



REMOTE/HYBRID WORK IN ALGOMA

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EXECUTIVE SUMMARY

COVID-19 restrictions over the past 2 years have given employers and employees first-hand experience with working remotely. Remote work (telework), a working style that allows employees to work outside of their usual place of work, offers a range of benefits to both employers and employees, including financial savings and increased job flexibility. However, remote work is not possible or desirable for all occupations. The purpose of this report is to identify the benefits and risks associated with remote work for both employers and employees while also determining which occupations in Algoma can be done remotely.

Overall, the findings in the report suggest that, for Algoma, remote work may not be the radical change many predicted at the onset of COVID-19. This is largely due to the relatively low proportion of occupations in the region that can be entirely executed remotely due to their physical nature (nursing, tradespeople, etc.).

However, while the overall number of jobs in Algoma that can be completed remotely may be relatively low, it does offer opportunities to employers, especially in a tight labour market. Employers can utilize fully remote or hybrid work models to access a larger labour pool and make positions more desirable for current and future employees. This may be especially useful for employers looking to fill specialized positions that can be executed remotely. Therefore, while not leading to significant change, remote and hybrid work models are likely to be a beneficial tool for employers, providing new opportunities in Algoma's labour market.

KEY FINDINGS

- Most jobs cannot be worked entirely remotely. This is due to the physical nature of many jobs, and the need to work with specific technology, people, or products.
- It is estimated that 35.5% of Algoma residents work in occupations that can be entirely remote. In comparison, 46.3% of Ontario's work in occupations that can be entirely remote.
- There are significant differences in the ability to work remotely between various industries. Within the Finance, Insurance, and Educational services industries, 95.3% and 83.1% of jobs can be worked entirely remotely. At the other end of the spectrum, only 9.3% of jobs in Agriculture, forestry, fishing, and hunting can be worked remotely.
- Within most industries, Algoma has a lower proportion of jobs that can be worked remotely when compared to the rest of Ontario.

- In Ontario, some industries, such as Finance, Insurance, and Public administration have nearly met their estimated ability to work remotely. However, other industries, such as Educational services and Professional, Scientific, and Technical services have large gaps between the estimated proportion of jobs able to be worked remotely and those being worked remotely. This suggests that, although some industries have a large proportion of jobs able to be remote, the remote work model may not be efficient or desirable for many workplaces.
- Looking at National and Provincial data it appears that approximately 80% of employees would like to work at least half of their hours remotely, while only 27% of employers are anticipating employees working at least half of their hours remotely.
- A tight labour market may mean that employers will have to adapt to a hybrid model (if they can) in order to retain and attract new employees.

ABOUT AWIC

The Algoma Workforce Investment Corporation (AWIC) is Algoma's Workforce Planning Board. AWIC's goal is to provide access to easy-to-understand, quality assured Labour Market Information (LMI) for the Algoma region that allows individuals to make decisions about future careers, employers to plan and find talent, and community stakeholders to inform policy and support local workforces.

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This report was prepared by Paul Knafelc, Community Benchmarks Inc, and Jonathan Coulman, the Executive Director of AWIC.

INTRODUCTION

Remote work (sometimes referred to as telework), a working style that allows employees to work outside of their usual place of work, offers a range of benefits to both employers and employees, including financial savings and increased job flexibility. Simply put, not every job can be worked remotely. Due to the requirements of many occupations, workers must be physically present in the workplace. For example, a firefighter cannot do any of their necessary tasks remotely. In comparison, a financial manager is likely able to complete all tasks remotely, using various online tools for video conferencing, data storage, and e-signature signing. Additionally, there are a large number of jobs that, while not able to be worked entirely remotely, may include various tasks that can be completed outside of the office. Thus, many workplaces may become interested in creating a hybrid model that involves employees dividing their time in and outside of their usual workplace. However, there are currently no ways to measure the potential number of workplaces that could incorporate a hybrid model. Furthermore, a hybrid model would require less significant changes to the workplace and the overall economy compared to a fully remote workplace. Because of this, this paper focuses on determining the jobs that can be entirely teleworked.

Simply put, not every job can be worked remotely.

ABILITY TO WORK REMOTELY

By applying a methodology developed by Dingel and Neiman (2020) and converted to a Canadian context by Gallacher and Hossain (2020), it is estimated that 35.5% of Algoma residents hold jobs that can be worked entirely remotely.¹ In comparison, 46.3% of Ontarians hold jobs that can be worked entirely remotely.

35.5% of Algoma Residents hold jobs that can be worked entirely remotely.

To obtain these estimates, each occupation 4-digit National Occupation Classification (NOC)) was assigned a value of 0 to 1, with 0 meaning the occupation cannot be worked entirely remotely and 1 meaning the occupation can be worked

¹ This estimate is derived using Census 2016 Place of Residence data at the four-digit NOC level.

entirely remotely.² As displayed in Table 1, Senior Government managers and officials have a remote work index of 1. This means that 100% of these jobs can be worked entirely remotely. In comparison, Senior managers – trade, broadcasting, and other services have a remote work index of 0.6. This means that 60% of these jobs can be entirely teleworked.

It is important to note that the methodology used estimates the **possibility** of occupation to be worked **entirely** remotely based on the required tasks. The methodology used does not consider whether an occupation would be difficult and thus unlikely to be teleworked. Because of this, these estimates should be considered on the high end.

Table 1. Ability to Work Remotely by Occupation (4-Digit NOC)

Occupation (4-Digit NOC)	Remote Work Index
0012 Senior government managers and officials	1
0015 Senior managers – trade, broadcasting, and other services, n.e.c.	0.6
0111 Financial managers	1
0112 Human resources managers	1
0113 Purchasing managers	1
0114 Other administrative services managers	1
0121 Insurance, real estate, and financial brokerage managers	1
0422 School principals and administrators of elementary and secondary	0.5
0431 Commissioned police officers	0
0513 Recreation, sports, and fitness program and service directors	0
0621 Retail and wholesale trade managers	0
0632 Accommodation service managers	0
0651 Managers in customer and personal services, n.e.c.	0
0731 Managers in transportation	0.75
4312 Firefighters	0

Source: Dingel & Neiman, 2020; Gallacher & Hossain, 2020.

Note: This table provides a list of sample occupations. The full table can be found in the appendix.

² Dingel & Neiman, 2020; Gallacher & Hossain, 2020. Values in between 0 and 1 are due to inconsistencies in the American and Canadian occupation classification databases (O*NET and NOC). See Technical Notes for detailed explanation of the methodology used.

ABILITY TO WORK REMOTELY BY 2-DIGIT NOC

Based on the 4-digit NOC Remote Work Index and relative employment numbers, Table 2 depicts the proportion of 2-digit occupations that can be worked entirely remotely³. As can be seen in Table 2, a significantly lower proportion of Technical Occupations Related to Natural and Applied Sciences (NOC 22) can be worked remotely in Algoma (38.3%) compared to Ontario (47.8%). This means that Algoma has a lower proportion of teleworkable 4-digit occupations within this 2-digit occupation grouping compared to Ontario.

Table 2. Ability to Work Remotely by Occupation (2-Digit NOC), Algoma and Ontario

Occupation (2-Digit NOC)	The proportion of Jobs with the Ability to Remote Work	
	Algoma	Ontario
Total – All occupations	35.5%	46.3%
00 Senior management occupations	93.9%	91.2%
01-05 Specialized middle management occupations	88.9%	94.3%
06 Middle management occupations in retail and wholesale trade and customer services	64.0%	72.1%
07-09 Middle management occupations in trades, transportation, production, and utilities	34.6%	34.3%
11 Professional occupations in business and finance	100.0%	100.0%
12 Administrative and financial supervisors and administrative occupations	86.9%	87.4%
13 Finance, insurance and related business administrative occupations	100.0%	100.0%
14 Office support occupations	73.1%	75.0%
15 Distribution, tracking and scheduling co-ordination occupations	32.0%	29.3%
21 Professional occupations in natural and applied sciences	77.9%	86.7%

³ In order to apply the remote work index at the two-digit occupation level, weighted averages were used to take into account the proportion of employment in the four-digit occupations within each two-digit occupation. Employment numbers were retrieved from the Census 2016 Place of Residence data at the four-digit NOC level.

Occupation (2-Digit NOC)	The proportion of Jobs with the Ability to Remote Work	
	Algoma	Ontario
22 Technical occupations related to natural and applied sciences	38.3%	47.8%
30 Professional occupations in nursing	0.0%	0.0%
31 Professional occupations in health	7.4%	5.9%
32 Technical occupations in health	1.7%	1.1%
34 Assisting occupations in support of health services	2.5%	1.9%
40 Professional occupations in education services	99.5%	99.4%
41 Professional occupations in law and social, community and government services	61.2%	78.3%
42 Paraprofessional occupations in legal, social, community and education services	65.4%	75.2%
43 Occupations in front-line public protection services	0.0%	0.0%
44 Care providers and educational, legal and public protection support occupations	66.4%	69.2%
51 Professional occupations in art and culture	66.5%	60.4%
52 Technical occupations in art, culture, recreation and sport	39.6%	53.8%
62 Retail sales supervisors and specialized sales occupations	60.6%	60.9%
63 Service supervisors and specialized service occupations	5.1%	5.6%
64 Sales representatives and salespersons - wholesale and retail trade	6.4%	14.0%
65 Service representatives and other customer and personal services occupations	50.4%	46.4%
66 Sales support occupations	8.1%	10.5%
67 Service support and other service occupations, n.e.c.	2.1%	2.4%
72 Industrial, electrical and construction trades	1.4%	2.7%
73 Maintenance and equipment operation trades	0.0%	0.0%
74 Other installers, repairers and servicers and material handlers	3.6%	2.3%
75 Transport and heavy equipment operation and related maintenance occupations	1.0%	2.3%
76 Trades helpers, construction labourers and related occupations	0.0%	0.0%
82 Supervisors and technical occupations in natural resources, agriculture and related production	3.1%	15.1%

Occupation (2-Digit NOC)	The proportion of Jobs with the Ability to Remote Work	
	Algoma	Ontario
84 Workers in natural resources, agriculture and related production	0.0%	0.0%
86 Harvesting, landscaping and natural resources labourers	0.0%	0.0%
92 Processing, manufacturing and utilities supervisors and central control operators	0.0%	0.0%
94 Processing and manufacturing machine operators and related production workers	1.4%	5.5%
95 Assemblers in manufacturing	0.0%	0.0%
96 Labourers in processing, manufacturing and utilities	0.0%	0.0%

Source: Dingel & Neiman, 2020; Gallacher & Hossain, 2020; Author's calculations.

ABILITY TO WORK REMOTELY BY 2-DIGIT NOC

Additionally, by calculating the proportion of 4-digit occupations within each 2-digit industry group, the ability to work remotely by industry can be calculated. From Table 2, it is apparent that certain industries have a much larger ability to be worked remotely. For example, 100% of Algoma's jobs in Management of Companies and Enterprises (NAICS 55) can be worked remotely while only 3.6% of Algoma's jobs in Accommodation and Food Service (NAICS 72) can be worked remotely.

Less than 20% of jobs in Algoma's Accommodation and Food Services (NAICS 72), Agriculture, Forestry, Fishing, and Hunting (NAICS 11), Mining, Quarrying, and Oil and Gas Extraction (NAICS 21), Transportation and Warehousing (NAICS 48-49), and Manufacturing (NAICS 31-33) industries can be worked remotely. In comparison, at least 80% of jobs in Algoma's Educational Services (NAICS 61), Professional, Scientific, and Technical Services (NAICS 54), Finance and Insurance (NAICS 52), and Management of Companies and Enterprises (NAICS 55) industries can be worked remotely.

Table 3. Ability to Work Remotely by Industry (2-Digit NAICS), Algoma and Ontario

Industry	Algoma	Ontario
11 Agriculture, forestry, fishing and hunting	9.6%	9.8%
21 Mining, quarrying, and oil and gas extraction	13.2%	24.2%
22 Utilities	32.9%	42.6%
23 Construction	20.1%	31.0%
31-33 Manufacturing	16.7%	25.5%
41 Wholesale trade	49.2%	61.5%
44-45 Retail trade	28.2%	32.6%
48-49 Transportation and warehousing	14.3%	31.6%
51 Information and cultural industries	51.0%	72.8%
52 Finance and insurance	95.3%	96.8%
53 Real estate and rental and leasing	43.4%	46.5%
54 Professional, scientific and technical services	83.3%	86.4%
55 Management of companies and enterprises	100.0%	88.3%
56 Administrative and support, waste management and remediation services	56.6%	45.4%
61 Educational services	83.1%	84.2%
62 Health care and social assistance	26.3%	28.6%
71 Arts, entertainment and recreation	51.2%	35.7%
72 Accommodation and food services	3.6%	4.2%
81 Other services (except public administration)	26.9%	36.1%
91 Public administration	42.2%	56.0%

Source: Dingel & Neiman, 2020; Gallacher & Hossain, 2020; Author's calculations.

Note: Used 4-digit occupations hence different results from Four County analysis. This is more accurate.

EMPLOYEE AND EMPLOYER PREFERENCES

Whether or not all jobs can be completed remotely, it is important to understand Employee and Employer preferences for Remote Work. After all, these preferences will play a role in how much Remote or Hybrid Work is adopted in the future.

The COVID-19 pandemic gave many people their first real taste of what working out of their homes would look like. A 2021 report on Canadians found that 80% of workers who had been working mainly outside of their homes before the pandemic would like to work at least half their hours from home moving forward. This is consistent with a global LinkedIn Insights report which found that 87% of employees surveyed want to remain remote most of the time (31% fully or primarily remote and 56% Rough half the time spent remote, half in-person).

80% of employees in Canada would like to work in a hybrid model.

Clearly, the idea of a Hybrid Work model is an important consideration for employees, but what about employers.

27% of employers in Ontario anticipate at least half of hours worked to be remote in 2022.

Recent (Q1 2022) provincial data suggests that overall, 10.2% of employers anticipate moving to a remote work model in 2022. In addition, over a quarter of employers expect to have a hybrid workplace where employees are spending at least half of their hours working remotely.

Not surprisingly, some sectors are more adaptable to remote work than others. The sectors of Information and Culture, Finance and Insurance, Real Estate and Professional, Scientific and Technical Services are anticipating the highest levels of remote work in 2022. At the opposite end of the spectrum, the sectors of Accommodation and Food Services, Agriculture and Forestry, Construction, Retail, and Manufacturing all anticipate that most of their employees will be working on-site exclusively.

Table 4. Average % of Workforce in Ontario Anticipated to Remotely by Industry
1st Quarter 2022

	Average % of workforce anticipated working on-site exclusively	Average % of workforce anticipated working on-site most hours	The average % of the workforce anticipated working the same amount of hours on-site and remotely	Average % of workforce anticipated working remotely most hours	The average % of the workforce anticipated working remotely exclusively
North American Industry Classification System (NAICS), all industries	58.6%	14.3%	8.1%	8.7%	10.2%
Agriculture, forestry, fishing and hunting	78.4%	12.6%	1.8%	4.3%	3.0%
Mining, quarrying, and oil and gas extraction	50.4%	17.1%	15.5%	12.4%	4.6%
Construction	74.8%	15.8%	6.5%	1.9%	1.0%
Manufacturing	73.8%	7.9%	8.7%	4.1%	5.6%
Wholesale trade	61.8%	12.2%	8.7%	4.7%	12.6%
Retail trade	74.6%	13.6%	5.0%	2.1%	4.6%
Transportation and warehousing	50.7%	30.0%	6.8%	7.7%	4.7%
Information and cultural industries	20.2%	8.0%	14.9%	27.7%	29.2%
Finance and insurance	30.7%	8.7%	19.3%	21.2%	20.2%
Real estate and rental and leasing	46.0%	8.4%	10.0%	12.5%	23.1%
Professional, scientific and technical services	23.9%	17.0%	4.9%	24.7%	29.5%
Administrative and support, waste management and remediation services	51.4%	7.5%	21.3%	9.7%	10.2%
Health care and social assistance	68.2%	18.7%	5.6%	4.8%	2.7%
Arts, entertainment and recreation	60.8%	14.8%	6.8%	9.1%	8.6%

	Average % of workforce anticipated working on-site exclusively	Average % of workforce anticipated working on-site most hours	The average % of the workforce anticipated working the same amount of hours on-site and remotely	Average % of workforce anticipated working remotely most hours	The average % of the workforce anticipated working remotely exclusively
Accommodation and food services	87.7%	5.9%	5.5%	0.5%	0.5%
Other services (except public administration)	65.3%	13.9%	12.3%	4.4%	4.1%

Source: Statistics Canada, Average percentage of workforce anticipated to work on-site or remotely over the next three months, the first quarter of 2022. Table:33-10-0485-01.

At the provincial level (Ontario), it is organizations at both ends of the size spectrum that anticipate the most remote work in 2022. 13.1% of organizations with 1 to 4 employees anticipate moving to a remote workplace in 2022 and over 32% anticipate at least an equal split between in-person and remote work. Similarly, 12.7% of organizations with 100 or more employees anticipate moving to a remote workplace in 2022 and over 32% anticipate at least an equal split between in-person and remote work.

One could conclude that smaller businesses, due to their size tend to lend themselves to remote work or are already home-based businesses. In addition, a larger business may be able to offer more flexibility to remote work due to the size of their staff. An example would be a situation where an employer can rotate staff in and out of the office or have different remote working options by department within the organization.

Table 5. Average % of Workforce in Ontario Anticipated to Remotely by Size
1st Quarter 2022

	Average % of workforce anticipated working on-site exclusively	Average % of workforce anticipated working on-site most hours	The average % of the workforce anticipated working the same amount of hours on-site and remotely	Average % of workforce anticipated working remotely most hours	The average % of the workforce anticipated working remotely exclusively
Business or organization size of employment, all employment sizes	58.6%	14.3%	8.1%	8.7%	10.2%
1 to 4 employees	49.4%	18.0%	9.1%	10.4%	13.1%
5 to 19 employees	72.5%	9.7%	6.3%	5.7%	5.8%
20 to 99 employees	69.8%	8.5%	7.7%	7.7%	6.3%
100 or more employees	58.8%	8.8%	8.0%	11.7%	12.7%

Source: Statistics Canada, Average percentage of workforce anticipated to work on-site or remotely over the next three months, the first quarter of 2022. Table:33-10-0485-01.

Given the differences between Employer and Employee preferences for remote work and factoring in Algoma's tight labour market, employers may have to adapt to a hybrid model (if they can) to retain and attract new employees.

APPENDIX

Methodology

Gallacher, G. & Hossain, I. (2020). Remote work and employment dynamics under COVID-19: Evidence from Canada. Canadian Public Policy, 46(S1), 44-54.

Dingel, J. I. & Neiman, B. (2020). How many jobs can be done at home? National Bureau of Economic Research, Working Paper Series, (26948).

This study follows the methodology of Dingel and Neiman (2020) to estimate the percentage of jobs that can be done at home in Canada. The original study used O*NET, a program from the US Department of Labor, to determine whether occupations could be teleworked. To do this, Dingel and Neiman used various descriptors found in the database to determine a telework indicator. Descriptors that indicated an occupation could not be performed at home included but were not limited to, performing for or working directly with the public, handling and moving objects, and working outdoors every day. Telework indicators were either 0 or 1, with 0 being impossible and telework and 1 being possible to be entirely teleworked. Within the original study, Dingel and Neiman (2020) note that their methodology only takes into consideration the factors that would make a job impossible to be worked from home and omits factors that may make a job difficult to be worked from home. Because of this, Dingel and Neiman acknowledge that their estimate of telework capacity is at the upper bound of what might be feasible.

Due to the different occupation classification systems between Canada and the U.S., Gallacher, and Hossain (2020) used the Brookfield Institute for Innovation + Entrepreneurship's crosswalk to merge O*NET and Canada's National Occupation Classification (NOC). By doing this, the authors were then able to assign telework indices to NOCS at the four-digit level. However, it should be noted that occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation.

Table 6. Telework Index, Ability to Telework by Occupation (4-Digit NOC)

Occupation (4-Digit NOC)	Telework Index*
0012 Senior government managers and officials	1
0013 Senior managers - financial, communications and other business services	1
0014 Senior managers - health, education, social and community services and membership organizations	1
0015 Senior managers - trade, broadcasting and other services, n.e.c.	0.6
0016 Senior managers - construction, transportation, production and utilities	1
0111 Financial managers	1
0112 Human resources managers	1
0113 Purchasing managers	1
0114 Other administrative services managers	1
0121 Insurance, real estate and financial brokerage managers	1
0122 Banking, credit and other investment managers	1
0124 Advertising, marketing and public relations managers	1
0125 Other business services managers	1
0131 Telecommunication carriers managers	1
0132 Postal and courier services managers	1
0211 Engineering managers	1
0212 Architecture and science managers	1
0213 Computer and information systems managers	1
0311 Managers in health care	1
0414 Other managers in public administration	1
0421 Administrators - post-secondary education and vocational training	1
0422 School principals and administrators of elementary and secondary education	0.5
0423 Managers in social, community and correctional services	1
0431 Commissioned police officers	0
0432 Fire chiefs and senior firefighting officers	0
0512 Managers - publishing, motion pictures, broadcasting and performing arts	0
0513 Recreation, sports and fitness program and service directors	0
0601 Corporate sales managers	1
0621 Retail and wholesale trade managers	1
0631 Restaurant and food service managers	0
0632 Accommodation service managers	0
0651 Managers in customer and personal services, n.e.c.	0
0711 Construction managers	0
0712 Home building and renovation managers	0

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
0714 Facility operation and maintenance managers	1
0731 Managers in transportation	0.75
0821 Managers in agriculture	0
0822 Managers in horticulture	0
0823 Managers in aquaculture	0
0911 Manufacturing managers	0.5
0912 Utilities managers	0
1111 Financial auditors and accountants	1
1112 Financial and investment analysts	1
1113 Securities agents, investment dealers and brokers	1
1114 Other financial officers	1
1121 Human resources professionals	1
1122 Professional occupations in business management consulting	1
1123 Professional occupations in advertising, marketing and public relations	1
1213 Supervisors, library, correspondence and related information workers	1
1214 Supervisors, mail and message distribution occupations	1
1215 Supervisors, supply chain, tracking and scheduling co-ordination occupations	1
1221 Administrative officers	1
1222 Executive assistants	1
1223 Human resources and recruitment officers	1
1224 Property administrators	1
1225 Purchasing agents and officers	1
1226 Conference and event planners	0
1227 Court officers and justices of the peace	1
1228 Employment insurance, immigration, border services and revenue officers	0
1241 Administrative assistants	1
1242 Legal administrative assistants	1
1243 Medical administrative assistants	0
1251 Court reporters, medical transcriptionists and related occupations	1
1252 Health information management occupations	1
1253 Records management technicians	1
1254 Statistical officers and related research support occupations	1
1311 Accounting technicians and bookkeepers	1
1312 Insurance adjusters and claims examiners	1
1313 Insurance underwriters	1
1314 Assessors, valuers and appraisers	1
1315 Customs, ship and other brokers	1

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
1411 General office support workers	1
1414 Receptionists	0
1415 Personnel clerks	1
1416 Court clerks	0.3333333333
1422 Data entry clerks	1
1423 Desktop publishing operators and related occupations	1
1431 Accounting and related clerks	1
1432 Payroll administrators	1
1434 Banking, insurance and other financial clerks	1
1435 Collectors	0
1451 Library assistants and clerks	0
1452 Correspondence, publication and regulatory clerks	1
1454 Survey interviewers and statistical clerks	0.5
1511 Mail, postal and related workers	0
1512 Letter carriers	0
1513 Couriers, messengers and door-to-door distributors	1
1521 Shippers and receivers	0
1523 Production logistics co-ordinators	0
1524 Purchasing and inventory control workers	1
1525 Dispatchers	0.666666667
1526 Transportation route and crew schedulers	1
2111 Physicists and astronomers	1
2112 Chemists	0
2113 Geoscientists and oceanographers	1
2114 Meteorologists and climatologists	1
2121 Biologists and related scientists	0.6
2122 Forestry professionals	0
2123 Agricultural representatives, consultants and specialists	0
2131 Civil engineers	1
2132 Mechanical engineers	0.5
2133 Electrical and electronics engineers	1
2134 Chemical engineers	0
2141 Industrial and manufacturing engineers	0.25
2142 Metallurgical and materials engineers	0
2143 Mining engineers	0
2144 Geological engineers	0
2145 Petroleum engineers	1

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
2146 Aerospace engineers	1
2147 Computer engineers (except software engineers and designers)	1
2148 Other professional engineers, n.e.c.	0.5
2151 Architects	1
2152 Landscape architects	1
2153 Urban and land use planners	0
2154 Land surveyors	0.5
2161 Mathematicians, statisticians and actuaries	1
2171 Information systems analysts and consultants	1
2172 Database analysts and data administrators	1
2173 Software engineers and designers	1
2174 Computer programmers and interactive media developers	1
2175 Web designers and developers	1
2211 Chemical technologists and technicians	0
2212 Geological and mineral technologists and technicians	0.5
2221 Biological technologists and technicians	0
2222 Agricultural and fish products inspectors	0
2223 Forestry technologists and technicians	0
2224 Conservation and fishery officers	0.6
2225 Landscape and horticulture technicians and specialists	0
2231 Civil engineering technologists and technicians	1
2232 Mechanical engineering technologists and technicians	0
2233 Industrial engineering and manufacturing technologists and technicians	0
2234 Construction estimators	1
2241 Electrical and electronics engineering technologists and technicians	0
2242 Electronic service technicians (household and business equipment)	0
2243 Industrial instrument technicians and mechanics	0
2244 Aircraft instrument, electrical and avionics mechanics, technicians and inspectors	0
2251 Architectural technologists and technicians	1
2252 Industrial designers	1
2253 Drafting technologists and technicians	1
2254 Land survey technologists and technicians	0
2255 Technical occupations in geomatics and meteorology	1
2261 Non-destructive testers and inspection technicians	0
2262 Engineering inspectors and regulatory officers	0
2263 Inspectors in public and environmental health and occupational health and safety	0

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
2264 Construction inspectors	0
2271 Air pilots, flight engineers and flying instructors	0
2272 Air traffic controllers and related occupations	1
2273 Deck officers, water transport	0
2274 Engineer officers, water transport	0
2275 Railway traffic controllers and marine traffic regulators	0
2281 Computer network technicians	1
2282 User support technicians	1
2283 Information systems testing technicians	1
3011 Nursing co-ordinators and supervisors	0
3012 Registered nurses and registered psychiatric nurses	0
3111 Specialist physicians	0.142857143
3112 General practitioners and family physicians	0
3113 Dentists	0
3114 Veterinarians	0
3121 Optometrists	0
3122 Chiropractors	0
3124 Allied primary health practitioners	0
3125 Other professional occupations in health diagnosing and treating	0
3131 Pharmacists	0
3132 Dietitians and nutritionists	0
3141 Audiologists and speech-language pathologists	0.5
3142 Physiotherapists	0
3143 Occupational therapists	0
3144 Other professional occupations in therapy and assessment	0.5
3211 Medical laboratory technologists	0
3212 Medical laboratory technicians and pathologists' assistants	0
3213 Animal health technologists and veterinary technicians	0
3214 Respiratory therapists, clinical perfusionists and cardiopulmonary technologists	0
3215 Medical radiation technologists	0
3216 Medical sonographers	0
3217 Cardiology technologists and electrophysiological diagnostic technologists, n.e.c.	0
3219 Other medical technologists and technicians (except dental health)	0
3221 Denturists	0
3222 Dental hygienists and dental therapists	0
3223 Dental technologists, technicians and laboratory assistants	0

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
3231 Opticians	0
3232 Practitioners of natural healing	0
3233 Licensed practical nurses	0
3234 Paramedical occupations	0
3236 Massage therapists	0
3237 Other technical occupations in therapy and assessment	0.25
3411 Dental assistants	0
3413 Nurse aides, orderlies and patient service associates	0
3414 Other assisting occupations in support of health services	0.166666667
4011 University professors and lecturers	0.970588235
4012 Post-secondary teaching and research assistants	1
4021 College and other vocational instructors	0.971428571
4031 Secondary school teachers	1
4032 Elementary school and kindergarten teachers	1
4033 Educational counsellors	1
4111 Judges	0
4112 Lawyers and Quebec notaries	1
4151 Psychologists	1
4152 Social workers	0
4153 Family, marriage and other related counsellors	0.666666667
4154 Professional occupations in religion	1
4155 Probation and parole officers and related occupations	1
4156 Employment counsellors	1
4161 Natural and applied science policy researchers, consultants and program officers	0.75
4162 Economists and economic policy researchers and analysts	1
4163 Business development officers and marketing researchers and consultants	1
4164 Social policy researchers, consultants and program officers	1
4165 Health policy researchers, consultants and program officers	0.5
4166 Education policy researchers, consultants and program officers	1
4167 Recreation, sports and fitness policy researchers, consultants and program officers	1
4168 Program officers unique to government	0
4211 Paralegal and related occupations	1
4212 Social and community service workers	0.333333333
4214 Early childhood educators and assistants	1
4215 Instructors of persons with disabilities	0.666666667
4216 Other instructors	1

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
4311 Police officers (except commissioned)	0
4312 Firefighters	0
4411 Home child care providers	1
4412 Home support workers, housekeepers and related occupations	0
4413 Elementary and secondary school teacher assistants	1
4421 Sheriffs and bailiffs	0
4422 Correctional service officers	0
4423 By-law enforcement and other regulatory officers, n.e.c.	0.25
5111 Librarians	1
5112 Conservators and curators	0.5
5113 Archivists	1
5121 Authors and writers	1
5122 Editors	1
5123 Journalists	1
5125 Translators, terminologists and interpreters	0
5131 Producers, directors, choreographers and related occupations	0.4
5132 Conductors, composers and arrangers	0.666666667
5133 Musicians and singers	0
5134 Dancers	0
5135 Actors and comedians	0
5136 Painters, sculptors and other visual artists	1
5211 Library and public archive technicians	1
5212 Technical occupations related to museums and art galleries	0
5221 Photographers	1
5222 Film and video camera operators	0
5223 Graphic arts technicians	1
5224 Broadcast technicians	1
5225 Audio and video recording technicians	1
5226 Other technical and co-ordinating occupations in motion pictures, broadcasting and the performing arts	0.5
5227 Support occupations in motion pictures, broadcasting, photography and the performing arts	0
5231 Announcers and other broadcasters	0
5232 Other performers, n.e.c.	1
5241 Graphic designers and illustrators	1
5242 Interior designers and interior decorators	1
5243 Theatre, fashion, exhibit and other creative designers	1
5244 Artisans and craftspersons	0

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
5245 Patternmakers - textile, leather and fur products	1
5251 Athletes	1
5252 Coaches	1
5253 Sports officials and referees	0
5254 Program leaders and instructors in recreation, sport and fitness	0
6211 Retail sales supervisors	0
6221 Technical sales specialists - wholesale trade	1
6222 Retail and wholesale buyers	1
6231 Insurance agents and brokers	1
6232 Real estate agents and salespersons	0
6235 Financial sales representatives	1
6311 Food service supervisors	0
6312 Executive housekeepers	0
6313 Accommodation, travel, tourism and related services supervisors	0
6314 Customer and information services supervisors	1
6315 Cleaning supervisors	0
6316 Other services supervisors	1
6321 Chefs	0
6322 Cooks	0
6331 Butchers, meat cutters and fishmongers - retail and wholesale	0
6332 Bakers	0
6341 Hairstylists and barbers	0
6342 Tailors, dressmakers, furriers and milliners	0
6343 Shoe repairers and shoemakers	0
6344 Jewellers, jewellery and watch repairers and related occupations	0.25
6345 Upholsterers	0
6346 Funeral directors and embalmers	0
6411 Sales and account representatives - wholesale trade (non-technical)	1
6421 Retail salespersons	0
6511 Maitre d'hotel and hosts/hostesses	0
6512 Bartenders	0
6513 Food and beverage servers	0
6521 Travel counsellors	0
6522 Purser and flight attendants	0
6523 Airline ticket and service agents	0
6524 Ground and water transport ticket agents, cargo service representatives and related clerks	0.5
6525 Hotel front desk clerks	0

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
6531 Tour and travel guides	0
6532 Outdoor sport and recreational guides	1
6533 Casino occupations	0.25
6541 Security guards and related security service occupations	0.5
6551 Customer services representatives - financial institutions	1
6552 Other customer and information services representatives	1
6561 Image, social and other personal consultants	0.5
6562 Estheticians, electrologists and related occupations	0.25
6563 Pet groomers and animal care workers	0
6564 Other personal service occupations	1
6611 Cashiers	0
6621 Service station attendants	0
6622 Store shelf stockers, clerks and order fillers	0.25
6623 Other sales related occupations	0.5
6711 Food counter attendants, kitchen helpers and related support occupations	0
6721 Support occupations in accommodation, travel and facilities set-up services	0
6722 Operators and attendants in amusement, recreation and sport	0.5
6731 Light duty cleaners	0
6732 Specialized cleaners	0
6733 Janitors, caretakers and building superintendents	0
6741 Dry cleaning, laundry and related occupations	0
6742 Other service support occupations, n.e.c.	0.25
7201 Contractors and supervisors, machining, metal forming, shaping and erecting trades and related occupations	0
7202 Contractors and supervisors, electrical trades and telecommunications occupations	0
7203 Contractors and supervisors, pipefitting trades	0
7204 Contractors and supervisors, carpentry trades	0
7205 Contractors and supervisors, other construction trades, installers, repairers and servicers	0
7231 Machinists and machining and tooling inspectors	0
7232 Tool and die makers	0
7233 Sheet metal workers	0
7234 Boilermakers	0
7235 Structural metal and platework fabricators and fitters	0
7236 Ironworkers	0
7237 Welders and related machine operators	0
7241 Electricians (except industrial and power system)	0

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
7242 Industrial electricians	0
7243 Power system electricians	0
7244 Electrical power line and cable workers	0
7245 Telecommunications line and cable workers	0
7246 Telecommunications installation and repair workers	0
7247 Cable television service and maintenance technicians	0
7251 Plumbers	0
7252 Steamfitters, pipefitters and sprinkler system installers	0
7253 Gas fitters	0
7271 Carpenters	0
7272 Cabinetmakers	0
7281 Bricklayers	0
7282 Concrete finishers	0
7283 Tilesetters	0
7284 Plasterers, drywall installers and finishers and lathers	0
7291 Roofers and shinglers	0
7292 Glaziers	0
7293 Insulators	0
7294 Painters and decorators (except interior decorators)	1
7295 Floor covering installers	0
7301 Contractors and supervisors, mechanic trades	0
7302 Contractors and supervisors, heavy equipment operator crews	0
7303 Supervisors, printing and related occupations	0
7304 Supervisors, railway transport operations	0
7305 Supervisors, motor transport and other ground transit operators	0
7311 Construction millwrights and industrial mechanics	0
7312 Heavy-duty equipment mechanics	0
7313 Heating, refrigeration and air conditioning mechanics	0
7314 Railway carmen/women	0
7315 Aircraft mechanics and aircraft inspectors	0
7316 Machine fitters	0
7318 Elevator constructors and mechanics	0
7321 Automotive service technicians, truck and bus mechanics and mechanical repairers	0
7322 Motor vehicle body repairers	0
7331 Oil and solid fuel heating mechanics	0
7332 Appliance servicers and repairers	0
7333 Electrical mechanics	0

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
7334 Motorcycle, all-terrain vehicle and other related mechanics	0
7335 Other small engine and small equipment repairers	0
7361 Railway and yard locomotive engineers	0
7362 Railway conductors and brakemen/women	0
7371 Crane operators	0
7372 Drillers and blasters - surface mining, quarrying and construction	0
7373 Water well drillers	0
7381 Printing press operators	0
7384 Other trades and related occupations, n.e.c.	0
7441 Residential and commercial installers and servicers	0.2
7442 Waterworks and gas maintenance workers	0
7444 Pest controllers and fumigators	0
7451 Longshore workers	0
7452 Material handlers	0
7511 Transport truck drivers	0
7512 Bus drivers, subway operators and other transit operators	0
7513 Taxi and limousine drivers and chauffeurs	0
7514 Delivery and courier service drivers	0
7521 Heavy equipment operators (except crane)	0
7522 Public works maintenance equipment operators and related workers	0
7531 Railway yard and track maintenance workers	0
7532 Water transport deck and engine room crew	0
7533 Boat and cable ferry operators and related occupations	0
7534 Air transport ramp attendants	1
7535 Other automotive mechanical installers and servicers	0
7611 Construction trades helpers and labourers	0
7612 Other trades helpers and labourers	0
7621 Public works and maintenance labourers	0
7622 Railway and motor transport labourers	0
8211 Supervisors, logging and forestry	0
8221 Supervisors, mining and quarrying	0
8222 Contractors and supervisors, oil and gas drilling and services	0
8231 Underground production and development miners	0
8232 Oil and gas well drillers, servicers, testers and related workers	0
8241 Logging machinery operators	0
8252 Agricultural service contractors, farm supervisors and specialized livestock workers	0.333333333

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
8255 Contractors and supervisors, landscaping, grounds maintenance and horticulture services	0.333333333
8261 Fishing masters and officers	0
8262 Fishermen/women	0
8411 Underground mine service and support workers	0
8412 Oil and gas well drilling and related workers and services operators	0
8421 Chain saw and skidder operators	0
8422 Silviculture and forestry workers	0
8431 General farm workers	0
8432 Nursery and greenhouse workers	0
8441 Fishing vessel deckhands	0
8442 Trappers and hunters	0
8611 Harvesting labourers	0
8612 Landscaping and grounds maintenance labourers	0
8613 Aquaculture and marine harvest labourers	0
8614 Mine labourers	0
8615 Oil and gas drilling, servicing and related labourers	0
9211 Supervisors, mineral and metal processing	0
9212 Supervisors, petroleum, gas and chemical processing and utilities	0
9213 Supervisors, food and beverage processing	0
9214 Supervisors, plastic and rubber products manufacturing	0
9215 Supervisors, forest products processing	0
9217 Supervisors, textile, fabric, fur and leather products processing and manufacturing	0
9221 Supervisors, motor vehicle assembling	0
9222 Supervisors, electronics manufacturing	0
9223 Supervisors, electrical products manufacturing	0
9224 Supervisors, furniture and fixtures manufacturing	0
9226 Supervisors, other mechanical and metal products manufacturing	0
9227 Supervisors, other products manufacturing and assembly	0
9231 Central control and process operators, mineral and metal processing	0
9232 Central control and process operators, petroleum, gas and chemical processing	0
9235 Pulping, papermaking and coating control operators	0
9241 Power engineers and power systems operators	0
9243 Water and waste treatment plant operators	0
9411 Machine operators, mineral and metal processing	0
9412 Foundry workers	0

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
9413 Glass forming and finishing machine operators and glass cutters	0
9414 Concrete, clay and stone forming operators	0
9415 Inspectors and testers, mineral and metal processing	0
9416 Metalworking and forging machine operators	0
9417 Machining tool operators	0
9418 Other metal products machine operators	0
9421 Chemical plant machine operators	0
9422 Plastics processing machine operators	0
9423 Rubber processing machine operators and related workers	0
9431 Sawmill machine operators	0
9432 Pulp mill machine operators	0
9433 Papermaking and finishing machine operators	0
9434 Other wood processing machine operators	0
9435 Paper converting machine operators	0
9436 Lumber graders and other wood processing inspectors and graders	0
9437 Woodworking machine operators	0
9441 Textile fibre and yarn, hide and pelt processing machine operators and workers	0
9442 Weavers, knitters and other fabric making occupations	0
9445 Fabric, fur and leather cutters	0
9446 Industrial sewing machine operators	0
9447 Inspectors and graders, textile, fabric, fur and leather products manufacturing	0
9461 Process control and machine operators, food and beverage processing	0
9462 Industrial butchers and meat cutters, poultry preparers and related workers	0
9463 Fish and seafood plant workers	0
9465 Testers and graders, food and beverage processing	0
9471 Plateless printing equipment operators	1
9472 Camera, platemaking and other prepress occupations	1
9473 Binding and finishing machine operators	0
9474 Photographic and film processors	0
9521 Aircraft assemblers and aircraft assembly inspectors	0
9522 Motor vehicle assemblers, inspectors and testers	0
9523 Electronics assemblers, fabricators, inspectors and testers	0
9524 Assemblers and inspectors, electrical appliance, apparatus and equipment manufacturing	0
9525 Assemblers, fabricators and inspectors, industrial electrical motors and transformers	0
9526 Mechanical assemblers and inspectors	0

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.

Occupation (4-Digit NOC)	Telework Index*
9527 Machine operators and inspectors, electrical apparatus manufacturing	0
9531 Boat assemblers and inspectors	0
9532 Furniture and fixture assemblers and inspectors	0
9534 Furniture finishers and refinishers	0
9535 Plastic products assemblers, finishers and inspectors	0
9536 Industrial painters, coaters and metal finishing process operators	0
9537 Other products assemblers, finishers and inspectors	0
9611 Labourers in mineral and metal processing	0
9612 Labourers in metal fabrication	0
9613 Labourers in chemical products processing and utilities	0
9614 Labourers in wood, pulp and paper processing	0
9615 Labourers in rubber and plastic products manufacturing	0
9616 Labourers in textile processing	0
9617 Labourers in food and beverage processing	0
9618 Labourers in fish and seafood processing	0
9619 Other labourers in processing, manufacturing and utilities	0

* Occupations that have a telework index between 0 and 1 are a result of multiple O*NET occupations merging to form the equivalent of one NOC occupation. See Methodology in Appendix for additional details.



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