

A construction worker wearing an orange hard hat, safety glasses, and a high-visibility vest, looking towards the right.

2016–2025
Key Highlights

A construction worker in a high-visibility vest and hard hat working on a wooden structure, possibly a bridge or large building frame.

Construction and Maintenance Looking Forward

Construction trades outlook for major projects in Canada's territories

Construction was one of the leading sources of employment growth in Canada over the last decade before pausing from 2013 to 2015. Across Canada, construction weakened as resource prices fell, and project delays and cancellations were common. In the 2016 *Construction and Maintenance Looking Forward* forecast, these trends translate into slower construction employment growth across the 2016–2025 scenario period.

Over the scenario period, construction is expected to experience more moderate growth, but there is underlying momentum in some provinces and markets that will carry construction employment up over the medium term from 2016 to 2019. The ebb and flow of conditions will move jobs across construction markets and provinces, but national employment remains close to current levels by the end of the scenario in 2025.

The common theme of mobility emerges across the 2016–2025 forecast scenario, as retirements rise across all regions and sectors while labour requirements shift back and forth across different markets. Balancing markets still requires a mix of short- and long-term mobility that includes fly-in, fly-out movement into remote northern locations and more long-term additions of young and permanent workers to each regional labour market.

The BuildForce labour market information (LMI) system has been tracking these developments and assessing the impacts on labour markets for 34 specific trades and occupations in each province. Large construction projects regularly drive up labour requirements, creating peak demands and recruiting challenges for skilled trades and occupations. These demands have grown even more specialized in the last five years as resource projects in northern communities draw on

a national workforce. A specialized workforce has emerged to meet these needs, and the mobility of these skilled trades and the timing of requirements is a crucial factor in meeting the ongoing and peak labour demands for major resource development projects.

While BuildForce produces provincial forecasts for construction trades, the lack of detailed historical labour market information for Canada's territories makes it difficult to provide similar outlooks for these regions. Nevertheless, there are a number of major construction projects proposed for the territories, mainly in the mining sector, that will draw on the same skilled labour pool needed for other major resource projects underway and proposed across Canada. The purpose of this document is to identify such projects and provide estimates of construction trades requirements for these projects.

The next section of this report provides some background on the economies in the three territories. The third section identifies the major projects that could be undertaken over the next few years. The fourth section provides estimates of the trades requirements for the projects.

The information on the major projects was collected from a number of sources. These sources include company websites and the assistance of government officials in the

Table 1: Real GDP of the territories (millions of 2007 dollars*)

Territory	2007	2008	2009	2010	2011	2012	2013
Yukon	\$1,776	\$1,923	\$2,067	\$2,153	\$2,245	\$2,303	\$2,283
		8.3%	7.5%	4.2%	4.3%	2.6%	-0.9%
Northwest Territories	\$4,638	\$4,195	\$3,649	\$3,733	\$3,432	\$3,508	\$3,632
		-9.6%	-13.0%	2.3%	-8.1%	2.2%	3.5%
Nunavut	\$1,369	\$1,539	\$1,416	\$1,722	\$1,804	\$1,826	\$2,030
		12.4%	-8.0%	21.6%	4.8%	1.2%	11.2%

* \$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.

Source: Statistics Canada

territories, who provided views on the likelihood that the announced projects would go ahead as announced in the next few years.

BACKGROUND

The economy in the Northwest Territories was relatively stable over the last two years following a number of years of sharp declines. The Yukon economy contracted a small amount in 2013 following a period of sustained and steady progress. Real GDP in Nunavut increased sharply by 11 percent in 2013. (See Table 1.)

These divergent patterns are primarily due to the differing development paths of the mining industry across the territories. In the Northwest Territories, the diamond mining sector has reached maturity and production declines can be expected in the future. The Diavik and Ekati mines are to be shut down over the next decade and the production from the new Gahcho Kué mine will not be a sufficient offset for the industry in the territory. The construction of three new mines in the Yukon has been postponed. The construction of the Mary River project in Nunavut has also been postponed.

PLANNED MAJOR CONSTRUCTION PROJECTS IN THE TERRITORIES

This section provides some details on major construction projects that are scheduled to occur over the next few years in Canada's territories. A summary of the projects is first presented, followed by more information on the projects.

Table 2 provides a summary of the major projects for the territories, including the estimated capital costs associated with the construction phase, as well as the start and end date for this work. The estimated capital cost is the basis for our estimate of trades requirements. A number of projects have been postponed in our inventory, including Yellowknife Gold, Pine Point Mine,

Whitehorse Copper, Brewery Creek, Carmacks Copper and Meliadine Gold mine – the start and end dates for these projects are shown as indeterminate.

Gahcho Kué Diamond Mine, Northwest Territories

The Gahcho Kué Diamond Mine, located at Kennady Lake, which is 280 kilometres northeast of Yellowknife, is a joint venture of DeBeers Canada and Mountain Province Diamonds. The mine plan includes the extraction and processing of more than 31 million tonnes of ore and the recovery of 49 million carats of diamonds over a 10-year operating period. The company received approval for a land use permit and a water license for the completion of construction. Progress continues to be made on the arrangement of a loan facility. Construction began in 2013 and is expected to end this year. Capital costs during construction are estimated at \$600 million.

Inuvik to Tuktoyaktuk Highway, Northwest Territories

The 140-kilometre long highway will link the Town of Inuvik with the Hamlet of Tuktoyaktuk. Construction on the Inuvik side of the road did not move along as fast as planned last winter and crews fell short of their targets. Capital costs during construction are estimated at \$300 million. Construction was started in 2014 and is expected to be complete by the winter of 2018.

Nechalacho (Thor Lake) Project, Northwest Territories

The Nechalacho Rare Earth Elements Deposit is one of the largest undeveloped rare earth elements resources in the world. It is located at Thor Lake, about 100 kilometres southeast of Yellowknife. The next steps include securing remaining operating permits and licenses, completing hydrometallurgical process plant work, securing off-take

Table 2: Major projects and capital costs

Territory	Projects	Construction		Capital cost (millions)
		Start year	End year	
Northwest Territories	Gahcho Kué Mine	2013	2015	\$600
	Inuvik to Tuktoyaktuk Highway	2014	2018	\$300
	Nechalacho (Thor Lake) Project	2017	2018	\$902
	Prairie Creek	2015	2016	\$120
	Yellowknife Gold Project	–	–	\$193
	NICO Project	2017	2018	\$210
	Giant Mine Remediation Project	2014	2023	\$480
	Pine Point Mine	–	–	\$140
Nunavut	Mary River project	2013	2016	\$740
	Meliadine Gold mine	–	–	\$911
				\$1,651
Yukon	Whitehorse Copper	–	–	\$5
	Victoria Gold	2016	2018	\$400
	Brewery Creek	–	–	\$200
	Carmacks Copper	–	–	\$150
	Casino Mine	2017	2020	\$2,450
				\$3,205

Sources: Yukon Economic Development, NWT Bureau of Statistics, Nunavut Bureau of Statistics and company websites

agreements with consumers and arranging next stage project financing. Construction is expected to occur between 2017 and 2018 with estimated capital costs of \$902 million.

Prairie Creek Mine, Northwest Territories

The Prairie Creek Mine is located in the Mackenzie Mountains and is owned by Canadian Zinc Corporation. The company's focus for 2015 was to continue to advance the mine toward production. Construction is occurring between 2015 and 2016 with estimated capital costs of \$120 million.

Yellowknife City Gold Project, Northwest Territories

The Yellowknife Gold Project is located in the South Mackenzie Mining District in an area that extends from 50 to 90 kilometres north of Yellowknife. The company has recently started a drilling program, and a two-year mine construction period is expected, with estimated capital costs of \$193 million. The mine is expected to process approximately 857,000 to 1,225,000 tonnes of ore per year. This project is postponed in our inventory.

NICO Project, Northwest Territories

The NICO deposit is located 150 kilometres northwest of Yellowknife. It contains open-pit and underground proven and probable mineral reserves totaling 33 million tonnes. Construction is expected to occur between 2017 and 2018 with estimated capital costs of \$210 million.

Giant Mine Remediation Project, Northwest Territories

The Giant Mine was a large gold mine located on the Ingraham Trail just outside of Yellowknife. As an active mine it produced more than seven million troy ounces of gold – as well as 237,000 tonnes of arsenic trioxide dust. Remediation work started in 2014 and since then about 3,000 metric tonnes of material contaminated with arsenic and asbestos was removed from the roaster complex. Capital costs stand at \$480 million and work is expected to continue until 2023.

Pine Point Mine, Northwest Territories

The Pine Point Mine, located west of Fort Resolution on the south shore of Great Slave Lake, produced lead and zinc ores from 1964 to 1988. Tamerlane Ventures would

like to bring the Pine Point property back into production and is currently in negotiations for funding with larger mining companies. Estimated capital costs are \$140 million. This project is postponed in our inventory.

Whitehorse Copper Project, Yukon

The Whitehorse Copper mine closed in 1982 and left behind 10 million tonnes of tailings. Eagle Whitehorse plans to truck ore from the mine to the port of Skagway to be shipped to market. The Yukon government provided its approval after a positive recommendation from the Yukon Environmental and Socio-economic Assessment Board. More recently, however, the world price for magnetite has fallen sharply and the company has said it will be difficult to continue with the project with prices at this level. Capital costs for the project are \$5 million with a construction period of six to seven months. This project is postponed in our inventory.

Victoria Gold, Yukon

Victoria's Eagle Gold Project is located 375 kilometres north of Whitehorse. Eagle is an open-pit mine and will operate as a drill, blast, shovel and haul operation with a nominal rate of 29,500 tons per day of ore and a mine life of nine years. The project will produce 200,000 ounces of gold annually at an operating cost of \$600 per ounce. Initial capital costs are estimated at \$400 million and construction will occur between 2016 and 2018.

Brewery Creek, Yukon

Golden Predator Mining Corp. holds the Brewery Creek project, a past-producing heap leach gold mine. Construction costs are estimated at \$200 million and will extend over a two-year period. This project is postponed in our inventory.

Carmacks Copper, Yukon

The Carmacks Copper Project is located 198 kilometres north of Whitehorse. The initial capital cost target was reduced to \$150 million due to an improved leach plan. Capital costs are 30 percent lower than contained in the July 2014 Preliminary Economic Assessment. Construction is expected to extend over a two-year period and the mine is expected to have an operating life of seven years. This project is postponed in our inventory.

Casino mine, Yukon

The Casino mine project is located 150 kilometres northwest of Carmacks and 300 kilometres northwest of Whitehorse. The company said the mine could produce

400,000 ounces of gold and 200 million pounds of copper annually and have a life of about 22 years. The construction of an open-pit mine runs from 2017 to 2020 with an estimated cost of \$2.45 billion. The Casino Project is in the early stages of the environmental permitting process.

Mary River project, Nunavut

The Mary River Property, located on North Baffin Island in the Qikqṭani Region, is one of the largest and richest undeveloped iron ore projects in the world. The project proposal involves conventional open-pit mining of iron ore at a rate of 18 million tonnes per year over a projected 21-year lifespan. Construction costs are estimated at \$740 million and will extend over a four-year period from 2013 to 2016.

Meliadine mine, Nunavut

The Meliadine project is located 25 kilometres northwest of Rankin Inlet. Earlier in 2015 the Nunavut Impact Review Board gave Agnico Eagle a Project Certificate. Initial capital costs are estimated at \$911 million and sustaining capital costs are \$357 million, with mine closure costs estimated at \$41 million. Construction is expected to occur over a three-year period. This project is currently postponed in our inventory.

TRADES REQUIREMENTS

The construction and operation of a mine often faces challenges in attracting and training skilled workers. This is especially problematic for mines located in remote locations. Companies are reporting that skilled workers are becoming increasingly difficult to find and this problem is being accentuated by an aging workforce and a wave of retirements from the industry.

The development of the mining sector in Canada's territories will require key construction trades and occupations that are common to engineering and industrial work in other industries and provinces. The demand for these construction trades has grown dramatically and steadily for at least a decade and, consequently, these skills have been in short supply and have required workers, industry groups and governments to invest in recruiting and training plans.

The BuildForce LMI tracking system uses broad occupational classifications. The requirements of mine construction and related resource projects have traditionally focused on the following trades and occupations:

- boilermakers
- carpenters
- construction estimators

- construction managers
- contractors and supervisors
- drillers and blasters
- electricians
- heavy equipment operators
- heavy-duty equipment mechanics
- ironworkers and structural metal and platework fabricators and fitters
- plumbers
- steamfitters and pipefitters
- trades helpers and general labourers
- truck drivers
- welders

The estimated capital cost for each project and additional information on occupation requirements associated with heavy construction inform our estimate of trades requirements. Importantly, it is assumed that all announced projects proceed as scheduled.

Tables 3 and 4 provide estimates of trades requirements that are generated by the construction of the various projects over the next few years. The total number of

workers required for all projects by territory is shown in Table 3. The time pattern for the projects in the territories as a whole is shown in Table 4.

The total number of trades tracked by BuildForce¹ required for the projects as a whole is 6,627 workers. The largest number of requirements is for heavy equipment operators at 2,865, followed by almost 1,110 for trades helpers and labourers, and almost 575 for truck drivers. The peak year for requirements is 2017 at 1,200 workers.

CONCLUSIONS – LABOUR REQUIREMENTS IN THE NATIONAL CONTEXT

While the outlook calls for slower employment growth over the next decade, most provinces begin the scenario with moderate growth from 2016 to 2019 centred in non-residential markets:

- A series of resource-related infrastructure projects are underway and proposed, including pipelines and electrical generation and transmission.
- Gains in commercial and industrial building construction add new non-residential jobs in many provinces.

Table 3: Construction trades demand by territory

Trades and occupations	Northwest Territories	Yukon	Nunavut	Total
Boilermakers	37	45	23	105
Construction estimators	94	87	45	226
Construction managers	50	55	28	133
Construction millwrights and industrial mechanics (except textile)	12	13	7	32
Contractors and supervisors	101	110	57	268
Crane operators	121	136	70	327
Drillers and blasters	110	128	66	304
Electricians	11	13	7	31
Heavy equipment operators (except crane)	1,120	1,152	593	2,865
Heavy-duty equipment mechanics	84	79	40	203
Ironworkers and structural metal and platework fabricators and fitters	61	68	35	164
Sheet metal workers	3	4	2	9
Steamfitters, pipefitters and sprinkler system installers	12	13	7	32
Trades helpers and labourers	485	412	212	1,109
Truck drivers	235	223	115	573
Welders and related machine operators	93	98	50	241
Total	2,629	2,636	1,357	6,622

Sources: Yukon Economic Development, NWT Bureau of Statistics, Nunavut Bureau of Statistics, company websites and BuildForce Canada

¹ The BuildForce labour market information system tracks labour market conditions for 34 trades and occupations. This group includes on-site workers and accounts for approximately 75 percent of the full construction workforce. Excluded from this group are office workers, engineers, office managers, etc.

Table 4: Construction trades demand (all projects)

Trades and occupations	2014	2015	2016	2017	2018	2019–2023*
Boilermakers	6	7	6	19	19	21
Construction estimators	16	18	16	41	41	40
Construction managers	8	9	8	24	24	25
Construction millwrights and industrial mechanics (except textile)	2	2	2	6	6	6
Contractors and supervisors	17	19	17	48	48	50
Crane operators	20	23	20	59	59	62
Drillers and blasters	18	21	18	55	55	59
Electricians	2	2	2	6	6	6
Heavy equipment operators (except crane)	189	210	187	518	518	526
Heavy-duty equipment mechanics	14	16	14	37	37	36
Ironworkers and structural metal and platework fabricators and fitters	10	11	10	30	30	31
Sheet metal workers	1	1	1	2	2	2
Steamfitters, pipefitters and sprinkler system installers	2	2	2	6	6	6
Trades helpers and labourers	84	92	84	202	202	188
Truck drivers	40	44	40	104	104	102
Welders and related machine operators	16	17	15	44	44	45
Total	446	495	441	1,201	1,201	1,205

Sources: Yukon Economic Development, NWT Bureau of Statistics, Nunavut Bureau of Statistics, company websites and BuildForce Canada

* As all current and proposed projects end by 2023, there are no employment numbers for the final years of the scenario in 2024 and 2025.

There are a few exceptions to these overall trends. In British Columbia, current proposed resource projects add new momentum and stronger growth to construction, driven by utilities, LNG (liquefied natural gas) terminals, pipelines, transportation systems and mining projects.

In Alberta and Newfoundland and Labrador a down cycle in employment from 2016 to 2019 is driven by lower resource prices, the winding down of current major projects and the delay or cancellation of new proposed investments in oil and gas and mining. The declining investment and employment for new projects only describes part of the changing market dynamics in Alberta. Over the last several years, there has been a significant expansion of existing oil sands capacity that leaves a growing commitment to sustaining investment and maintenance work. Requirements for this work continue to rise across the scenario period.

In addition, industry has to address the increasing challenge of an aging workforce. An estimated 250,000 skilled construction workers are expected to retire over the next decade. This represents a significant loss of

skilled workers. Construction will face competition replacing these workers, as most other industries face similar demographic challenges.

The labour requirements for projects in the Northwest Territories, Yukon and Nunavut add to the complexity of demand requirements for construction trades and occupations. Most of the proposed projects are scheduled over the next few years with work expected to peak in 2017 and 2018 and then slow as the current list of known projects end.

Meeting demand requirements for ongoing resource projects and meeting the needs of replacing an aging workforce means that construction needs to continue to monitor and invest in the recruiting and training of new workers. These are skilled jobs with high qualifications and compensation that will be attractive to young Canadians, but this workforce is limited. Some new workers can be drawn from the populations of the Northwest Territories, Yukon and Nunavut, while others will have to be drawn to the territories from outside the local construction industry.

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For more information, contact:

BuildForce Canada
Phone: 613-569-5552
info@buildforce.ca

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