

AUTOMOTIVE INDUSTRY LABOUR MARKET ANALYSIS

REGIONAL AUTOMOTIVE INDUSTRY FORECAST PROFILE: EASTERN ONTARIO



The project is a collaboration of the Canadian Skills Training and Employment Coalition, Prism Economics and Analysis, and the Automotive Policy Research Centre.

June, 2020

futureautolabourforce.ca

THIS PAPER was prepared for the Auto Labour Market Information (LMI) Project, now known as the *Future of Canadian Automotive Labourforce (FOCAL) Initiative*.

The goal of the project is to help stakeholders better understand the automotive labour market. The Project will create industry-validated, regional, occupational supply and demand analyses and forecasts and skill profiles for skilled trades and other key skilled occupations in the broader automotive sector including vehicle assemblers, parts manufacturers and technology companies that supply the industry. The project will also examine various labour market trends in the sector and facilitate discussions among stakeholders about how to address any forecasted skills shortages and other labour market challenges. The planned outcome of the project is enhanced regional labour market information that will support colleges, employers, policy makers and other stakeholders in taking practical steps to address skills shortages and other labour market challenges in the automotive sector.

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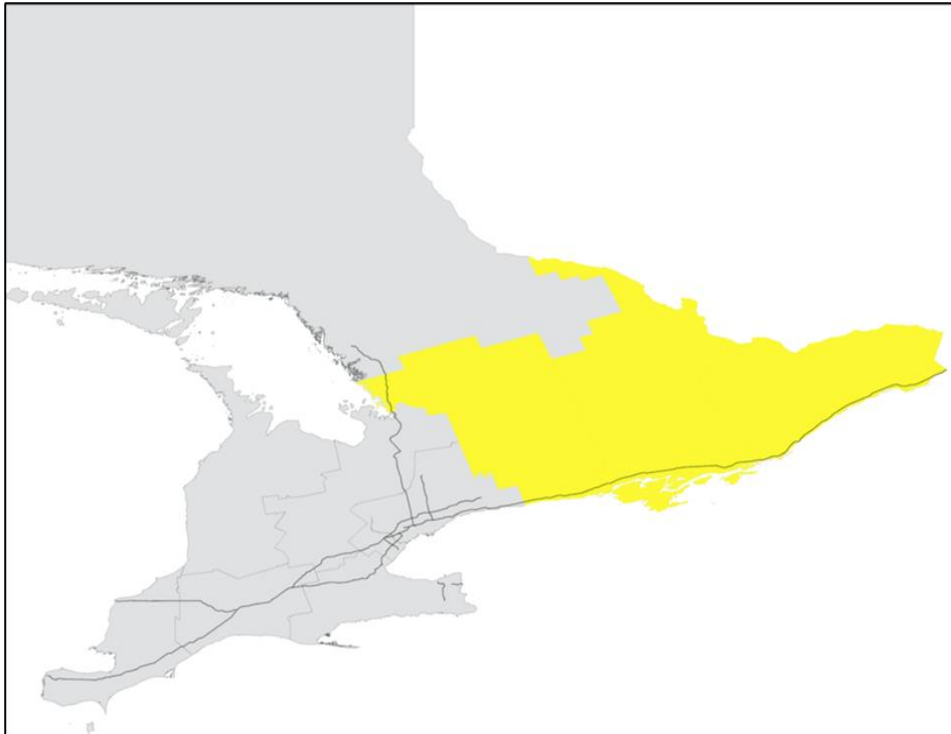
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PROFILE HIGHLIGHTS

- The region's broader automotive industry employed an estimated 4,100 workers in 2019. 56% of workers were employed in core automotive roles, all of which were related to parts manufacturing. The remaining 44% of workers were employed in automotive industry-associated industries. Looking ahead, employment is projected to remain flat at approximately 4,150 workers through 2030.
- The region's broader automotive industry will need to hire 1,210 workers between 2021 and 2030 in order to meet projected labour demands. 1,020 workers will need to be hired to replace workers lost due to retirement or death, while an additional 190 workers will need to be hired as a result of industry growth.
- The region's broader automotive industry is expected to face a recruitment gap of 980 workers between 2021 and 2030, even after taking account of new entrants to the workforce. This would require hiring the equivalent of 24% of the region's current broader automotive industry employment. Recruitment gaps could be significantly higher if the industry fails to recruit new entrants at historic levels.
- Occupations with the largest absolute recruitment gaps include transport truck drivers (NOC 7511) and information systems analysts & consultants (NOC 2171). Occupations with the largest relative recruitment gaps include mechanic trades contractors and supervisors (NOC 7301); transport truck drivers (NOC 7511); and electricians (NOC 7241).



BACKGROUND

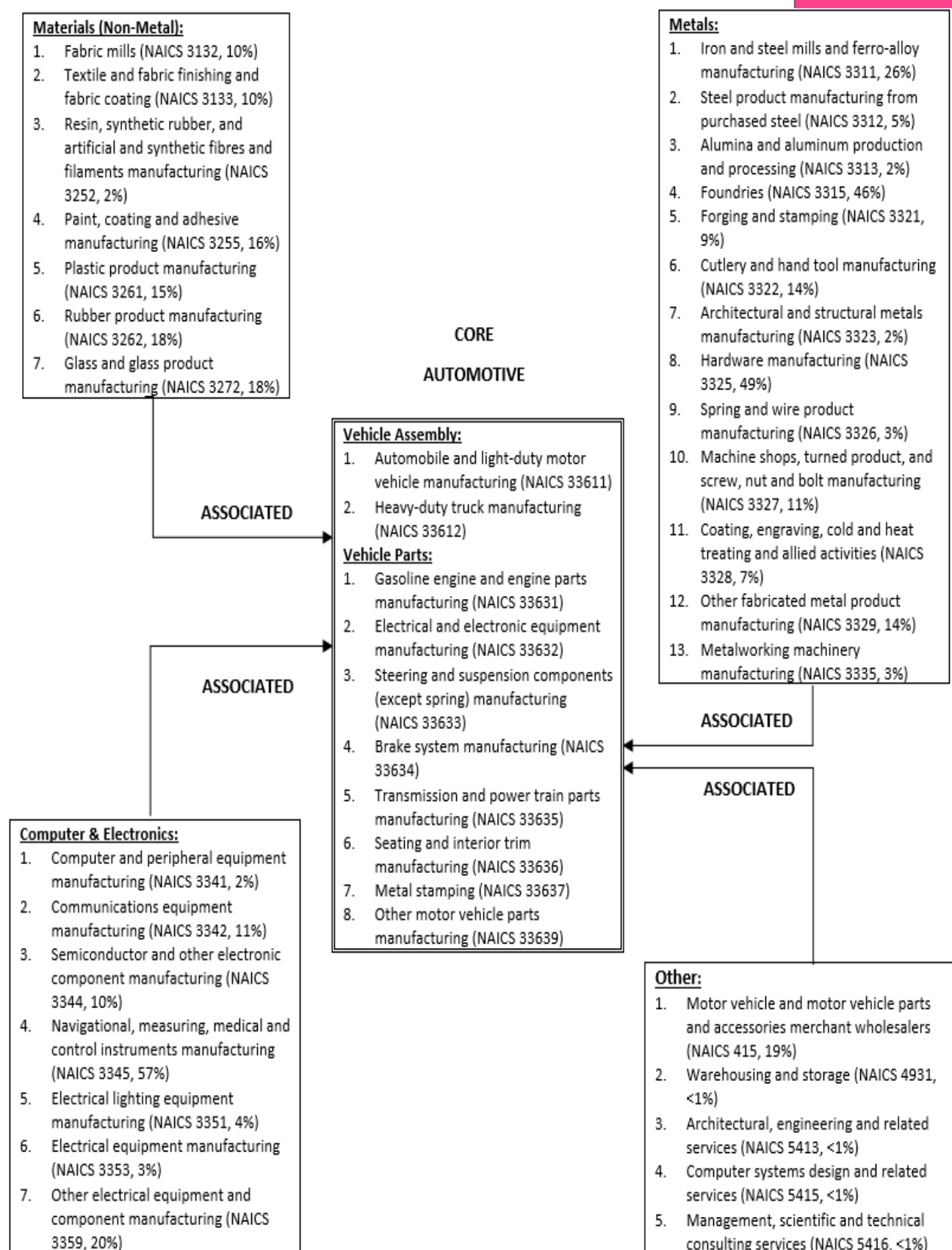
This profile summarizes a regional labour market forecast for the broader automotive industry. The forecast model projects and quantifies trends in labour demand and supply for the industry over the forecast period from 2021 to 2030. The forecast model uses a combination of data sources to generate labour market outlooks. Workforce estimates were based on a two-pronged approach, which consisted of analyzing establishment-level data (“bottom up”) and tracing industry production through the economy (“top down”).

The “bottom up” approach used a database originally built by the Automotive Policy Research Centre (APRC) through industry contacts, company websites, industry literature and other sources of publicly available data to identify individual employers in each region’s broader automotive industry. This database added complexity to the forecast model by providing regionally-specific employment distributions across industries at a level of detail beyond what is available through government statistics. The “top down” approach tracked inter-industry transactions through Statistics Canada’s input-output tables, allowing for each industry’s contributions to employment and output for the broader automotive industry to be defined.

This analysis broadens the definition of the industry to include producers in the supply chain that have previously been classified in non-automotive industries. Industries traditionally included in the industry are defined here as core automotive industries; this includes two sub-sectors of motor vehicle assembly (NAICS 3361) and eight sub-sectors of motor vehicle parts manufacturing (NAICS 3363). Thirty-two additional industries are defined as associated industries, meaning a portion of their sales come from core automotive industries. The degree of connection between associated industries and core automotive industries varies significantly. For instance, nearly half of sales for the foundries and hardware manufacturing industries are to core automotive industries. Other industries, particularly those related to electronics manufacturing and professional services, sell less than 5% of their output to core automotive industries.

The diagram on the following page illustrates the broader definition of the automotive industry in terms of core and associated industries, grouped by their role in the automotive industry’s supply chain. Each industry is listed alongside its classification code (i.e. NAICS) and the proportion of its sales which come from core automotive industries. While Figure 1 illustrates the national broader automotive industry, each region has a distinct supply chain dependent on the businesses producing goods and/or services there. The definition of the broader automotive industry has been adjusted for some regions to reflect this fact.

FIGURE 1: The Broader Automotive Industry in Canada



In addition to providing labour market outlooks for the broader automotive industry as a whole, the forecast model also provides comprehensive projections for a set of key occupations that play distinct and important roles in the broader automotive industry workforce¹.

Forecasts were developed for the following occupations, categorized based on the nature of their role in the workforce:

Management & Administration

Senior managers – construction, transportation, production and utilities (NOC 0016)
Engineering managers (NOC 0211)
Computer and information systems managers (NOC 0213)
Manufacturing managers (NOC 0911)
Human resource professionals (NOC 1121)

Engineering & Technical

Shippers and receivers (NOC 1521)
Production logistics coordinators (NOC 1523)
Mechanical engineers (NOC 2132)
Electrical and electronics engineers (NOC 2133)
Industrial and manufacturing engineers (NOC 2141)
Metallurgical and materials engineers (NOC 2142)
Computer engineers (except software engineers and designers) (NOC 2147)
Information systems analysts and consultants (NOC 2171)
Database analysts and data administrators (NOC 2172)
Software engineers and designers (NOC 2173)
Computer programmers and interactive media developers (NOC 2174)
Mechanical engineering technologists and technicians (NOC 2232)
Industrial engineering and manufacturing technologists and technicians (NOC 2233)
Electrical and electronics engineering technologists and technicians (NOC 2241)
Industrial instrument technicians and mechanics (NOC 2243)
Computer network technicians (NOC 2281)
Information systems testing technicians (NOC 2283)

Skilled Trades

Contractors and supervisors, machining, metal forming, shaping and erecting trades and related occupations (NOC 7201)
Machinists and machining and tooling inspectors (NOC 7231)
Tool and die makers (NOC 7232)
Welders and related machine operators (NOC 7237)
Electricians (except industrial and power system) (NOC 7241)
Industrial electricians (NOC 7242)
Contractors and supervisors, mechanic trades (NOC 7301)
Construction millwrights and industrial mechanics (NOC 7311)
Automotive service technicians, truck and bus mechanics and mechanical repairers (NOC 7321)
Material handlers (NOC 7452)
Transport truck drivers (NOC 7511)

Production

Supervisors, motor vehicle assembling (NOC 9221)
Supervisors, electronics manufacturing (NOC 9222)
Supervisors, electrical products manufacturing (NOC 9223)
Supervisors, furniture and fixtures manufacturing (NOC 9224)
Supervisors, other mechanical and metal products manufacturing (NOC 9226)
Supervisors, other products manufacturing and assembly (NOC 9227)
Foundry workers (NOC 9412)
Metalworking and forging machine operators (NOC 9416)
Machining tool operators (NOC 9417)
Plastics processing machine operators (NOC 9422)
Motor vehicle assemblers, inspectors and testers (NOC 9522)
Electronics assemblers, fabricators, inspectors and testers (NOC 9523)
Mechanical assemblers and inspectors (NOC 9526)
Plastic products assemblers, finishers and inspectors (NOC 9535)
Industrial painters, coaters and metal finishing process operators (NOC 9536)
Other labourers in processing, manufacturing and utilities (NOC 9619)

¹ For details on the process of selecting key occupations for this project, please refer to the Post-secondary Education Report published by this project team in October 2019.

INTRODUCTION

The Eastern Ontario region is an aggregate region comprised of three Economic Regions (ERs) as defined by Statistics Canada: Ottawa, Kingston-Pembroke, and Muskoka-Kawartha ERs. The Ottawa ER is the largest of the three regions and includes the cities of Ottawa and Cornwall. The Kingston-Pembroke ER includes the cities of Kingston and Limerick. Taken together, they are home to approximately 16% of Ontario's population and cover a land area of nearly 51,000 square kilometres. The region includes Highways 401, 416, and 417, and major trade routes between Canada and the United States.

The region's GDP was an estimated \$109 billion in 2018, 7% of which was generated by the manufacturing sector. Manufacturing is also a major employer in the region, accounting for 5.5% of the total labour force, including 0.4% from automotive manufacturing. The region has a positive economic outlook, with annual GDP growth of at least 2.0% projected through 2030. However, the region's manufacturing sector is expected to see its GDP growth slow in the coming years².

This regional profile begins with an overview of the outlook for Canadian vehicle production, followed by estimates of current regional broader automotive industry employment. The next five sections each describe a different component of the regional labour market forecast, including employment, hiring requirements, new entrants, and recruitment gaps (with rankings). Detailed tables of hiring requirements, new entrants, and recruitment gaps are included in an appendix following the last profile section.

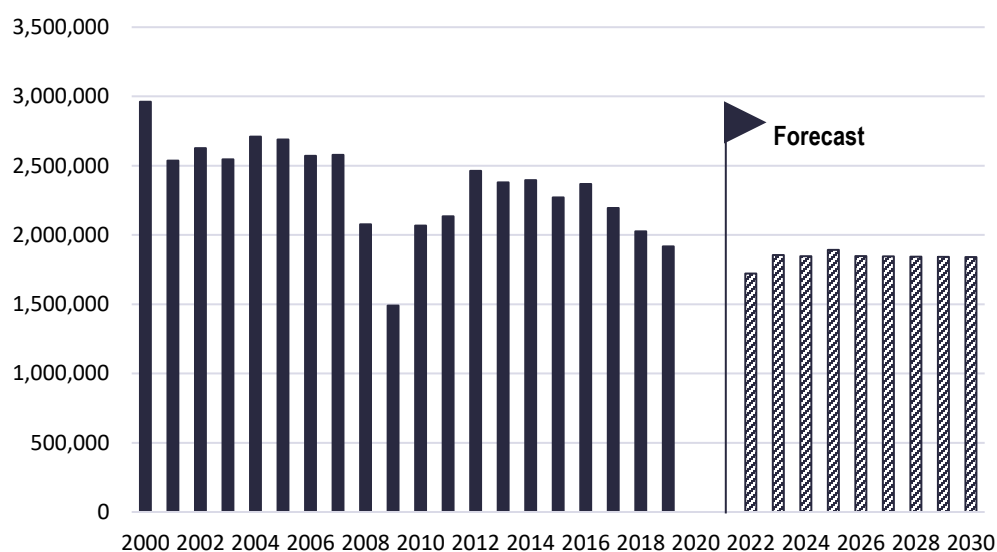
² For more information on the regional economy and demographics, please refer to the regional profile published by this project team in October 2019.

GENERAL AUTOMOTIVE INDUSTRY OUTLOOK

Total motor vehicle production in Canada, including both light and commercial vehicles, consisted of 1.92 million units in 2019. This represents a reduction of over 500,000 units since 2012, when vehicle production recovered to pre-recession levels. Production fell by an average of 3.5% annually during the 2012-2019 period. Looking ahead, national vehicle production is expected to fall to 1.72 million units in 2022 before rebounding to a peak of 1.89 million in 2025³.

Production levels are then projected to remain stable in the range of 1.85 million units between 2026 and 2030.

FIGURE 2. National Motor Vehicle Production (Units), 2000-2030



Source: International Organization of Motor Vehicle Manufacturers (2000-2019); LMC Automotive (2022-2030)

As a result of this production forecast, and similar projections for North American vehicle production, Canadian broader automotive industry employment (including workers in both core and associated industries) is expected to remain mostly flat over the forecast period. Nationally, labour market challenges for the broader automotive industry will be driven by the need to replace retirements from the industry's aging workforce, with relatively little hiring resulting from growth.

³ Due to uncertainty regarding the impact of COVID-19, forecasts of production have been withheld for 2020 and 2021. Please refer to the "Impact of COVID-19 on Automotive Industry" section for more details.

Impact of COVID-19 on Automotive Industry

COVID-19 has already had significant consequences for the Canadian economy, with many businesses shuttered and a massive surge in unemployment claims. COVID-19's impact is also being felt in the automotive industry as automakers declared temporary closures of all Canadian assembly plants as of March 2020. While vehicle production has been temporarily halted, the industry has nevertheless shown leadership and flexibility in responding to the crisis. Manufacturers across the supply chain quickly pivoted from producing automotive parts to repurposing their operations for the production of critical medical equipment and supplies.

The vehicle production forecasts discussed in the preceding section were developed prior to the COVID-19 outbreak. Actual production levels in 2020 and 2021 are likely to be much different than previously expected due to the aforementioned shutdown. Short-term forecasts should therefore be interpreted with caution. Our project team has decided to withhold forecasts of motor vehicle production (as seen in Figure 2) and industry employment (as seen in Figures 3-5 & Table 1) for 2020 and 2021 as an acknowledgment of the current level of uncertainty surrounding the industry. However, forecasts of labour market conditions for 2021 are still presented in aggregate with the 2022-2025 period.

Due to the nature of the downturn and the experience gained during the 2008-09 recession, we believe COVID-19 will not have long-term impacts on labour supply and demand for the broader automotive industry. The regional forecasts presented in this profile extend out to 2030; at the time of writing, our project team remains confident they present a reliable picture of labour market dynamics for the broader automotive industry. Our project team will continue to monitor the impact of COVID-19 on the industry going forward.

REGIONAL AUTOMOTIVE INDUSTRY EMPLOYMENT

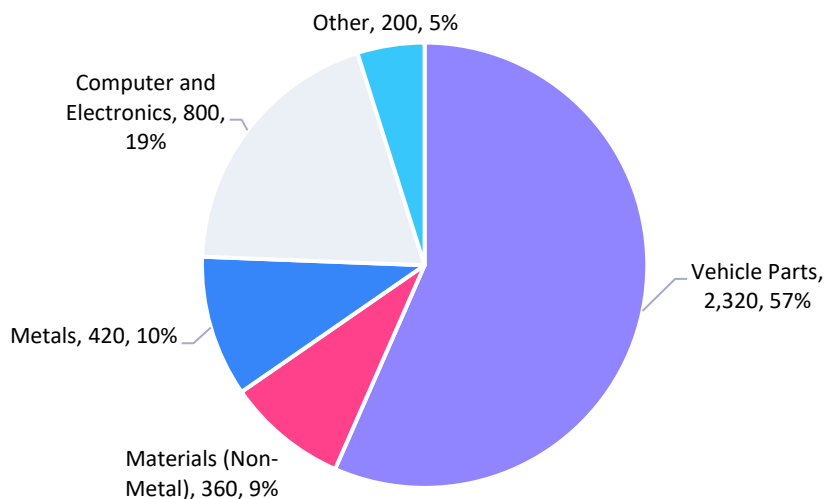
Total broader automotive industry employment in the Eastern Ontario region was an estimated 4,100 workers in 2019⁴.

Core automotive industry employment in the Eastern Ontario region totaled approximately 2,320 workers in 2019. There are no assembly plants located in the region, meaning there is no employment associated with vehicle assembly. However, the region is home to CpK Interior Products, which is owned by and supplies to FCA assembly plants across Ontario. There are an estimated 18 other vehicle parts suppliers in the region. In total, vehicle parts manufacturing accounted for 56% of the region's broader automotive industry employment. The primary vehicle parts industry in the region is seating & interior trim manufacturing (NAICS 33636).

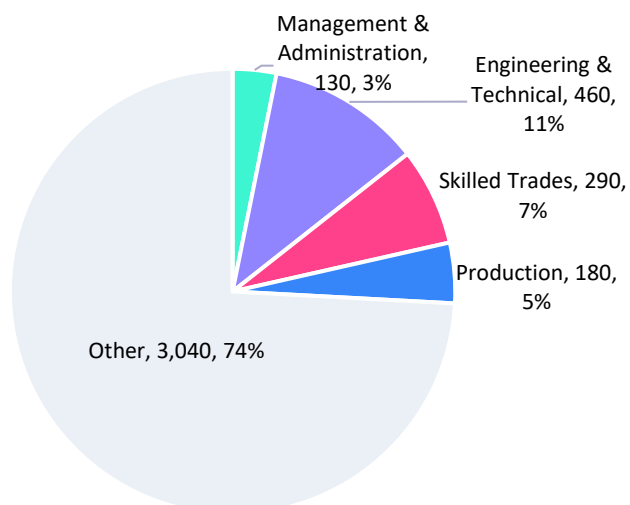
Among the region's automotive industry-associated workforce, the largest industry grouping is computer & electronics, which accounted for 20% of broader automotive industry employment in 2019. A combined 19% of broader automotive industry employment came from the metals and non-metal materials industry groups. In total, automotive industry-associated employment was an estimated 1,840 workers in the Eastern Ontario region in 2019.

While developing employment estimates for the region's broader automotive industry, it became clear that the approach described in the Background section may underestimate the size of Ontario's emerging automotive technology clusters. Moreover, there is reason to believe the labour market dynamics for technology-focused employers are distinct from the remainder of the broader automotive industry, particularly with respect to labour mobility. In order to investigate these issues further, the project team plans to prepare a separate profile on the technology-focused component of Canada's broader automotive industry.

⁴ Due to uncertainty regarding the impact of COVID-19, forecasts of industry employment have been withheld for 2020 and 2021. Please refer to the "Impact of COVID-19 on Automotive Industry" section for more details.

FIGURE 3. Regional Automotive Industry Employment by Industry Group, 2019

11% of the Eastern Ontario region's total broader automotive industry employment worked in engineering & technical occupations in 2019. This group includes information systems analysts & consultants (NOC 2171) and software engineers & designers (NOC 2173). A further 7% of workers were employed in skilled trades, while both production occupations (4%) and management & administration (3%) occupations employed smaller shares of regional broader automotive industry employment. All other occupations accounted for 74% of employment, primarily in retail and support positions⁵.

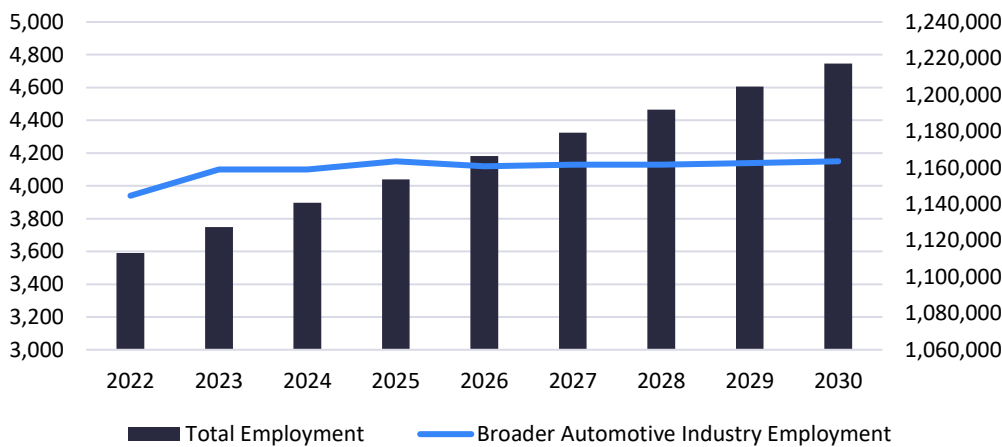
FIGURE 4. Regional Automotive Industry Employment by Occupational Group, 2019

⁵ "Other" includes all 4-digit NOCs excluding the 49 key occupations identified on pg. 6.

REGIONAL AUTOMOTIVE INDUSTRY EMPLOYMENT OUTLOOK

Looking ahead, broader automotive industry employment is expected to experience a period of growth between 2022 and 2025 before plateauing over the latter half of the decade at approximately 4,150 workers. In contrast, total employment in the region is projected to grow from 1.1 million in 2022 to over 1.2 million by 2030, equivalent to 9% growth during the period.

FIGURE 5. Regional Automotive Industry Employment Outlook, 2022-2030



Source: Canadian Skills Training & Employment Coalition; Metro Economics

Industry groups that comprise the broader automotive industry are projected to experience little employment growth over the next decade, with average annual growth rates below 1.0%. Employment growth among vehicle parts and associated industries will occur in part as a result of increasing vehicle parts exports. Notably, average annual growth in computer & electronics is projected to be the highest of any industry group at 0.8%.

TABLE 1. Regional Automotive Industry Employment Outlook, 2022-2030

Industry Group	2022	2023	2024	2025	2026	2027	2028	2029	2030
Vehicle Assembly	0	0	0	0	0	0	0	0	0
Vehicle Parts	2,160	2,280	2,280	2,330	2,290	2,300	2,300	2,300	2,310
Materials (Non-Metals)	360	360	360	360	360	360	360	360	360
Metals	410	420	420	420	420	420	420	420	420
Computer & Electronics	810	820	830	840	840	850	850	860	860
Other	200	200	200	200	200	200	200	200	200
TOTAL	3,940	4,080	4,090	4,150	4,110	4,130	4,130	4,140	4,150

REGIONAL AUTOMOTIVE INDUSTRY HIRING REQUIREMENT OUTLOOK

Hiring requirement represents the demand for labour across employers in core and associated automotive industries. Estimated hiring requirement covers the needs of all employers among core automotive industries but only the portion of employment connected with core industries for employers in associated industries. Hiring requirement consists of two components:

1. **Replacement demand** – labour demand driven by the need to replace workers exiting the broader automotive industry workforce due to retirement or death⁶.
2. **Expansion demand** – labour demand driven by output growth in the broader automotive industry

The regional outlook for replacement demand is driven by provincial projections of mortality rates and annual changes in labour force participation rates by age-year. The regional outlook for expansion demand is driven by forecasts of motor vehicle production.

Overall, the Eastern Ontario region's broader automotive industry is projected to require 1,210 new workers between 2021 and 2030. 680 workers are expected to be needed in the near-term (i.e. between 2021 and 2025), compared with 530 workers in the medium to long-term (i.e. between 2026 and 2030). The total projected hiring requirement during the decade represents 30% of the region's broader automotive industry employment as of 2019. The proportion of total hiring requirement to current employment is above average among skilled trades (45%) and production occupations (33%). Conversely, it is below average among engineering & technical (22%) occupations. Total hiring requirement represents 29% of current employment for all other occupations in the regional broader automotive industry workforce.

TABLE 2. Regional Automotive Industry Hiring Requirement Outlook, 2021-2030

Occupation Group	2021-2025	2026-2030	2021-2030	Share of 2019 Emp.
Management & Administration	20	20	40	31%
Engineering & Technical	60	40	100	22%
Skilled Trades	70	60	130	45%
Production	30	30	60	33%
Other	500	380	880	29%
TOTAL	680	530	1,210	30%

This regional forecast focuses only on the auto-dependent portion of associated industries, based on the proportion of each associated industry's sales which come from core automotive industries. However, it is useful to consider how regional hiring requirements are projected across the full workforce of associated industries since many employers in associated industries make hiring decisions based on their total business activity. To do so, a modified version of the labour market forecast model (referred to as the "full workforce" model) was

⁶ This measure of replacement demand does not account for workers exiting as part of turnover.

created based on total regional employment for all core automotive and associated industries in the broader automotive industry.

Total projected hiring requirement between 2021 and 2030 increased to 36% of current employment using the full workforce model. This indicates that the primary forecast model may underestimate the hiring needs of regional employers in associated industries. The largest gains were seen among the engineering & technical and management & administration occupation groups, which saw hiring requirements increase to 29% and 44 of current employment respectively.

Replacement Demand Outlook

The forecast for replacement demand among the region's broader automotive industry employers is the result of an expected increase in retirements as the industry's workforce continues to age. The region's core automotive industry workforce consists of more mid-career workers, with higher than average proportions of the workforce belonging to the 45-54 and 55-64 age cohorts. Over the coming decade, workers from these cohorts will exit the workforce and must be replaced.

Total replacement demand is projected at 1,020 workers between 2021 and 2030, meaning nearly the entire regional hiring requirement consists of labour demand due to retirements and deaths in the workforce. This also means trends in replacement demand as a proportion of current employment for occupation groups track with those seen for the overall hiring requirement.

Expansion Demand Outlook

Total expansion demand is projected at just 190 workers for the region's broader automotive industry workforce between 2021 and 2030. Between 2021 and 2025, expansion demand is expected to total 180 workers. This is primarily a result of the forecast for light vehicle production, which projects production to rise by 10% between 2022 and 2025. Additional expansion demand results from growth in vehicle parts exports due to rising production in the US and Mexico. However, the trend in expansion demand is expected to reverse over the latter half of the decade as the broader automotive industry contracts. Virtually no expansion demand is projected between 2026 and 2030 as vehicle production declines from 2025 levels. Overall, production levels are projected to decline by 3% domestically and remain flat for North America as a whole between 2025 and 2030.

TABLE 3. National & North American Light Vehicle Production (Units x 1,000), 2022-2030

Regional Jurisdiction	2022	2023	2024	2025	2026	2027	2028	2029	2030
Canada	1,701	1,834	1,826	1,871	1,826	1,824	1,821	1,819	1,817
North America	17,308	17,698	17,903	18,046	18,162	18,138	18,115	18,092	18,068

Source: Canadian Skills Training & Employment Coalition; LMC Automotive

REGIONAL AUTOMOTIVE INDUSTRY NEW ENTRANTS OUTLOOK

In order to meet hiring requirements, employers in the region's broader automotive industry must be able to recruit new entrants to the workforce. New entrants are defined as individuals between the ages of 15 and 30 who are entering the workforce for the first time. Forecasts of new entrants to the regional broader automotive industry are based on the industry's historic share of new entrants, provincial projections of labour force participation by age-year, and regional projections of the workforce by age-year and occupation.

Overall, the Eastern Ontario region's broader automotive industry is expected to recruit 220 new entrants to its workforce between 2021 and 2030, based on the industry's historic rate of entry. The forecast for new entrants is evenly split between the 2021-2025 and 2026-2030 periods. The projected number of new entrants across all occupations is equivalent to 5% of estimated regional broader automotive industry employment in 2019. This share is between 3% and 6% for most occupation groups. However, the projected number of new entrants among management & administration roles is equal to less than 1% of current employment. Occupations in this group rely the least on new entrants due to the experience typically required for these positions.

TABLE 4. Regional Automotive Industry New Entrants Outlook, 2021-2030⁷.

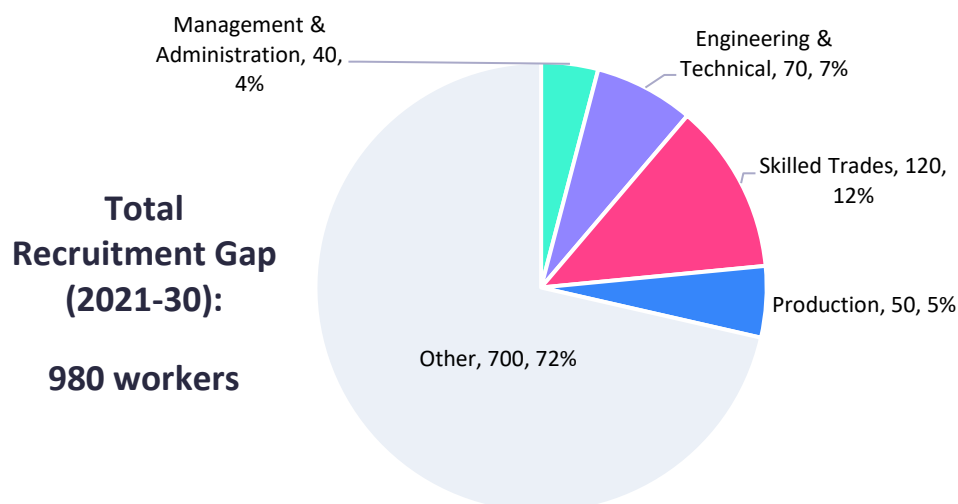
Occupation Group	2021-2025	2026-2030	2021-2030	Share of 2019 Emp.
Management & Administration	<10	<10	<10	<1%
Engineering & Technical	10	10	20	4%
Skilled Trades	<10	10	10	3%
Production	10	10	10	6%
Other	90	90	180	6%
TOTAL	110	120	220	5%

⁷ Note that summing the data in this table for individual occupations for five-year periods may not equal the corresponding total for the full ten-year period due to rounding.

REGIONAL AUTOMOTIVE INDUSTRY RECRUITMENT GAP OUTLOOK

The Eastern Ontario region's broader automotive industry is projected to face a recruitment gap of 980 workers during the 2021-2030 period. The majority of the shortfall is projected between 2021 and 2025, when a recruitment gap of 580 workers is expected. In contrast, a recruitment gap totaling 420 workers is expected between 2026 and 2030. Employers in the region will need to hire the equivalent of 24% of their current workforce over the forecast period to meet labour demand, even after accounting for new entrants. Furthermore, the recruitment gap could be significantly higher if the industry fails to recruit new entrants at historic levels.

FIGURE 6. Regional Automotive Industry Recruitment Gap Outlook, 2021-2030⁸.



The majority of the region's recruitment gap is related to other occupations, which accounted for nearly three-quarters of the gap at 700 workers. Among the primary occupation groups in the industry, the recruitment gap is largest for skilled trades at 120 workers. Recruitment gap as a proportion of current employment is highest for skilled trades at 41%. The management & administration and production occupation groups also have above-average recruitment gap shares at 31% and 28% respectively.

⁸ Please note that the shares seen in this figure represent each occupation group's recruitment gap as a proportion of the total recruitment gap.

TABLE 5. Regional Automotive Industry Recruitment Gap Outlook, 2021-2030⁹.

Occupation Group	2021-2025	2026-2030	2021-2030	Share of 2019 Emp.
Management & Administration	20	20	40	31%
Engineering & Technical	50	30	70	15%
Skilled Trades	70	60	120	41%
Production	30	20	50	28%
Other	410	290	700	23%
TOTAL	580	420	980	24%

As with hiring requirements, recruitment gaps can also be considered based on total employment for all core automotive and associated industries. This comparison is useful because many employers in associated industries compete for workers with businesses unrelated to the broader automotive industry.

The total projected regional recruitment gap between 2021 and 2030 grew to 30% of current employment using the full workforce version of the labour market forecast model, indicating that the primary forecast model may underestimate recruiting challenges for regional employers in associated industries. The larger recruitment gap share occurs in part because of competition between employers in the broader automotive industry and those outside it. The largest gains are seen in the management & administration and engineering & technical groups, where recruitment gaps increased to 41% and 23% of current employment respectively. This reflects the view that competition to fill these types of roles will be especially strong.

⁹ Note that summing the data in this table for individual occupations for five-year periods may not equal the corresponding total for the full ten-year period due to rounding.

REGIONAL AUTOMOTIVE INDUSTRY RECRUITMENT GAP RANKINGS

Ranking recruitment gaps at the level of individual occupations can illustrate specific areas of the workforce that are expected to face more severe challenges in recruiting and retaining qualified workers. In order to understand the full scope of these challenges, occupations were ranked in two distinct ways.

First, occupations were ranked by recruitment gap size, meaning the total number of workers comprising each occupation's projected regional recruitment gap between 2021 and 2030. This *absolute* ranking method identifies occupations that will require the largest number of hires to meet labour demand, even after accounting for new entrants. Next, occupations were ranked by recruitment gap share, meaning the total number of workers comprising each occupation's projected regional recruitment gap between 2021 and 2030 divided by estimated regional employment for that occupation in 2019. This *relative* ranking method identifies occupations that will need to replace a relatively high proportion of existing workers to meet labour demand, even after accounting for new entrants.

Every occupation was ranked using both methods, excluding those occupations with insufficient regional employment. The top occupations using each ranking method are presented in the following sections.

Recruitment Gap Size Rankings

The occupation with the largest absolute recruitment gap is transport truck drivers (NOC 7511). It has a projected recruitment gap of 50 workers between 2021 and 2030. A number of occupations related to engineering and technology are also among those with the largest recruitment gaps, reflecting the region's status as an automotive technology cluster. Overall, the top ten occupations have a cumulative recruitment gap of approximately 150 workers, equal to 15% of the broader automotive industry's total regional recruitment gap.

TABLE 6. Regional Automotive Industry Recruitment Gap Size Rankings, 2021-2030

Rank	Occupation	2021-2030	Share of 2019 Emp.
1	Transport truck drivers (NOC 7511)	50	81%
2	Information systems analysts and consultants (NOC 2171)	20	19%
3	Senior managers - construction, transportation, production and utilities (NOC 0016)	10	59%
4	Manufacturing managers (NOC 0911)	10	29%
5	Electrical and electronics engineers (NOC 2133)	10	23%
6	Software engineers and designers (NOC 2173)	10	16%
7	Computer programmers and interactive media developers (NOC 2174)	10	11%
8	Electrical and electronics engineering technologists and technicians (NOC 2241)	10	19%

9	Electricians (except industrial and power system) (NOC 7241)	10	73%
10	Contractors and supervisors, mechanic trades (NOC 7301)	10	100%

Recruitment Gap Share Rankings

Notably, most of the top occupations by recruitment gap share also have relatively high absolute recruitment gaps. One of the occupations with a large relative recruitment gap is transport truck drivers (NOC 7511). While only 50 additional workers will need to be hired on top of new entrants to meet labour demand for this occupation, that would be the equivalent of replacing over 80% of the current regional workforce. This is well above the average recruitment gap share across all occupations of 24%. All other top occupations also have above average recruitment gap shares, ranging from 25% to 100%. Multiple managerial occupations are found among the top occupations, again illustrating the potentially severe recruiting challenges for occupations that require significant professional experience.

TABLE 7. Regional Automotive Industry Recruitment Gap Share Rankings, 2021-2030

Rank	Occupation	2021-2030	Share of 2019 Emp.
1	Contractors and supervisors, mechanic trades (NOC 7301)	10	100%
2	Transport truck drivers (NOC 7511)	50	81%
3	Electricians (except industrial and power system) (NOC 7241)	10	73%
4	Senior managers - construction, transportation, production and utilities (NOC 0016)	10	59%
5	Electronics assemblers, fabricators, inspectors and testers (NOC 9523)	10	38%
6	Material handlers (NOC 7452)	10	37%
7	Construction millwrights and industrial mechanics (NOC 7311)	10	33%
8	Automotive service technicians, truck and bus mechanics and mechanical repairers (NOC 7321)	10	32%
9	Manufacturing managers (NOC 0911)	10	29%
10	Plastics processing machine operators (NOC 9422)	10	25%

APPENDIX

The following tables include detailed data on projected hiring requirements, new entrants and recruitment gaps at the level of individual occupations (4-digit NOC). Note that summing the data for individual occupations may not equal the corresponding data for occupational groups presented in the profile due to rounding.

Table 8: Detailed Regional Automotive Industry Hiring Requirement Outlook, 2021-2030

Occupation	2021-2025	2026-2030	2021-2030	Share of 2019 Emp.
All occupations	680	520	1,210	29%
0016 Senior managers - construction, transportation, production and utilities	<10	<10	<10	N/A
0211 Engineering managers	<10	<10	<10	N/A
0213 Computer and information systems managers	10	10	20	30%
0911 Manufacturing managers	<10	<10	<10	N/A
1121 Human resources professionals	<10	<10	10	21%
1521 Shippers and receivers	<10	<10	<10	N/A
1523 Production logistics co-ordinators	<10	<10	<10	N/A
2132 Mechanical engineers	10	<10	10	28%
2133 Electrical and electronics engineers	<10	<10	<10	N/A
2141 Industrial and manufacturing engineers	<10	<10	<10	N/A
2142 Metallurgical and materials engineers	<10	<10	<10	N/A
2147 Computer engineers (except software engineers and designers)	10	10	20	22%
2171 Information systems analysts and consultants	<10	<10	<10	N/A
2172 Database analysts and data administrators	10	10	20	20%
2173 Software engineers and designers	10	10	10	19%
2174 Computer programmers and interactive media developers	<10	<10	<10	N/A
2232 Mechanical engineering technologists and technicians	<10	<10	<10	N/A
2233 Industrial engineering and manufacturing technologists and technicians	<10	<10	10	24%
2241 Electrical and electronics engineering technologists and technicians	<10	<10	<10	N/A
2243 Industrial instrument technicians and mechanics	<10	<10	<10	N/A
2281 Computer network technicians	<10	<10	<10	N/A
2283 Information systems testing technicians	<10	<10	<10	N/A
7201 Contractors and supervisors, machining, metal forming, shaping and erecting trades and related occupations	<10	<10	10	27%
7231 Machinists and machining and tooling inspectors	<10	<10	<10	N/A
7232 Tool and die makers	<10	<10	10	17%
7237 Welders and related machine operators	10	10	10	73%
7241 Electricians (except industrial and power system)	<10	<10	<10	N/A
7242 Industrial electricians	<10	<10	10	100%

7301 Contractors and supervisors, mechanic trades	10	10	10	34%
7311 Construction millwrights and industrial mechanics	10	10	10	36%
7321 Automotive service technicians, truck and bus mechanics and mechanical repairers	10	10	20	41%
7452 Material handlers	30	20	50	82%
7511 Transport truck drivers	<10	<10	<10	N/A
9221 Supervisors, motor vehicle assembling	<10	<10	<10	N/A
9222 Supervisors, electronics manufacturing	<10	<10	<10	N/A
9223 Supervisors, electrical products manufacturing	<10	<10	<10	N/A
9224 Supervisors, furniture and fixtures manufacturing	<10	<10	<10	N/A
9226 Supervisors, other mechanical and metal products manufacturing	<10	<10	<10	N/A
9227 Supervisors, other products manufacturing and assembly	<10	<10	<10	N/A
9412 Foundry workers	<10	<10	<10	N/A
9416 Metalworking and forging machine operators	<10	<10	<10	N/A
9417 Machining tool operators	<10	<10	10	29%
9422 Plastics processing machine operators	<10	<10	<10	N/A
9522 Motor vehicle assemblers, inspectors and testers	10	10	10	41%
9523 Electronics assemblers, fabricators, inspectors and testers	<10	<10	<10	N/A
9526 Mechanical assemblers and inspectors	<10	<10	<10	N/A
9535 Plastic products assemblers, finishers and inspectors	<10	<10	<10	N/A
9536 Industrial painters, coaters and metal finishing process operators	10	<10	10	22%
9619 Other labourers in processing, manufacturing and utilities	680	520	1,210	29%
Other occupations	500	380	880	29%

Table 9. Detailed Regional Automotive Industry New Entrants Outlook, 2021-2030

Occupation	2021- 2025	2026- 2030	2021- 2030	Share of 2019 Emp.
All occupations	110	110	220	5%
0016 Senior managers - construction, transportation, production and utilities	<10	<10	<10	N/A
0211 Engineering managers	<10	<10	<10	N/A
0213 Computer and information systems managers	<10	<10	<10	N/A
0911 Manufacturing managers	<10	<10	<10	N/A
1121 Human resources professionals	<10	<10	<10	N/A
1521 Shippers and receivers	<10	<10	<10	N/A
1523 Production logistics co-ordinators	<10	<10	<10	N/A
2132 Mechanical engineers	<10	<10	<10	N/A
2133 Electrical and electronics engineers	<10	<10	<10	N/A
2141 Industrial and manufacturing engineers	<10	<10	<10	N/A
2142 Metallurgical and materials engineers	<10	<10	<10	N/A
2147 Computer engineers (except software engineers and designers)	<10	<10	<10	N/A
2171 Information systems analysts and consultants	<10	<10	<10	N/A
2172 Database analysts and data administrators	<10	<10	<10	N/A
2173 Software engineers and designers	<10	<10	<10	N/A
2174 Computer programmers and interactive media developers	<10	<10	10	8%
2232 Mechanical engineering technologists and technicians	<10	<10	<10	N/A
2233 Industrial engineering and manufacturing technologists and technicians	<10	<10	<10	N/A
2241 Electrical and electronics engineering technologists and technicians	<10	<10	<10	N/A
2243 Industrial instrument technicians and mechanics	<10	<10	<10	N/A
2281 Computer network technicians	<10	<10	<10	N/A
2283 Information systems testing technicians	<10	<10	<10	N/A
7201 Contractors and supervisors, machining, metal forming, shaping and erecting trades and related occupations	<10	<10	<10	N/A
7231 Machinists and machining and tooling inspectors	<10	<10	<10	N/A
7232 Tool and die makers	<10	<10	<10	N/A
7237 Welders and related machine operators	<10	<10	<10	N/A
7241 Electricians (except industrial and power system)	<10	<10	<10	N/A
7242 Industrial electricians	<10	<10	<10	N/A
7301 Contractors and supervisors, mechanic trades	<10	<10	<10	N/A
7311 Construction millwrights and industrial mechanics	<10	<10	<10	N/A
7321 Automotive service technicians, truck and bus mechanics and mechanical repairers	<10	<10	<10	N/A
7452 Material handlers	<10	<10	<10	N/A
7511 Transport truck drivers	<10	<10	<10	N/A
9221 Supervisors, motor vehicle assembling	<10	<10	<10	N/A

9222 Supervisors, electronics manufacturing	<10	<10	<10	N/A
9223 Supervisors, electrical products manufacturing	<10	<10	<10	N/A
9224 Supervisors, furniture and fixtures manufacturing	<10	<10	<10	N/A
9226 Supervisors, other mechanical and metal products manufacturing	<10	<10	<10	N/A
9227 Supervisors, other products manufacturing and assembly	<10	<10	<10	N/A
9412 Foundry workers	<10	<10	<10	N/A
9416 Metalworking and forging machine operators	<10	<10	<10	N/A
9417 Machining tool operators	<10	<10	<10	N/A
9422 Plastics processing machine operators	<10	<10	<10	N/A
9522 Motor vehicle assemblers, inspectors and testers	<10	<10	<10	N/A
9523 Electronics assemblers, fabricators, inspectors and testers	<10	<10	<10	N/A
9526 Mechanical assemblers and inspectors	<10	<10	<10	N/A
9535 Plastic products assemblers, finishers and inspectors	<10	<10	<10	N/A
9536 Industrial painters, coaters and metal finishing process operators	<10	<10	<10	N/A
9619 Other labourers in processing, manufacturing and utilities	<10	<10	<10	N/A
Other occupations	90	90	180	6%

TABLE 10. Detailed Regional Automotive Industry Recruitment Gap Outlook, 2021-2030

Occupation	2021- 2025	2026- 2030	2021- 2030	Share of 2019 Emp.
All occupations	570	410	980	24%
0016 Senior managers - construction, transportation, production and utilities	10	10	10	59%
0211 Engineering managers	<10	<10	<10	N/A
0213 Computer and information systems managers	<10	<10	<10	N/A
0911 Manufacturing managers	10	10	10	29%
1121 Human resources professionals	<10	<10	<10	N/A
1521 Shippers and receivers	<10	<10	<10	N/A
1523 Production logistics co-ordinators	<10	<10	<10	N/A
2132 Mechanical engineers	<10	<10	<10	N/A
2133 Electrical and electronics engineers	<10	<10	10	23%
2141 Industrial and manufacturing engineers	<10	<10	<10	N/A
2142 Metallurgical and materials engineers	<10	<10	<10	N/A
2147 Computer engineers (except software engineers and designers)	<10	<10	<10	N/A
2171 Information systems analysts and consultants	10	10	20	19%
2172 Database analysts and data administrators	<10	<10	<10	N/A
2173 Software engineers and designers	10	10	10	16%
2174 Computer programmers and interactive media developers	10	<10	10	11%
2232 Mechanical engineering technologists and technicians	<10	<10	<10	N/A
2233 Industrial engineering and manufacturing technologists and technicians	<10	<10	<10	N/A
2241 Electrical and electronics engineering technologists and technicians	<10	<10	10	19%
2243 Industrial instrument technicians and mechanics	<10	<10	<10	N/A
2281 Computer network technicians	<10	<10	<10	N/A
2283 Information systems testing technicians	<10	<10	<10	N/A
7201 Contractors and supervisors, machining, metal forming, shaping and erecting trades and related occupations	<10	<10	<10	N/A
7231 Machinists and machining and tooling inspectors	<10	<10	<10	N/A
7232 Tool and die makers	<10	<10	<10	N/A
7237 Welders and related machine operators	<10	<10	<10	N/A
7241 Electricians (except industrial and power system)	10	10	10	73%
7242 Industrial electricians	<10	<10	<10	N/A
7301 Contractors and supervisors, mechanic trades	<10	<10	10	100%
7311 Construction millwrights and industrial mechanics	10	10	10	33%
7321 Automotive service technicians, truck and bus mechanics and mechanical repairers	10	10	10	32%
7452 Material handlers	10	10	10	37%
7511 Transport truck drivers	30	20	50	81%
9221 Supervisors, motor vehicle assembling	<10	<10	<10	N/A

9222 Supervisors, electronics manufacturing	<10	<10	<10	N/A
9223 Supervisors, electrical products manufacturing	<10	<10	<10	N/A
9224 Supervisors, furniture and fixtures manufacturing	<10	<10	<10	N/A
9226 Supervisors, other mechanical and metal products manufacturing	<10	<10	<10	N/A
9227 Supervisors, other products manufacturing and assembly	<10	<10	<10	N/A
9412 Foundry workers	<10	<10	<10	N/A
9416 Metalworking and forging machine operators	<10	<10	<10	N/A
9417 Machining tool operators	<10	<10	<10	N/A
9422 Plastics processing machine operators	<10	<10	10	25%
9522 Motor vehicle assemblers, inspectors and testers	<10	<10	<10	N/A
9523 Electronics assemblers, fabricators, inspectors and testers	10	10	10	38%
9526 Mechanical assemblers and inspectors	<10	<10	<10	N/A
9535 Plastic products assemblers, finishers and inspectors	<10	<10	<10	N/A
9536 Industrial painters, coaters and metal finishing process operators	<10	<10	<10	N/A
9619 Other labourers in processing, manufacturing and utilities	<10	<10	10	13%
Other occupations	410	290	700	23%