



Meeting Construction and Maintenance Workforce Challenges

National Industry Strategy

DECEMBER
2017

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1. Introduction

In the spring of 2015, BuildForce Canada's¹ National Construction Owners' Forum² invited industry and government to its first National Strategy Summit, engaging owners, contractors, labour, and government in meeting Canada's construction and maintenance workforce challenges. This forum created a unique opportunity for industry leaders to convene to discuss and develop a national workforce development strategy.

As the organizer, BuildForce Canada undertook to work with all industry stakeholders to advance the development of a national strategy, encompassing the right policies, programs, and initiatives to tackle the industry's workforce development challenges. A strategy document was developed to be dynamic and updated biennially to remain current with the labour market conditions as presented in BuildForce Canada's annual construction and maintenance outlook scenario. This strategy document is intended to track and support industry efforts to implement the changes required to maintain a sustainable skilled workforce with the ability and flexibility to meet shifting demands now and into the future.

In addition to the national strategy document, BuildForce Canada struck two national working groups following the Summit to further explore industry issues related to productivity and retention. The first major initiative to flow from this work was the Canadian Construction Productivity Initiative that aimed to both help define what productivity means for the Canadian construction and maintenance industry, as well as create a web-based resource to house the latest available research, and eventually, online tools designed to support industry firms to become more productive.

BuildForce is also committed to advancing industry awareness and education related to retention issues. The goal is to eventually provide industry with the information and tools it requires to maintain a talented, productive, and mobile workforce capable of meeting both the current and future demands for construction and maintenance services across Canada.

On October 5, 2017, BuildForce convened the second National Strategy Summit in Ottawa. The focus of this Summit was industry productivity and workforce retention. What follows is an update to the 2015 National Strategy Summit document, *Meeting Construction and Maintenance Workforce Challenges*³, reflecting the changing economic environment the industry faces today, and a summary of the issues and strategies discussed at the 2017 Summit.

¹ **BuildForce Canada** is a not-for-profit, industry-led organization committed to providing accurate and timely industry labour market information and professional development resources to advance the needs of Canada's construction and maintenance industry.

² The **National Owners Forum** is an open forum where owners can come together at a national level to discuss labour market issues of mutual interest.

³ <http://www.buildforce.ca/en/products/meeting-construction-and-maintenance-workforce-challenges-national-industry-strategy>

2. Industry overview

After 20 years of unprecedented demand for construction services, the industry over the coming decade will enter a “new normal” period characterized by more modest demand for new construction and rising demand for maintenance and renovations services. At the same time, with nearly one quarter of the industry’s workforce expected to retire during this period, labour markets in some parts of the country may experience increased tightness due to the departure of the industry’s older and most seasoned workers.

BuildForce Canada is forecasting that over the 2018–2027 scenario period, industry growth will be more in line with Canadian gross domestic product rates resulting from fewer new major engineered construction projects and a softening of demand for new housing construction. Despite these trends, immigration growth, government affordable housing and climate change mitigation policies, as well as increased employment growth in the service sector will all contribute to steady demand for commercial and institutional building construction. Maintenance and renovation activities will also remain relatively strong throughout the decade as demand for these services increases due to the significant public and private sector infrastructure expansion of the past 15 years.

2.1 Canada’s construction and maintenance industry

The construction and maintenance industry is one of the most important economic forces in the developed world today. In Canada, construction and maintenance workers built, installed, maintained, repaired, and renovated infrastructure estimated at \$250 billion annually over the last decade. This infrastructure ranged from large industrial facilities, bridges and roadways, and commercial and institutional buildings to single-detached homes.

In 2016, the industry directly employed 1.4 million workers, accounting for about 7.7 percent of total Canadian employment. Looked at another way, one out of every 13 workers are directly involved in construction and maintenance. Construction represents 7 percent of gross domestic product (GDP) and when considering the direct and indirect annual impacts of construction on the overall economy, the GDP share would almost double to 12.5 percent, making it one of Canada’s largest industries.

2.2 Emerging trends

Over the past 20 years, the construction and maintenance industry has grown dramatically, doubling in size, while the overall population of Canada grew by only 22 percent from approximately 29.5 million in 1996 to 36 million in 2017⁴. Over the next 50 years, Statistics Canada projects that the population will continue to grow, reaching an estimated 51 million by 2063. This projected increase in population will continue to drive construction demand for years to come.

Since 2000, industry demand has been driven by the need for economic modernization across nearly every industry: the energy and mining sectors, manufacturing, urban and rural infrastructure, and the expansion of housing stock across Canada. In many parts of the country, this infrastructure development expansion now means that demand for maintenance and renovation is growing. Over the next 10 years, however, BuildForce is forecasting that the pace of construction industry growth will moderate, in part due to retirements and lower overall demand for new construction services driven by many macro domestic and international factors. Some of these factors are:

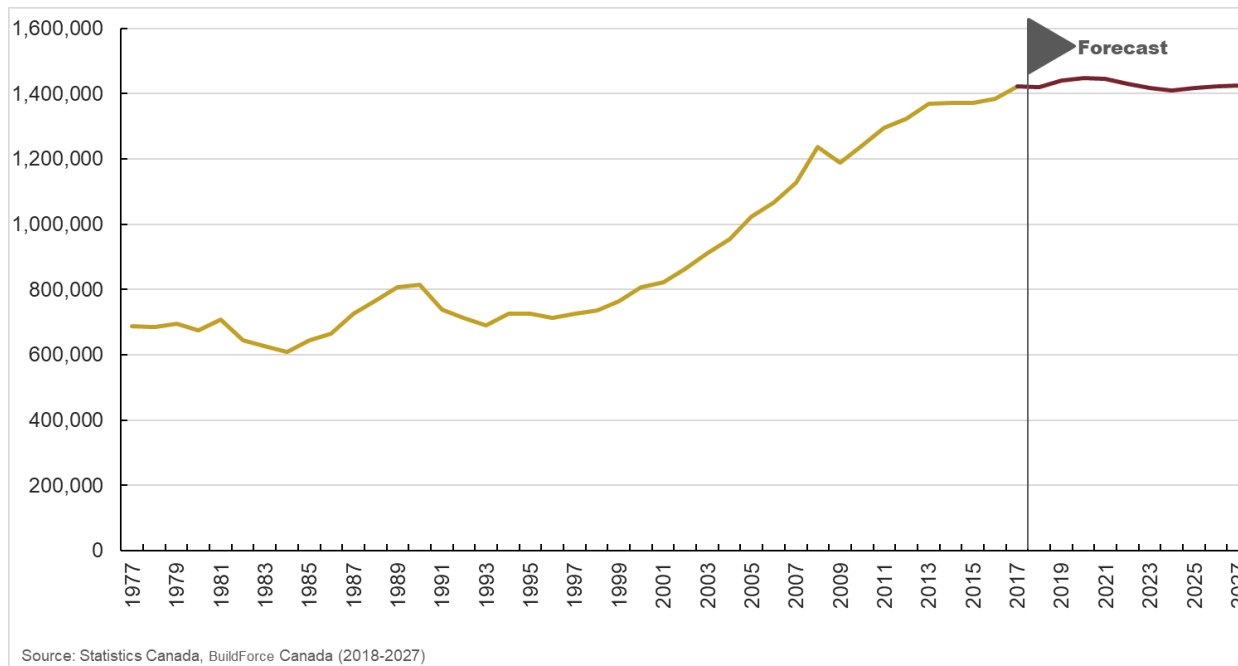
- geopolitical uncertainty pushing many firms to put off new investments
- growing concerns over potential protectionism and anti-trade sentiment
- lower investment levels due to lower commodity prices

⁴ **Source:** Statistics Canada. *Table 051-0005 - Estimates of population, Canada, provinces and territories, quarterly (persons)*. Quarterly data on population estimates have been annualized prior to growth calculation.

- aging demographics and the accompanying change in consumer behaviour
- increased debt levels that are making it more challenging for governments to fill the void with public sector investments

Combined, all these factors are contributing to the slowest rate of construction employment growth in more than 20 years.

Figure 1: Total construction employment, Canada (1977–2027)



Despite these factors, total construction employment is expected to remain relatively stable. Slower population growth in the near term is anticipated to lead to a 3.2 percent reduction in residential-sector employment as demand for new housing declines from recent peak levels, while the non-residential sector is expected to grow a modest 3.4 percent.

Even in this period of more moderate growth, however, the retirement of nearly a quarter of the industry's workforce will make recruitment of new workers a pressing industry requirement to ensure its future competitiveness.

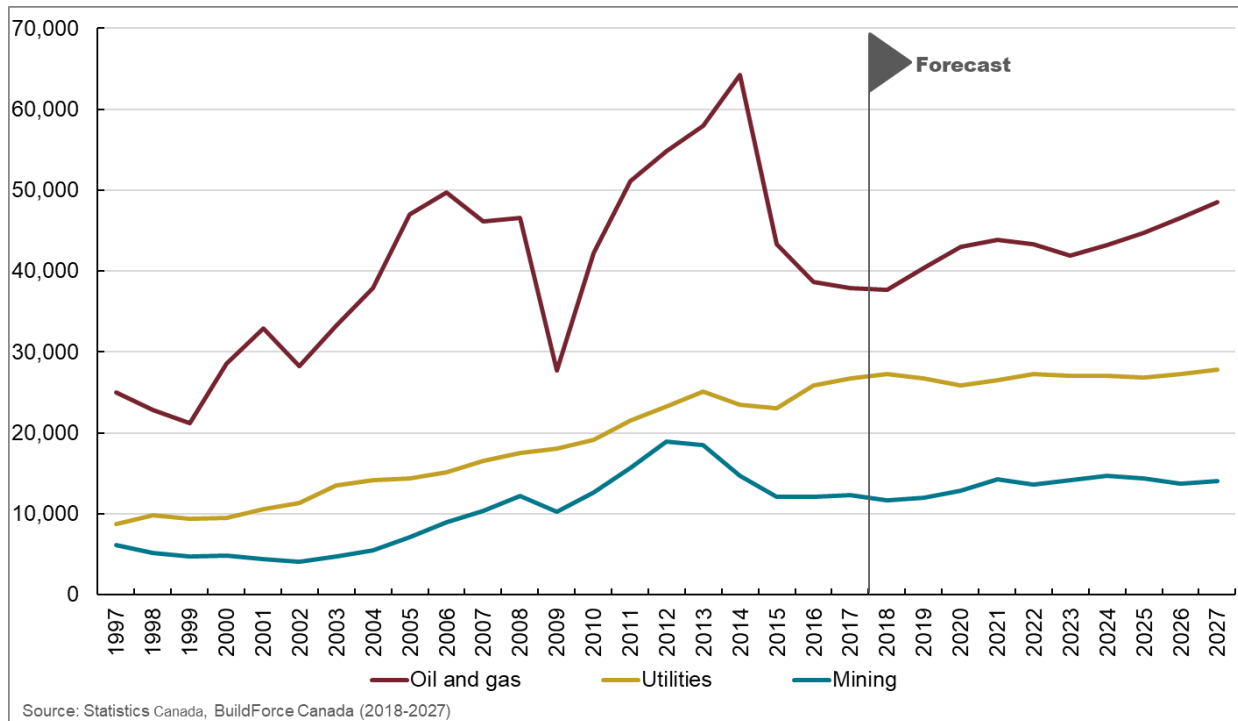
2.3 Major construction projects

Central to assessing labour market dynamics is tracking major industrial and engineering projects. Investment in major construction projects in certain regions of the country has had a tremendous impact on Canada's provincial, regional, and national economies and labour markets. After more than a decade-long construction expansion driven by new resource developments, the composition of projects is changing. Major infrastructure projects, sustaining capital and maintenance work, electrical generation and distribution, pipelines, and transportation systems, which are required to support Canada's new resource capacity, have become important drivers in labour market demands.

Figure 2 shows investment trends for oil and gas, mining, and utilities development projects. Between 1981 and 2000, total investment (including machinery and equipment) averaged \$32 billion. The first wave of major developments started in the early 2000s, with investment more than doubling to \$75 billion by 2008. The key drivers over this period were oil sands investment, and mining and utilities works across the country. Following a brief decline in 2009 due to the global financial crisis, investment resumed growing and continued through to 2014, with an estimated \$100 billion

invested during this period. With the drop in global oil and gas prices and lower demand for commodities, investment levels declined in 2015 to \$78 billion and by a further \$2 billion in 2016. Between 2018 and 2027, more moderate growth is projected, averaging \$84 billion annually (including machinery and equipment) or close to \$840 billion of activity over the next decade.

Figure 2: Selected resource-based investment expenditures, including construction, machinery and equipment (\$2007 millions*)



* **\$2007 millions** indicates that the investment values are in year 2007 dollars (base year), that is, adjusted for inflation. This is used to calculate the real physical year-to-year change of the value of construction, factoring out growth (increase value) due to increases in prices.

Across construction, the largest growth was in the oil and gas sector. Investment (including machinery and equipment) was on a steady upward trend, increasing from \$9 billion in 1992 to \$50 billion in 2006. As prices began retreating from the near historical highs achieved between 2008 and 2014, new capital projects were postponed or cancelled, and investment levels reduced. Over the coming decade, sustaining capital and maintenance work will continue to grow, partially offsetting declines in new investment. While new capital investment is expected to resume more moderate growth over the long term as oil prices increase, there is uncertainty around the pace and level of growth. The proposed new major LNG resource development project in British Columbia is expected to contribute to stronger investment growth in the sector over the medium term.

Investment in utilities across Canada has been on a steady rise since the mid 1990s, increasing from nearly \$9 billion in 1997 to nearly \$27 billion in 2017. Across the remainder of the scenario period, growth in utilities investment is anticipated to slow as current major projects under construction wind down, growing only a modest \$1 billion – or 4.2 percent – by 2027.

Mining investment was relatively unchanged from 1981 to 2004, averaging around \$3.5 billion per year. Investment increased to peak at \$19 billion in 2012 and then slowed between 2013 and 2015. A second wave of proposed new projects was expected between 2016 and 2019; however, anemic global commodities demand has pushed this window out slightly to 2019 and beyond. Investment is anticipated to increase between 2019 and 2027, with growth averaging 2.3 percent per year, though not expected to rebound to the peak of 2012.

Key major projects across Canada

Newfoundland and Labrador

- Major projects (offshore platform, nickel smelter, hydroelectric and transmission) are winding down.
- A proposed offshore platform (gravity dock, living quarters) comes on stream over the medium term to partially offset job losses.
- A major underground mine development is delayed, and other future resource development projects are pushed out to later in the scenario period.

New Brunswick

- Infrastructure spending and a proposed mine development add to investment over the near term.
- Later in the scenario period a major hydro dam refurbishment project adds to activity and employment.
- A proposed major pipeline and marine terminal project has been cancelled and deleted from the outlook scenario.

Nova Scotia

- Modest non-residential investment increases over the medium term will be driven by investment in utilities and infrastructure.
- There are no large major industrial or engineering projects currently included in the outlook scenario.
- Proposed LNG projects are being tracked, but also not currently included in the outlook scenario.

Prince Edward Island

- Moderate non-residential investment gains are led by commercial and institutional construction.
- No significant major projects are currently planned.

Quebec

- Highway, bridge, electric power, transportation, and other infrastructure projects add new jobs over the medium term.
- Engineering construction activity rises to a peak in 2019, but then recedes and fluctuates near 2017 activity levels through to 2027.

Ontario

- Several major transportation systems and nuclear refurbishment projects in the Greater Toronto Area and Southwestern Ontario add to employment opportunities.
- The potential for resource development looms in Northern Ontario, but weaker commodity prices and global demand/supply have delayed several mining projects.

Manitoba

- Near-term growth is driven by major power generation projects (hydro dam, transmission and converter stations).
- As these projects wind down, overall non-residential activity declines, but remains well above historical levels.

Saskatchewan

- Current resource development and utility projects are winding down and activity declines over the near term.
- A proposed pipeline is getting underway and later in the scenario period new resource development and utility projects are expected to come on stream to keep construction investment well above the peak achieved in 2014.

Alberta

- Major oil sands, pipeline, terminal, utility, and other infrastructure projects are winding down, and overall construction activity slows over the medium term.
- While new investment declines, maintaining current oil sands production requires a steady flow of sustaining capital and maintenance work that partially offsets the decline in new activity.
- Labour demand is expected to remain below previous peak requirements.

British Columbia

- Investment and employment opportunities are expected to rise over the medium term, driven by proposed major LNG, pipeline, utility, mining, and transportation projects, but much depends on the anticipated project schedules.
- Under the current outlook scenario, several projects are stacking up with scheduled starts in 2019 and then peaking in 2021 that would significantly increase regional labour requirements.

These kinds of regional major projects provide spin-off opportunities for many economic sectors, locally and throughout the country. For example, according to the Canadian Energy Research Institute, investments in Alberta's oil and gas sector impacts GDP in all provinces. The goods, materials, and services used to construct, maintain, and operate in-situ oil sands projects, mines, and upgraders come from across Canada. Many of the components, such as tires, trucks, gauges, valves, and pumps, are produced in the industrial regions of Central Canada.

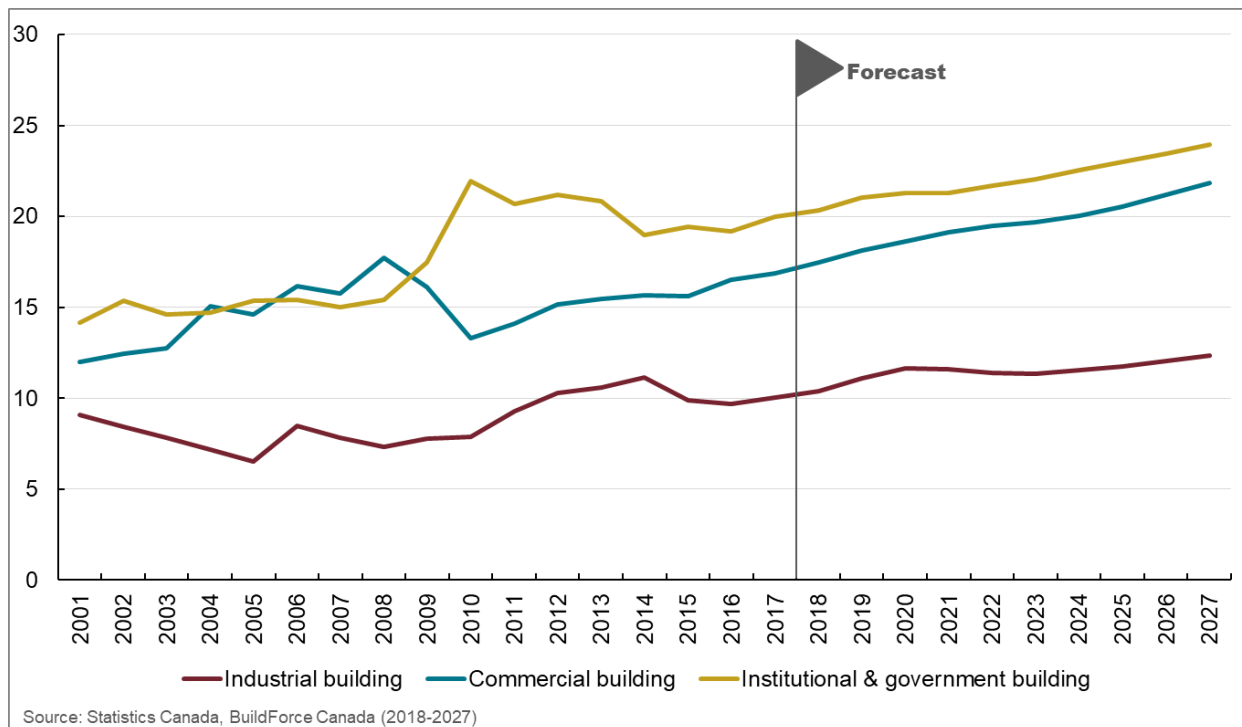
Spin-off effects also extend to other construction markets such as residential, and commercial and institutional buildings, driven by population growth and changes in the demand for consumer and business services. There is also the potential for the reverse impact. If projects are delayed or cancelled, the anticipated increased construction activity and economic growth is lost or delayed.

2.4 Non-residential buildings

Canada's continually growing service sector is anticipated to drive steady demand for commercial construction over the next decade. As Canada's immigrant population and related residential activity grow, a steady stream of new commercial and institutional building construction will be required to support this population growth. Over the coming decade, commercial construction will be a steady source of new construction jobs across all provinces (see Figure 3). Demand for institutional buildings is also expected to grow steadily, with stronger growth in the near term driven by major institutional projects, especially in Ontario and Quebec.

Industrial building activity is expected to slow over the next decade, as global demand for commodities has weakened. Growth in industrial building investment averaged 6.6 percent per year from 2005 to the 2014 peak. Over the next 10 years, industrial building investment is expected to grow at a more modest average of 2.1 percent per year, with stronger growth in the near term driven by a recovering manufacturing sector and proposed major projects in the oil and gas (primarily LNG), utilities, and mining industries.

Figure 3: Industrial, commercial and institutional (ICI) building investment (\$2007 billions*)

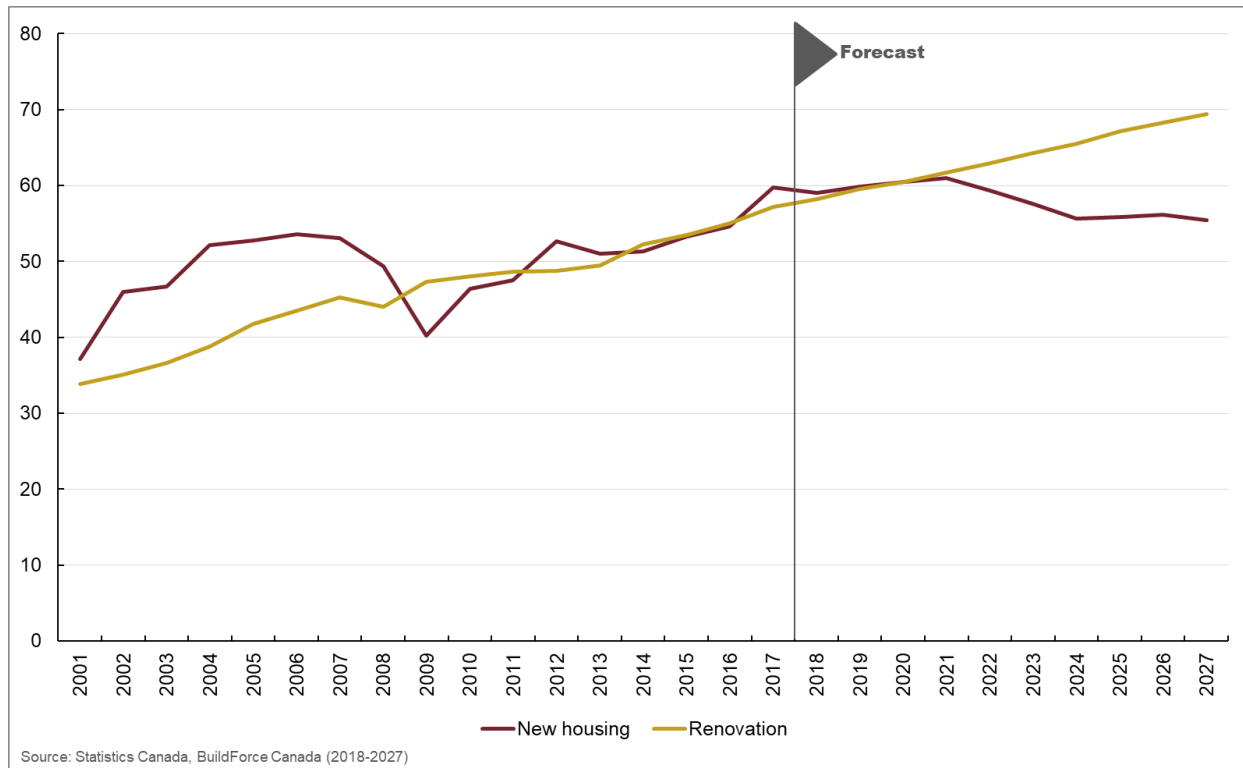


* **\$2007 billions** indicates that the investment values are in year 2007 dollars (base year), that is, adjusted for inflation. This is used to calculate the real physical year-to-year change of the value of construction, factoring out growth (increase value) due to increases in prices.

2.5 Residential

Slower population growth and an aging of the population will establish a new normal for residential construction. Over the next five years, the population is expected to grow at an average 1 percent per year, which will maintain housing starts and new housing investment relatively unchanged to 2021. By 2022, however, demand for new construction will soften as population aging becomes more prominent. This move will drive an increase in renovation investment in line with growing demand for repairs to Canada's aging housing stock (see Figure 4).

Figure 4: New housing and renovations investment (\$2007 billions*)



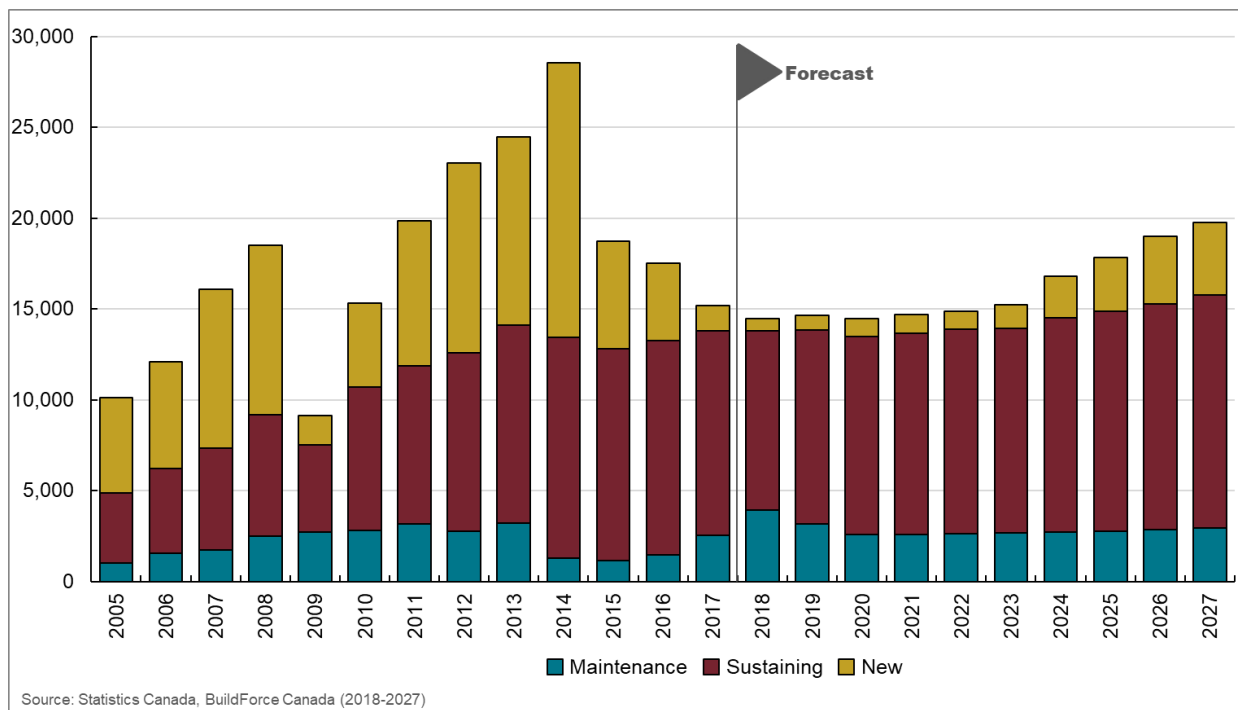
* **\$2007 billions** indicates that the investment values are in year 2007 dollars (base year), that is, adjusted for inflation. This is used to calculate the real physical year-to-year change of the value of construction, factoring out growth (increase value) due to increases in prices.

2.6 New construction, maintenance and sustaining capital

Although the focus of the past decade has been on new construction, it is important to understand that new construction eventually generates demand for sustaining capital⁵ projects, maintenance and shutdown⁶ functions. As investment in new construction decreases, workforce development efforts will need to focus on providing existing workers with the unique skills required for ongoing maintenance and sustaining capital infrastructure.

In Alberta, the proportion of oil sands capital investment attributed to new construction over the subsequent decade is expected to decline while demand for sustaining capital will increase over the long term (see Figure 5). The importance of sustaining capital is reflected in the rising share of total oil sands investment as new oil sands investment slows. In the early 2000s, the sustaining capital and maintenance share of the total averaged around 50 percent. As new construction slows, sustaining and maintenance work is expected to average closer to 90 percent of total oil sands investment over the scenario period.

Figure 5: Oil sands capital investment, including construction, machinery and equipment (\$2007 millions*)



* **\$2007 millions** indicates that the investment values are in year 2007 dollars (base year), that is, adjusted for inflation. This is used to calculate the real physical year-to-year change of the value of construction, factoring out growth (increase value) due to increases in prices.

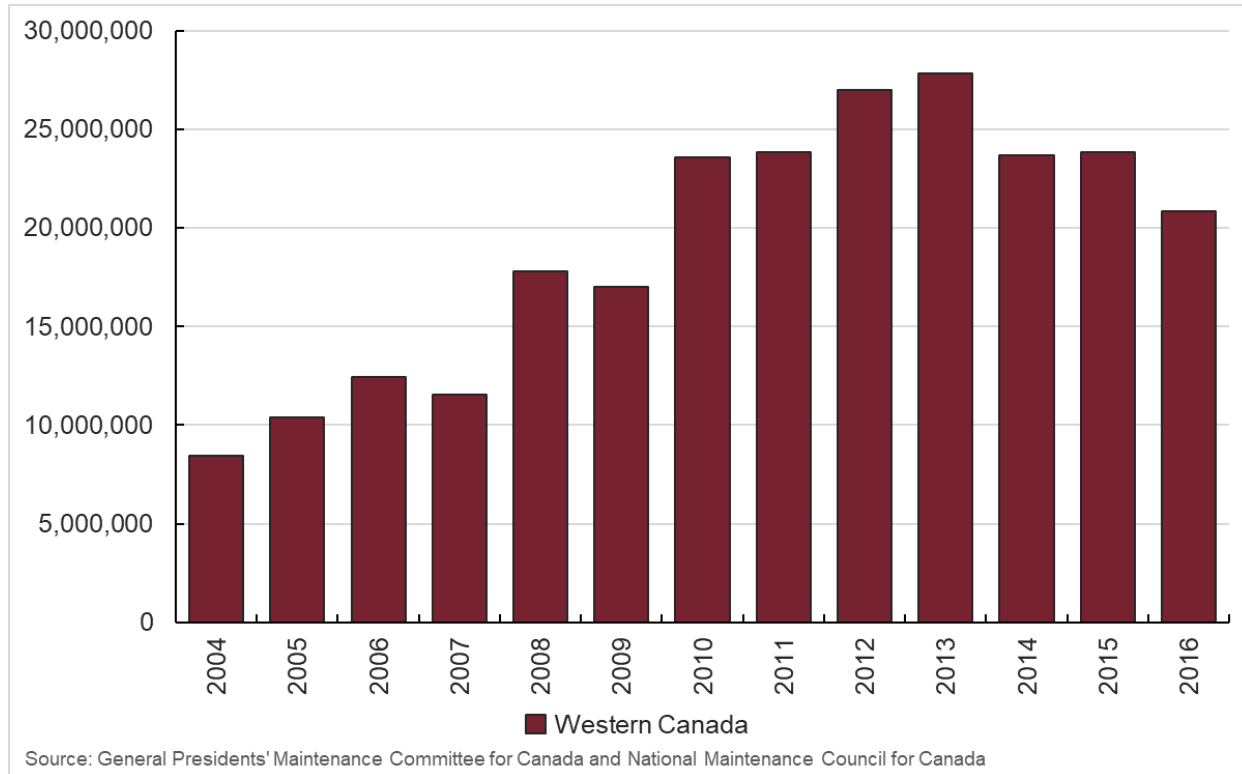
Another measure of the growth in maintenance work can be illustrated by tracking man-hours reported by the General Presidents' Maintenance Committee for Canada/National Maintenance Council for Canada. Figure 6 shows that since 2004, Western Canadian industrial maintenance man-hours increased from just over 8 million to peak at 27 million

⁵ **Sustaining capital** refers to the periodic addition (or replacement) of that is required to maintain operations at existing levels.

⁶ **Maintenance** refers to the entire process of maintaining equipment and comprises two areas for most organizations: 1) Routine or on-stream work that does not require operations/production to shut down an operating unit to maintain the equipment since it is already accessible through easy isolation or spare capabilities. 2) Turnarounds, shutdowns and outages are used interchangeably and refer to situations in which the operating unit is taken out of production to maintain equipment and can only be done when the unit is down or cannot be easily isolated from the operating unit. Stoppage size can affect part of a unit or an entire site depending on the business.

hours in 2013, driven primarily by oil sands requirements in Alberta. Looking forward, maintenance activities across Canada follows a moderate trend upward with investment focused primarily on oil and gas facilities, utilities, infrastructure, and mining operations.

Figure 6: Industrial maintenance man-hours, Western Canada



From a construction workforce management perspective, maintenance work can create challenges driven by:

- large seasonal peak requirements for brief periods (weeks/months) within a year
- high demand requirements for very specialized skills and experience

Figure 7 helps better illustrate the seasonal maintenance requirements for oil sands and its growth over the past 13 years. Even as new capital investment slowed in 2015 and 2016, maintenance requirements were substantially unaffected. Activity in 2013 was exceptional, and while demands in 2017 are expected to be like those of 2016, 2018 is shaping up to be a higher than normal year, with hours expected to be equal to or greater than the previous 2013 peak.

In terms of seasonal patterns for oil sands maintenance work, Figure 8 shows the average monthly man-hours for the last five years, 2012–2016. On average, pipefitters increased from an estimated 260,000 man-hours in January to peak at 775,000 in May – a 550 percent increase in just four months. Demand then declines to July/August followed by a second, but lower, peak at around 600,000 hours. While the demand requirements can vary year to year depending on the number of shutdowns scheduled, the seasonal patterns across most trades are consistent, with spring and fall peaks and significant changes in demand requirements.

Figure 7: Monthly industrial maintenance man-hours, pipefitters (Alberta, 2004–2016)

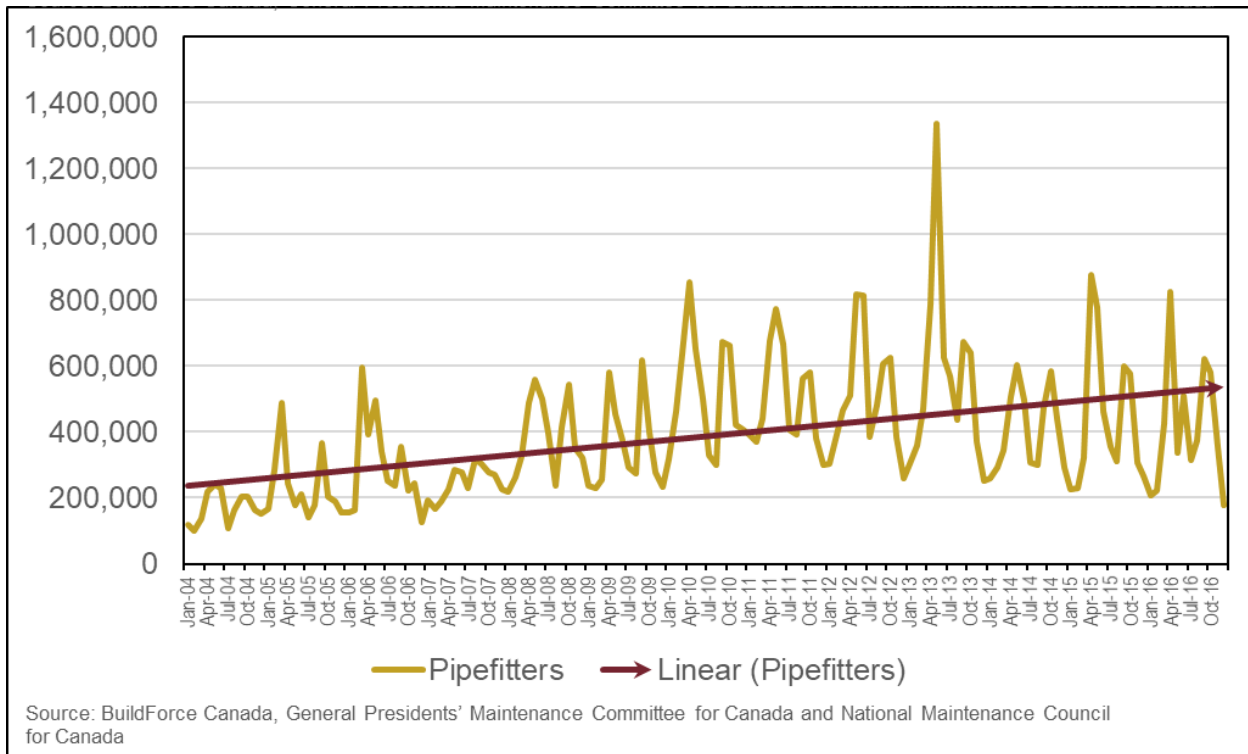
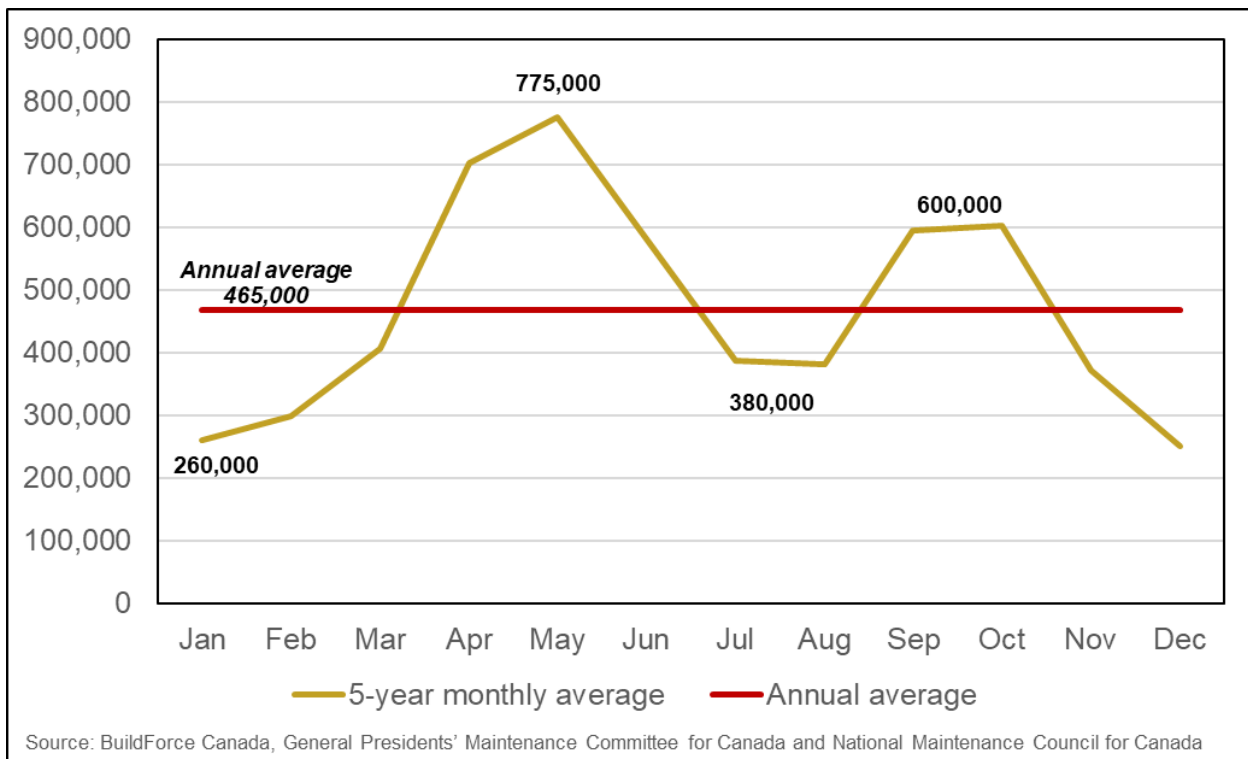
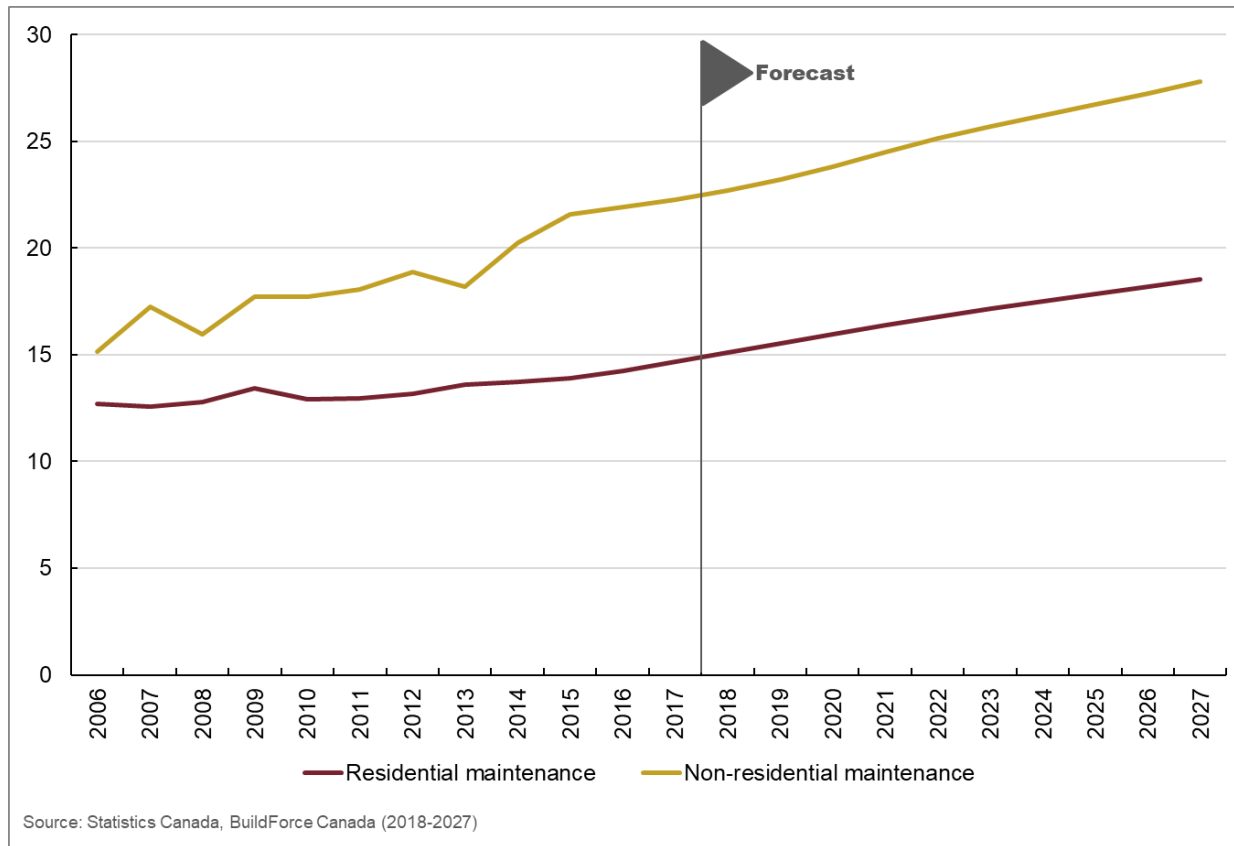


Figure 8: Five-year average monthly industrial maintenance man-hours, pipefitters (Alberta, 2012–2016)



Maintenance and repair investment is also expected to grow steadily in the residential sector and in the non-residential sector (commercial, institutional, roads, highways, bridges). Figure 9 shows residential maintenance investment growing to \$18 billion across the scenario period to 2027, up 26 percent compared to 2017, whereas non-residential construction will increase to \$28 billion – an increase of 25 percent.

Figure 9: Residential maintenance and non-residential maintenance and repairs investment (\$2007 billions*)



* **\$2007 billions** indicates that the investment values are in year 2007 dollars (base year), that is, adjusted for inflation. This is used to calculate the real physical year-to-year change of the value of construction, factoring out growth (increase value) due to increases in prices.

2.7 Unique industry features

Provincial data sources suggest that roughly one-third of construction workers are employed by more than one employer in a given year. In addition, workers who do not change employers may be employed outside the region or even the province in which they live. These unique industry dynamics makes human resource management within the industry challenging.

Adding to these unique complexities is the average size of firms in the industry. The industry is comprised primarily of small businesses, with just over 60 percent of these employing less than five people. If the construction industry was dominated by a few firms, those wishing to work would only have to contact these firms. The industry is very fragmented, however, and a typical firm will hire an average of four workers when we count only the months that the contractor is doing construction work. This considerably reduces the likelihood that unemployed workers will know which contractor is hiring or which skills upgrading course would enable them to work more in the future.

To add to the difficulties, the construction industry's level of activity relates to investment, the most volatile component of GDP. During an economic downturn, industry activity may be halved and then double again over the next growth period. At the same time, employment opportunities may decline in a downturn, even for the experienced workforce. New apprentices entering the labour market during those years may be faced with less new work opportunities leading to delayed achievement of journeyman status and potential exit from the industry. Apprentice registration and vocational school enrolment eventually decline, and the industry suffers lasting damage to its reputation.

For any employment strategy to succeed, it must consider the unique features of the industry. The following are some of the key features that characterize the construction industry:

- Construction work is always temporary. Jobs can last anywhere from a few hours to many years on the same construction site.
- Measurement of the number of construction "jobs" is difficult because the hours a certain trade works do not always add up to one person's full-time annual employment. For example, a 1,000-hour construction job could be half a year's work for one person or a week's work for 25 workers. A construction project may require 20 workers for one year, but a particular trade may be needed for only one week.
- No matter the size or duration of construction work, workers are vulnerable to the boom-and-bust cycles of the local economy. Seasonal and other fluctuations in construction activity (demand) translate into a situation where there may be severe labour/skills challenges in one region of Canada and surpluses elsewhere.
- Apprentices train while working and it can take up to five years of steady work for an apprentice to achieve journeyman status. When shortages of journeymen occur, apprenticeship registrations often follow; however, due to the length of time associated with completing an apprenticeship, skilled labour shortages often arise and persist until the next downturn.

These industry characteristics lead to inefficient management of the construction workforce. Industry leaders across Canada are aware of these issues and are asking questions such as:

- How many workers are entering the industry?
- Where do they come from?
- Which provinces are they working in?
- Which occupations are they filling?
- What strategies/processes are used to bring these workers into the industry?

These unique features also make the industry a challenging environment for government policy and program development.

Another key feature of the construction industry is the relationship between owners, contractors/employers and workers. In other industries, this relationship is based on a long-term scenario in which employers hire to compensate for turnover that may be in the order of 2 percent per year, and adjust their workforce to demand that is typically related to the business cycle. In the construction industry, contractors/employers are continuously hiring, even during an economic downturn. This stems from the temporary, seasonal, and cyclical nature of construction activity.

The role of owners varies according to the type and nature of the project (i.e., new construction, sustaining/replacement capital, maintenance/shutdowns). While some owners directly employ their own tradespeople to undertake sustaining capital and maintenance work, a significant number of other owners will use contractors/sub-contractors to meet their needs. In the case of capital projects, owners generally do not hire workers directly; instead, they work through contractors who in turn deal directly with the workforce. The owners' interest, however, is in protecting their investment

by ensuring that skilled workers are available to meet demand. Although they are not directly involved in the employment relationship, owners do influence hiring and training standards. An example is to contractually require contractors to hire and train apprentices to increase the pace of skills acquisition for apprentices and decrease the time needed to reach journeyman status, thereby making the industry more attractive to new entrants.

3. The Canadian construction and maintenance labour market

3.1 Construction investment and employment

The demand for skilled tradespeople is derived from the demand for construction and maintenance services. The latter, in turn, is derived from the decisions of households, business owners, and government regarding expected future physical capital requirements and the need to maintain existing physical capital. As a result, the outlook for the entire economy drives the outlook for skilled tradespeople and determines requirements for future capital and the maintenance of existing capital. The overall economic outlook also determines the supply of construction and maintenance workers.

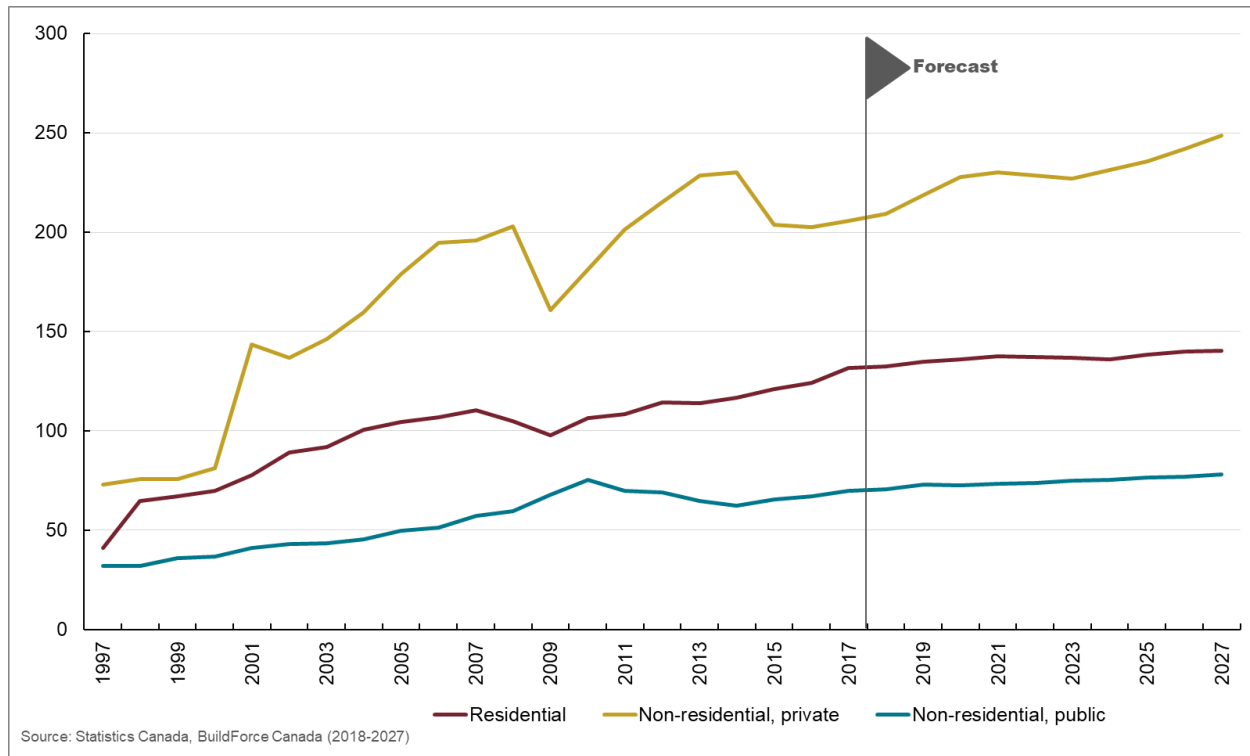
With little growth in investment from the early 1980s to the mid 1990s, the Canadian construction industry experienced a 150 percent increase in the amount of expenditures between 1997 and 2008 (see Figure 10). This increase was fuelled by the need for additional housing to accommodate population growth, business expansion, and replacement of existing facilities to meet current and future demand, and the need to sustain and expand the public infrastructure. As shown in Figure 10, all three categories of investment expenditure experienced rapid growth to 2008. Residential and private non-residential investment declined briefly in 2009 and then resumed growth. Public non-residential investment continued growth to 2010, driven by the infrastructure stimulus program, and declined in 2011 as the stimulus program ended. The latest BuildForce forecast suggests that total construction expenditures will continue to increase across the 2018–2027 scenario period, but at a slower pace than in the past 15 years.

Investment expenditures experience more volatile cycles than those in other industries. The deviation from trend (i.e., swings in activity) expenditure levels over the economic cycle is much greater for construction expenditures. Similar to seasonal swings, this type of behaviour requires additional workers to meet peak levels in activity, leading to higher average unemployment rates for the industry.

This increase in construction and maintenance activity has required the industry to find enough qualified workers to meet the large increase in the demand for its services. While employment in the industry has doubled since the mid 1990s, the industry's labour market has tightened and unemployment rates have fallen below the lowest levels found in Statistics Canada's Labour Force Survey, which covers the 1976 to 2016 period (see Figure 11). This situation has made it increasingly difficult to find enough workers, particularly those with the required qualifications. The 2009 recession boosted the unemployment rate to 11 percent, adding some labour resources to the market. This is low, considering that historically in previous downturns, the unemployment rate approached 20 percent, as can be seen in Figure 11. As construction activity resumed growth in 2010, unemployment declined, with rates falling back to 7.5 percent by 2012, but then was up to 8.9 percent in 2015 with the collapse of oil & gas and commodity prices.

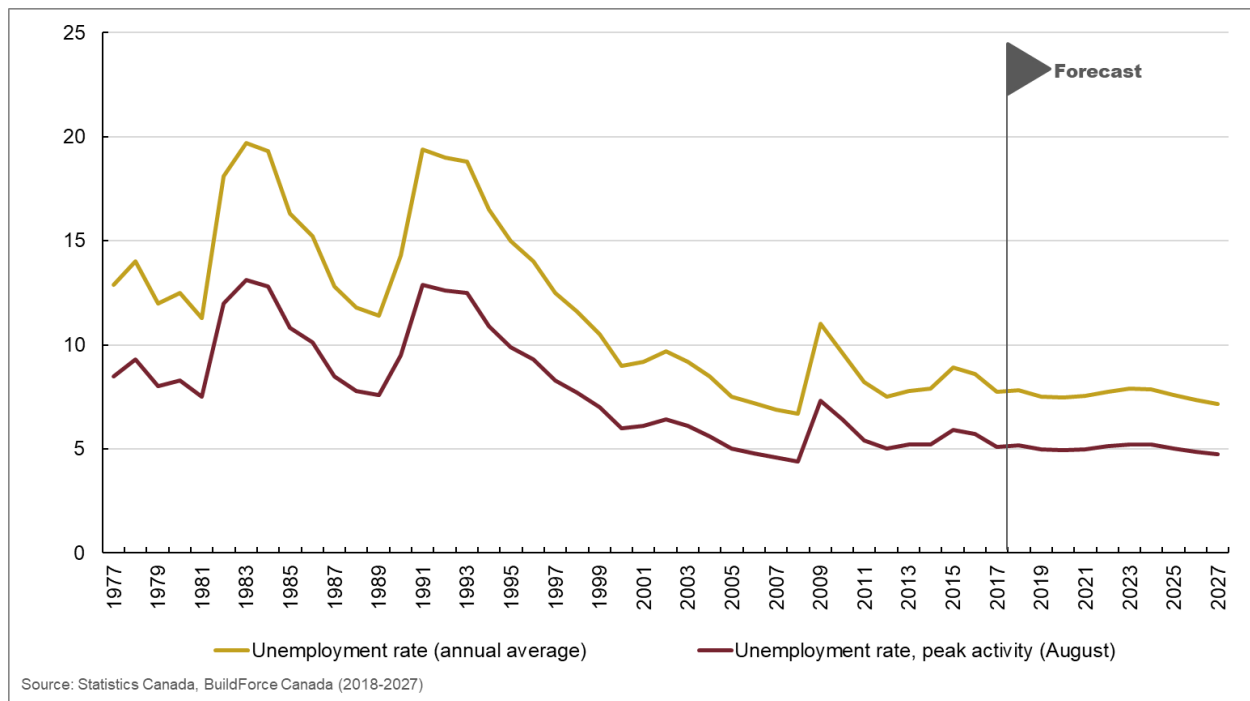
The BuildForce outlook suggests that rising retirements and limited growth in the youth population restrict recruiting options. In particular, demographic changes have steadily reduced unemployment – across construction markets and cycles – so that the unemployment rate will remain below historical averages across the scenario period, trending down to 7 percent over the long run and around 5 percent at peak.

Figure 10: Construction expenditures, 1997–2027 (\$2007 billions*, includes machinery and equipment)



* **\$2007 billion** indicates that the investment values are in year 2007 dollars (base year), that is, adjusted for inflation. This is used to calculate the real physical year-to-year change of the value of construction, factoring out growth (increase value) due to increases in prices.

Figure 11: Construction unemployment rate, 1977–2027

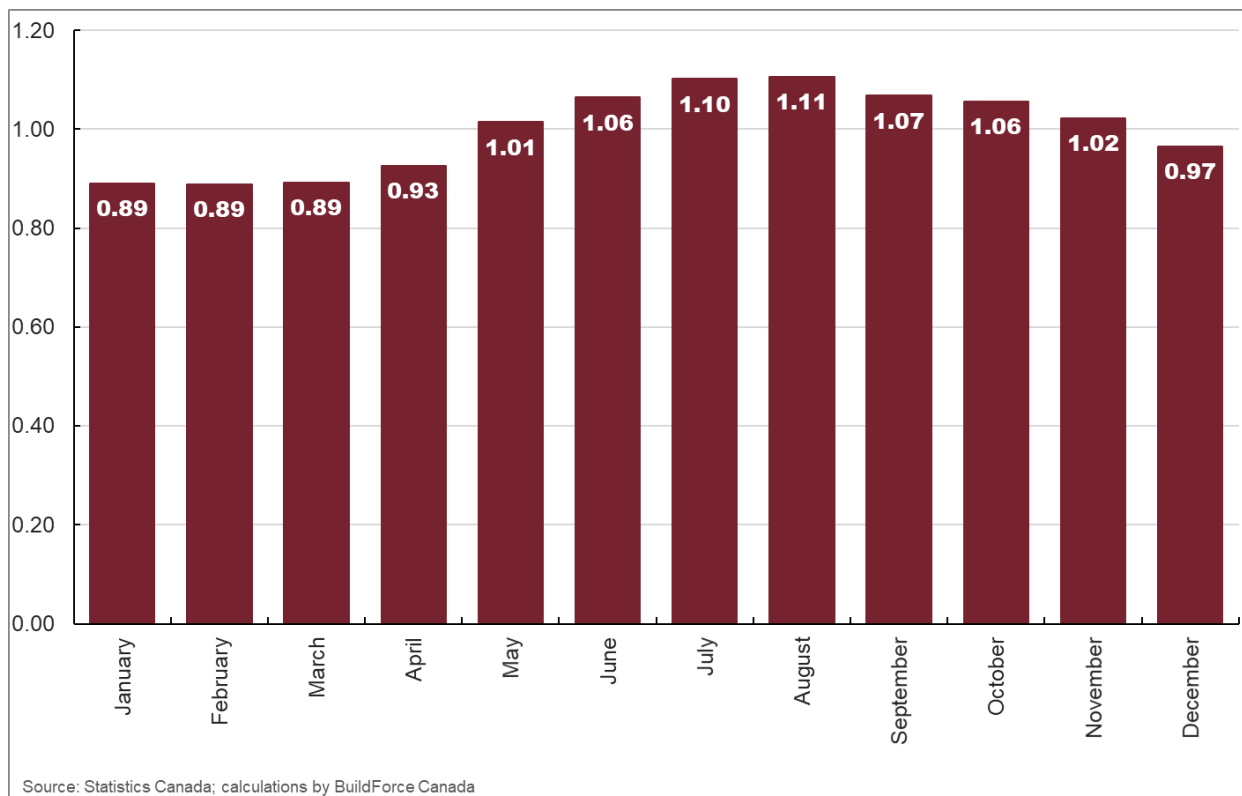


The characteristics of investment behaviour and the seasonal nature of construction activity contribute to peak demand periods for which a larger workforce is required. At the same time, workers face higher average unemployment rates than those in many other industries.

For every plant or structure built, there is a corresponding need for maintenance of that plant or structure. To meet this need, the industry draws on the same pool of skilled labour as it does for new construction. The impact is that as more new construction takes place, more workers are required for maintenance, adding to the market challenges to meet peak demand requirements.

Figure 12 demonstrates the impact of seasonality on the unemployment rate. Specifically, it shows both the annual average unemployment rate and the unemployment rate for August, the month when construction activity typically is at its peak. Since 1977, the annual unemployment rate has averaged 2.5 to 3 percentage points above the rate at the peak level of construction activity. The peak month can be seen in Figure 12, which shows the average seasonal factors for construction employment. These factors indicate the ratio of employment in the month to the rate for the year. For Canada as a whole, employment peaks in August, standing about 11 percent higher than annual average employment and 22 percent above its January level. It should be noted that these figures differ noticeably across the provinces depending on climate and other factors.

Figure 12: Seasonal factors, construction industry employment, 1976–2016 average

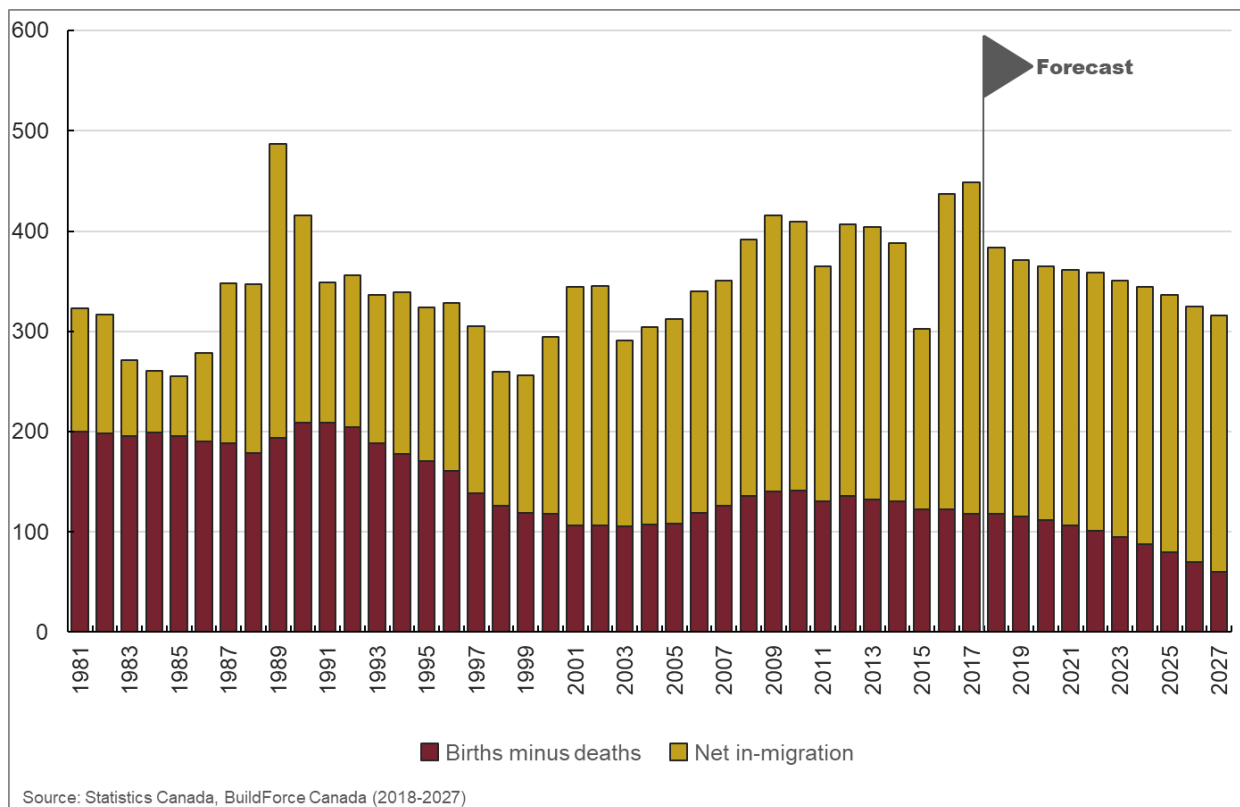


The industry’s ability to attract workers is largely determined by the availability of labour in the economy as a whole. If the overall labour force is growing faster than demand (i.e., the unemployment rate is high or rising) then it will be relatively easy to obtain workers. Unfortunately, the aging of the population is slowing labour force growth and making it more difficult to find workers. This is one of the reasons for the drop in the unemployment rate in the construction industry over the past few years. The other main reason is the increase in demand for skilled tradespeople. Nevertheless, construction is not the only industry seeing low unemployment rates. The BuildForce outlook shows that the annual average unemployment rate for Canada’s labour force (all industries) trends down to 5.7 percent over the long term.

To a large extent, the recent tightening of Canada’s labour markets has resulted from an aging population. Figure 13 shows the contributions of the domestic population – births minus deaths – and net immigration to Canada’s population change since 1981. As the figure indicates, domestic contribution to population growth declined noticeably in the 1990s because of falling fertility rates and has remained relatively low ever since. While there has been some increase in fertility rates over the past few years, this is not expected to continue. Low fertility and aging will continue to keep the domestic contribution to population change low.

Low fertility rates and growing employment have also increased Canada’s dependence on immigrants to meet labour force needs. In the early 1980s, net immigration accounted for about 39 percent of population change. In the last 10 years, it has accounted for 67 percent and is expected to reach over 80 percent by 2027. Unless the economy can achieve higher productivity, additional immigration will continue to be a major source of labour force growth.

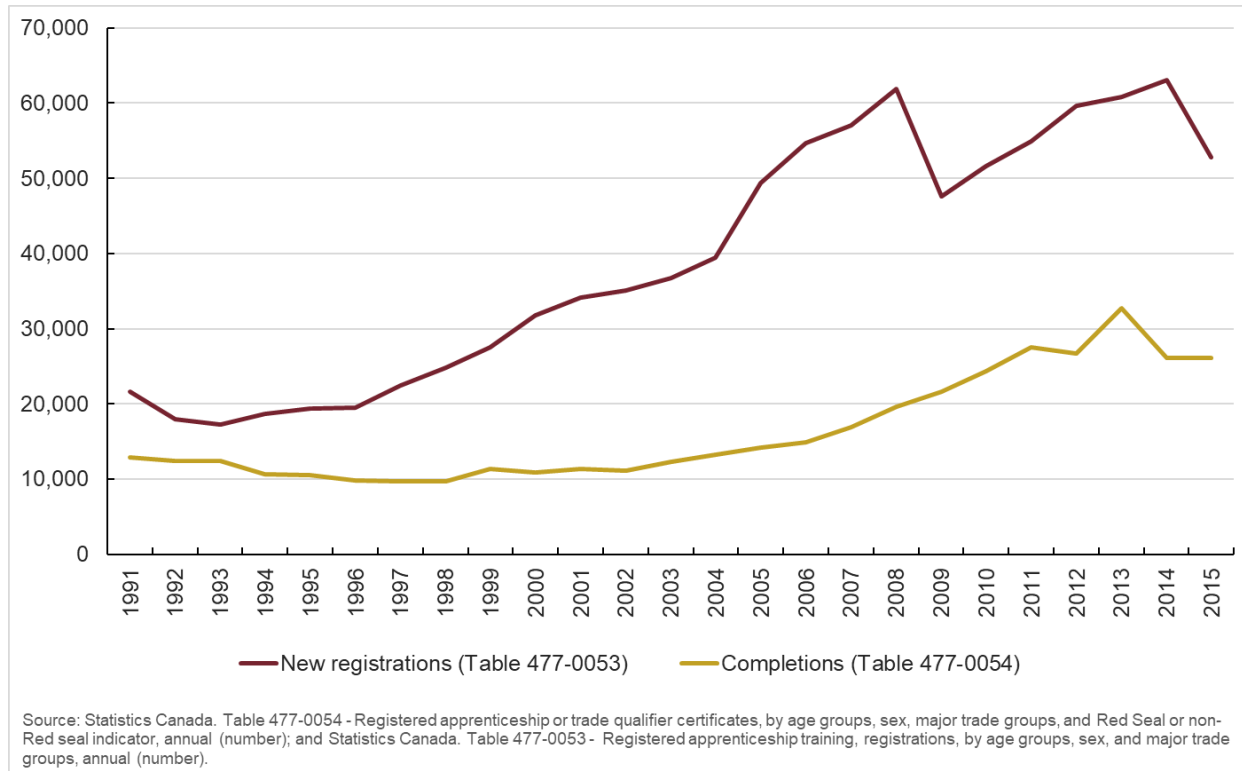
Figure 13: Components of Canada’s population growth (in thousands)



4. Workforce recruitment

Figure 14 shows the annual change in the national totals for new apprenticeship registrations and completions. Tracking the numbers in this way highlights the apparent lag between the two. Registrations declined in 2009 and again in 2015 due to economic weakness in the energy and mining sectors. The overall number of completions remained relatively stable, but is expected to decline in 2016 and 2017, as it tends to follow a lag trend related to new registrations.

Figure 14: Apprenticeship in the construction trades, new registrations and completions, 2000–2015



5. Summit strategies

Over the past 20 years, Canada's construction and maintenance industry has employed many approaches to maximize its use of available skilled labour and, at times, has been required to draw on international skilled labour to supplement the existing workforce. According to the BuildForce 2018–2027 forecast, labour market pressures on the industry are expected to moderate as the industry continues in a period of more modest growth.

Even under these more traditional growth demands, however, labour pressures due to an increasing level of retirements will make workforce management very challenging. Static employment growth and increasing workforce retirements are expected to reduce the workforce by 20 percent, while less demand for projects of longer duration will make training and mentoring more challenging for new entrants, who will be necessary to replace those seasoned industry professionals departing the industry for good. More aggressive recruitment, more respectful and inclusive workplaces, more of a commitment to training and professional development, as well as greater workforce management flexibility will all be required to ensure that the construction and maintenance sector remains competitive in the face of more aggressive competition for skilled workers from elsewhere in the Canadian economy.

5.1 Summit 2017

With these challenges in mind, the focus of this year's National Construction and Maintenance Industry Summit was on productivity, safety, and workforce retention strategies – all three issues selected for additional study from the six industry priority areas identified at the 2015 Summit. In addition to validating the previous six priorities, 2017 Summit participants augmented many of them as follows:

1. Recruitment

- Despite identifying the need for industry to better engage and recruit workers from under-represented groups, much more needs to be done, particularly regarding the recruitment of women, Indigenous communities, immigrants, and veterans.
- The industry needs to reach youth earlier, and better educate schools about the value of a career in the trades. Maintaining vocational programs in high schools should remain an industry priority.
- Recruitment and promotion of skilled trades careers to university graduates returning to college would make the workforce more adaptable and reduce the time required to teach Essential Skills. Promotional efforts directed at this demographic would be useful.
- The industry should also consider partnerships with other labour providers, including non-traditional training sources. Corrections Canada was identified as one possible source, which provides apprenticeship training to rehabilitated offenders. Helmets to Hardhats (H2H) is another potential partner that prepares veterans for careers in construction.
- Increased focus on apprenticeship training must remain a high priority. Despite ongoing industry advocacy, harmonization of apprenticeship curriculum, training requirements, and sequencing remains an issue. All construction and maintenance stakeholders must be engaged to drive harmonization efforts forward. Sharing apprentices between several employers was also identified as one means of increasing training experience and improving completion rates.

2. Training

- Industry training providers are doing a good job of ensuring that training matches demand; however, government-funded training through training institutions needs to better align with current and future industry needs.
- Skilled trades training should be more focused on ensuring the current workforce has the skills and training required for now, as well as for the future.
- Employers tend to scale back training when work volumes decrease, which only further contributes to skills gaps and labour availability challenges that become apparent once volumes increase again.
- Supervisory skills are also in need of upgrading to improve productivity and avoid time lost due to poor planning, project sequencing, and logistics management.
- Though there are many elements to safety, the lack of adequate safety training and harmonized national standards were both identified as areas for industry focus. Safety training and certification must be portable between jurisdictions.
- To avoid future workforce challenges, the industry should make ongoing apprenticeship training a priority and work cooperatively to ensure that training is not impacted by down-cycles in the economy.

3. Retention

- The industry's recruitment of potential workers from remote Indigenous communities often occurs during the building phases of new projects, when recruitment activities are highest. It was suggested that employers need to increase their retention efforts post-construction to ensure these valuable workers, once trained, are not lost due to lack of employment opportunities in their local markets.
- Another industry retention challenge discussed was the need for greater employer scheduling flexibility to reduce the time urban-based employees spend away from home. Shorter deployment schedules were suggested as a solution.

- With the industry transitioning into a period of more moderate growth, it was proposed employers consider work-sharing arrangements to prevent younger workers from leaving the industry due to lower construction work volumes and available hours.
- A focus on workplace safety was also identified by most attendees as helpful and beneficial to ongoing industry recruitment and retention efforts.

4. Mobility

- Though labour force pressures have moderated over the past several years, there is a growing need for industry to improve workforce mobility policies, which will be critical for the industry in the future to access the labour it requires to remain competitive.
- The industry needs to work more cooperatively with provincial governments to ensure that licensing requirements are not a barrier to worker mobility and that outdated and restrictive rules are updated to reflect a more modern approach to workforce mobility.

5. Productivity

- Employers need to develop better management tools. There is still too much time lost due to improper planning, project sequencing, and logistics management.
- The sequencing of major projects was also identified as a challenge to productivity as it creates labour scarcity when too many are concentrated in one geographic region at the same time. Where legally possible, better coordination and sequencing of projects should occur between project proponents, particularly with respect to larger-scale maintenance projects. Peak activity creates short-term recruiting challenges followed by unemployment, which makes industry recruitment and retention more challenging.
- Better benchmarking is also important. The adage attributed to Lord Kelvin, “What gets measured, gets done,” needs to be applied to the construction and maintenance industry. Better and more relevant data collection is critical to drive industry productivity.

6. Stakeholder engagement

- Industry-wide collaboration will be critical to move the industry’s strategic priorities forward.
- Better information sharing between stakeholders would help accelerate the spread of best practices and successful strategies throughout the industry.

Although all industry stakeholders have a role to play in addressing these challenges, there is a need for a focused and concerted industry effort to move forward with strategies to address these issues as quickly as possible, as well as better coordination to avoid duplication of effort.

5.2 Recruitment

Although recruitment was not an area of specific focus at the 2017 Summit, it remains a very high priority for the industry and was frequently referenced in discussion, particularly as it relates to training and retention. Despite the identification of recruitment as an industry priority, industry progress in addressing the situation has been measured. With increased industry retirement rates forecast for the coming decade, additional focus on the recruitment of women, Indigenous peoples, immigrants, and veterans will be required.

Youth

Aging demographics remains a concern for the construction and maintenance industry in Canada. With nearly 250,000 skilled tradespeople expected to retire from the industry over the next 10 years, attracting youth into the industry is a high priority. Additional apprentices will be needed to replace those retiring. Attracting the best and the brightest to replenish the workforce will be critical, particularly as the pool of available young people is also in decline due to low population growth and increased recruitment pressures from other industries. Working from knowledge of the values

and interests of youth, action is required to improve perceptions of the industry, dispel myths, highlight technological advances in construction, and promote the pride, professionalism, lifestyle, and unique career opportunities available within the construction industry. To do this effectively, the industry needs to reach youth earlier to turn them on to the value of a career within the construction and maintenance industry. Working with provincial governments to institutionalize vocational skills training would be beneficial.

Indigenous people

The Indigenous population is the fastest growing population group in Canada. According to the latest census, there are more than two million Canadians of Indigenous ancestry. The average age of the population is 32 years of age and approximately 50 percent are below the age of 25.⁷ This represents a significant pool of largely untapped labour. To maximize the recruitment of Indigenous Canadians, all relevant stakeholders (industry, governments, Indigenous leaders, community leaders, educators, and trainers) need to increase their awareness of the opportunities and challenges involved in recruiting and training Indigenous Canadians. For the industry to excel in its recruitment of this important segment of the population, focused activities are required to educate the existing workforce about the unique cultural characteristics of Indigenous communities, as well as pre-employment training for Indigenous youth regarding the industry's employment demands.

Programs to promote training and employment in the skilled trades are needed before high school to encourage Indigenous youth to consider a career in the trades as a viable option. Industry cannot rely exclusively on major projects to drive recruitment. The industry must be present and proactive in Indigenous communities to successfully attract, integrate, and prepare Indigenous youth for careers in construction and for the ongoing maintenance work required after new projects have been completed.

Women

Despite industry efforts to promote careers in the skilled trades to women, they remain an underrepresented group in the construction industry. Although the aggregate number of women working in the industry has increased, the proportion of women in the construction trades workforce has remained static (around 4–5 percent). While the construction workforce grew by 90 percent over the past 15 years, the participation of women in the industry grew by only 1 percent. Though many focused recruitment programs have met with some success in attracting women to the construction industry, more effort is required to address some of the underlying barriers and workplace cultural issues that often prevent women from the pursuit of careers in the industry.

Mature/older workers

As the industry faces the retirement of potentially 250,000 skilled workers over the coming decade, it will need to find ways to better accommodate the needs of mature/older workers to avoid a significant loss of both workforce skills and experience. This requires finding ways to learn about and accommodate their needs. Options for attracting and retaining mature/older workers could include less strenuous workloads, participation in “train the trainer” programs to share their experience, mentoring programs to promote youth-knowledge transfer, part-time and flexible work schedules, and job sharing.

Temporary foreign workers

Lower industry demand is moderating the industry's use of the *Temporary Foreign Worker Program (TFWP)*. In recent years, the industry has relied on the TFWP to meet short-term peak demands for skilled tradespeople. When workforce demand exceeded the available supply of qualified skilled workers, the program has helped the industry proceed with projects on schedule that otherwise would have been delayed or cancelled due to the scarcity of qualified skilled workers. While the TFWP has been a solution to address acute regional skilled labour shortages, it was expensive to

⁷ <http://www.statcan.gc.ca/pub/11-627-m/11-627-m2017027-eng.htm>

use and did not always align with the unique characteristics of the construction and maintenance industry, such as short-term employment, the need for specific skills, and the likelihood of having to work for multiple employers across jurisdictions over multiple projects. The dynamic nature of the industry requires a quick and flexible approach to recruitment.

Immigrants

With domestically trained new entrants forecast to meet only 50 percent of the industry's need for new skilled tradespersons, the construction and maintenance sector will need to continue relying on immigration to meet its future workforce demands. The industry must attract and successfully integrate them as one of many strategies for managing workforce requirements. Programs that facilitate the entry of skilled craft workers, such as the *Provincial Nominee Program*, the *Canadian Experience Class* and the *Federal Skilled Trades Program* are critical as they augment the pool of domestic skilled craft workers available to the industry. Despite the introduction of these programs, however, many skilled craft workers still find the current immigration "points" system a barrier to their timely entry into Canada.

Once in Canada, many of these workers find settlement challenging, not only for their families, but often personally as they adapt to their new environment. Recognition of credentials, understanding the industry's culture, language challenges, safety regulations, team interaction, and communicating effectively with others are all barriers new immigrants must overcome. To integrate and retain these new workers in the construction workforce, the industry must develop a more collaborative relationship with government and immigrant settlement organizations to help immigrant workers overcome these challenges.

University students

Many recent university graduates struggle initially to find employment in their field of study. Often, these individuals turn to the college system to obtain practical employment skills before permanently entering the workforce. As these individuals typically possess the Essential Skills required to successfully complete an apprenticeship, the industry must do a better job of promoting the benefits of a career in the construction trades to this group of individuals.

Veterans

The recruitment of veterans from the Canadian military is another viable pool of individuals from which additional skilled tradespersons can be recruited. Due to their military training, veterans are particularly well suited to careers in construction. Many possess the interpersonal skills, leadership abilities, professionalism, and dedication the industry requires of its skilled trades workforce. Organizations such as Helmets to Hardhats (H2H) are working directly with the military to provide apprenticeship training to veterans. As many former military personnel already possess the required training and skills to achieve journeyman status, the program works to fill any gaps in experience or training to facilitate the entry of veterans into the construction workforce.

Goal

An ongoing sustainable supply of skilled workers appropriate to meet short- and long-term demands

Objectives

1. All sources of labour (youth, women, Indigenous people, mature workers, immigrants, veterans, apprentices) maximized to meet demand for skilled workers
2. Flexible, accessible immigration and temporary foreign worker programs to respond to industry needs
3. Harmonization of apprenticeship curriculum, training and training sequencing

Strategies

- Benchmark and track the representation of underrepresented groups in construction
- Research the new generation of potential workers to better understand how to attract and retain them in the construction and maintenance industry
- Continue to build on existing work in the promotion of careers in construction
- Review and adopt policies designed to make careers in construction more attractive to youth, women, Indigenous people, immigrants, and veterans
- Incorporate the requirement to employ apprentices into public and private project contracts
- Identify and share best practices in attracting, recruiting, and retaining women, Indigenous people, immigrants, veterans, and apprentices
- Develop community-level strategies to attract and recruit Indigenous youth
- Develop and implement a comprehensive advocacy/education plan articulating the need for temporary foreign workers and a pathway to permanent residency for those who have worked successfully in the industry and intend to build a life for themselves in Canada
- Develop an education program for employers to inform them about all available options to recruit through immigration
- Develop industry best practices to help new immigrants transition into the construction workforce
- Work with groups such as Helmets to Hardhats to increase the recruitment of veterans into the industry
- Facilitate recognition of international experience and qualifications

Leadership

- All stakeholders to promote careers in construction
- Indigenous engagement requires government, labour, owner, and employer involvement
- Owners take a leadership role in the inclusion of apprenticeship requirements in contract language and supporting the development and completion of apprentices
- BuildForce to continue its national construction careers campaign (website and social media)
- BuildForce to develop and implement educational programs designed to make the construction workplace more respectful to women, Indigenous people, and immigrants

Measurement

- Track the use of international workers (permanent and temporary) in the construction and maintenance industry
- Measure to what extent Canada's temporary foreign worker and permanent resident program policies are responsive to labour market needs
- Track apprentice numbers and stage of development by trade on projects
- Track owner companies that include a requirement to employ apprentices in contracts
- Measure increases in participation of women, Indigenous people, and immigrants

5.3 Training

Apprenticeship is the key training mechanism for the construction and maintenance industry. The apprenticeship system is a partnership between government, employers, labour, and training providers, and is provincially legislated and administered. Given that the apprenticeship model is a combination of on-the-job and in-class training, it is critical that there is both classroom training capacity, as well as employers willing to hire and train apprentices. This demands commitment from contractors, labour, and governments to support apprentices during economic upswings and downturns.

Apprenticeship and occupational certification system requirements differ from province to province. Identification of some trades as "compulsory" and stipulation that workers must have a Certificate of Qualification (C of Q) or be a registered apprentice or certified journeyman to work in some or all areas of these trades varies depending on the province. This stipulation focuses around government and industry's interests for worker safety and other public

benefits. Most trades are voluntary and participation in apprenticeship and certification is left to the preferences of employers and workers.

The Canadian Council of Directors of Apprenticeship (CCDA) is a federally mandated group that manages a national program of endorsements to provincial certificates of qualifications. This *Red Seal Program* establishes a National Occupational Analysis (NOA) that specifies the scope of practice for each of 55 trades. All provinces recognize Red Seal qualifications as equivalent to local certification. This endorsement is clearly important for compulsory trades, but also acts as a national standard for interprovincial recruiting and job searching for voluntary trades.

The harmonization of apprenticeship curriculum, training, and training sequencing is a key strategy to facilitate the mobility of skilled trade apprentices and to improve completion rates. There are currently three key harmonization initiatives underway.

1. In 2013, at the request of industry, the CCDA undertook an apprenticeship harmonization initiative designed to substantively align the apprenticeship system across Canada, support increased completion rates, and enable employers to access a larger pool of apprentices. The specific objectives are:
 - Promote greater consistency in apprenticeship training and certification requirements in targeted Red Seal trades across Canada
 - Increase opportunities for apprentices
 - Reduce barriers to certification
 - Improve the efficiency of the apprenticeship system overall
 - Enhance mobility for apprentices

The work is underway with the stated goal of eventually harmonizing all Red Seal trades. There are five phases to the work, with each phase targeting specific Red Seal trades.

Phase 1: September 2016

- Carpenters, welders, metal fabricators (fitters), ironworkers (general, structural/ornamental, reinforcing), mobile crane operators (general and hydraulic), and tower crane operators

Phase 2: September 2017

- Heavy duty equipment technicians, automotive service technicians, truck and transport mechanic, agriculture equipment technician, construction electrician, industrial electrician, industrial mechanic (millwright), plumber, and steamfitter/pipefitter

Phase 3: September 2018

- Boilermakers, sprinkler fitter, concrete finisher, landscape horticulturist, and sheet metal worker

Phase 4: September 2019

- Rig technician, refrigeration and air conditioning mechanic, insulator (heat and frost), machinist, tool and die maker

Phase 5: September 2020 Implementation

- Cook, powerline technician, motor vehicle body repairer (metal and paint), automotive painter, and hairstylist
2. The Atlantic provinces, through the Council of Atlantic Premiers, have also been working on the harmonization of apprenticeship requirements for 16 trades across Atlantic Canada. The first phase of the project is now complete, and 10 trades have been successfully harmonized. These are bricklayers, cooks, welders, metal fabricators, construction electricians, industrial electricians, carpenters, instrumentation and control technicians, plumbers, and steamfitter-pipefitters. With the successful completion of the first 10 trades, work on an additional six trades will commence shortly.
 3. The New West Partnership Premiers also agreed in March of 2014 to implement measure to facilitate the movement of apprenticeship between provinces. The Governments of British Columbia, Alberta, Saskatchewan and Manitoba and their respective Apprenticeship Authorities will work together to:
 1. Adopt a common policy to:
 - a. Establish a single point of contact for apprentices in each jurisdiction to address their mobility barriers;
 - b. Track, monitor, and regularly review differences between the jurisdictions' apprenticeship training levels and processes.
 2. Engage with employers who have operations in multiple jurisdictions to understand the issues faced when interacting with multiple systems of apprenticeship.
 3. Establish mechanisms (i.e. through web links or central point of contact within the apprenticeship authority) to publish training availability for low volume trades across the three jurisdictions to provide more options for apprentices.

In addition to the work of the CCDA, the Atlantic provinces and the provinces of the New West Partnership Trade Agreement, the Government of Canada is working to implement the same names for each trade across jurisdictions, as well as the number of training levels, total hours of training required, and training sequencing. In October of 2016, the Forum of Labour Market Ministers reaffirmed its commitment to the harmonization of apprenticeship training for 30 Red Seal trades in most jurisdictions outside Quebec by 2020.

The construction and maintenance industry in Canada is comprised of predominantly small companies employing fewer than five employees. Many of these micro-businesses do not have the financial or human resources required to constructively engage in apprenticeship development. Additionally, construction is project-based, meaning apprentice utilization may fluctuate dramatically based on demand peaks and valleys. Combined, these factors make continuous, ongoing employment of apprentices a significant industry challenge. Strategies are required to address these structural issues inherent to the industry.

In addition to apprenticeships, training that is required by all workers (e.g., safety) is often duplicated as workers move from project to project and province to province. Greater coordination and delivery of essential training would be beneficial to the industry and reduce training duplication.

Goal

A responsive training and apprenticeship system with the capacity to meet industry requirements for a skilled workforce

Objectives

1. An apprenticeship system that recognizes participation challenges facing small employers
2. Improved apprenticeship completion rates
3. Flexible training delivery responsive to industry needs
4. Training directly linked to progression/career paths in construction
5. Consistent, high quality training based on national standards
6. Training capacity able to meet current and future requirements

Strategies

- Undertake research to develop a national training inventory and identify gaps
- Develop an inventory of initiatives that address training challenges
- Create a national skills database
- Explore policies to incentivize small employers to participate in apprenticeship
- Facilitate the mobility of apprentices through cross-employer agreements, employer consortiums, etc.
- Continue the work being done on harmonization of training and certification between provinces
- Support journeyman mentor development to increase apprentice retention
- Build on best practices in flexible training delivery models, including online learning, blended online/classroom training, taking training to remote areas, etc.
- Develop, promote, and implement national standards and training to facilitate the transferability of training (e.g., safety, supervisor, foremen, etc.)
- Reduce the duplication of training across segments of construction/maintenance and geographic jurisdictions by adopting national standards and certification systems
- Advocate for government programs (e.g., Labour Market Development Agreements, demand driven government-employer funded training, etc.) that address the needs of the construction and maintenance industry
- Develop and implement formalized mentoring training programs to better support skills and knowledge transfer on the job
- Advocate for and educate employers about the importance of participating in training
- Connect training to career paths in construction
- Develop a ladder approach to skills acquisition – modular approach
- Place more focus on safety as part of apprenticeship technical training

Leadership

- Employers, labour, and employer associations to promote the importance of apprenticeships
- Provincial and territorial governments should be involved
- Employers, joint apprenticeship training committees, and provincial authorities should take leadership roles

Measurement

- Monitor apprenticeship enrolment and completion rates
- Define and measure success in apprenticeship registrations, training to completion, and remaining on the job as a journeyperson
- Measure increased employer participation in apprenticeship (currently 34 percent in construction)
- Measure the retention of workers after training

5.4 Retention

Numerous international studies have been conducted to explore the role employers must play in fostering conditions that reduce workforce churn and nurture employee growth. Canada's construction churn rate is just slightly higher than 15 percent – roughly about the same as the US industry. Of the 32 OECD (Organisation for Economic Co-operation and Development) countries measured, only Belgium and Germany had lower construction workforce churn rates.⁸

The issue of retention was an area of specific focus at the 2017 Summit. Two distinct elements involved in successful employee retention were explored: pre-employment preparation of employees and ensuring employers play a leadership role in the development of a workplace environment that is respectful, flexible, and conducive to employee career development.

Pre-employment preparation can be critical to ensuring that new entrants to the industry are well prepared for the demands of the construction workplace. Adherence to strict safety regulations and practices, the ability to work closely and cooperatively with others, periodic unemployment between projects, long hours and often irregular schedules, and the need to be mobile all make a career in construction unique among industries, and can be a deterrent for many to joining or remaining in the industry. As employer-worker relationships can often be ephemeral within the construction industry, executive leadership is required to ensure that not only pre-employment training and orientation is robust, but also that management through words and deeds create a safe, respectful, flexible, and equitable work environment. Numerous excellent programs exist across the country designed to engage, prepare, train, and mentor industry employees. Many of these programs specifically focus on women, Indigenous peoples, and immigrants – three population groups the industry has targeted for greater recruitment as part of its long-term workforce development goals. If industry does not create a safe, respectful, and equitable workplace environment, it will continue to struggle to retain its best and brightest, and discourage youth, women, and Indigenous workers from the pursuit of careers within the industry.

Goal

Respectful, equitable, safe work sites that support both the success of the workers and that of the construction and maintenance industry

Objectives

1. Improved retention of workers (youth, Indigenous people, women, immigrants)
2. Build safe, respectful, and equitable workplaces
3. Adapt the construction workplace to better reflect the modern values of the next generation of industry workers

⁸ Source: OECD SDBS database: Entrepreneurship at a Glance 2016; Fig. 4.11: Employer enterprise churn rates, by sector

Strategies

- Undertake research to better understand why people leave the industry and the characteristics of a successful workplace
- Develop mechanisms to keep apprentices employed during downturns
- Share existing and develop new best practices where required to support workplace diversity, including zero tolerance policies, pre-employment preparation, on-the-job mentoring, workplace respect programs, etc.
- Develop and implement diversity training
- Where possible, implement flexible work schedules and hours
- More training for supervisors/foreman to support a respectful workplace

Leadership

- Employers and employer associations can provide leadership in this area
- BuildForce to consider a national diversity training program
- BuildForce to consider a national retention study

Measurement

- Benchmark the retention of youth, Indigenous people, women, and immigrants in the construction and maintenance workforce
- Measure the improvement in retention of youth, Indigenous people, women, and immigrants in the construction and maintenance industry

5.5 Mobility

Drawing upon a mobile workforce is critical for the industry to remain responsive to owner needs. There are, however, difficulties inherent in this approach. First, as the industry loses more and more workers to retirement, the availability of mobile workers may be limited. During the peaks in construction activity of the past few years, the Atlantic provinces have provided a large portion of the mobile workforce required in the West. As the Atlantic region has a lower birth rate and a higher than average population age, the future availability of this mobile workforce is uncertain, which could mean fewer tradespeople available to work on projects outside of Atlantic Canada.

Some of the specific challenges associated with mobile workers include higher than normal turnover, a cost of living that varies from province to province, recognition of provincial certification, language, cost associated with trades recognition, hours of work/overtime costs, and logistics management, such as travel and accommodation. Given these challenges, it may be necessary to implement measures that encourage mobility, including mechanisms to validate credentials/qualifications; national standards for safety training and certification; temporary mobility incentives to encourage workers to seek employment outside their home region; additional tax credits to support the cost of moving; ability to test for safety, alcohol, and drugs, locally; ability to test for welders, locally; and a national database of available craft labour.

Goal

A thriving mobile, work-ready workforce that helps to meet skilled labour demands when and where required

Objectives

1. A training and policy framework that facilitates the mobility of workers
2. More detailed data available on mobile workers
3. Social impacts associated with a mobile workforce understood and mitigated
4. Reduce existing barriers to workforce mobility
5. Standardize training and acceptance of safety certificates

Strategies

- Undertake research to quantify the mobile workforce in Canada
- Support existing and undertake new research where required to better understand the social and financial issues facing Canada's mobile workforce
- Develop and implement a campaign to raise awareness of mobile opportunities in construction and maintenance
- Support the harmonization of apprenticeship training and certification requirements between provinces
- Develop "working mobile" training to support workers with success strategies
- Identify and advocate for policies that incentivize working mobile
- Mitigate barriers to mobility, including training transferability, social, health, and financial

Leadership

- National Owner's Forum
- Industry should lead; government should support. For this to happen, industry needs to give information to government to help in this regard.

Measurement

- Benchmark the mobile workforce and track over time
- Track how well information is being shared over time
- Track uptake on working mobile training

5.6 Productivity

For most businesses, enhancing productivity typically means investing in new machinery and technology. Better, faster equipment typically means labour output improves, which is accompanied by a corresponding increase in revenue. When applied to traditional manufacturing, this approach works well as a productivity measurement tool. When it comes to an industry as complex as construction, however, because there are so many moving parts, and each can significantly impact production, accurate productivity measurements are difficult to achieve. For this very reason, some countries such as the United States do not publish productivity data for the construction industry.

Like other industries, new technologies can dramatically improve labour productivity. For example, from 1930 to 1965, the number of hours required to construct a house improved from 837.4 to 283.2 person-hours. This impressive improvement translated into an annual productivity increase of 3.2 percent and was largely attributable to technological

changes, such as improved construction excavating equipment and the introduction of drywall to replace wet plaster.⁹ Clearly, technology did impact productivity, but it did little to improve management systems, processes, and supply chain management, all of which can be detrimental to improved labour efficiency in construction.

Unlike most other industries, construction is unique in that many parties must come together to effectively deliver a project: designers who work with owners to scope a project, engineers that then refine the design to verify constructability, the contractor that is responsible for managing the project, and the trades and specialized trades that are hired to carry out the required work. Construction is a project-based production process and at each stage, numerous decisions are required that independently or combined can and will have a significant impact on the overall success of the project.

The 2017 Summit approached the issue of productivity by exploring the experience of large owners to implement a safety-focused workforce culture. In all three examples, executive leadership proved seminal to achieving the desired outcome.

Moving from a compliance to a desire-based culture required enhanced training and new processes and procedures, but ultimately, the key success factor was involving every level of the workforce – senior management, supervisors and workers – in the project, and ensuring it is understood. Safety trumps production, but with attention to planning, both safety and increased production can be achieved.

It takes a concerted and sustained effort on the part of an organization to re-educate all levels of management for change to occur. Mid-level managers need to be comfortable with making safety a higher priority than other competing pressures to fully realize a culture change. Senior management must also make the appropriate investments in workforce training required to educate and implement revised workflow procedures designed to reduce the risk of injury without impeding the production process.

The more that can be done internally through discussion and consultation with all employees, the better and faster results can be achieved. Bringing in third-parties as advisors can be helpful, but unless employees are engaged, the desired culture change is never truly embraced.

In all three of the examples reviewed at the 2017 Summit, implementing a culture of safety in the workplace translated into lower lost-time accident rates, increased output, and often, higher revenues for the firms.

Applying the lessons learned from the introduction of a safety culture in other industries can be a solution to improving overall workplace productivity in the construction and maintenance industry. Executive leadership and commitment to change; better engagement of mid-management and workers; improved communication and pre-planning; more efficient project staging, sequencing, and equipment management; as well as an increased focus on training and worker competencies all hold promise as possible solutions to the industry's productivity challenges.

⁹ S.P. Dozzi and S.M. AbouRizk, *Productivity in Construction* (National Research Council of Canada – NRCC-37001) <http://nparc.cisti-icist.nrc-cnrc.gc.ca/eng/view/accepted/?id=52dc96d5-4ba0-40e6-98d2-8d388cba30cd> (Pg. 2)

Goal

Improved productivity across all aspects of construction and maintenance projects, contributing to the industry's competitiveness

Objectives

1. Enhance industry productivity
2. Improve awareness of the factors contributing to low productivity
3. Develop a more consistent approach to tracking and measuring productivity

Strategies

- Advocate for harmonized training and certification standards
- Improve communication between all levels of management, both corporate office to on site, and between on-site managers
- Ensure that workers understand the goals and can input into decisions on how best to achieve the desired outcome
- Invest in additional workforce training in new technologies and building techniques and practices
- Improve workplace safety
- Continue to develop supervisor/management skills

Leadership

- Executive level must drive change

Measurement

- National tracking system to benchmark and measure productivity "tool time" improvements

5.7 Safety

Safety was an overriding preoccupation at the 2017 Summit, not only from the perspective of improving safety awareness within the industry, but also as a tool to improve overall productivity. Many felt a national standard for safety training and certification was required. One possible example is the Canadian Federation of Construction Safety Associations' national *Certificate of Recognition* (COR) program, though there are others in existence. Regardless of which program is adopted or developed, Summit participants were unanimous in their support for a harmonized approach to safety training and the need for portability of safety certificates between provinces.

In addition to the need for a national safety training program, Summit participants also expressed strong concern regarding the impact upcoming legalization of cannabis may have on construction workplace safety. Randomized testing and the duty to accommodate employees with licenses to use cannabis generated considerable discussion, but no concrete recommendations for action.

Goal

To promote greater harmonization of safety training and certification across Canada

Objectives

1. Increase the level of safety training within the industry
2. Harmonize safety and training certification between jurisdictions
3. Work with provincial governments to ensure cannabis legalization does not undermine workplace safety

Strategies

- Coordinate advocacy activities to further promote safety certification harmonization and portability between jurisdictions
- Seek a unified national safety training program that meets the needs of owners and employers to avoid duplication of training
- Enhance safety training
- Work cooperatively to develop standards for accommodating employees with cannabis licenses on worksites
- Develop standards and promote policies with governments for cannabis testing

Leadership

- Owners, contractors, and labour providers
- Federal and provincial governments
- Legal community and medical

Measurement

- Track how well information is being shared over time
- Track incident rates related to cannabis use

5.8 Leadership

Senior level leadership engagement emerged at the 2017 Summit as a critical factor that is instrumental to drive industry change. From safety to productivity, retention to training, no significant industry progress will occur without senior management leadership championing change.

During the leaders' panel, speakers identified several key issues requiring collective industry collaboration. Retention was highlighted as one of the most significant challenges the industry will face over the next decade. Younger workers have very different approaches to learning and training. They expect to be engaged, and this will require a new type of management and leadership approach from employers. Lifelong learning will also be important, as many younger workers expect employers to contribute to their professional development. Consequently, if employers do not learn to invest in employee development as part of their retention strategies, the industry will continue to struggle to retain the best and brightest in the industry, regardless of pay.

It was posited that as a cohort, millennials are far more strident in their view toward work than previous generations, and will seek to work in industries with workplace environments that are compatible with their societal beliefs. Developing a safe, respectful, and equitable work environment will be critical for employers to ensure the retention of these valuable workers.

About productivity, leaders agreed that owners are best placed within the construction pyramid to drive productivity improvements. Owners can take a longer-term view of the issue and can, through the power of procurement, drive productivity improvements such as workface planning, lean construction, building information modelling, and the adoption of new technologies and building practices such as 3D printers, automated vehicles or modular construction.

Focus was also identified as a critical challenge for the industry. Due to its size and complexity, change can be slow, despite best efforts. Greater industry focus and sustained commitment from leadership to the advancement of a more select number of priorities through targeted initiatives could more effectively bring about the desired impacts on labour force recruitment, retention, and development.

Goal

Engage industry leadership

Objectives

1. Greater engagement of industry leadership as drivers for change
2. Better collaboration between owners, contractors, and labour in driving solutions to industry challenges
3. Owner leadership in driving industry productivity

Strategies

- Hold more frequent meetings between owners, contractors, and labour to discuss industry challenges
- United industry approach to driving the cultural change required to make the industry a more inclusive, safe, and respectful place in which to work and build a career
- Adopt more flexible work schedules to meet the needs of millennials, while not diminishing workplace safety standards or creating impediments to project completion schedules

Leadership

- Owners, contractors, and labour providers

Measurement

- Use existing and new tools to help measure progress

5.9 Stakeholder engagement

The challenges facing the construction and maintenance industry in Canada will require collective industry focus and collaboration to address. No one organization can resolve the issues. This will require ongoing engagement to educate stakeholders about the unique features of the construction and maintenance labour market. Providing a common vision through an overarching national workforce development strategy will help to create a common language and understanding. In turn, this will facilitate collaborative action, avoid unnecessary duplication, and maximize resources.

Goal

Broad industry stakeholder engagement that works collaboratively toward a common workforce development vision

Objectives

1. A common understanding of workforce challenges across all construction and maintenance industry stakeholders
2. Expanded involvement of industry stakeholders

Strategies

- Identify and articulate opportunities for industry and government to partner
- Increase understanding of the unique features of the construction and maintenance labour market
- Convene stakeholder meetings to share and discuss challenges and solutions
- Develop a communications vehicle to support ongoing engagement and participation
- Encourage sharing of information and best practices
- Establish a central place to share data and information

Leadership

- Industry associations and labour providers promote the importance of sharing information and best practices
- BuildForce to maintain the National Owners Forum
- BuildForce to facilitate working groups to bring together and share best practices
- BuildForce to host regular quadripartite (owners, contractors, labour, government) meetings
- BuildForce to use its national reach to support the strategy and share information about initiatives, programs, and activities with industry stakeholders

Measurement

- Measure the change in National Owners Forum participation
- Measure the distribution of reports resulting from the Summit
- Monitor the sharing of information resulting from the Summit and subsequent related work through BuildForce and its partners on an ongoing basis

6. Conclusion

This document represents a summary of the views shared at the October 2017 BuildForce Canada National Construction and Maintenance Industry Strategy Summit. The Summit was attended by more than 100 industry stakeholders from across Canada representing owners, contractors, labour providers, industry associations, and governments. Participants validated the previous six priorities as ongoing challenges identified and discussed at the 2015 Summit, as well as added safety and leadership to the revised priority list. These challenges are affecting the short-, medium- and long-term capacity of the construction and maintenance industry in Canada. There is strong consensus that a time of projected slower growth provides an opportunity for increased industry focus and action to address collectively these challenges. The issues are complex and require multiple strategies and multiple stakeholders to resolve and ensure the industry has the long-term sustainable workforce it will require.

An ongoing national venue is necessary to identify challenges and engage the diversity of stakeholders to meet these identified needs by leveraging their common expertise, knowledge, and resources.

We hope this document will provide a roadmap for future work to address the industry's workforce development needs. For its part, BuildForce Canada will keep this document evergreen and will continue to provide opportunities to engage industry stakeholders on issues emerging from its labour market forecasts. We will also undertake workforce development initiatives based on that engagement. BuildForce will also seek opportunities to bring groups together around specific issues and to share other resources available to the industry.

7. Appendix – Strategy Summary

OBJECTIVES	STRATEGIES	MEASUREMENT	LEADERSHIP
<p>RECRUITMENT</p> <p>Goal: An ongoing sustainable supply of skilled workers appropriate to meet short- and long-term demands</p>			
<p>1. All sources of labour (youth, women, Indigenous people, mature workers, immigrants) maximized to meet demand for skilled workers</p> <p>2. Flexible, accessible immigration and Temporary Foreign Worker (TFW) programs to respond to industry needs</p>	<ul style="list-style-type: none"> • Benchmark and track representation of underrepresented groups in construction • Research the new generation of potential workers to better understand how to attract and retain them in the construction and maintenance industry • Continue to build on existing work in the promotion of careers in construction • Incorporate the requirement to employ apprentices into public and private owner contracts • Identify and share best practices in attracting, recruiting and retaining women, Indigenous people, and immigrants • Develop community level strategies to attract and recruit Indigenous youth • Develop and implement a comprehensive advocacy/ education plan articulating the need for temporary foreign workers • Develop an education program to inform employers about all available immigration and TFW programs • Facilitate recognition of international experience and qualifications 	<ul style="list-style-type: none"> • Track the use of international workers (permanent and temporary) in the construction and maintenance industry • Measure to what extent Canada's TFW & permanent resident program policies are responsive to labour market needs • Track apprentice numbers & stage of apprenticeship by trade on projects • Track owner companies that include a requirement to employ apprentices in contracts • Measure increases in participation of women, Indigenous people, and immigrants 	<ul style="list-style-type: none"> • All stakeholders to promote careers in construction • Indigenous engagement requires government, labour, owners and employers • Owners take a leadership role in including apprenticeship requirements in contract language and supporting the development and completion of apprentices • BuildForce to continue its national construction careers campaign (website and social media)

TRAINING

Goal: A responsive training and apprenticeship system with the capacity to meet industry requirements for a skilled workforce

<ol style="list-style-type: none"> 1. An apprenticeship system that recognizes participation challenges facing small employers 2. Improved apprenticeship completion rates 3. Flexible training delivery responsive to industry needs 4. Training directly linked to progression/ career paths in construction 5. Consistent, high-quality training based on national standards 6. Training capacity able to meet current and future requirements 	<ul style="list-style-type: none"> • Undertake research to develop a national training inventory and identify gaps • Develop an inventory of initiatives that address training challenges • Create a national skills database • Explore policies to incentivize small employers to participate in apprenticeship • Facilitate the mobility of apprentices through cross- employer agreements, employer consortiums, etc. • Continue the work being done on harmonization of training and certification between provinces • Support journeyman mentor development to increase apprentice retention • Build on best practices in flexible training delivery models, including online learning, blended online/ classroom training, taking training to remote areas, etc. • Develop, promote, and implement national standards and training to facilitate the transferability of training (e.g., safety, supervisor, foremen, etc.) • Reduce the duplication of training across segments of construction/ maintenance and geographic jurisdictions • Advocate for government programs (e.g., Labour Market Development Agreements, Canada Job Grants, etc.) that address the needs of the construction and maintenance industry • Develop and implement formalized mentoring training programs to better support the transference of skills and knowledge on the job • Advocate for and educate employers about the importance of participating in training 	<ul style="list-style-type: none"> • Monitor apprenticeship enrolment and completion rates • Define and measure success in apprenticeship registrations, training to completion, and remaining on the job as a journeyman • Measure increased employer participation in apprenticeship (currently 34 percent in construction) • Measure the retention of workers after training 	<ul style="list-style-type: none"> • Employers, labour, and employer associations to promote the importance of apprenticeships • Provincial and territorial governments should be involved • Employers, joint apprenticeship committees, and provincial authorities should take leadership roles
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	<ul style="list-style-type: none"> • Connect training to career paths in construction • Develop a laddered approach to skills acquisition – modular approach • Place more focus on safety as part of apprenticeship technical training 		
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RETENTION

GOAL: Respectful, equitable, safe work sites that support both the success of the workers and that of the construction and maintenance industry

<ol style="list-style-type: none"> 1. Safe, respectful and equitable workplaces 2. Improved retention of workers (youth, Indigenous people, women, immigrants) 	<ul style="list-style-type: none"> • Undertake research to better understand why people leave the industry and the characteristics of a successful workplace • Develop mechanisms to keep apprentices employed during down turns • Share existing and develop new best practices where required to support workplace diversity, including zero tolerance policies, pre-employment preparation, on-the-job mentoring, workplace respect programs, etc. • Develop and implement diversity training 	<ul style="list-style-type: none"> • Benchmark the retention of youth, Indigenous people, women and immigrants in the construction and maintenance workforce • Measure the improvement in retention of youth, Indigenous people, women and immigrants in the construction and maintenance industry 	<ul style="list-style-type: none"> • Employers and employer associations can provide leadership in this area • BuildForce to consider a national diversity training program • BuildForce to consider a national retention study
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MOBILITY

GOAL: A thriving mobile, work-ready workforce that helps to meet skilled labour demands when and where required

<ol style="list-style-type: none"> 1. A training and policy framework that facilitates the mobility of workers 2. More detailed data available on mobile workers 3. Social impacts associated with a mobile workforce understood and mitigated 	<ul style="list-style-type: none"> • Undertake research to quantify the mobile workforce in Canada • Support existing and undertake new research where required to better understand the social and financial issues facing Canada’s mobile workforce • Develop and implement a campaign to raise awareness of mobile opportunities in construction and maintenance • Support the harmonization of apprenticeship training and certification requirements between provinces • Develop “working mobile” training to support workers with success strategies • Identify and advocate for policies that incentivize working mobile • Mitigate barriers to mobility, including training transferability, social, health, and financial 	<ul style="list-style-type: none"> • Benchmark the mobile workforce and track over time • Track how well information is being shared over time • Track uptake on working mobile training 	<ul style="list-style-type: none"> • National Owner's Forum • Industry should lead; government should support. For this to happen, industry needs to give information to government to help in this regard • BuildForce to form a working committee comprised of labour, owners, and contractors to address this issue
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PRODUCTIVITY

GOAL: Improved productivity across all aspects of construction and maintenance projects, contributing to the industry’s competitiveness

<ol style="list-style-type: none"> 1. A common definition of productivity 2. A consistent approach to tracking and measuring productivity 3. An understanding of the contributing factors to low productivity 4. Improve productivity 	<ul style="list-style-type: none"> • Develop a national construction and maintenance industry definition of productivity • Leverage existing work that has been done to establish a national system for tracking and measuring productivity • Undertake research into best practices in factors that impact productivity, including legislation, shift schedules, communication, supervision, and trends in minimizing time and materials, etc. • Develop and implement national productivity training • Continue to develop supervisor/ management skills 	<ul style="list-style-type: none"> • National tracking system to benchmark and measure productivity “tool time” improvements 	<ul style="list-style-type: none"> • Owners, contractors, and labour providers continue to pursue productivity improvements • BuildForce to contact known sources of productivity work (e.g., Construction Owners Association of Alberta, University of New Brunswick, etc.) to discuss possible opportunities to build on work being done • BuildForce will convene a working group to explore opportunities for collaboration
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STAKEHOLDER ENGAGEMENT

GOAL: Broad industry stakeholder engagement that works collaboratively toward a common workforce development vision

<p>1. A common understanding of workforce challenges across all construction and maintenance industry stakeholders</p> <p>2. Expanded involvement of industry stakeholders</p>	<ul style="list-style-type: none"> • Identify and articulate opportunities for industry and government to partner • Increase understanding of the unique features of the construction and maintenance labour market • Convene stakeholder meetings to share and discuss challenges and solutions • Develop a communications vehicle to support ongoing engagement and participation • Encourage sharing of information and best practices • Establish a central place to share data and information 	<ul style="list-style-type: none"> • Measure the change in National Owners Forum participation • Measure the distribution of reports resulting from the Summit • Monitor the sharing of information resulting from the Summit and subsequent related work through BuildForce and its partners on an ongoing basis 	<ul style="list-style-type: none"> • Industry associations and labour providers promote the importance of sharing information and best practices • BuildForce to continue to expand owner participation in the National Owners Forum • BuildForce to facilitate working groups to bring together and share best practices • BuildForce to host regular quadripartite (owners, contractors, labour, government) meetings • BuildForce to use its national reach to support the strategy and share information about initiatives, programs, and activities with industry stakeholders
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