

Economic Impacts Realized in Metro Vancouver and Vancouver Island from BC Operating Mines and Smelters and from Proposed BC Mines and Mine Extensions

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1 INTRODUCTION

1.1 Study Purpose and Report Structure

The goals of this study were to estimate the economic impacts realized in Metro Vancouver and Vancouver Island from BC operating mines and operating smelters, and to project the future economic impacts that would be realized in Metro Vancouver and Vancouver Island from proposed BC mines and mine extensions.

This report is organized into three main parts:

- **Summary of Economic Impact Terminology and Methods.** Section 2 of the report contains a brief description of economic impact terms and methods.

- **Economic Impacts of BC Operating Mines and Operating Smelters**. Sections 3 and 4 of the report contain estimates of the economic impacts from operating mines and operating smelters. The focus of the analysis was the year 2024, as that was the most recent year for which complete data were available.

- **Economic Impacts of Proposed BC Mines and Mine Extensions.** Sections 5 and 6 of the report contain projections of the economic impacts of proposed new and extended mines. The analysis is based on a dataset of proposed BC mines and mine extensions compiled by the Mining Association of BC (MABC).

1.2 Data Sources

Data on production volumes, mineral prices, and values were obtained from several sources, including information published by BC Stats, Statistics Canada, BC Geological Survey, Natural Resources Canada, and publicly available data from mining companies and smelter operations.

1.3 Report Limitations

This report is provided for information purposes and is intended for general guidance only. It should not be regarded as a substitute for business or investment advice.

In preparing the report, Mansfield Consulting Inc. has relied upon information and data obtained from public sources believed to be accurate. The accuracy and reliability of the findings and opinions expressed in the report are conditional upon the completeness, accuracy, and fair presentation of the information underlying them. As a result, we caution readers not to rely upon any findings or opinions for business or investment purposes and disclaim any liability to any party that relies upon them as such.

The findings and opinions expressed in the report constitute judgments as of the date of the report and are subject to change without notice. Mansfield Consulting Inc. is under no obligation to advise of any change brought to its attention that would subsequently alter those findings or opinions.

The analysis presented in this report is based upon projections founded on past events, giving an expectation of certain future events. Future events are not guaranteed to follow past patterns, and results may vary, even significantly. We express no assurance as to whether the projections underlying the analysis, findings or opinions will be achieved.

2 ECONOMIC IMPACT ANALYSIS

2.1 Overview

Economic impact analysis is used to estimate the economic contributions that an industry, business, or project makes to a region. In general, economic impacts are viewed as consisting of well-established, quantitative measures of economic activity. The most common of these measures are economic output, GDP, labour income, employment, and government tax revenue:

- **Economic Output** is the total gross value of goods and services produced by a given industry, business, or project. This is the broadest measure of economic activity. *For example, a bakery buys flour and other ingredients for $1.00 and uses them to produce a loaf of bread, which is then sold for $1.50. The economic output generated is $1.50, as that is the gross value of the goods produced.*

- **Gross Domestic Product (GDP),** or value-added, refers to the incremental value of a good or service over the cost of inputs used to produce it. As a result, GDP is equivalent to the unduplicated value of goods and services produced by a given industry, business, or project. *For example, a bakery buys flour and other ingredients for $1.00 and uses them to produce a loaf of bread, which is then sold for $1.50. The GDP generated by the bakery is $0.50, which represents the value added by the bakery to the ingredients.*

- **Labour income** is the total amount of wages and salaries paid to staff and employees.

- **Employment** is measured as the number of additional jobs[1] that are created by an industry, business, or project. *Please note that one job is equivalent to one person-year of employment*.

- **Government Tax Revenues** are the total amount of tax revenues generated by a given industry, business, or project for federal, provincial, and local governments.[2]

Economic impacts may be estimated at the direct, indirect, and induced levels.

- **Direct impacts** are changes that occur with "front-end" businesses that initially receive operating revenues and incur expenditures. *During the development of a mine, direct impacts occur with the mine owner and with other businesses that may receive a portion of the initial spending on a project. During the operation of a mine, direct impacts occur with the mine owner or with other businesses that may receive a portion of the mine revenues*.

[1] In this study, employment is measured in terms of jobs, which aligns with employment economic impact statistics reported by Statistics Canada. Statistics Canada began reporting employment economic impact statistics in terms of jobs in 2013. Before then, Statistics Canada reported employment economic impact statistics in terms of full-time equivalents. A full-time equivalent was defined as a person who worked a standard number of hours in a year. A common practice was to define a full-time equivalent as a person who was employed for 37.5 hours per week, 52 weeks a year, or a total of 1950 hours per year. In BC, the average hours worked per job in mining exceeds 2000 hours per year; consequently, one job in mining would equate to slightly more than one full-time equivalent under the definition that a full-time equivalent is a person who works 1950 hours per year.

[2] In this study, government revenues are estimated using a combination of Statistics Canada input-output multipliers and direct calculations. Government revenues include taxes on products, taxes on production, personal income taxes, corporate income taxes, and mining taxes.

- **Indirect impacts** are changes that occur with suppliers of the front-end businesses. *During the development or operation of a mine, indirect impacts occur with suppliers of goods and services to the mine.*

- **Induced impacts** are changes that occur in the general economy through the spending by employees of front-end businesses and suppliers. *During the development or operation of a mine, induced impacts result from the spending of mine employees and employees of mine suppliers in the general economy.*

The sum of direct impacts, indirect impacts and induced impacts is referred to as total impacts.

2.2 Input-Output Modelling

The estimates of the economic impacts for the study were developed using an input-output modelling approach based on economic impact statistics known as "economic impact multipliers" that are published by Statistics Canada. Input-output modelling is a widely used method which facilitates comparisons between reported results for different industries, businesses, and projects.[3]

2.3 Limitations of Economic Impact Analysis

While an economic impact analysis provides useful insights, it is important to bear in mind its limitations. First, economic impact analysis produces estimates, not precise totals. Consequently, to borrow a concept from statistical sampling, the results of an economic impact analysis should be viewed as coming with a "margin of imprecision."[4] While economic impact analysis has been shown to provide reliable approximations of economic effects, those approximations should not be considered as being exact or, in some sense, audited.

Second, economic impact analysis does not address all economic effects that an industry, business, or project may create. For example, economic impact analysis does not report on such things as the economic effects of community reinvigoration or improvements in service delivery. Consequently, when assessing the overall economic effect of an industry, business, or project, it may be appropriate to augment the results of an economic impact analysis with other types of complementary analysis.

[3] The economic impact multipliers used in the study are from Statistics Canada, Table 36-10-0595-01, Input-output multipliers, provincial and territorial, detailed level. Provincial multipliers for BC. Release date: 2025-11-19. Please note that due to reporting lags, Statistics Canada's economic impact multipliers normally reflect the structure of the economy as it existed a few years before the date of the economic impact analysis. The analysis used Statistics Canada multipliers for 2022, as they were the most recent multipliers available at the time of the study.

[4] A statistical sample has an associated "margin of error" that can be calculated using statistical theory. The use of the term "margin of imprecision" in this report is intended to reflect the fact that the results of an economic impact analysis come with a level of uncertainty. However, unlike a statistical sample, the uncertainty in an economic impact analysis cannot be calculated from theory.

3 ECONOMIC IMPACTS FROM BC OPERATING MINES AND OPERATING SMELTERS

3.1 BC Operating Mines and Operating Smelters in 2024[5]

In 2024, there were six operating critical mineral mines, four operating precious metals mines, and eight operating steelmaking coal mines in BC, for a total of eighteen operating mines. In addition, there were two operating smelters: an aluminum smelter in Kitimat and a zinc and lead smelter in Trail.

Table 1. Operating Mines and Operating Smelters in 2024

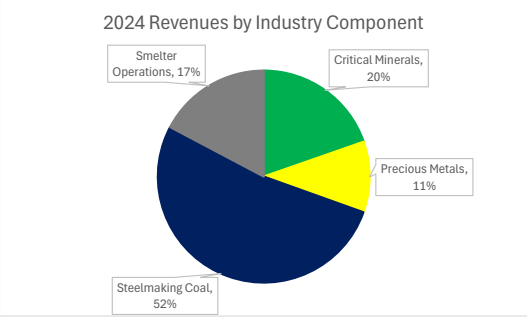
Type of Operations	Operating Mines and Operating Smelters
Critical Mineral Mines (6)	Red Chris, Mt. Milligan, Copper Mountain, Gibraltar, Highland Valley, and Mount Polley
Precious Metals Mines (4)	Brucejack, New Afton, Elk, and Premier[6]
Steelmaking Coal (8)	Brule, Willow Creek, Wolverine, Elkview, Fording River, Greenhills, Line Creek, and Quintette
Smelters (2)	BC Works (aluminum) and Trail Operations (zinc and lead)

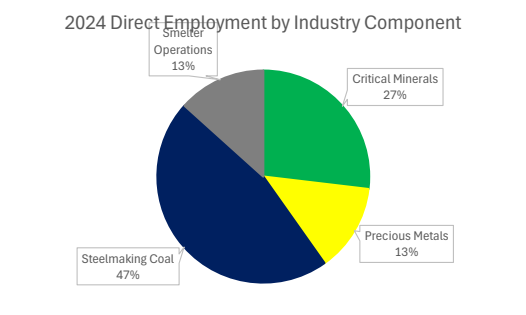
In 2024, the operating mines and operating smelters were estimated to have generated a combined $19.6 billion in revenues and to have created direct employment of 21,305 jobs in BC.[7] Steelmaking coal mines were the largest source of revenues and direct employment.

Table 2. Estimated Revenues and Direct Employment from Operating Mines and Operating Smelters in 2024

	Revenues (millions)	Percent	Jobs	Percent
Critical Minerals	$3,862	19.7%	5,875	27.6%
Precious Metals	$2,123	10.8%	3,280	15.4%
Steelmaking Coal	$10,267	52.3%	9,205	43.2%
Operating Smelters	$3,392	17.3%	2,945	13.8%
Totals	**$19,644**	**100.0%**	**21,305**	**100.0%**

Figure 1. Estimated Share of Revenues and Direct Employment by Industry Component





[5] Industrial mines and quarries (such as stone mining and sand and gravel operations) and bituminous coal mines are not included in the study. In 2024, there was only one bituminous coal mine in BC (Basin Coal), which operated seasonally beginning in May and produced an estimated 50,000 tonnes of bituminous coal.

[6] The Elk mine operated at a reduced pace and produced only a very small amount of gold (estimated at approximately 1,050 ounces). The Premier mine also produced only a very small amount of gold (estimated at approximately 3,430 ounces). By way of comparison, the Brucejack mine was estimated to produce approximately 258,000 ounces of gold.

[7] Source: Statistics Canada Table: 36-10-0480-01.

3.2 Economic Impacts in 2024

The following table summarizes the estimated economic impacts in BC from BC operating mines and operating smelters in 2024. As displayed in the table, those impacts include:

- Total economic output of $27,795 million.
- Total GDP of $17,108 million.
- Total labour income of $5,450 million.
- Total employment of 56,237 jobs.
- Total government revenue of $5,717 million.

Table 3. Economic Impacts in BC from BC Operating Mines and Operating Smelters in 2024

Critical Minerals							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$3,862	$2,394	$1,004	5,875	$402	$413	$7
Indirect	$1,158	$640	$343	4,055	$112	$69	$15
Induced	$663	$432	$168	3,079	$90	$78	$13
Subtotal	*$5,684*	*$3,467*	*$1,515*	*13,009*	*$604*	*$560*	*$36*
Precious Metals							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$2,123	$1,477	$398	3,280	$155	$185	$4
Indirect	$660	$365	$222	2,330	$62	$38	$8
Induced	$385	$252	$97	1,789	$52	$46	$8
Subtotal	*$3,168*	*$2,093*	*$718*	*7,398*	*$270*	*$269*	*$20*
Steelmaking Coal							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$10,267	$7,275	$1,242	9,205	$996	$1,343	$15
Indirect	$2,568	$1,443	$860	11,741	$256	$148	$26
Induced	$1,906	$1,244	$477	8,842	$270	$230	$36
Subtotal	*$14,741*	*$9,963*	*$2,579*	*29,788*	*$1,521*	*$1,721*	*$77*
Smelters							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$3,392	$1,095	$434	2,945	$185	$194	$45
Indirect	$468	$268	$117	1,484	$45	$30	$49
Induced	$342	$223	$87	1,612	$45	$40	$7
Subtotal	*$4,202*	*$1,586*	*$638*	*6,041*	*$275*	*$264*	*$100*
Total BC Impacts							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$19,644	$12,241	$3,078	21,305	$1,738	$2,135	$70
Indirect	$4,855	$2,716	$1,543	19,610	$475	$285	$99
Induced	$3,297	$2,151	$829	15,321	$458	$394	$63
Total	**$27,795**	**$17,108**	**$5,450**	**56,237**	**$2,670**	**$2,814**	**$232**

4 ECONOMIC IMPACTS REALIZED IN METRO VANCOUVER AND VANCOUVER ISLAND FROM BC OPERATING MINES AND OPERATING SMELTERS

4.1 Estimation Approach

In 2024, direct, indirect, and induced economic impacts were realized in Metro Vancouver and Vancouver Island from operating mines and operating smelters.

- **Direct impacts from company offices**. While the majority of direct impacts occur in the region where an operating mine or operating smelter is located, a proportion also occurs in the regions where company offices or facilities are located. In 2024, there were no operating mines or operating smelters in Metro Vancouver or Vancouver Island. Consequently, the only realized direct impacts in Metro Vancouver and Vancouver Island were from company offices.

- **Indirect impacts from spending at suppliers and related businesses**. Spending by BC operating mines and operating smelters on goods and services creates indirect impacts in regions where suppliers are located. Many of the suppliers of goods and services to operating mines and operating smelters are located in Metro Vancouver and Vancouver Island. Consequently, the realized indirect impacts in Metro Vancouver and Vancouver Island were substantial.

- **Induced impacts from spending of labour income by direct and indirect employees.** Spending of labour income by people employed directly or indirectly by operating mines and operating smelters creates induced impacts in a region. Because the indirect impacts realized in Metro Vancouver and Vancouver Island were much greater than the direct impacts, the majority of induced impacts were attributable to the spending by indirect employees.

To estimate the direct, indirect and induced impacts realized in Metro Vancouver and Vancouver Island, we used survey data and publicly available information collected from mining and smelting companies. Direct impacts were estimated from a review of a selection of mining company materials, which suggested the proportion of company employees located at offices distant from a mine site ranged between four and ten percent. Based on that review, we assumed that four percent of direct impacts occurred at company offices located in Metro Vancouver and Vancouver Island.[8]

Indirect impacts were estimated using the results from a comprehensive study of spending by operating mines and operating smelters on goods and services that was carried out for the MABC. The study, entitled “One Province, One Economy — Benefits of British Columbia’s Mining Supply Chain,” quantified the 2022 spending by operating mines and operating smelters.[9]

The One Province, One Economy study found that 42 percent of spending went to suppliers located in Metro Vancouver, and another 3 percent went to suppliers on Vancouver Island. We have assumed that the same

[8] Industry-wide data was not available to estimate the proportion of company employees based in Metro Vancouver and Vancouver Island. We assumed four percent because it was believed to be conservative — being at the low end of the range — and because it appeared consistent with labour market data published by BC Stats.

[9] The One Province, One Economy Study is available at:https://mining.bc.ca/wp-content/uploads/2024/01/OPOE-Report-2022-Web-Version-2.pdf.

percentages applied in 2024, so that 42 percent of indirect impacts were realized in Metro Vancouver and another 3 percent on Vancouver Island.

Induced impacts were estimated according to the percentage of all direct and indirect labour income that was estimated to be realized in Metro Vancouver and Vancouver Island. Direct and indirect labour income realized in Metro Vancouver and Vancouver Island amounted to 18 percent of all direct and indirect labour income; consequently, we estimated that 18 percent of induced impacts were realized in Metro Vancouver and Vancouver Island.

4.2 Economic Impacts Realized in Metro Vancouver and Vancouver Island

The following table summarizes the estimated economic impacts realized in Metro Vancouver and Vancouver Island from BC operating mines and operating smelters in BC in 2024. As displayed in the table, those impacts include:

- Total economic output of $3,548 million.
- Total GDP of $2,089 million.
- Total labour income of $963 million.
- Total employment of 12,363 jobs.
- Total government revenue of $705 million.

Table 4. Economic Impacts Realized in Metro Vancouver and Vancouver Island from BC Operating Mines and Operating Smelters in 2024

Metro Vancouver and Vancouver Island Impacts							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$786	$490	$123	852	$70	$85	$3
Indirect	$2,180	$1,219	$693	8,805	$213	$128	$44
Induced	$582	$380	$146	2,706	$81	$70	$11
Total	**$3,548**	**$2,089**	**$963**	**12,363**	**$363**	**$283**	**$58**

4.3 Economic Impacts Realized by Community

The One Province, One Economy study provided a detailed distribution by community of spending on goods and services that went to suppliers located in Metro Vancouver. We have used that distribution to approximate the direct and indirect impacts that would be realized in each community. Since all, or nearly all, company offices are located in Vancouver, we have assumed all direct impacts would be realized in Vancouver.

The following table displays the approximate distribution of total economic impacts realized in Metro Vancouver and Vancouver Island by community.

Table 5. Distribution of Total Economic Impacts Realized in Metro Vancouver and Vancouver Island from BC Operating Mines and Operating Smelters by Community in 2024

Metro Vancouver and Vancouver Island Impacts by Community							
	Total Output (millions)	Total GDP (millions)	Total Labour Income (millions)	Total Jobs	Total Federal Revenues (millions)	Total Provincial Revenues (millions)	Total Municipal Revenues (millions)
Vancouver	$1,756	$1,051	$418	4,894	$294	$197	$56
North Vancouver	$616	$357	$187	2,568	$173	$155	$22
Burnaby	$397	$230	$121	1,656	$66	$44	$12
Delta	$230	$133	$70	957	$42	$28	$8
Surrey	$131	$76	$40	547	$24	$16	$5
Langley	$95	$55	$29	395	$14	$9	$3
Other Metro Vancouver	$148	$86	$45	615	$10	$7	$2
Vancouver Island	$175	$101	$53	729	$16	$11	$3
Total	**$3,548**	**$2,089**	**$963**	**12,363**	**$363**	**$283**	**$58**

5 ECONOMIC IMPACTS FROM PROPOSED BC MINES AND MINE EXTENSIONS

5.1 Proposed New and Extended BC Mines

The MABC has compiled a dataset of 31 proposed new and extended mines in BC. The mines include 20 critical mineral mines, seven precious metals mines, and four steelmaking coal mines. Together, they have a total estimated time for development of 97 years with a total investment of approximately $46 billion, and a total estimated operational lifetime of 597 years with total revenues of approximately $558 billion.[10]

Table 6. Proposed New and Extended Mines (Totals)

	Development	Operations	Combined Development and Operations
Number of Mines	31	31	**31**
Years of Development or Operations	97	597	**694**
Estimated Development Costs or Operations Revenues (millions)	$46,356	$558,350	**$604,705**

5.2 Projected Economic Impacts from New and Extended Mines

The projected economic impacts in BC from development of the 31 mines are displayed in the following table and include:

- Total output of $79,855 million.
- Total GDP of $40,593 million.
- Total labour income $24,148 million.
- Total employment of 286,195 jobs.
- Total government revenue of $12,806 million.

Table 7. Economic Impacts in BC from Development (31 Mines)

Impacts from Development							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$46,356	$20,873	$14,110	141,988	$3,614	$2,136	$76
Indirect	$19,208	$10,423	$6,441	77,923	$1,797	$1,077	$208
Induced	$14,291	$9,297	$3,597	66,284	$1,934	$1,686	$278
Total	**$79,855**	**$40,593**	**$24,148**	**286,195**	**$7,346**	**$4,899**	**$561**

[10] A list of the mines in the MABC dataset is contained in Appendix C.

The projected economic impacts in BC from operation of the 31 mines are displayed in the following table and include:

- Total output of $858,298 million.
- Total GDP of $502,693 million.
- Total labour income of $187,878 million.
- Total employment of 2,022,763 jobs.
- Total government revenue of $176,912 million.

Table 8. Economic Impacts in BC from Operations (31 Mines)

Impacts from Operations							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$558,350	$325,775	$102,429	830,547	$53,250	$60,107	$1,142
Indirect	$189,076	$104,635	$57,366	677,602	$18,308	$11,223	$2,459
Induced	$110,873	$72,284	$28,083	514,614	$15,130	$13,102	$2,192
Total	**$858,298**	**$502,693**	**$187,878**	**2,022,763**	**$86,688**	**$84,432**	**$5,792**

The projected combined economic impacts in BC from both development and operation of the 31 mines are displayed in the following table and include:

- Total output of $938,154 million.
- Total GDP of $543,286 million.
- Total labour income of $212,026 million.
- Total employment of 2,308,957 jobs.
- Total government revenue of $189,719 million.

Table 9. Combined Economic Impacts in BC from Development and Operations (31 Mines)

Combined Impacts from Development and Operations							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$604,705	$346,648	$116,539	972,535	$56,865	$62,244	$1,218
Indirect	$208,284	$115,058	$63,807	755,525	$20,105	$12,300	$2,666
Induced	$125,164	$81,580	$31,680	580,898	$17,064	$14,788	$2,470
Total	**$938,154**	**$543,286**	**$212,026**	**2,308,957**	**$94,034**	**$89,331**	**$6,354**

5.3 Economic Impacts Per Mine from New and Extended Mines

Expressed on a per mine basis, the 31 proposed new and extended mines have an average time for development of 3.1 years with an average investment of approximately $1.5 billion, and an average operational lifetime of 19.3 years with average revenues of approximately $18.0 billion.

Table 10. Proposed New and Extended Mines (Averages Per Mine)

	Development	Operations	Combined Development and Operations
Number of Mines	31	31	**31**
Average Years of Development or Operations	3.1	19.3	**22.4**
Average Development Costs or Operations Revenues (millions)	$1,495	$18,012	**$19,507**

Expressed on a per mine basis, the average economic impacts from development are displayed in the following table and include:

- Total output of $2,576 million per mine.
- Total GDP of $1,309 million per mine.
- Total labour income $779 million per mine.
- Total employment of 9,232 jobs per mine.
- Total government revenue of $413 million per mine.

Table 11. Average Economic Impacts Per Mine in BC From Development (Totals Over 3.1 Years of Development)

	Impacts from Development						
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$1,495	$673	$455	4,580	$117	$69	$2
Indirect	$620	$336	$208	2,514	$58	$35	$7
Induced	$461	$300	$116	2,138	$62	$54	$9
Total	**$2,576**	**$1,309**	**$779**	**9,232**	**$237**	**$158**	**$18**

Expressed on a per mine basis, the average economic impacts from operations are displayed in the following table and include:

- Total output of $27,687 million per mine.
- Total GDP of $16,216 million per mine.
- Total labour income $6,061 million per mine.
- Total employment of 65,250 jobs per mine.
- Total government revenue of $5,707 million per mine.

Table 12. Average Economic Impacts Per Mine in BC From Operations (Totals Over 19.3 Years of Operations)

Impacts from Operations							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$18,011	$10,509	$3,304	26,792	$1,718	$1,939	$37
Indirect	$6,099	$3,375	$1,851	21,858	$591	$362	$79
Induced	$3,577	$2,332	$906	16,600	$488	$423	$71
Total	**$27,687**	**$16,216**	**$6,061**	**65,250**	**$2,796**	**$2,724**	**$187**

Expressed on a per mine basis, the average combined economic impacts from development and operations are displayed in the following table and include:

- Total output of $30,263 million per mine.
- Total GDP of $17,525 million per mine.
- Total labour income $6,840 million per mine.
- Total employment of 74,482 jobs per mine.
- Total government revenue of $6,120 million per mine.

Table 13. Average Combined Economic Impacts Per Mine in BC from both Development and Operations (Totals Over 22.4 Years of Development and Operations)

Combined Impacts from Development and Operations							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$19,507	$11,182	$3,759	31,372	$1,834	$2,008	$39
Indirect	$6,719	$3,712	$2,058	24,372	$649	$397	$86
Induced	$4,038	$2,632	$1,022	18,739	$550	$477	$80
Total	**$30,263**	**$17,525**	**$6,840**	**74,482**	**$3,033**	**$2,882**	**$205**

5.4 Economic Impacts Per Mine, Per Year, from New and Extended Mines

Expressed on a per mine, per year basis, the 31 proposed new and extended mines have an average investment of approximately $478 million per mine, per year during development, and an average revenue of approximately $871 million per mine, per year during operations.

Table 14. Proposed New and Extended Mines (Averages Per Mine)

	Development	Operations	Combined Development and Operations
Number of Mines	31	31	**31**
Average Years of Development or Operations	3.1	19.3	**22.4**
Average Per Year Development Costs or Operations Revenues (millions)	$478	$935	**$871**

Expressed on a per mine basis, the Expressed on a per mine, per year basis, the average economic impacts from development are displayed in the following table and include:

- Total output of $823 million per mine, per year.
- Total GDP of $418 million per mine, per year.
- Total labour income $249 million per mine, per year.
- Total employment of 2,950 jobs per mine, per year.
- Total government revenue of $132 million per mine, per year.

Table 15. Average Economic Impacts Per Mine, Per Year in BC From Development (Annually During 3.1 Years of Development)

Impacts from Development							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$478	$215	$145	1,464	$37	$22	$1
Indirect	$198	$107	$66	803	$19	$11	$2
Induced	$147	$96	$37	683	$20	$17	$3
Total	**$823**	**$418**	**$249**	**2,950**	**$76**	**$51**	**$6**

Expressed on a per mine, per year basis, the average economic impacts from operations are displayed in the following table and include:

- Total output of $1,438 million per mine, per year.
- Total GDP of $842 million per mine, per year.
- Total labour income of $315 million per year.
- Total employment of 3,388 jobs per mine, per year.
- Total government revenue of $296 million per mine, per year.

Table 16. Average Economic Impacts Per Mine, Per Year in BC From Operations (Annually During 19.3 Years of Operation)

Impacts from Operations							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$935	$546	$172	1,391	$89	$101	$2
Indirect	$317	$175	$96	1,135	$31	$19	$4
Induced	$186	$121	$47	862	$25	$22	$4
Total	**$1,438**	**$842**	**$315**	**3,388**	**$145**	**$141**	**$10**

Expressed on a per mine, per year basis, the average combined economic impacts from development and operations are displayed in the following table and include:

- Total output of $1,352 million per mine, per year.
- Total GDP of $783 million per mine, per year.
- Total labour income of $306 million per mine, per year.
- Total employment of 3,327 jobs per mine, per year.
- Total government revenue of $273 million per mine, per year.

Table 17. Average Combined Economic Impacts Per Mine, Per Year in BC From Development and Operations (Annually During 22.4 Years of Development and Operation)

Combined Impacts from Development and Operations							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$871	$499	$168	1,401	$82	$90	$2
Indirect	$300	$166	$92	1,089	$29	$18	$4
Induced	$180	$118	$46	837	$25	$21	$4
Total	**$1,352**	**$783**	**$306**	**3,327**	**$135**	**$129**	**$9**

6 ECONOMIC IMPACTS REALIZED IN METRO VANCOUVER AND VANCOUVER ISLAND FROM PROPOSED BC MINES AND MINE EXTENSIONS[11]

6.1 Approach

To project the direct, indirect and induced impacts that would be realized in Metro Vancouver and Vancouver Island from the development and operation of the 31 new or extended mines, we followed an approach that mirrored our approach for existing mines and smelters. Specifically, we assumed:

- Four percent of direct impacts would occur at company offices located in Metro Vancouver and Vancouver Island. In addition, one of the 31 proposed new or extended mines (North Island Mine) is located on Vancouver Island. Consequently, direct impacts realized in Metro Vancouver or Vancouver Island arise both from company offices and from the development and operation of the North Island Mine.

- Based on the One Province, One Economy study, we assumed that 42 percent of indirect impacts would be realized in Metro Vancouver and another 3 percent on Vancouver Island.

- Based on the percentage of all direct and indirect labour income that was projected to be realized in Metro Vancouver and Vancouver Island, we assumed that 18 percent of induced impacts were realized in Metro Vancouver and Vancouver Island.

6.2 Economic Impacts Realized in Metro Vancouver and Vancouver Island

The following table summarizes the projected combined economic impacts that would be realized in Metro Vancouver and Vancouver Island from the development and operation of the 31 proposed new or extended mines. As displayed in the table, the impacts include:

- Total economic output of $159,473 million.
- Total GDP of $90,994 million.
- Total labour income of $42,967 million.
- Total employment of 521,155 jobs.
- Total government revenue of $37,126 million.

Table 18. Projected Combined Economic Impacts Realized in Metro Vancouver and Vancouver Island from the Development and Operation of Proposed New and Extended Mines (31 Mines)

Metro Vancouver and Vancouver Island Impacts							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$40,590	$22,801	$7,898	64,210	$3,836	$4,134	$84
Indirect	$93,519	$51,661	$28,649	339,227	$9,027	$5,522	$1,197
Induced	$25,364	$16,532	$6,420	117,718	$3,458	$2,704	$501
Total	**$159,473**	**$90,994**	**$42,967**	**521,155**	**$16,321**	**$12,361**	**$1,781**

[11] To limit the number of tables displayed in this section, we present results for the combined economic impacts from development and operations, rather than presenting separate sets of tables for development, operations, and combined development and operations.

6.3 Economic Impacts Realized by Community

The following table displays the approximate distribution of total projected combined economic impacts that would be realized in Metro Vancouver and Vancouver Island by community from the development and operation of the 31 proposed new or extended mines (please note this includes the development and operation of the proposed North Island Mine on Vancouver Island).[12]

Table 19. Distribution of Total Projected Combined Economic Impacts from the Development and Operation of Proposed New or Extended Mines by Community (31 Mines)

Metro Vancouver and Vancouver Island Impacts							
	Total Output (millions)	Total GDP (millions)	Total Labour Income (millions)	Total Jobs	Total Federal Revenues (millions)	Total Provincial Revenues (millions)	Total Municipal Revenues (millions)
Vancouver	$67,973	$39,141	$17,492	208,820	185,878	$6,937	$5,722
North Vancouver	$25,822	$14,757	$7,647	98,692	84,015	$2,690	$1,818
Burnaby	$16,654	$9,518	$4,932	63,654	54,187	$1,735	$1,172
Delta	$9,626	$5,501	$2,851	36,791	31,319	$1,003	$678
Surrey	$5,501	$3,144	$1,629	21,023	17,897	$573	$387
Langley	$3,973	$2,270	$1,176	15,183	12,925	$414	$280
Other Metro Vancouver	$22,590	$12,472	$5,069	48,960	47,381	$2,206	$1,788
Vancouver Island	$7,334	$4,191	$2,172	28,031	23,862	$764	$516
Total	**$159,473**	**$90,994**	**$42,967**	**521,155**	**457,466**	**$16,321**	**$12,361**

6.4 Economic Impacts Per Mine Realized in Metro Vancouver and Vancouver Island

The following table summarizes the average projected combined impacts per mine that would be realized in Metro Vancouver and Vancouver Island from the development and operation of one new or extended mine. Please note that, since only one of the 31 proposed new or extended mines (the North Island Mine) is located on Vancouver Island, we have assumed that an average or typical mine would be developed elsewhere in the province. Consequently, the only direct impacts that are included in the table are those that would occur at company offices. The impacts include:

- Total economic output of $4,615 million per mine.
- Total GDP of $2,247 million per mine.
- Total labour income of $1,282 million per mine.
- Total employment of 15,995 jobs per mine.
- Total government revenue of $888 million per mine.

[12] Since all, or nearly all, head offices would be located in Vancouver, we have assumed all direct impacts from head offices would be realized in Vancouver.

Table 20. Average Economic Impacts Realized Per Mine in Metro Vancouver and Vancouver Island from Development and Operation of a New or Extended Mine (Averages Per Mine)

Metro Vancouver and Vancouver Island Impacts							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$780	$447	$150	1,255	$73	$80	$2
Indirect	$3,017	$1,666	$924	10,943	$291	$178	$39
Induced	$818	$533	$207	3,797	$112	$97	$16
Total	**$4,615**	**$2,647**	**$1,282**	**15,995**	**$476**	**$355**	**$56**

6.5 Economic Impacts Per Mine Realized by Community

The following table displays the approximate distribution of average projected combined impacts per mine that would be realized in Metro Vancouver and Vancouver Island by community from the development and operation of one proposed new or extended mine (please note that we have assumed that an average or typical mine would be developed elsewhere in the province).[13]

Table 21. Distribution of Average Total Projected Combined Economic Impacts Per Mine Realized by Community (Averages Per Mine)

Metro Vancouver and Vancouver Island Impacts by Community							
	Total Output (millions)	Total GDP (millions)	Total Labour Income (millions)	Total Jobs	Total Federal Revenues (millions)	Total Provincial Revenues (millions)	Total Municipal Revenues (millions)
Vancouver	$2,193	$1,263	$564	6,736	$224	$185	$22
North Vancouver	$833	$476	$247	3,184	$87	$59	$12
Burnaby	$537	$307	$159	2,053	$56	$38	$8
Delta	$311	$177	$92	1,187	$32	$22	$4
Surrey	$177	$101	$53	678	$18	$12	$3
Langley	$128	$73	$38	490	$13	$9	$2
Other Metro Vancouver	$200	$114	$59	763	$21	$14	$3
Vancouver Island	$237	$135	$70	904	$25	$17	$3
Total	**$4,615**	**$2,647**	**$1,282**	**15,995**	**$476**	**$355**	**$56**

[13] Since all, or nearly all, head offices would be located in Vancouver, we have assumed all direct impacts from head offices would be realized in Vancouver.

6.6 Economic Impacts Per Mine, Per Year, Realized in Metro Vancouver and Vancouver Island

The 31 mines average 22.4 years for development and operation. Table 22 summarizes the average projected combined impacts per mine, per year, realized in Metro Vancouver and Vancouver Island from the development and operation of one new or extended mine. The average impacts per mine, per year, include:

- Total output of $206 million per mine, per year.
- Total GDP of $118 million per mine,
- Total labour income of $57 million per mine, per year.
- Total employment of 714 jobs per mine, per year.
- Total government revenue of $40 million per mine, per year.

Table 22. Average Projected Combined Economic Impacts Realized Per Mine, Per Year, in Metro Vancouver and Vancouver Island from Development and Operation of a New or Extended Mine (Annually During 22.4 Years of Development and Operation)

Metro Vancouver and Vancouver Island Impacts							
	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Revenues (millions)	Provincial Revenues (millions)	Municipal Revenues (millions)
Direct	$35	$20	$7	56	$3	$4	$0
Indirect	$135	$74	$41	489	$13	$8	$2
Induced	$37	$24	$9	170	$5	$4	$1
Total	**$206**	**$118**	**$57**	**714**	**$21**	**$16**	**$3**

6.7 Economic Impacts Per Mine, Per Year, Realized by Community

The following table displays the approximate distribution of average combined impacts per mine, per year, that would be realized in Metro Vancouver and Vancouver Island by community from the development and operation of one new or extended mine (please note that we have assumed that an average or typical mine would be developed elsewhere in the province).[14]

Table 23. Distribution of Average Total Economic Impacts Per Mine, Per Year, Realized by Community (Annually During 22.4 Years of Development and Operation)

Metro Vancouver and Vancouver Island Impacts							
	Total Output (millions)	Total GDP (millions)	Total Labour Income (millions)	Total Jobs	Total Federal Revenues (millions)	Total Provincial Revenues (millions)	Total Municipal Revenues (millions)
Vancouver	$98	$56	$25	301	$10	$8	$1
North Vancouver	$37	$21	$11	142	$4	$3	$1
Burnaby	$24	$14	$7	92	$2	$2	$0
Delta	$14	$8	$4	53	$1	$1	$0
Surrey	$8	$5	$2	30	$1	$1	$0
Langley	$6	$3	$2	22	$1	$0	$0
Other Metro Vancouver	$9	$5	$3	34	$1	$1	$0
Vancouver Island	$11	$6	$3	40	$1	$1	$0
Total	**$206**	**$118**	**$57**	**714**	**$21**	**$16**	**$3**

[14] Since all, or nearly all, head offices would be located in Vancouver, we have assumed all direct impacts from head offices would be realized in Vancouver.

APPENDIX A – OPERATING MINES AND SMELTERS BY YEAR[15]

Mine (Region)	2020	2021	2022	2023	2024	2025
Critical Mineral Mines						
Red Chris (Northwest)	✓	✓	✓	✓	✓	✓
Silvertip (Northwest)	✓					
Mt. Milligan (North Central)	✓	✓	✓	✓	✓	✓
Copper Mountain (South Central)	✓	✓	✓	✓	✓	✓
Gibraltar (South Central)	✓	✓	✓	✓	✓	✓
Highland Valley (South Central)	✓	✓	✓	✓	✓	✓
Myra Falls (Southwest)	✓	✓	✓	✓		
Mount Polley (South Central)			✓	✓	✓	✓
Subtotal	7	6	7	7	6	6
Precious Metals Mines						
Brucejack (Northwest)	✓	✓	✓	✓	✓	✓
New Afton(South Central)	✓	✓	✓	✓	✓	✓
Bonanza Ledge II (South Central)		✓	✓			
Elk (South Central)[16]		✓	✓	✓	✓	✓
Premier (Northwest)[17]					✓	
Dome Mountain Gold (Northwest)						✓
Blackwater (North Central)						✓
Subtotal	2	4	4	3	4	5
Steelmaking Coal Mines						
Brule (Northeast)	✓	✓	✓	✓	✓	
Willow Creek (Northeast)	✓	✓	✓	✓	✓	✓
Wolverine (Northeast)	✓	✓	✓	✓	✓	
Elkview (Southeast)	✓	✓	✓	✓	✓	✓
Fording River (Southeast)	✓	✓	✓	✓	✓	✓
Greenhills (Southeast)	✓	✓	✓	✓	✓	✓
Line Creek (Southeast)	✓	✓	✓	✓	✓	✓
Quintette (Northeast)					✓	✓
Subtotal	7	7	7	7	8	6
Total Operating Mines	**16**	**17**	**18**	**17**	**18**	**17**
Operating Smelters						
BC Works (Northwest)	✓	✓	✓	✓	✓	✓
Trail Operations (Southeast)	✓	✓	✓	✓	✓	✓
Total Operating Smelters	**2**	**2**	**2**	**2**	**2**	**2**
Total						
Grand Total	**18**	**19**	**20**	**19**	**20**	**19**

[15] Industrial mines and quarries, such as stone mining and sand and gravel operations, are not included in the study. Also not included are bituminous coal (soft coal) mines. In 2024, there was only one bituminous coal mine in BC (Basin Coal), which operated seasonally beginning in May and produced an estimated 50,000 tonnes of bituminous coal.

[16] The Elk mine produced only a very small amount of gold (estimated at approximately 1,050 ounces).

[17] The Premier mine produced only a very small amount of gold (estimated at approximately 3,430 ounces).

APPENDIX B – PROPOSED BC MINES AND MINE EXTENSIONS INCLUDED IN THE STUDY.

Table 24. Critical Mineral Mines Included in the Study (20)[18]

Mine Name	Owner	Principal Critical Minerals	Region
Berg	Surge Copper Corp	Copper/Molybdenum	Northwest
Galore Creek	Galore Creek Mining Corporation	Copper/Gold	Northwest
KSM	Seabridge Gold Inc.	Copper/Gold	Northwest
Kitsault	New Moly	Molybdenum	Northwest
Kutcho	Kutcho Copper Corp.	Copper/Zinc	Northwest
Ootsa	Surge Copper Corp	Copper/Molybdenum	Northwest
Red Chris	Newmont Corporation, Imperial Metals	Copper/Gold	Northwest
Shaft Creek	Copper Fox Metals Inc.	Copper/Molybdenum	Northwest
Silvertip	Coeur Mining Inc.	Silver	Northwest
Turnagain	Gigametals Corporation	Nickel/Cobalt	Northwest
Aley	Taseko Mines Limited	Niobium	North Central
Baptiste	FPX Nickel Corporation	Nickel/Cobalt	North Central
Kemess	Centerra Gold Inc.	Gold	North Central
Kwanika-Stardust	Northwest Copper Corp	Copper	North Central
Mount Milligan	Centerra Gold Inc.	Copper/Gold	North Central
Wicheeda	Defense Metals Corporation	Rare Earths	North Central
Highland Valley Copper	Teck Resources Limited	Copper	South Central
Ingerbelle	Copper Mountain Mining Corporation	Copper	South Central
Yellowhead	Taseko Mines Limited	Copper	South Central
North Island	NorthIsle Copper and Gold Inc.	Copper	Southwest

[18] An additional critical mineral mine, the Davidson Project, is currently being added to the MABC dataset but has not been included in this report as our analysis of the project information is not yet completed. The Davidson Project is in the Northwest Region, and is a proposed underground molybdenum mine that is owned by Moon River Moly Ltd. We anticipate this mine to be included in future economic studies.

Table 25. Precious Metals Mines Included in the Study (7)

Mine Name	Owner	Principal Precious Metals	Region
Eskay Creek	Skeena Resources Limited	Gold	Northwest
New Polaris Gold	Canagold Resources Ltd.	Gold	Northwest
Premier and Red Mountain	Cambria Gold Mines Inc.	Gold	Northwest
Blackwater	Artemis Gold Inc.	Gold	North Central
Lawyers-Ranch	Thesis Gold	Gold	North Central
Cariboo Gold	Osisko Development Corp.	Gold	South Central
Spanish Mountain Gold	Spanish Mountain Gold Ltd.	Gold	South Central

Table 26. Steelmaking Coal Mines Included in the Study (4)

Mine Name	Owner	Principal Resource	Region
Quintette	Conuma Resources	Steelmaking Coal	Northeast
Tenas	Bathhurst Resources Limited (Telkwa Mining Limited)	Steelmaking Coal	Northwest
Trend Roman	Conuma Resources	Steelmaking Coal	Northeast
Fording River	Elk Valley Resources	Steelmaking Coal	Southeast

APPENDIX C – MANSFIELD CONSULTING INC.

Ed Mansfield, Ph.D., is the founder and president of Mansfield Consulting Inc. Ed has more than 30 years of experience in providing consulting services to public and private companies, professional associations, industry organizations, and government agencies. Before founding Mansfield Consulting Inc., Ed led national economics and research practices at four major accounting and business consulting firms.

Mansfield Consulting Inc. has conducted many studies that have involved economic impacts, forecasting, feasibility studies, strategic planning, and industry analysis. The studies have encompassed a wide range of areas, including natural resources, research and innovation, manufacturing, healthcare, property development, utilities, transportation, film and television production, tourism, and major events. For more information on Mansfield Consulting Inc., please see our website at www.mansfieldconsulting.ca.