



CANADA'S TERRITORIES

**HIGHLIGHTS
2019–2028**

CONSTRUCTION TRADES OUTLOOK FOR MAJOR PROJECTS IN CANADA'S TERRITORIES

Canada's North is coming off a 10-year period of unprecedented expansion, and the construction industry has been an integral part of this growth. According to the latest Statistics Canada annual data, construction accounted for just over 10% of the region's GDP, with most of the industry employed in the development of mining and utility projects.

The 2019–2028 outlook scenario for the territories expects the mining and quarrying sector to remain the dominant driver of construction activity in the North, as most of the currently tracked major projects are new mines or mining reclamation or remediation projects. As a sector, mining and quarrying account for just under 25% of the region's economy, and with the modest global recovery in commodity prices, this figure is expected to remain stable over the coming decade.

Balancing construction labour force requirements for the territories will require 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 the construction trades and occupations monitored in each province. Large construction projects regularly drive up labour requirements, creating peak demands and recruiting challenges for skilled trades and occupations.

The purpose of this document is to identify key projects and provide estimates of construction trades requirements for these 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 several 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 next section of this report provides some background on the economies in the three territories. The third section identifies the major projects currently being tracked. The fourth section provides estimates of the trades requirements for the projects.

BACKGROUND

The Northwest Territories has the largest economy in the North, and real GDP growth there has been steady over the last five years. The Yukon economy expanded by 3.1% in 2017 following very strong growth in the previous year. The Nunavut economy has a history of volatility, but it had an exceptionally strong year in 2017.

Table 1 shows the level and percent change in real GDP by region for the period 2010 to 2017.

Over the last few years, there have been 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

Table 1: Real GDP of the territories (millions of 2012 dollars*)

	2010	2011	2012	2013	2014	2015	2016	2017
Northwest Territories	4,844	4,408	4,392	4,519	4,732	4,775	4,827	5,004
		-9.0%	-0.4%	2.9%	4.7%	0.9%	1.1%	3.7%
Yukon	2,343	2,460	2,554	2,591	2,611	2,405	2,571	2,651
		5.0%	3.8%	1.4%	0.8%	-7.9%	6.9%	3.1%
Nunavut	2,040	2,149	2,198	2,408	2,378	2,372	2,463	2,704
		5.3%	2.3%	9.6%	-1.2%	-0.3%	3.8%	9.8%

Source: Statistics Canada

* \$2012 millions indicates that the investment values are in year 2012 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 (increased value) due to increases in prices.

BuildForce's LMI System

BuildForce Canada uses a scenario-based forecasting system to assess future construction labour requirements in the heavy industrial, residential, and non-residential construction markets. This labour market information (LMI) system tracks 34 trades and occupations. To further improve the robustness of the system, BuildForce consults with industry stakeholders, including owners, contractors, and labour groups, to validate the scenario assumptions and construction project lists, and seeks input from government on related analysis. The information is then distilled into labour market condition rankings to help industry employers with the management of their respective human resources.

Ekati mines are expected to be shut down over the next decade. The new Gahcho Kué mine adds to production, but will not be a sufficient offset for the industry in the Northwest Territories. There are no new mining projects scheduled under the current outlook scenario.

The construction of several proposed mines in the Yukon have been postponed; however, as commodity prices continue to improve, there could be an increase in final investment approvals. Presently, the Eagle Gold and Resource Gateway projects are under construction.

In Nunavut, the construction of the Meliadine Gold mine is currently under way and is expected to begin production in 2019.

PLANNED MAJOR CONSTRUCTION PROJECTS IN THE TERRITORIES

This section provides brief overviews of proposed major construction projects across Canada's territories.

Exploration projects are currently being tracked, but there is limited information available on the estimated capital costs or anticipated schedules, and therefore, they have not been included in the proposed projects list. These projects comprise the Golden Predator Mining Corp.'s 3 Aces Project, Fireweed Zinc Ltd.'s Macmillan Pass zinc-lead-silver project, and Selwyn Chihong's proposed zinc-lead project.

Table 2 lists the major current and proposed projects for the territories, including the estimated capital costs associated with the construction phase, as well as the anticipated start and end dates, if available. The construction capital costs are used to estimate trades requirements. Under current market conditions of lower commodity prices and uncertain global demands, a number of known projects being tracked have been postponed, including the Giant Mine Remediation Project, Nechalacho (Thor Lake) Project, NICO Project, Pine Point Mine, Prairie Creek, and Yellowknife City Gold projects in the Northwest Territories, and the Brewery Creek, Carmacks Copper, Casino Mine, Coffee Gold, and Whitehorse Copper projects in the Yukon. Pending final development approvals, the start and end dates for these projects are unknown.

Giant Mine Remediation Project, Northwest Territories

The Giant Mine was a large gold mine located on the Ingraham Trail just outside of Yellowknife. Remediation work will remove material contaminated with arsenic and asbestos. In February 2018, the federal government named a construction manager for the project, and over the next two years, the mine remediation plan will be developed. The estimated capital construction cost is \$900 million, but a proposed schedule is unknown.

Nechalacho (Thor Lake) Project, Northwest Territories

The Nechalacho rare earth deposit is located at Thor Lake, about 100 kilometres southeast of Yellowknife. Earlier last year, the project owner announced that it would reactivate the project in 2018 due to strong demand for the rare earths used in magnets. The company is in the process of renewing its Land Use Permit for exploration work on the project. The estimated capital construction costs are in excess of \$1 billion, but a proposed schedule is unknown.

NICO Project, Northwest Territories

The NICO deposit is located 150 kilometres northwest of Yellowknife. The cobalt-gold-bismuth-copper deposit has proven and probable mineral reserves totalling 33 million tonnes. Last summer, Fortune Minerals Limited provided an update on the progress of environmental work and rezoning efforts needed to support construction. The company has received its Environmental Assessment approvals for the NWT site and is working to secure project financing. Estimated capital costs are \$210 million, but the project is currently postponed pending a final investment decision.

Pine Point Mine, Northwest Territories

The Pine Point Mine is located west of Fort Resolution on the south shore of Great Slave Lake. A new owner acquired the lead-zinc project in February 2018 and completed a drill program. Lead and zinc prices are favourable again; however, reopening the mine will require substantial investment. Project capital costs are \$140 million, but construction is currently postponed.

Prairie Creek Mine, Northwest Territories

Prairie Creek is an advanced-stage zinc, lead, and silver mine located 250 kilometres west of Fort Simpson. The project owner, NorZinc Ltd., is hoping to begin construction of an all-season road to the mine in 2019. Construction capital costs for the mine are estimated at \$280 million, and the company hopes that production will begin in 2022, but the project is currently on hold pending a final investment decision.

Yellowknife City Gold Project, Northwest Territories

The Yellowknife City Gold Project is located in the South Mackenzie Mining District. TerraX Minerals is conducting an exploration program on their recently acquired land holdings. If approved, the company estimates a two-year construction period with estimated capital costs of \$193 million. This project is currently postponed.

Table 2: Major projects and capital costs

	PROJECTS	CONSTRUCTION		
		Start year	End year	Capital cost (millions)
Northwest Territories	Giant Mine Remediation Project	---	---	\$900
	Nechalacho (Thor Lake) Project	---	---	\$1,000
	NICO Project	---	---	\$210
	Pine Point Mine	---	---	\$140
	Prairie Creek	---	---	\$280
	Yellowknife City Gold Project	---	---	\$193
	Total			\$2,723
Yukon	Eagle Gold Project	2018	2019	\$400
	Resource Gateway Project	2018	2024	\$360
	Brewery Creek	---	---	\$89
	Carmacks Copper	---	---	\$264
	Casino Mine	---	---	\$2,450
	Coffee Gold	---	---	\$317
	Whitehorse Copper	---	---	\$5
	Total			\$3,885
Nunavut	Meliadine Gold mine	2017	2019	\$911
	Total			\$911

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

Eagle Gold Project, Yukon Territories

Victoria Gold Corp.'s Eagle Gold Project is located 375 kilometres north of Whitehorse. The open-pit mine will operate as a drill, blast, shovel, and haul operation with a nominal rate of 29,500 tonnes per day of ore and a mine life expectancy of nine years. The project will produce 200,000 ounces of gold annually. Earlier in the year, Victoria Gold closed a \$505 million deal with investors. Construction of the mine started in the summer of 2018 with an estimated capital cost for construction of \$400 million.

Resource Gateway Project, Yukon Territories

The Government of Canada and the Government of Yukon have committed to contributing close to \$360 million in infrastructure investment for the Resource Gateway Project. The aim is to increase access to the resource-rich territory and promote private investment. Engineering and planning has commenced, and construction is expected to be completed by 2024.

Brewery Creek, Yukon Territories

The Brewery Creek property, owned by Golden Predator Mining Corp., is located in the foothills of the Ogilvie Mountains along the northeastern boundary of the Tintina Trench. It is a past-producing heap leach gold mine. The company conducted a Preliminary Economic Assessment that estimated capital costs of \$89 million over a two-year period. The next steps are advancing the project through feasibility and permitting, but a planned start date is unknown.

Carmacks Copper, Yukon Territories

Copper North Mining Corp. holds the Carmacks Copper project, located 198 kilometres north of Whitehorse. The project is progressing to a feasibility study for the early production of copper, gold, and silver from proposed leach operations. A Preliminary Economic Assessment (2016) estimated capital costs at \$264 million, with construction to extend over a

two-year period. The mine is expected to have an operating life of seven years. This project is currently postponed until overall market conditions improve.

Casino mine, Yukon Territories

Casino Mining Corporation is developing the Casino Project, a copper-gold-molybdenum-silver deposit, located about 300 kilometres northwest of Whitehorse. It is among the largest copper-gold deposits in the world. Casino is proposing a conventional open-pit, truck-and-shovel operation to make the project economically viable. The mill is expected to process about 120,000 tons of ore per day, and the heap leach, 25,000 tons per day over a 22-year mine life. The estimated capital cost is \$2.45 billion. The project is currently in the environmental assessment review stage with no planned start date.

Coffee Gold Project, Yukon Territories

Goldcorp Inc. owns the Coffee Gold Project, approximately 130 kilometres south of Dawson City. Coffee Gold is a proposed open-pit heap leach gold mine. It is expected to produce about 200,000 ounces of gold per year for about 10 years starting in 2021. The project is still under review by the Yukon Environmental and Socio-economic Assessment Board. The estimated capital cost is \$317 million, but construction is currently postponed.

Whitehorse Copper Project, Yukon Territories

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 world price for magnetite has fallen sharply, however, and the project is postponed until market conditions improve. Capital construction costs are estimated at \$5 million, with an expected six-to-seven-month construction period, but a planned start date is unknown.

Meliadine mine, Nunavut Territory

The Meliadine gold project is located 25 kilometres northwest of Rankin Inlet. Initial capital costs are estimated at \$911 million and sustaining capital costs at \$357 million. The mine is expected to produce 5.3 million ounces of gold, with a mine life over 14 years. The Nunavut Impact Review Board gave Agnico Eagle a Project Certificate. Mine construction is nearly complete and production is expected to start in 2019.

TRADE 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 challenge is being accentuated by an aging workforce and expected 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, while growth is expected to slow with some projects postponed, industry groups and governments will need to remain focused on recruiting and training plans.

The BuildForce LMI tracking system is limited to 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 platemwork fabricators and fitters
- pipefitters
- trades helpers and general labourers
- truck drivers
- welders

The estimated capital cost for each project and additional information on occupational 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 1,026 workers. The largest number of requirements is for trades helpers and labourers at 322, followed by heavy equipment operators at 249, and 134 for construction managers.

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

Table 3: Construction trades demand by territory

Trades/occupations	Northwest Territories	Yukon	Nunavut	Total
Boilermakers	0	5	2	7
Construction estimators	0	27	4	31
Construction managers	0	131	2	133
Construction millwrights and industrial mechanics (except textile)	0	3	1	4
Contractors and supervisors	0	84	5	89
Crane operators	0	10	6	16
Drillers and blasters – surface mining, quarrying, and construction	0	21	5	26
Electricians	0	36	1	37
Heavy equipment operators (except crane)	0	200	49	249
Heavy-duty equipment mechanics	0	42	3	45
Ironworkers and structural metal and platework fabricators and fitters	0	19	3	22
Sheet metal workers	0	0	0	0
Steamfitters, pipefitters, and sprinkler system installers	0	2	1	3
Trades helpers and labourers	0	305	18	323
Truck drivers	0	23	10	33
Welders and related machine operators	0	7	4	11
Total	-	915	114	1,029

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

Table 4: Construction trades demand (all projects)

Trades/occupations	2019	2020	2021	2022	2023
Boilermakers	5	0	0	0	0
Construction estimators	16	5	5	4	2
Construction managers	44	28	26	26	10
Construction millwrights and industrial mechanics (except textile)	2	0	0	0	0
Contractors and supervisors	34	17	16	16	6
Crane operators	15	0	0	0	0
Drillers and blasters – surface mining, quarrying, and construction	17	3	3	3	1
Electricians	12	8	7	7	3
Heavy equipment operators (except crane)	159	28	26	26	10
Heavy-duty equipment mechanics	19	8	8	8	3
Ironworkers and structural metal and platework fabricators and fitters	11	3	3	3	1
Sheet metal workers	0	0	0	0	0
Steamfitters, pipefitters, and sprinkler system installers	2	0	0	0	0
Trades helpers and labourers	126	61	58	57	21
Truck drivers	26	2	2	2	1
Welders and related machine operators	11	0	0	0	0
Total all projects	499	163	155	152	57

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

CONCLUSIONS

The labour requirements for projects in the Northwest Territories, Yukon, and Nunavut add to the complexity of demand requirements for construction trades and occupations across Canada. While many proposed resource development projects across the territories have been postponed, meeting labour demands for current resource projects and replacing an aging workforce pose a mix of short- and long-term challenges. These involve the movement of workers into remote northern locations to meet peak demands, and over the long-term, adding workers to address an aging local construction labour force. Meeting industry needs requires a combination of drawing workers from the local populations of all three territories and recruiting others from outside the local construction industry.

The industry scenario-based approach developed by BuildForce Canada to assess future labour market conditions provides a powerful planning tool for industry, government, and other stakeholders to better track labour market conditions and identify potential pressure points. The anticipated labour market conditions reflect the current long-term economic outlook and industry major project assumptions. Any changes to these assumptions presents risks and potentially alters anticipated market conditions.

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Phone: 613.569.5552 | info@buildforce.ca

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