

AUTOMOTIVE INDUSTRY LABOUR MARKET ANALYSIS

REGIONAL AUTOMOTIVE INDUSTRY FORECAST PROFILE: WINNIPEG



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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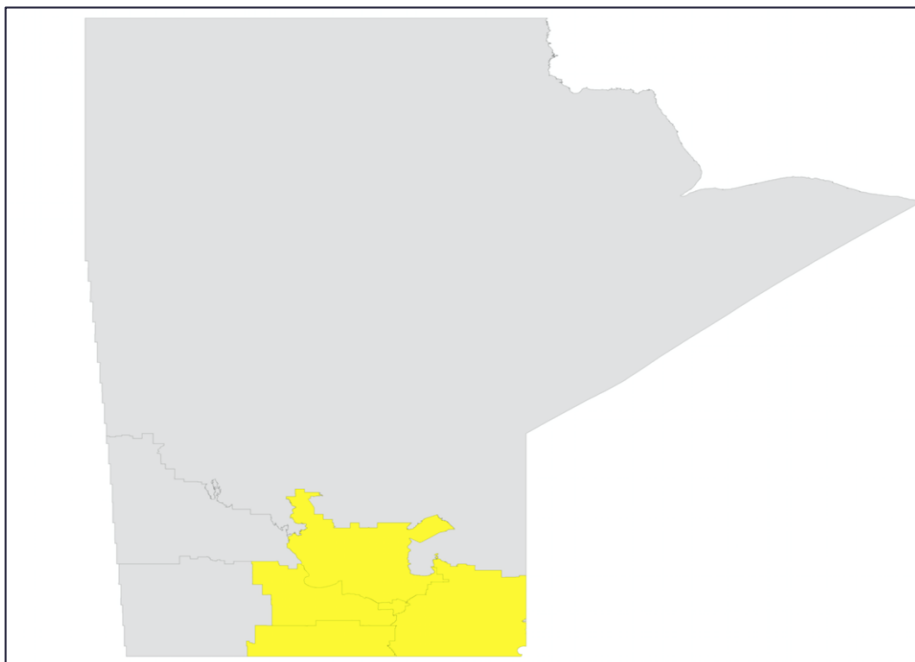
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PROFILE HIGHLIGHTS

- The Winnipeg region's broader automotive industry employed an estimated 4,840 workers in 2019. 76% of workers were employed in core automotive roles, including vehicle assembly (58%) and parts manufacturing (18%). The remaining 24% of workers were employed in automotive industry-associated industries. Looking ahead, employment is projected to grow steadily during the decade, rising to over 5,500 workers by 2030.
- The region's broader automotive industry will need to hire 1,750 workers between 2021 and 2030 in order to meet projected labour demands. 1,070 workers will need to be hired to replace workers lost due to retirement or death, while an additional 680 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 1,510 workers between 2021 and 2030, even after taking account of new entrants to the workforce. This would require hiring the equivalent of 31% 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 mechanical assemblers and inspectors (NOC 9526); welders & related machine operators (NOC 7237); and industrial painters, coaters & metal finishing process operators (NOC 9536). Occupations with the largest relative recruitment gaps include machinists & machining & tooling inspectors (NOC 9416); metalworking & forging machine operators (NOC 9416); and construction millwrights & industrial mechanics (NOC 7311).



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.

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 workforce². 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)

² 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 Winnipeg region is an aggregate region comprised of five Economic Regions (ERs) as defined by Statistics Canada: Southeast, South Central, North Central, Winnipeg, and Interlake. The Winnipeg ER is the larger of the five regions and includes the city of Winnipeg. The Winnipeg region is home to approximately 78% of Manitoba's population and covers a land area of nearly 58,000 square kilometers. The region includes major trade routes between Canada and the United States.

The region's GDP was an estimated \$49 billion in 2018, 11% of which was generated by the manufacturing sector. Manufacturing is also a major employer in the region, accounting for 9% of the total labour force. 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 years³.

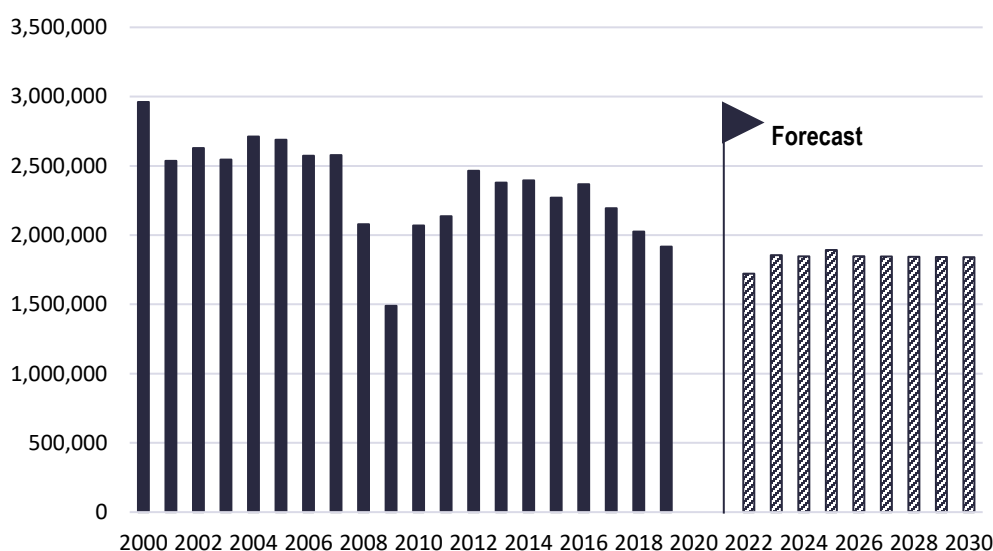
This regional profile begins with an overview of the outlook for Canadian vehicle production, followed by estimates of current regional broader automotive industry employment. The next five sections each describe a different component of the regional labour market forecast, including employment, hiring 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.

³ 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 Winnipeg region was an estimated 4,840 workers in 2019⁴.

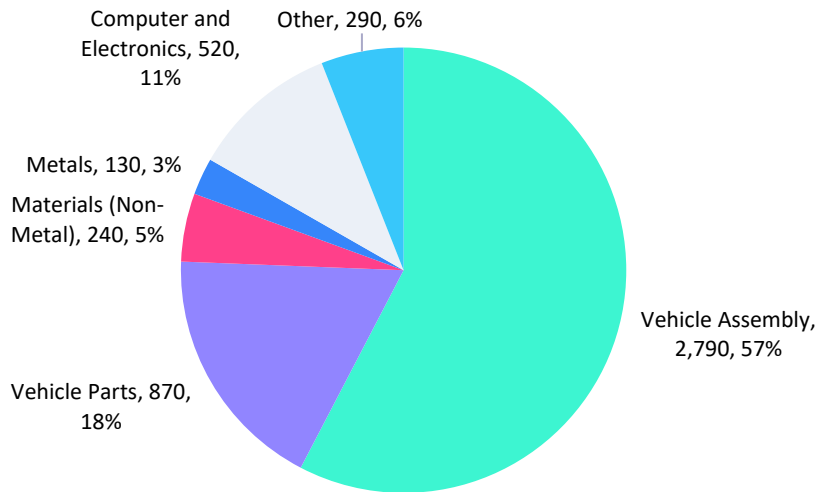
Core automotive industry employment in the region totaled approximately 3,660 workers in 2019. The region is home to multiple bus assembly plants owned and operated by NFI Group. Total vehicle assembly employment in the region accounted for 58% of broader automotive industry employment. The region is also home to several parts suppliers, including both independent and OEM manufacturers. In total, vehicle parts manufacturing accounted for 18% of broader automotive industry employment.

Among the region's automotive industry-associated workforce, the largest industry grouping is computer & electronics, which accounted for 11% of broader automotive industry employment in 2019. Employment in this grouping largely comes from a Parker Hannifin manufacturing facility. Both metals (3%) and non-metal materials (5%), which includes plastic (NAICS 3261) and rubber (NAICS 3262) product manufacturing, accounted for relatively small shares of employment. Workers in all other industries accounts for 6% of broader automotive industry employment. In total, automotive industry-associated employment was an estimated 1,180 workers in the Winnipeg 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 Canada's emerging automotive technology cluster. 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.

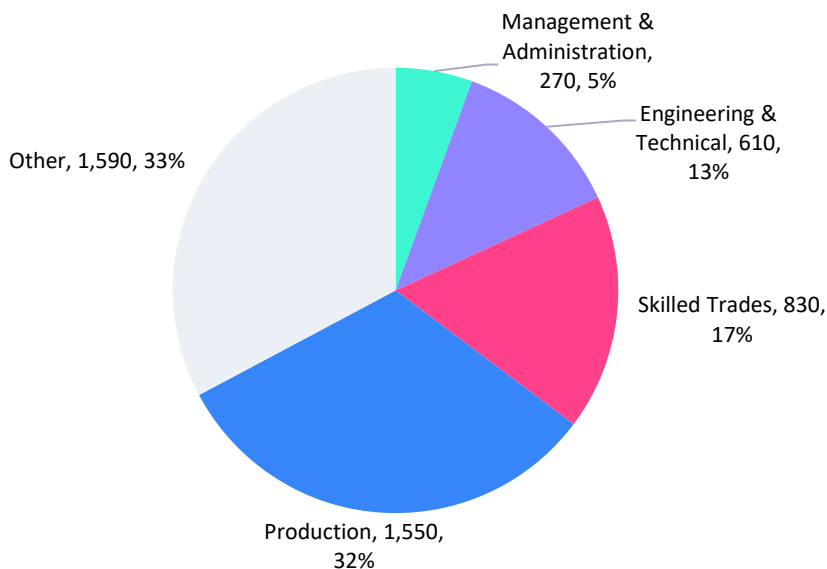
⁴ Due to uncertainty regarding the impact of COVID-19, forecasts of industry employment have been withheld for 2020 and 2021. Please refer to the "Impact of COVID-19 on Automotive Industry" section for more details.

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



Nearly one-third (32%) of the Winnipeg 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 17% of workers were employed in skilled trades, with an additional 13% found in engineering & technical occupations. Notably, just 5% of the region’s workforce were employed in management & administration occupations as of 2019. All other occupations accounted for 33% of employment⁵.

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

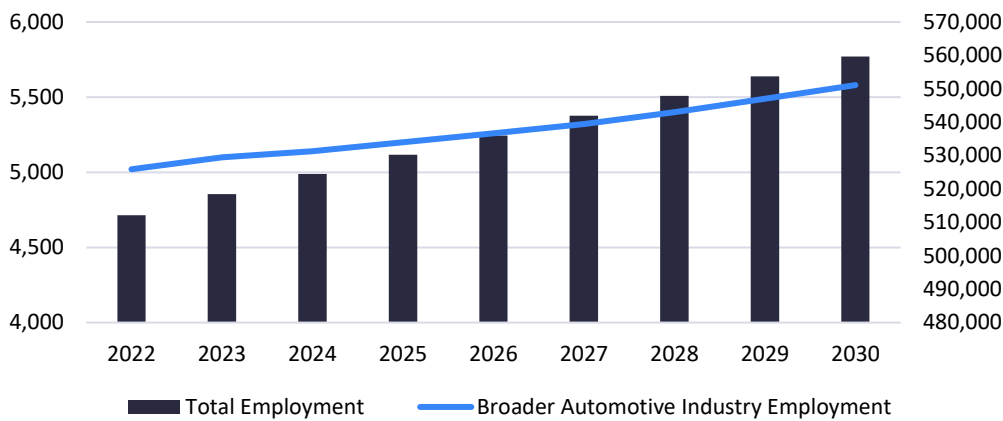


⁵ “Other” includes all 4-digit NOCs excluding the 49 key occupations identified on pg. 6.

REGIONAL AUTOMOTIVE INDUSTRY EMPLOYMENT OUTLOOK

Looking ahead, broader automotive industry employment is expected to experience a consistent growth trend between 2022 and 2030. Employment growth will be slightly lower over the first half of the period, at 1.1% annually, before rising to 1.4% annually over the latter half. Broader automotive industry employment in Winnipeg is projected to surpass 5,500 workers by 2030, while total employment in the region is expected to grow from 510,000 in 2022 to 560,000 by 2030.

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 diverging outcomes with respect to employment growth over the next decade. The vehicle assembly, parts and metals industry groups are expected to see moderate to strong employment growth, likely resulting from healthy demand for heavy trucks both domestically and abroad. In contrast, smaller employment gains are expected for the non-metal materials and computer and electronics industry groups due to productivity gains.

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

Industry Group	2022	2023	2024	2025	2026	2027	2028	2029	2030
Vehicle Assembly	2,900	2,950	2,980	3,010	3,040	3,080	3,130	3,180	3,230
Vehicle Parts	890	900	910	920	940	950	970	990	1,000
Materials (Non-Metals)	250	250	260	260	260	260	260	270	270
Metals	130	140	140	140	140	140	150	150	150
Computer & Electronics	550	550	560	560	570	580	590	600	610
Other	300	300	300	300	300	310	310	310	310
TOTAL	5,020	5,090	5,150	5,190	5,250	5,320	5,410	5,500	5,570

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 a national forecast of motor vehicle production.

Overall, the Winnipeg region’s broader automotive industry is projected to require 1,750 new workers between 2021 and 2030. 810 workers are expected to be needed in the near-term (i.e. between 2021 and 2025), compared with 930 workers in the medium to long-term (i.e. between 2026 and 2030). The total projected hiring requirement during the decade represents 36% of the province’s broader automotive industry employment as of 2019.

The proportion of total hiring requirement to current employment is highest among skilled trades occupations (40%). Conversely, it is somewhat below average among engineering & technical (25%) and management & administration (26%) occupations. Total hiring requirement represents 40% of current employment for all other occupations in the Winnipeg region’s broader automotive industry workforce.

TABLE 2. Regional Automotive Industry Hiring Requirement Outlook, 2021-2030⁷

Occupation Group	2021-2025	2026-2030	2021-2030	Share of 2019 Emp.
Management & Administration	30	40	70	26%
Engineering & Technical	70	80	150	25%
Skilled Trades	150	170	330	40%
Production	260	300	570	37%
Other	300	340	630	40%
TOTAL	810	930	1,750	36%

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

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

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.

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 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 48% 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 management & administration and engineering & technical occupation groups, which saw hiring requirements increase to 56% and 41% 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 1,070 workers between 2021 and 2030, which is equivalent to approximately 60% of total hiring requirement for the broader automotive industry. Trends in replacement demand as a proportion of current employment for occupation groups track with those seen for the overall hiring requirement, with replacement demand representing 20-30% of current employment for most groups.

Expansion Demand Outlook

Total expansion demand is projected at 680 workers for the region’s broader automotive industry workforce between 2021 and 2030. This is equivalent to approximately 40% of total hiring requirement for the broader automotive industry. Expansion demand projections represent between 13% and 15% of current employment among all occupation groups in the broader automotive industry.

The forecast for expansion demand among the region’s broader automotive industry employers is the result of the forecast for national commercial vehicle production, which projects production to grow steadily over the course of the decade. Production levels are expected to increase by 17% domestically and 10% for North America as a whole between 2022 and 2030. More workers will be needed in both core automotive and associated industries to support these rising production levels.

TABLE 3. National & North American Commercial Vehicle Production (Units), 2022-2030

Regional Jurisdiction	2022	2023	2024	2025	2026	2027	2028	2029	2030
Canada	20,400	20,900	20,500	21,000	21,500	21,900	21,900	22,900	23,900
North America	566,000	625,000	498,000	569,000	628,000	567,000	610,000	615,000	619,000

Source: Canadian Skills Training & Employment Coalition; LMC Automotive

REGIONAL AUTOMOTIVE INDUSTRY NEW ENTRANTS OUTLOOK

In order to meet hiring requirements, employers in the Winnipeg 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, as well as provincial projections of labour force participation by age-year and workforce by age-year and occupation.

Overall, the Winnipeg region’s broader automotive industry is expected to recruit 230 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 4% and 7% for most occupation groups.

TABLE 4. Regional Automotive Industry New Entrants Outlook, 2021-2030⁸

Occupation Group	2021-2025	2026-2030	2021-2030	Share of 2019 Emp.
Management & Administration	<10	<10	10	4%
Engineering & Technical	20	20	40	7%
Skilled Trades	20	20	30	4%
Production	30	30	60	4%
Other	50	50	100	6%
TOTAL	120	120	240	5%

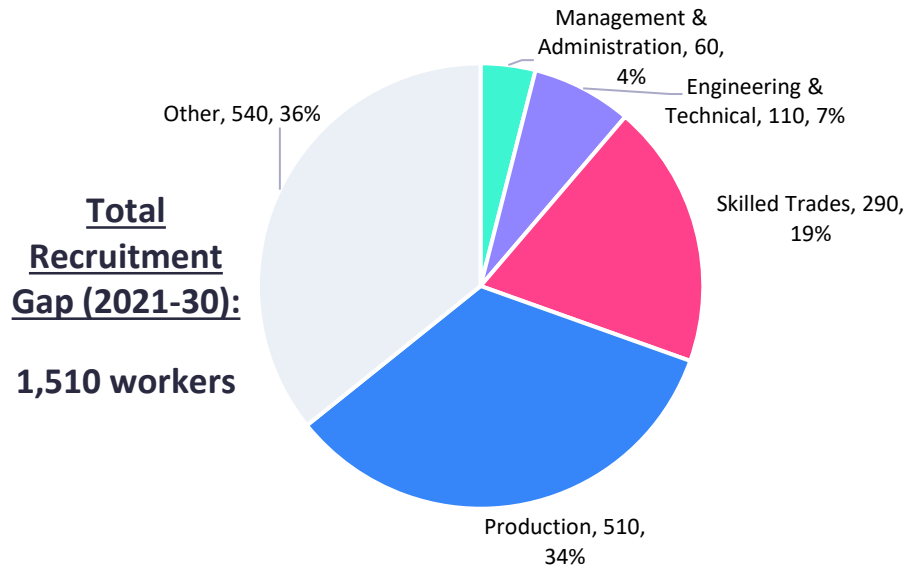
REGIONAL AUTOMOTIVE INDUSTRY RECRUITMENT GAP OUTLOOK

The Winnipeg region’s broader automotive industry is projected to face a recruitment gap of 1,510 workers during the 2021-2030 period. A recruitment gap of 700 workers is projected between 2021 and 2025, with a further shortfall of 810 workers expected between 2026 and 2030. Employers in the province will need to hire the equivalent of 31% 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, 2021-2030⁹

⁸ 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.

⁹ Please note that the shares seen in this figure represent each occupation group’s recruitment gap as a proportion of the total recruitment gap.



Among the primary occupation groups in the industry, the recruitment gap is largest for key production occupations at an estimated 510 workers. This is equal to 34% of the region’s total recruitment gap. The next largest grouping is skilled trades, at approximately 290 workers or 19% of the total regional recruitment gap. The management & administration and engineering & technical groupings are expected to face recruitment gaps of 60 and 110 workers respectively. The recruitment gap for all other occupations is projected to total 540 workers.

Recruitment gap as a proportion of current employment is highest for skilled trades occupations. Employers in the province will need to hire the equivalent of 35% of the current skilled trades workforce over the forecast period to meet labour demand. The production occupation group also has a relatively high recruitment gap share at 33%. In contrast, recruitment gap shares are somewhat below average for the engineering & technical (18%) and management & administration (22%) groupings. The recruitment gap share for all other occupations is projected at 34%.

TABLE 5. Regional Automotive Industry Recruitment Gap Outlook, 2021-2030¹⁰

Occupation Group	2021-2025	2026-2030	2021-2030	Share of 2019 Emp.
Management & Administration	30	30	60	22%
Engineering & Technical	50	60	110	18%
Skilled Trades	140	160	290	35%
Production	240	270	510	33%
Other	250	290	540	34%
TOTAL	700	810	1,510	31%

¹⁰ 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.

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 42% of current employment using the full workforce version of the labour market forecast model, indicating that the primary forecast model may slightly 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 55% and 34% 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 key 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 some of the most common occupations in the broader automotive industry. The top occupation is mechanical assemblers and inspectors (NOC 9526), with a projected recruitment gap of 290 workers between 2021 and 2030. Some managerial occupations and skilled trades - including construction millwrights & industrial mechanics (NOC 7311) and welders & related machine operators (NOC 7237) - also have large projected recruitment gaps. Overall, the top ten occupations have a cumulative recruitment gap of approximately 750 workers or half 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	Mechanical assemblers and inspectors (NOC 9526)	290	34%
2	Welders and related machine operators (NOC 7237)	100	27%
3	Industrial painters, coaters and metal finishing process operators (NOC 9536)	60	38%
4	Supervisors, motor vehicle assembling (NOC 9221)	50	45%
5	Material handlers (NOC 7452)	50	41%
6	Machinists and machining and tooling inspectors (NOC 7231)	40	62%
7	Metalworking and forging machine operators (NOC 9416)	40	57%
8	Construction millwrights and industrial mechanics (NOC 7311)	40	48%
9	Mechanical engineers (NOC 2132)	40	26%
10	Manufacturing managers (NOC 0911)	40	21%

Recruitment Gap Share Rankings

Notably, most of the top occupations by recruitment gap share have relatively low absolute recruitment gaps; only three occupations on this list also appeared among the top occupations by recruitment gap size. The occupation with the largest relative recruitment gap is machinists & machining & tooling inspectors (NOC 7231). While only an estimated 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 over 60% of the current regional workforce. This is well above the average recruitment gap share across all occupations of 31%. The recruitment gap share for metalworking & forging machine operators (NOC 9416) is similarly high at 57%. All other top occupations also have above average recruitment gap shares, ranging from 34% to 48%. Several skilled trades and technical occupations are found among the top occupations, again illustrating the potentially severe recruiting challenges for occupations that require certification and/or professional experience.

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

Rank	Occupation	2021-2030	Share of 2019 Emp.
1	Machinists and machining and tooling inspectors (NOC 7231)	40	62%
2	Metalworking and forging machine operators (NOC 9416)	40	57%
3	Construction millwrights and industrial mechanics (NOC 7311)	40	48%
4	Transport truck drivers (NOC 7511)	10	47%
5	Supervisors, motor vehicle assembling (NOC 9221)	50	45%
6	Material handlers (NOC 7452)	50	41%
7	Industrial electricians (NOC 7242)	10	39%
8	Senior managers - construction, transportation, production and utilities (NOC 0016)	10	39%
9	Industrial painters, coaters and metal finishing process operators (NOC 9536)	60	38%
10	Automotive service technicians, truck and bus mechanics and mechanical repairers (NOC 7321)	20	34%

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	810	930	1,740	36%
0016 Senior managers - construction, transportation, production and utilities	<10	10	10	39%
0211 Engineering managers	<10	<10	10	17%
0213 Computer and information systems managers	<10	<10	<10	N/A
0911 Manufacturing managers	20	30	50	25%
1121 Human resources professionals	<10	<10	<10	N/A
1521 Shippers and receivers	10	10	10	18%
1523 Production logistics co-ordinators	<10	10	10	19%
2132 Mechanical engineers	20	30	50	31%
2133 Electrical and electronics engineers	10	10	30	26%
2141 Industrial and manufacturing engineers	10	10	10	19%
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	N/A
2232 Mechanical engineering technologists and technicians	10	10	10	21%
2233 Industrial engineering and manufacturing technologists and technicians	<10	<10	<10	N/A
2241 Electrical and electronics engineering technologists and technicians	<10	<10	10	27%
2243 Industrial instrument technicians and mechanics	<10	<10	<10	N/A
2281 Computer network technicians	<10	<10	10	33%
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	32%
7231 Machinists and machining and tooling inspectors	20	20	50	65%
7232 Tool and die makers	<10	<10	<10	N/A
7237 Welders and related machine operators	60	70	130	33%
7241 Electricians (except industrial and power system)	<10	<10	<10	N/A
7242 Industrial electricians	10	10	10	40%
7301 Contractors and supervisors, mechanic trades	<10	<10	<10	N/A
7311 Construction millwrights and industrial mechanics	20	20	40	49%

7321 Automotive service technicians, truck and bus mechanics and mechanical repairers	10	10	20	37%
7452 Material handlers	30	30	60	48%
7511 Transport truck drivers	<10	<10	10	49%
9221 Supervisors, motor vehicle assembling	30	30	50	46%
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	20	32%
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	20	20	40	60%
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	20	20	50	27%
9523 Electronics assemblers, fabricators, inspectors and testers	10	10	10	18%
9526 Mechanical assemblers and inspectors	140	160	310	37%
9535 Plastic products assemblers, finishers and inspectors	<10	<10	<10	N/A
9536 Industrial painters, coaters and metal finishing process operators	30	30	60	42%
9619 Other labourers in processing, manufacturing and utilities	10	10	10	24%
Other occupations	300	340	630	40%

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	120	230	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	4%
1121 Human resources professionals	<10	<10	<10	N/A
1521 Shippers and receivers	<10	<10	10	12%
1523 Production logistics co-ordinators	<10	<10	<10	N/A
2132 Mechanical engineers	<10	<10	10	5%
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	N/A
2232 Mechanical engineering technologists and technicians	10	10	10	19%
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	20	6%
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	6%
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	20	10%
9523 Electronics assemblers, fabricators, inspectors and testers	<10	<10	<10	N/A
9526 Mechanical assemblers and inspectors	10	10	20	2%
9535 Plastic products assemblers, finishers and inspectors	<10	<10	<10	N/A
9536 Industrial painters, coaters and metal finishing process operators	<10	<10	10	4%
9619 Other labourers in processing, manufacturing and utilities	<10	<10	<10	N/A
Other occupations	50	50	100	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	700	810	1,510	31%
0016 Senior managers - construction, transportation, production and utilities	<10	10	10	39%
0211 Engineering managers	<10	<10	10	17%
0213 Computer and information systems managers	<10	<10	<10	N/A
0911 Manufacturing managers	20	20	40	21%
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	17%
2132 Mechanical engineers	20	20	40	26%
2133 Electrical and electronics engineers	10	10	30	25%
2141 Industrial and manufacturing engineers	<10	<10	10	12%
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	N/A
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	20%
2243 Industrial instrument technicians and mechanics	<10	<10	<10	N/A
2281 Computer network technicians	<10	<10	10	30%
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	29%
7231 Machinists and machining and tooling inspectors	20	20	40	62%
7232 Tool and die makers	<10	<10	<10	N/A
7237 Welders and related machine operators	50	60	100	27%
7241 Electricians (except industrial and power system)	<10	<10	<10	N/A
7242 Industrial electricians	10	10	10	39%
7301 Contractors and supervisors, mechanic trades	<10	<10	<10	N/A
7311 Construction millwrights and industrial mechanics	20	20	40	48%
7321 Automotive service technicians, truck and bus mechanics and mechanical repairers	10	10	20	34%
7452 Material handlers	20	30	50	41%
7511 Transport truck drivers	<10	<10	10	47%
9221 Supervisors, motor vehicle assembling	30	30	50	45%
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	20	29%
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	20	20	40	57%
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	20	30	17%
9523 Electronics assemblers, fabricators, inspectors and testers	10	10	10	18%
9526 Mechanical assemblers and inspectors	130	150	290	34%
9535 Plastic products assemblers, finishers and inspectors	<10	<10	<10	N/A
9536 Industrial painters, coaters and metal finishing process operators	30	30	60	38%
9619 Other labourers in processing, manufacturing and utilities	<10	<10	10	15%
Other occupations	250	290	540	34%