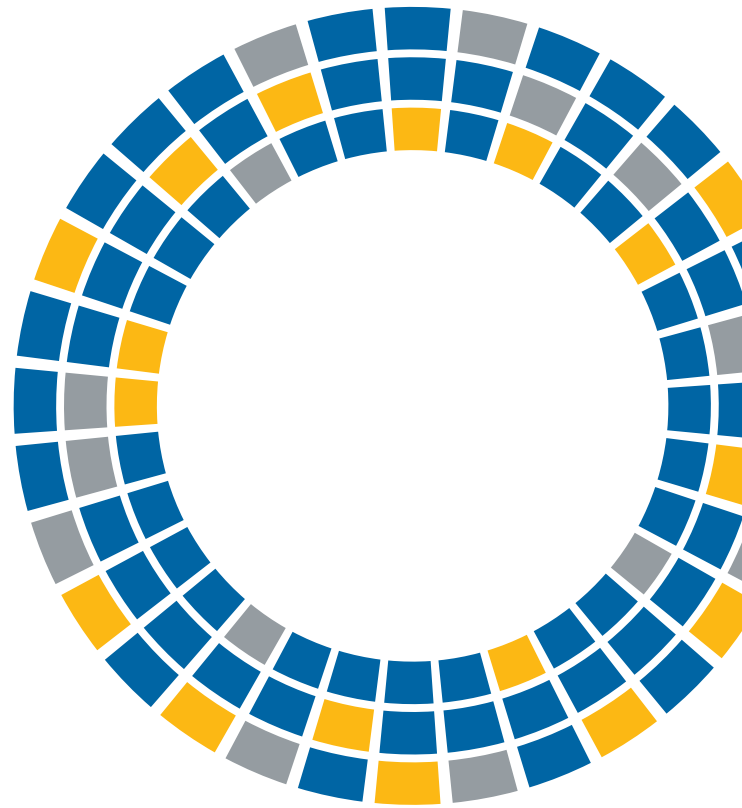
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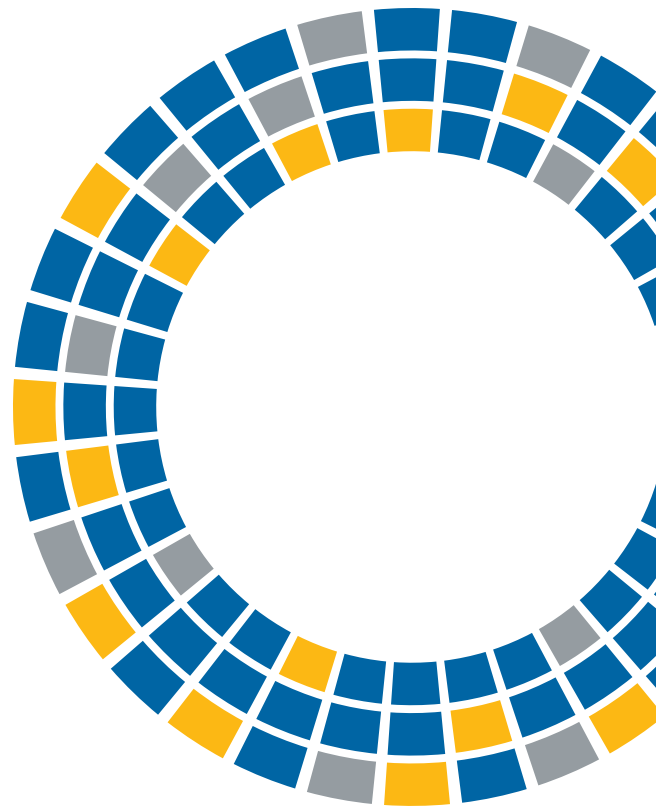
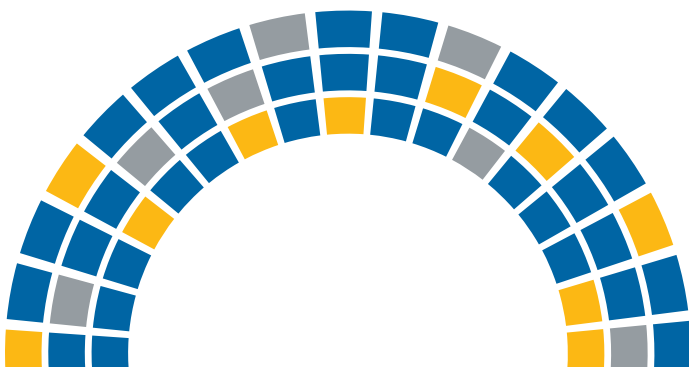
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Executive Summary

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 Timmins, 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 City of Timmins, 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 engineering, sales managers, and managers in transportation. Multiple health related occupations were also identified in Timmins, including physicians, dentists, optometrists, and chiropractors.

Further, auditors, accountants and investment professionals were identified across multiple indicators as being in need, a field which also did not show up on Ontario's top occupations based on the same indicator. This occupation category also forms a relatively larger portion of the labour market.

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 Timmins 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 city 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 City of Timmins in 2018. According to the below table, multiple management-related positions appear to have the highest job vacancy rates (Major NOC grouping ‘0’). However, four of the occupations listed are in NOC skill level C. This includes customer and information service representatives, installers and repairers, assembly-related occupations, and other occupations in personal service. Further, 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 Timmins CA consists solely of the City of Timmins. This analysis was made to align with the communities chosen for the Rural and Northern Immigration Pilot, and the Timmins CA was one of the communities chosen. Because there is no difference between the Timmins CA and the City of Timmins, this paper will use the two terms interchangeably.

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, City of Timmins

NOC	Occupation	Average Unique Postings, 2018	2018 Jobs	Total Labour Market	Job Vacancy Rate
060	Corporate sales managers	16	15	31	50.22%
953	Other assembly and related occupations	7	17	24	27.43%
011	Administrative services managers	27	90	116	22.75%
744	Other installers, repairers and servicers	17	79	95	17.63%
215	Architects, urban planners and land surveyors	5	26	31	16.51%
073	Managers in transportation	3	19	23	14.76%
312	Optometrists, chiropractors and other health diagnosing and treating professionals	5	30	35	14.68%
211	Physical science professionals	7	40	47	14.46%
001	Legislators and senior management	6	35	41	13.62%
313	Pharmacists, dietitians and nutritionists	8	53	61	12.81%
656	Other occupations in personal service	5	31	35	12.76%
031	Managers in health care	7	49	56	12.74%

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

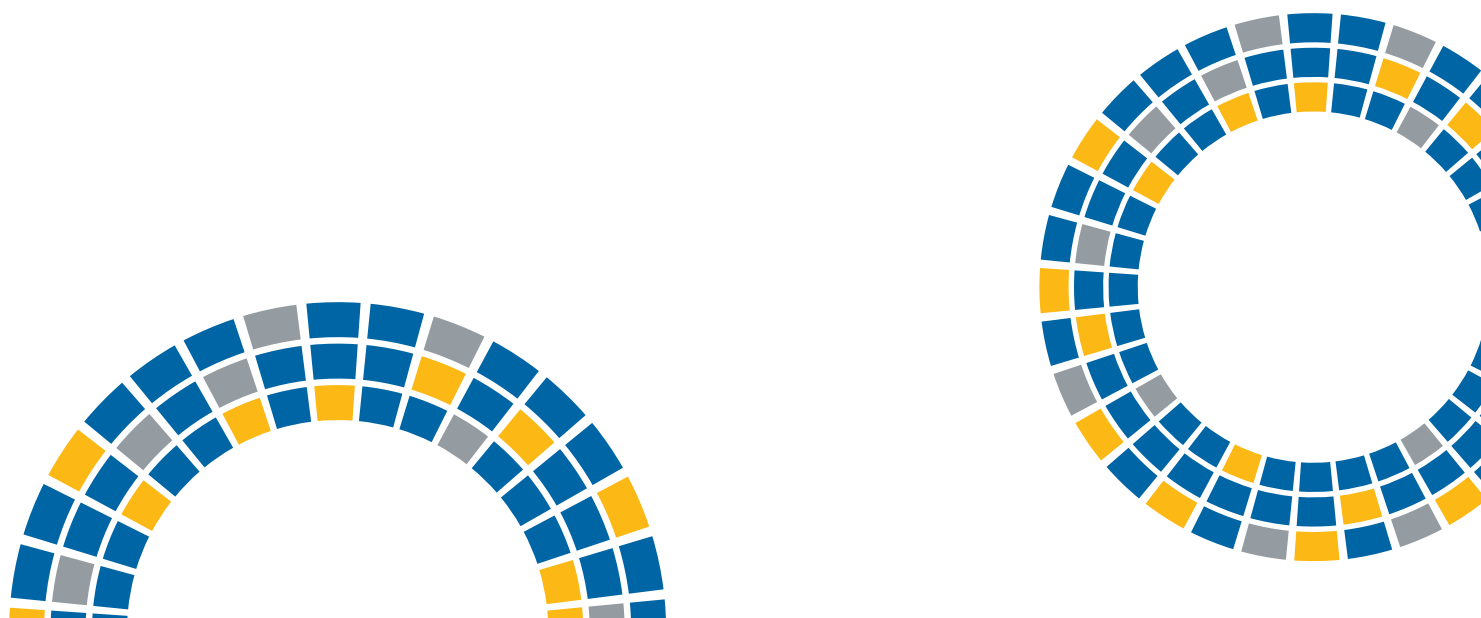
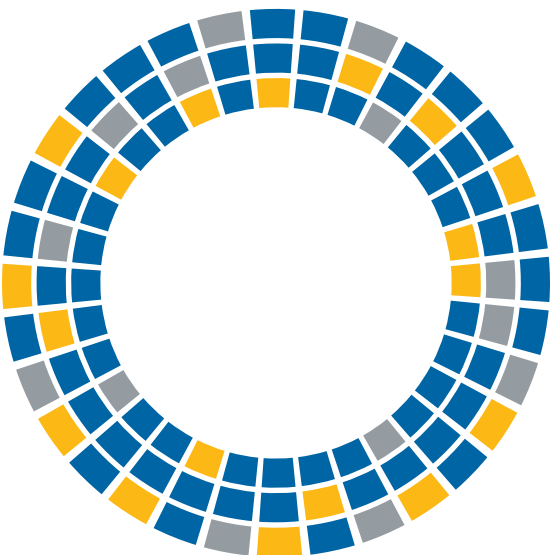


Table 1: Continued

NOC	Occupation	Average Unique Postings, 2018	2018 Jobs	Total Labour Market	Job Vacancy Rate
733	Other mechanics and related repairers	7	51	59	12.38%
655	Customer and information services representatives	37	286	323	11.44%
112	Human resources and business service professionals	19	151	170	10.96%
021	Managers in engineering, architecture, science and information systems	6	53	60	10.77%
111	Auditors, accountants and investment professionals	23	195	218	10.50%
063	Managers in food service and accommodation	6	54	59	9.31%
512	Writing, translating and related communications professionals	2	22	24	8.86%
311	Physicians, dentists and veterinarians	2	25	28	8.45%

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, the occupational categories are varied. The occupational group with the highest rate of growth is physicians, dentists and veterinarians at 36 per cent. Growth in mine service worker and operator occupations is expected to be 33 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, City of Timmins

NOC	Description	2018 Jobs	2026 Jobs	2018 - 2026 Change	2018 - 2026 % Change
311	Physicians, dentists and veterinarians	25	34	9	36%
401	University professors and post-secondary assistants	24	32	8	33%
841	Mine service workers and operators in oil and gas drilling	46	61	15	33%
411	Judges, lawyers and Quebec notaries	42	55	13	31%
511	Librarians, archivists, conservators and curators	17	22	5	29%

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, City of Timmins³

NOC	Description	Total Labor Force 15 +	Labour Force Aged 55-64	Retirements %
924	Utilities equipment operators and controllers	25	15	60.00%
012	Managers in financial and business services	80	45	56.25%
212	Life science professionals	50	25	50.00%
021	Managers in engineering, architecture, science and information systems	30	15	50.00%
013	Managers in communication (except broadcasting)	30	15	50.00%

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 Timmins, three management-related occupation categories, as well as auditors, accountants and investment professionals were identified across two of the three indicators (retirement rates and vacancy rates). It is estimated that these occupations are experiencing higher current shortages, indicating potentially insufficient labour supply, and a high need for future replacement demand, indicating shrinking labour supply in the future, which could exacerbate the effects of the current shortage.

Further, two occupations were identified as having high current vacancies, indicating potentially low current labour supply, and high projected job growth from 2018 to 2026, indicating a projected increase in labour demand. Both of those occupational categories were in health-related fields.



Table 4: Summary of Overlap of the Top Occupations Based on Each Method, City of Timmins

NOC	Description	Retirement Rate	Job Vacancy Rate	Future Job Growth	# of Jobs, 2018
021	Managers in engineering, architecture, science and information systems	x	x		53
060	Corporate sales managers	x	x		15
073	Managers in transportation	x	x		19
111	Auditors, accountants and investment professionals	x	x		195
737	Crane operators, drillers and blasters	x		x	42
841	Mine service workers and operators in oil and gas drilling	x		x	46
122	Administrative and regulatory occupations	x		x	477
311	Physicians, dentists and veterinarians		x	x	25
312	Optometrists, chiropractors and other health diagnosing and treating professionals		x	x	30

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 City of Timmins, the analysis estimates that there is both current and future need for occupations in management, as well as skilled business and health-related professions. These professions involve both potential current labour market shortages as demonstrated by their high job vacancy rates, as well as potential future need based on the growth / retirement rate indicators.



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Appendix A: Growth rate

NOC	Description	2018 Jobs	2026 Jobs	2018 - 2026 Change	2018 - 2026 % Change
311	Physicians, dentists and veterinarians	25	34	9	36%
401	University professors and post-secondary assistants	24	32	8	33%
841	Mine service workers and operators in oil and gas drilling	46	61	15	33%
411	Judges, lawyers and Quebec notaries	42	55	13	31%
511	Librarians, archivists, conservators and curators	17	22	5	29%
737	Crane operators, drillers and blasters	42	54	12	29%
314	Therapy and assessment professionals	75	94	19	25%
946	Machine operators and related workers in food, beverage and associated products processing	52	65	13	25%
341	Assisting occupations in support of health services	494	611	117	24%
81	Managers in natural resources production and fishing	17	21	4	24%
942	Machine operators and related workers in chemical, plastic and rubber processing	27	33	6	22%
301	Professional occupations in nursing	622	756	134	22%
323	Other technical occupations in health care	257	312	55	21%
421	Paraprofessional occupations in legal, social, community and education services	564	678	114	20%
312	Optometrists, chiropractors and other health diagnosing and treating professionals	30	36	6	20%
922	Supervisors, assembly and fabrication	50	60	10	20%
122	Administrative and regulatory occupations	477	561	84	18%
221	Technical occupations in physical sciences	69	81	12	17%
42	Managers in education and social and community services	110	128	18	16%
823	Underground miners, oil and gas drillers and related occupations	980	1,138	158	16%

Appendix B: Replacement Demand

NOC	Description	Total Labour Force	55-64	Replacement Demand
924	Utilities equipment operators and controllers	25	15	60%
12	Managers in financial and business services	80	45	56%
212	Life science professionals	50	25	50%
21	Managers in engineering, architecture, science and information systems	30	15	50%
13	Managers in communication (except broadcasting)	30	15	50%
142	Office equipment operators	50	20	40%
923	Central control and process operators in processing and manufacturing	40	15	38%
737	Crane operators, drillers and blasters	45	15	33%
402	College and other vocational instructors	90	30	33%
60	Corporate sales managers	45	15	33%
822	Contractors and supervisors, mining, oil and gas	185	60	32%
841	Mine service workers and operators in oil and gas drilling	80	25	31%
71	Managers in construction and facility operation and maintenance	210	65	31%
73	Managers in transportation	55	15	27%
441	Home care providers and educational support occupations	310	80	26%
122	Administrative and regulatory occupations	450	115	26%
752	Heavy equipment operators	335	85	25%
631	Service supervisors	100	25	25%
111	Auditors, accountants and investment professionals	220	55	25%
941	Machine operators and related workers in mineral and metal products processing and manufacturing	85	20	24%

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

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