



# Economic Impacts of Royal Columbian Hospital

Prepared for the City of New Westminster

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Mansfield Consulting Inc.  
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## EXECUTIVE SUMMARY

### Introduction

New Westminster's Royal Columbian Hospital (RCH) is a major hospital which provides primary, secondary, and tertiary medical services to inpatients and outpatients. RCH is a major employer and creates economic impacts in New Westminster and throughout BC. Because RCH is undergoing a large redevelopment project, the economic impacts created by RCH are planned to increase substantially from their current levels upon the completion of the redevelopment.

### Study Goals

The two main goals of this study were to estimate the current levels of economic impacts created by RCH and to project the future levels of economic impacts once the redevelopment is completed. The current levels were based on data from 2021, as that was the most recent completed calendar year. The future levels were projected to begin in 2027, as that is anticipated to be the first year after the completion of the redevelopment.

### Sources of Economic Impacts

RCH's economic impacts arise from several different sources; however, the two main sources are RCH's hospital activities (i.e., expenditures on staff and suppliers) and physician activities (i.e., physicians that earn a portion of their income through providing services at RCH).<sup>1</sup>

### Current Annual Economic Impacts (2021)

The current annual economic impacts in BC from RCH's hospital activities and from physician activities are estimated as:

- Total output of \$885.1 million.
- Total GDP of \$566.2 million.
- Total labour Income of \$499.8 million.
- Total employment of 6,346 jobs.
- Total tax revenues of \$151.4 million.

The estimated current annual economic impacts are summarized in Table A.

**Table A. Current Annual Economic Impacts in BC (2021)**

	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Tax (millions)	Provincial Tax (millions)	Municipal Tax (millions)
Direct	\$444.1	\$284.2	\$344.1	3,548	\$41.1	\$19.5	\$0.0
Indirect	\$206.3	\$130.9	\$94.2	1,558	\$18.2	\$10.7	\$1.4
Induced	\$234.7	\$151.1	\$61.5	1,240	\$26.8	\$27.9	\$5.8
<b>Total</b>	<b>\$885.1</b>	<b>\$566.2</b>	<b>\$499.8</b>	<b>6,346</b>	<b>\$86.1</b>	<b>\$58.1</b>	<b>\$7.2</b>

<sup>1</sup> Additional economic impacts are also generated by research activities conducted at RCH, by medical students undergoing training at RCH, and by visitors that travel to New Westminster to see patients in RCH. Impacts from these sources are small compared with the impacts generated by hospital and physician activities.

### Future Annual Economic Impacts After Redevelopment (2027)

The future annual economic impacts in BC from RCH's hospital activities and from physician activities are projected as:

- Total output of \$1,282.4 million.
- Total GDP of \$818.7 million.
- Total labour Income of \$729.6 million.
- Total employment of 8,768 jobs.
- Total tax revenues of \$213.8 million.

The projected future annual economic impacts are summarized in Table B.

**Table B. Future Annual Economic Impacts in BC (2027)**

	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Tax (millions)	Provincial Tax (millions)	Municipal Tax (millions)
Direct	\$644.1	\$410.6	\$504.1	4,711	\$59.3	\$28.2	\$0.0
Indirect	\$299.5	\$189.9	\$136.8	2,267	\$24.9	\$13.2	\$1.9
Induced	\$338.8	\$218.2	\$88.7	1,790	\$38.6	\$39.5	\$8.2
<b>Total</b>	<b>\$1,282.4</b>	<b>\$818.7</b>	<b>\$729.6</b>	<b>8,768</b>	<b>\$122.8</b>	<b>\$80.9</b>	<b>\$10.1</b>

### Comparisons with Other Industries and Activities

To place the economic impacts of RCH in perspective, it is useful to compare them with the economic impacts created by other important activities and industries.

Residential construction. Placed in the context of large residential construction, RCH's current annual impacts equate to approximately:

- Five times the total output created from the development of a typical 33-storey residential building.
- Six times the total GDP created from the development of a typical 33-storey residential building.
- Seven times the total employment created from the development of a typical 33-storey residential building.

Mining. Placed in the context of mining, RCH's current annual impacts equate to approximately:

- 86 percent of the total output created from the development of a typical new gold or copper mine.
- 103 percent of the total GDP created from the development of a typical new gold or copper mine.
- 152 percent of the total employment created from the development of a typical new gold or copper mine.

Selected Industries. Placed in the context of important BC industries, the current annual direct employment at RCH equates to approximately:

- 28 percent of the direct employment in the BC Paper Manufacturing industry.
- 43 percent of the direct employment in BC Air Transportation.
- 62 percent of the direct employment in BC Rail Transportation.
- 75 percent of the direct employment in the BC Oil and Gas Extraction industry.

### Annual Impacts in New Westminster

Approximately 14 percent of economic impacts from hospital activities and one-third of economic impacts from physician activities are estimated to be realized in New Westminster. As a result, the estimated current annual economic impacts realized in New Westminster from RCH are:

- Total output of \$156.2 million.
- Total GDP of \$105.4 million.
- Total labour Income of \$89.6 million.
- Total employment of 1,022 jobs.
- Total tax revenues of \$27.5 million.

Table C summarizes the estimated current annual economic impacts realized in New Westminster.

**Table C. Current Annual Economic Impacts in New Westminster (2021)**

	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Tax (millions)	Provincial Tax (millions)	Municipal Tax (millions)
Direct	\$76.3	\$53.9	\$62.3	540	\$7.9	\$3.6	\$0.0
Indirect	\$34.7	\$22.4	\$15.5	243	\$3.1	\$1.9	\$0.2
Induced	\$45.2	\$29.1	\$11.8	239	\$5.2	\$5.4	\$1.1
<b>Total</b>	<b>\$156.2</b>	<b>\$105.4</b>	<b>\$89.6</b>	<b>1,022</b>	<b>\$16.2</b>	<b>\$10.9</b>	<b>\$1.3</b>

Assuming that 14 percent of economic impacts from hospital activities and one-third of economic impacts from physician activities continue to be realized in New Westminster, the projected future economic impacts realized in New Westminster from RCH are:

- Total output of \$224.7 million.
- Total GDP of \$151.2 million.
- Total labour Income of \$129.7 million.
- Total employment of 1,415 jobs.
- Total tax revenues of \$39.0 million.

Table D summarizes the estimated future economic impacts realized in New Westminster.

**Table D. Future Annual Economic Impacts in New Westminster (2027)**

	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Tax (millions)	Provincial Tax (millions)	Municipal Tax (millions)
Direct	\$110.0	\$77.3	\$90.4	721	\$11.3	\$5.2	\$0.0
Indirect	\$50.0	\$32.2	\$22.4	352	\$4.0	\$1.9	\$0.3
Induced	\$64.7	\$41.7	\$16.9	342	\$7.4	\$7.4	\$1.5
<b>Total</b>	<b>\$224.7</b>	<b>\$151.2</b>	<b>\$129.7</b>	<b>1,415</b>	<b>\$22.7</b>	<b>\$14.5</b>	<b>\$1.8</b>

# 1 INTRODUCTION

## 1.1 Study Purpose and Scope

The City of New Westminster commissioned Mansfield Consulting Inc. to carry out a study of the economic impacts created by Royal Columbian Hospital (RCH). The scope of the study included estimating the impacts arising from RCH hospital activities (i.e., expenditures on staff and suppliers), as well as the impacts created through the activities of physicians that provide services at RCH.

Because RCH is undergoing a major redevelopment, the impacts were estimated under its current operating circumstances and projected under its future operating circumstances after the planned completion of the redevelopment. The current levels of economic impacts were based on data from 2021, as that was the most recent completed calendar year. The future levels were projected to begin in 2027, as that is anticipated to be the first year after the completion of the redevelopment.

## 1.2 About Mansfield Consulting Inc.

Mansfield Consulting Inc. provides specialized consulting services on economic and statistical issues. Mansfield Consulting Inc. was founded by Ed Mansfield Ph.D., who has more than thirty years of experience providing consulting services to public and private companies, professional associations, industry organizations, and government agencies. For more information on Mansfield Consulting Inc. please see Appendix B.

## 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 Royal Columbian Hospital and 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 which would subsequently alter those findings or opinions.

## 2 ABOUT ROYAL COLUMBIAN HOSPITAL

### 2.1 Background<sup>2</sup>

Royal Columbian Hospital (RCH) is one of three regional hospitals in Fraser Health offering primary, secondary, and tertiary services, which include emergency, outpatient, ambulatory care, and a range of inpatient services. As a regional hospital, Royal Columbian Hospital provides mostly referral services in a variety of medical and surgical specialties, such as mental health and substance use, internal medicine, cardiology, gastroenterology, nephrology, orthopedics, otolaryngology, gynecology, urology, ophthalmology, plastic surgery, obstetrics, and neonatal intensive care.

RCH also provides a number of highly specialized acute care services, including trauma, cardiac surgery, neurosurgery, interventional cardiology, and thoracic surgery that often require the care of multiple medical specialists, multidisciplinary care teams and the use of specialized equipment and technology.

Some noteworthy facts regarding RCH are:

- RCH is the only trauma-designated centre in the Fraser Health Authority, treating 12,000 trauma-care patients annually. The hospital receives more trauma patients by BC Air Ambulance than any other hospital in the province.
- RCH has a mental health and substance use program that provides acute psychiatric care for admitted patients, outpatient care, and psychiatric emergency care for 3,000 patients each year. It is the Fraser Health Authority's primary academic centre for psychiatry and mental health education and training.
- RCH is a teaching hospital and clinical academic campus of the UBC Faculty of Medicine. Between 150-200 medical students are on the site on weekdays, as well as another 20-50 nursing and allied health students.
- RCH has the only program in BC that can perform cardiac surgery for expectant women.
- RCH is BC's busiest cardiac care centre, performing more open-heart surgeries and interventional procedures than anywhere else in the province. RCH performs more angioplasties than any other hospital in the country.
- RCH is the only hospital in the province to have cardiac, trauma, neurosurgery, high-risk maternity, and a neonatal intensive care unit (NICU) all on one site. It provides the highest level of care to some of the province's most seriously ill and injured patients.
- RCH has the province's only mobile ECLS (extracorporeal life support) team, ready to respond at a moment's notice to retrieve from other hospitals patients whose heart and/or lungs are failing.

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<sup>2</sup> Information provided by Royal Columbian Hospital Foundation and RCH.



## 2.2 RCH Redevelopment

RCH is currently part-way through a three-phased \$1.49 billion redevelopment and expansion project. Phase 1 of the project took place between 2016 and 2020 and saw the construction of a new mental health facility and accompanying infrastructure. Phase 2 includes the construction of a new acute care tower, expanded and additional medical facilities, and other infrastructure. Phase 2 construction began in 2020 and is planned to be completed in 2025. Phase 3 will involve the upgrade and expansion of areas in the existing units. Phase 3 is anticipated to begin in 2023 and to complete in 2026.<sup>3</sup>

## 2.3 RCH Operating Expenditures

The following table summarizes by category 2021 RCH operating expenditures, as well as the projected after-redevelopment operating expenditures.<sup>4</sup>

**Table 1. RCH 2021 Operating Expenditures**

Category	Current Expenditure (2021) (in millions)	Projected Expenditure After Redevelopment (2027) (in millions)
Salaries and wages	\$269.7	\$400.0
Large medical equipment	\$10.0	\$14.0
Other capital costs	\$10.0	\$14.0
Other medical equipment and supplies	\$40.0	\$56.0
Other supplies	\$5.0	\$7.0
Utilities	\$2.0	\$2.8
Health service provider contracts	\$2.0	\$2.8
Professional services	\$1.0	\$1.4
Laundry	\$2.0	\$2.8
Food	\$2.0	\$2.8
Transportation	\$1.0	\$1.4
Pharmaceutical expenses	\$15.0	\$21.0
Other	\$10.0	\$14.0
<b>Total</b>	<b>\$369.7</b>	<b>\$540.0</b>

## 2.4 RCH Staff and Administration

RCH currently has a complement of 3,318 staff and administration personnel. Approximately 1,335 staff and administration personnel are on-site daily, with that number projected to increase to 1,766 after the completion of the expansion. The following table shows the current composition of staff and administration, as well as the number that are typically on-site daily.

<sup>3</sup> More information on the redevelopment project is available at: [Royal Columbian Hospital redevelopment project - Fraser Health Authority](#)

<sup>4</sup> Operating expenditures provided by RCH.



**Table 2. Composition of Staff and Administration Personnel**

	Number of Staff and Administration (2021)	Number of Staff and Administration Currently On-Site Daily (2021)	Number of Staff and Administration On-Site Daily After Redevelopment (2027)
Nurses	1,793	625	812
Medical Technicians, Allied Health Professionals, and Other Patient Care Staff	740	430	582
Facilities Staff	625	136	215
Administration	160	144	157
<b>Total</b>	<b>3,318</b>	<b>1,335</b>	<b>1,766</b>

Roughly 14 percent of staff and administration personnel reside in the city of New Westminster. All but one percent reside in Metro Vancouver municipalities. The following table shows the percent of staff and administration personnel by place of residence

**Table 3. Percent of Staff and Administration by Place of Residence**

Place of Residence	Percent of Staff and Administration (2021)
New Westminster	14%
Surrey	22%
Coquitlam	13%
Port Coquitlam	11%
Burnaby	5%
Maple Ridge	5%
Vancouver	11%
Other Metro Vancouver	20%
Other BC	1%
<b>Total</b>	<b>100%</b>

## 2.5 Physicians working at RCH

In addition to RCH's staff and administration there are over 900 physicians that have privileges at RCH. Over 800 of these physicians provided services at RCH in 2021, with approximately 600 using RCH as their primary site.

## 3 ECONOMIC IMPACTS

### 3.1 Overview of Economic Impact Analysis

The goal of an economic impact study is to quantify 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 output, GDP, employment income, employment, and government tax revenue:

- **Output** is the total gross value of goods and services produced by a given organization, industry, or project, measured by the price paid to the producer. This is the broadest measure of economic activity.
  - *Example: A manufacturer buys aluminum from a metals producer for \$100 and adds value to it by producing airplane parts, which are then sold for \$300. Economic output totals \$400 which is the value of all sales in the chain of activity. The value of the aluminum is counted twice, once as an intermediate good for the manufacturer, and again in the value of the parts.*
- **Gross Domestic Product (GDP)**, or value added, refers to the additional value of a good or service over the cost of inputs used to produce it from the previous stage of production. As a result, GDP is equivalent to the unduplicated value of goods and services produced.
  - *Example: A manufacturer buys aluminum from a metals producer for \$100 and adds value to it by producing airplane parts, which are then sold for \$300. GDP totals \$300 (as opposed to \$400 in economic output). This is because GDP subtracts the sale of the purchased aluminum (intermediate input) of \$100 from the cumulative sales price of \$400, resulting in GDP of \$300.*
- **Employment income** is the total amount of wages and salaries paid to staff and employees.
- **Employment** is the number of additional jobs created.<sup>5</sup>
- **Government Tax Revenue** is the total amount of tax revenues generated for federal, provincial, and local governments.<sup>6</sup>

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

- **Direct** impacts are changes that occur in “front-end” businesses that would initially receive operating revenue and incur expenditures.
- **Indirect** impacts arise from changes in activity for suppliers of the “front-end” businesses.

<sup>5</sup> In this report employment is measured in terms of jobs, which aligns with the employment economic impact multipliers currently produced by Statistics Canada. Statistics Canada’s employment economic impact multipliers were previously reported in terms of full-time equivalents (FTEs). At present, across all industries in BC, one job would equate to approximately 0.85 of an FTE.

<sup>6</sup> Please note that government revenues are estimated using Statistics Canada input-output multipliers. The government tax revenues include taxes on products, taxes on production, personal income taxes, and corporate income taxes. Government tax policies can change frequently and may result in considerable changes to the amount of tax revenues generated.

- **Induced** impacts arise from spending on goods and services resulting from increases to the payroll of the directly and indirectly affected businesses.

The estimates of the economic impacts for this study were developed using an input-output modelling approach based on economic impact multipliers published by Statistics Canada. Input-output modelling is a widely used method, which facilitates comparisons between reported results for different projects, businesses, and industries.<sup>7</sup>

### 3.2 Key Features and Limitations of Economic Impact Analysis

While an economic impact analysis provides useful insights, it is important to be mindful of some of its key features and limitations:

- Economic impact analysis provides estimates, not precise calculations. To borrow a concept from statistical sampling, the results of an economic impact analysis should be viewed as having an associated “margin of imprecision.”<sup>8</sup> There are two main factors that introduce imprecision in the results. First, Statistics Canada’s economic impact multipliers are based on industry-wide data. As a result, the multipliers represent average activities across industries rather than the activities of a specific organization or project. Second, Statistics Canada’s economic impact multipliers reflect the structure of the economy in the particular year that the economic data were collected. If substantial changes occur in the economy, economic impact multipliers from earlier years may not reflect the current structure of the economy.
- Economic impact analysis does not address all aspects of economic contribution. While economic impact analysis provides useful information regarding the effects of an industry, business, or project, it does not encompass all aspects of economic contribution. For example, economic impact analysis does not address such things as the benefits resulting from the reinvigoration of communities or from improvements in service delivery. Consequently, when assessing the overall economic contribution of an industry, business, or project, it may be appropriate to complement the results of an economic impact analysis with other types of analysis.

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<sup>7</sup> Due to reporting lags Statistics Canada’s economic impact multipliers normally reflect the structure of economy as it existed a few years before the date of the economic impact analysis. In this study we have used Statistics Canada multipliers for 2018, as they were the most recent multipliers available at the time of the study.

<sup>8</sup> 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 some level of uncertainty. However, unlike a statistical sample, the uncertainty in an economic impact analysis cannot be calculated from theory.

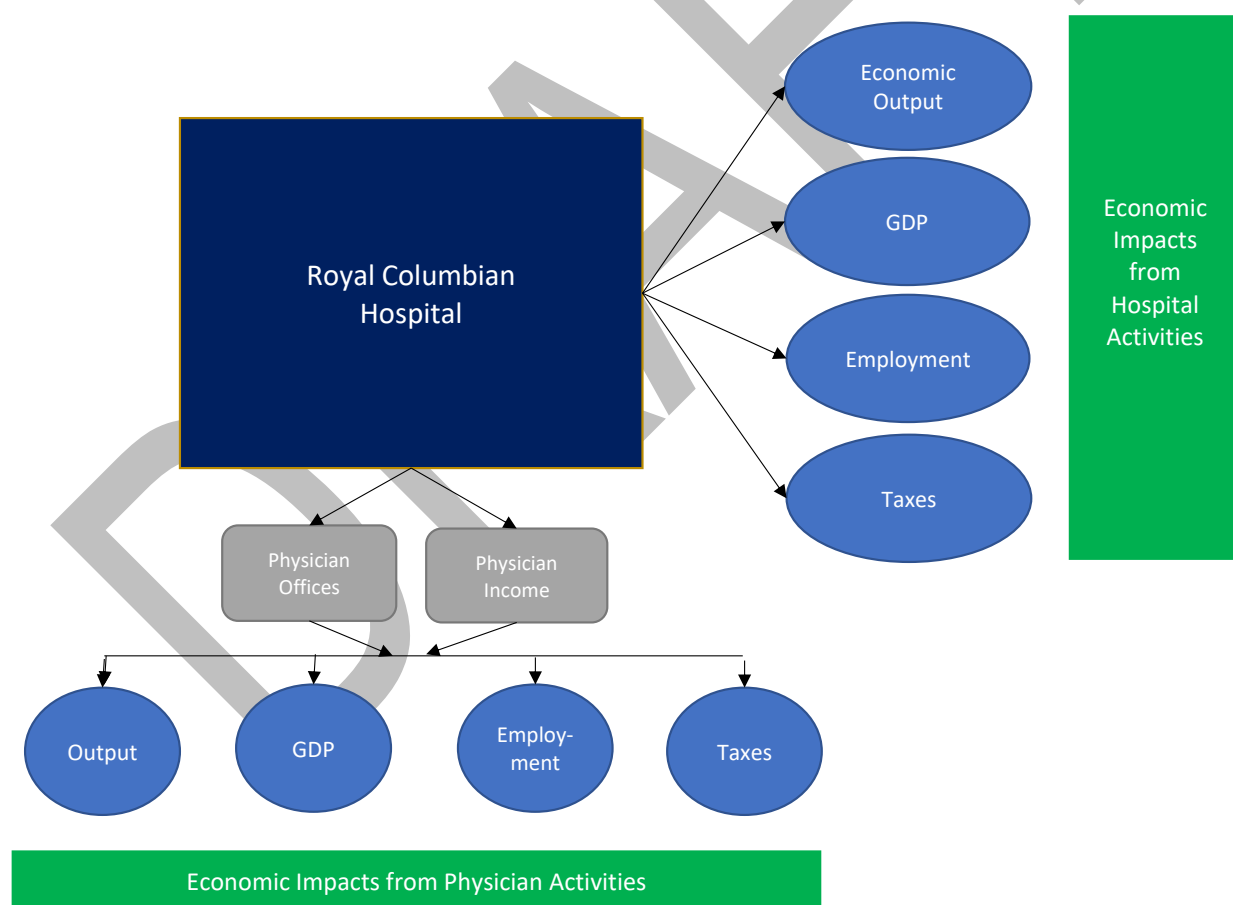
### 3.3 Economic Impacts Created by RCH

Economic impacts created by RCH arise from two main sources: hospital activities and physician activities.<sup>9</sup> Hospital activities include the employment of staff and the purchasing of goods and services from suppliers.

Physician activities result from the services performed at RCH by physicians. Physicians earn compensation for services provided at RCH from a variety of organizations (including the BC Medical Services Plan, Fraser Health, WorkSafe BC, and ICBC). Part of the compensation earned by physicians goes to pay for their practice overhead costs (for example, maintenance of an office located outside of the hospital) with the remainder being used as personal income. Both the spending of physician compensation earned at RCH on practice overheads and physician personal income earned at RCH contribute to the economic impacts of RCH.

The following figure illustrates the main sources of economic impacts created by RCH.

**Figure 1. Main Sources of Economic Impacts Created by RCH**



<sup>9</sup> Additional economic impacts are also generated by research activities conducted at RCH, by medical students training at RCH, and by visitors that travel to New Westminster to see patients in RCH. Impacts from these sources are small compared with the impacts generated by hospital and physician activities.

## 4 ECONOMIC IMPACTS FROM HOSPITAL ACTIVITIES

### 4.1 Current Annual Economic Impacts (2021)

Based on \$369.7 million in RCH spending, the current economic impacts in BC from RCH's hospital activities are estimated as:

- Total output of \$715.3 million.
- Total GDP of \$428.6 million.
- Total labour Income of \$396.1 million.
- Total employment of 5,641 jobs.
- Total tax revenues of \$113.4 million.

The estimated current annual economic impacts are summarized in the following table.

**Table 4. Current Annual Economic Impacts Created in BC from RCH Hospital Activities (2021)**

	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Tax (millions)	Provincial Tax (millions)	Municipal Tax (millions)
Direct	\$369.7	\$209.8	\$269.7	3,318	\$29.9	\$14.8	\$0.0
Indirect	\$175.9	\$109.6	\$81.9	1,427	\$15.2	\$8.8	\$1.2
Induced	\$169.7	\$109.2	\$44.5	896	\$19.2	\$20.1	\$4.2
<b>Total</b>	<b>\$715.3</b>	<b>\$428.6</b>	<b>\$396.1</b>	<b>5,641</b>	<b>\$64.3</b>	<b>\$43.7</b>	<b>\$5.4</b>

### 4.2 Future Annual Economic Impacts After Redevelopment (2027)

Based on a projected \$540.0 million in RCH annual spending after expansion, the future economic impacts in BC from RCH's hospital activities are projected as:

- Total output of \$1,044.7 million.
- Total GDP of \$626.1 million.
- Total labour Income of \$584.5 million.
- Total employment of 7,782 jobs.
- Total tax revenues of \$165.8 million.

The projected future annual economic impacts are summarized in the following table.

**Table 5. Future Annual Economic Impacts Created in BC from RCH Activities (2027)**

	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Tax (millions)	Provincial Tax (millions)	Municipal Tax (millions)
Direct	\$540.0	\$306.5	\$400.0	4,389	\$43.7	\$21.6	\$0.0
Indirect	\$256.9	\$160.1	\$119.6	2,084	\$22.3	\$12.9	\$1.7
Induced	\$247.8	\$159.5	\$64.9	1,309	\$28.0	\$29.4	\$6.2
<b>Total</b>	<b>\$1,044.7</b>	<b>\$626.1</b>	<b>\$584.5</b>	<b>7,782</b>	<b>\$94.0</b>	<b>\$63.9</b>	<b>\$7.9</b>

## 5 ECONOMIC IMPACTS FROM PHYSICIAN ACTIVITIES

### 5.1 Current Annual Economic Impacts (2021)

Based on information provided by RCH regarding the medical specialties and composition of physicians providing services at RCH, together with additional data regarding average physician incomes, the site of service provision, and physician overhead costs, we estimate that in 2021 physicians received a total of approximately \$98.4 million for services performed at RCH.<sup>10</sup> Of that total, \$24.0 million is estimated to have helped pay for overhead costs incurred outside the hospital with \$74.4 million being used as personal income by physicians.<sup>11</sup>

The current annual economic impacts in BC from physician activities are estimated as:

- Total output of \$169.8 million.
- Total GDP of \$137.6 million.
- Total labour Income of \$103.7 million.
- Total employment of 705 jobs.
- Total tax revenues of \$38.0 million.

The estimated current annual economic impacts are summarized in the following table.

**Table 6. Current Annual Economic Impacts Created in BC from Physician Activities (2021)**

	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Tax (millions)	Provincial Tax (millions)	Municipal Tax (millions)
Direct	\$74.4	\$74.4	\$74.4	230	\$11.2	\$4.7	\$0.0
Indirect	\$30.4	\$21.3	\$12.3	131	\$3.0	\$1.9	\$0.2
Induced	\$65.0	\$41.9	\$17.0	344	\$7.6	\$7.8	\$1.6
<b>Total</b>	<b>\$169.8</b>	<b>\$137.6</b>	<b>\$103.7</b>	<b>705</b>	<b>\$21.8</b>	<b>\$14.4</b>	<b>\$1.8</b>

### 5.2 Future Annual Economic Impacts After Redevelopment (2027)

Under the assumption that payments to physicians for services provided at RCH increase at the same projected rate as payments to RCH staff and administration personnel, the future economic impacts in BC from physician activities are projected as:

- Total output of \$237.7 million.
- Total GDP of \$192.6 million.
- Total labour Income of \$145.1 million.
- Total employment of 986 jobs.
- Total tax revenues of \$48.0 million.

<sup>10</sup> Additional information was obtained from publications of the BC Medical Services Plan and physician organizations.

<sup>11</sup> In the economic impact analysis, physician personal income is treated as direct labour income, while spending on overhead costs is treated as payments made to suppliers. Consequently, direct impacts are attributable only to physician personal income, while indirect impacts are attributable only to spending on overhead costs. Induced impacts are attributable to both physician personal income and spending on overhead costs.

The projected future annual economic impacts are summarized in the following table.

**Table 7. Future Annual Economic Impacts Created in BC from Physician Activities (2027)**

	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Tax (millions)	Provincial Tax (millions)	Municipal Tax (millions)
Direct	\$104.1	\$104.1	\$104.1	322	\$15.6	\$6.6	\$0.0
Indirect	\$42.6	\$29.8	\$17.2	183	\$2.6	\$0.3	\$0.2
Induced	\$91.0	\$58.7	\$23.8	481	\$10.6	\$10.1	\$2.0
<b>Total</b>	<b>\$237.7</b>	<b>\$192.6</b>	<b>\$145.1</b>	<b>986</b>	<b>\$28.8</b>	<b>\$17.0</b>	<b>\$2.2</b>

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## 6 COMBINED ECONOMIC IMPACTS

### 6.1 Current Annual Economic Impacts (2021)

The current annual combined economic impacts in BC from RCH's hospital activities and from physician activities are estimated as:

- Total output of \$885.1 million.
- Total GDP of \$566.2 million.
- Total labour Income of \$499.8 million.
- Total employment of 6,346 jobs.
- Total tax revenues of \$151.4 million.

The estimated current annual combined economic impacts are summarized in the following table.

**Table 8. Current Annual Combined Economic Impacts Created in BC (2021)**

	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Tax (millions)	Provincial Tax (millions)	Municipal Tax (millions)
Direct	\$444.1	\$284.2	\$344.1	3,548	\$41.1	\$19.5	\$0.0
Indirect	\$206.3	\$130.9	\$94.2	1,558	\$18.2	\$10.7	\$1.4
Induced	\$234.7	\$151.1	\$61.5	1,240	\$26.8	\$27.9	\$5.8
<b>Total</b>	<b>\$885.1</b>	<b>\$566.2</b>	<b>\$499.8</b>	<b>6,346</b>	<b>\$86.1</b>	<b>\$58.1</b>	<b>\$7.2</b>

### 6.2 Future Annual Economic Impacts After Redevelopment (2027)

The future annual combined economic impacts in BC from RCH's hospital activities and from physician activities are projected as:

- Total output of \$1,282.4 million.
- Total GDP of \$818.7 million.
- Total labour Income of \$729.6 million.
- Total employment of 8,768 jobs.
- Total tax revenues of \$213.8 million.

The projected future annual combined economic impacts are summarized in the following table.

**Table 9. Future Annual Combined Economic Impacts Created in BC (2027)**

	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Tax (millions)	Provincial Tax (millions)	Municipal Tax (millions)
Direct	\$644.1	\$410.6	\$504.1	4,711	\$59.3	\$28.2	\$0.0
Indirect	\$299.5	\$189.9	\$136.8	2,267	\$24.9	\$13.2	\$1.9
Induced	\$338.8	\$218.2	\$88.7	1,790	\$38.6	\$39.5	\$8.2
<b>Total</b>	<b>\$1,282.4</b>	<b>\$818.7</b>	<b>\$729.6</b>	<b>8,768</b>	<b>\$122.8</b>	<b>\$80.9</b>	<b>\$10.1</b>

## 7 COMPARISONS WITH OTHER ACTIVITIES AND INDUSTRIES

To place the economic impacts of RCH in perspective, it is useful to compare them with the economic impacts created by other activities and industries. The following sections compare the economic impacts currently created by RCH with the economic impacts created through the following:

- Residential construction.
- Development of new mineral mines.
- Selected BC industries.

### 7.1 Residential Construction<sup>12</sup>

As a first example, the construction of a large, 33-storey, residential building in Metro Vancouver is estimated to have a total cost of approximately \$113.0 million dollars. The following table summarizes the key features of a representative development of this type.

**Table 10. Features of a Representative Large Residential Building**

Large Residential Building in Metro Vancouver	
Description	33-storey residential building, consisting of 127 market strata units
Residential Space	184,000 sq ft
Retail Space	None
Parking	27,000 sq ft
Total Costs, Including Building Costs, Soft Costs, Interior Buildout Costs, and Site Infrastructure Costs	\$113.0 million (\$72.2 million in construction hard costs)

The estimated economic impacts arising from this type of residential development include:

- Total output of \$189 million.
- Total GDP of \$98 million.
- Total employment of 905 jobs.

By comparison, RCH's current annual impacts equate to approximately:

- Five times the total output created from this type of development.
- Six times the total GDP created from this type of development.
- Seven times the total employment created from this type of development.

As a second example, the construction of a six-storey wood frame building with 49 market strata units and one retail outlet is estimated to have a total cost of approximately \$15.6 million dollars. The following table summarizes the key features of a representative development of this type.

<sup>12</sup> The economic impacts for the examples of construction projects noted in this section are from the report *Economic Impacts from Remediated Low to Moderate Risk Contaminated Sites*, prepared for the Society of Contaminated Sites Approved Professionals of BC (December 2021, by Mansfield Consulting Inc). The report is available at: <https://csapsociety.bc.ca/wp-content/uploads/Economic-Impact-Study-2021.pdf>.

**Table 11. Features of a Representative Large Residential Building**

Mid-Size Residential Development with Retail Space	
Description	6-storey wood framed residential building, consisting of 49 market strata units
Residential Space	32,000 sq ft
Retail Space	1,000 sq ft Occupied by a general merchandise store
Parking	3,000 sq ft
Total Costs, Including Building Costs, Soft Costs, Interior Buildout Costs, and Site Infrastructure Costs	\$15.6 million (\$10.0 in construction hard costs)

The estimated economic impacts arising from this type of residential development include:

- Total output of \$26 million.
- Total GDP of \$14 million.
- Total employment of 117 jobs.

By comparison, RCH's current annual impacts equate to approximately:

- 34 times the total output created from this type of development.
- 40 times the total GDP created from this type of development.
- 54 times the total employment created from this type of development.

## 7.2 Development of New Mineral Mines

The development and construction of a representative new gold or copper mine in BC is estimated at \$592 million.<sup>13</sup> The estimated economic impacts arising from the development of that type of mine include:

- Total output of \$1,026 million.
- Total GDP of \$549 million.
- Total employment of 4,167 jobs.

By comparison, RCH's current annual impacts equate to approximately:

- 86 percent of the total output created from the development of a representative new mine.
- 103 percent of the total GDP created from the development of a representative new mine.
- 152 percent of the total employment created from the development of a representative new mine.

<sup>13</sup> Based on feasibility studies for several proposed and operating mines in BC and additional information published by the Mining Association of BC.

### 7.3 Selected Industries

Data on direct employment in BC industries in 2021 has been recently published by Statistics Canada and BC Stats.<sup>14</sup> Those data include the direct employment for the following selection of BC industries:

- 12,800 direct jobs in the Paper Manufacturing industry.
- 8,300 direct jobs in Air Transportation.
- 5,700 direct jobs in Rail Transportation.
- 4,700 jobs in the Oil and Gas Extraction industry.

By comparison, RCH's current annual direct employment equates to approximately:

- 28 percent of the direct employment in the BC Paper Manufacturing industry.
- 43 percent of the direct employment in BC Air Transportation.
- 62 percent of the direct employment in BC Rail Transportation.
- 75 percent of the direct employment in the BC Oil and Gas Extraction industry.

In addition, RCH's current annual direct employment is only slightly less than the employment reported for the largest forest products company in BC (Canfor, with a reported 3,670 employees in 2021) and the largest manufacturer in Metro Vancouver (Seaspan, with a reported 3,800 employees).<sup>15</sup>

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<sup>14</sup> <https://www2.gov.bc.ca/gov/content/data/statistics/employment-labour/labour-market-statistics>. Indirect and induced employment figures are not published.

<sup>15</sup> Employment figures as reported by Business in Vancouver and BC Business magazine.

## 8 ECONOMIC IMPACTS REALIZED IN NEW WESTMINSTER

As a breakdown of RCH spending by location was not available for the study, a detailed assessment of the economic impacts realized in New Westminster was not possible. As a result, we have assumed that the percent of economic impacts realized in New Westminster from hospital activities is the same as the percent of staff and administration personnel that reside in the city (14 percent).<sup>16</sup>

Detailed information on the location of physician offices was also not available for the study. However, a review of data from the BC Medical Services Plan (MSP) suggests that a substantial portion of physicians based at RCH maintain offices in New Westminster. The MSP data indicate that there were 259 specialists located in the New Westminster Local Health Area who received MSP payments in 2019/20.<sup>17</sup> That figure equates to approximately 3.14 specialists per thousand residents, which is significantly higher than the corresponding figures in neighboring communities (for example, the Tri-Cities Local Health Area reported a total of only 58 specialists, or about 0.23 specialists per thousand residents, while Burnaby Local Health Area reported a total of only 194 specialists, or about 0.75 specialists per thousand residents.).

Based on the MSP data and a review of the breakdown by specialty of physicians working at RCH<sup>18</sup> we estimate that at least 200 physicians, or about one about one-third of physicians that use RCH as their primary site, maintain offices in New Westminster. Consequently, a conservative assumption is that at least one-third of economic impacts from physician activities are realized in New Westminster.

Under the assumptions that 14 percent of economic impacts from hospital activities and one-third percent of economic impacts from physician activities are realized in New Westminster, the estimated current economic impacts created in the city by RCH are:

- Total output of \$156.2 million.
- Total GDP of \$105.4 million.
- Total labour Income of \$89.6 million.
- Total employment of 1,022 jobs.
- Total tax revenues of \$27.5 million.

The following table summarizes the estimated current annual economic impacts realized in New Westminster.

**Table 12. Current Annual Economic Impacts Realized in New Westminster (2021)**

	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Tax (millions)	Provincial Tax (millions)	Municipal Tax (millions)
Direct	\$76.3	\$53.9	\$62.3	540	\$7.9	\$3.6	\$0.0
Indirect	\$34.7	\$22.4	\$15.5	243	\$3.1	\$1.9	\$0.2
Induced	\$45.2	\$29.1	\$11.8	239	\$5.2	\$5.4	\$1.1
<b>Total</b>	<b>\$156.2</b>	<b>\$105.4</b>	<b>\$89.6</b>	<b>1,022</b>	<b>\$16.2</b>	<b>\$10.9</b>	<b>\$1.3</b>

<sup>16</sup> A previous study of RCH for which a breakdown of spending by location was available also reported that the percent of economic impacts from hospital activities realized in New Westminster was approximately equal to the percent of staff residing in the city.

<sup>17</sup> MSP Information Resource Manual 2020/2021.

<sup>18</sup> Breakdown by specialty provided by RCH.

Under the same assumptions, the projected future economic impacts created in the city by RCH are:

- Total output of \$224.7 million.
- Total GDP of \$151.2 million.
- Total labour Income of \$129.7 million.
- Total employment of 1,415 jobs.
- Total tax revenues of \$39.0 million.

The following table summarizes the projected future annual economic impacts realized in New Westminster.

**Table 13. Projected Annual Economic Impacts Realized in New Westminster (2027)**

	Output (millions)	GDP (millions)	Labour Income (millions)	Jobs	Federal Tax (millions)	Provincial Tax (millions)	Municipal Tax (millions)
Direct	\$110.0	\$77.3	\$90.4	721	\$11.3	\$5.2	\$0.0
Indirect	\$50.0	\$32.2	\$22.4	352	\$4.0	\$1.9	\$0.3
Induced	\$64.7	\$41.7	\$16.9	342	\$7.4	\$7.4	\$1.5
<b>Total</b>	<b>\$224.7</b>	<b>\$151.2</b>	<b>\$129.7</b>	<b>1,415</b>	<b>\$22.7</b>	<b>\$14.5</b>	<b>\$1.8</b>

## APPENDIX A – COMPARISON WITH 2015 ECONOMIC IMPACT STUDY

A previous study of the economic impacts of RCH was carried out in 2015 by MNP LLP. That study estimated the annual economic impacts of RCH using data from 2014 and projected the annual economic impacts after redevelopment (then assumed to be completed in 2025). The following table compares the estimates and projections of economic impacts from this economic impact study with those reported in the earlier study.<sup>19</sup>

**Table 14. Comparison of Economic Impact Study Results**

	2022 Economic Impact Study	2015 Economic Impact Study	Increase in 2022 Study from 2015 Study
Estimated Annual Economic Impacts at Time of Study			
Total Output (millions)	\$885.1	\$494.8	79%
Total GDP (millions)	\$566.2	\$337.2	68%
Total Employment (jobs) <sup>20</sup>	6,346	4,486	41%
Total Tax Revenues (millions)	\$151.4	\$99.1	53%
Projected Annual Economic Impacts After Expansion			
Total Output (millions)	\$1,282.4	\$747.9	71%
Total GDP (millions)	\$818.7	\$570.0	44%
Total Employment (jobs)	8,768	6,744	30%
Total Tax Revenues (millions)	\$213.8	\$139.9	53%

<sup>19</sup> Note that at the time of the previous study data were not available to allow for the inclusion of impacts from physician activities.

<sup>20</sup> The 2015 study reported employment in terms of full-time equivalents. We have converted those estimates to jobs assuming one job equals 0.85 of an FTE.



## APPENDIX B – MANSFIELD CONSULTING INC.

Ed Mansfield 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.

Among the many sectors in which Ed has worked are, agriculture and agri-food, education, energy, film and television, forestry, government policy, health care, major events, mining, property development, technology, and tourism.

Ed has worked with clients from across Canada and the United States and has provided professional insight and advice to business and industry leaders. He has assisted with the development of public policy and has worked with senior leadership at all levels of government.

Prior to founding Mansfield Consulting Inc. Ed led economics and research practices at four major accounting and business consulting firms. Ed has Ph.D. and M.S. degrees in Applied Mathematics from the University of Washington, and a B.Sc. in Mathematics and Statistics from the University of BC.

For more information on Mansfield Consulting Inc., please see our website at: [www.mansfieldconsulting.ca](http://www.mansfieldconsulting.ca)