



A CAF-FCA  
REPORT FOR  
MEMBERS

# APPRENTICE DEMAND IN RED SEAL TRADES: A 2022 NATIONAL LABOUR MARKET INFORMATION REPORT

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CANADIAN  
APPRENTICESHIP  
FORUM



FORUM  
CANADIEN SUR  
L'APPRENTISSAGE

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# ABOUT CAF-FCA

## The Canadian Apprenticeship Forum

The Canadian Apprenticeship Forum – Forum canadien sur l'apprentissage (CAF-FCA) is a national, not-for-profit organization working with stakeholders in all regions of Canada. We influence pan-Canadian apprenticeship strategies through research, discussion and collaboration. We share insights across trades, across sectors and across the country. We do this in order to promote apprenticeship as an effective model for training and education.

Our Board of Directors is comprised of representatives from groups such as business, labour, the jurisdictional apprenticeship authorities, education and equity-seeking groups. Through our work, CAF-FCA has shed light on a number of key issues affecting apprenticeship, such as the perceived barriers to accessing and completing apprenticeship, and the business case for apprenticeship training. For more information, visit the CAF-FCA website at [www.caf-fca.org](http://www.caf-fca.org).

## The Author

Prism Economics and Analysis (Prism) is an established labour market economics consultancy firm specializing in the analysis of labour markets and human resource planning issues. Prism works with employers, governments, post-secondary institutions, trade unions and professional associations to deliver credible research that provides practical human resource solutions.

Working with such stakeholders enables Prism to develop its in-depth knowledge of labour market structures, apprenticeship and training systems, sources, people, institutions, regulations and policies. Prism understands the different interests and perspectives of stakeholder groups and carefully balances its analysis and reporting to respect and reconcile these interests.

Prism developed the Canadian System for Tracking Apprenticeship Qualifications (CANTRAQ) to track demand requirements and supply of trade certifications. CAF-FCA supported the development of the methodology and continues to work in collaboration with Prism to better understand apprentice supply and demand.

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# 1.0 Executive Summary

This report draws together the most recent apprenticeship data and projections from the *Canadian System for Tracking Apprenticeship Qualifications (CANTRAQ)* to provide a forward-looking assessment of demand and supply for trade certification across Red Seal trades in Canada. National, provincial, and trade-specific assessments of demand and supply projections for the 15 largest Red Seal trades are provided.

The COVID-19 pandemic brought significant challenges to Canada's apprenticeship system. Despite a shift to remote training, where possible, and other accommodations made by colleges, unions and provincial/territorial apprenticeship offices, the pandemic created many obstacles to the delivery of training, testing and certification. Adhering to health and safety protocols resulted in fewer apprentices being able to write their certification and the level exams that are required in some jurisdictions. Many apprentices also experienced technical training delays due to reduced class sizes. There were apprentices that were laid off during the pandemic and were unable to gain work hours, which further delayed their program completion.

These impacts contributed to significant declines in new registrations and completions in 2020. New registrations in Red Seal trade programs fell by 27% to approximately 44,100, the lowest number of annual registrations since 2000. The number of program completions saw an even steeper decline, falling by 31% to approximately 20,700 completions, retreating to levels not seen in more than a decade. This decline was not as pronounced as preliminary estimates had suggested, due to a notable recovery in new registrations in the fourth quarter of 2020. The 15 largest Red Seal trades accounted for 78% of the decline in Red Seal registrations and 86% of the decline in program completions in 2020.

The economic and employment growth outlook suggests new registrations in Red Seal programs will see a recovery in 2021 before moderating in 2022 and fluctuating thereafter, based on economic demands over the near-term. Completions are anticipated to see a near-full recovery in 2021 as many employers and training facilities returned to in-person training delivery and level and certification exams resumed. It is important to note that although there is an estimated recovery at the aggregate level, according to preliminary provincial apprenticeship office data, the presence and degree of such a recovery has varied for individual trades and provinces.

The stark decline in new registrations in 2020 will have an impact on future supply. As apprentices progress through their programs, completions are estimated to decline in 2023 and 2024 and remain subdued in 2025. This forecasted decline may be exacerbated or even prolonged if apprentice employment does not recover over the near-term. Through its member-based Apprentices in Canada ePanel online survey, the Canadian Apprenticeship Forum found that full-time employment among journeypersons had recovered to pre-pandemic levels in 2021. This was not true for full-time apprentices, however, as employment in 2021 was reportedly 4% lower than 2020 levels and 14% below pre-pandemic levels. Findings from the ePanel also highlighted the disproportionate impact the pandemic had on level 1 apprentices. Thirty five percent of this cohort, which reported zero unemployment prior to the pandemic, reported being unemployed in 2021. This was the highest unemployment rate reported across all levels. Providing targeted supports and outreach may help registered apprentices to get back on track and complete their programs, which could also lead to improved completion and certification rates.

Over the five-year period from 2022 to 2026, an estimated 122,380 new journeypersons will be required to sustain workforce certification levels across Red Seal trades in Canada. Of these, approximately 92,300 journeypersons will be concentrated in the top 15 Red Seal trades. Nationally, trades in demand are cook, industrial electrician, painter and decorator and welder. Despite COVID-19 and the slowing of resource expansion, workforce retirements and overall hiring and training requirements will require the recruitment of 256,000 apprentices to keep pace with certification demand. Out of this total, 176,760 apprentices will need to be recruited into the top 15 Red Seal trades. This projection is lower than the 2021 National LMI report as the current outlook does not include the substantial employment recovery in 2021.

Based on the CANTRAQ analysis, Table 1 provides a summary of the number of new journeypersons required and the targets for the total number of new apprentices likely needed to meet demand requirements by province over the long-term. Apart from Quebec, demand requirements are expected to continue to rise over the next 5 years, while average annual completions are expected to recede following 2022. This mismatch will potentially lead to supply challenges for several provinces, including Alberta, Saskatchewan, Manitoba and Atlantic Canada. Due to the rising levels of registrations in British Columbia and record levels of registrations in Ontario and Quebec leading into the pandemic, completions in these provinces over the near-term are forecast to meet workforce requirements. That said, analysis suggests that given the current level of new registrations, any considerable acceleration of demand requirements could pose significant recruiting challenges.

Table 1 - Summary of Target Registrations and Certification Requirements for Total Red Seal Trades by Province, 2022 to 2026

Province	Certifications Required	Target Registrations
British Columbia	20,746	57,404
Alberta	25,588	51,431
Saskatchewan	5,239	8,238
Manitoba	4,420	11,190
Ontario	43,446	77,458
Quebec	13,402	27,970
Atlantic Canada	9,542	22,312
<b>Total</b>	<b>122,383</b>	<b>256,003</b>

Source: Statistics Canada, RAIS 2020, Custom Aggregation; CANTRAQ Prism Economics (2022)

Table 2 compares projected completions, target registrations and certification requirements for the 15 largest Red Seal programs over the same period, 2022 to 2026. Trades concentrated in the service sector, including cook and hairstylist, experienced the largest employment declines due to COVID-19 and saw minimal to no growth in 2021. This sector is expected to experience a notable recovery in 2022 as the economy continues to reopen and this is likely to pose a risk to the supply of certified journeypersons. The 2021 and 2022 analysis of the data will provide further insights into the recovery and state of apprenticeship in a post COVID-19 era.

It is important to note that labour markets have tightened significantly in recent years and what were periodic recruitment challenges have now become a permanent challenge faced by employers in all sectors of the economy. The analysis does not consider the current imbalances in the labour market. Three categories are identified: 'at risk' should be interpreted as trades with increasing recruitment challenges, 'ample supply' as trades with lessening recruitment challenges and 'balanced' as trades with consistent patterns of recruitment.

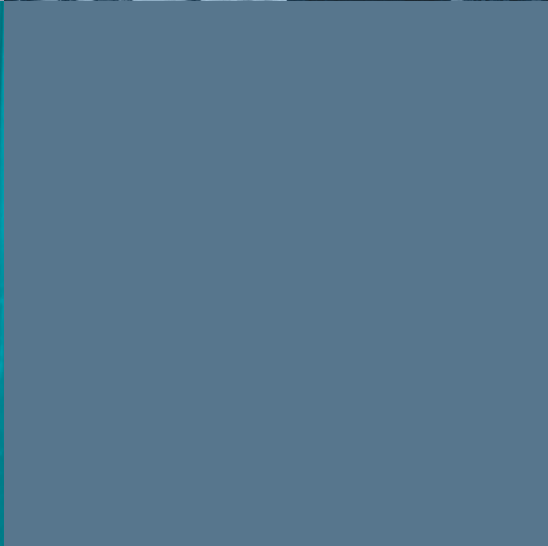
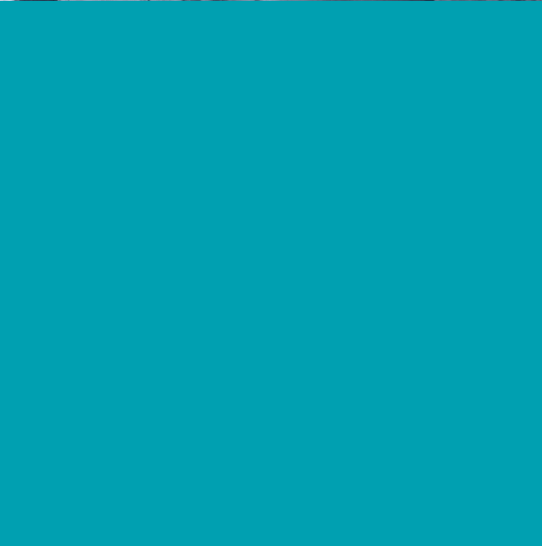
Table 2 - Summary of Projected Completions, Target Registrations and Certification Requirements, Top 15 Red Seal Trades, 2022 to 2026, Canada (Excluding Territories)

Trade	Projected Completions	Certifications Required	Target Registrations
● Construction Electrician	27,438	11,173	11,675
● Sheet Metal Worker	3,982	2,003	2,582
● Trunk and Transport Mechanic	6,385	3,280	4,228
● Carpenter	18,152	10,559	29,441
● Steamfitter/Pipefitter	2,621	1,530	5,634
● Refrigeration and Air Conditioning Mechanic	4,596	2,802	3,257
● Heavy Duty Equipment Technician	4,906	3,106	4,513
● Plumber	9,430	6,017	16,809
● Automotive Service Technician	11,203	9,086	14,920
● Hairstylist	8,378	8,063	16,389
● Industrial Mechanic (Millwright)	6,659	6,574	7,061
● Industrial Electrician	2,603	3,910	5,917
● Painter and Decorator	1,559	2,344	6,555
● Welder	5,046	8,760	17,315
● Cook	6,309	13,091	30,469
<b>Total</b>	<b>119,267</b>	<b>92,298</b>	<b>176,765</b>

Source: Statistics Canada, RAIS 2020, Custom Aggregation; CANTRAQ Prism Economics (2022)

●	<b>At Risk:</b> Certifications Required Exceed Projected Completions
●	<b>Balanced Conditions:</b> Certifications Required In-Line with Projected Completions
●	<b>Ample Supply:</b> Projected Completions Exceed Certifications Required

**Ample Supply** = Difference between certifications required and anticipated completions <0.75%,  
**Balanced** = Difference <1.1% and >= 0.75%, **At Risk** = Difference >1.1%



# 2.0

## Introduction

The objective of this report is to provide apprenticeship stakeholders with an analysis of apprenticeship trends and projections related to training requirements for Red Seal trades across Canada (see Appendix A for a complete listing of Red Seal trades). This report focuses primarily on the 15 largest Red Seal trades in Canada. The impact of the COVID-19 pandemic on current and future apprenticeship training requirements across Canada is also addressed.

The first section of the report provides an analysis of national and provincial trends in apprenticeship registrations and completion rates based on the latest available data (2020) from Statistics Canada's Registered Apprenticeship Information System (RAIS). It also provides a summary of economic and population growth trends, which are among the chief determinants of the demand and supply for trade certification and apprenticeship training in Canada.

RAIS compiles data from provinces and territories based on the number of individuals registered in apprenticeship programs and those who obtain certification. CAF-FCA's report provides statistics and analysis of the trends in new registrations and completions for the 15 largest Red Seal apprenticeable programs across Canada, excluding the territories.

Table 3 - Top 15 Red Seal Programs

	Red Seal Trade	NOC 4
1.	Automotive Service Technician	7321
2.	Carpenter	7271
3.	Construction Electrician	7241
4.	Cook	6322
5.	Hairstylist	6341
6.	Heavy Duty Equipment Technician	7312
7.	Industrial Electrician	7242
8.	Industrial Mechanic (Millwright)	7311
9.	Painter and Decorator	7294
10.	Plumber	7251
11.	Refrigeration and Air Conditioning Mechanic	7313
12.	Sheet Metal Worker	7233
13.	Steamfitter/Pipefitter	7252
14.	Truck and Transport Mechanic	7321
15.	Welder	7237

The second section of this report provides a forward-looking assessment of apprenticeship program registrations, completions and workforce certification requirements for the five-year period, 2022 to 2026.

The projections and analyses are informed by recent provincial economic forecasts and sectoral labour market studies, including the 2022 BuildForce Canada Construction and Maintenance Looking Forward Outlook and provincial macroeconomic and occupational hiring projections produced by Stokes Economic Consulting (SEC). The detailed qualification-based analysis for individual trade programs is based on Prism Economics' CANTRAQ system.



# 3.0

## National Trends in Apprenticeship

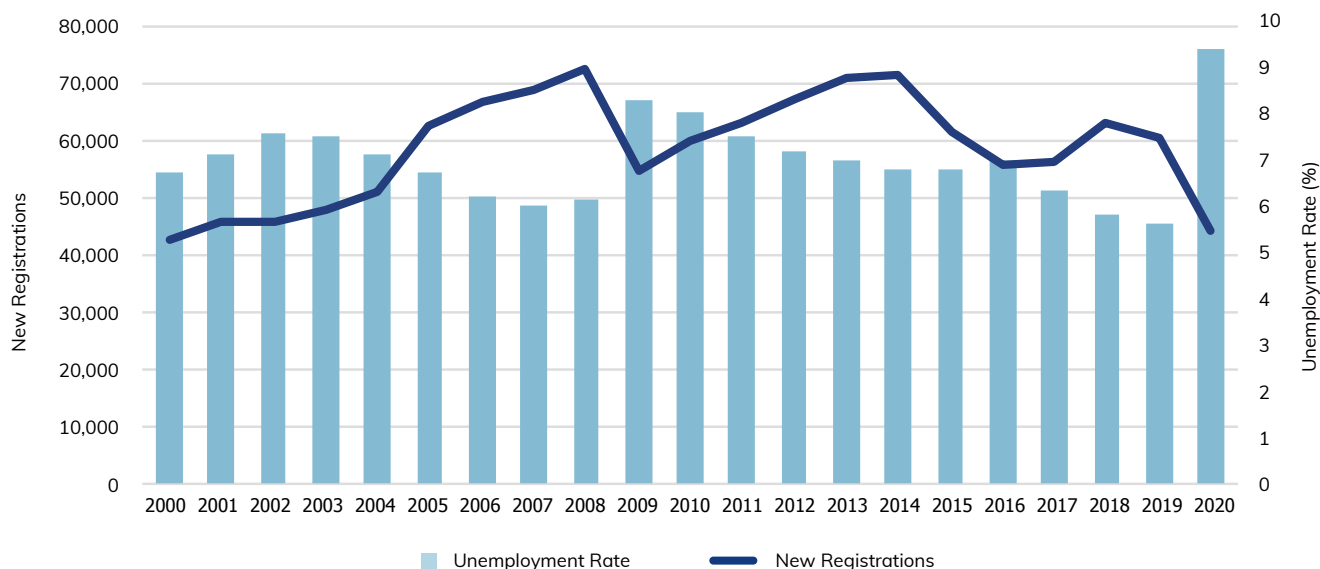
### 3.1 Economic and Population Trends

Economic conditions and fluctuations in employment are among the chief determinants of apprenticeship program registrations and completions. Since employment is a precondition of an apprenticeship, this form of post-secondary education is distinct from college or university and is, typically, extremely sensitive to the ebbs and flows of economic cycles. The correlation is positive with rising employment which in turn translates into higher program registrations and increased completions.<sup>1</sup> Periods of rapid expansion in employment requirements, however, can result in a decrease of available resources to take on and mentor apprentices. Tighter labour market conditions can lower employers' qualification requirements and can dissuade workers from seeking a formal apprenticeship

due to lost income while attending technical training. During these periods of economic growth, employers tend to hire from the pool of available (unemployed) skilled and experienced workers first, rather than take on less-experienced new entrants.

Shifting economic cycles tend to result in significant fluctuations in annual program registrations (See Figure 1). These fluctuations and the long duration (four to five years) of most apprenticeship programs contribute to cyclical mismatches between the demand for skilled workers and the number of qualified certified workers available. This dynamic is evidenced by recent peaks in demand for skilled trades and the emergence of skilled trades shortages, driven by the highs of the resource cycle, followed by a period of rising rates of unemployment and significant declines in new apprentice registrations in many provinces.

Figure 1 - New Registrations in Red Seal Trades and All industry Unemployment, Canada



Source: Statistics Canada, RAIS 2020, Custom Aggregation;  
Statistics Canada, Labour Force Survey

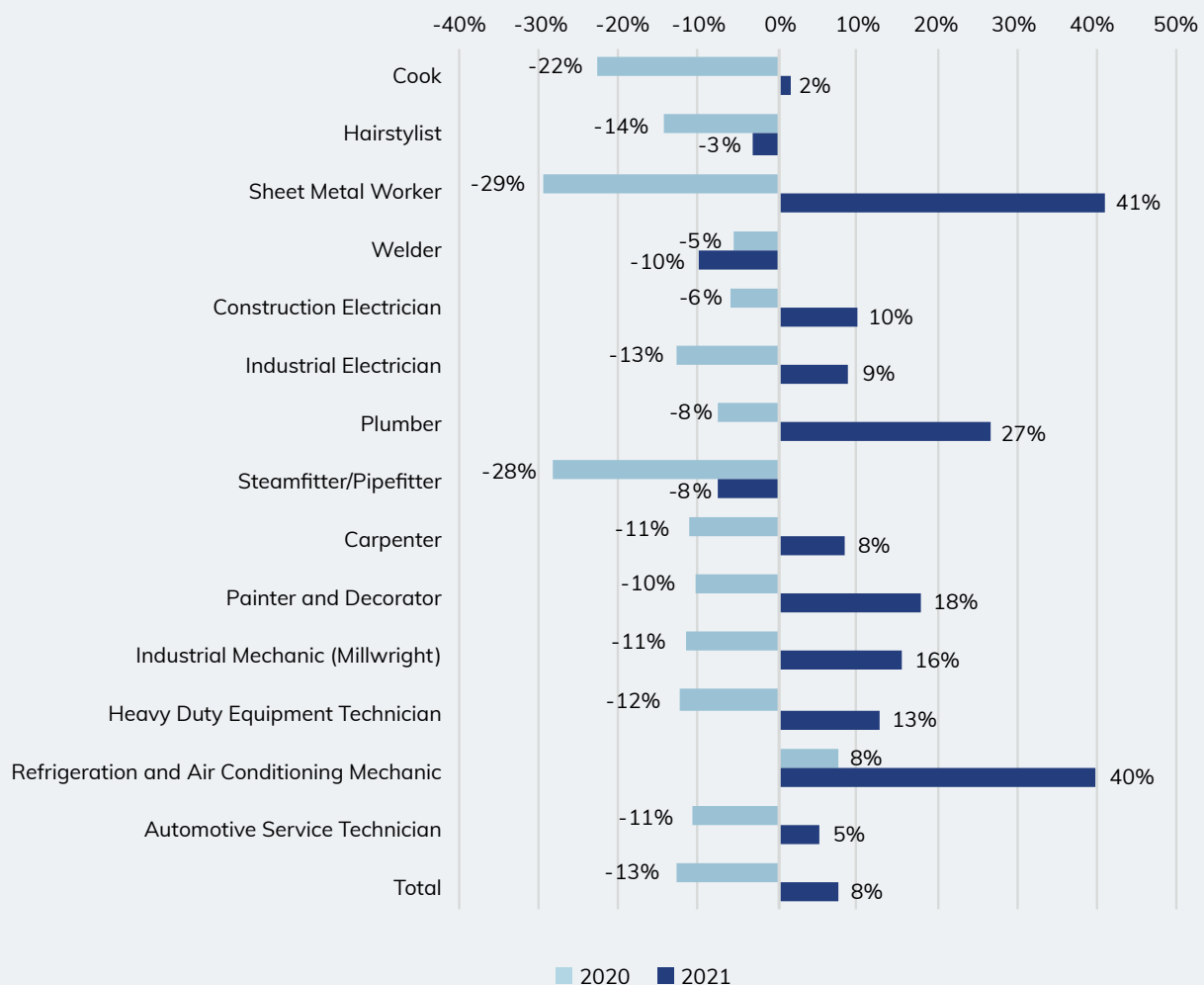


National employment in the 15 largest Red Seal trades declined by 13% in 2020, levels not seen since 2005. There were 142,160 fewer jobs in 2020 compared to 2019. Approximately 4 in 10 lost jobs were concentrated in the cook and hairstylist occupations, due to the disproportionate impact COVID-19 had on the service industry. Employment within these occupations remained sidelined in 2021, as provincial restrictions and mandated lockdowns persisted for periods throughout 2021 and continued to adversely impact service-related occupations. As restrictions ease and the economy continues to reopen

through 2022, employment within the service sector is expected to see notable growth.

Employment increased by 8% in 2021 but remained below pre-pandemic levels. Most trades reported rising levels of employment in 2021, with sheet metal worker, refrigeration and air conditioning mechanic and plumber trades reporting the most notable gains. In addition to hairstylist, welder and steamfitter/pipefitter trades also reported employment losses in 2021, with welder employment falling to record low levels.

Figure 2 - Change (%) in National Employment, Top 15 Red Seal Trades, 2020 and 2021

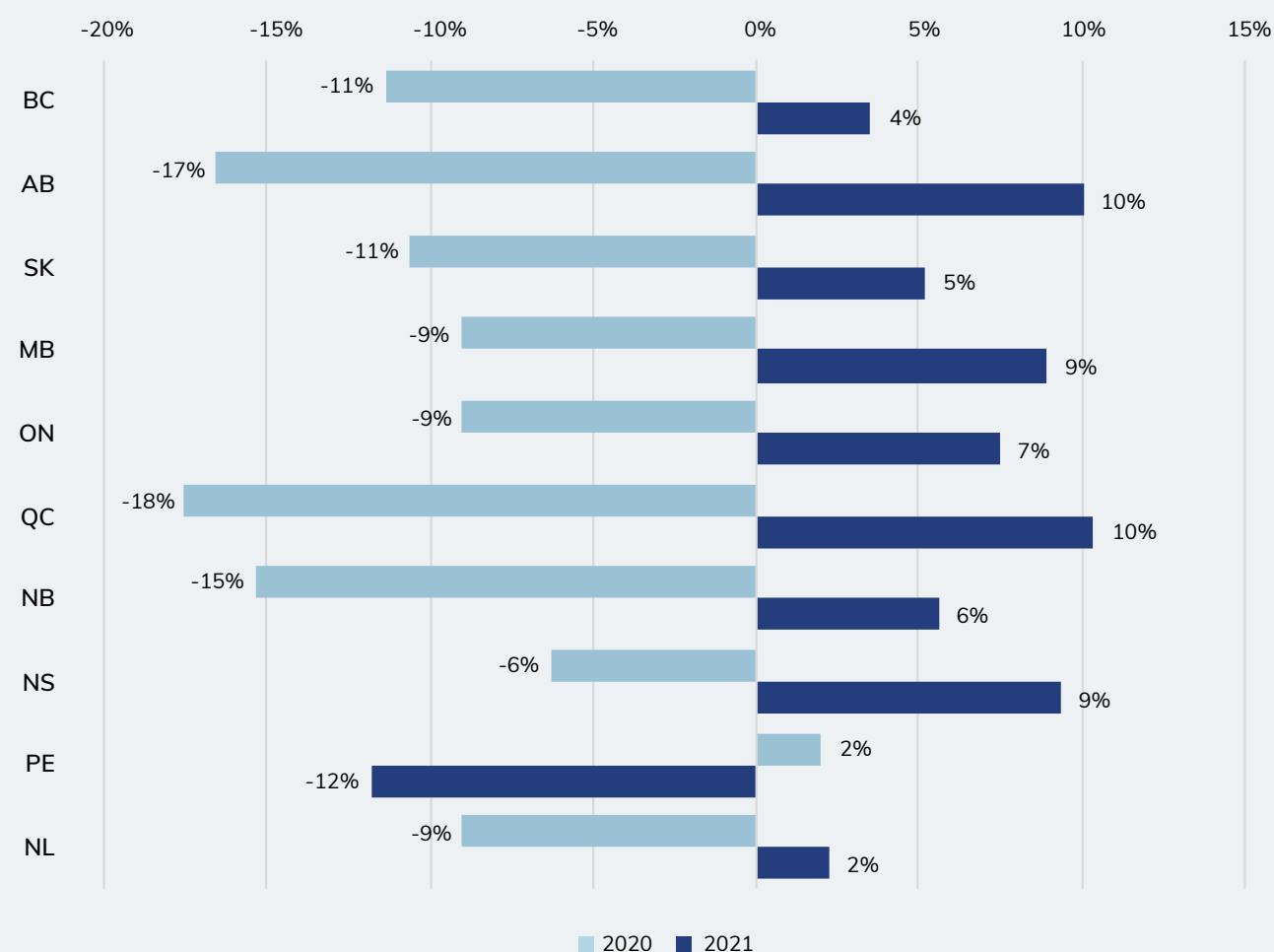


Source: Statistics Canada, Labour Force Survey

Overall trade employment increased in 2021 but the composition of that recovery remains unclear. Through its member-based Apprentices in Canada ePanel online survey, the Canadian Apprenticeship Forum found full-time employment among journeypersons had recovered to pre-pandemic levels in 2021. This was not true for full-time apprentices, where employment in 2021 was reportedly 4% lower than 2020 levels and 14% below pre-pandemic levels. Findings from the ePanel also highlighted the disproportionate impact the pandemic had on level 1 apprentices. More than a third (35%) of this cohort, which had reported zero unemployment prior to the pandemic, reported being unemployed in 2021. This was the highest unemployment rate reported across all levels.

The economic climate surrounding the pandemic also varied significantly across Canada due to variations in provincial mandates and shutdowns. Most of the job losses in the largest Red Seal trades were concentrated in Quebec and Ontario. The largest year-over-year declines in employment, however, were reported in Quebec and Alberta, as illustrated in Figure 3. These provinces also saw the largest recovery in 2021. Prince Edward Island was the only province to report an increase in employment in 2020, followed by a significant decline in 2021.

Figure 3 - Change (%) in Provincial Employment, Top 15 Red Seal Trades, 2020 and 2021



Source: Statistics Canada, Labour Force Survey

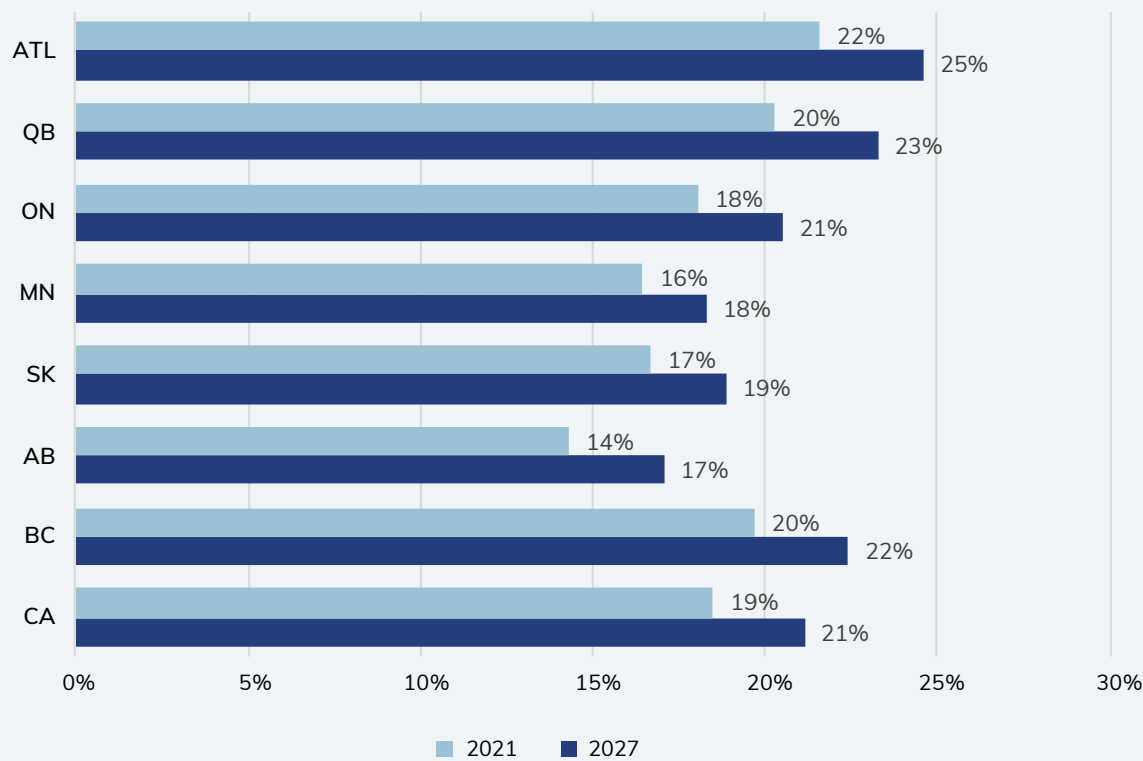
# Retirements will be the primary driver of hiring and training requirements in Canada

Canada’s rapidly aging population has been at the forefront of workforce planning for decades. The 2021 National Census shows the number of persons aged 65 and older has reached 7.0 million, an increase of 18% from 2016, marking the second largest increase in 75 years. This cohort represents nearly 1 in 5 Canadians, an increase of more than 3 percentage points from 2016. The latest data also highlight the aging Canadian labour force, with more than 20% of the working-age population now being between the ages of 55 and 64. This is an all-time high in the history of Canadian censuses and is a prominent factor behind the labour shortages facing some industries across the country. At the same time, the data also reveal that the

number of very young children has been declining due to falling fertility rates over the past five years.

According to BuildForce Canada, the share of Canada’s population aged 65 and over is expected to reach 21% by 2027. This has significant implications for the labour force and recruitment requirements across the country. The age structure differs considerably across Canada. Atlantic Canada, for example, has the oldest population in the country with 22% of the population aged 65 and over, which is expected to reach 25% by 2027. Conversely, Alberta has the youngest age composition with only 14% of the population aged 65 and over.

Figure 4 - Share of the Population (%) aged 65 and over by Province, 2021 and 2027



Source: BuildForce Canada, “Construction and Maintenance Looking Forward”, 2022

## 3.2 Trends in Apprenticeship

The number of apprentices swelled across Canada during the mid-to late-2000s, driven by a prolonged period of growth in the natural resource sectors. The number of registered apprentices in the 15 largest Red Seal trades peaked in 2008 and 2014 during heightened economic expansions. Following the collapse in commodity prices in 2015, new registrations trended downward while employment levels remained relatively flat over the same period. New registrations saw a modest recovery in 2018 but continued a downward trend in 2019. Despite record levels of new registrations in Ontario and Quebec in 2019, total new registrations were trending downward leading into the pandemic due to significant declines in registrations in Alberta, Newfoundland and Labrador and Manitoba.

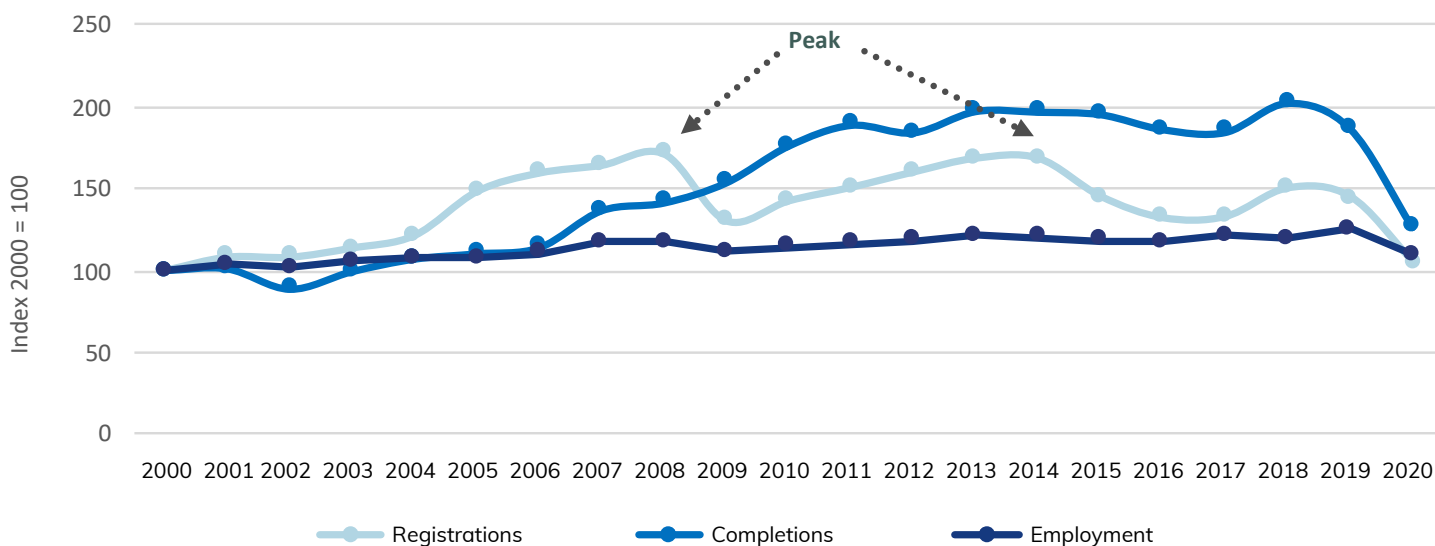
The pandemic brought significant challenges to Canada's apprenticeship system. Despite a shift to remote training, where possible, and other accommodations made by colleges, unions and provincial/territorial apprenticeship offices, the pandemic created many obstacles to the delivery of training, testing and certification. Adhering to health and safety protocols resulted in fewer apprentices

being able to write their certification and the level exams that are required in some jurisdictions. Many apprentices also experienced technical training delays due to reduced class sizes. There were apprentices that were laid off during the pandemic and were unable to gain work hours, which further delayed their program completion.

These impacts contributed to significant declines in new registrations and completions in 2020. New registrations in Red Seal trade programs fell by 27% to approximately 44,100, the lowest number of annual registrations since 2000. The number of program completions saw a steeper decline, falling by 31% to approximately 20,700 completions, retreating to levels not seen in more than a decade. This decline was not as pronounced as preliminary estimates had suggested, due to a notable recovery in new registrations in the fourth quarter of 2020. The 15 largest Red Seal trades accounted for 86% of the decline in Red Seal registrations and 78% of the decline in program completions in 2020.

Figure 5 shows an index of historic trends in new registrations, completions and trades employment as well as the impact of COVID-19 (Index 2000=100).

Figure 5 - New Registrations, Completions and Employment in Top 15 Red Seal Trades, Canada, 2000 to 2020



Source: Statistics Canada, RAIS 2020, Custom Aggregation, Top 15 Red Seal Trades; LFS

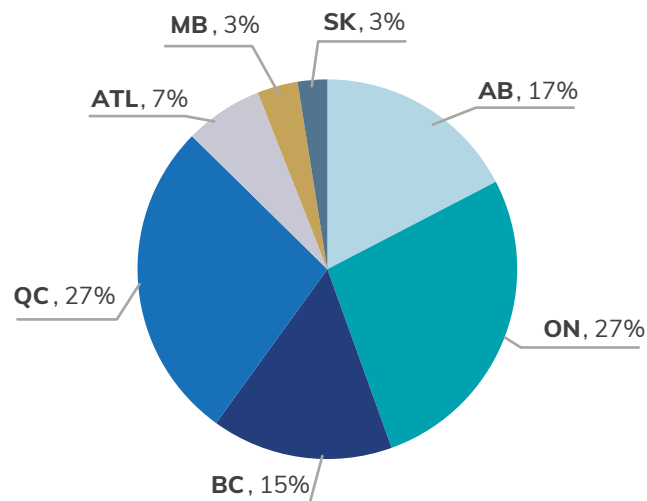
The annual decline and potential permanent loss of existing apprentices already in the system pose significant risks to the availability of certified tradespeople in future years. Targeted supports and outreach may help current apprentices get back on track and complete their programs and could also lead to improved completion and certification rates.



### 3.3 Provincial Trends

Quebec reported record levels of total registrations in 2020 and accounted for the largest number of apprentices registered in a Red Seal trade in Canada. Ontario followed closely, despite the province reporting the largest year-over-year decline in new registrations in 2020. These two provinces account for more than half (54%) of all registered Red Seal apprentices in Canada. Alberta's share of total registrants continued to decline in 2020, bringing the province's share of total registrants to 17%. The share of registrations in the 15 largest Red Seal programs follows a similar distribution trend.

Figure 6 - Distribution of Total Registrations by Province, Total Red Seal Trades, 2020, Canada (Excluding Territories)



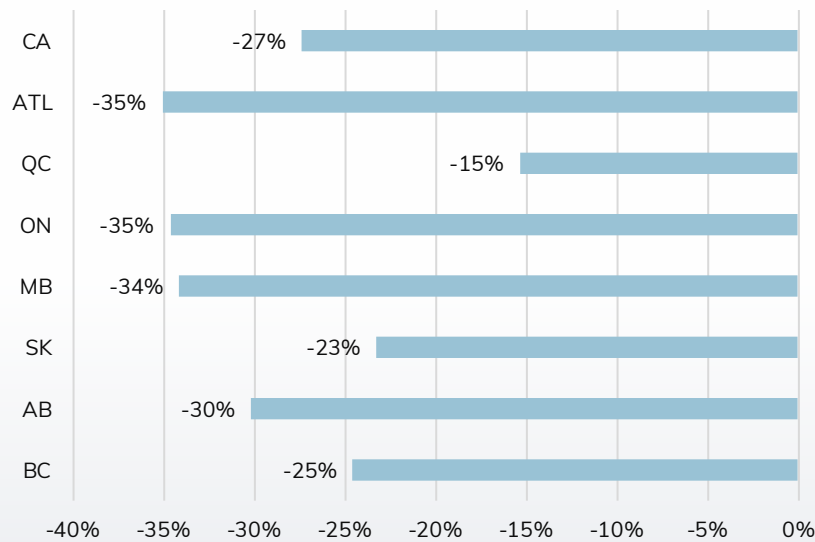
Source: Statistics Canada, RAIS 2020, Custom Aggregation



The impact of COVID-19 on apprenticeship training programs was felt across Canada. New registrations in most provinces retreated to historically low levels, with Newfoundland and Labrador reporting the lowest number of new registrations since 1992.

More than half of the decline in new registrations occurred in Ontario and Alberta. Atlantic Canada and Ontario reported the largest year-over-year declines in new registrations, declining by 35% from 2019 levels, as illustrated in Figure 7. While Newfoundland and Labrador and New Brunswick experienced significant declines in registrations, the rest of Atlantic Canada saw somewhat tempered declines.

Figure 7 - Change (%) in New Registrations by Province, Total Red Seal Trades, 2019 to 2020, Canada (Excluding Territories)



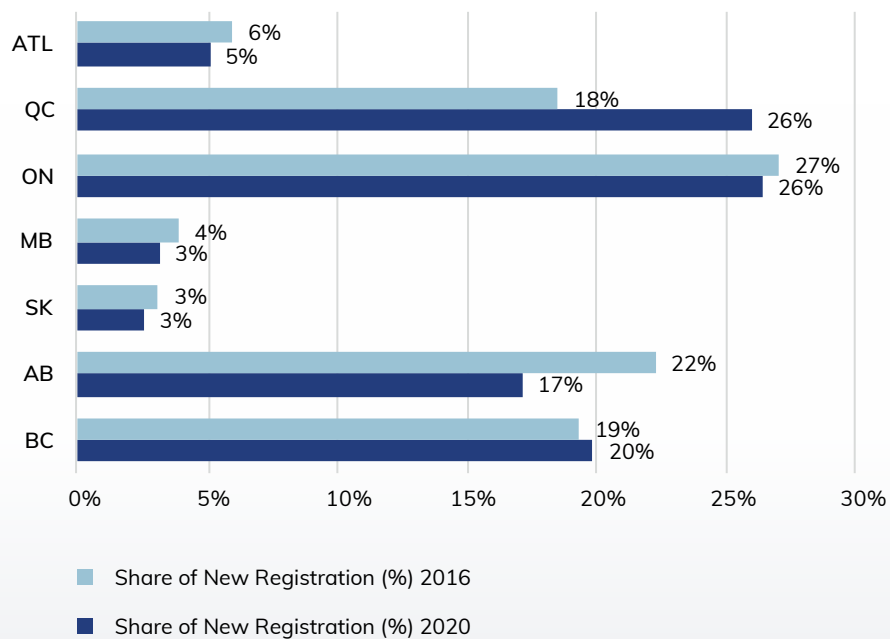
Source: Statistics Canada, RAIS 2020, Custom Aggregation





Figure 8 illustrates the change in the share of new registrations by province over the five-year period from 2016 to 2020. Alberta's share of new registrations fell from 22% in 2016 to 17% in 2020. Over the same period, Quebec's share rose from 18% to 26%. The distribution of new registrants across the rest of Canada has remained relatively constant over this five-year period.

Figure 8 - Distribution (%) of New Registrations by Province, Total Red Seal Trades, 2016 to 2020, Canada (Excluding Territories)



Source: Statistics Canada, RAIS 2020, Custom Aggregation



## 3.4 Trade Trends

### New Registrations

From 2019 to 2020, the number of new registrations fell in all trade programs, with four trades dropping by at least 40%, namely cook, welder, heavy duty equipment technician and hairstylist. The cook trade program saw the steepest year-over-year decline in new registrations, falling by 42% from 2019 levels, in line with the sharp decline in accommodation and food services employment.

New registrations for multiple trades began to rise in 2019, tempering the declines in 2020. New registrants declined to a lesser degree for carpenter, painter and decorator and plumber trade programs, where registrations fell under 20% compared with 2019 levels. Employment in these trades is heavily concentrated in residential construction, which was less affected by mandated lockdowns.

Table 4 - New Apprenticeship Registrations by Trade, 2016 to 2020, Canada (Excluding Territories)

Red Seal Trades	2016	2017	2018	2019	2020	% Change (2019-2020)
Automotive Service Technician	4,142	4,340	4,635	4,464	2,955	-34%
Carpenter	7,082	7,226	8,604	9,054	7,629	-16%
Construction Electrician	8,581	8,406	8,641	8,817	6,618	-25%
Cook	3,227	2,940	3,622	2,934	1,713	-42%
Hairstylist	3,227	3,212	3,291	2,913	1,737	-40%
Heavy Duty Equipment Technician	1,351	1,707	2,206	2,169	1,281	-41%
Industrial Electrician	1,262	1,365	1,944	1,302	975	-25%
Industrial Mechanic (Millwright)	1,548	1,811	2,134	2,175	1,419	-35%
Painter and Decorator	672	666	655	822	729	-11%
Plumber	3,420	3,190	3,503	3,477	3,294	-5%
Refrigeration and Air Conditioning Mechanic	1,484	1,434	1,705	1,797	1,398	-22%
Sheet Metal Worker	1,342	1,376	1,709	1,638	1,185	-28%
Steamfitter/Pipefitter	2,169	1,840	1,981	1,845	1,227	-33%
Truck and Transport Mechanic	1,599	1,800	1,990	1,938	1,257	-35%
Welder	2,503	2,550	2,989	2,571	1,515	-41%
Other Red Seal Trades	12,490	12,606	13,657	12,798	9,181	-28%
<b>Total</b>	<b>56,099</b>	<b>56,469</b>	<b>63,266</b>	<b>60,714</b>	<b>44,113</b>	<b>-27%</b>

Source: Statistics Canada, RAIS 2020, Custom Aggregation

## 3.5 Outcome Trends

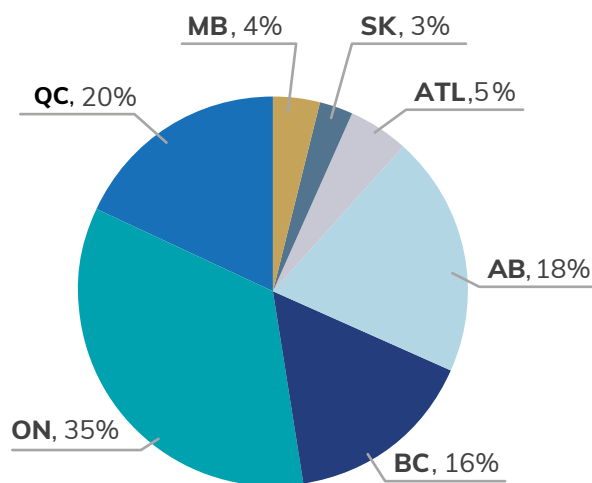
This section provides an overview of trends in apprentice completions and the rates of apprentice completions.

### Program Completions

The number of apprentices completing programs and awarded a Certificate of Qualification (CofQ) tends to be much less volatile compared to new registrations. Although the proportion of apprentices going on to complete their respective programs remains generally stable, the time taken to complete and the rate of program completion can be impacted by overall labour market conditions. For example, it may take longer to complete an apprenticeship program if an apprentice experiences a layoff during an economic downturn. The COVID-19 pandemic exacerbated these challenges. Some apprentices experienced lay-offs, some lost their jobs and others delayed their technical training because they did not want to do the theoretical portion online. During the early months of the pandemic, upper-level apprentices also experienced delays writing their CofQ examination. Physical distancing measures meant that not as many apprentices could take the exam at once.

Ontario continues to account for the largest number of newly certified journeypersons (35%) within Red Seal trades in Canada, followed by Quebec which accounted for 20% of newly certified journeypersons in 2020. As Figure 9 illustrates, Ontario and Quebec account for more than half of the 20,700 newly certified journeypersons in Canada. Based on the trend in new registrations, the distribution of completions will likely shift over the near-term to reflect the rising share of program completions in Quebec and the continuing decline in Alberta.

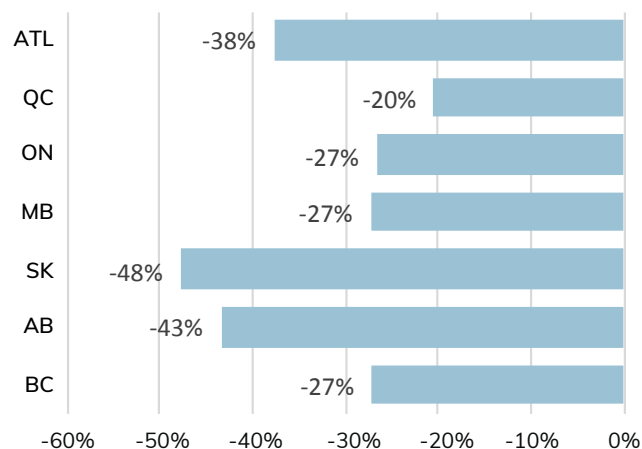
Figure 9 - Distribution of Red Seal Completions by Province, 2020, Canada (Excluding Territories)



Source: Statistics Canada, RAIS 2020, Custom Aggregation

The decline in program completions was evident across Canada and the degree of decline varied by province. In 2020, consistent with the trend in new registrations, most of the decline in program completions (59%) was seen in Ontario and Alberta. Saskatchewan reported the largest year-over-year decline in completions (-48%), followed closely by Alberta (-43%), as illustrated in Figure 10.

Figure 10 - Change (%) in Red Seal Program Completions, 2019 to 2020, Canada (Excluding Territories)

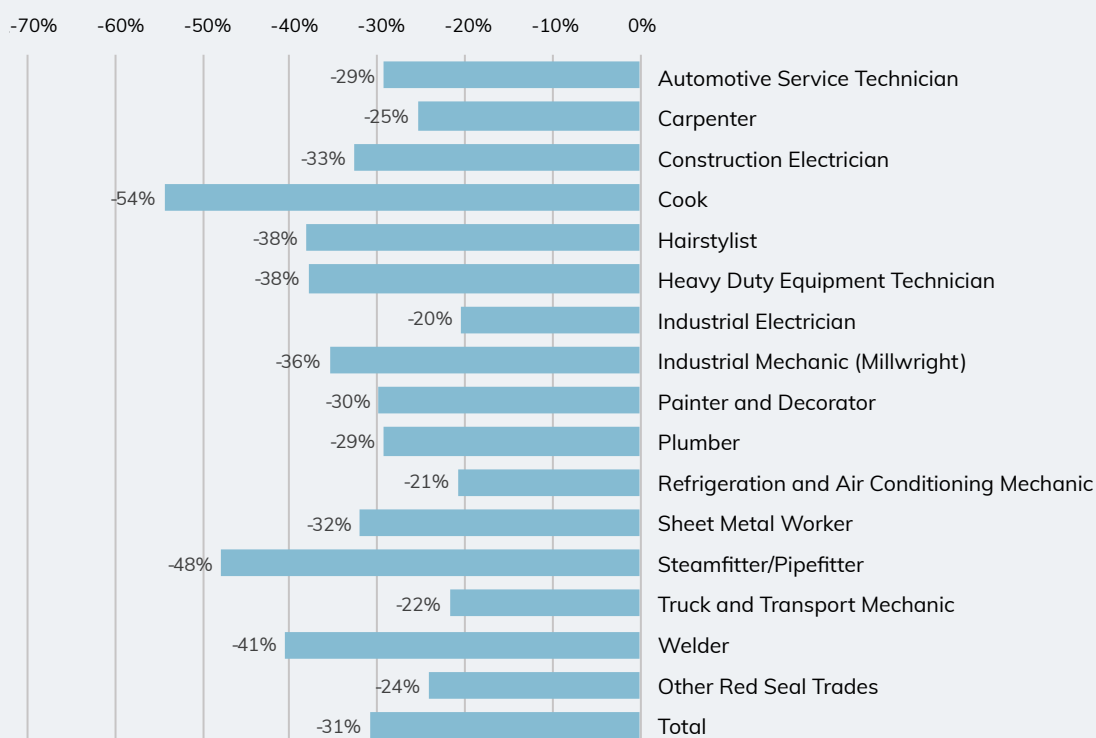


Source: Statistics Canada, RAIS 2020, Custom Aggregation

As with new registrations, the number of program completions declined across Red Seal trades in 2020. Figure 11 illustrates the year-over-year change in completions by Red Seal trade. Cook and steamfitter/pipefitter trade programs saw the largest decline, falling by 54% and 48% respectively. These trade occupations reported significant declines in employment in 2020, resulting in a loss of apprenticeable hours which

potentially delayed certification for many apprentices. Completions in the welder program (which also reported significant declines in 2020) and the steamfitter/pipefitter program declined significantly over the five-year period leading into the pandemic, as new registrations in these trades were heavily impacted by the decline in the natural resource sector in Alberta.

Figure 11 - Change (%) in Red Seal Program Completions, 2019 to 2020, Canada (Excluding Territories)



Source: Statistics Canada, RAIS 2020, Custom Aggregation

## Completion Rates

The completion rate represents the percentage of apprentices that successfully complete their apprenticeship programs and receive a Certificate of Qualification (CofQ). Calculating completion rates is useful for tracking outcomes for apprentices. The role that apprenticeship and trade certification plays in the labour market depends on many factors, including regulations and market conditions. Although, historically, completion rates have remained near 50% in Canada, these vary by trade and by region.<sup>2</sup> Several factors impact completion rates:

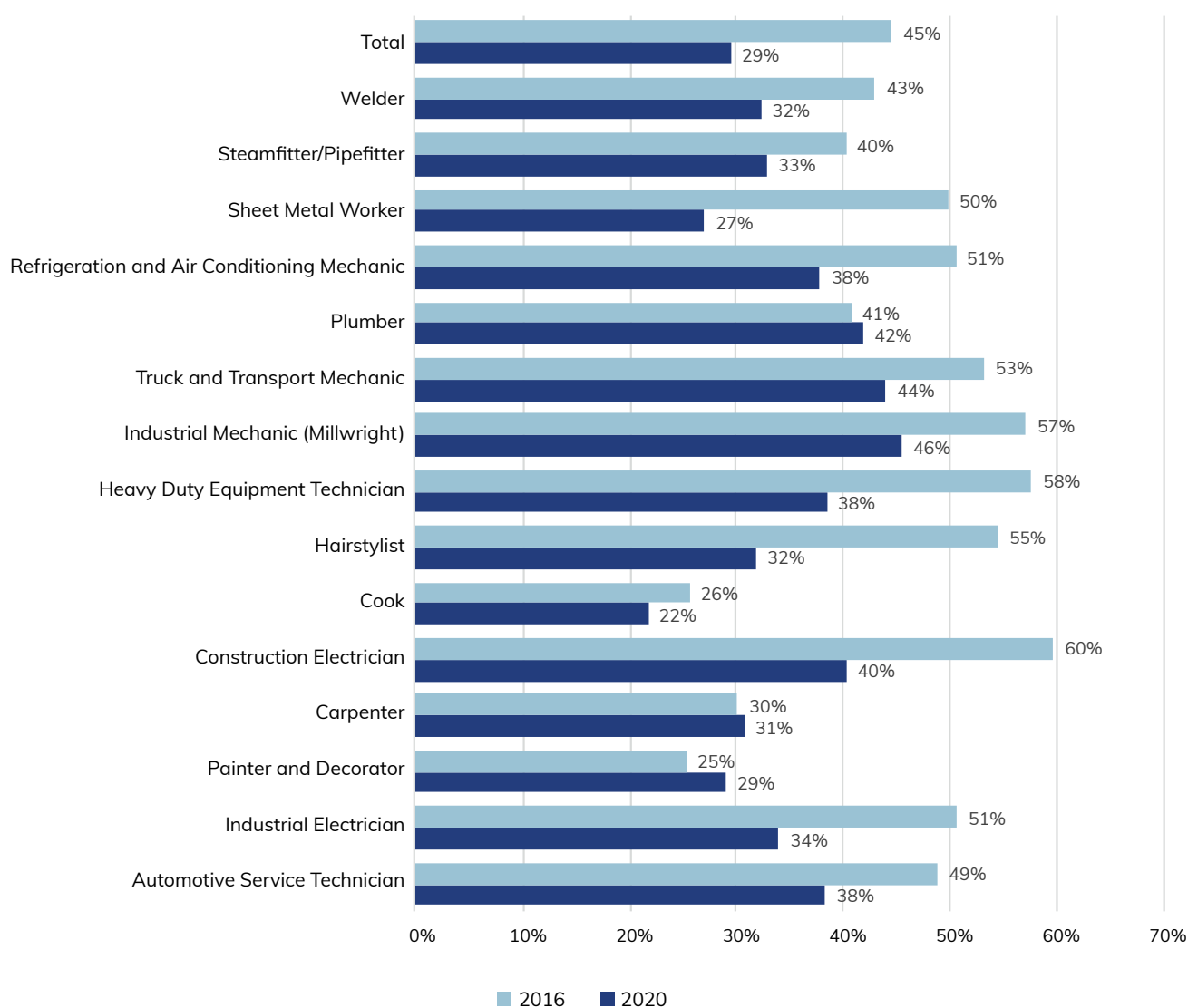
- **Compulsory Certification:** In order to work in a compulsory trade, a worker must be a registered apprentice who is progressing towards certification in the trade or a certified journeyperson.
- **Income:** According to the National Apprenticeship Survey, completion is associated with higher pay after certification.<sup>3</sup>
- **Employer Requirements:** Industrial sector employers tend to demand a CofQ.
- **Sectoral Differences:** Individuals in service sector trades may use entry into an apprenticeship to gain knowledge and “get a foot in the door”. There tends to be less of an incentive for completion because the employer is often satisfied with a Level 2 apprentice.
- **Economic Conditions:** Economic conditions impact an apprentice’s ability to progress. If they are laid off, it is difficult for them to earn work hours towards their apprenticeship. In tight labour markets, employers may not want to release their apprentices to attend technical training.
- **Technical Training:** Some apprentices feel they cannot afford to return to technical training where they would receive Employment Insurance instead of their full wages. These apprentices stay at their current level and do not progress in their apprenticeship.



The CANTRAQ model calculates the completion rate based on program duration, while also considering the additional time often necessary to complete training and obtain a CofQ. Figure 12 outlines the percentage change in completion rates for Red Seal trades in the 5-year period from 2016 to 2020. In 2020, barriers imposed by the pandemic significantly impacted the rate of apprentice completion. That year, 29% of apprentices obtained a CofQ, compared to 45% in 2016.

In 2020, completion rates ranged from a high of 46% for industrial mechanic (millwright) apprentices to a low of 29% for cook apprentices. Cook, painter and decorator and carpenter were the only trade programs to see minimal change in the rate of completion, which can likely be attributed to the consistently low share of program completions that has persisted historically in these voluntary trades.

Figure 12 - Average Completion Rates (%) of Red Seal Trades, 2016 and 2020



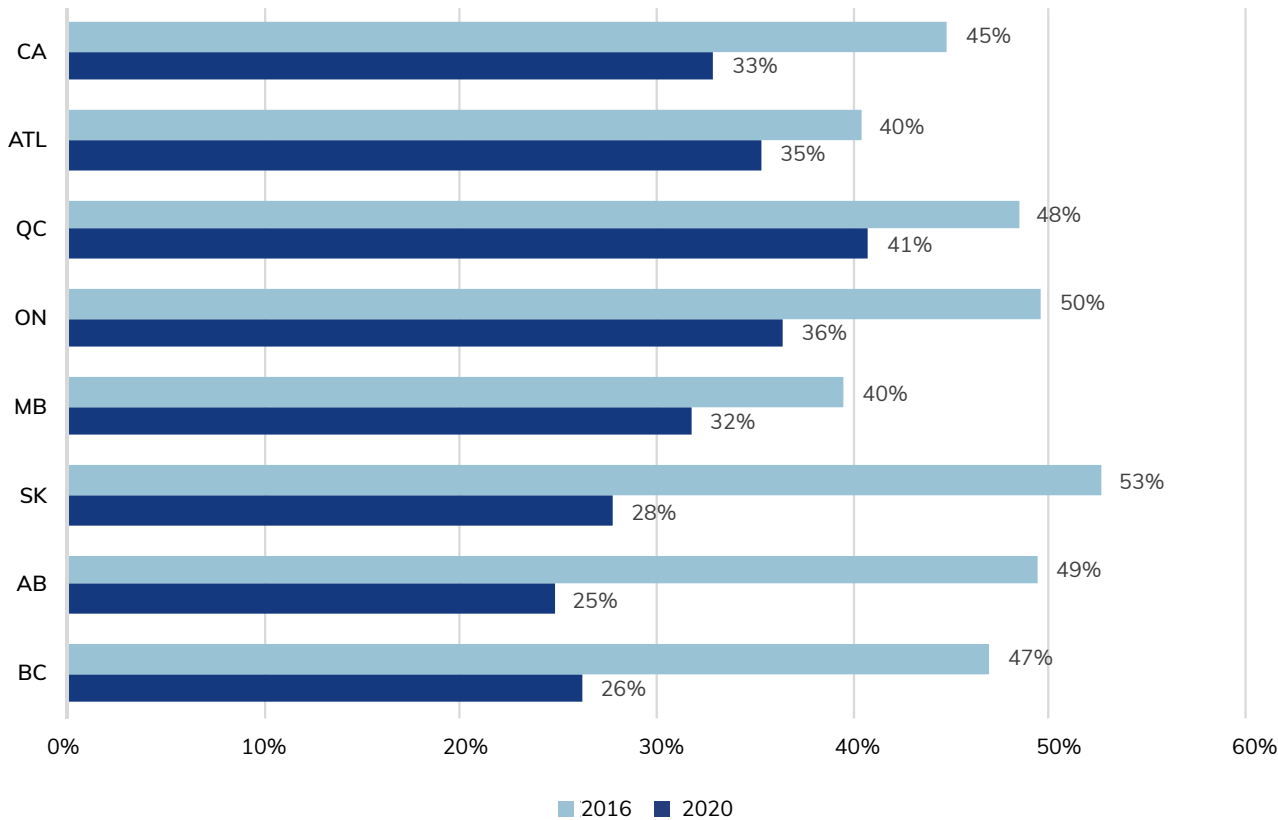
Source: Statistics Canada, RAIS 2020, Custom Aggregation; CANTRAQ Prism Economics (2022)



Figure 13 illustrates the changes (%) in the completion rates for Red Seal trades by province during the five-year period from 2016 to 2020. There is traditionally less variation in the rates of program completion among provinces. In 2020, Quebec reported a provincial completion rate of 41%, the highest rate among provinces. Though notably below the province's 2016 level, this is

in line with the rate of completion in more recent years. Saskatchewan, with traditionally the highest rate of completion in Canada, was among the provinces with lowest rates of completion in 2020. Alberta and British Columbia were also among the provinces with the lowest rates of completion in 2020.

Figure 13 - Average Completion Rates (%) of Red Seal Trades by Province, 2016 and 2020

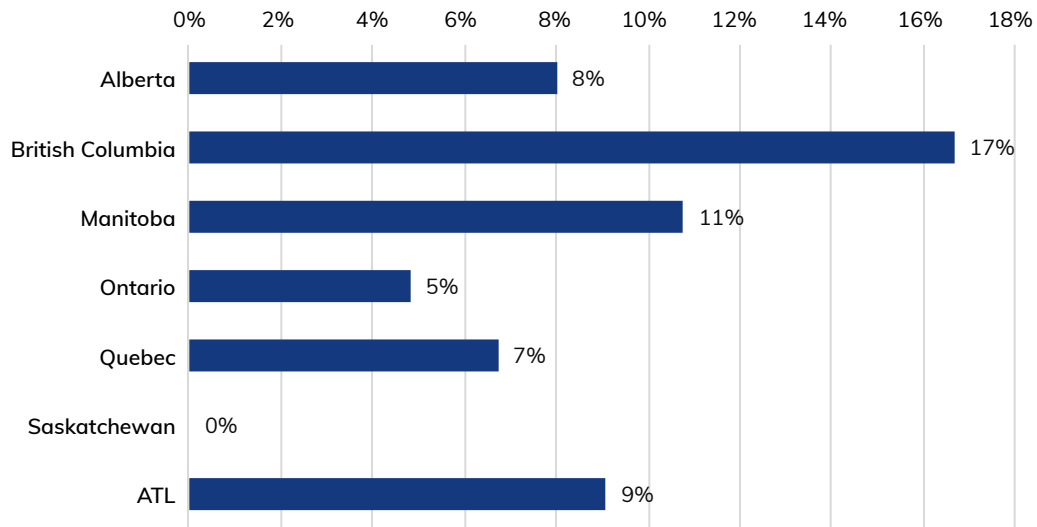


Source: Statistics Canada, RAIS 2020,  
Custom Aggregation; CANTRAQ  
Prism Economics (2022)

## Apprentice Attrition

In 2020, approximately 17,060 apprentices registered in the top 15 Red Seal trades chose to discontinue their program, representing 8% of all registered apprentices. This share was significantly higher in British Columbia, as discontinuers accounted for 17% of the total registrants in the province. Contrary to previous assumptions, based on the data there was no apparent increase in the share of discontinuers in 2020 due to COVID-19.

Figure 14 – Discontinuers as a Share of Total Registrants by Province, 2020



Source: Statistics Canada, RAIS 2020, Custom Aggregation.

Note: Saskatchewan did not report having any discontinuers in 2020.



# 4.0

## Certification Requirements and Completions: A National Outlook

This section provides a forward-looking assessment of apprenticeship program registrations, completions and workforce certification requirements for the five-year period, 2022 to 2026.

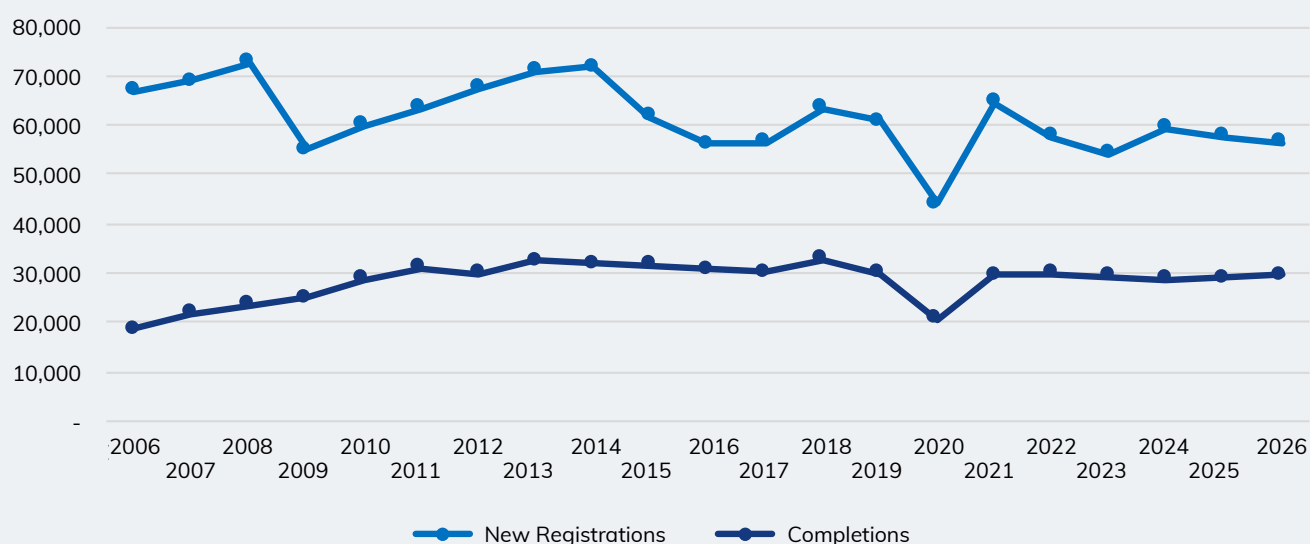
Certification requirements for skilled trades and estimates of the required number of new journeypersons are determined by many inter-related factors. The supply of new certified workers is met by either apprenticeship completers or trade qualifiers. Completers are those individuals who complete an apprenticeship program and who are awarded a CofQ. Trade qualifiers are those workers who have significant work experience and who, if they pass the CofQ exam, are awarded certification. Although trade qualifiers contribute positively to the supply of certified workers, a significant proportion hold multiple trade certifications or are existing skilled workers who move between provinces or countries. Consequently, these workers do not represent an addition of skills to the workforce or an increase in demand for apprenticeship training. The analysis in this report focuses solely on apprenticeship completers and any estimates of new journeypersons are based solely on projections of new registrations and completions.

Figure 15 outlines projections of registrations based on anticipated changes in employment and age demographics, as well as completions, assuming recent trends in completion rates for individual trades and provinces remain consistent.

The economic and employment growth outlook suggests new registrations in Red Seal programs will see a recovery in 2021 before moderating in 2022 and fluctuating thereafter, based on economic demands over the near-term, averaging 57,070 new registrants per year between 2022 and 2026. Completions are anticipated to see a near-full recovery in 2021 as many employers and training facilities returned to in-person training delivery and level and certification exams resumed. It is important to note that although there is an estimated recovery at the aggregate level, according to preliminary provincial apprenticeship office data, the presence and degree of such a recovery has varied for individual trades and provinces.

The stark decline in new registrations in 2020 will have an impact on future supply. As these apprentices progress through their programs, completions are estimated to decline in 2023 and 2024 and remain subdued in 2025.

Figure 15 - Trends in Apprenticeship Program Registrations and Completions, Total Red Seal Trades, 2006 to 2026, Canada (Excluding Territories)



Source: Statistics Canada, RAIS 2020, Custom Aggregation; CANTRAQ Prism Economics (2022)

## 4.1 Workforce Certification Requirements

The skilled trades workforce is composed of certified and non-certified workers. The proportion varies across trades, sectors and provinces due, in part, to differences in regulations and industry requirements. The central question posed in the assessment of workforce certification requirements is: How many newly certified journeypersons are required to maintain the current share of certified workers for a skilled trade in the workforce? Since a CofQ is held by individuals as they move between jobs and progress in their careers, the analysis must also consider certification rates of related trades and occupations. A related trade or occupation is an occupation that requires or benefits from the skills and qualifications represented by a CofQ, but one that does not have an apprenticeship program that is attached to it. Most often, these related occupations are managerial or supervisory positions. The total trade certification and training requirement is the sum of journeypersons required to maintain stable certification rates in both the principal and related trades and occupations. Future hiring requirements are driven by the following variables:

- **Principal Employment Demand:** Changes in employment for the apprenticeable (or principal) trade.

- **Principal Replacement Demand:** Labour force retirements and deaths of individuals employed in the apprenticeable (or principal) trade.
- **Related Employment Demand:** Changes in employment for related trades and occupations.
- **Related Replacement Demand:** Retirements of certified workers in related trades and occupations.

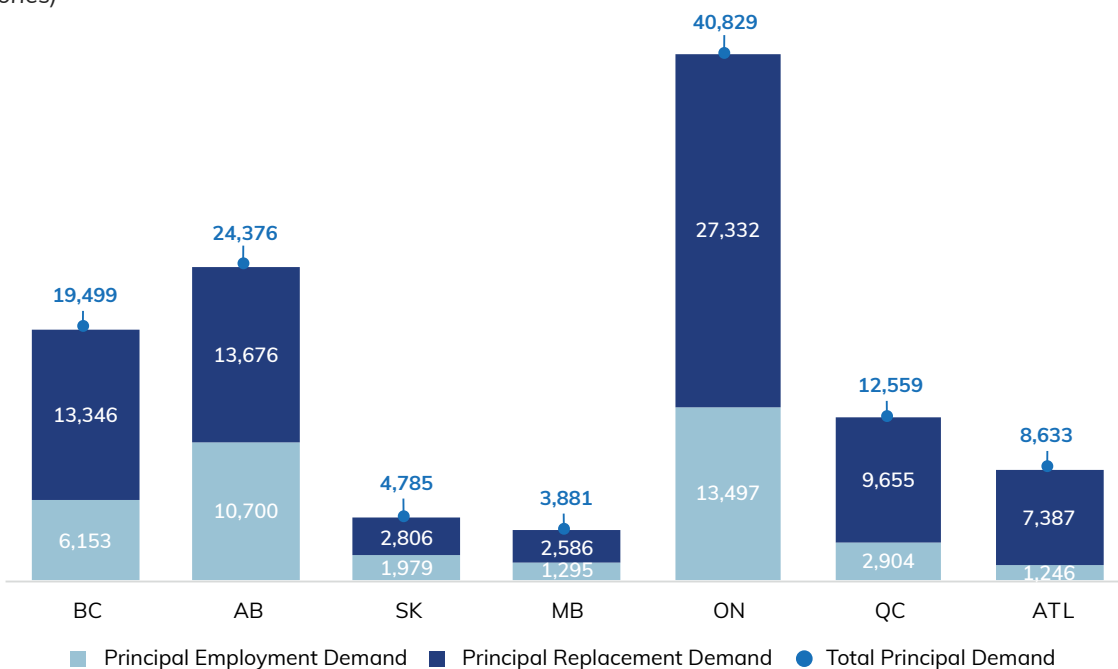
In the next five years, an estimated 122,380 newly certified journeypersons will be required to maintain certification requirements for skilled workers in Red Seal trades. Of that total, approximately 92,300 newly certified journeypersons are required to sustain current certification rates in the 15 largest Red Seal trades. Approximately two thirds (67%) of the total certification requirement is the result of anticipated age-related exits of 81,990 certified workers from the workforce through retirement or death.

Figure 16 outlines the provincial certification requirements for principal apprenticeable trades. Ontario is projected to continue to lead demand for journeypersons over the next five years, requiring just over 40,800 newly certified journeypersons working directly in an apprenticeable Red Seal trade. Alberta and British Columbia follow, requiring an estimated 24,300 and 19,500 new journeypersons respectively. Across provinces, certification requirements will be driven primarily by the need to replace retiring workers, resulting from a slowdown in economic activity

following the recovery in 2021. Due to the older age demographic of the Atlantic region, replacement of retiring workers accounts for a significantly larger share of demand requirements compared to the rest of Canada.

Significant employment expansion in Nova Scotia due to major infrastructure projects over the near-term will also contribute to increased demand requirements.

Figure 16 - Principal Certification Requirements for Red Seal Trades by Province, 2022 to 2026, Canada (Excluding Territories)

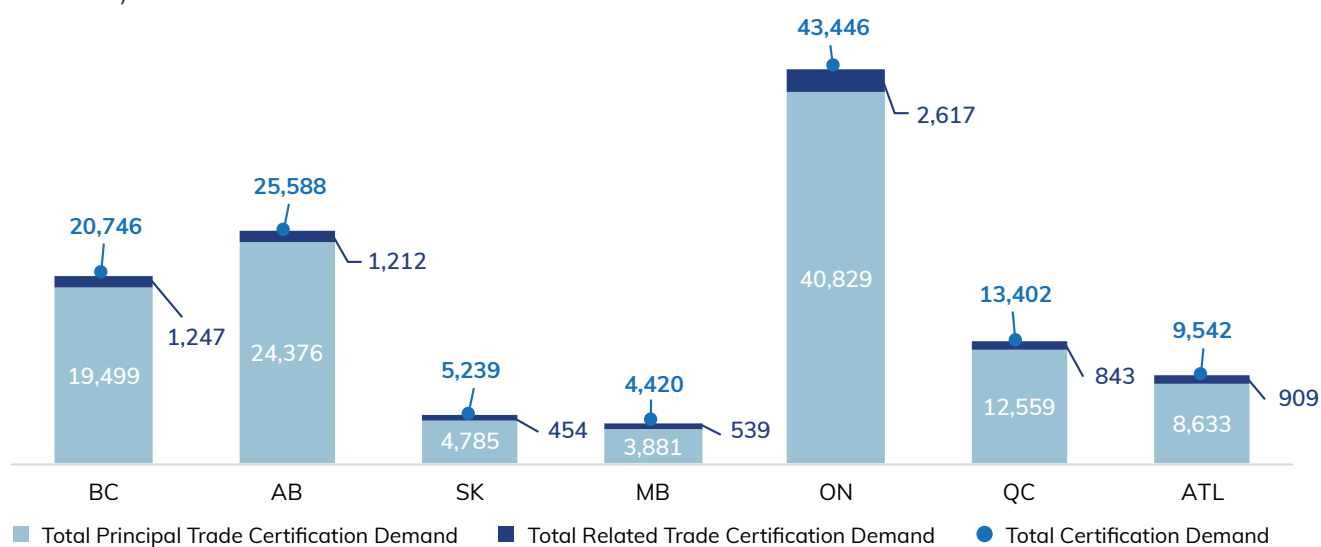


Source: Statistics Canada, RAIS 2020, Custom Aggregation; CANTRAQ Prism Economics (2022)

An estimated additional 7,800 new journeypersons are projected to be required to meet the hiring requirements presented by related trades and occupations. These related occupations tend to draw from the existing pool of certified workers and hire these individuals as managers,

supervisors and contractors. Considering both principal and related certification requirements, over the next five years 92,300 new journeypersons will be required for the top 15 Red Seal trades, and more than 30,000 will be required in the remaining Red Seal trades in Canada.

Figure 17 - Total Certification Requirements for Red Seal Trades by Province, 2022 to 2026, Canada (Excluding Territories)



Source: Statistics Canada, RAIS 2020, Custom Aggregation; CANTRAQ Prism Economics (2022)

Table 5 provides a breakdown of national certification requirements by Red Seal trade, including principal employment and replacement demand (retirements and deaths), and related certification demand. Trades concentrated in the service sector, including cook and hairstylist, experienced the largest employment declines due to COVID-19. Although employment within this sector remained sidelined in 2021, it is expected to experience the strongest recovery as restrictions continue to be lifted in

2022. Employment demand for newly certified carpenters is anticipated to slow down over the outlook period as housing starts moderate following a peak in activity in 2022. Steamfitter/pipefitter demand is also anticipated to lessen over the outlook period due to an anticipated reduction in non-residential construction in Alberta in 2023. Continuing to recruit and train apprentices, even during periods of slower growth, will be crucial to keep pace with replacement demand over the near-term.

Table 5 - Total Certification Requirements for Red Seal Trades, 2022 to 2026, Canada (Excluding Territories)

Trade	Employment Certification Demand (Principal trade)	Replacement Certification Demand (Principal trade)	Related Certification Demand	Total Certification Demand
Automotive Service Technician	3,836	4,998	252	9,086
Carpenter	-914	10,822	651	10,559
Construction Electrician	3,880	6,909	384	11,173
Cook	8,727	3,285	1,079	13,091
Hairstylist	3,777	2,573	1,713	8,063
Heavy Duty Equipment Technician	1,055	1,931	120	3,106
Industrial Electrician	1,203	2,586	121	3,910
Industrial Mechanic (Millwright)	1,078	5,348	148	6,574
Painter and Decorator	639	1,657	48	2,344
Plumber	2,321	3,429	267	6,017
Refrigeration and AC Mechanic	1,057	1,576	169	2,802
Sheet Metal Worker	698	1,208	97	2,003
Steamfitter/Pipefitter	-99	1,533	96	1,530
Truck and Transport Mechanic	1,319	1,865	96	3,280
Welder	3,286	5,301	173	8,760
Other Red Seal Trades	5,911	21,767	2,407	30,085
<b>Total</b>	<b>37,774</b>	<b>76,788</b>	<b>7,821</b>	<b>122,383</b>

Source: Statistics Canada, RAIS 2020, Custom Aggregation; CANTRAQ Prism Economics (2022)

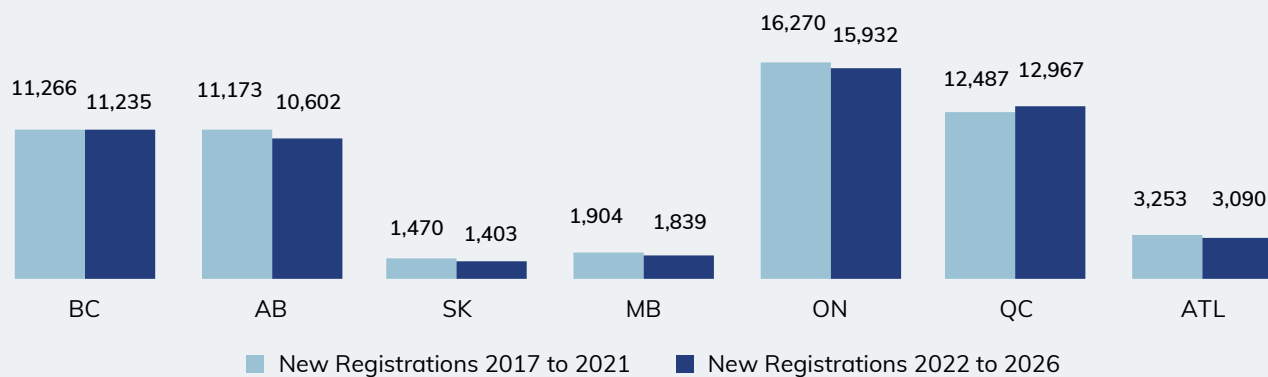


## 4.2 Future Supply of New Journeypersons

Over the next five years, an estimated 285,340 apprentices are forecast to register in a Red Seal trade in Canada. Of that total, 225,740 apprentices (79%) will be concentrated in the top 15 Red Seal trades. This projection is comparable to the number of new registrations recorded in Red Seal trades over the previous five-year period, 2017-2021. Despite a significant downturn in new registrations in 2020, Canada reported elevated levels of new registrations in 2018 and is estimated to reach higher levels once again in 2021 as the economy recovers. Following 2021, new registrations are forecast to moderate in line with more modest economic activity. Over the next five years, total new registrations are expected to average just over 62,250 per year, reflecting a period of projected modest employment growth post-COVID. Quebec and Prince Edward Island are the only provinces expected to see a rise in new registrations relative to the previous five-year period, increasing 4% and 2% respectively, on average.

Figure 18 illustrates the average total registrations for Red Seal trades by province over two time periods: 2017 to 2021, and the next five years, 2022 to 2026.

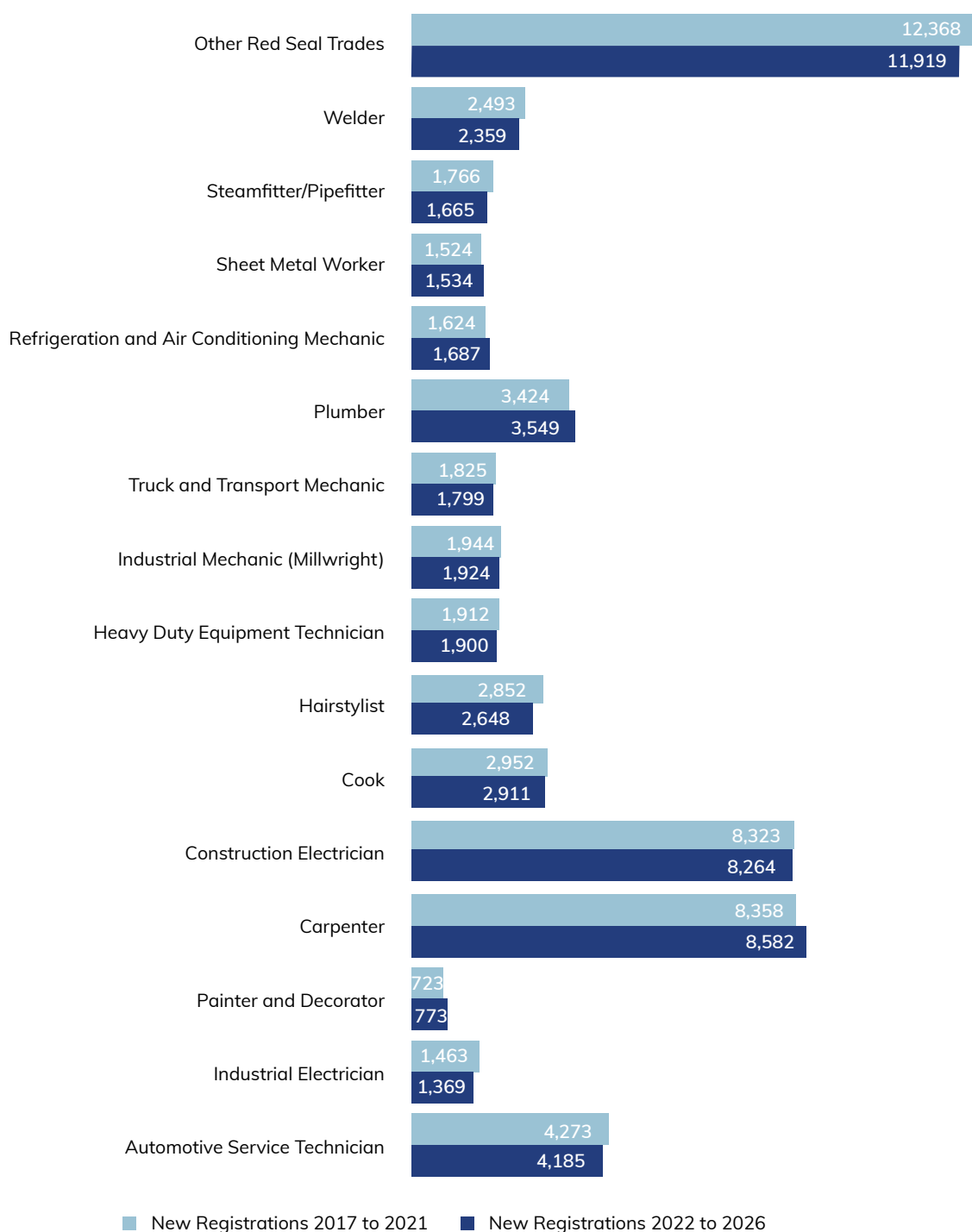
Figure 18 - Average Annual New Registrations in Red Seal Trades, Historic (2017 to 2021) and Projected (2022 to 2026), by Province



Source: Statistics Canada, RAIS 2020, Custom Aggregation;  
CANTRAQ Prism Economics (2022)

At the trade level, new registrations are forecast to decline across most trades relative to the previous five-year period. On average, increases in new registrations are forecast in painter and decorator (7%), plumber (4%), refrigeration and air conditioning mechanic (4%), carpenter (3%) and sheet metal worker (1%) trade programs compared to the previous five-year period.

Figure 19 - Average Annual New Registrations in Red Seal Trades, Historic (2017 to 2021) and Projected (2022 to 2026), Canada (Excluding Territories)



Source: Statistics Canada, RAIS 2020, Custom Aggregation; CANTRAQ Prism Economics (2022)

## Gaps in Supply and Demand

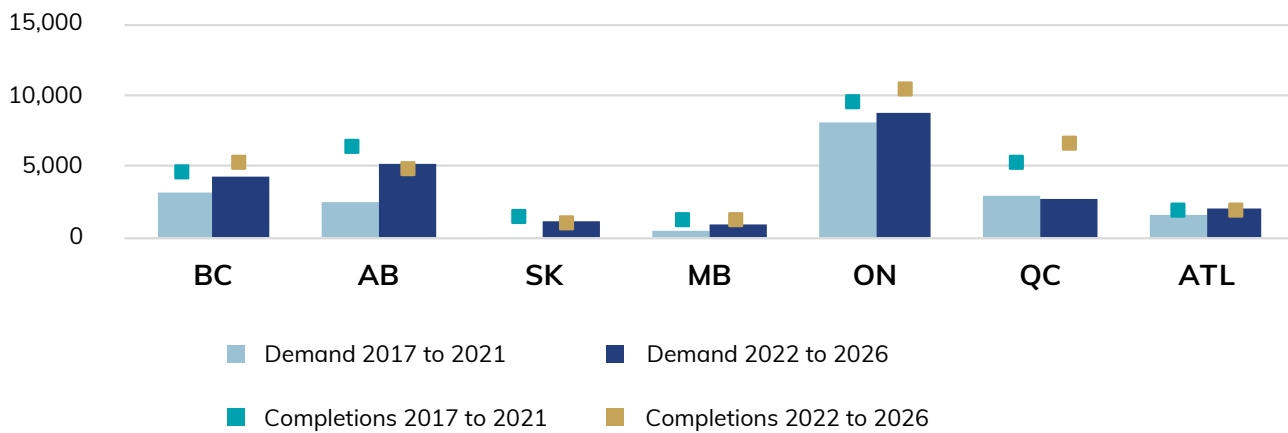
In 2018, the surge in new registrations during the peak of the resource expansion translated to record high levels of program completions. In 2021, completions are projected to partially recover as apprentices who were unable to complete their program in 2020 are carried over into 2021. Once the number of apprentices who would have completed in 2020 catch up and become certified in 2021 and into 2022, the number of program completions will begin to fall due to the lower number of apprentices who registered in 2020. This may pose supply challenges for some provinces in the near-term as demand requirements remain strong during the post-COVID era.

Figure 20 highlights both historic (2017-2021) and projected (2022-2026) trends in program completions and certification requirements by province. The square in the figure below represents the average annual completions

by province across the two time periods. If a province has ample supply to meet anticipated demand requirements, the completions (square) would exceed demand (bar).

Apart from Quebec, demand requirements are expected to continue to rise over the next 5 years, while average annual completions are expected to recede following 2022. This mismatch will lead to supply challenges for several provinces, including Alberta, Saskatchewan, Manitoba and Atlantic Canada. Due to the rising levels of registrations in British Columbia and record levels of registrations in Ontario and Quebec leading into the pandemic, completions in these provinces over the near-term are forecast to meet anticipated demand requirements. That said, the analysis suggests that given the current level of new registrations, any considerable acceleration of demand requirements could pose significant recruiting challenges.

Figure 20 - Average Annual Certification Demand by Province, Total Red Seal Trades, Historic (2017 to 2021) and Projected (2022 to 2026)

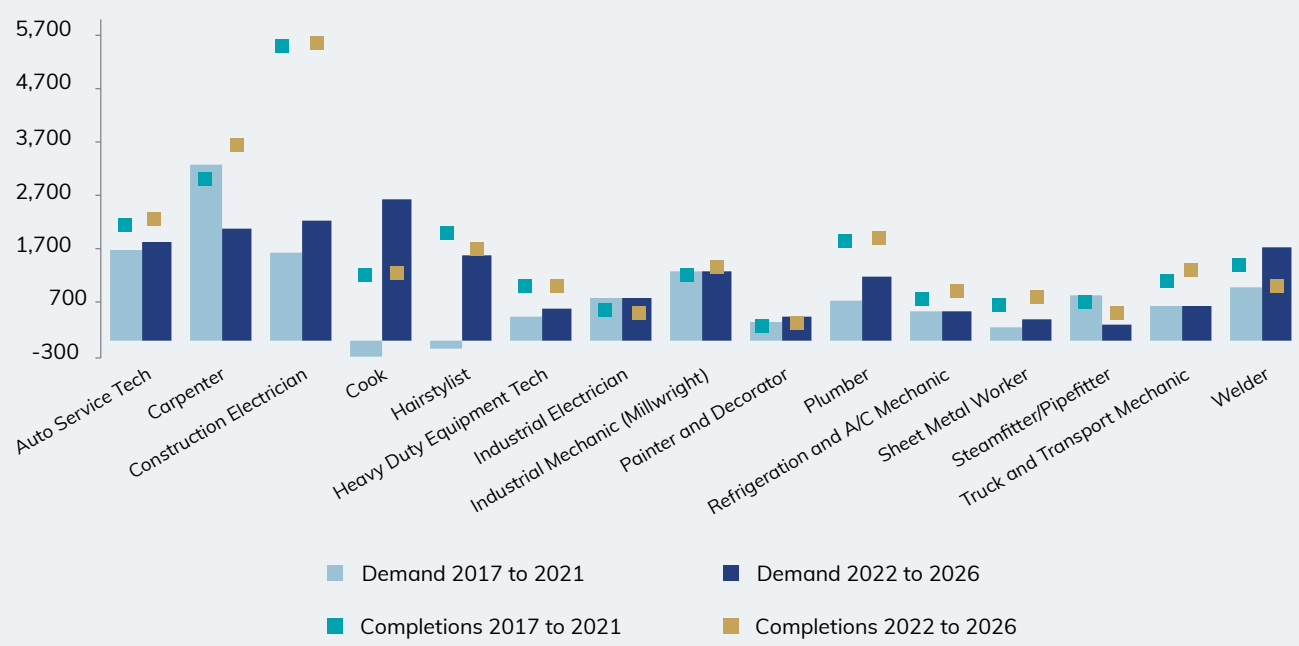


Source: Statistics Canada, RAIS 2020, Custom Aggregation;  
CANTRAQ Prism Economics (2022)

At the trade level, the analysis suggests there is a potential risk that certification requirements may run ahead of completions for several trades, including cook, industrial electrician, painter and decorator and welder. While the remaining trades are currently forecast to have adequate supply to meet future demand, a rise in employment demand over the near-term could create recruitment challenges for additional trades.

Figure 21 highlights both historic (2017-2021) and projected (2022-2026) trends in program completions and certification requirements for the top 15 Red Seal Trades in Canada. The small square in the figure below represents the average annual completions by trade across the two time periods. If a trade has ample supply to meet anticipated demand requirements, the completions (small square) would exceed demand (bar).

Figure 21 - Average Annual Certification Demand by Red Seal Trade, Historic (2017 to 2021) and Projected (2022 to 2026), Canada (Excluding Territories)



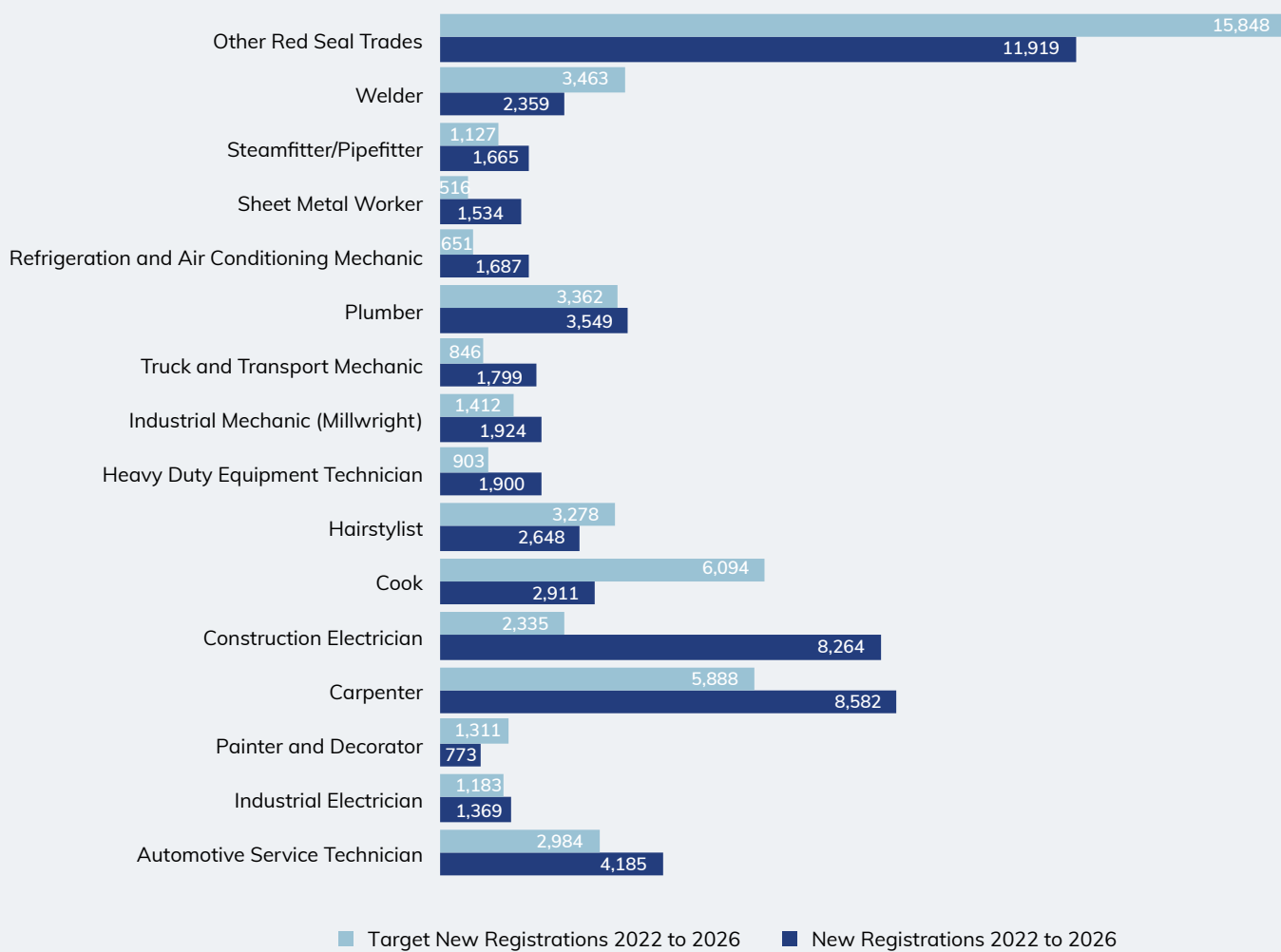
Source: Statistics Canada, RAIS 2020, Custom Aggregation; CANTRAQ Prism Economics (2022)

## Target Registrations

Target new registrations are the number of new registrations required to sustain future workforce certification rates at current levels in a given year. This target is a forward-looking assessment which considers the number of new registrations required to meet future certification requirements, considering both the historic rate of program completion and the duration of the trade program. The target recruitment amount, therefore, extends beyond the outlook period of 2022 to 2026 and assesses the certification requirements over the longer-term.

To meet certification requirements, an estimated 256,000 new registrants are likely to be required across Red Seal trades over the next five years. In the 15 largest Red Seal trades alone, nearly 176,800 new registrations are likely to be required to keep pace with certification requirements over the long-term. Figure 22 highlights the contrast between the projected trend (new registrations) and the target number of new registrations required to meet demand (target new registrations) on a trade-by-trade level.

Figure 22 - Average Annual New Registrations (Projected) and Target Registrations Required, Red Seal Trades, 2022 to 2026, Canada (Excluding Territories)



Source: Statistics Canada, RAIS 2020, Custom Aggregation;  
CANTRAQ Prism Economics (2022)

The following tables provide a summary of supply and demand trends over the five-year period from 2022 to 2026, both provincially and at the trade specific level.

Table 6 - Projected Registrations, Projected Completions, Certifications Required and Target Registrations by Province, 2022 to 2026

Province	Projected New Registrations	Projected Completions	Certifications Required	Target Registrations
BC	56,174	25,105	20,746	57,404
AB	53,010	23,000	25,588	51,431
SK	7,016	4,051	5,239	8,238
MB	9,195	4,312	4,420	11,190
ON	79,658	50,600	43,446	77,458
QC	64,833	31,238	13,402	27,970
ATL	15,452	7,794	9,542	22,312
<b>Total</b>	<b>285,338</b>	<b>146,100</b>	<b>122,383</b>	<b>256,003</b>

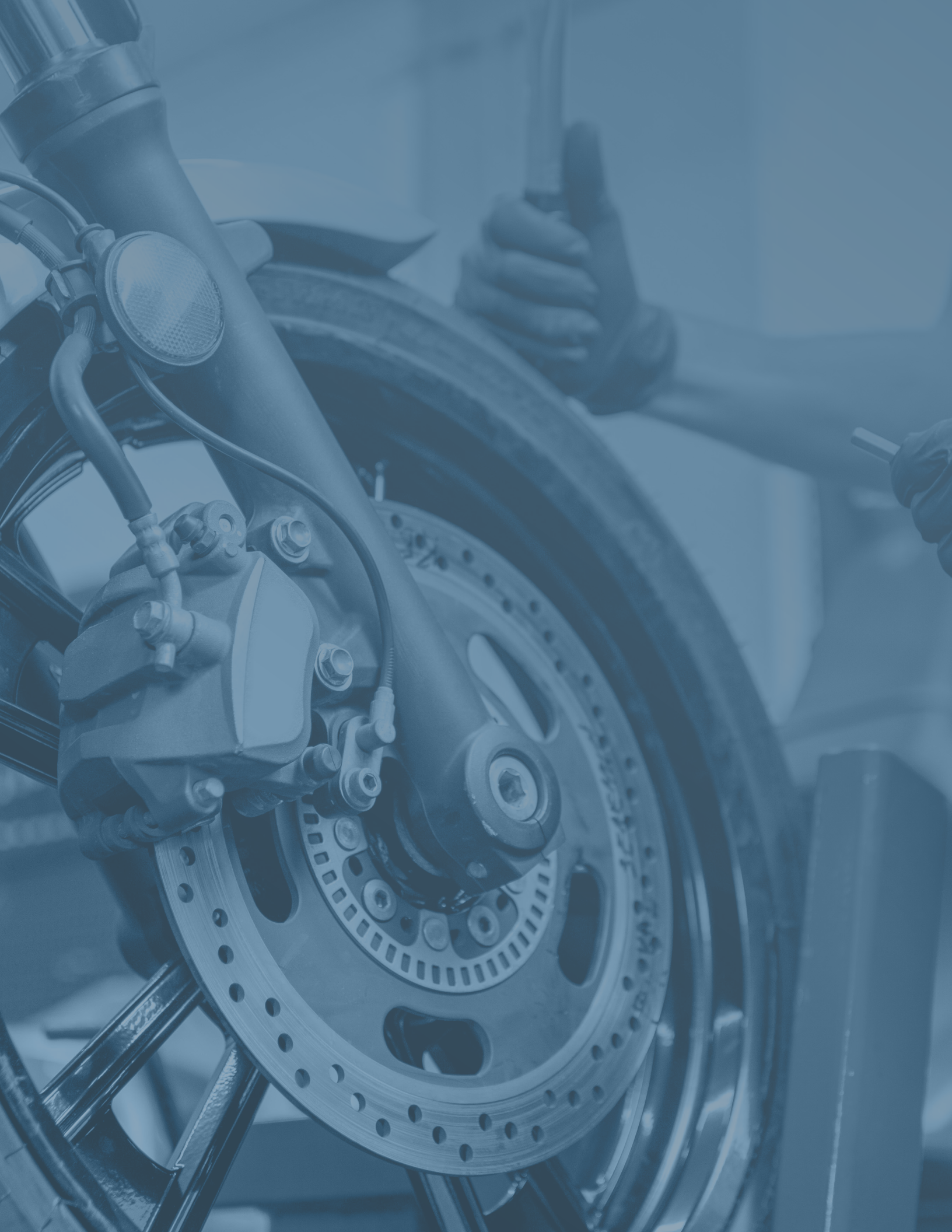
Source: Statistics Canada, RAIS 2020, Custom Aggregation; CANTRAQ Prism Economics (2022)

Table 7 - Projected Registrations, Projected Completions, Certifications Required and Target Registrations by Red Seal Trade, 2022 to 2026, Canada (Excluding Territories)

Trade	Projected New Registrations	Projected Completions	Certifications Required	Target Registrations
Automotive Service Technician	20,924	11,203	9,086	14,920
Carpenter	42,909	18,152	10,559	29,441
Construction Electrician	41,318	27,438	11,173	11,675
Cook	14,556	6,309	13,091	30,469
Hairstylist	13,240	8,378	8,063	16,389
Heavy Duty Equipment Technician	9,498	4,906	3,106	4,513
Industrial Electrician	6,843	2,603	3,910	5,917
Industrial Mechanic (Millwright)	9,618	6,659	6,574	7,061
Painter and Decorator	3,866	1,559	2,344	6,555
Plumber	17,746	9,430	6,017	16,809
Refrigeration and AC Mechanic	8,437	4,596	2,802	3,257
Sheet Metal Worker	7,669	3,982	2,003	2,582
Steamfitter/Pipefitter	8,325	2,621	1,530	5,634
Truck and Transport Mechanic	8,996	6,385	3,280	4,228
Welder	11,796	5,046	8,760	17,315
Other Red Seal Trades	59,597	26,833	30,085	79,238
<b>Total</b>	<b>285,338</b>	<b>146,100</b>	<b>122,383</b>	<b>256,003</b>

Source: Statistics Canada, RAIS 2020, Custom Aggregation; CANTRAQ Prism Economics (2022)





# 5.0

## Conclusion



This report summarizes apprenticeship trends data and projections from the CANTRAQ system, providing an assessment of demand and supply for trade certification across Red Seal trades in Canada, with a focus on the 15 largest Red Seal trades. The results indicate that over the next five years, an estimated 122,380 new journeypersons will be required, approximately 92,300 of which will be concentrated in the 15 largest programs. To keep pace with certification requirements over the long-term, an estimated 256,000 apprentices need to be recruited over the next five years. Of this total, nearly 176,800 apprentices will need to be recruited into the top 15 trades. Cook, industrial electrician, painter and decorator and welder are trades that are anticipated to be particularly at risk for increased recruitment challenges over the near-term. Trades that are classified as 'at risk' vary across provinces due to demographics and employment requirements specific to that province, as illustrated in Table 8. Supply risk may be increased over the near term, depending on the recovery in apprenticeship registrations and completions in 2021. In markets currently experiencing shortages for skilled trades, trades characterised as having an "ample supply" can be interpreted as essentially catching-up to demand.

Given the demand for certification, helping apprentices to progress and complete their programs remains a priority. Apprentice unemployment remains higher than it was prior to the pandemic, particularly for level 1 apprentices. Some apprentices have not been able to earn the necessary work hours for their program and are falling behind on their technical training. CAF-FCA and its partners are committed to supporting apprentices in the post-COVID-19 recovery period by encouraging employers to hire and train apprentices and by providing apprentices with information about financial, mental health and other valuable supports.



Table 8 - Summary of Projected Supply and Demand Conditions, by Province, Top 15 Red Seal Trades, 2022 to 2026

Trade	BC	AB	MB	SK	ON	QC	ALC
Automotive Service Technician	●	●	●	●	●	--	●
Carpenter	●	●	●	●	●	●	●
Construction Electrician	●	●	●	●	●	●	●
Cook	●	●	●	●	●	●	●
Hairstylist	●	●	●	●	●	●	●
Heavy Duty Equipment Technician	●	●	●	●	●	●	●
Industrial Electrician	●	--	●	--	●	●	●
Industrial Mechanic (Millwright)	●	●	●	●	●	●	●
Painter and Decorator	●	●	●	--	●	●	--
Plumber	●	●	●	●	●	●	●
Refrigeration and Air Conditioning Mechanic	●	●	●	●	●	●	●
Sheet Metal Worker	●	●	●	●	●	●	●
Steamfitter/Pipefitter	●	●	●	●	●	●	●
Trunk and Transport Mechanic	●	●	●	●	●	--	●
Welder	●	●	●	●	●	●	●

Source: Statistics Canada, RAIS 2020, Custom Aggregation; CANTRAQ Prism Economics (2022)

Note: Data for several trades were not available for certain provinces and thus are not included in the table above

- **At Risk:** Certifications Required Exceed Projected Completions
- **Balanced Conditions:** Certifications Required In-Line with Projected Completions
- **Ample Supply:** Projected Completions Exceed Certifications Required

**Ample Supply** = Difference between certifications required and anticipated completions <0.75%, **Balanced** = Difference <1.1% and >= 0.75%, **At Risk** = Difference >1.1%

# Appendix A:

## List of Red Seal Trades

The following table lists the 55 designated Red Seal trades in Canada and their corresponding National Occupational Classification (NOC). The 15 largest Red Seal trades identified within this report are marked with an asterisk.

NOC	Trade
7312	Agricultural Equipment Technician
7332	Appliance Service Technician
7322	Auto Body and Collision Technician
7322	Automotive Refinishing Technician
7321	Automotive Service Technician*
6332	Baker
7234	Boilermaker
7281	Bricklayer
7272	Cabinetmaker
7271	Carpenter*
7282	Concrete Finisher
7611	Construction Craft Worker
7241	Construction Electrician*
6322	Cook*
7284	Drywall Finisher and Plasterer
7333	Electric Motor System Technician
7295	Floorcovering Installer
7253	Gasfitter — Class A
7253	Gasfitter — Class B
7292	Glazier
6341	Hairstylist*
7312	Heavy Duty Equipment Technician*
7521	Heavy Equipment Operator (Dozer)
7521	Heavy Equipment Operator (Excavator)
7521	Heavy Equipment Operator (Tractor-Loader-Backhoe)
7242	Industrial Electrician*
7311	Industrial Mechanic (Millwright)*

NOC	Trade
2243	Instrumentation and Control Technician
7293	Insulator (Heat and Frost)
7236	Ironworker (Generalist)
7236	Ironworker (Reinforcing)
7236	Ironworker (Structural/Ornamental)
2225	Landscape Horticulturist
7284	Lather (Interior Systems Mechanic)
7231	Machinist
7235	Metal Fabricator (Fitter)
7371	Mobile Crane Operator
7334	Motorcycle Mechanic
7331	Oil Heat System Technician
7294	Painter and Decorator*
1522	Parts Technician
7251	Plumber*
7244	Powerline Technician
7384	Recreation Vehicle Service Technician
7313	Refrigeration and Air Conditioning Mechanic*
7291	Roofer
7233	Sheet Metal Worker*
7252	Sprinkler Fitter
7252	Steamfitter/Pipefitter*
7283	Tilesetter
7232	Tool and Die Maker
7371	Tower Crane Operator
7321	Transport Trailer Technician
7321	Truck and Transport Mechanic*
7237	Welder*

Note: Electric Motor System Technician is being de-designated as a Red Seal trade July 2022.

## Endnotes

1. Andrew Sharpe and James Gibson, Centre for the Study of Living Standards (CSLS), *The Apprenticeship System in Canada: Trends and Issues* (Ottawa: CSLS Research Report, September 2005).
2. See Sandrine Prasil, *Registered Apprentices: The Class of 1992, A Decade Later* (Ottawa: Statistics Canada, 2005); Denis Morissette, *Registered Apprentices: The Cohort of 1993, A Decade Later, Comparisons with the 1992 Cohort* (Ottawa: Statistics Canada, 2008); and Louise Desjardins and Nicole Paquin, *Registered Apprentices: The Cohorts of 1994 and 1995, One Decade Later* (Ottawa: Statistics Canada, 2010).
3. Kristyn Frank and Emily Jovic, *National Apprenticeship Survey Canada Overview Report 2015*, (Ottawa: Statistics Canada, 2017).