Briefing Note No. 13 | April 2020

Assessing Labour Market Shortages in the Greater Sudbury Census Metropolitan Area

By Alex Ross

NORTHERN POLICY INSTITUTE | INSTITUT DES POLITIQUES DU NORD

NPI – Who We Are

Board: The Board of Directors sets strategic direction for Northern Policy Institute. Directors serve on Board committees dealing with audit, fundraising and governance, and collectively the Board holds the CEO accountable for achieving our Business Plan goals. The Board's principal responsibility is to protect and promote the interests, reputation, and stature of Northern Policy Institute.

President & CEO: Recommends strategic direction, develops plans and processes, and secures and allocates resources to achieve it.

Advisory Council: A group of committed individuals interested in supporting, but not directing, the work of Northern Policy Institute. Leaders in their fields, they provide advice on potential researchers or points of contact in the wider community.

Research Advisory Board: A group of academic researchers who provide guidance and input on potential research directions, potential authors, and draft studies and commentaries. They are Northern Policy Institute's formal link to the academic community.

Peer Reviewers: Ensure specific papers are factual, relevant and publishable.

Authors and Fellows: Provide independent expertise on specific policy areas as and when needed.

Standing engagement tools (general public, government stakeholders, community stakeholders): Ensure Northern Policy Institute remains responsive to the community and reflects THEIR priorities and concerns in project selection.

President & CEO

Charles Cirtwill

Board of Directors

Pierre Bélanger (Chair)
Dr. Brian Tucker (Treasurer)
Suzanne Bélanger-Fontaine
Dave Canfield
Kevin Eshkawkogan
Florence MacLean (Vice-Chair Northwest)
Corina Moore
Dwayne Nashkawa (Secretary)
Alan Spacek
Asima Vezina (Vice-Chair Northeast)
Charles Cirtwill (President & CEO)

Advisory Council

Michael Atkins
Kim Jo Bliss
Jean Pierre Chabot
Dr. Michael DeGagné
Don Drummond
Audrey Gilbeau
Peter Goring
Cheryl Kennelly
Winter Dawn Lipscombe
Dr. George C. Macey
Ogimaa Duke Peltier
Danielle Perras
Bill Spinney
David Thompson

Research Advisory Board

Dr. Hugo Asselin
Dr. Gayle Broad
George Burton
Dr. Heather Hall
Dr. Livio Di Matteo
Dr. Barry Prentice
Leata Ann Rigg
Dr. David Robinson
S. Brenda Small
J.D. Snyder
Dr. Lindsay Tedds

Northern Policy Institute, wish to emphasize the following: The views expressed in this briefing note are those of the author and do not necessarily reflect the opinions of the Institute, its Board of Directors or its supporters. Quotation with appropriate credit is permissible.

Author's calculations are based on data available at the time of publication and are therefore subject to change.

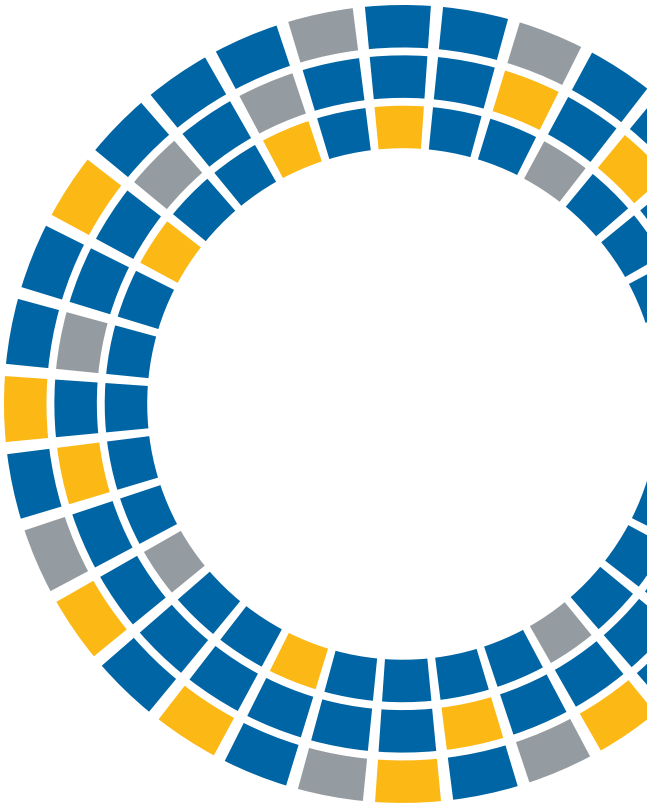
Published by Northern Policy Institute
874 Tungsten St.
Thunder Bay, Ontario P7B 6T6
ISBN: 978-1-989343-57-9

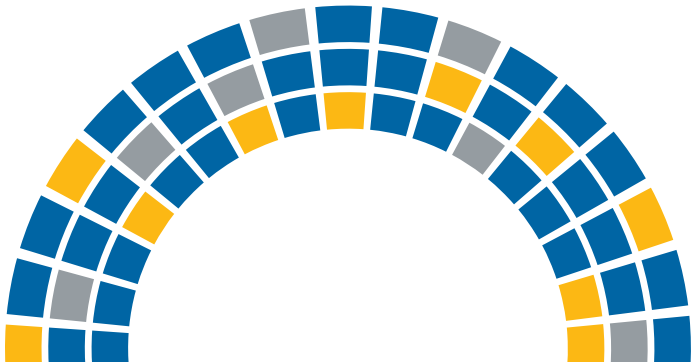
About the Author

Alex Ross

Alex Ross is a former senior data analyst for Northern Policy Institute. He was born and raised in Sudbury Ontario, and currently works in Economic Development. After graduating from Laurentian University with a B.A. (Hons) in Economics in 2010, Alex completed a Masters Degree in Economic Policy from McMaster University. Alex's areas of interest include labour market analysis, community and economic development, cost-benefit analysis, and environmental sustainability.

Contents





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 Greater Sudbury, 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.

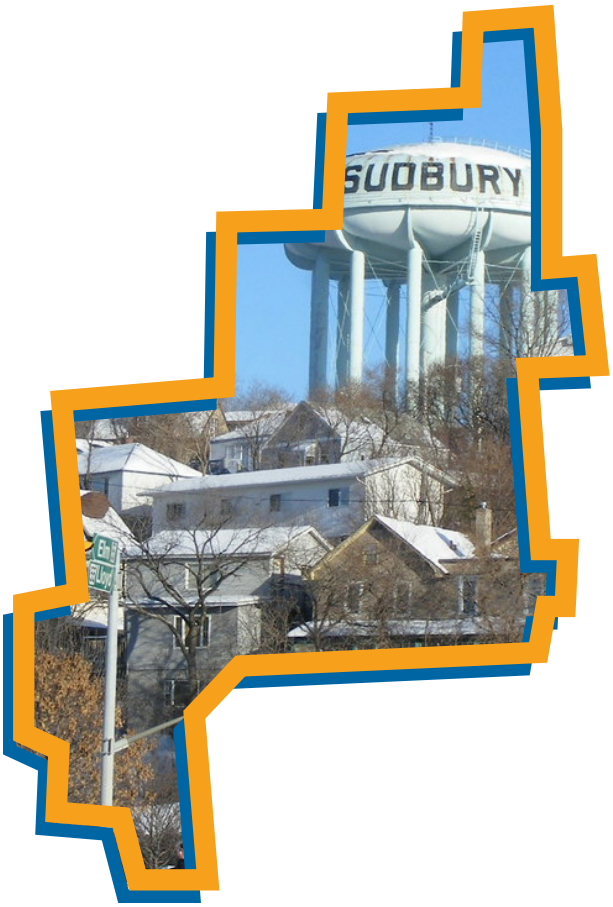
For the Greater Sudbury Census Metropolitan Area, this paper finds that multiple highly skilled positions have been identified as in need, both based on current labour market indicators and potential future retirements. In management, this includes legislators and senior managers, as well as managers in transportation. Unique to Greater Sudbury, a number of library clerks and librarians were identified as having high potential for retirement need in the future. Retirement rates in both occupations made the top five list of occupations in the community.

Further, therapy and assessment professionals were identified across multiple indicators as being in need, a field which did not show up on Ontario's top occupations based on the same indicator. Others that were unique to Sudbury when compared to the province included auditors, accountants and investment professionals, civil, mechanical, electrical and chemical engineers, as well as retail and wholesale trade managers.

Introduction

Estimating 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.

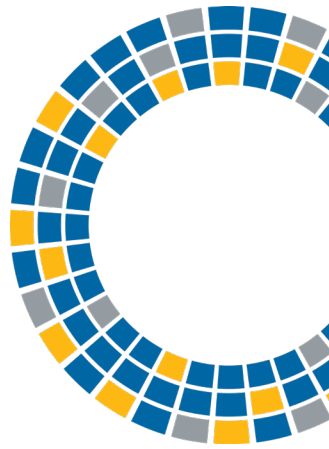


Estimating current labour market shortages

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 Greater Sudbury Census Metropolitan Area (CMA) 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 region 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 Greater Sudbury CMA in 2018. According to the below table, multiple management-related positions appear to have the highest job vacancy rates (Major NOC grouping '0'). Four of the occupations listed are in skill level C. This includes customer and information service representatives, occupations in personal service, installers and repairers, and assembly & related occupations. 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 Greater Sudbury Census Metropolitan Area consists of the following Census communities: Greater Sudbury, Markstay-Warren, Wahnapitei 11, and Whitefish Lake 6*

[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, Greater Sudbury CMA

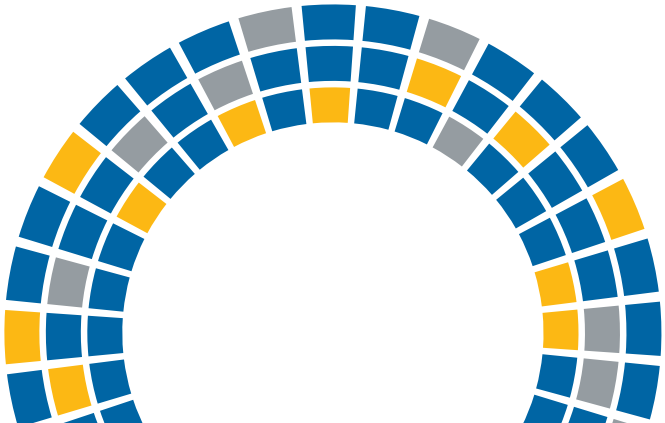
NOC	Occupation	Average Unique Postings, 2018	2018 Jobs	Total Labour Market	Job Vacancy Rate
060	Corporate sales managers	66	66	132	49.95%
065	Managers in customer and personal services, n.e.c.	27	35	62	43.22%
953	Other assembly and related occupations	31	115	147	21.41%
011	Administrative services managers	94	378	472	19.89%
744	Other installers, repairers and servicers	55	314	369	14.89%
213	Civil, mechanical, electrical and chemical engineers	71	455	526	13.45%
125	Court reporters, transcriptionists, records management technicians and statistical officers	7	51	58	12.59%
312	Optometrists, chiropractors and other health diagnosing and treating professionals	11	81	92	12.28%
051	Managers in art, culture, recreation and sport	9	71	80	11.64%
656	Other occupations in personal service	12	103	115	10.61%
012	Managers in financial and business services	31	282	314	10.02%

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
062	Retail and wholesale trade managers	67	688	755	8.93%
031	Managers in health care	15	161	175	8.50%
073	Managers in transportation	8	83	90	8.41%
655	Customer and information services representatives	107	1166	1273	8.38%
111	Auditors, accountants and investment professionals	74	843	917	8.11%
001	Legislators and senior management	16	188	204	7.68%
314	Therapy and assessment professionals	19	234	253	7.55%
112	Human resources and business service professionals	55	718	773	7.17%
063	Managers in food service and accommodation	15	194	208	7.04%

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 NOCs. 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, many of the top five occupations are related to mining and natural resources. The occupation group with the highest rate of growth is crane operators, drillers and blasters at 34 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, Greater Sudbury CMA

NOC	Description	2018 Jobs	2026 Jobs	2018 - 2026 Change	2018 - 2026 % Change
737	Crane operators, drillers and blasters	138	185	47	34%
841	Mine service workers and operators in oil and gas drilling	111	145	34	31%
081	Managers in natural resources production and fishing	38	49	11	29%
861	Harvesting, landscaping and natural resources labourers	536	672	136	25%
311	Physicians, dentists and veterinarians	104	130	26	25%

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, Greater Sudbury CMA[3]

NOC	Description	Total Labor Force 15 +	Labour Force Aged 55-64	Retirements %
125	Court reporters, transcriptionists, records management technicians and statistical officers	135	60	44.44%
511	Librarians, archivists, conservators and curators	35	15	42.86%
738	Printing press operators and other trades and related occupations, n.e.c.	85	30	35.29%
145	Library, correspondence and other clerks	290	95	32.76%
073	Managers in transportation	65	20	30.77%

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 the Greater Sudbury CMA, managers in transportation (NOC 073) are flagged in all three indicators as an occupational group that is estimated to experience higher future growth and potential retirement, as well as higher current shortages. Therefore, 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.

Further, legislators and senior managers, managers in customer and personal services, and records-related occupations 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. Three occupations were identified as having a high need for future replacement demand, and high projected job growth from 2018 to 2026, indicating a projected increase in labour demand. Two of those three occupational categories were in NOC level C positions (mine service workers, motor vehicle and transit drivers). Finally, one occupational category, therapy and assessment professionals, was identified as having a high current job vacancy rate, and a high future job growth rate.

Table 4: Summary of Overlap of the Top Occupations Based on Each Method, Greater Sudbury CMA

NOC	Description	Retirement Rate	Job Vacancy Rate	Future Job Growth	# of Jobs, 2018
073	Managers in transportation	x	x	x	83
125	Court reporters, transcriptionists, records management technicians and statistical officers	x	x		51
511	Librarians, archivists, conservators and curators	x		x	95
841	Mine service workers and operators in oil and gas drilling	x		x	111
001	Legislators and senior management	x	x		188
065	Managers in customer and personal services, n.e.c.	x	x		35
751	Motor vehicle and transit drivers	x		x	2829
314	Therapy and assessment professionals		x	x	234

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 only one of multiple ways to estimate labour market needs. For the Greater Sudbury Census Metropolitan Area, the analysis estimates that there is both current and future need for occupations in transportation management, across all three indicators. Many of the identified occupational categories with current high job vacancy rates are in management related occupations (NOC 0), as well as NOC A and NOC B skills categories. This indicates a potential skills shortage for highly educated workers, and workers with management experience.

References

Drolet, Marie. 2017. "Linking labour demand and labour supply: Job vacancies and the unemployed." Insights on Canadian Society. Statistics Canada Catalogue no. 75-006-X.

Emsi Economic Modelling LLC. 2019. Custom Report. Accessed October 18, 2019. https://kb.economicmodelling.ca/whats-the-complete-list-of-sources-emsi-uses-2/?hilite=%27sources%27.

Government of Canada. 2020. "Rural and Northern Immigration Pilot: about the pilot." Accessed January 22nd, 2020. https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/rural-northern-immigration-pilot.html.

Langevin, Manon. 2018. "Long-term job vacancies in Canada." Insights on Canadian Society. Statistics Canada Catalogue no. 75-006-X.

Lindzon, Jared. 2019. "Canada remains job candidate's market in majority of provinces as vacancy rates increase." The Globe and Mail, August 9. Accessed October 18, 2019. https://www.theglobeandmail.com/business/careers/article-canada-remains-job-candidates-market-in-majority-of-provinces-as/.

Moazzami, Bakhtiar. 2019. "Northern Projections: Human Capital Series – Thunder Bay District." Northern Policy Institute. Accessed October 18, 2019. https://www.northernpolicy.ca/upload/documents/publications/reports-new/thunder-bay-19.12.17.pdf

Parkinson, David. 2019. "Canada has a skills shortage – but which skills, and where? Lack of data leaves the experts unsure." The Globe and Mail, March 10. Accessed October 18, 2019. https://www.theglobeandmail.com/business/article-canada-has-a-skills-shortage-but-which-skills-and-where-lack-of/.

Statistics Canada. 2015. "Guide to Job Vacancy Statistics, 2013001, Section 3: Terms and definitions, Job Vacancy and Wage Survey." Accessed October 18, 2019. https://www150.statcan.gc.ca/n1/pub/72-210-g/2013001/part-partie3-eng.htm.

Appendix A: Growth rate

NOC	Description	2018 Jobs	2026 Jobs	2018 - 2026 Change	2018 - 2026 % Change
737	Crane operators, drillers and blasters	138	185	47	34%
841	Mine service workers and operators in oil and gas drilling	111	145	34	31%
81	Managers in natural resources production and fishing	38	49	11	29%
861	Harvesting, landscaping and natural resources labourers	536	672	136	25%
311	Physicians, dentists and veterinarians	104	130	26	25%
341	Assisting occupations in support of health services	1,860	2,297	437	23%
736	Train crew operating occupations	62	76	14	23%
122	Administrative and regulatory occupations	2,242	2,689	447	20%
301	Professional occupations in nursing	2,197	2,635	438	20%
944	Machine operators and related workers in textile, fabric, fur and leather products processing and manufacturing	81	97	16	20%
751	Motor vehicle and transit drivers	2,829	3,370	541	19%
654	Security guards and related security service occupations	476	567	91	19%
521	Technical occupations in libraries, public archives, museums and art galleries	101	120	19	19%
725	Plumbers, pipefitters and gas fitters	318	377	59	19%
42	Managers in education and social and community services	448	531	83	19%
73	Managers in transportation	83	98	15	18%
730	Contractors and supervisors, maintenance trades and heavy equipment and transport operators	749	884	135	18%
421	Paraprofessional occupations in legal, social, community and education services	1,964	2,317	353	18%
511	Librarians, archivists, conservators and curators	95	112	17	18%
314	Therapy and assessment professionals	234	275	41	18%

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

Appendix B: Replacement Demand

NOC	Description	Total Labour Force	55-64	Replacement Demand
125	Court reporters, transcriptionists, records management technicians and statistical officers	135	60	44%
511	Librarians, archivists, conservators and curators	35	15	43%
738	Printing press operators and other trades and related occupations, n.e.c.	85	30	35%
145	Library, correspondence and other clerks	290	95	33%
73	Managers in transportation	65	20	31%
13	Managers in communication (except broadcasting)	50	15	30%
91	Managers in manufacturing and utilities	225	65	29%
402	College and other vocational instructors	520	140	27%
71	Managers in construction and facility operation and maintenance	840	225	27%
512	Writing, translating and related communications professionals	190	50	26%
841	Mine service workers and operators in oil and gas drilling	215	55	26%
1	Legislators and senior management	670	170	25%
131	Finance, insurance and related business administrative occupations	815	205	25%
673	Cleaners	2805	680	24%
143	Financial, insurance and related administrative support workers	1270	305	24%
226	Other technical inspectors and regulatory officers	375	90	24%
65	Managers in customer and personal services, n.e.c.	125	30	24%
751	Motor vehicle and transit drivers	2725	650	24%
822	Contractors and supervisors, mining, oil and gas	655	155	24%
952	Mechanical, electrical and electronics assemblers	85	20	24%

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

About Northern Policy Institute

Northern Policy Institute is Northern Ontario's independent think tank. We perform research, collect and disseminate evidence, and identify policy opportunities to support the growth of sustainable Northern Communities. Our operations are located in Thunder Bay and Sudbury. We seek to enhance Northern Ontario's capacity to take the lead position on socio-economic policy that impacts Northern Ontario, Ontario, and Canada as a whole.

Related Research

Northern Projections: Human Capital Series 2019
Dr. Bakhtiar Moazzami

Case Studies in Effective Indigenous Skills Development
Dharmjot Grewal

French-Speaking Migrants to Greater Sudbury: 2017-2026
Fenfang Li and Alex Ross

To stay connected or get involved, please contact us at:
1 (807) 343-8956 **info@northernpolicy.ca** **www.northernpolicy.ca**

NORTHERN POLICY INSTITUTE | INSTITUT DES POLITIQUES DU NORD

northernpolicy.ca