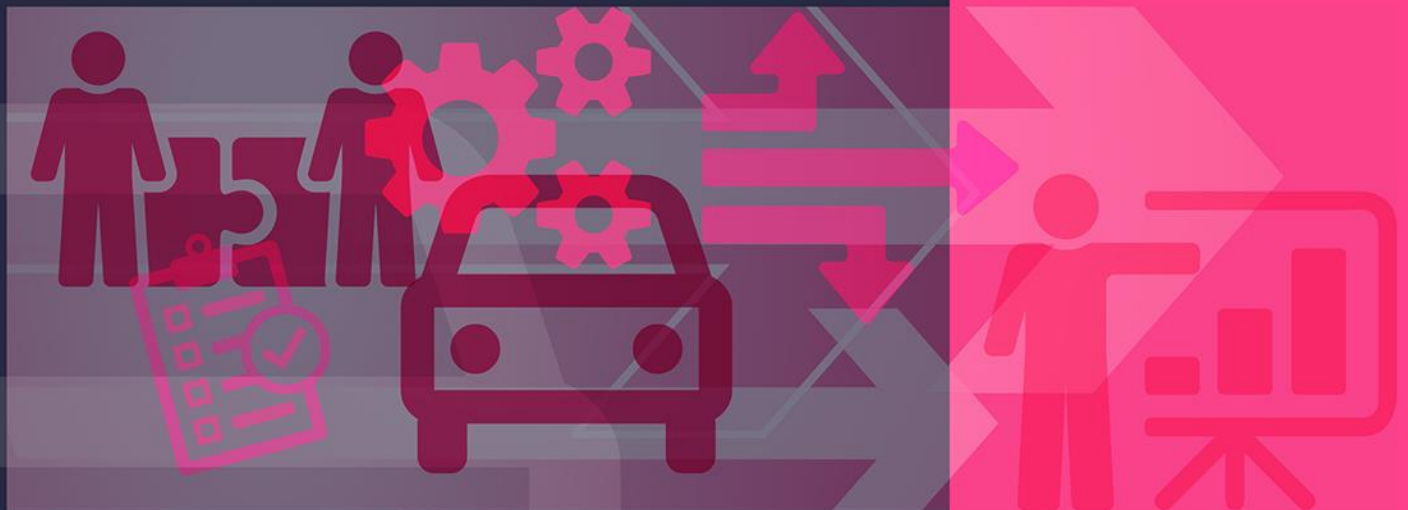


# AUTOMOTIVE INDUSTRY LABOUR MARKET ANALYSIS

## REGIONAL AUTOMOTIVE INDUSTRY FORECAST PROFILE: WINDSOR-SARNIA



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](http://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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June, 2020



## TABLE OF CONTENTS

Profile Highlights.....	3
Background.....	4
Introduction.....	7
General Automotive Industry Outlook.....	8
Impact of COVID-19 on Automotive Industry.....	9
Regional Automotive Industry Employment.....	10
Regional Automotive Industry Employment Outlook.....	12
Regional Automotive Industry Hiring Requirement Outlook.....	13
Replacement Demand Outlook.....	14
Expansion Demand Outlook.....	14
Regional Automotive Industry New Entrants Outlook.....	15
Regional Automotive Industry Recruitment Gap Outlook.....	16
Regional Automotive Industry Recruitment Gap Rankings.....	18
Recruitment Gap Size Rankings.....	18
Recruitment Gap Share Rankings.....	19

### List of Figures

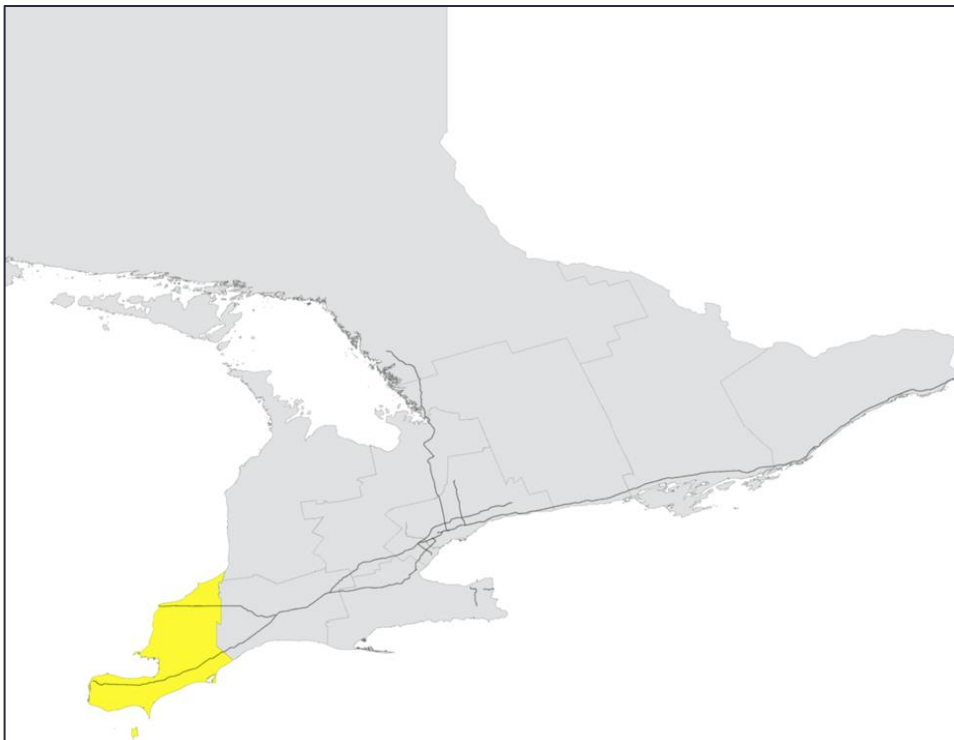
<b>FIGURE 1:</b> The Broader Automotive Industry in Canada.....	5
<b>FIGURE 2:</b> National Motor Vehicle Production (Units), 2000-2030.....	8
<b>FIGURE 3:</b> Regional Automotive Industry Employment by Industry Group, 2019.....	11
<b>FIGURE 4:</b> Regional Automotive Industry Employment by Occupational Group, 2019.....	11
<b>FIGURE 5:</b> Regional Automotive Industry Employment Outlook, 2022-2030.....	12
<b>FIGURE 6:</b> Regional Automotive Industry Recruitment Gap Outlook, 2021-2030.....	16

### List of Tables

<b>TABLE 1.</b> Regional Automotive Industry Employment Outlook, 2022-2030.....	12
<b>TABLE 2.</b> Regional Automotive Industry Hiring Requirement Outlook, 2021-2030.....	13
<b>TABLE 3.</b> National & North American Light Vehicle Production (Units x 1,000), 2022-2030.....	14
<b>TABLE 4.</b> Regional Automotive Industry New Entrants Outlook, 2021-2030.....	15
<b>TABLE 5.</b> Regional Automotive Industry Recruitment Gap Outlook, 2021-2030.....	17
<b>TABLE 6.</b> Regional Automotive Industry Recruitment Gap Size Rankings, 2021-2030.....	18
<b>TABLE 7.</b> Regional Automotive Industry Recruitment Gap Share Rankings, 2021-2030.....	19
<b>TABLE 8.</b> Detailed Regional Automotive Industry Hiring Requirement Outlook, 2021-2030.....	20
<b>TABLE 9.</b> Detailed Regional Automotive Industry New Entrants Outlook, 2021-2030.....	22
<b>TABLE 10.</b> Detailed Regional Automotive Industry Recruitment Gap Outlook, 2021-2030.....	24

## PROFILE HIGHLIGHTS

- The region's broader automotive industry employed an estimated 23,990 workers in 2019. 61% of workers were employed in core automotive roles, including vehicle assembly (20%) and parts manufacturing (41%). The remaining 39% of workers were employed in automotive industry-associated industries. Looking ahead, employment is projected to remain flat at approximately 24,000 workers through 2030.
- The region's broader automotive industry will need to hire 5,250 workers between 2021 and 2030 in order to meet projected labour demands. 4,760 workers will need to be hired to replace workers lost due to retirement or death, while an additional 500 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 3,640 workers between 2021 and 2030, even after taking account of new entrants to the workforce. This would require hiring the equivalent of 15% 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 motor vehicle assemblers, inspectors & testers (NOC 9522); motor vehicle assembling supervisors (NOC 9221); and industrial electricians (NOC 7242). Occupations with the largest relative recruitment gaps include electricians (NOC 7241); transport truck drivers (NOC 7511); and automotive service technicians (NOC 7321).



## BACKGROUND

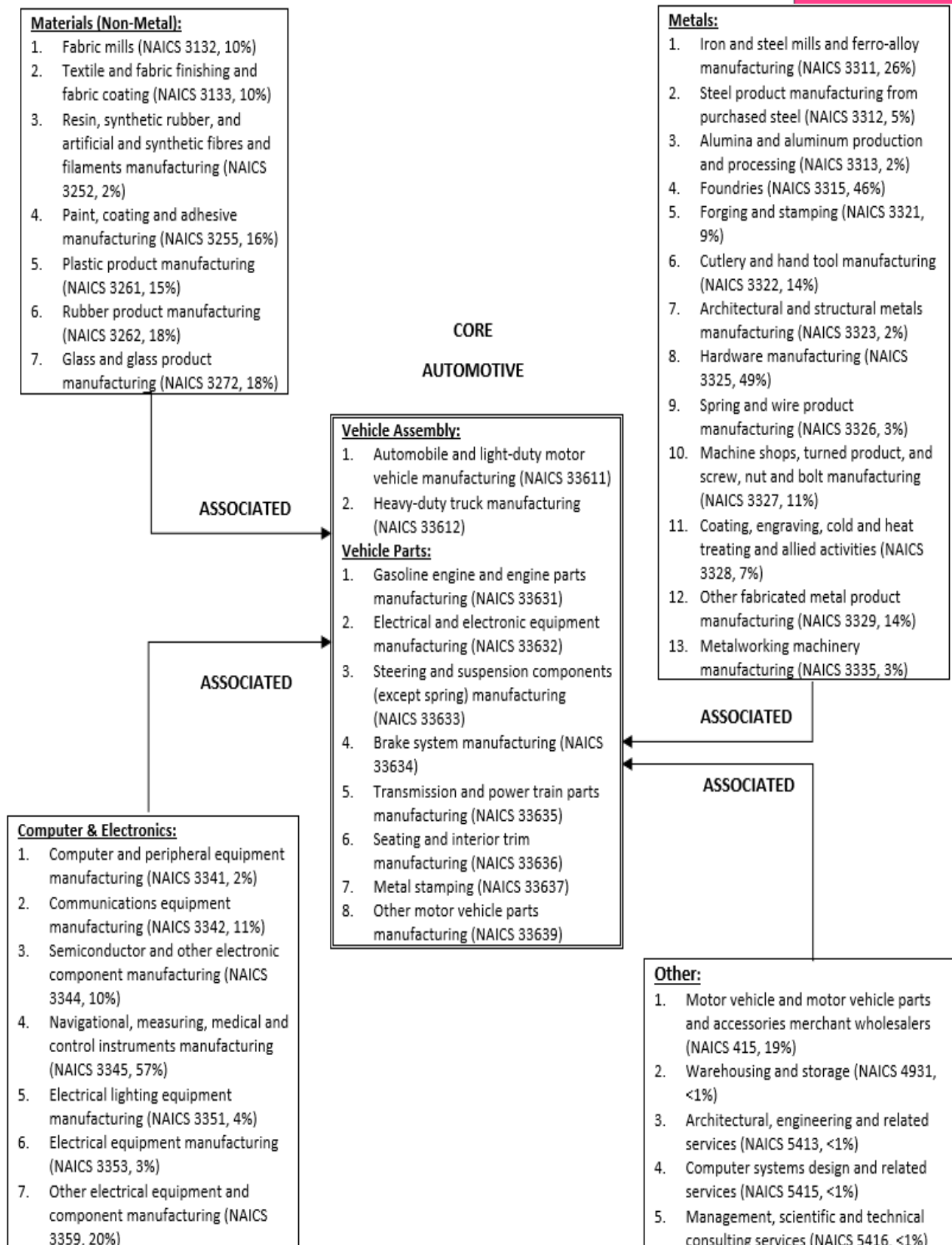
This profile summarizes a regional labour market forecast for the broader automotive industry. The forecast model projects and quantifies trends in labour demand and supply for the industry over the forecast period from 2021 to 2030. The forecast model uses a combination of data sources to generate labour 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 workforce<sup>1</sup>. 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)

<sup>1</sup> 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 Windsor-Sarnia region is a single Economic Region (ER). It is an aggregate region comprised of three Census Divisions (CDs) as defined by Statistics Canada: Chatham-Kent, Essex, and Lambton. The Essex CD is the largest of the three regions and includes the cities of Windsor and Essex. The Windsor-Sarnia region is home to approximately 5% of Ontario's population and covers a land area of approximately 7,300 square kilometers. The region includes Highway 401 and major trade routes between Canada and the United States, including two links to Michigan.

The region's GDP was an estimated \$28 billion in 2018, 23% of which was generated by the manufacturing sector. Manufacturing is also a major employer in the region, accounting for 17% of the total labour force, including 6% 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 years.<sup>2</sup>

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.

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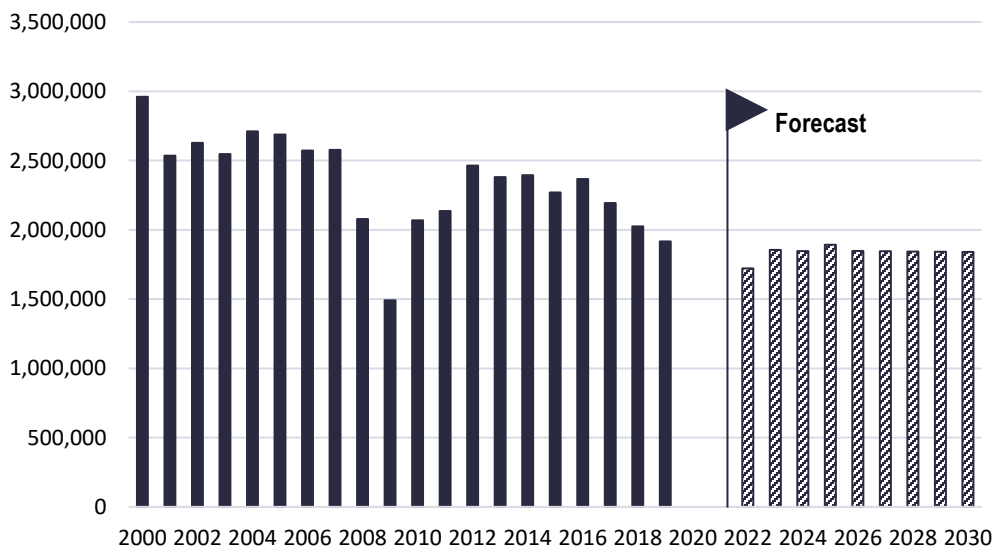
<sup>2</sup> For more information on the regional economy and demographics, please refer to the regional profile published by this project team in October 2019.



# 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 2025<sup>3</sup>. 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.

<sup>3</sup> 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 Windsor-Sarnia region was an estimated 23,990 workers in 2019<sup>4</sup>.

Core automotive industry employment in the Windsor-Sarnia region totaled approximately 14,700 workers in 2019. The region is home to an FCA plant in Windsor that produces the Chrysler Pacifica, resulting in vehicle assembly accounting for 20% of broader automotive industry employment. The region is also home to Ford-owned engine plants, as well as an estimated 84 additional parts suppliers. In total, vehicle parts manufacturing accounted for 41% of broader automotive industry employment. The primary vehicle parts industries in the region are steering & suspension components manufacturing (NAICS 33633), seating & interior trim manufacturing (NAICS 33636), and metal stamping (NAICS 33637).

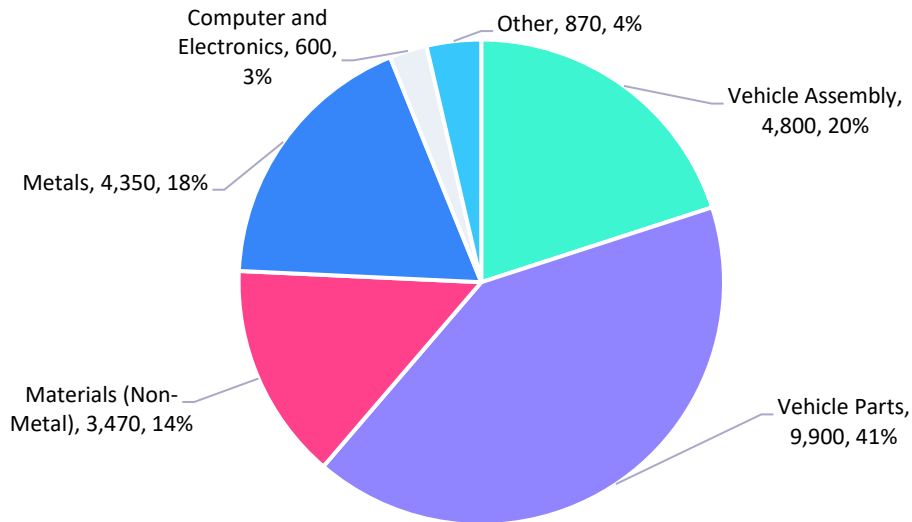
Among the region's automotive industry-associated workforce, the largest industry grouping is metals, which accounted for 18% of broader automotive industry employment in 2019. A further 14% of broader automotive industry employment came from non-metal materials industries, including plastic (NAICS 3261) and rubber (NAICS 3262) product manufacturing. In total, automotive industry-associated employment was an estimated 9,290 workers in the Windsor-Sarnia 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.

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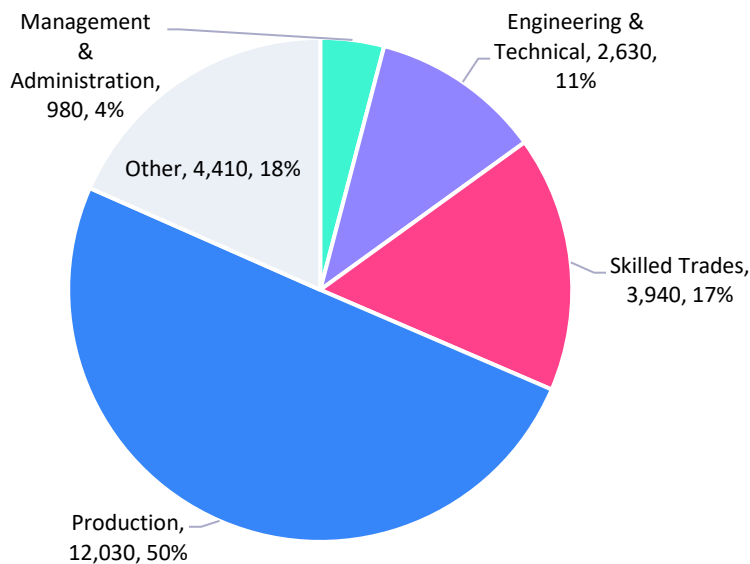
<sup>4</sup> Due to uncertainty regarding the impact of COVID-19, forecasts of industry employment have been withheld for 2020 and 2021. Please refer to the "Impact of COVID-19 on Automotive Industry" section for more details.

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



50% of the Windsor-Sarnia region’s total broader automotive industry employment worked in production occupations in 2019. This group includes motor vehicle assemblers, inspectors and testers (NOC 9522) as well as assembly supervisors (NOC 9211). A further 16% of workers were employed in skilled trades, while 11% were employed in engineering & technical occupations. Management & administration occupations (4%) employed the smallest share of regional broader automotive industry employment. All other occupations accounted for 18% of employment.<sup>5</sup>

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

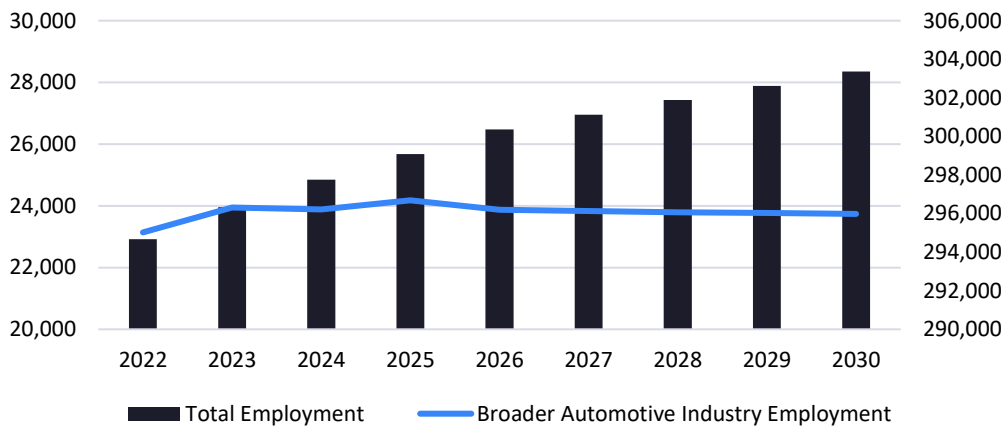


<sup>5</sup> “Other” includes all 4-digit NOCs excluding the 49 key occupations identified on pg. 6.

## 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 24,000 workers. In contrast, total employment in the region is projected to grow from 293,000 in 2022 to over 303,000 by 2030, equivalent to 3% 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%. Vehicle assembly employment is expected to rise between 2022 and 2025 before falling and plateauing from 2026 to 2030. Employment growth among vehicle parts and associated industries will occur in part as a result of increasing vehicle parts exports.

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

Industry Group	2022	2023	2024	2025	2026	2027	2028	2029	2030
Vehicle Assembly	4,590	4,840	4,770	4,820	4,680	4,620	4,570	4,520	4,473
Vehicle Parts	9,300	9,780	9,770	9,970	9,820	9,820	9,820	9,840	9,861
Materials (Non-Metals)	3,460	3,490	3,500	3,510	3,510	3,510	3,510	3,520	3,523
Metals	4,320	4,370	4,370	4,390	4,380	4,380	4,380	4,390	4,390
Computer & Electronics	600	620	620	630	630	630	630	640	639
Other	860	860	860	860	860	860	860	860	855
<b>TOTAL</b>	<b>23,130</b>	<b>23,960</b>	<b>23,890</b>	<b>24,180</b>	<b>23,880</b>	<b>23,820</b>	<b>23,770</b>	<b>23,770</b>	<b>23,740</b>

## 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 death<sup>6</sup>
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 Windsor-Sarnia region’s broader automotive industry is projected to require 5,250 new workers between 2021 and 2030. 3,310 workers are expected to be needed in the near-term (i.e. between 2021 and 2025), compared with 1,940 workers in the medium to long-term (i.e. between 2026 and 2030). The total projected hiring requirement during the decade represents 22% 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 (28%) and management & administration occupations (22%). Conversely, it is below average among production (20%) and engineering & technical (14%) occupations. Total hiring requirement represents 27% 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	140	80	220	22%
Engineering & Technical	260	110	370	14%
Skilled Trades	670	450	1,120	28%
Production	1,520	830	2,350	20%
Other	720	470	1,190	27%
<b>TOTAL</b>	<b>3,310</b>	<b>1,940</b>	<b>5,250</b>	<b>22%</b>

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

<sup>6</sup> 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 27% 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 23% and 30% 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 4,760 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 500 workers for the region’s broader automotive industry workforce between 2021 and 2030. Between 2021 and 2025, expansion demand is expected to total 950 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. Negative 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 Windsor-Sarnia region’s broader automotive industry is expected to recruit 1,610 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 7% of estimated regional broader automotive industry employment in 2019. This share is between 4% and 8% for most occupation groups. However, the projected number of new entrants among management & administration roles is equal to less than 3% of current employment. Occupations in this group rely the least on new entrants due to the experience typically required or these positions.

**TABLE 4.** Regional Automotive Industry New Entrants Outlook, 2021-2030<sup>7</sup>

Occupation Group	2021-2025	2026-2030	2021-2030	Share of 2019 Emp.
Management & Administration	10	10	30	3%
Engineering & Technical	80	80	160	6%
Skilled Trades	70	70	150	4%
Production	480	470	950	8%
Other	160	160	320	7%
<b>TOTAL</b>	<b>800</b>	<b>790</b>	<b>1,610</b>	<b>7%</b>

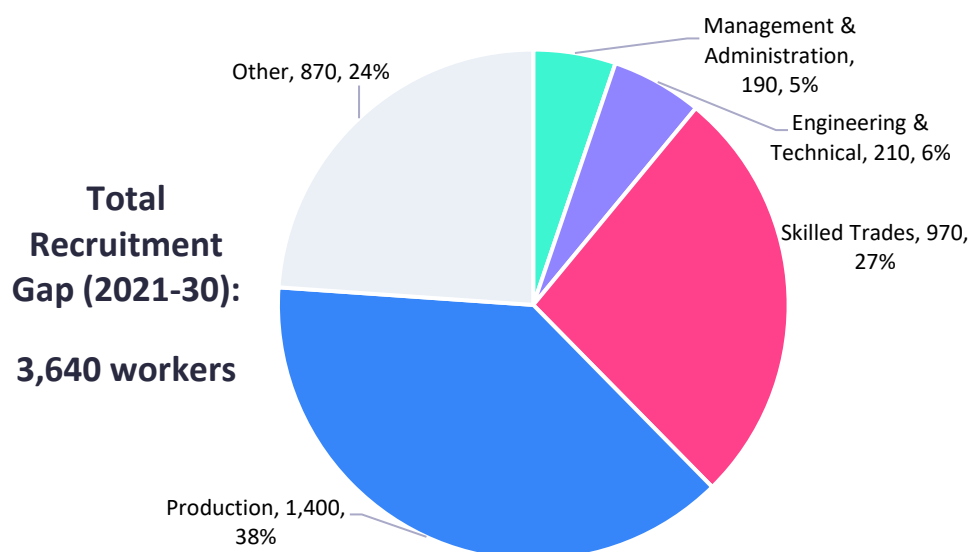
<sup>7</sup> Note that summing the data in this table for individual occupations for five-year periods may not equal the corresponding total for the full ten-year period due to rounding.



## REGIONAL AUTOMOTIVE INDUSTRY RECRUITMENT GAP OUTLOOK

The Windsor-Sarnia region’s broader automotive industry is projected to face a recruitment gap of 3,640 workers during the 2021-2030 period. The majority of the shortfall is projected between 2021 and 2025, when a recruitment gap of 2,500 workers is expected. In contrast, a recruitment gap totaling 1,140 workers is expected between 2026 and 2030. Employers in the region will need to hire the equivalent of 15% 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, 2021-2030<sup>8</sup>



Among the primary occupation groups in the industry, the recruitment gap is largest for production occupations at 1,400 workers. Recruitment gap as a proportion of current employment is highest for skilled trades occupations. Employers in the region will need to hire the equivalent of 27% of the current skilled trades workforce over the forecast period to meet labour demand. The recruitment gap share for management & administration occupations is also above-average at 19%, reflecting the lack of new entrants that can be expected to fill opening for these roles.

<sup>8</sup> 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, 2021-2030**

Occupation Group	2021-2025	2026-2030	2021-2030	Share of 2019 Emp.
Management & Administration	120	70	190	19%
Engineering & Technical	180	30	210	8%
Skilled Trades	600	370	970	25%
Production	1,040	360	1,400	12%
Other	560	310	870	20%
<b>TOTAL</b>	<b>2,500</b>	<b>1,140</b>	<b>3,640</b>	<b>15%</b>

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 20% 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 28% and 17% of current employment respectively. This reflects the view that competition to fill these types of roles will be especially strong.

## 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 occupations with the largest absolute recruitment gaps include many of the most common occupations in the broader automotive industry. The top occupation is motor vehicle assemblers, inspectors and testers (NOC 9522), which is also the largest occupation in the industry by employment. It has a projected recruitment gap of 870 workers between 2021 and 2030. A number of skilled trades, including industrial electricians (NOC 7242) and tool & die makers (NOC 7232), also have large projected recruitment gaps. Overall, the top ten occupations have a cumulative recruitment gap of approximately 2,210 workers, equal to over 60% 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	Motor vehicle assemblers, inspectors and testers (NOC 9522)	870	11%
2	Supervisors, motor vehicle assembling (NOC 9221)	260	19%
3	Industrial electricians (NOC 7242)	240	35%
4	Material handlers (NOC 7452)	140	15%
5	Transport truck drivers (NOC 7511)	140	36%
6	Manufacturing managers (NOC 0911)	130	22%
7	Construction millwrights and industrial mechanics (NOC 7311)	120	27%

8	Mechanical engineers (NOC 2132)	110	13%
9	Automotive service technicians, truck and bus mechanics and mechanical repairers (NOC 7321)	110	35%
10	Tool and die makers (NOC 7232)	90	22%

## Recruitment Gap Share Rankings

Notably, most of the top occupations by recruitment gap share have relatively low absolute recruitment gaps. Only five occupations on this list also appeared among the top occupations by recruitment gap size. The top occupations are predominantly found among the production and skilled trades groupings. One of the occupations with a large relative recruitment gap is electricians (NOC 7241). While only 40 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 nearly half (49%) of the current regional workforce. This is well above the average recruitment gap share across all occupations of 15%. All other top occupations also have above average recruitment gap shares, ranging from 22% to 64%.

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

Rank	Occupation	2021-2030	Share of 2019 Emp.
1	Industrial instrument technicians and mechanics (NOC 2243)	10	64%
2	Electricians (except industrial and power system) (NOC 7241)	40	49%
3	Electronics assemblers, fabricators, inspectors and testers (NOC 9523)	10	37%
4	Transport truck drivers (NOC 7511)	140	36%
5	Industrial electricians (NOC 7242)	240	35%
6	Automotive service technicians, truck and bus mechanics and mechanical repairers (NOC 7321)	110	35%
7	Shippers and receivers (NOC 1521)	40	34%
8	Construction millwrights and industrial mechanics (NOC 7311)	120	27%
9	Foundry workers (NOC 9412)	10	23%
10	Tool and die makers (NOC 7232)	90	22%

## 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.
<b>All occupations</b>	<b>3,320</b>	<b>1,940</b>	<b>5,260</b>	<b>22%</b>
0016 Senior managers - construction, transportation, production and utilities	10	<10	10	15%
0211 Engineering managers	10	10	20	22%
0213 Computer and information systems managers	10	<10	10	18%
0911 Manufacturing managers	90	60	150	24%
1121 Human resources professionals	20	10	30	23%
1521 Shippers and receivers	20	20	40	36%
1523 Production logistics co-ordinators	10	<10	10	10%
2132 Mechanical engineers	110	60	160	19%
2133 Electrical and electronics engineers	20	10	30	11%
2141 Industrial and manufacturing engineers	30	10	30	10%
2142 Metallurgical and materials engineers	<10	<10	<10	N/A
2147 Computer engineers (except software engineers and designers)	10	<10	10	22%
2171 Information systems analysts and consultants	10	<10	10	4%
2172 Database analysts and data administrators	<10	<10	<10	N/A
2173 Software engineers and designers	10	<10	20	16%
2174 Computer programmers and interactive media developers	10	<10	10	5%
2232 Mechanical engineering technologists and technicians	10	10	20	13%
2233 Industrial engineering and manufacturing technologists and technicians	10	<10	10	8%
2241 Electrical and electronics engineering technologists and technicians	10	10	20	20%
2243 Industrial instrument technicians and mechanics	<10	<10	10	67%
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	20	24%
7231 Machinists and machining and tooling inspectors	40	20	50	19%
7232 Tool and die makers	70	40	110	27%
7237 Welders and related machine operators	60	40	100	29%
7241 Electricians (except industrial and power system)	20	20	40	51%
7242 Industrial electricians	140	100	250	36%

7301 Contractors and supervisors, mechanic trades	<10	<10	<10	N/A
7311 Construction millwrights and industrial mechanics	80	60	140	31%
7321 Automotive service technicians, truck and bus mechanics and mechanical repairers	60	50	110	36%
7452 Material handlers	110	60	180	19%
7511 Transport truck drivers	80	60	140	36%
9221 Supervisors, motor vehicle assembling	200	120	320	23%
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	34%
9416 Metalworking and forging machine operators	30	20	50	21%
9417 Machining tool operators	20	10	20	20%
9422 Plastics processing machine operators	80	40	120	20%
9522 Motor vehicle assemblers, inspectors and testers	1,010	540	1,550	19%
9523 Electronics assemblers, fabricators, inspectors and testers	10	10	20	49%
9526 Mechanical assemblers and inspectors	40	20	60	21%
9535 Plastic products assemblers, finishers and inspectors	40	20	60	17%
9536 Industrial painters, coaters and metal finishing process operators	60	40	90	26%
9619 Other labourers in processing, manufacturing and utilities	30	10	40	12%
Other occupations	720	470	1,190	27%

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

Occupation	2021-2025	2026-2030	2021-2030	Share of 2019 Emp.
<b>All occupations</b>	<b>810</b>	<b>800</b>	<b>1,610</b>	<b>7%</b>
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	2%
1121 Human resources professionals	10	10	10	11%
1521 Shippers and receivers	<10	<10	<10	N/A
1523 Production logistics co-ordinators	<10	<10	<10	N/A
2132 Mechanical engineers	20	20	50	5%
2133 Electrical and electronics engineers	10	10	20	7%
2141 Industrial and manufacturing engineers	10	10	20	7%
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	4%
2172 Database analysts and data administrators	10	10	10	32%
2173 Software engineers and designers	10	10	10	11%
2174 Computer programmers and interactive media developers	10	10	20	11%
2232 Mechanical engineering technologists and technicians	10	10	10	8%
2233 Industrial engineering and manufacturing technologists and technicians	<10	<10	<10	N/A
2241 Electrical and electronics engineering technologists and technicians	<10	<10	10	8%
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	20	8%
7232 Tool and die makers	10	10	20	5%
7237 Welders and related machine operators	20	20	30	10%
7241 Electricians (except industrial and power system)	<10	<10	<10	N/A
7242 Industrial electricians	<10	<10	10	1%
7301 Contractors and supervisors, mechanic trades	<10	<10	<10	N/A
7311 Construction millwrights and industrial mechanics	10	10	20	4%
7321 Automotive service technicians, truck and bus mechanics and mechanical repairers	<10	<10	10	2%
7452 Material handlers	20	20	40	4%
7511 Transport truck drivers	<10	<10	<10	N/A
9221 Supervisors, motor vehicle assembling	30	30	60	4%

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	20	8%
9417 Machining tool operators	10	10	10	9%
9422 Plastics processing machine operators	30	20	50	8%
9522 Motor vehicle assemblers, inspectors and testers	340	340	680	8%
9523 Electronics assemblers, fabricators, inspectors and testers	<10	<10	<10	N/A
9526 Mechanical assemblers and inspectors	10	<10	10	3%
9535 Plastic products assemblers, finishers and inspectors	30	30	50	14%
9536 Industrial painters, coaters and metal finishing process operators	10	10	20	7%
9619 Other labourers in processing, manufacturing and utilities	20	20	40	12%
Other occupations	160	160	320	69%



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

Occupation	2021- 2025	2026- 2030	2021- 2030	Share of 2019 Emp.
<b>All occupations</b>	<b>2,510</b>	<b>1,140</b>	<b>3,650</b>	<b>15%</b>
0016 Senior managers - construction, transportation, production and utilities	10	<10	10	15%
0211 Engineering managers	10	10	20	21%
0213 Computer and information systems managers	10	<10	10	18%
0911 Manufacturing managers	80	50	130	22%
1121 Human resources professionals	10	<10	10	12%
1521 Shippers and receivers	20	20	40	34%
1523 Production logistics co-ordinators	10	<10	10	10%
2132 Mechanical engineers	80	30	110	13%
2133 Electrical and electronics engineers	10	<10	10	4%
2141 Industrial and manufacturing engineers	10	<10	10	3%
2142 Metallurgical and materials engineers	<10	<10	<10	N/A
2147 Computer engineers (except software engineers and designers)	10	<10	10	22%
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	N/A
2232 Mechanical engineering technologists and technicians	10	<10	10	5%
2233 Industrial engineering and manufacturing technologists and technicians	<10	<10	<10	N/A
2241 Electrical and electronics engineering technologists and technicians	10	<10	10	12%
2243 Industrial instrument technicians and mechanics	<10	<10	10	64%
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	21%
7231 Machinists and machining and tooling inspectors	20	10	30	11%
7232 Tool and die makers	60	30	90	22%
7237 Welders and related machine operators	40	20	60	19%
7241 Electricians (except industrial and power system)	20	20	40	49%
7242 Industrial electricians	140	100	240	35%
7301 Contractors and supervisors, mechanic trades	<10	<10	<10	N/A
7311 Construction millwrights and industrial mechanics	70	50	120	27%
7321 Automotive service technicians, truck and bus mechanics and mechanical repairers	60	40	110	35%
7452 Material handlers	100	40	140	15%
7511 Transport truck drivers	80	60	140	36%
9221 Supervisors, motor vehicle assembling	170	90	260	19%

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	23%
9416 Metalworking and forging machine operators	20	10	30	13%
9417 Machining tool operators	10	<10	10	11%
9422 Plastics processing machine operators	50	20	70	12%
9522 Motor vehicle assemblers, inspectors and testers	670	200	870	11%
9523 Electronics assemblers, fabricators, inspectors and testers	10	10	10	37%
9526 Mechanical assemblers and inspectors	30	20	50	17%
9535 Plastic products assemblers, finishers and inspectors	20	<10	10	3%
9536 Industrial painters, coaters and metal finishing process operators	50	30	70	20%
9619 Other labourers in processing, manufacturing and utilities	10	<10	<10	N/A
Other occupations	560	310	870	20%