BRITISH COLUMBIA MINING LABOUR MARKET ANALYSIS (2025)

Produced by:
Mining Industry Human Resources Council

For:
Mining Skills Innovation Research Project

MINING INDUSTRY HUMAN RESOURCES COUNCIL
CONSEIL DES RESSOURCES HUMAINES DE L'INDUSTRIE MINIÈRE

MABC
MINING ASSOCIATION OF BRITISH COLUMBIA

CTEM
CENTRE OF TRAINING EXCELLENCE IN MINING

Research and analysis in this report were conducted by the Mining Industry Human Resources Council (MiHR) in partnership with the Mining Association of British Columbia (MABC) and the Centre of Training Excellence in Mining (CTEM).

Cover photo courtesy of Camus Photography

For more information, contact:

Mining Industry Human Resources Council
260 Hearst Way, Unit 600
Kanata, ON K2L 3H1
(613) 270-9696
research@mihr.ca

Or visit the website at:
www.mihr.ca

Published December 2025

Table of Contents

Introduction

Why Mining Matters in British Columbia

Mining continues to be a key economic driver in British Columbia (BC), directly employing roughly 30,000 workers. On an annual basis, the sector contributes an estimated $18 billion to BC's economy, accounting for 28% of the province's exports and generating more than $3 billion in revenue for all levels of government[1]. In addition, mining has distributed $465 million in mineral taxes to First Nations since 2008.[2]

BC is home to 18 operating mines and two smelters.[3] With its unique geology and diverse mineral profile, BC is well-positioned to be a major supplier of minerals that are essential to a wide range of sectors. Its rich reserves of gold, copper, nickel, rare earth elements, molybdenum and other critical minerals give the province a distinct advantage in the global marketplace.

Not only does the province possess significant mineral resources but also a clear motivation to expand and strengthen its mining sector. This vision is reflected in *BC's Critical Minerals Strategy*, which takes decisive steps to expand BC's role in the global clean-energy transition. This roadmap has three overarching goals: (1) expand First Nations partnerships, shared decision-making and reconciliation, (2) increase business certainty to attract investment to the sector, and (3) establish funding partnerships to advance critical mineral projects.[4]

In 2025, the province pledged to fast-track natural resource project approvals to boost the economy and establish BC as a mining powerhouse.[5]

The Labour Market Question

Critical minerals are clearly seen as a major economic opportunity for both the province and the mining sector, offering the potential for greater stability in an uncertain global environment. Achieving these ambitious goals, however, will require a skilled workforce capable of realizing the sector's full potential. This report therefore focuses on the fundamental question:

Can BC's mining labour market sustain its future growth?

The central issue is labour supply—that is, the availability of workers. A major hurdle facing BC's mining sector is ensuring there will be a sustainable supply of labour capable

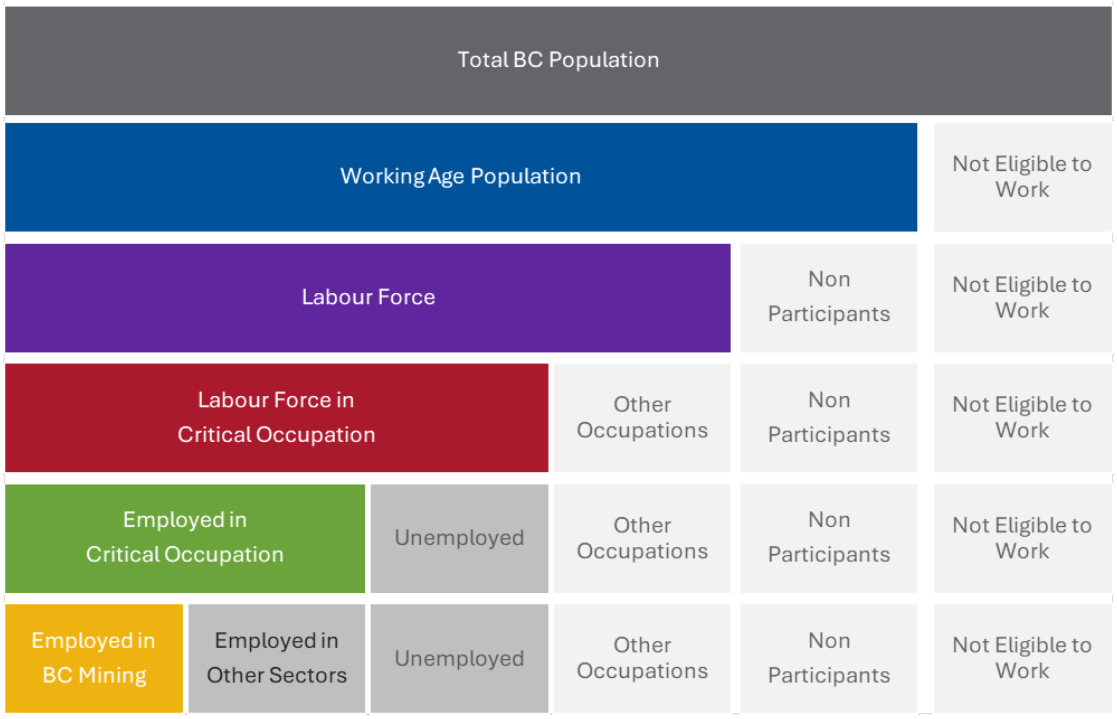
[1] Mining Association of British Columbia. (2025). *Economic Benefits.*
[2] Government of British Columbia. (2025). *Benefits of mining in B.C.*
[3] Mining Association of British Columbia. (2025). *BC Mining Map.*
[4] Ministry of Energy, Mines and Low Carbon Innovation. (2024). *B.C.'s critical mineral strategy (phase 1)*.
[5] Government of British Columbia. (2025). *Premier unveils plan to secure billions in mining investments, build prosperity through partnership, conservation*.

of supporting the shifting needs of the sector. A thin labour supply has the potential to derail projects, drive up the cost of finding workers and ultimately undermine the sector's ability to continue to run competitively.

MiHR's Labour Market Analysis Framework

The Labour Market Analysis (LMA) model is MiHR's analytical model to understand how well the future labour supply can sufficiently sustain future labour demand in a particular occupation. The LMA framework considers the entire population as a base, and rather than decisively excluding anyone from the potential labour pool, the framework selectively sorts individuals according to their "degree of attachment" to the mining sector's relevant labour supply (Figure 1).

Figure 1: MiHR's Labour Market Analysis Framework



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

For select occupations of interest, the analysis considers five key questions:

i. What is the mining sector's labour demand for that occupation?
ii. What is the overall labour supply available for that occupation?
iii. What is the mining sector's share of that overall labour pool?
iv. What is the mining sector's labour supply for this occupation (based on its share of the overall labour supply)?
v. What is the gap between the mining sector's labour demand and the mining's sector's labour supply for this occupation?

The analysis will then explore scenarios to assess whether BC's mining sector will be able to compete for regional talent or if a long-term labour force development strategy will be

required. Lastly, the analysis will provide a comprehensive visualization of the labour supply, capturing the entire LMA framework, to identify potential bottlenecks or points of attrition where the mining sector may be losing potential candidates.

Report Overview

This report is organized into six chapters, each centering on a crucial aspect of BC's mining labour market:

- Chapter 1: Forecasting Labour Demand Scenarios
- Chapter 2: Estimating the Labour Supply Outlook
- Chapter 3: Finding Critical Labour Market Gaps
- Chapter 4: Exploring Scenarios for Future Labour Market Sustainability
- Chapter 5: Skills Analysis for the Mining Sector
- Chapter 6: Path to Sustainability and Next Steps

The analysis builds a labour market forecast for several critical occupations. The objective is to identify labour gaps and assess whether the labour supply can sustain future needs. The findings will show which occupations stand to benefit most from a long-term labour force development strategy, highlighting where targeted education and training can have the greatest impact.

Methodology

Mining Sector Definition

MiHR's definition of the mining sector aligns with the North American Industry Classification System (NAICS).[6] In this report, the mining sector encompasses activities that fall within the following three sub-sectors:

- *Mining and Quarrying (NAICS 212):* describes the activities at operating mines across BC, including both surface and underground mining operations.
- *Mining Support Activities (NAICS 213):* includes the activities of organizations providing support services for a wide range of mining activities, usually on a contract or fee basis.
- *Primary Metal Manufacturing (NAICS 331):* comprises establishments engaged in smelting, refining, and processing ferrous and non-ferrous metals (e.g., copper, aluminum, and other alloys) to produce basic metal products used in manufacturing.[7]

[6] For more information on NAICS codes, visit the *Statistics Canada website*.

[7] For Primary Metal Manufacturing, two sub-industry codes are considered: Alumina and Aluminum Production and Processing [NAICS 3313] and Non-Ferrous Metal (except Aluminum) Production and Processing [NAICS 3314].

Occupational Focus

The occupational data in this report are aligned with the National Occupational Classification (NOC) system to define critical occupations.[8] Under this framework, MiHR has identified the 20 most critical occupations in BC's mining sector.

These occupations were selected for their high prevalence in the sector (as observed in census data) and for their essential role in supporting mining operations, ensuring safety, and meeting future skill demands. Together, they account for roughly 55% of BC's mining labour demand as of 2024.

The 20 Critical Occupations

1. Heavy equipment operators (NOC 73400)
2. Transport truck drivers (NOC 73300)
3. Underground production and development miners (NOC 83100)
4. Supervisors, mining and quarrying (NOC 82020)
5. Construction millwrights and industrial mechanics (NOC 72400)
6. Heavy-duty equipment mechanics (NOC 72401)
7. Managers in natural resources production and fishing (NOC 80010)
8. Welders and related machine operators (NOC 72106)
9. Industrial electricians (NOC 72201)
10. Geoscientists and oceanographers (NOC 21102)
11. Senior managers - public and private sector (NOC 00018)
12. Mine labourers (NOC 85110)
13. Central control and process operators, mineral and metal processing (NOC 93100)
14. Machine operators, mineral and metal processing (NOC 94100)
15. Geological and mineral technologists and technicians (NOC 22101)
16. Mining engineers (NOC 21330)
17. Underground mine service and support workers (NOC 84100)
18. Industrial instrument technicians and mechanics (NOC 22312)
19. Drillers and blasters - surface mining, quarrying and construction (NOC 73402)
20. Civil engineers (NOC 21300)

[8] For more information on NOC codes, refer to Appendix A or visit the *Statistics Canada website*.

Key Data Sources

This analysis draws on a set of core datasets that provide demographic, economic, and sector-specific insights into BC's mining labour market. Together, these sources describe the province's mining sector and its workforce characteristics, and they form the foundation of the forecasting and analysis presented in this report. Other sources used are noted throughout the report.

- *Statistics Canada Census of Population* – Provides detailed regional population and labour market data, collected every five years.
- *Labour Force Survey (LFS)* – Offers a monthly household survey offering timely data on employment, unemployment, participation, and wages.
- *System of National Accounts (SNA)* – Supplies macro-level measures of output, investment, and employment used to track sector activity over time.
- *Occupational and Skills Information System (OaSIS)* – Establishes a standardized mapping between occupations and a skills taxonomy, enabling the description and measurement of the skills and abilities used in the workplace.
- *BC Stats* – Offers provincial projections and community-level data on population, employment, and economic trends.
- *Natural Resources Canada (NRCan)* – Delivers mining project data, including GIS mapping of projects by commodity and development stage.

Chapter 1: Forecasting Labour Demand Scenarios

The first step in this analysis is to assess the labour demand in BC's mining sector, starting with the mining sector as a whole and then focusing on critical mining occupations.

Labour demand describes the labour that the mining sector collectively needs to optimally run operations. MiHR's employment forecast provides an estimate of labour demand (i.e., the optimal employment level) in BC's mining sector through 2035.

Econometric Forecast

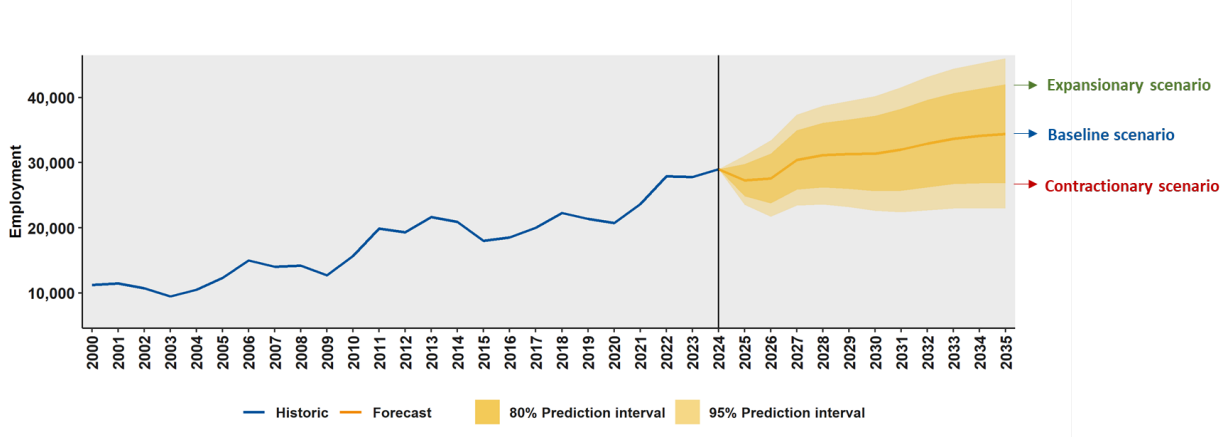
MiHR uses a conventional econometric forecast as the foundation of its labour demand analysis. The time-series econometric model considers historic patterns and key macroeconomic drivers to predict future employment levels in the mining sector. The best-fitted model with the lowest prediction error was selected. See Appendix B for more information on MiHR's labour demand forecasting methodology and notable macroeconomic drivers of mining employment.

Mining Employment Outlook

MiHR's econometric forecast provides three scenarios: *baseline, expansionary* and *contractionary*.

Under the baseline forecast, mining employment is expected to grow by 19%, from 29,010 in 2024 to 34,431 in 2035 (Figure 2). Under an alternative expansionary scenario, employment is projected to increase to 42,021 workers (or a 45% increase), whereas under a contractionary scenario, employment is projected to marginally decrease to 26,840 workers (or a 7% decrease).

Figure 2: Historic (2000 – 2024) and Forecasted (2025 – 2035) Labour Demand in British Columbia's Mining Sector, Three Demand Scenarios



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025; Statistics Canada, System of National Accounts (SNA), 2025.

Employment Outlook by Mining Sub-Sector

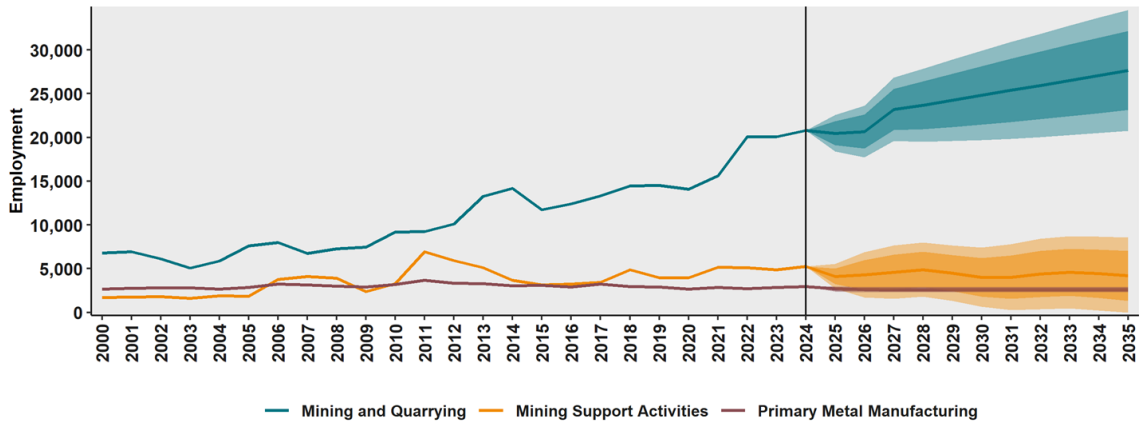
Figure 3 illustrates the employment outlook for the mining sector broken down by its three main sub-sectors– *Mining and Quarrying*, *Mining Support Activities* and *Primary Metal Manufacturing*.

Mining and Quarrying workers make up the vast majority of the mining sector (72% in 2024), followed by *Mining Support Activities* workers (18% in 2024), and *Primary Metal Manufacturing* workers (10% in 2024). Historically, employment in both *Mining and Quarrying* and *Mining Support Activities* has been gradually trending upwards while employment in *Primary Metal Manufacturing* has remained flat.

Employment projections for the sub-sectors are as follows under the baseline scenario:

- *Mining and Quarrying* is estimated to increase by about 33% from 20,795 workers in 2024 to 27,654 workers in 2035.
- *Mining Support Activities* is estimated to have a moderate decrease of roughly 21% from 5,270 workers in 2024 to 4,186 workers in 2035.
- *Primary Metal Manufacturing* is estimated to decrease by 12% from 2,945 workers in 2024 to 2,591 workers in 2035.

Figure 3: Historic (2000 – 2024) and Forecasted (2025 – 2035) Labour Demand in British Columbia's Mining Sub-sectors, Three Demand Scenarios



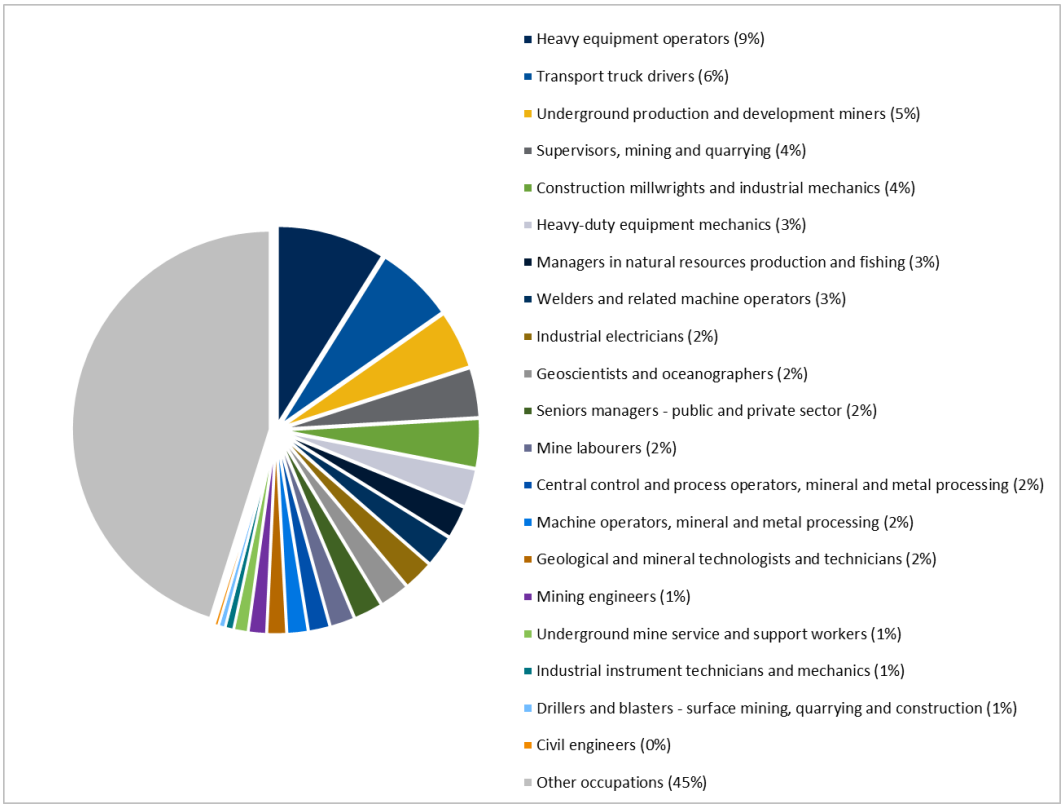
Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025; Statistics Canada, System of National Accounts (SNA), 2025.

Occupational Mix

Forecasting for specific occupations depends on the mining sector's occupational mix, which describes the combination of critical jobs that are expected to comprise future labour demand. The occupational mix reveals which roles are most commonly utilized by the sector.

Figure 4 reports the 20 critical occupations that make up the mining sector. Collectively, these occupations represent about 55% of the sector's workforce. MiHR's forecast makes the conservative assumption that the historical occupational mix will remain relatively stable over the forecasted period.

Figure 4: Occupational Composition in British Columbia's Mining Sector (2024)



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Note that the occupational mix is constantly in flux as demand for different occupations will rise and fall depending on macroeconomic conditions and where projects are in the mining life cycle. Although the occupational mix could shift significantly with new technologies[9] and rising demand for critical minerals, MiHR's baseline forecast assumes that operations are more likely to follow the status quo.

[9] Automation, artificial intelligence and other rapid advancements in technology are reshaping the nature of mining work, placing increasing pressure on the workforce to adjust to new skillsets and adopt different

Labour Demand by Occupation

Table 1 presents MiHR's baseline labour demand forecast for 20 critical occupations in BC's mining sector, which together account for 55% of the sector's workforce. The table also illustrates the extent of demand growth over the forecast period. 'Net change' denotes the total expansion, accounting for all inflows (i.e., new hiring) and outflows (i.e., downsizing).

Table 1: Historic (2024) and Forecasted (2035) Labour Demand in British Columbia's Mining Sector, Baseline Scenario

Occupation	Historic BC Mining's Labour Demand (2024)	Forecasted BC Mining's Labour Demand (2035)	Net Change in BC Mining's Labour Demand
20 critical occupations	**15,925**	**18,898**	**2,973**
Heavy equipment operators	2,576	3,058	481
Transport truck drivers	1,863	2,211	348
Underground production and development miners	1,372	1,628	256
Supervisors, mining and quarrying	1,171	1,389	219
Construction millwrights and industrial mechanics	1,161	1,377	217
Heavy-duty equipment mechanics	901	1,069	168
Managers in natural resources	768	912	144
Welders and related machine operators	754	895	141
Industrial electricians	717	851	134
Geoscientists and oceanographers	708	840	132
Senior managers - public and private sector	687	815	128
Mine labourers	584	693	109
Central control and process operators	505	600	94
Machine operators, mineral and metal processing	493	585	92
Geological and mineral technologists	457	542	85
Mining engineers	424	503	79
Underground mine service and support workers	334	396	62
Industrial instrument technicians and mechanics	197	234	37
Drillers and blasters	156	185	29
Civil engineers	97	115	18
All occupations in BC Mining	**29,010**	**34,431**	**5,421**

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

roles and responsibilities. Given that it is difficult to gauge the scale and timing of technological disruption, MiHR baseline forecast does not predict how the occupational mix will be affected.

Table 2 shows the forecast for three demand scenarios, illustrating how labour demand would differ under each scenario. These labour demand estimates will be essential for addressing the central question about labour market sustainability later in this analysis. Chapter 2 expands on this examination by assessing the mining sector's labour supply.

Table 2: Forecasted Labour Demand in British Columbia's Mining Sector, Three Demand Scenarios (2035)

Occupation	Contractionary BC Labour Demand (2035)	Baseline BC Labour Demand (2035)	Expansionary BC Labour Demand (2035)
20 critical occupations	**14,734**	**18,898**	**23,066**
Heavy equipment operators	2,384	3,058	3,732
Transport truck drivers	1,724	2,211	2,698
Underground production and development miners	1,269	1,628	1,987
Supervisors, mining and quarrying	1,083	1,389	1,696
Construction millwrights and industrial mechanics	1,074	1,377	1,681
Heavy-duty equipment mechanics	833	1,069	1,305
Managers in natural resources	711	912	1,113
Welders and related machine operators	698	895	1,092
Industrial electricians	663	851	1,039
Geoscientists and oceanographers	655	840	1,025
Senior managers - public and private sector	635	815	995
Mine labourers	541	693	846
Central control and process operators	467	600	732
Machine operators, mineral and metal processing	456	585	714
Geological and mineral technologists	423	542	662
Mining engineers	392	503	613
Underground mine service and support workers	309	396	484
Industrial instrument technicians and mechanics	183	234	286
Drillers and blasters	144	185	226
Civil engineers	90	115	140
All occupations in BC Mining	**26,840**	**34,431**	**42,021**

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

BOX 1: Project-based Forecast

In addition to the econometric forecast, this analysis presents a project-based forecast that explores how employment may shift depending on project timelines and survival probabilities. This forecast is intended to be complementary to the econometric forecast and is not meant for direct comparison.

Navigating Uncertainty in Mine Development

This analysis recognizes the inherent difficulty of bringing a mine into operation, given the many factors that must be addressed—investment requirements, community impacts, environmental considerations, health and safety standards, and economic feasibility. Even projects that appear highly promising face numerous hazards along the way, and only a small fraction ultimately reach the operational stage.

According to a study by S&P Global Market Intelligence, the average lead time for a mining project—from discovery to production—is approximately 15.7 years, with most of that time spent in the discovery, exploration, and studies phases.[10] In Canada, the timeline is even longer, averaging about 18 years from discovery to production. And those figures represent only the projects that survive to reach production.

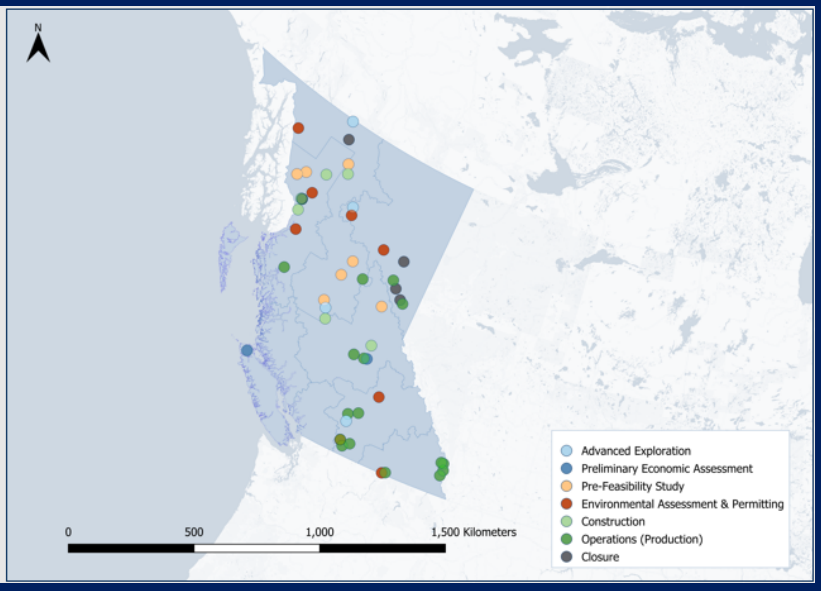
This demonstrates that mining development in Canada can be a decades-long process, marked by extensive regulatory requirements and numerous hazards that may delay or halt projects before they ever reach production.

The project-based forecast takes an inventory of existing mining projects in 2025 and then forecasts their progress on a probabilistic basis. For this forecast, a list of 49 mining projects at various stages of development, identified jointly by project partners and MiHR, was established as the scope of analysis (Figure 5).

[10] S&P Global Market Intelligence. (2023). *Discovery to Production Averages 15.7 years for 127 mines*.

Figure 5: Map of 49 British Columbia Mining Projects Used for Project-Based Forecasting (2025)

Current Phase (2025)	Number of B.C. Projects
Advanced Exploration	4
Preliminary Economic Assessment (PEA)	2
Pre-Feasibility Study (PFS)	7
Environmental Assessment (EA) & Permitting	8
Construction	6
Operations (Production)	17
Closure	5
TOTAL	**49**



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

The project-based forecast is built on an evaluation of how a typical mining project advances through the critical steps required to ultimately become an operating mine. Projects are categorized into ten stages of the mining life cycle, from discovery through closure (Table 3). For each stage, the table outlines the probability of advancing to the next stage (and eventually to operations), the typical risks encountered, and the expected timeline range. A corresponding Gantt chart provides a visual of these timelines alongside the distribution of BC's 49 mining projects (Figure 6).

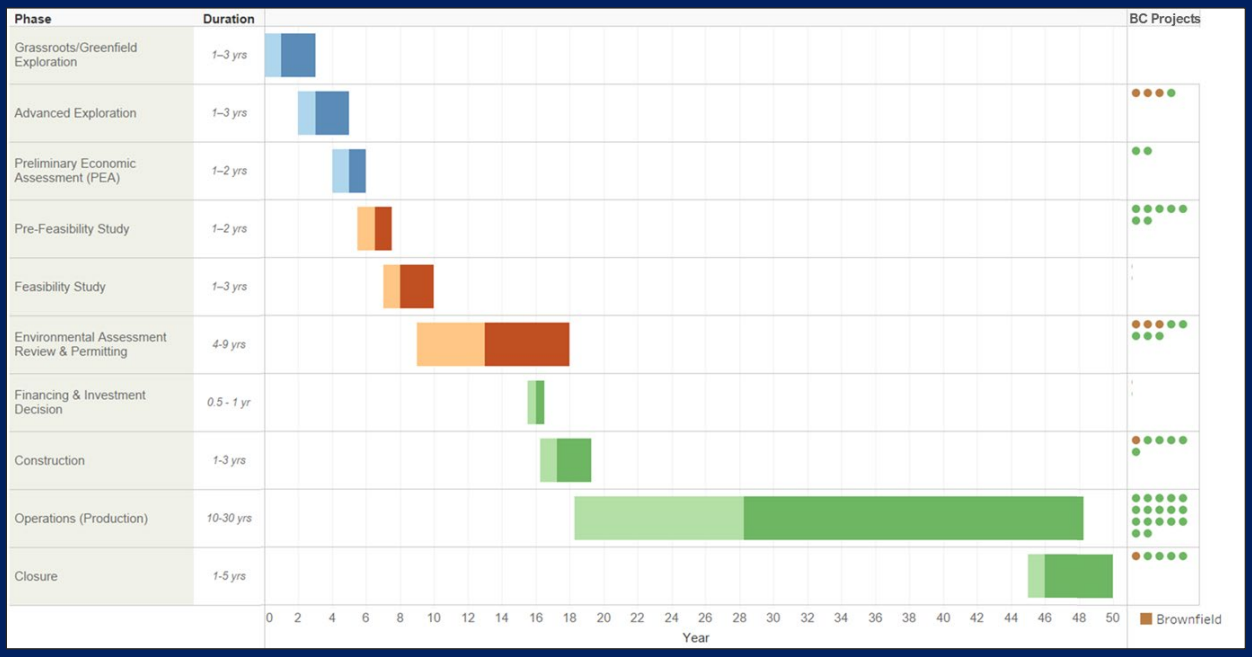
Note that this timeline illustrates a typical progression, though individual projects may advance more quickly, more slowly, or along a different path altogether.

Table 3: Phase Survival Table for British Columbia's Project-Based Forecasting (2025)

Phase Code	Phase	Phase Description	Estimated Survival Probability	Compounding Prob. Of Reaching Production	Key Risks / Barriers	Typical Timeline
EXP	Grassroots/Greenfield Exploration	Initial stage where companies search for mineral deposits through surveys, mapping, and sampling.	10–20%	2%	Discovery failure, lack of economic viability, limited data quality.	1-3 years
AE	Advanced Exploration	More detailed exploration, including drilling and resource modeling, to evaluate deposit size and quality.	30–50%	11%	Technical uncertainty, permitting challenges, poor resource definition.	1-3 years
PEA	Preliminary Economic Assessment (PEA)	Early-stage economic evaluation assessing potential viability and mining scenarios with preliminary data.	60–75%	26%	Inaccurate economic assumptions, untested mine plans.	1-2 years
PFS	Pre-Feasibility Study (PFS)	In-depth technical analysis to determine if the project has reasonable prospects for economic extraction.	70–85%	39%	Design flaws, insufficient environmental data, stakeholder opposition.	1-2 years
FS	Feasibility Study (FS)	Comprehensive study with detailed engineering and financial modeling to confirm project viability and support investment decisions.	80–95%	50%	Cost inflation, project complexity, financing hurdles.	1-3 years
EAP	Environmental Assessment (EA) & Permitting	Process of securing regulatory approval to proceed with development, including environmental and social assessments.	70–90%	58%	Delays in regulatory approval, public opposition, First Nations concerns.	4-9 years
FIN	Financing & Investment Decision	Raising necessary capital to build the mine, often through a mix of debt and equity, after feasibility and permitting.	75–90%	72%	Market conditions, investor confidence, commodity price volatility.	0.5–1 year
CON	Construction	Physical development of mine site, facilities, and supporting infrastructure following permitting and financing.	85–95%	87%	Cost overruns, technical build delays, contractor issues, supply chain disruptions.	1–3 years
OPS	Operations (Production)	Active extraction, processing, and sales of mineral resources under full commercial production.	95–100%	97%	Commodity price volatility, equipment failure, workforce turnover, regulatory compliance.	10–30 years
CLO	Closure	Shutting down operations, reclamation, and environmental monitoring	-	-	Regulatory compliance, environmental obligations, long-term monitoring	1–5 years

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Figure 6: Phase Survival Gantt Chart for British Columbia's Project-Based Forecasting (2025)



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

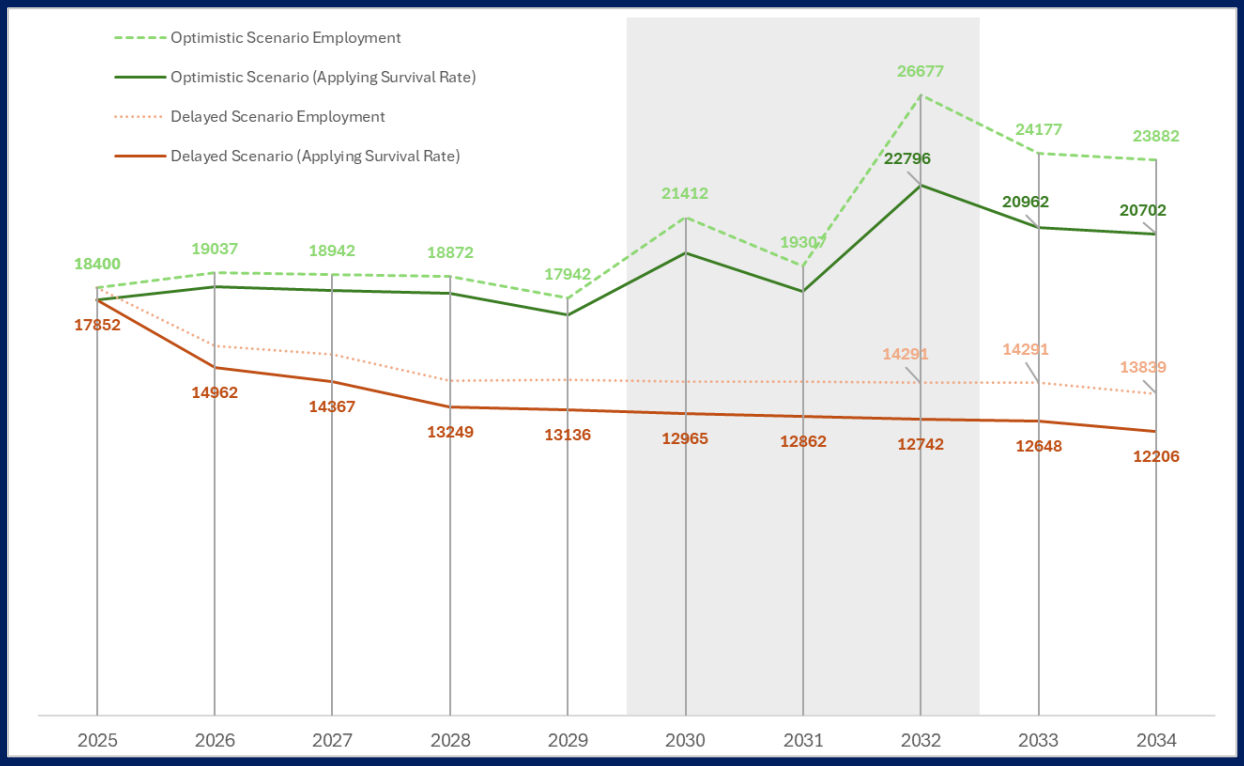
Project-based Forecast for BC's Mining Sector

Using the survival table and timeline as the foundation, the project-based forecast predicts how sector employment may evolve over the next decade. Figure 7 shows two main scenarios:

- An *optimistic scenario* assumes favourable outcomes for employment, project timelines, and survival probabilities to operations—in other words, everything follows the best-case outcome.
- A *pessimistic scenario* assumes unfavourable outcomes for employment, project timelines, and survival probabilities to operations—in other words, projects are met with delays and disruptions to the timelines and employment.

Figure 7 shows that, under the optimistic scenarios, a significant employment bump (between 28% and 49%) is projected from 2029 to 2032, provided project timelines advance smoothly and without major hazards. This surge is also likely to create labour market tightness, as labour demand will need to expand aggressively to meet the sector's needs during that period.

Figure 7: Forecasted Project-based Labour Demand in British Columbia's Mining Sector (2025 – 2034)[11]



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

[11] The forecasting window is limited to 2034. This is because the methodology relies on the existing project pipeline, and no additional developments are visible in later years, necessitating a shorter horizon.

By contrast, no such employment bump occurs under the pessimistic scenarios, where upcoming projects encounter common delays and roadblocks. The divergence between optimistic and pessimistic scenarios underscores the uncertainty and dilemmas involved in preparing the labour force for mining development. To capitalize on the opportunity for employment growth, the sector must first ensure it can reliably plan for and sustain a stable, responsive labour market.

Labour Demand Forecasting Summary

This section summarizes the findings from the two complementary forecasting approaches: the econometric forecast and the project-based forecast. The results of these two forecasts are shared in Table 4.

Table 4: Comparison of Econometric and Project-based Forecasts

	Econometric Forecast			Project-based Forecast			
	The time-series econometric model considers historic patterns and key macroeconomic drivers to predict future employment levels in the mining sector.			The project-based forecast is built on an evaluation of how a typical mining project advances through the critical steps required to ultimately become an operating mine.			
Scenarios	Contractionary	Baseline	Expansionary	Optimistic Scenario	Optimistic Scenario (with Survival Rate)	Delayed Scenario	Delayed Scenario (with Survival Rate)
Methodology	Estimated from the lower bound 80% prediction interval	Estimated from BC's historic employment trend in three mining sub-sectors from 1999 to 2024	Estimated from the upper bound 80% prediction interval	Assumes the best case outcomes for employment and project timelines to operations.	Assumes the best case outcomes for employment, project timelines, and survival probabilities to operations.	Assumes unfavourable outcomes for employment and project timelines (i.e. delays and disruptions) to operations.	Assumes unfavourable outcomes for employment, project timelines (i.e. delays and disruptions), and survival probabilities to operations.
Time horizon	2025-2035			2025-2034			
Primary data sources	Statistics Canada, System of National Accounts (SNA)			Various project-specific data sources, Inventory of 49 mining projects in BC			
Employment in first forecast year 2025	24,835	27,314	29,792	18,400	17,852	18,400	17,852
Employment in last forecast year 2035 (2034 for the project-based forecast)	26,840	34,431	42,021	23,882	20,702	13,839	12,206
Growth %	8%	26%	41%	30%	16%	-25%	-32%

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Moving forward, the results from the econometric forecast will be used throughout the remainder of this report, as they are most compatible with the labour market data and definitions applied below.

Chapter 2: Estimating the Labour Supply Outlook

The next step is to determine, for critical occupations, the labour supply that is available to the mining sector. Labour supply is a complex subject to the extent that measuring potential sources of labour can be ambiguous and difficult to define.

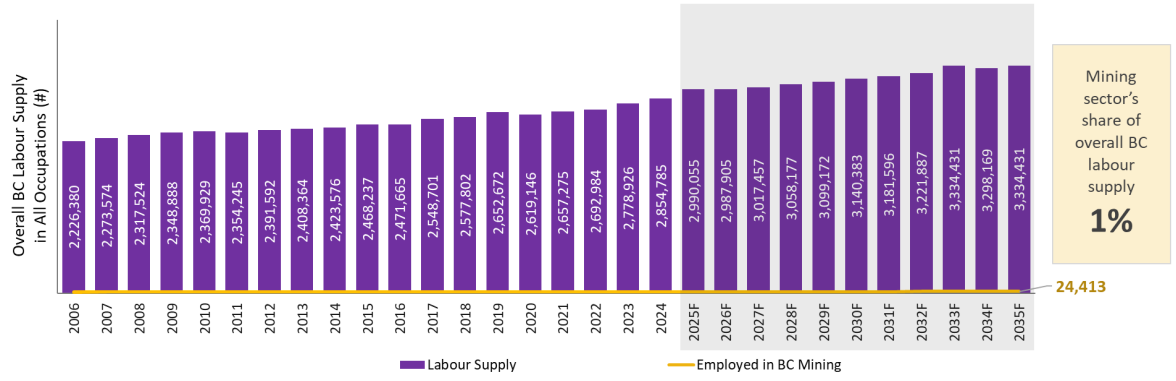
MiHR's LMA model captures the primary factors that push and pull on the labour supply. The model is grounded on several key assumptions, including population growth, labour force participation, unemployment rates and occupational choices. Each assumption represents a conservative scenario based on recent historical trends. See Appendix C for more details on MiHR's LMA model assumptions.

Labour Supply Outlook

MiHR's LMA model estimates the size of the overall provincial labour supply in BC for all occupations through 2035 (Figure 8). This comprises the total labour force (employed and unemployed) that is shared among all sectors, including the mining sector. The labour supply is expected to grow by 17% from 2,854,785 in 2024 to 3,334,431 in 2035, largely on the strength of population growth from international migration.[12]

Figure 8 also illustrates the mining sector's share of the estimated labour supply, which averages roughly 1% across all occupations. This share is expected to remain stable and difficult to shift, as any effort to increase mining's share is met with strong competition from other sectors. With approximately 1% of the labour supply, BC's mining sector is projected to capture 24,413 workers by 2035. Note that this figure reflects all occupations combined; for specific occupations (explored below), the mining sector captures a much larger share of the labour supply, in many cases more than half.

Figure 8: Historic (2006 – 2024) and Forecasted (2025 – 2035) Overall Labour Supply in British Columbia



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

[12] BC Stats. (2025). *P.E.O.P.L.E. 2025 Population estimates and projections*.

Overall Labour Supply by Occupation

Forecasting mining's labour supply by occupation first requires projecting labour supply for all sectors and then estimating the portion attributable to mining. Table 5 presents MiHR's forecast of the overall provincial labour supply for the critical occupations in BC's mining sector. The table also illustrates the extent of supply growth over the forecast period. 'Net change' denotes the total expansion, accounting for all inflows (i.e., entrants from graduates, migration, etc.) and outflows (i.e., exits from retirement, migration, etc.).

Table 5: Historic (2024) and Forecasted (2035) Overall Labour Supply in British Columbia

Occupation	Historic BC Labour Supply (2024)	Forecasted BC Labour Supply (2035)	Net Change in BC Labour Supply
20 critical occupations	**147,696**	**172,514**	**24,818**
Heavy equipment operators	14,422	16,846	2,423
Transport truck drivers	47,004	54,901	7,897
Underground production and development miners	1,431	1,672	240
Supervisors, mining and quarrying	1,095	1,279	184
Construction millwrights and industrial mechanics	8,505	9,934	1,429
Heavy-duty equipment mechanics	7,091	8,283	1,191
Managers in natural resources	2,141	2,501	360
Welders and related machine operators	10,840	12,661	1,821
Industrial electricians	4,072	4,756	684
Geoscientists and oceanographers	2,386	2,787	401
Senior managers - public and private sector	33,293	38,887	5,594
Mine labourers	587	686	99
Central control and process operators	511	597	86
Machine operators, mineral and metal processing	696	813	117
Geological and mineral technologists	1,123	1,312	189
Mining engineers	784	915	132
Underground mine service and support workers	351	410	59
Industrial instrument technicians and mechanics	966	1,129	162
Drillers and blasters	719	840	121
Civil engineers	9,679	11,305	1,626
All occupations in BC	**2,854,785**	**3,334,431**	**479,646**

Note: Minor discrepancies may occur due to rounding.

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Mining's Labour Supply by Occupation

Table 6 presents an estimate of Mining's Labour Supply, offering a prediction of the number of BC-based workers that BC's mining sector can reasonably expect to employ. This prediction is based on the forecasted overall labour supply and the mining sector's anticipated share of that supply, which will vary by occupation.

Table 6: Projections of Mining's Labour Supply in British Columbia (2035)

Occupation	BC Mining's Labour Supply (2035)	Mining's Share of BC Labour Supply (%) (2035)	Forecasted BC Labour Supply (2035)
20 critical occupations	**13,373**	**8%**	**172,514**
Heavy equipment operators	2,161	13%	16,846
Transport truck drivers	1,572	3%	54,901
Underground production and development miners	1,163	70%	1,672
Supervisors, mining and quarrying	985	77%	1,279
Construction millwrights and industrial mechanics	986	10%	9,934
Heavy-duty equipment mechanics	747	9%	8,283
Managers in natural resources	655	26%	2,501
Welders and related machine operators	630	5%	12,661
Industrial electricians	615	13%	4,756
Geoscientists and oceanographers	587	21%	2,787
Senior managers - public and private sector	563	1%	38,887
Mine labourers	491	72%	686
Central control and process operators	420	70%	597
Machine operators, mineral and metal processing	416	51%	813
Geological and mineral technologists	382	29%	1,312
Mining engineers	358	39%	915
Underground mine service and support workers	267	65%	410
Industrial instrument technicians and mechanics	166	15%	1,129
Drillers and blasters	128	15%	840
Civil engineers	81	1%	11,305
All occupations in BC	**24,413**	**1%**	**3,334,431**

Note: BC Mining's Labour Supply = Mining's Share of BC Labour Supply x Forecasted BC Labour Supply. Minor discrepancies may occur due to rounding.

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

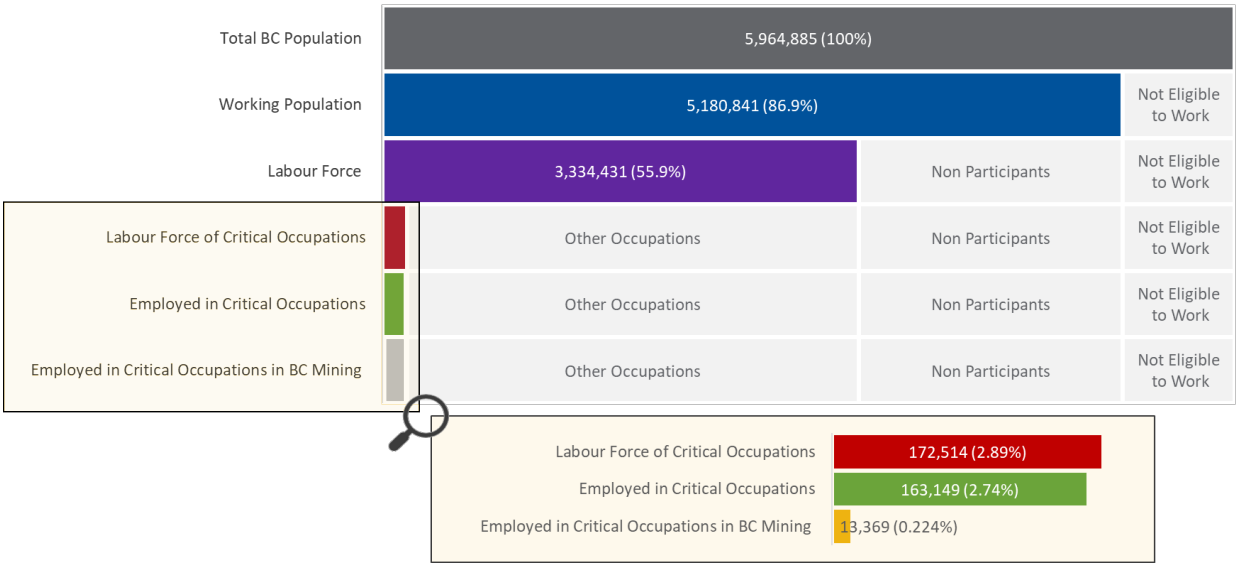
Comprehensive Labour Market View

Figure 9 provides a visual breakdown of BC's labour supply for all 20 critical occupations.

At the top, the graph illustrates the overall population, with each subsequent layer below representing a potential stage of attrition for the mining sector. The layers progress until reaching mining sector employment in the bottom left-hand corner. This visualization helps quantify where individuals are most likely to deviate from a career path in mining.

The next question naturally arises: *where is the bottleneck?* There is a significant drop-off at the stage where individuals choose their occupations. Despite representing over half of all BC mining workers, most people are not entering these 20 occupations. Out of roughly 3.3 million people in the overall labour force, only 173 thousand (or about 5%) are in these occupations. This underscores how occupational choices contribute to a limited labour pool, where too many employers are competing over too few candidates.

Figure 9: Labour Supply Deconstructed for 20 Critical Occupations in British Columbia's Mining Sector (2035)



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Chapter 3: Finding Critical Labour Market Gaps

Thus far, this report has presented a labour demand forecast (Table 2) and a labour supply forecast (Table 6), the latter representing the number of BC-based workers the mining sector can reasonably expect to employ. This chapter will compare these forecasts to identify critical labour gaps in BC's mining labour market.

MiHR defines a labour market gap as an imbalance, whereby the mining sector struggles to meet its labour demand with the local labour supply. This mismatch requires the sector to increase recruitment expenses, raise wages, employ out-of-province workers or invest in capital and innovation that will reduce labour needs. These efforts represent additional costs to the mining sector.

This chapter begins by revisiting the primary analysis question posed in the introduction:

Can BC's mining labour market sustain its future growth?

Projected Sector-Wide Labour Market Gap

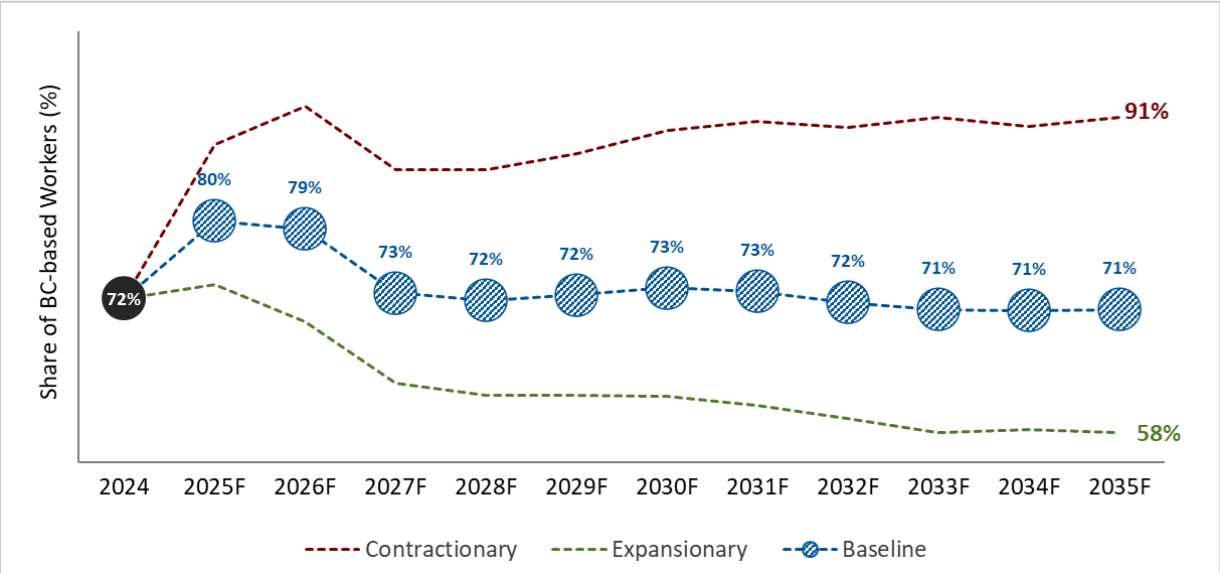
Firstly, it is important to note that BC's mining sector already employs people from outside of the province. Approximately 72% of workers reside within the province, while the remaining 28% live elsewhere.[13] Therefore, at present, workers from other provinces and territories are part of a sustainable mining sector in BC.

MiHR's baseline forecast predicts that the 2024 BC-based mining workers of 72% will remain relatively stable at 71% by 2035 (Figure 10). This forecast represents a conservative scenario, assuming economic and labour market trends will continue their current trajectory without any intervention.

In addition to the baseline scenario, Figure 10 also shows the contractionary, and expansionary scenarios for labour demand (consistent with the scenario framework in Table 2). Based on these scenarios, the percentage of BC-based mining workers could range from 58% to 91% in 2035. This underscores not only the wide uncertainty facing workforce planners, but also how sensitive the sector's labour market is to future growth, which would place increasing pressure on the available labour supply.

[13] These estimates are based on MiHR's labour market analysis model, showing BC Mining's Labour Supply ÷ BC Mining's Labour Demand. In 2024, this is calculated as 20,901 ÷ 29,010 = 72%. In 2035, this is calculated as 24,413 ÷ 34,431 = 71%. These numbers are summarized in Table 7.

Figure 10: Historic (2024) and Forecasted (2025 – 2035) Share of BC-based Workers in British Columbia's Mining Sector, Three Demand Scenarios



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

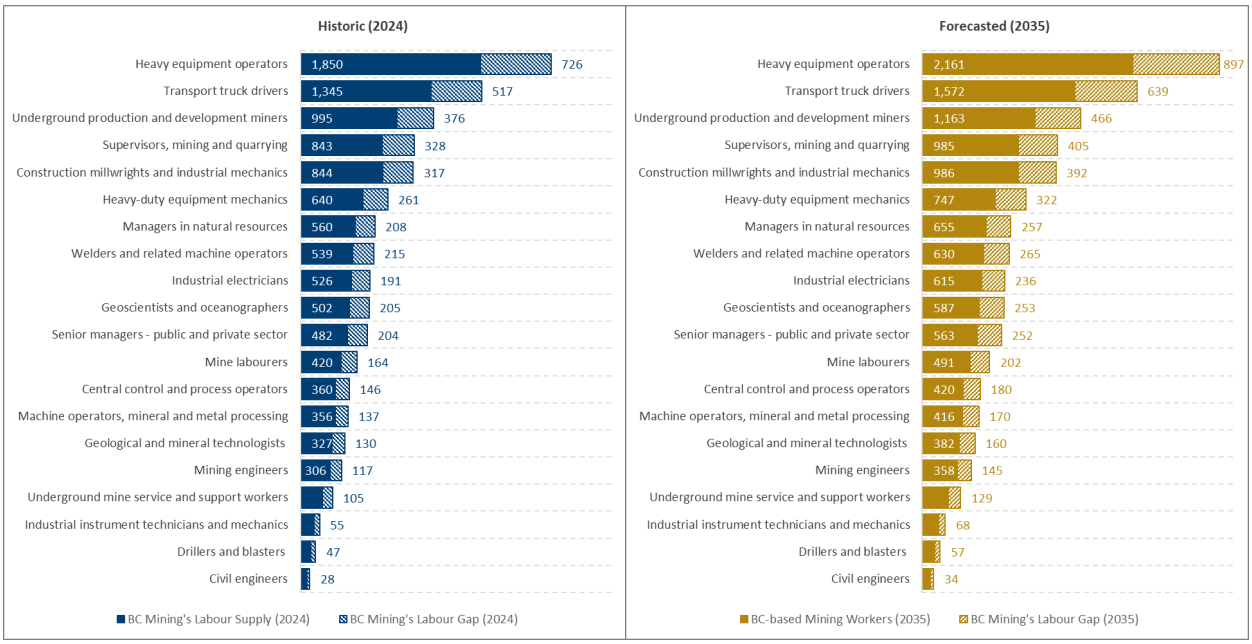
Addressing the Primary Analysis Question

- If the objective is to achieve full reliance on BC-based mining workers, the province's labour market is projected to face challenges in sustaining its future growth without external support.
- Alternatively, if the goal is to maintain the status quo of 72% BC-based mining workers, as observed in 2024, MiHR's forecast predicts that the status quo will remain sustainable under the baseline.
- Under the contractionary scenario, the 72% benchmark will be easier to achieve. The model projects that the BC mining sector could employ up to 91% of its workforce from within the province.
- Under the expansionary scenario, the 72% benchmark will be difficult to sustain. The model projects the percentage to decline to 58%, due to anticipated labour demand growth outpacing labour supply growth over the forecast period.

Labour Gaps by Critical Occupation

Figure 11 illustrates the historic and forecasted labour gaps for critical occupations in BC's mining sector. Table 7 summarizes the results shown in Figure 11. The occupational gaps shown are projected to grow over the next decade to varying degrees. *Heavy equipment operators* show the highest gap, mostly due to their large share within the mining sector (at 13%). Their gap is projected to grow from 726 workers in 2024 to 897 workers in 2035.

Figure 11: Historic (2024) and Forecasted (2035) Labour Gaps in British Columbia's Mining Sector, Baseline Scenario



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Table 7: Historic (2024) and Forecasted (2035) Labour Gap in British Columbia's Mining Sector, Baseline Scenario

	Historic			Forecasted		
Occupation	**BC Mining's Labour Supply (2024)**	**BC Mining's Labour Demand (2024)**	**BC Mining's Labour Gap (2024)**	**BC Mining's Labour Supply (2035)**	**BC Mining's Labour Demand (2035)**	**BC Mining's Labour Gap (2035)**
20 critical occupations	**11,444**	**15,925**	**4,481**	**13,373**	**18,898**	**5,525**
Heavy equipment operators	1,850	2,576	726	2,161	3,058	897
Transport truck drivers	1,345	1,863	517	1,572	2,211	639
Underground production and development miners	995	1,372	376	1,163	1,628	466
Supervisors, mining and quarrying	843	1,171	328	985	1,389	405
Construction millwrights and industrial mechanics	844	1,161	317	986	1,377	392
Heavy-duty equipment mechanics	640	901	261	747	1,069	322
Managers in natural resources	560	768	208	655	912	257
Welders and related machine operators	539	754	215	630	895	265
Industrial electricians	526	717	191	615	851	236
Geoscientists and oceanographers	502	708	205	587	840	253
Senior managers - public and private sector	482	687	204	563	815	252
Mine labourers	420	584	164	491	693	202
Central control and process operators	360	505	146	420	600	180
Machine operators, mineral and metal processing	356	493	137	416	585	170
Geological and mineral technologists	327	457	130	382	542	160
Mining engineers	306	424	117	358	503	145
Underground mine service and support workers	229	334	105	267	396	129
Industrial instrument technicians and mechanics	142	197	55	166	234	68
Drillers and blasters	109	156	47	128	185	57
Civil engineers	69	97	28	81	115	34
All occupations in BC Mining	**20,901**	**29,010**	**8,109**	**24,413**	**34,431**	**10,018**

Note: Minor discrepancies may occur due to rounding.

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Table 8 shows the labour gap in 2035 under the three demand scenarios (consistent with the scenario framework in Table 2), illustrating how the gap might differ depending on labour demand growth.

Table 8: Forecasted Labour Gaps in British Columbia's Mining Sector, Three Demand Scenarios (2035)

Occupation	Contractionary BC Mining's Labour Gap (2035)	Baseline BC Mining's Labour Gap (2035)	Expansionary BC Mining's Labour Gap (2035)
20 critical occupations	**1,365**	**5,525**	**9,697**
Heavy equipment operators	223	897	1,571
Transport truck drivers	152	639	1,127
Underground production and development miners	107	466	824
Supervisors, mining and quarrying	98	405	711
Construction millwrights and industrial mechanics	88	392	695
Heavy-duty equipment mechanics	86	322	558
Managers in natural resources	56	257	458
Welders and related machine operators	68	265	463
Industrial electricians	49	236	424
Geoscientists and oceanographers	68	253	438
Senior managers - public and private sector	72	252	431
Mine labourers	50	202	355
Central control and process operators	47	180	312
Machine operators, mineral and metal processing	41	170	299
Geological and mineral technologists	41	160	280
Mining engineers	34	145	256
Underground mine service and support workers	42	129	217
Industrial instrument technicians and mechanics	17	68	120
Drillers and blasters	17	57	98
Civil engineers	9	34	60
All occupations in BC Mining	**2,428**	**10,018**	**17,608**

Note: Minor discrepancies may occur due to rounding.
Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Workforce Adjustments

Previous sections of this report develop a forecast of labour gaps in BC's mining labour market. However, this does not necessarily reflect all of the workforce adjustments (i.e., the hiring efforts) that will need to occur over the forecast horizon.

This section calculates the cumulative hiring needs and workforce deficits over the forecast interval (2025 – 2035), explicitly highlighting the labour market inflows (i.e., entries into the labour force or mining sector) and outflows (i.e., exits due to retirements or industry transfers).

Hiring Requirements

Hiring requirements describe the cumulative workforce adjustments necessary to maintain the optimal level of employment over the next decade. The hiring requirement is calculated as the sum of the following components, each of which create hiring pressures for the sector:

1) *Net change in labour demand*: the number of individuals needed due to changes in labour demand due to sectoral expansions or contractions.
2) *Mining labour force exits:* the number of individuals exiting the labour force altogether. The primary reason for labour force exits is retirement, though there may be other causes such as returning to school, maternity/paternity leave or other similar factors. MiHR's exit model considers demographic factors (e.g., age, educational attainment) to estimate the share of workers likely to withdraw from the mining labour force over time. MiHR estimates the annual labour force exit rate will range between 1% and 2%.
3) *Mining industry exits:* the number of individuals leaving the mining sector to work in another sector. Information related to industry exits is rather sparse; MiHR has relied on limited available literature to estimate a reasonable industry exit rate over the forecast period.[14] [15] MiHR assumes the annual industry exit rate to be about 7%.

Table 9 provides the cumulative hiring requirements over the forecasted period for the critical occupations, under each of the three demand scenarios (as shown in Table 2). Under the baseline scenario, BC's mining sector will need to hire 35,087 additional workers over the next decade to accommodate increasing labour demand and replace workers exiting the mining labour force or the mining sector.

[14] Xuyang Chen and Maxime Fougère. (2009). *Inter-provincial and Inter-industry Labour Mobility in Canada, 1994-2005, the Survey of Labour and Income Dynamics (SLID)*.
[15] U.S. Bureau of Labour Statistics. (2023). *Occupational Separations*.

Table 9: Forecasted Cumulative Hiring Requirement in British Columbia's Mining Sector, Three Demand Scenarios (2025 – 2035)

Occupation	Contractionary Cumulative BC Mining Hiring Requirements	Baseline Cumulative BC Mining Hiring Requirements	Expansionary Cumulative BC Mining Hiring Requirements
20 critical occupations	**12,477**	**19,259**	**26,043**
Heavy equipment operators	2,018	3,116	4,213
Transport truck drivers	1,460	2,253	3,047
Underground production and development miners	1,075	1,659	2,243
Supervisors, mining and quarrying	917	1,416	1,915
Construction millwrights and industrial mechanics	909	1,404	1,898
Heavy-duty equipment mechanics	706	1,089	1,473
Managers in natural resources	602	929	1,256
Welders and related machine operators	591	912	1,233
Industrial electricians	562	867	1,173
Geoscientists and oceanographers	554	856	1,157
Senior managers - public and private sector	538	831	1,123
Mine labourers	458	707	956
Central control and process operators	396	611	826
Machine operators, mineral and metal processing	386	596	807
Geological and mineral technologists	358	553	747
Mining engineers	332	512	693
Underground mine service and support workers	262	404	546
Industrial instrument technicians and mechanics	155	239	323
Drillers and blasters	122	188	255
Civil engineers	76	117	159
All occupations in BC Mining	**22,729**	**35,087**	**47,445**

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Workforce Deficits

Following the estimation of hiring requirements, a workforce deficit is defined as the residual hiring needs not met by locally available talent. It represents the portion of hiring requirements expected to be more difficult and costly to fill. Although they report different numbers, workforce deficits are conceptually aligned with the labour gap presented in Table 8.

Workforce Deficit = Hiring Requirements - Expected BC Entries

Table 10 outlines the inflow and outflow components of the forecasted workforce deficit. It begins with hiring requirements (as estimated above) and subtracts the expected BC entries projected to join the mining sector over the forecast period. Expected BC entries represent the number of "natural" entrants that MiHR projects will join the BC mining sector over the next decade, under status quo conditions.

The cumulative workforce deficit in Table 10 identifies a shortage for critical occupations over the forecast period (2025 – 2035), derived under the baseline scenario. Overall, MiHR's model finds that workforce deficits across the sector will represent roughly 28% of cumulative hiring requirements, which means mining employers will need to make up for the deficit by recruiting people from out-of-province and from other sectors. This number is highly region-specific and would likely look very different under an alternative regional scope (e.g., the Nechako region of BC).

Table 10: Forecasted Cumulative Inflows and Outflows in British Columbia's Mining Sector, Baseline Scenario (2025 – 2035)

Occupation	Cumulative Net Change in BC Mining Labour Demand	Cumulative BC Mining Exits	Cumulative BC Mining Hiring Requirements	Cumulative BC Mining Entries	Cumulative BC Mining Workforce Deficit
20 critical occupations	**2,973**	**16,283**	**19,259**	**13,821**	**5,438**
Heavy equipment operators	481	2,634	3,116	2,234	882
Transport truck drivers	348	1,905	2,253	1,625	628
Underground production and development miners	256	1,403	1,659	1,202	457
Supervisors, mining and quarrying	219	1,197	1,416	1,018	398
Construction millwrights and industrial mechanics	217	1,187	1,404	1,019	385
Heavy-duty equipment mechanics	168	921	1,089	772	317
Managers in natural resources	144	786	929	677	252
Welders and related machine operators	141	771	912	651	261
Industrial electricians	134	733	867	635	232
Geoscientists and oceanographers	132	724	856	606	249
Senior managers - public and private sector	128	702	831	582	248
Mine labourers	109	597	707	508	199
Central control and process operators	94	517	611	434	177
Machine operators, mineral and metal processing	92	504	596	430	167
Geological and mineral technologists	85	467	553	395	158
Mining engineers	79	433	512	370	142
Underground mine service and support workers	62	342	404	276	128
Industrial instrument technicians and mechanics	37	202	239	172	67
Drillers and blasters	29	159	188	132	57
Civil engineers	18	99	117	83	34
All occupations in BC Mining	**5,421**	**29,666**	**35,087**	**25,237**	**9,850**

Note: Minor discrepancies may occur due to rounding.

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Chapter 4: Exploring Scenarios for Future Labour Market Sustainability

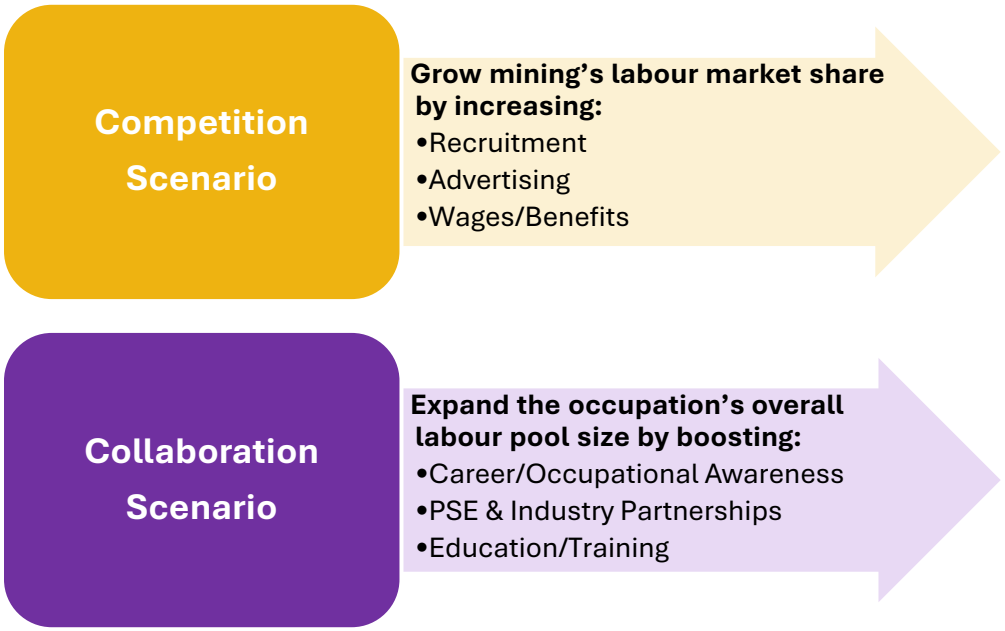
MiHR's model can produce scenarios to gauge the relative impact of different strategies aimed at strengthening the mining labour market. To minimize the cost of filling labour gaps, BC's mining sector will require targeted strategies for each occupation that will yield the best return on investment.

In certain cases, the existing labour pool is limited in its ability to effectively respond to new growth opportunities. This section employs MiHR's LMA model to recognize which occupations have a sufficiently deep labour pool that the sector can hire from, and which occupations have a relatively shallow labour pool, creating the need to supplement or bring in workers from other industries or jurisdictions.

Two Scenarios for Labour Market Sustainability

This section presents two scenarios, exploring the feasibility of attaining a workforce composed entirely of BC-based workers by 2035.[16] One scenario focuses on growing the mining workforce through competition with other sectors, while the other emphasizes labour force development across sectors (Figure 12).

Figure 12: Scenarios for Labour Market Sustainability



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

[16] This section introduces a sensitivity analysis, in which the main objective is to measure the potential response in the LMA model, under a given set of "what-if" assumptions. The analysis measures how one variable may impact the results of the analysis (in direction and scope) while keeping all other assumptions fixed. The objective of sensitivity analysis is not to predict the future; rather, it is a diagnostic to differentiate how distinct variables will have an impact within the LMA model.

Competition Scenario

The competition scenario assumes the labour supply is fixed, and that all employers must compete for a share of the overall labour supply. This scenario is about reaching goals through competition with other sectors—in other words, the mining sector takes a greater share of the occupational talent pool at the expense of others. This may involve tactics such as increasing wages, investing more in recruitment efforts, and intensifying advertising campaigns. Specifically, this scenario answers the following question:

How large does the mining sector's share of labour supply need to be such that 100% of workers are BC-based?

For the critical occupations, Table 11 shows (1) the mining sector's forecasted share of the labour supply and (2) the share required to attain a workforce that is completely represented by BC-based workers.

For example, the mining sector's forecasted share of *Heavy equipment operators* (the gold line) is 13% of the labour supply in 2025. To meet its labour needs with 100% BC-based workers, the sector would need to capture between 16% and 18% of the overall labour supply (the red line). The difference between the forecasted and required shares corresponds to the labour gap described in Chapter 3. For *Heavy equipment operators*, this equates to 897 additional workers in 2035.

In occupations such as *Supervisors, mining and quarrying*, *Mine labourers*, and *Central control and process operators*, the required share approaches or exceeds 100%, highlighting that the labour supply is too tight for a competition-only strategy to be effective.

Table 11 also provides a way to compare how effective a competition-based strategy would be across occupations. In general, the larger the gap between the sector's forecasted share and the required share, the less feasible a competition-only approach becomes. For example, a competition strategy is comparatively more realistic for *Heavy equipment operators* than for *Supervisors, mining and quarrying*, where the required share (and gap) is substantially higher, indicating tighter labour market conditions.

The table also identifies the largest sectoral competitor for talent in each occupation. A competitive strategy would involve drawing workers away from these rival sectors based on their transferable skills. For example, most *Heavy equipment operators* are concentrated in the Construction sector, which accounts for roughly 47% of the BC labour supply.

Table 11: Forecasted vs. Required Share of BC Labour Supply in British Columbia's Mining Sector, Baseline Scenario (2025 – 2035)

Occupation	Forecasted and Required BC Mining's Share of Labour Supply (%) (2025 - 2035)	Highest Share of BC Labour Supply Outside BC Mining (%) (2021)
Heavy equipment operators		Construction (47%)
Transport truck drivers		Transportation and warehousing (57%)
Underground production and development miners		Oil and gas extraction (7%)
Supervisors, mining and quarrying		Construction (11%)
Construction millwrights and industrial mechanics		Manufacturing (43%)
Heavy-duty equipment mechanics		Wholesale trade (13%) Construction (12%)
Managers in natural resources		Agriculture, forestry, fishing and hunting (26%)
Welders and related machine operators		Manufacturing (38%)
Industrial electricians		Manufacturing (39%)
Geoscientists and oceanographers		Professional, scientific and technical services (48%)
Senior managers - public and private sector		Professional, scientific and technical services (19%)
Mine labourers		Oil and gas extraction (6%)
Central control and process operators		Manufacturing (11%)

Machine operators, mineral and metal processing		Manufacturing (28%)
Geological and mineral technologists		Professional, scientific and technical services (28%)
Mining engineers		Professional, scientific and technical services (37%)
Underground mine service and support workers		Oil and gas extraction (6%)
Industrial instrument technicians and mechanics		Manufacturing (31%)
Drillers and blasters		Construction (56%)
Civil engineers		Professional, scientific and technical services (58%)

Forecasted BC Mining's % of Labour Supply

Required BC Mining's % of Labour Supply Needed to Meet Demand (100% BC-based Workers)

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Collaboration Scenario

The collaboration scenario assumes the overall labour supply can expand to optimal levels, without requiring the mining sector to increase its share. In this scenario, workforce goals are achieved by expanding the labour supply so that it can sustain growth across all sectors. This approach emphasizes labour force development—investing in career awareness, skills, and training within the province to "grow the whole pie" to a level that supports a competitive and sustainable labour supply capable of meeting the needs of all sectors.

For employers, investing in labour force development may involve training individuals who could potentially be hired by competitors. However, it is crucial to recognize that each new entrant hired by a competitor represents one fewer worker that the competition might poach. This scenario answers the following question:

How large does the occupational labour supply need to be such that 100% of the mining sector's workers are BC-based?

For the critical occupations, Table 12 highlights the labour supply growth required to meet mining sector demand solely with BC-based workers, without taking a larger share of the

labour supply. For example, the labour supply for *Heavy equipment operators* would need to grow by 6,992 people in 2035 (from 16,846 to 23,838 people), as shown by the yellow bars.

The scale of required growth differs greatly across occupations. For *Transport truck drivers*, an additional 22,339 workers would be needed—an outcome that is seemingly impractical in the near term. Conversely, for *Central control and process operators*, the requirement is only about 255 added workers, which is comparatively more attainable.

This suggests that investments in labour-force development would likely produce greater returns for *Central control and process operators* than for *Transport truck drivers*, given the far smaller scale of required growth.

Table 12: Forecasted vs. Required Overall Labour Supply for Critical Occupations in British Columbia's Mining Sector (2025 – 2035)

Occupation	Forecasted and Required BC Overall Labour Supply (2025 - 2035)
Heavy equipment operators	
Transport truck drivers	
Underground production and development miners	
Supervisors, mining and quarrying	
Construction millwrights and industrial mechanics	
Heavy-duty equipment mechanics	
Managers in natural resources	
Welders and related machine operators	

Industrial electricians	5,225 4,265  6,586 4,756
Geoscientists and oceanographers	3,166 2,500  3,991 2,787
Senior managers - public and private sector	44,628 34,871  56,256 38,887
Mine labourers	768 615  968 686
Central control and process operators	676 536  853 597
Machine operators, mineral and metal processing	908 729  1,145 813
Geological and mineral technologists	1,478 1,177  1,863 1,312
Mining engineers	1,020 821  1,286 915
Underground mine service and support workers	483 368 609 410
Industrial instrument technicians and mechanics	1,263 1,012 1,592 1,129
Drillers and blasters	966 753 1,218 840
Civil engineers	12,789 10,137  16,122 11,305

Required BC Overall Labour Supply Forecasted BC Overall Labour Supply

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Evaluating the Two Scenarios Together

The competition and collaboration scenarios represent two distinct approaches to workforce planning. While neither on their own may be entirely realistic or practical, they serve as 'what-if' cases to illustrate the full range of possibilities under different strategic approaches. In practice, the outcome will likely be a combination of these two scenarios.

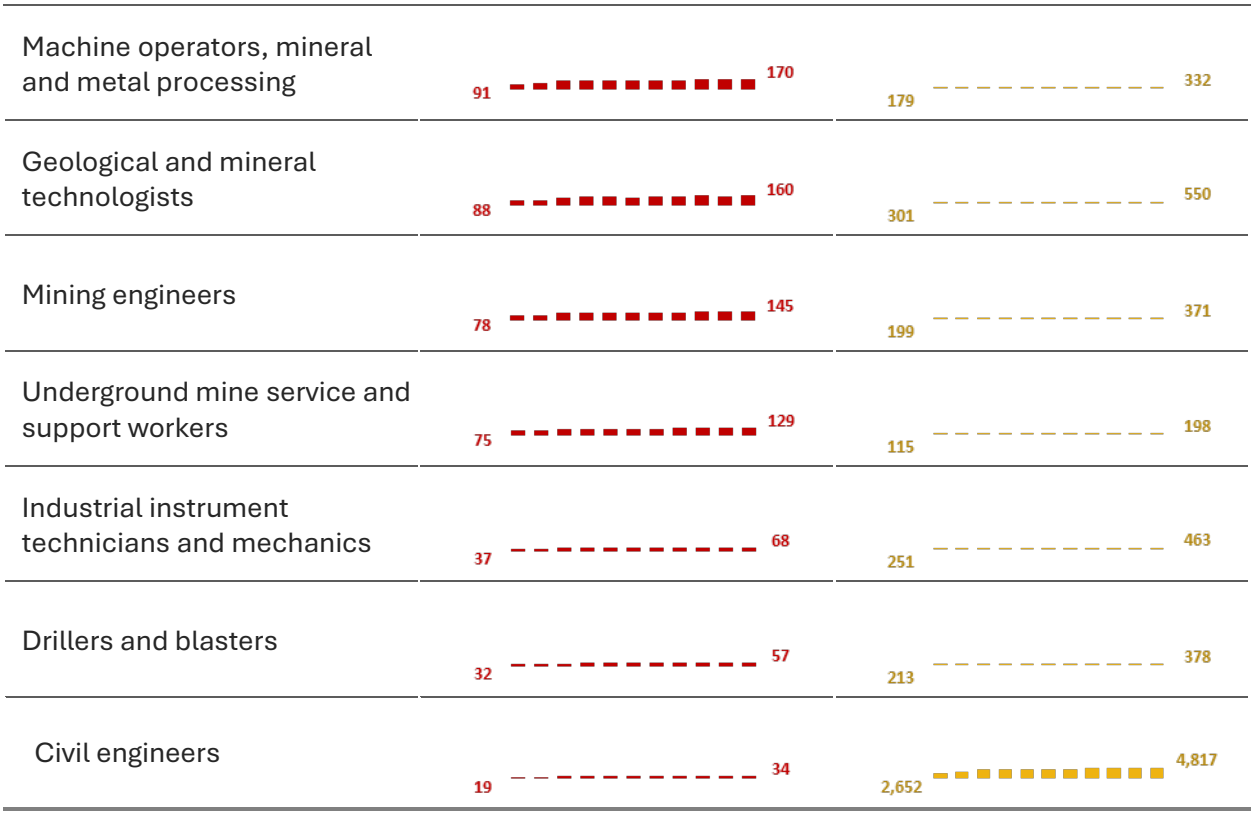
Table 13 compares the model results for each occupation under both scenarios. The competition scenario shows the number of workers the mining sector would need to draw from other sectors to meet the forecasted labour demand. The collaboration scenario shows the growth required in the overall provincial labour supply for the mining sector to meet its labour needs. Together, these results provide a basis for evaluating which workforce strategy—competition, collaboration, or some blend of the two—is more achievable for each occupation:

- For *Transport truck drivers*, a pure collaboration strategy would require increasing the labour supply by 22,339 people in 2035. In this case, a competition strategy (acquiring 639 workers from other competing sectors) appears much more feasible.
- On the other hand, for *Central control and process operators*, the numbers swing in the other direction: a collaboration strategy only requires adding 255 workers to the labour supply in 2035, versus capturing about 180 workers under a competition-only strategy. In this case, collaboration looks more efficient and less disruptive.

The key takeaway is that different occupations will likely benefit from different workforce strategies; there is no single "one-size-fits-all" approach.

Table 13: Competition Scenario vs. Collaboration Scenario for Critical Occupations in British Columbia's Mining Sector (2025 – 2035)

Occupation	Competition Scenario: Labour Gap (2025 - 2035)	Collaboration Scenario: Required Labour Supply Growth (2025 - 2035)
Heavy equipment operators	488 897	3,805 6,992
Transport truck drivers	345 639	12,043 22,339
Underground production and development miners	249 466	358 670
Supervisors, mining and quarrying	219 405	285 525
Construction millwrights and industrial mechanics	209 392	2,104 3,947
Heavy-duty equipment mechanics	178 322	1,974 3,568
Managers in natural resources	136 257	521 983
Welders and related machine operators	145 265	2,920 5,331
Industrial electricians	124 236	960 1,830
Geoscientists and oceanographers	140 253	667 1,204
Senior managers - public and private sector	141 252	9,757 17,369
Mine labourers	110 202	153 283
Central control and process operators	99 180	141 255



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

Chapter 5: Skills Analysis for the Mining Sector

MiHR has developed an analysis to quantify the workforce skills and abilities most prevalent in BC's mining sector. The objective is to provide workforce planners with a clearer understanding of how skills are distributed across the labour force, and to equip mining stakeholders (career seekers, employers, educators, and governments) with information to support better decision-making, anticipate future skills gaps, and align the labour supply with sector demand. The analysis presented in this chapter aims to:

a) *Observe the specific skills most used* in BC's mining sector, and how they differ from those in other sectors.
b) *Integrate a skills taxonomy with MiHR's LMA model* to pinpoint critical gaps.
c) *Highlight which skills require greater proficiency* in critical occupations.

Challenges and Limitations

Skills are difficult to measure in a standardized way.

In general, skills are difficult to quantify given the ambiguity of how they are applied across different roles in the economy. For example, 'mathematics' has a different application for an engineer compared to an accountant, though they both may require a use of mathematics in their roles. As a result, present-day skills measurements fail to capture the nuance and complexity of skills in the context of various roles.

Skills analysis rely on occupational data, and a skills taxonomy.

Contemporary analyses of skills typically rely on occupation-based data combined with a skills taxonomy to generate skill-related insights, since no direct survey of skills exists for Canada's workforce and conducting one would be impractical.

Skills analysis only considers occupations that exist today.

Since this analysis of skills necessarily leverages occupational data, it is ultimately limited to occupations that are currently observable. It is very likely that several new occupations will emerge as a result of technological innovation, representing an inherent blind spot of the analysis presented in this section. Furthermore, for the purposes of this study, the mapping of occupations to skills is assumed to remain static over the forecast period.[17]

[17] MiHR's model has the capability to modify the occupation-to-skills mapping to develop scenarios in which new technologies reshape occupational skill sets. This type of analysis, however, falls outside the scope of the present study.

Data and Methodology

MiHR leverages the Occupational and Skills Information System (OaSIS) [18] skills taxonomy to determine the "skills" and "abilities" that are important to the mining sector. The analysis follows a simple two-step approach: (1) Map skills and abilities to occupations,[19] and (2) Add up workers in occupations using a particular skill or ability. The analysis relies on the OaSIS taxonomy, which distinguishes between *skills* and *abilities*.

OaSIS Skills

OaSIS defines skills as the "developed capabilities that an individual must have to be effective in a job, role, function, task, or duty."

The OaSIS taxonomy comprises of 33 unique skills. Examples include:

- *Numeracy:* The capability to understand, use and report numbers and other mathematical information presented through words, numbers, symbols, and graphics.
- *Digital Literacy:* The capability to understand and use digital devices and tools to obtain, exchange, create or process digital information in a secure manner.
- *Critical Thinking:* The capability to use logic and reasoning to question, discern, interpret and analyze various types of information to form an evidence-based conclusion or judgment.

OaSIS Abilities

OaSIS defines abilities as the "innate and developed aptitudes that facilitate the acquisition of knowledge and skills to carry out expected work."

The OaSIS taxonomy comprises of 49 unique abilities. Examples include:

- *Numerical Ability*: The ability to carry out arithmetical processes accurately such as addition, subtraction, multiplication or division.
- *Mathematical Reasoning:* The ability to choose the right mathematical methods or formulas to solve a problem.
- *Memorizing:* The ability to remember information such as words, numbers, pictures, or procedures.

[18] OaSIS is a database developed by Employment and Social Development Canada (ESDC) that provides ratings for worker characteristics (e.g., skills, abilities, work environment) associated with occupations.
[19] The OaSIS database evaluates workforce skills across occupations, rating proficiency requirements on a scale from 0 to 5. An occupation is considered to "own" a skill if the required proficiency exceeds a threshold of 3. By applying this threshold, each skill is mapped to occupations as a binary outcome ("yes" or "no"), marking the point at which a skill is deemed significant to the occupation.

Findings offer a valuable reference point for understanding how skills and abilities are distributed across the mining labour force, and they can serve as a practical tool for identifying potential skills gaps and helping align the labour pool with the skills needs of BC's mining sector. Appendix D provides the full list and detailed descriptions of OaSIS skills and abilities.

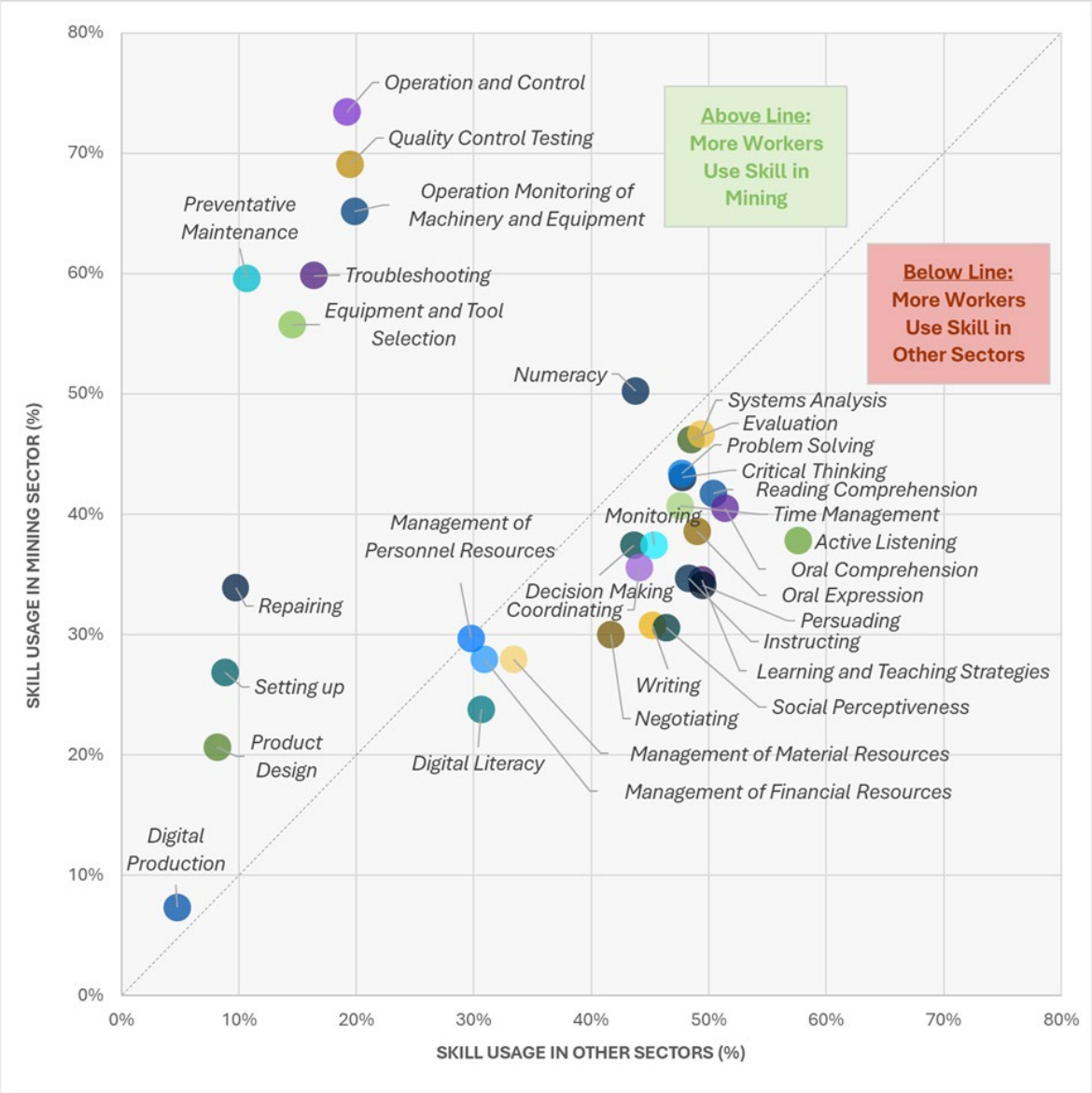
a) Observe the Specific Skills Most Used

OaSIS Skills

Figure 13 compares the use of OaSIS skills in the mining sector (vertical axis) and other sectors (horizontal axis) in BC. Percentages indicate the share of workers requiring at least moderate proficiency in each skill.

The graph shows a 45-degree parity line: along the line, mining sector workers use a given skill at the same rate as workers in other sectors. Skills that fall above the line are more prevalent in mining, with notable examples including *Operation and Control*, *Quality Control Testing*, *Operation Monitoring of Machinery*, *Preventative Maintenance and Troubleshooting*. Note that these results reflect the sector-level aggregate, and individual occupations may diverge significantly.

Figure 13: Comparison of Skills Prevalence in British Columbia's Mining Sector and Other Sectors (2021)

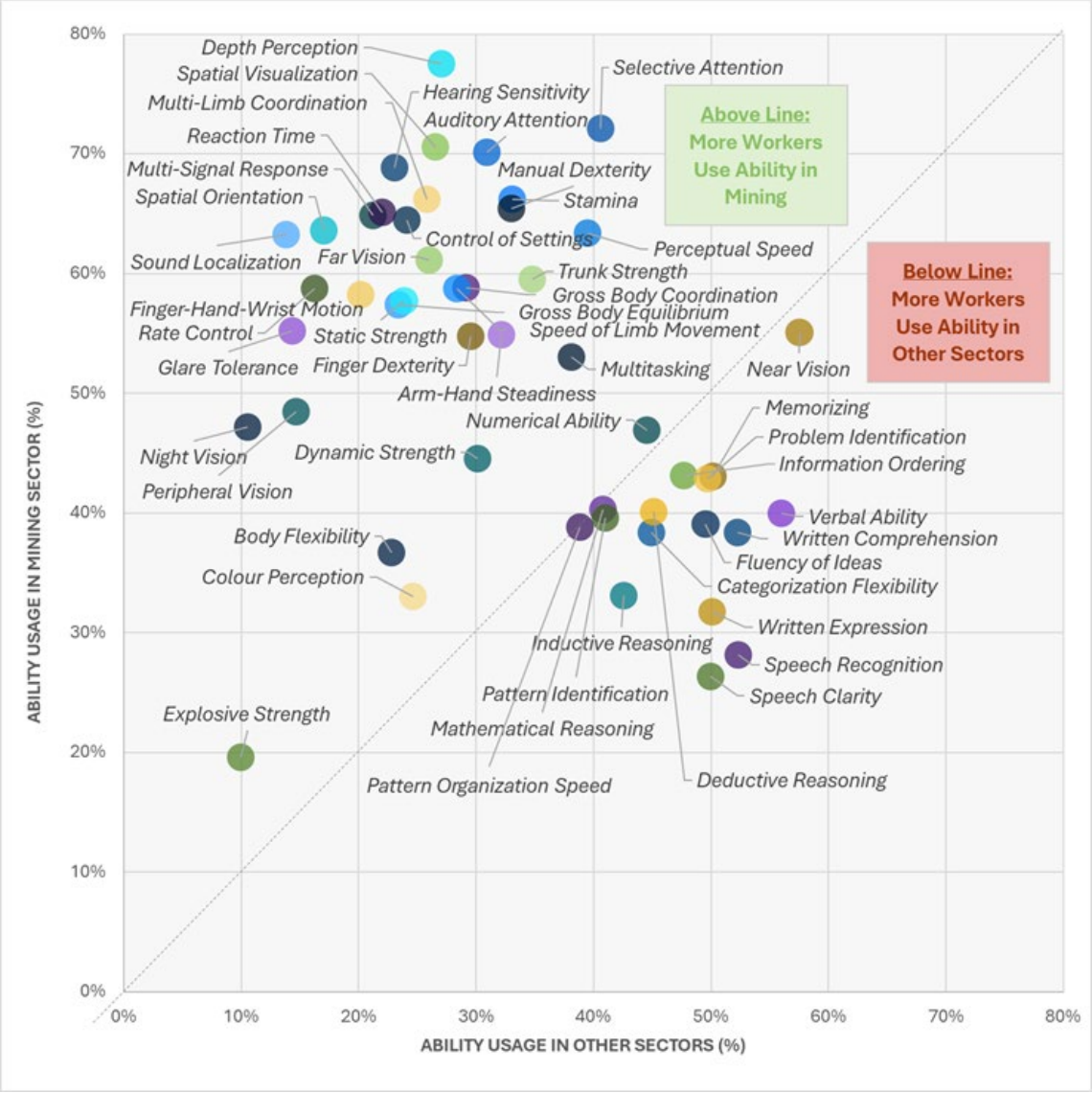


Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

OaSIS Abilities

Figure 14 contrasts the use of OaSIS abilities used in the mining sector with those in other sectors in BC. Percentages indicate the share of workers requiring at least moderate proficiency in each ability. Abilities that appear above the parity line are more prevalent in mining, with notable examples including *Depth Perception*, *Spatial Visualization*, *Hearing Sensitivity*, and *Auditory Attention*.

Figure 14: Comparison of Abilities Prevalence in British Columbia's Mining Sector and Other Sectors (2021)



Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

b) Integrate Skill Taxonomy with the Forecasted Labour Gap

This section builds on the skills analysis by integrating the OaSIS framework with MiHR's Labour Market Analysis (LMA) model (as developed in Chapters 1, 2 and 3) to identify critical skills gaps in BC's mining sector.

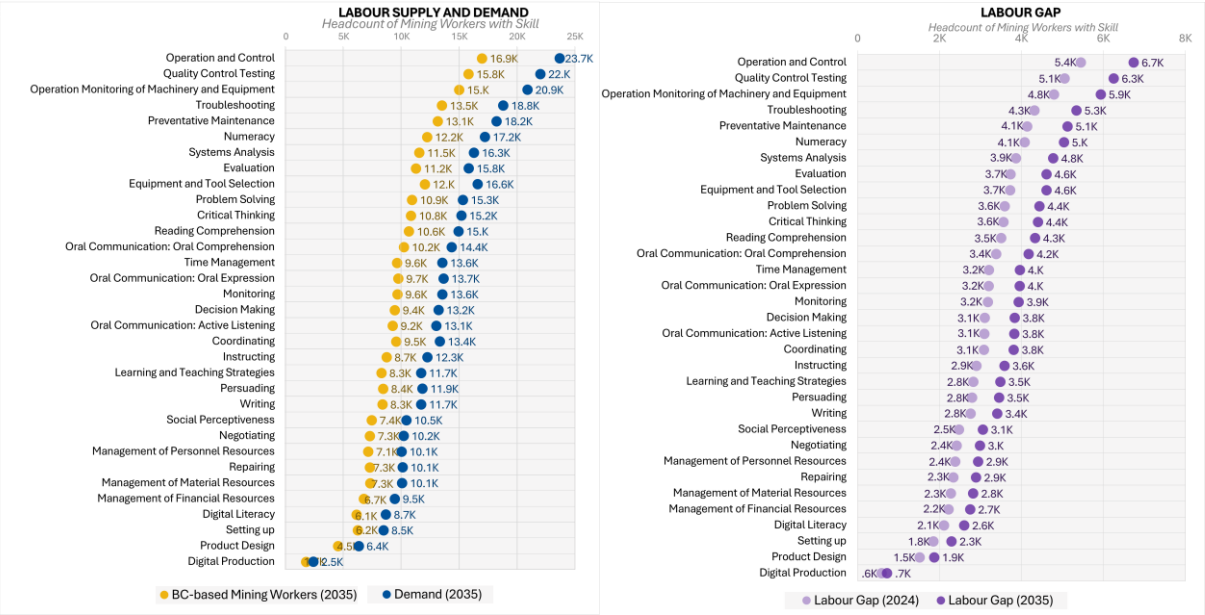
OaSIS Skills

The OaSIS framework is applied to estimate how many workers are expected to *use* each skill within (1) BC's mining labour demand and (2) BC's mining labour supply. The analysis highlights which skills emerge with the largest projected gaps across all occupations.

On the left, Figure 15 compares forecasted labour demand and supply for 33 OaSIS skills in 2035. On the right, the figure presents the resulting skills gaps for 2035, while also indicating the gaps observed in 2024.

Notably, *Operation and Control*, *Quality Control Testing*, and *Operation Monitoring* of *Machinery and Equipment* rank as the most significant gaps. These findings indicate that BC's mining sector already relies on sourcing these skills from outside the province, and this reliance is expected to grow over the forecast period.

Figure 15: Historic (2024) and Forecasted (2035) Labour Gaps for 33 OaSIS Skills in British Columbia's Mining Sector, Baseline Scenario



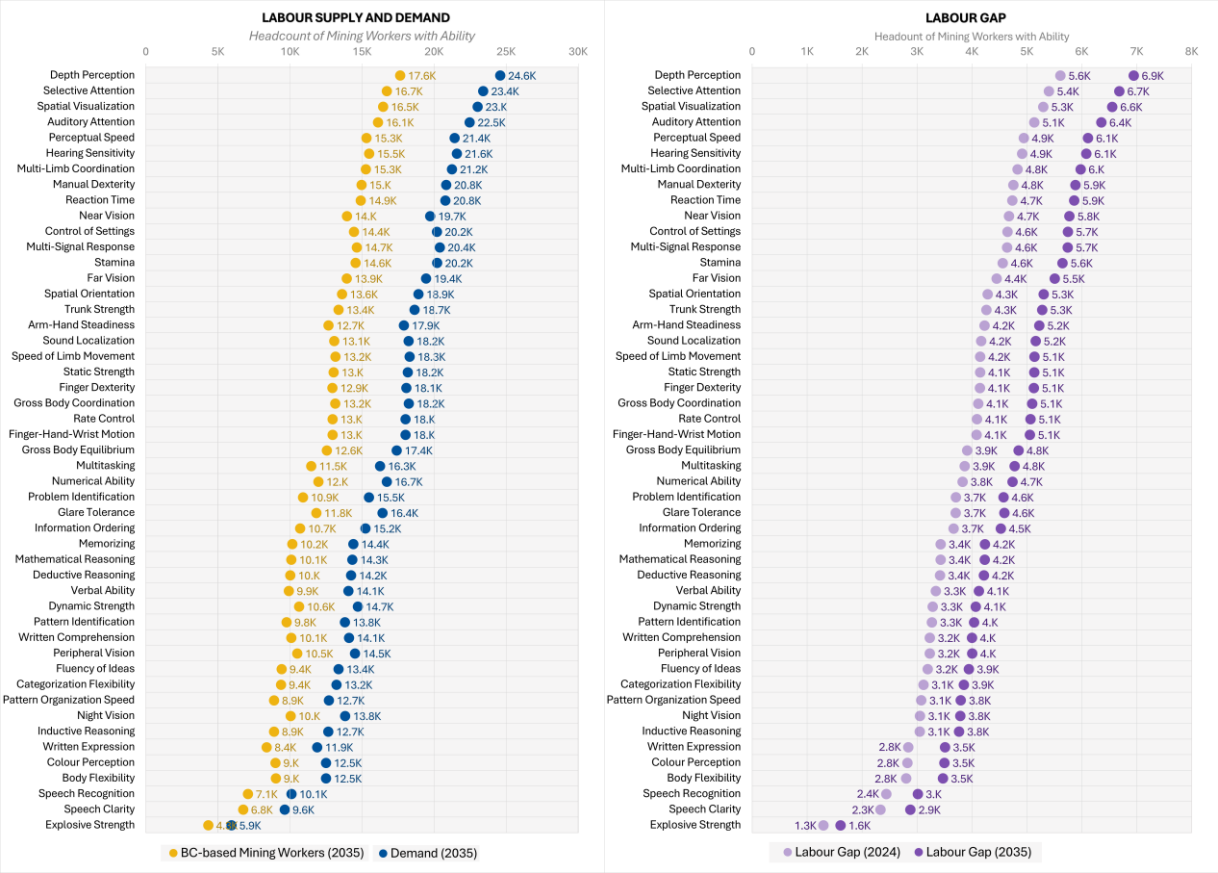
Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

OaSIS Abilities

The OaSIS framework is also applied to map abilities onto BC's mining labour demand and BC's mining labour supply. The analysis identifies which abilities show the largest gaps across all occupations.

On the left, Figure 16 compares forecasted labour demand and supply for 49 OaSIS abilities in 2035. On the right, the figure presents the resulting ability gaps for 2035, while also indicating the gaps observed in 2024. Notably, *Depth Perception*, *Selective Attention*, and *Spatial Visualization* rank among the most significant gaps.

Figure 16: Historic (2024) and Forecasted (2035) Labour Gaps for 49 OaSIS Abilities in British Columbia's Mining Sector, Baseline Scenario



Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

c) Highlight Which Skills Require Greater Proficiency

This section examines skills requirements at the occupation level using the OaSIS framework, providing greater insight into the underlying data.

OaSIS Skills

The OaSIS database evaluates workforce skills across occupations, rating the required level of proficiency on a scale from 0 to 5, with 5 representing the highest level. Figure 17 illustrates these proficiency levels for the critical occupations. The results show that skills demand vary by occupation—for example, *Civil engineers* and *Mining engineers* require a high degree of proficiency across most skills, while *Senior managers* may still require a high degree of proficiency but across a smaller array of skills.

Figure 17: OaSIS Skill Level Requirements of Critical Occupations in British Columbia's Mining Sector

Proficiency Level 0.0–5.0	Skills	Critical Occupations (part 1)									
		Heavy equipment operators	Transport truck drivers	Underground production and development miners	Supervisors, mining and quarrying	Construction millwrights and industrial mechanics	Heavy-duty equipment mechanics	Managers in natural resources production and fishing	Geoscientists	Senior managers - public and private sector	Industrial electricians
Foundational Skills	Digital Literacy	1.0	1.0	2.0	2.0	2.0	2.0	2.0	4.5	4.0	3.0
	Numeracy	2.0	2.0	1.0	3.0	3.0	3.0	4.0	4.5	4.0	3.0
	Active Listening	1.0	1.0	1.0	3.0	2.0	2.0	4.0	3.0	4.0	2.0
	Oral Comprehension	2.0	1.0	2.0	3.0	2.0	2.0	3.0	5.0	5.0	3.0
	Oral Expression	1.0	1.5	2.0	3.0	2.0	2.0	3.0	5.0	5.0	3.0
	Reading Comprehension	1.0	1.5	1.0	3.0	2.0	2.0	3.0	5.0	5.0	3.0
	Writing	1.0	1.5	1.0	2.0	2.0	2.0	4.0	5.0	5.0	2.0
Interpersonal Skills	Coordinating	2.0	1.0	2.0	3.0	2.5	2.0	4.0	3.0	5.0	3.0
	Instructing	2.0	1.0	1.0	3.0	2.0	2.0	4.0	3.0	4.0	2.0
	Negotiating	1.0	1.0	1.0	3.0	1.5	1.0	5.0	3.0	5.0	2.0
	Persuading	1.0	1.0	1.0	3.0	2.0	2.0	4.0	3.0	5.0	2.0
	Social Perceptiveness	1.0	1.0	1.0	3.0	1.5	2.0	3.0	3.0	4.0	2.0
Planning Skills	Monitoring	2.0	1.5	2.0	4.0	2.0	2.0	4.0	3.0	5.0	3.0
	Time Management	2.0	2.0	2.0	4.0	2.5	3.0	4.0	3.0	5.0	2.0
Process Analysis Skills	Critical Thinking	1.0	1.5	1.0	3.0	3.0	2.0	3.0	4.0	5.0	3.0
	Decision Making	2.0	1.5	1.0	3.0	2.0	2.0	4.0	4.0	5.0	3.0
	Evaluation	2.0	1.5	2.0	3.0	2.5	3.0	4.0	4.0	5.0	3.0
	Learning and Teaching Strategies	2.0	1.5	1.0	3.0	2.0	2.0	4.0	4.0	5.0	2.0
	Problem Solving	1.0	1.5	2.0	3.0	3.0	2.0	4.0	5.0	5.0	3.0
	Systems Analysis	2.0	1.5	1.0	3.0	2.0	3.0	4.0	4.0	5.0	3.0
Resource Management Skills	Management of Financial Resources	0.0	0.5	0.0	3.0	0.0	0.0	4.0	2.0	5.0	2.0
	Management of Material Resources	2.0	2.5	2.0	4.0	2.0	2.0	5.0	2.0	5.0	2.0
	Management of Personnel Resources	1.0	1.0	2.0	4.0	2.0	2.0	4.0	3.0	5.0	2.0
Technical Skills	Digital Production	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	1.0
	Equipment and Tool Selection	3.0	2.0	4.0	4.0	3.0	5.0	2.0	3.0	0.2	4.0
	Operation and Control	4.0	3.5	4.0	3.0	3.0	4.0	3.0	3.0	0.0	3.0
	Operation Monitoring of Machinery and Equipment	3.0	2.5	4.0	3.0	4.0	4.0	3.0	4.0	0.4	3.0
	Preventative Maintenance	3.0	2.5	3.0	4.0	4.5	5.0	1.0	1.0	0.0	5.0
	Product Design	0.0	0.0	1.0	3.0	2.5	3.0	2.0	0.0	0.4	3.0
	Quality Control Testing	3.0	2.5	3.0	4.0	3.0	4.0	4.0	3.5	1.0	4.0
	Repairing	2.0	2.5	3.0	2.0	4.5	5.0	0.0	1.0	0.0	5.0
	Setting up	2.0	1.5	3.0	2.0	4.0	4.0	1.0	0.5	0.0	5.0
	Troubleshooting	3.0	2.5	3.0	3.0	4.0	5.0	3.0	2.0	0.0	4.0

Critical Occupations (part 2)

Proficiency Level 0.0 – 5.0	Skills	Welders and related machine operators	Mine labourers	Central control and process operators	Machine operators, mineral and metal processing	Geological and mineral technologists and technicians	Mining engineers	Underground mine service and support workers	Industrial instrument technicians and mechanics	Drillers and blasters	Civil engineers
Foundational Skills	Digital Literacy	0.5	0.0	2.0	1.0	2.5	4.0	0.0	3.0	0.0	4.0
	Numeracy	2.0	1.0	2.0	2.0	3.5	5.0	1.0	3.0	2.5	5.0
	Active Listening	2.0	1.0	2.0	1.0	3.0	3.0	1.0	3.0	2.0	3.0
	Oral Comprehension	2.0	1.0	2.0	1.0	3.0	5.0	1.0	3.0	2.0	5.0
	Oral Expression	2.0	1.0	2.0	1.0	3.0	4.0	2.0	2.0	2.0	5.0
	Reading Comprehension	2.5	1.0	2.0	2.0	3.0	5.0	1.0	3.0	1.5	5.0
	Writing	1.0	1.0	2.0	2.0	3.0	4.0	1.0	2.0	2.0	4.0
Interpersonal Skills	Coordinating	2.0	1.0	1.0	2.0	2.5	4.0	2.0	2.0	2.0	4.0
	Instructing	2.0	1.0	2.0	2.0	2.5	3.0	2.0	3.0	2.5	3.0
	Negotiating	1.0	1.0	1.0	1.0	2.5	3.0	1.0	2.0	2.0	4.0
	Persuading	2.0	1.0	2.0	1.0	2.5	3.0	1.0	2.0	2.0	4.0
	Social Perceptiveness	1.0	1.0	2.0	1.0	2.0	3.0	1.0	2.0	1.0	3.0
Planning Skills	Monitoring	2.0	2.0	2.0	2.0	2.5	5.0	2.0	3.0	2.0	4.0
	Time Management	2.0	1.0	2.0	1.0	2.5	4.0	1.0	3.0	2.0	5.0
Process Analysis Skills	Critical Thinking	2.0	1.0	2.0	2.0	3.0	5.0	1.0	3.0	2.0	5.0
	Decision Making	2.0	2.0	2.0	2.0	3.0	5.0	1.0	2.0	2.5	5.0
	Evaluation	2.0	1.0	2.0	2.0	3.0	5.0	2.0	3.0	2.5	5.0
	Learning and Teaching Strategies	1.5	1.0	2.0	2.0	2.5	4.0	1.0	3.0	2.0	4.0
	Problem Solving	2.0	1.0	2.0	2.0	3.0	5.0	2.0	3.0	2.5	5.0
	Systems Analysis	2.0	2.0	2.0	2.0	3.0	5.0	1.0	3.0	2.5	5.0
Resource Management Skills	Management of Financial Resources	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	4.0
	Management of Material Resources	1.0	2.0	2.0	2.0	2.0	5.0	2.0	3.0	3.0	4.0
	Management of Personnel Resources	2.0	1.0	2.0	2.0	2.5	4.0	1.0	2.0	2.0	4.0
Technical Skills	Digital Production	0.0	0.0	0.0	0.0	2.5	3.0	0.0	0.0	0.0	4.0
	Equipment and Tool Selection	3.0	2.0	2.0	2.0	2.5	4.0	3.0	3.0	3.0	2.0
	Operation and Control	3.0	2.0	5.0	4.0	3.0	4.0	4.0	4.0	3.5	4.0
	Operation Monitoring of Machinery and Equipment	2.5	1.0	5.0	3.0	4.0	4.0	3.0	5.0	3.5	5.0
	Preventative Maintenance	3.0	3.0	3.0	2.0	3.0	5.0	3.0	5.0	3.0	5.0
	Product Design	1.0	2.0	1.0	0.0	2.5	5.0	1.0	3.0	2.0	5.0
	Quality Control Testing	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0	2.5	5.0
	Repairing	2.0	3.0	3.0	2.0	1.0	3.0	3.0	5.0	2.0	4.0
	Setting up	2.0	1.0	1.0	2.0	0.0	3.0	2.0	4.0	1.5	4.0
	Troubleshooting	2.0	2.0	3.0	3.0	3.0	4.0	3.0	5.0	3.0	2.0

Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

OaSIS Abilities

As with skills, the OaSIS database evaluates workforce abilities across occupations and rates the required proficiency on a scale from 0 to 5. Figure 18 illustrate proficiency levels for the critical occupations. The results show that ability requirements vary by occupation—for example, *Civil engineers* and *Mining engineers* demand a high degree of proficiency in cognitive abilities but comparatively less in physical abilities. Meanwhile, skilled trades such as *Industrial electricians*, *Welders*, *Heavy equipment operators*, *Millwrights* and *Mechanics* require varying levels of proficiency across multiple abilities related to the specific nature of their jobs.

Figure 18: OaSIS Ability Level Requirements of Critical Occupations in British Columbia's Mining Sector

Critical Occupations (part 1)

Proficiency Level 0.0 – 5.0	Abilities	Heavy equipment operators	Transport truck drivers	Underground production and development miners	Supervisors, mining and quarrying	Construction millwrights and industrial mechanics	Heavy-duty equipment mechanics	Managers in natural resources production and fishing	Geoscientists	Senior managers - public and private sector	Industrial electricians
Cognitive	Categorization Flexibility	1.0	1.5	2.0	3.0	2.0	2.0	3.0	5.0	5.0	3.0
	Deductive Reasoning	1.0	1.5	1.0	3.0	2.5	2.0	4.0	4.5	4.2	3.0
	Fluency of Ideas	1.0	1.0	2.0	3.0	2.0	2.0	4.0	4.0	5.0	3.0
	Inductive Reasoning	1.0	1.5	2.0	2.0	2.5	2.0	3.0	4.5	4.0	3.0
	Information Ordering	1.0	1.5	2.0	2.0	3.0	3.0	4.0	4.0	5.0	4.0
	Mathematical Reasoning	2.0	1.5	1.0	3.0	2.0	2.0	4.0	5.0	4.8	3.0
	Memorizing	1.0	1.5	2.0	3.0	2.0	3.0	3.0	4.0	5.0	3.0
	Multitasking	3.0	2.0	2.0	3.0	2.0	3.0	3.0	2.0	4.0	3.0
	Numerical Ability	2.0	1.5	1.0	3.0	2.0	3.0	4.0	4.5	4.8	3.0
	Pattern Identification	2.0	1.0	2.0	2.0	3.0	3.0	3.0	4.0	4.0	3.0
	Pattern Organization Speed	2.0	2.0	2.0	3.0	2.5	3.0	3.0	3.0	4.0	3.0
	Perceptual Speed	3.0	3.0	2.0	3.0	2.5	3.0	3.0	2.5	3.0	4.0
	Problem Identification	2.0	1.5	2.0	4.0	3.0	2.0	3.0	4.0	5.0	3.0
	Selective Attention	3.0	2.5	3.0	3.0	3.0	4.0	3.0	3.0	4.0	3.0
	Spatial Orientation	4.0	5.0	4.0	4.0	2.0	3.0	0.0	3.0	0.2	3.0
	Spatial Visualization	3.0	3.0	3.0	3.0	3.0	4.0	1.0	3.0	2.4	4.0
	Verbal Ability	1.0	1.5	1.0	3.0	2.0	2.0	3.0	4.0	5.0	3.0
	Written Comprehension	1.0	1.5	1.0	3.0	2.0	2.0	4.0	5.0	5.0	2.0
	Written Expression	1.0	1.0	1.0	2.0	2.0	2.0	4.0	5.0	5.0	2.0
Physical	Body Flexibility	2.0	2.5	4.0	1.0	4.0	4.0	1.0	1.0	0.0	4.0
	Dynamic Strength	2.0	3.0	4.0	0.0	4.0	4.0	0.0	1.0	0.0	3.0
	Explosive Strength	1.0	1.5	4.0	0.0	2.0	4.0	0.0	0.0	0.0	2.0
	Gross Body Coordination	3.0	2.5	3.0	4.0	3.5	4.0	1.0	1.5	0.0	3.0
	Gross Body Equilibrium	3.0	1.5	5.0	4.0	3.0	4.0	0.0	1.0	0.0	5.0
	Multi-Limb Coordination	5.0	4.0	4.0	3.0	4.0	5.0	1.0	2.0	0.0	3.0
	Stamina	3.0	3.0	3.0	3.0	3.0	3.0	1.0	1.5	0.0	3.0
	Static Strength	3.0	3.5	5.0	1.0	4.0	5.0	0.0	1.0	0.0	4.0
	Trunk Strength	3.0	3.0	5.0	1.0	3.0	5.0	0.0	1.0	0.0	4.0
Psychomotor	Arm-Hand Steadiness	3.0	3.0	3.0	2.0	3.0	4.0	1.0	2.5	0.0	3.0
	Control of Settings	4.0	4.0	5.0	3.0	4.0	5.0	1.0	2.0	0.0	3.0
	Finger Dexterity	3.0	2.0	3.0	2.0	4.0	5.0	1.0	2.0	0.0	3.0
	Finger-Hand-Wrist Motion	3.0	3.0	3.0	4.0	2.5	5.0	1.0	2.0	0.0	4.0
	Manual Dexterity	3.0	3.0	3.0	3.0	4.0	5.0	1.0	2.0	0.0	3.0
	Multi-Signal Response	5.0	4.0	5.0	4.0	3.5	4.0	1.0	1.0	0.0	4.0
	Rate Control	4.0	4.0	4.0	3.0	3.5	3.0	1.0	1.0	0.0	2.0
	Reaction Time	4.0	4.0	5.0	4.0	3.0	4.0	1.0	1.0	0.0	3.0
	Speed of Limb Movement	3.0	3.5	4.0	3.0	2.5	3.0	0.0	1.0	0.0	4.0
Sensory	Auditory Attention	4.0	3.0	4.0	4.0	4.0	4.0	3.0	2.0	2.0	3.0
	Colour Perception	2.0	2.5	2.0	3.0	2.5	3.0	3.0	3.0	2.0	3.0
	Depth Perception	5.0	4.0	5.0	4.0	3.0	4.0	3.0	3.0	1.2	3.0
	Far Vision	3.0	4.5	2.0	3.0	2.5	3.0	2.0	3.5	1.2	4.0
	Glare Tolerance	4.0	4.0	4.0	4.0	1.5	3.0	0.0	0.5	0.0	3.0
	Hearing Sensitivity	3.0	3.0	3.0	3.0	4.0	5.0	2.0	2.0	2.0	3.0
	Near Vision	1.0	1.5	2.0	3.0	3.0	3.0	3.0	3.5	3.0	4.0
	Night Vision	3.0	5.0	4.0	3.0	1.5	2.0	1.0	0.5	0.0	3.0
	Peripheral Vision	4.0	5.0	3.0	3.0	2.0	3.0	1.0	0.5	0.2	3.0
	Sound Localization	3.0	4.0	4.0	4.0	4.5	5.0	3.0	0.0	0.0	3.0
	Speech Clarity	2.0	2.0	1.0	2.0	2.0	2.0	4.0	3.5	5.0	2.0
	Speech Recognition	2.0	2.0	1.0	2.0	2.0	2.0	3.0	3.0	4.0	2.0

Critical Occupations (part 2)

Proficiency Level (0.0 – 5.0)	Abilities	Welders and related machine operators	Mine labourers	Central control and process operators	Machine operators, mineral and metal processing	Geological and mineral technologists and technicians	Mining engineers	Underground mine service and support workers	Industrial instrument technicians and mechanics	Drillers and blasters	Civil engineers
Cognitive	Categorization Flexibility	2.0	2.0	2.0	2.0	3.0	5.0	1.0	2.0	2.5	5.0
	Deductive Reasoning	2.0	2.0	2.0	2.0	3.0	5.0	1.0	3.0	2.5	5.0
	Fluency of Ideas	2.0	1.0	1.0	2.0	3.0	5.0	1.0	3.0	2.0	5.0
	Inductive Reasoning	2.0	2.0	2.0	2.0	3.0	5.0	2.0	3.0	2.5	4.0
	Information Ordering	2.0	2.0	2.0	2.0	3.0	5.0	2.0	2.0	2.5	4.0
	Mathematical Reasoning	2.0	2.0	2.0	2.0	3.0	5.0	1.0	3.0	2.0	5.0
	Memorizing	2.0	2.0	2.0	2.0	2.5	4.0	1.0	3.0	2.0	4.0
	Multitasking	2.0	3.0	3.0	2.0	2.5	3.0	2.0	3.0	2.5	3.0
	Numerical Ability	2.0	1.0	2.0	2.0	3.0	5.0	1.0	3.0	2.0	5.0
	Pattern Identification	2.0	1.0	2.0	2.0	3.0	5.0	1.0	3.0	3.0	4.0
	Pattern Organization Speed	2.0	2.0	2.0	2.0	2.5	4.0	2.0	3.0	2.0	4.0
	Perceptual Speed	2.0	2.0	3.0	3.0	3.0	3.0	2.0	3.0	3.5	3.0
	Problem Identification	2.0	2.0	2.0	2.0	2.5	5.0	2.0	3.0	3.0	5.0
	Selective Attention	2.0	3.0	3.0	3.0	2.5	4.0	2.0	3.0	3.0	3.0
	Spatial Orientation	2.0	5.0	3.0	3.0	3.0	4.0	4.0	2.0	3.5	3.0
	Spatial Visualization	3.0	2.0	3.0	3.0	3.0	5.0	3.0	4.0	3.0	5.0
	Verbal Ability	2.0	1.0	2.0	2.0	3.0	4.0	1.0	2.0	2.0	5.0
	Written Comprehension	2.0	1.0	2.0	2.0	3.0	5.0	1.0	2.0	2.0	5.0
	Written Expression	1.0	1.0	2.0	2.0	3.0	5.0	1.0	2.0	2.0	3.0
Physical	Body Flexibility	3.0	4.0	1.0	3.0	2.0	1.0	4.0	3.0	3.0	1.0
	Dynamic Strength	4.0	5.0	1.0	3.0	2.0	0.0	4.0	3.0	3.0	0.0
	Explosive Strength	2.5	3.0	1.0	2.0	0.0	0.0	3.0	2.0	3.5	0.0
	Gross Body Coordination	3.0	4.0	3.0	3.0	1.0	0.0	3.0	2.0	2.0	0.0
	Gross Body Equilibrium	3.0	5.0	3.0	3.0	1.0	0.0	3.0	3.0	3.5	0.0
	Multi-Limb Coordination	3.0	5.0	4.0	3.0	2.0	1.0	4.0	3.0	3.5	1.0
	Stamina	3.0	5.0	4.0	3.0	1.0	0.0	4.0	3.0	3.0	0.0
	Static Strength	3.5	5.0	2.0	3.0	2.0	1.0	4.0	3.0	3.5	0.0
	Trunk Strength	3.5	5.0	2.0	3.0	2.0	1.0	4.0	3.0	3.0	0.0
Psychomotor	Arm-Hand Steadiness	4.0	2.0	3.0	3.0	3.0	1.0	2.0	4.0	3.0	2.0
	Control of Settings	4.0	4.0	4.0	4.0	2.0	1.0	4.0	4.0	4.0	2.0
	Finger Dexterity	3.0	3.0	3.0	3.0	3.0	1.0	3.0	4.0	3.0	2.0
	Finger-Hand-Wrist Motion	2.0	4.0	3.0	3.0	2.0	1.0	3.0	3.0	3.0	0.0
	Manual Dexterity	3.0	3.0	3.0	3.0	2.5	1.0	3.0	4.0	3.5	1.0
	Multi-Signal Response	3.0	5.0	4.0	3.0	2.0	1.0	5.0	3.0	3.5	1.0
	Rate Control	2.0	5.0	4.0	4.0	2.0	1.0	4.0	3.0	3.5	0.0
	Reaction Time	3.0	5.0	4.0	4.0	2.0	2.0	5.0	3.0	4.0	1.0
	Speed of Limb Movement	2.0	5.0	3.0	3.0	2.0	0.0	3.0	1.0	3.5	0.0
Sensory	Auditory Attention	2.0	4.0	3.0	4.0	3.0	2.0	4.0	3.0	3.5	3.0
	Colour Perception	2.0	2.0	3.0	3.0	3.0	2.0	2.0	3.0	3.5	3.0
	Depth Perception	3.0	5.0	4.0	3.0	3.0	3.0	5.0	3.0	4.0	3.0
	Far Vision	3.0	3.0	2.0	3.0	3.0	4.0	3.0	2.0	3.0	4.0
	Glare Tolerance	3.5	4.0	1.0	3.0	2.0	0.0	4.0	1.0	3.0	0.0
	Hearing Sensitivity	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.0
	Near Vision	3.0	2.0	2.0	3.0	3.5	4.0	2.0	4.0	2.5	4.0
	Night Vision	2.0	4.0	3.0	3.0	2.0	1.0	4.0	2.0	2.0	0.0
	Peripheral Vision	2.0	2.0	1.0	3.0	2.0	1.0	2.0	2.0	2.5	0.0
	Sound Localization	1.0	4.0	3.0	3.0	2.0	1.0	4.0	5.0	3.0	0.0
	Speech Clarity	1.0	1.0	2.0	2.0	2.0	4.0	2.0	2.0	2.0	3.0
	Speech Recognition	1.0	1.0	1.0	2.0	2.0	4.0	1.0	3.0	2.0	3.0

Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

Chapter 6: Path to Sustainability and Next Steps

This report has developed an analysis of BC's mining labour market. The analysis opened with forecasts of the mining sector's labour demand and supply, which predicted emerging labour gaps for critical mining occupations.

The analysis then explored two scenarios for long-term labour market sustainability. Under the competition scenario, the sector must draw workers from rival sectors to meet its needs. Under the collaboration scenario, the mining sector works with other sectors to invest in awareness and training that expand the overall supply of skilled workers. The findings highlight not only the trade-offs of each approach, but also how these differ by occupation—underscoring that each occupation will require a tailored strategy.

Lastly, an analysis of workplace skills and abilities integrated MiHR's LMA model with the OaSIS framework to identify skills gaps in BC's mining sector. This final chapter examines the implications of the analysis, considers their interpretation and sets out priorities for future analysis.

Using the Report Findings

Identifying labour Gaps

This report identifies the occupations most in demand by the mining sector and highlights those with the largest projected labour gap, i.e., occupations where the provincial labour supply in BC is not expected to meet the sector's needs. To address these shortfalls, the sector will likely need to rely on out-of-province workers, increase recruitment spending, raise wages, or invest in capital and innovation that reduce labour requirements.

Among the highest gaps are *Heavy equipment operators*, *Transport truck drivers*, and *Underground production and development miners* (Chapter 3; Table 9). These occupations are expected to require the greatest reliance on workers from outside the province. Other gaps are also identified for occupations that, while less prevalent, remain critically important to the mining sector.

Building Scenarios

Based on these estimates, decision makers can consider pathways to labour market sustainability. Chapter 4 presented two extreme scenarios: competition and collaboration. Different occupations may be suited to one approach over the other.

For example, occupations with a large labour supply, such as *Welders and related machine operators*, lend themselves to a purely competitive approach. To meet its labour needs by 2035, the mining sector would only need to increase its share of the projected labour supply from 5% to 7%.

On the other hand, occupations with a limited labour supply, like *Central control and process operators*, face tight competition over a smaller pool of workers. With fewer candidates to poach, a labour market development strategy that adds 255 workers to this occupation over the next decade would meet the mining sector's needs.

In practice, the optimal approach will involve a combination of both strategies. Governments and employers can achieve the best return on investment by designing an individualized strategy for each occupation.

Skills Analysis

By applying a skills lens to the labour market analysis, this report quantifies the skills and abilities most utilized in BC's Mining sector. Specifically, labour gaps have been expressed in terms of skills to highlight skills deficits that will likely be filled from out-of-province sources.

The largest skills gaps are in *Operation and Control*, *Quality Control Testing*, and *Operation Monitoring of Machinery and Equipment*, while the largest abilities gaps are in *Depth Perception*, *Selective Attention*, and *Spatial Visualization*. Aligning post-secondary curricula with these in-demand competencies would help workforce planners build a more resilient labour market, better equipped to meet the sector's future needs.

Next Steps and Future Research

The analysis and forecasting presented in this report can be expanded and refined to re-examine the practical assumptions that were used. To ensure reliability and robustness, MiHR's LMA model has primarily relied on conservative assumptions about skills and occupational needs. However, future work could broaden the scope of this study by developing scenarios that explore the impact of new technologies (e.g., remote operations, automation, and AI), emerging occupations, and new skills requirements.

Future work could expand the analysis by enabling the model to focus on different economic regions within the province. As well, developing an interactive dashboard would provide stakeholders with a dynamic tool for exploring the results.

Appendices

Appendix A: National Occupational Classification (NOC) Definitions and Examples

All occupational data presented in this report is aligned with Statistics Canada's National Occupational Classification (NOC) system. It is important to note that occupational data following the NOC standard may not perfectly align with industry's defined job roles. For example, 'mill operators' fall within *Central control and process operators, mineral and metal processing* (93100) but could also be included in other NOCs such as *Machine operators, mineral and metal processing* (94100), or *Mine labourers* (85110), depending on the roles and responsibilities.

Table A1 provides definitions and a few examples of job titles for the occupations analyzed (refer to the occupation link for more information on job descriptions, roles and responsibilities, and job title exclusions).

Table A1: Definitions and Job Title Examples for 20 Critical Occupations in British Columbia's Mining Sector

NOC Title and Description	Job Title Examples
Heavy equipment operators (NOC 73400) Operate heavy equipment used in the construction and maintenance of roads, bridges, airports, gas and oil pipelines, tunnels, buildings and other structures; in surface mining and quarrying activities; and in material handling work. Apprentices are also included.	backhoe operator; bulldozer operator; grader operator; heavy equipment operator; surface mining equipment operator
Transport truck drivers (NOC 73300) Drive straight trucks or tractor-trailers to transport freight. Long-haul truck drivers operate heavy trucks over urban, interurban, provincial and international routes, while short-haul and local transport truck drivers operate over urban and short interurban routes.	bulk goods truck driver; heavy truck driver; long haul truck driver; transport driver; truck driver
Underground production and development miners (NOC 83100) Drill, blast, operate mining machinery, and perform related duties to extract coal and ore in underground mines and to construct tunnels, passageways and shafts to facilitate mining operations. Apprentices are also included.	blaster - underground mining; drift miner; driller - underground mining; hardrock miner apprentice; hoist operator - underground mining; miner
Supervisors, mining and quarrying (NOC 82020) Supervise and coordinate activities of workers engaged in underground and surface mining operations and quarries.	fill foreman/woman - underground mining; mine captain; mine foreman/woman; mine supervisor; quarry supervisor
Construction millwrights and industrial mechanics (NOC 72400) Install, maintain, troubleshoot, overhaul and repair stationary industrial machinery and mechanical equipment. Apprentices are also included.	construction millwright; industrial mechanic; maintenance millwright millwright; millwright apprentice open-end technician; plant equipment mechanic

Heavy-duty equipment mechanics (NOC 72401) Repair, troubleshoot, adjust, overhaul and maintain mobile heavy-duty equipment used in construction, transportation, forestry, mining, oil and gas, material handling, landscaping, land clearing, farming and similar activities. Apprentices are also included.	construction equipment mechanic; diesel mechanic - heavy equipment; heavy equipment mechanic; heavy mobile mining equipment mechanic; heavy-duty equipment technician
Managers in natural resources production and fishing (NOC 80010) Plan, organize, direct, control and evaluate the operations of establishments mining and quarrying.	director of mining; drilling operations manager; mine manager; quarry manager
Welders and related machine operators (NOC 72106) Operate welding equipment to weld ferrous and non-ferrous metals. This unit group also includes machine operators who operate previously set up production welding, brazing and soldering equipment. Apprentices are also included.	brazing machine operator; brazing machine setter; journeyman/woman welder; production welder; soldering machine operator
Industrial electricians (NOC 72201) Install, maintain, test, troubleshoot and repair industrial electrical equipment and associated electrical and electronic controls. Apprentices are also included.	industrial electrician; mill electrician; mine electrician; plant electrician; plant maintenance electrician
Geoscientists and oceanographers (NOC 21102) Conduct programs of exploration and research to extend knowledge of the structure, composition and processes of the earth, to locate, identify and extract hydrocarbon, mineral and groundwater resources and to assess and mitigate the effects of development and waste disposal projects on the environment.	environmental geologist; exploration geologist; geologist; geophysicist; hydrogeologist
Senior managers - public and private sector (NOC 00018) Consolidated code for various high-level management roles (NOC 00011-00015), covering executives responsible for setting organizational goals, policies, and directing operations through middle managers.	director general; president; chief executive officer; chief financial officer; chief operating officer; general manager; vice-president
Mine labourers (NOC 85110) Carry out a variety of general labouring duties to assist in the extraction of coal, minerals and ore, and in other services in support of underground mining.	chute puller; mine helper; mine labourer; pit scaler - underground mining; shoveller - underground mining
Central control and process operators, mineral and metal processing (NOC 93100) Operate and monitor multi-function process control machinery and equipment to control the processing of mineral ores, metals or cement.	blast furnace operator; central control caster; central control room operator - primary metal processing; breakdown mill operator; rolling mill control operator
Machine operators, mineral and metal processing (NOC 94100) Operate machinery to process mineral ore and metal.	ball mill operator; billet heater; milling machine operator - mineral and metal processing; piercing mill operator - primary metal processing
Geological and mineral technologists and technicians (NOC 22101) Provide technical support and services in geophysics, geology, mining and mining engineering, mineralogy, extractive and physical metallurgy, metallurgical engineering and environmental protection.	Assayer; geological technician log technician; metallurgical technologist; mining engineering technologist; mining technologist

Mining engineers (NOC 21330) Plan, design, organize and supervise the development of mines, mine facilities, systems and equipment; and prepare and supervise the extraction of metallic or non-metallic minerals and ores from underground or surface mines.	mine design engineer; mine development engineer; mine layout engineer; mine production engineer; mine safety engineer
Underground mine service and support workers (NOC 84100) Perform a range of duties related to the operation of orepasses, chutes and conveyor systems, the construction and support of underground structures, passages and roadways, and the supply of materials and supplies to support underground mining.	backfiller - underground mining; blaster helper - underground mining; conveyor operator - underground mining; crusher operator - underground mining; driller helper - underground mining
Industrial instrument technicians and mechanics (NOC 22312) Repair, maintain, calibrate, adjust, and install industrial measuring and controlling instrumentation. Apprentices are also included.	apprentice industrial instrument mechanic; industrial instrument mechanic; industrial instrument technician; industrial instrumentation technician; process control equipment mechanic
Drillers and blasters - surface mining, quarrying and construction (NOC 73402) Operate mobile drilling machines to bore blast holes in open-pit mines and quarries and to bore holes for blasting and for building foundations.	Construction blaster; construction driller; driller – surface mine; open-pit blaster; rotary drilling machine operator
Civil engineers (NOC 21300) Plan, design, develop and manage projects for the construction or repair of buildings, earth structures, powerhouses, roads, airports, railways, rapid transit facilities, bridges, tunnels, canals, dams, ports and coastal installations and systems related to highway and transportation services, water distribution and sanitation. Civil engineers may also specialize in foundation analysis, building and structural inspection, surveying, geomatics and municipal planning.	civil engineer; construction engineer; environmental engineer; geomatics engineer; surveying engineer

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025; Statistics Canada National Occupational Classification, 2021.

Appendix B: Labour Demand Methodology

Central to MiHR's analysis of the mining labour market is a time-series model of the mining sector's employment over a forecasted time horizon. MiHR developed the following demand scenarios for employment projections to capture the sector's underlying volatility relative to changes in economic conditions:

1) *Baseline scenario*: The mean forecasted values serve as the baseline benchmark for MiHR's labour demand forecast. The forecast considers BC's historic employment trend in three mining sub-sectors (Mining and Quarrying [NAICS 212], Mining Support Activities [NAICS 21311B], Primary Metal Manufacturing [NAICS 3313 and 3314]) from 1999 to 2024[20] and the impact on employment of key predictive variables such as World Bank energy prices (i.e., crude oil and coal), which is a strong indicator of the sector's vitality. Future values of indicators were based on consensus estimates from reliable sources. For instance, World Bank's latest projected precious metal prices were used, anticipating prices will stabilize at a higher price scheme compared to the historic average.[21] MiHR's baseline employment projection reflects this price outlook.
2) *Expansionary scenario*: MiHR's expansionary scenario is estimated from the *upper bound 80% prediction interval*, relative to the baseline benchmark forecasted values. A prediction interval is the statistically estimated interval within which the forecasted value is expected to fall, given a margin of error. This scenario captures the possibility of an alternative environment where future employment levels trend upward (relative to the baseline benchmark) due to, for instance, mineral prices being higher than World Bank's projected estimates.
3) *Contractionary scenario*: MiHR's contractionary scenario is statistically estimated from the *lower bound 80% prediction interval*, relative to the baseline benchmark forecasted values. This scenario poses a contrarian narrative to the expansionary whereby future employment levels trend downwards (relative to the baseline benchmark) due to, for example, mineral prices following a lower price regime.

MiHR's forecast implicitly assumes that the future will somewhat resemble the past. While the different scenarios capture some inherent uncertainties, there are still limitations to projections. The model does not account for unexpected or unpredictable events (i.e., exogenous shocks) that may occur during the time horizon analyzed.

[20] Statistics Canada. (2025). *Labour statistics consistent with the System of National Accounts (SNA)*. *Table: 36-10-0489-01*.

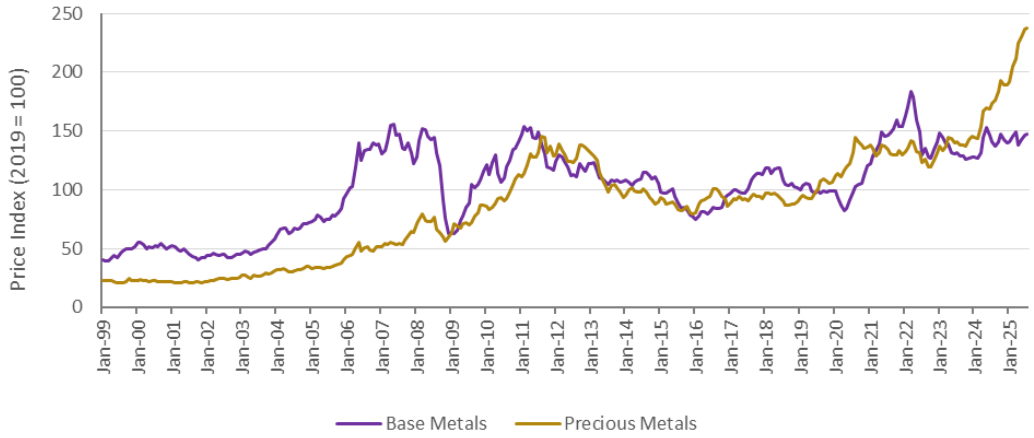
[21] World Bank. (2025). *Commodity markets outlook price forecasts*.

Notable Drivers of Mining Employment

The mining sector's labour demand is strongly influenced by global commodity cycles, trade activities and energy markets. Metal prices, domestic exports and crude oil and coal prices are significant macroeconomic drivers of employment.

The sector's workforce is sensitive to swings in global commodity prices, with a lagged effect on labour demand. Precious metal prices have been growing steadily since the tail end of 2022, primarily driven by rising gold prices (Figure B1).

Figure B1: Historic Global Commodity Price Indices (Jan 1999 – Jul 2025)



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025; World Bank, Commodity Prices, 2025.

Prices are expected to remain elevated over the forecasted period compared to the historic average,[22] supporting demand for mined commodities. However, the price volatility of precious metals can also disrupt employment following sharp market corrections. Base metal prices,[23] by contrast, are expected to remain relatively stable over the forecasted period, supporting ongoing employment.

Though many critical minerals have not historically been a major driver of mining employment, a substantial and rapid expansion of critical mineral projects could meaningfully boost mining-related employment in British Columbia.

Trade flows are another important factor of labour demand, with mineral exports providing long-term support for employment across mining activities. The uncertainty around Canada-U.S. trade relations poses a key risk in forecasting mining employment.

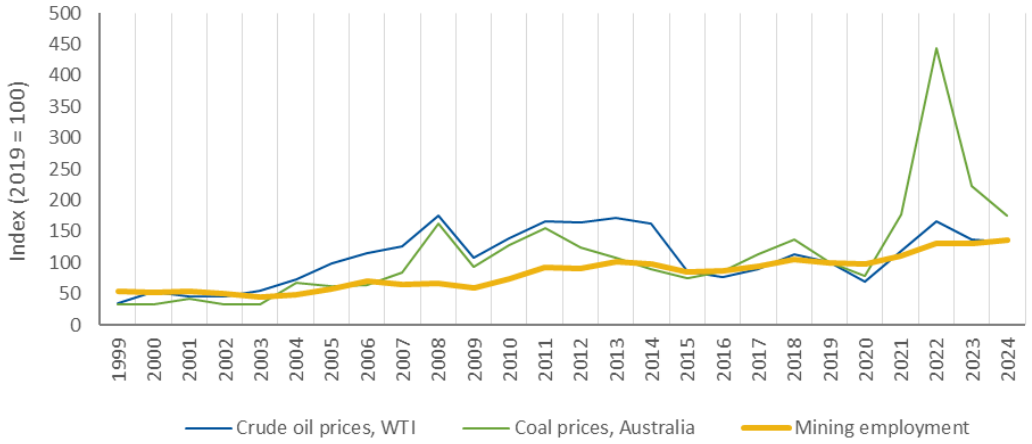
[22] World Bank. (2025). *Commodity markets outlook price forecasts*.

[23] Base metals include many critical minerals, including copper, zinc, nickel and tin.

Energy prices are also a key indicator of natural resource market strength; for example, periods of elevated oil prices generally coincide with broader economic expansion, fostering investor confidence and encouraging greater capital investment in mining projects. While higher oil prices may also increase operating costs, they typically align with stronger mineral demand and higher revenues, outweighing cost pressures. Coal prices, in turn, are directly connected to BC's metallurgical coal production.

Figure B2 reflects the close relationship between energy prices and mining employment. In the post-pandemic period, employment gains broadly aligned with higher oil and coal prices. Falling oil and coal prices[24] point to weaker near-term mining employment, with stability expected as energy prices level off.

Figure B2: Historic Energy Prices and Employment Trend Indices in British Columbia's Mining Sector (1999 – 2024)



Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025; World Bank, Commodity Prices, 2025.

The forecast results highlight the sensitivity of labour demand to global economic and political conditions. The expansionary environment is characterized by successful implementation of BC's Critical Minerals Strategy, robust export pathways in the face of U.S. tariff threats and sustained energy prices. Conversely, in a contractionary environment, weaker commodity markets, regulatory delays and trade frictions would limit investment and temper employment growth.

[24] World Bank. (2025). *Commodity markets outlook price forecasts*.

Appendix C: Labour Supply Methodology

MiHR's Labour Market Analysis (LMA) model is grounded on several key assumptions, including population growth, labour force participation, unemployment rates and occupational choices. Each assumption represents a conservative status quo scenario based on recent historical trends.

Table C1: MiHR's Labour Market Analysis Methodology and Key Assumptions

LMA Levels and Descriptions	Key Variable and Methodology	Assumptions (2025 – 2035)
Total Population Overall population of BC	**Total population annual growth rate** Based on BC Stats population forecast.[25]	**0.9%** average annual growth rate
Working Age Population Population of BC aged 15 and over	**Total working age population annual growth rate** Based on BC Stats population forecast.	**1.1%** average annual growth rate
Labour Force Working population of BC potentially available for employment (including employed and unemployed job seekers).	**Labour force participation rate** Based on historic trend since 2006 from Statistics Canada's Labour Force Survey and Census of Population.	**64.4%** of working age population each year
Labour Force in Critical Occupations Working population of BC employed or looking for employment in critical occupations.	**Share of labour force for critical occupations** Based on historic trend from Statistics Canada's Census of Population 2016 and 2021.	**0.01% – 1.65%** of labour force each year
Employed and Unemployed in critical Occupations Labour force divided into those who are employed and unemployed (i.e., actively looking for work) in critical occupations.	**Average unemployment rate for critical occupations** Based on Statistics Canada's Census of Population 2021.	**0% – 15.1%** of labour force each year
Employed in Mining and Other Sectors Employed workers divided into those who are employed by the mining sector in BC and all other sectors.	**Mining's share of overall labour supply** Based on historic trend from Statistics Canada's Census of Population 2016 and 2021.	**1% – 77%** of labour force each year

Source: Mining Industry Human Resources Council, British Columbia Mining Labour Market Analysis, 2025.

[25] *BC Stats. (2025). Population estimates & projections for British Columbia.*

Appendix D: The Occupational and Skills Information System (OaSIS)

The Occupational and Skills Information System (OaSIS) is a pan-Canadian framework developed by Employment and Social Development Canada (ESDC), Statistics Canada, and the Labour Market Information Council (LMIC). It provides a standardized way to describe occupations in terms of the skills, abilities, knowledge, and work activities they require. The framework enables consistent mapping of occupational requirements to labour market data, making it a valuable tool for identifying skills gaps, analyzing workforce trends, and supporting education, training, and policy development in Canada.

Tables D1 and D2 list and describe the OaSIS skills and abilities referenced in this report. Additional information is available on the official OaSIS website.

Table D1: List of 33 OaSIS Skills and Definitions

Skill	Description
Oral Communication: Active Listening	The capability to give full attention to what other people are saying, take time to understand the points being made, ask questions as appropriate, and not interrupt at inappropriate times.
Oral Communication: Oral Comprehension	The capability to listen to and understand information and ideas presented through spoken words and sentences.
Oral Communication: Oral Expression	The capability to talk to others to convey information effectively.
Reading Comprehension	The capability to understand written information presented through words, sentences, paragraphs, symbols, and images in work-related documents.
Writing	The capability to communicate in writing by using written words, sentences, paragraphs, symbols, and images and adapted for the needs of the audience.
Numeracy	The capability to understand, use and report numbers and other mathematical information presented through words, numbers, symbols, and graphics.
Digital Literacy	The capability to understand and use digital devices and tools to obtain, exchange, create or process digital information in a secure manner.
Critical Thinking	The capability to use logic and reasoning to question, discern, interpret and analyze various types of information to form an evidence-based conclusion or judgment.
Learning and Teaching Strategies	The capability to select and use training/instructional methods and procedures appropriate for the situation when learning or teaching new things.
Decision Making	The capability to analyze information among a set of alternatives, to evaluate potential outcome and choose the most appropriate solutions to achieve a predetermined objective.
Evaluation	The capability to systematically assess products, services or processes using measurable indicators with the goal of ensuring or improving performance.
Systems Analysis	The capability to determine how a system should work and how changes in conditions, operations, and the environment will affect outcomes.
Problem Solving	The capability to identify problems and review related information to develop solutions or feasible options to achieve the desired end state.
Equipment and Tool Selection	The capability to choose between two or more types of tools, equipment or, machinery to perform a job.
Preventative Maintenance	The capability to perform maintenance on equipment, devices, building or machinery to keep them in functional and to prevent damage or failures.

Setting Up	The capability to set up, adjust, install and assemble equipment, machines, parts or to prepare them for their functioning and use.
Operation and Control	The capability to maneuver and control operations of equipment, machines, vehicles or systems.
Operation Monitoring of Machinery and Equipment	The capability to watch gauges, dials, digital displays or other indicators to ensure a machine or piece of equipment is working according to specifications.
Troubleshooting	The capability to determine causes of operating errors in equipment, machinery, or technological systems and decide how to resolve the issues.
Repairing	The capability to replace, restore or adjust defective or deficient components in equipment, machines, and technical systems and test for function, appearance, operation and safety.
Quality Control Testing	The capability to conduct tests or inspections of prototypes, products, services, or processes to ensure their quality.
Product Design	The capacity to design and develop layouts for the construction of objects, equipment, machinery, structures, or engineering systems (excluding software and hardware).
Digital Production	The capacity to design, develop, adapt, or integrate hardware, software applications, electronic devices or digital technologies while adhering to cybersecurity standards.
Management of Financial Resources	The capability to plan, organize, direct, control or monitor financial resources and activities and account for the use of theses resources to ensure their utilization are conform to the objectives and purposes.
Management of Material Resources	The capability to plan and manage the purchase, inventory, warehousing, transportation, or distribution of products or materials and their use.
Management of Personnel Resources	The capability to recruit, train, motivate, develop and direct employees, identify the best person for the tasks to be performed and establish their work objectives in relation to the objectives of the organization.
Time Management	The capability to manage one's own time and the time of others.
Monitoring	The capability to monitor and assess the performance of yourself, other individuals or the organization to make improvements or take corrective action.
Coordinating	The capability to organize people or groups by adjusting activities in relation to others' activities so that they work effectively as a whole.
Instructing	The capability to teach others knowledge, or how to do something.
Negotiating	The capability to participate in, or facilitate communication between parties, in order to resolve differences, and reach a mutually acceptable or viable agreement.
Persuading	The capability to convince others to change their minds, beliefs, intentions or behaviours.
Social Perceptiveness	The capability to be aware of others' reactions, unspoken communication, body language cues and feelings and discern the reasons behind their behaviours.

Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

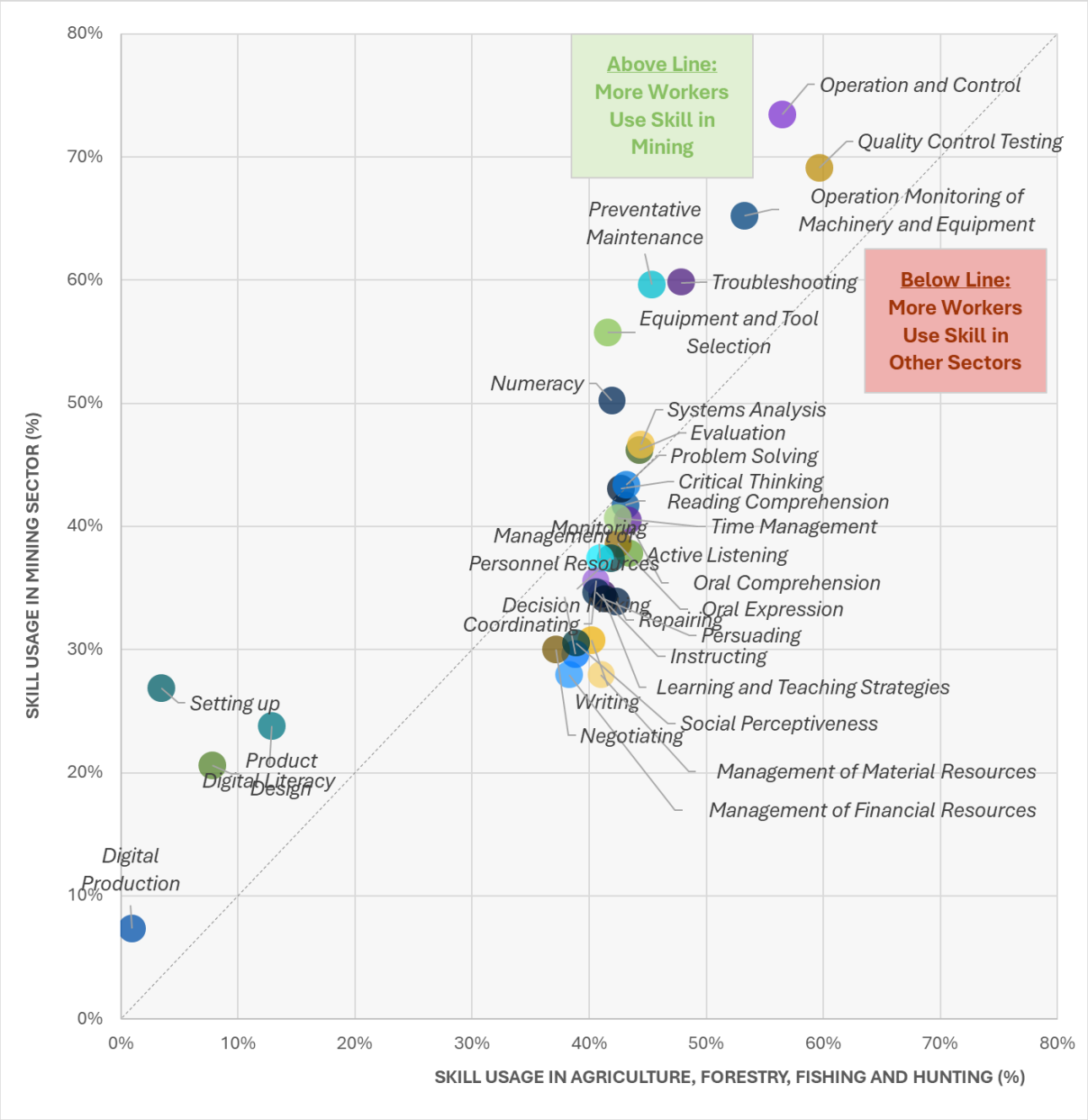
Table D2: List of 49 OaSIS Abilities and Definitions

Ability	Description
Information Ordering	The ability to arrange things or actions in a certain order or pattern according to a specific rule or set of rules (e.g., patterns of numbers, letters, words, pictures, mathematical operations).
Categorization Flexibility	The ability to generate or use different sets of rules for combining or grouping things in different ways.
Deductive Reasoning	The ability to apply general rules to produce logical answers for specific problems.
Inductive Reasoning	The ability to combine pieces of information to form general rules or conclusions, which includes finding a relationship among seemingly unrelated events.
Fluency of Ideas	The ability to come up with multiple ideas about a topic.
Problem Identification	The ability to identify an existing or potential problem. It is not about solving the problem, but only about recognizing its presence.
Numerical Ability	The ability to carry out arithmetical processes accurately such as addition, subtraction, multiplication or division.
Mathematical Reasoning	The ability to choose the right mathematical methods or formulas to solve a problem.
Memorizing	The ability to remember information such as words, numbers, pictures, or procedures.
Multitasking	The ability to shift back and forth between two or more activities or sources of information during the same time period (such as speech, sounds, touch, or other sources).
Pattern Identification	The ability to identify or detect a known pattern such as a figure, object, word, or sound that is hidden in other information or material.
Pattern Organization Speed	The ability to quickly combine and organize information into meaningful patterns.
Perceptual Speed	The ability to compare, quickly and accurately, similarities and differences among sets of letters, numbers, objects, pictures, or patterns. The things to be compared may be presented at the same time, one after the other, or with a remembered object.
Spatial Orientation	The ability to know your location in relation to the environment or know where objects are in relation to you.
Spatial Visualization	The ability to think visually about geometric forms, comprehend the two-dimensional representation of three-dimensional objects and recognize the relationships resulting from the movement of objects in space.
Verbal Ability	The ability to understand the meaning, precise use, associated ideas, and relationships of spoken words; and to use them in the proper context when presenting information or ideas.
Written Comprehension	The ability to read and understand information and ideas presented in written form.
Written Expression	The ability to communicate information and ideas in writing and adapting the writing style to the audience so that they can understand.
Selective Attention	The ability to concentrate on a task over a period of time without being distracted.
Trunk Strength	The ability to exert your abdominal and lower back muscles to support part of the body repeatedly or continuously over time without "giving out" or fatiguing.
Static Strength	The ability to exert muscle force to lift, push, pull, carry, or transfer objects.
Dynamic Strength	The ability to exert muscle force repeatedly or continuously over time. This involves muscular endurance and resistance to muscle fatigue.
Explosive Strength	The ability to exert short bursts of muscle force to propel oneself (as in jumping or sprinting), to throw an object, or to apply force with a tool.
Multi-Limb Coordination	The ability to coordinate two or more limbs, such as two arms, two legs, or one leg and one arm, while sitting, standing, or lying down. It does not involve performing the activities while the whole body is in motion.

Gross Body Coordination	The ability to coordinate the movement of your arms, legs, and torso together when the whole body is in motion.
Gross Body Equilibrium	The ability to keep or regain your body balance or stay upright when in an unstable position.
Body Flexibility	The ability to bend, stretch, twist, or reach with your body, arms, and/or legs.
Stamina	The ability to perform intense physical activities over long periods without becoming winded or out of breath.
Arm-Hand Steadiness	The ability to keep your hand and arm steady while moving or holding them in one position.
Finger Dexterity	The ability to make precisely coordinated movements of the fingers of one or both hands to grasp, manipulate, or assemble small objects.
Manual Dexterity	The ability to move your hand, your hand together with your arm, or your two hands to grasp, manipulate, or assemble objects or tools.
Rate Control	The ability to time your movements or the movement of a piece of equipment in anticipation of changes in the speed and/or direction of a moving object.
Control of Settings	The ability to adjust the controls of a machine or a vehicle to exact positions.
Multi-Signal Response	The ability to choose quickly between one or more movements with the hand, finger, or foot in response to the appearance of two or more different signals such as lights, sounds, or images.
Reaction Time	The ability to respond quickly with one or more limbs to a stimulus such as noise, light or image.
Speed of Limb Movement	The ability to quickly move the arms and legs.
Finger-Hand-Wrist Motion	The ability to make fast, simple, and repeated movements of the fingers, hands, and wrists.
Auditory Attention	The ability to give full attention on a single source of sound in the presence of other distracting sounds.
Hearing Sensitivity	The ability to detect or distinguish the differences between sounds in terms of pitch and volume.
Speech Clarity	The ability to articulate and pronounce words clearly, so others can understand you when you speak.
Speech Recognition	The ability to identify and understand the speech of another person.
Sound Localization	The ability to identify the direction, origin and distance from which a sound comes.
Far Vision	The ability to see details of objects and people at a distance.
Near Vision	The ability to see details at close range.
Peripheral Vision	The ability to see objects, people, or their movement in the peripheral field of vision when looking ahead.
Depth Perception	The ability to discern which of several objects is closer or farther away from you, or to estimate the distance between you and an object.
Glare Tolerance	The ability to see objects or people, in the presence of glare or bright lighting.
Night Vision	The ability to see under low light conditions.
Colour Perception	The ability to match or detect differences or similarities between colours, including shades of colour and brightness.

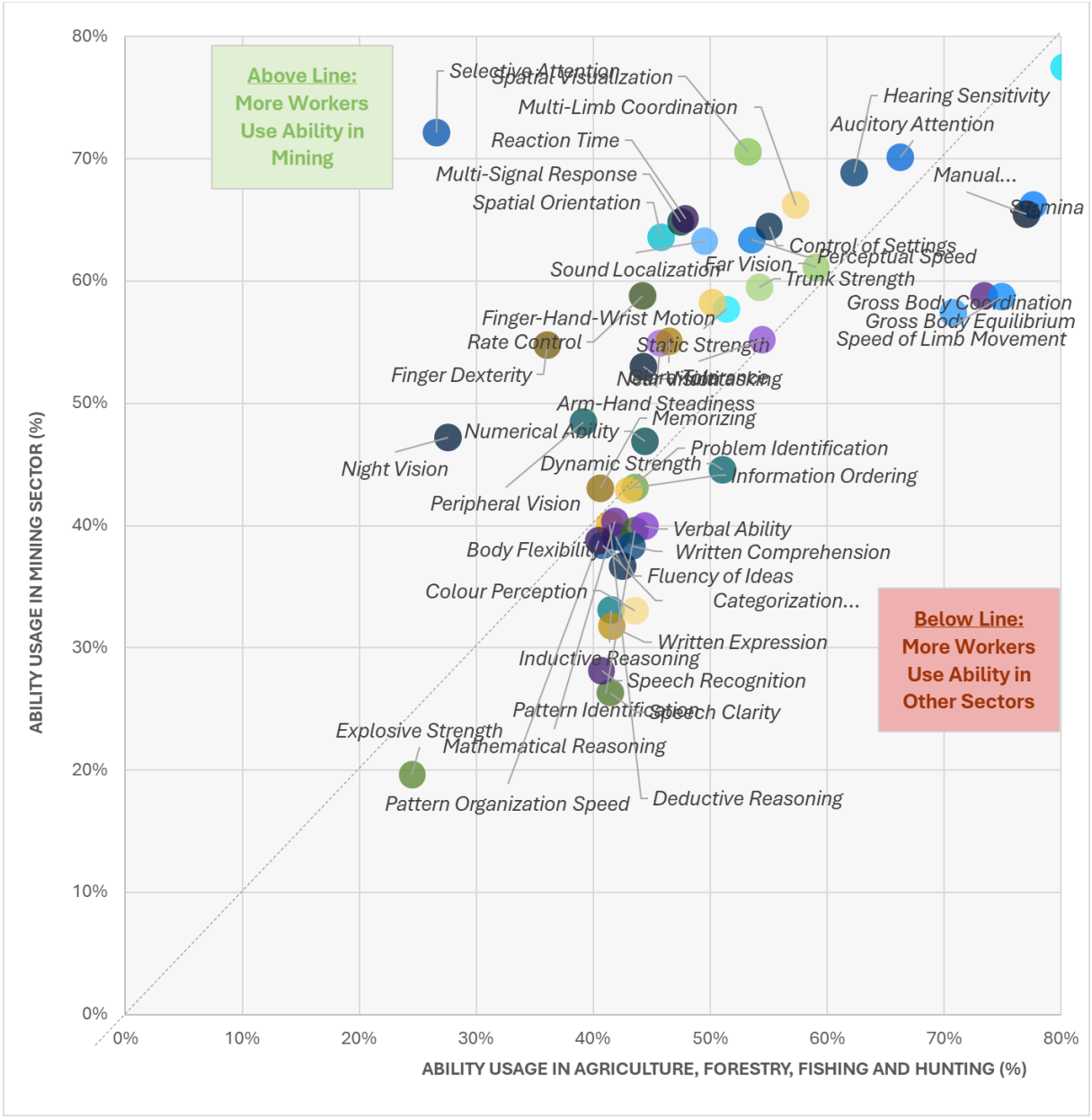
Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

Figure D1: Comparison of Skills Prevalence in British Columbia's Mining Sector and agriculture, Forestry, Fishing and hunting Sectors (2021)



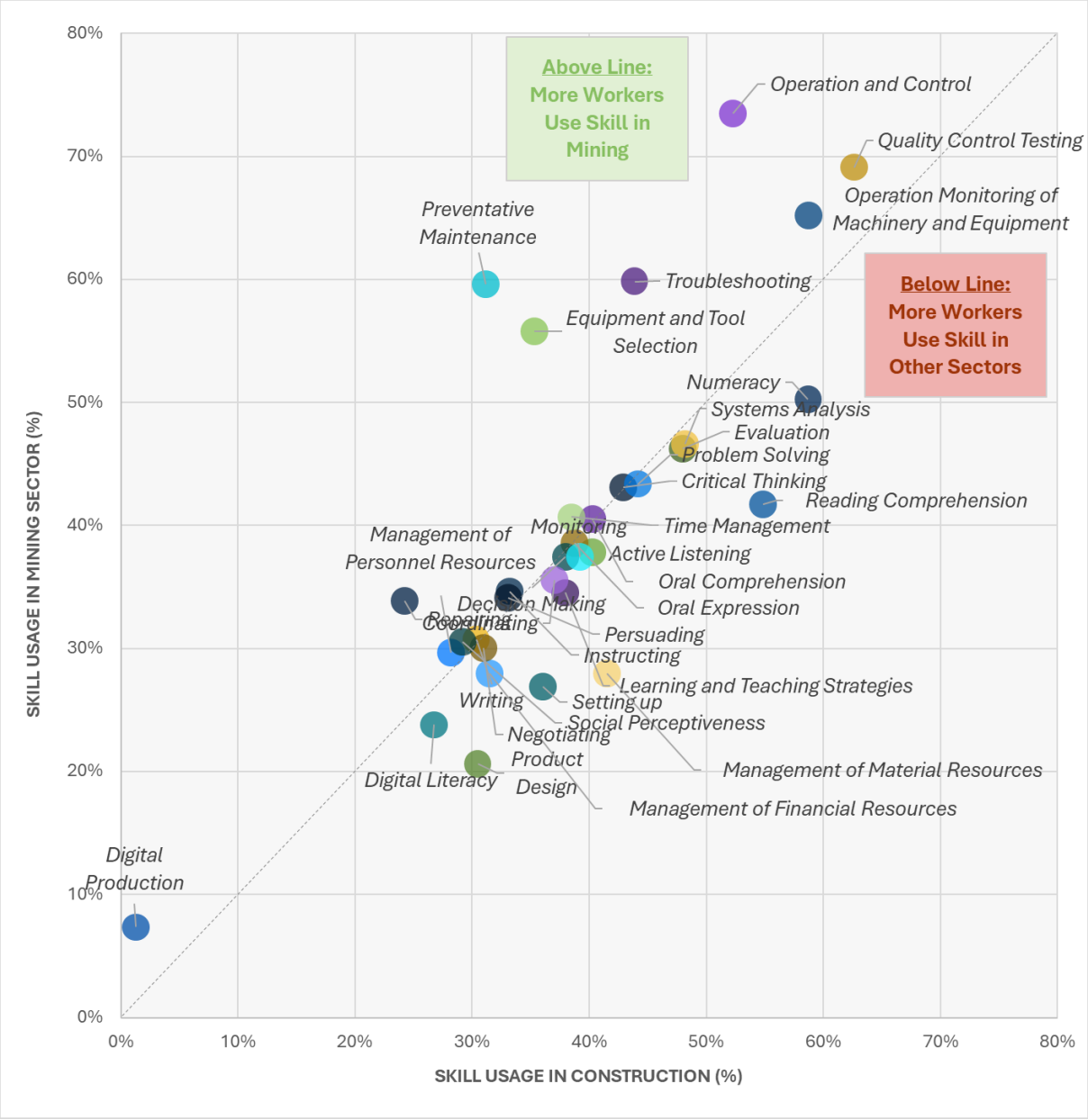
Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

Figure D2: Comparison of Abilities Prevalence in British Columbia's Mining Sector and agriculture, Forestry, Fishing and hunting Sectors (2021)



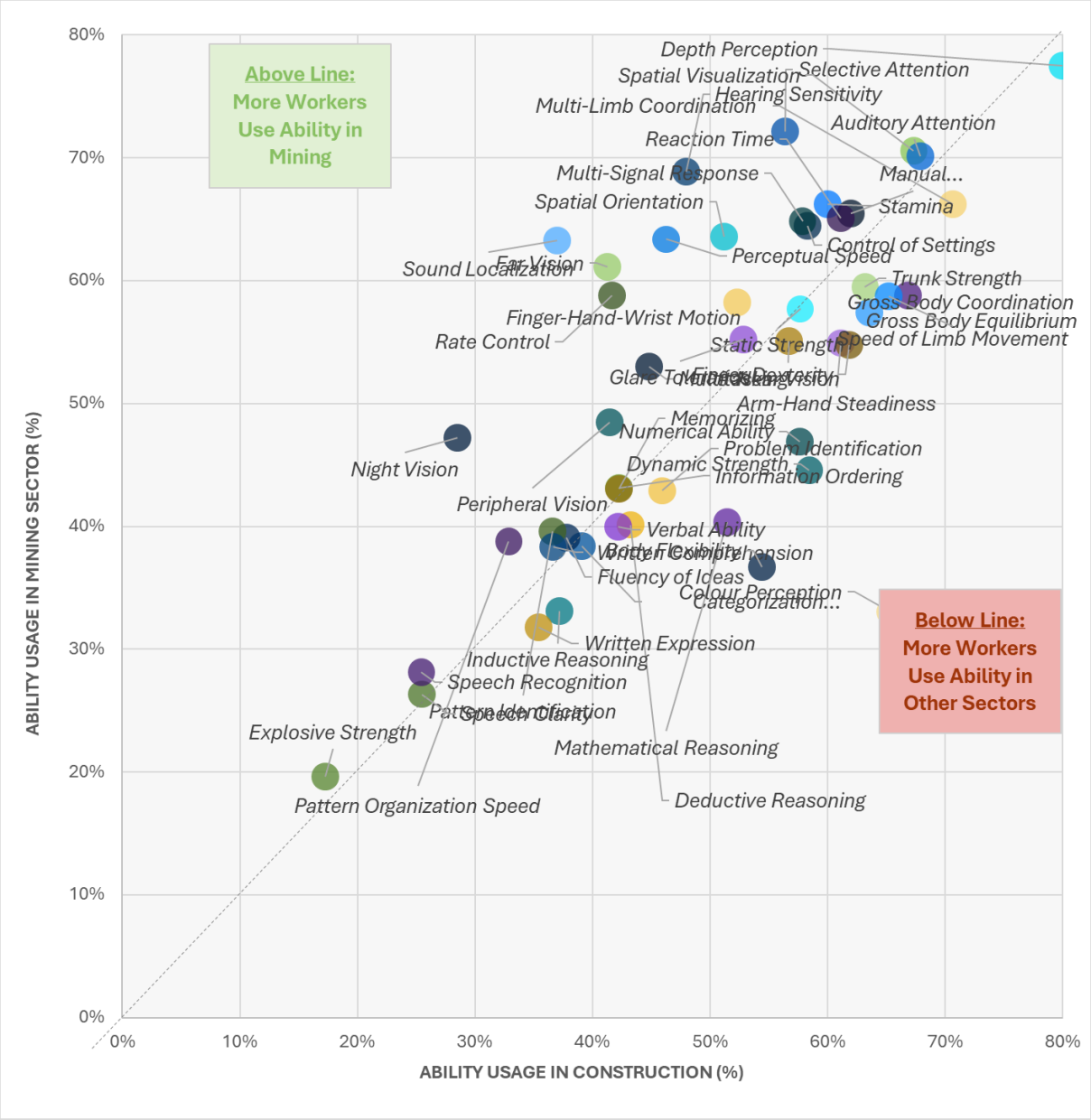
Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

Figure D3: Comparison of Skills Prevalence in British Columbia's Mining Sector and Construction Sector (2021)



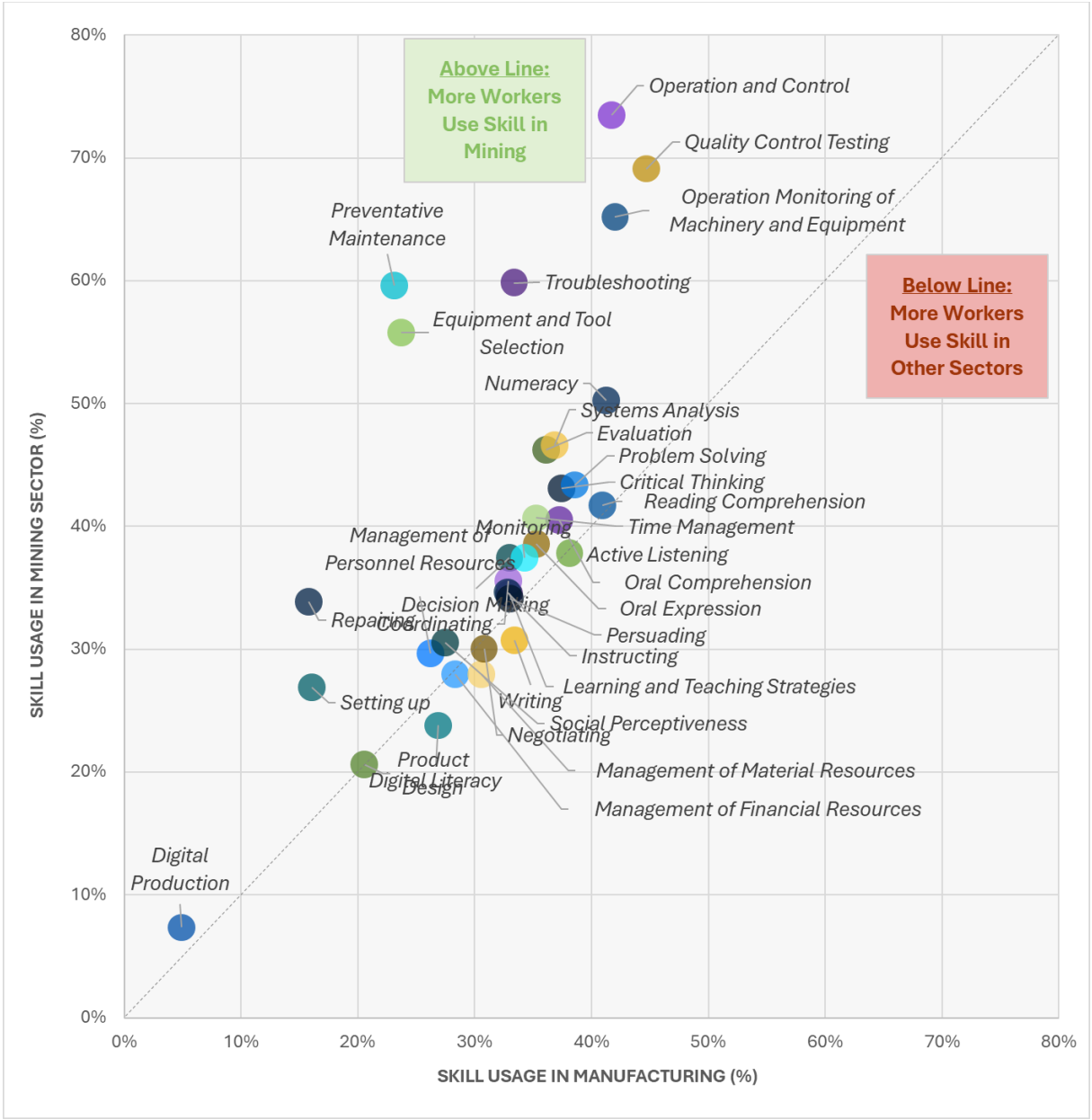
Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

Figure D4: Comparison of Abilities Prevalence in British Columbia's Mining Sector and Construction Sector (2021)



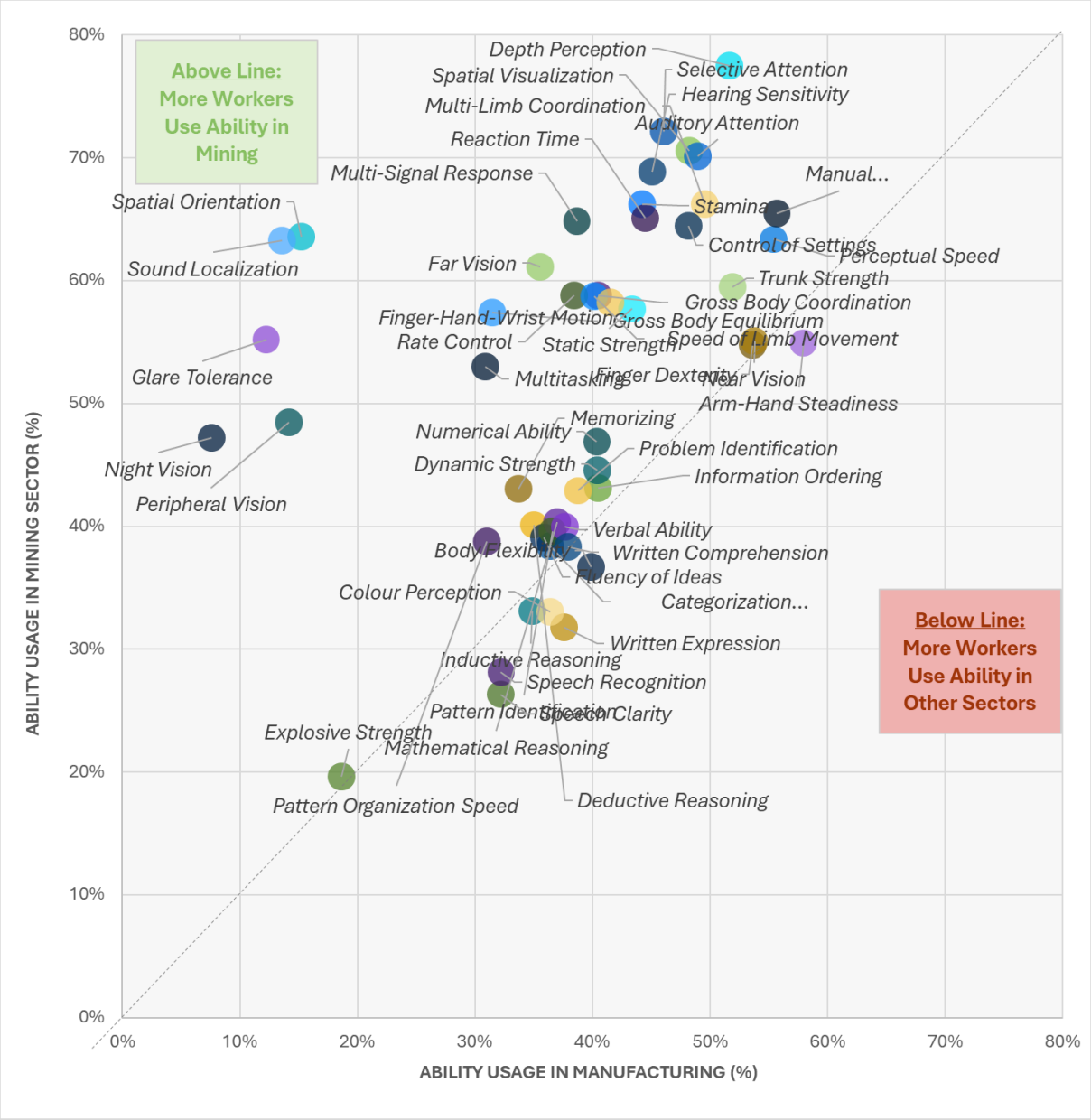
Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

Figure D5: Comparison of Skills Prevalence in British Columbia's Mining Sector and Manufacturing Sector (2021)



Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

Figure D6: Comparison of Abilities Prevalence in British Columbia's Mining Sector and Manufacturing Sector (2021)



Source: Mining Industry Human Resources Council, British Columbia Labour Market Analysis, 2025; Employment and Social Development Canada, Occupational and Skills Information System (OaSIS), 2025; Statistics Canada, Census of Population, 2021.

MINING INDUSTRY
HUMAN RESOURCES COUNCIL

CONSEIL DES RESSOURCES HUMAINES
DE L'INDUSTRIE MINIÈRE

MABC
MINING ASSOCIATION OF BRITISH COLUMBIA

CTEM
CENTRE OF
TRAINING
EXCELLENCE
IN MINING

mihr.ca