

An aerial photograph of the Port of Prince Rupert, British Columbia, Canada. The image shows a large body of water (the port) with several large cargo ships docked at the piers. In the foreground, there is a large container yard filled with colorful shipping containers and several gantry cranes. The port is situated on a peninsula, with a residential area and a golf course visible on the land. In the background, there are steep, forested mountains and snow-capped peaks under a clear blue sky.

# 2019 Economic Impact of Port of Prince Rupert *FINAL REPORT*

**22 July 2019**

**InterVISTAS**  
a company of Royal HaskoningDHV

Image credit: Prince Rupert Port Authority

## Executive Summary

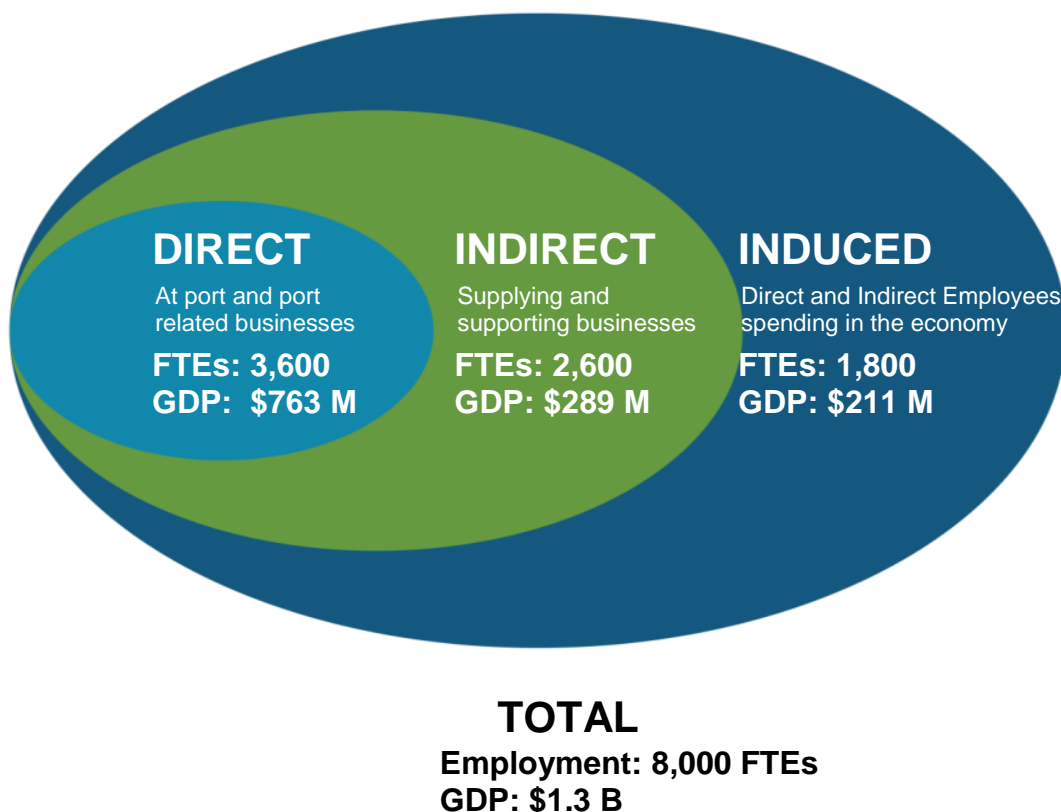
The Port of Prince Rupert (PPR) contributes directly to employment and the economy in the region, province and nationally through its ongoing operations and activities. The economic contribution of the port to the community, region, province and country is termed the economic impact of PPR. This study examines the current economic impacts of the port on the provincial economy.

Economic impact is a measure of the spending and employment associated with a sector of the economy, a specific project, or a change in government policy or regulation. The three major components of economic impact are classified as direct, indirect, and induced impacts, as displayed in **Figure ES-1**. These classifications are used as a basis for the estimation of the total economic impact of PPR.

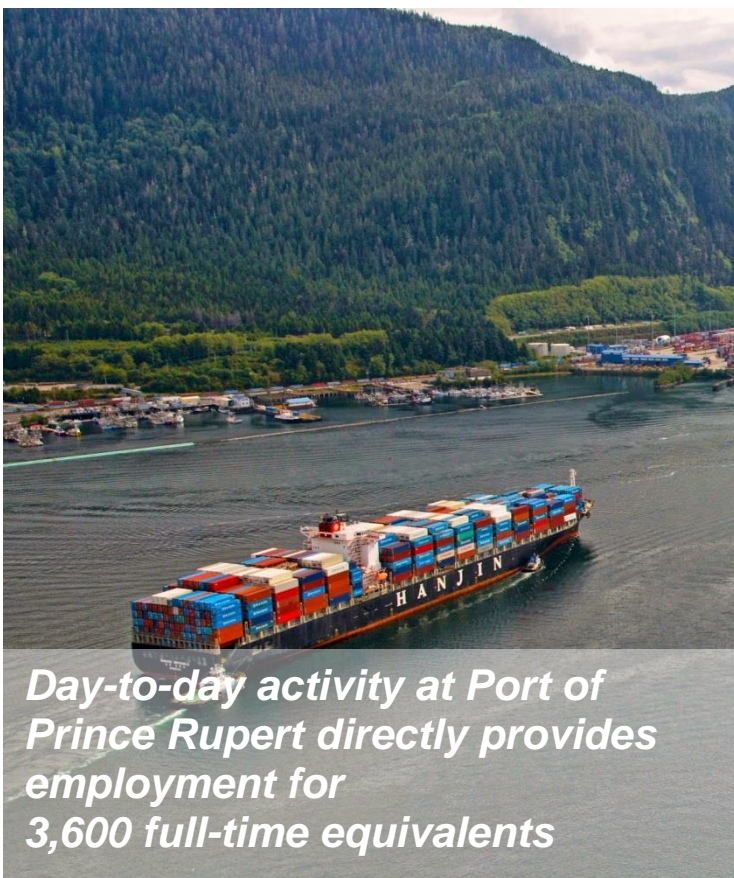
In 1972, the Port of Prince Rupert was declared a National Harbour and in 1975, construction of its first terminal, Fairview Terminal, was completed. PPR supports a diversified trade gateway through the region and has continued to facilitate cargo volumes to/from Asia. The terminals at the Port of Prince Rupert have played an integral role in the modern economic development of Western Canada.

The Port of Prince Rupert is a strong facilitator of economic development. Its economic importance is reflected in the estimated 3,600 full-time equivalents (FTEs) of employment that is directly supported or facilitated by the ports and the \$763 million directly contributed to British Columbia's Gross Domestic Product (GDP).

**Figure ES-1: Categories of Economic Impact Generated by Port of Prince Rupert**







**Day-to-day activity at Port of Prince Rupert directly provides employment for 3,600 full-time equivalents**





## Ongoing Economic Impact

Direct economic impact measures the employment directly associated with transporting goods and passengers through the port. This includes employment not just from terminal operations, but also from organizations involved in activities such as rail, trucking, container handling, marine operations, port administration and port concessionaires. Direct economic impacts are calculated based on employment data provided by employers directly related to the port.

The annual direct impacts of ongoing operations at PPR are estimated to be 3,600 direct person years, earning approximately \$310 million in direct wages and salaries. Direct employment generates \$763 million in direct gross domestic product and nearly \$1.5 billion in direct economic output in the regional economy annually.

Total impacts are calculated by adding together the direct operations impacts, indirect impacts, and induced impacts. Including indirect and induced multiplier impacts, ongoing economic impacts of PPR include a total of over 8,000 person years. Total earnings of all employees amount to \$566 million in wages and salaries. Furthermore, PPR operations contribute an estimated \$1.3 billion and nearly \$2.4 billion in total gross domestic product (GDP) and total economic output, respectively, to the provincial economy. The total economic impacts of ongoing operations at PPR on the regional economy are summarized in **Figure ES-2**.

**Figure ES-2: Annual Total Ongoing Economic Impacts of PPR**

					
Impact	Employment (Jobs / FTEs)		Wages (\$ Millions)	GDP (\$ Millions)	Output (\$ Millions)
Direct	3,700	3,600	310	763	1,477
Indirect	2,700	2,600	171	289	576
Induced	1,900	1,800	85	211	329
<b>Total in BC</b>	<b>8,300</b>	<b>8,000</b>	<b>566</b>	<b>1,263</b>	<b>2,382</b>

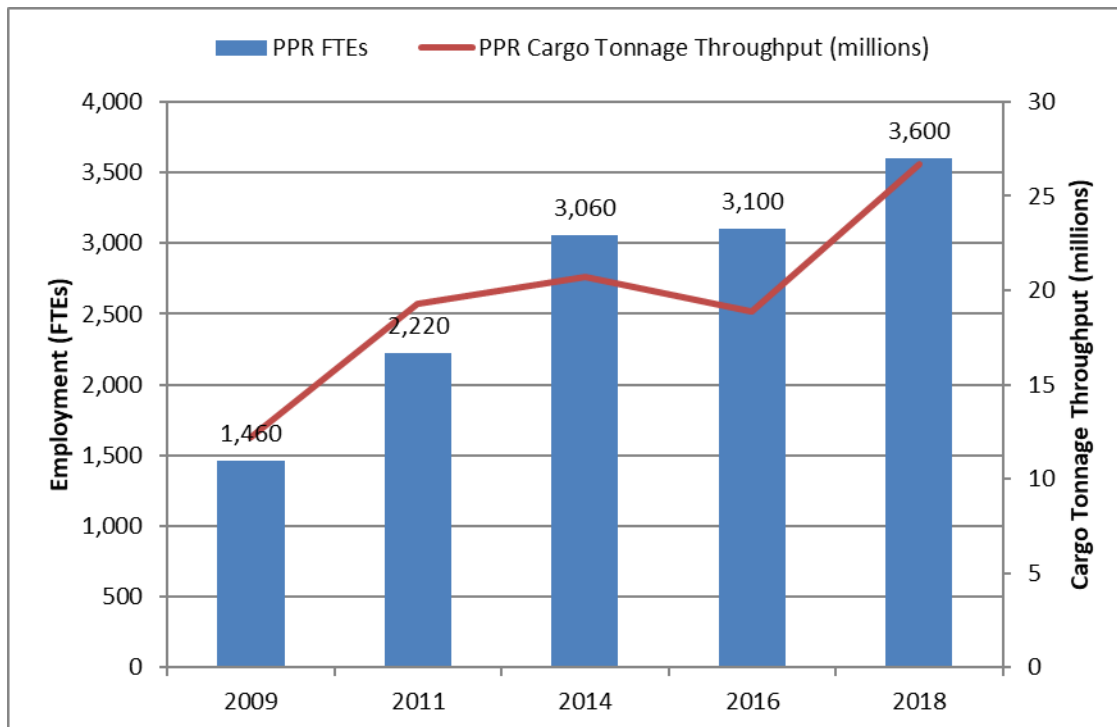
**Notes:**

1. Totals may not sum, due to rounding.
2. Wages, GDP, and Economic Output are in 2019 prices
3. Results are based on a review of 2018 operations

## Comparison of Employment with Previous Studies

The 2018 economic impact study shows that on-going operations at PPR continue to make a strong contribution to the local and provincial economy. The employment has increased steadily over the 2009, 2011, 2014, 2016 and 2018 study periods. **Figure ES-3** shows the comparison of direct employment with the cargo levels at PPR for the five time periods (2009, 2011, 2014, 2016 and 2018).

**Figure ES-3: Direct FTEs and PPR Cargo Tonnage Throughput for 2009, 2011, 2014, 2016 and 2018**



**Note:** The boundary to assess the economic impact of the Port of Prince Rupert changed in 2016 compared to the prior studies conducted in 2009, 2011 and 2014. In 2016, firms located on port lands, but whose industries and businesses that are deemed not to be related to moving cargo through the port have not been included in the 2016 study. The 2019 study was conducted based on the 2016 study boundaries.

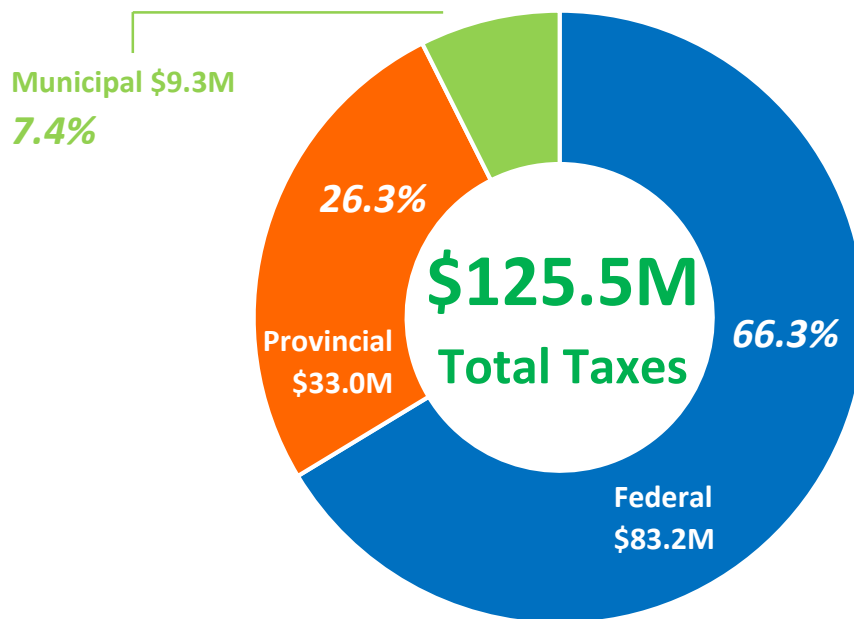
## Annual Tax Impacts

PPR is also an important generator of taxation revenues to all levels of government. Total taxes paid on an annual basis, by passengers, employers, and employees at PPR, are estimated at over \$125 million in 2018.

The majority of taxes collected, \$83 million (66% of total) accrue to the federal government through personal income taxes. The provincial government received \$33 million in tax revenues (26% of total) also primarily through personal income taxes.

Municipal governments also benefit from PPR through the collection of property taxes, PILT (payments in lieu of taxes) and the BC Port Competitiveness Grant (payment in recompense for property tax caps on major terminals) amounting to approximately \$9.3 million paid by PPR and its tenants (7% of total), as shown in **Figure ES-4**.

**Figure ES-4: Annual Estimated Tax Revenues of PPR**



## Value of Trade Analysis

The analysis of the value of trade at the Port of Prince Rupert conducted by InterVISTAS reveals that in 2018, the total exports (including bulk and container traffic) moving through the port is estimated to be between \$7.8 billion to \$10.6 billion in 2019 dollars<sup>1</sup>, given the three scenarios for estimating the value of container traffic. Total imports are estimated to be between \$31.7 billion to \$56.9 billion. **Figure ES-5** summarises the total value of trade at the Port for each of the three scenarios analysed for 2018 in 2019 dollars.

**Figure ES-5: Total Value of Trade Summary (including commodities and bulk), 2019**

Scenario	Total Value of Trade Exports (2019 Dollars, Billions)	Scenario	Total Value of Trade Imports (2019 Dollars, Billions)
Low	\$7.8	Low	\$31.7
Middle	\$9.2	Middle	\$44.3
High	\$10.6	High	\$57.0

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<sup>1</sup> Source: Bank of Canada Inflation Calculator. \$1 in 2018 = \$1.02021 in 2019, as of July 2019.

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# 1 Introduction

The Port of Prince Rupert (PPR) generates important employment and economic contributions to the regional economy. The best way to show these impacts is through an economic impact study. Economic impact studies are an important tool in communicating the significance and role of a port, like PPR, to the community. This study examines the current economic impacts of the operations and activities of the port.

## 1.1 Port of Prince Rupert

The Port of Prince Rupert was first built in the early 20<sup>th</sup> century to connect the Grand Trunk Pacific (GTP) Railway from Winnipeg to Prince Rupert. The GTP connected with the Grand Trunk Railway and formed Canada's second transcontinental railway. Shortly after construction of the railway in 1914, Canada was in a recession and entered the First World War. By 1919, the GTP was nationalized and absorbed by Canadian National Railway (CN Rail, today) to avoid bankruptcy.

In 1972, the Port of Prince Rupert was declared a National Harbour and in 1975, construction of its first terminal, Fairview Terminal, was completed. The introduction of the Canada Marine Act in 1998 established the Prince Rupert Port Authority with a mandate to facilitate Canadian trade. The terminals at the Port of Prince Rupert have played an integral role in the modern economic development of Western Canada.

## 1.2 The Current Port of Prince Rupert

The Port of Prince Rupert currently has five main terminals in operation. The different types of commodities that are moved through each terminal are described as follows:

- **Fairview Container Terminal.** This terminal (owned and operated by DP World) has an expanded operational capacity of 1.35 million TEU (Twenty foot Equivalent Units) per year, with further expansion to 1.8 million TEUs to begin in mid-2019. The terminal mainly handles import and export containers (and a small throughput of liquid bulk wax).
- **Prince Rupert Grain Terminal.** This terminal (owned and operated by Prince Rupert Grain Ltd.) has an operational capacity of 7 million tonnes per year. The terminal exports several grain commodities including wheat, canola, and barley.
- **Ridley Coal Terminal.** This terminal (owned and operated by Ridley Terminals Inc., a federal crown corporation) has an expanded operational capacity of 18 million tonnes per year. The terminal exports several dry bulk commodities including coking coal, thermal coal, and petroleum coke.
- **Westview Wood Pellet Terminal.** This terminal (owned and operated by Pinnacle Renewable Energy Group) has an operational capacity of 1.25 million tonnes per year. The terminal exports wood pellets primarily for use in electricity generation.

- **Northland Cruise Terminal.** This terminal (owned and operated by Prince Rupert Port Authority) is the terminal for large passenger cruise ships. In addition to Northlands, the port also facilitates commercial passengers through Atlin Terminal (small cruise), BC Ferries Terminal (car ferry to Vancouver Island) and Alaska Marine Highway System Terminal (car ferry to Alaska).
- **Prince Rupert Harbour.** The harbour handles a variety of break bulk cargoes outside of the primary terminals, in particular the transport of logs and the transport of chemicals and liquid gases through CN's 'aquatrain' barge service. The Project Cargo Facility (owned by Prince Rupert Port Authority, operated by Coast Tidal Terminals) provides capacity to shippers with a gateway solution for steel, heavy machinery, and oversized cargo destined for Western Canada.

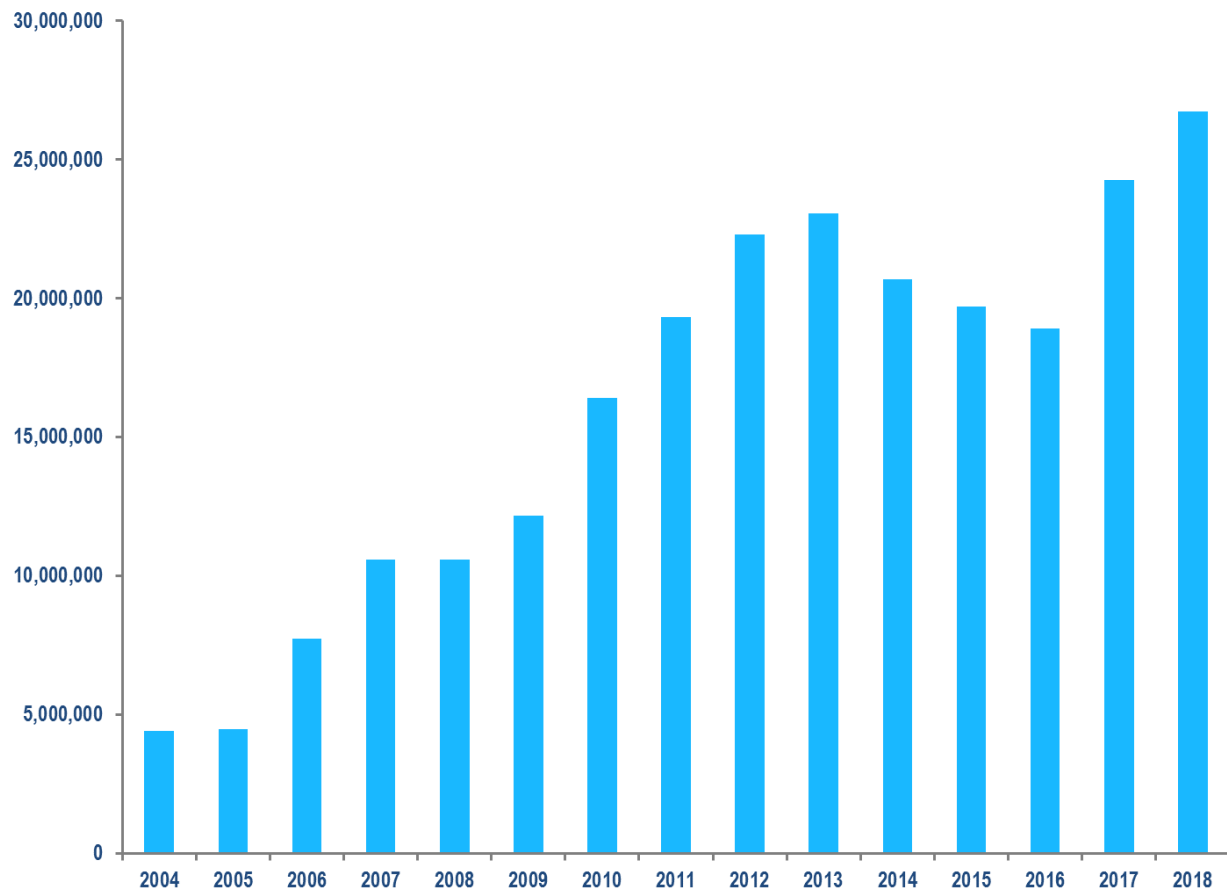


*Economic impact studies  
are an important tool in  
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British Columbia*

## 1.3 Cargo Operations

**Figure 1-1** illustrates cargo throughput at PPR from 2004 to 2018. The PPR has experienced an increase in traffic since 2016 of 41%, reaching a record high of 26.7 million tonnes in 2018.

**Figure 1-1:**  
**Total Cargo Throughput at PPR**  
**(Metric Tonnes, 2004-2018)**

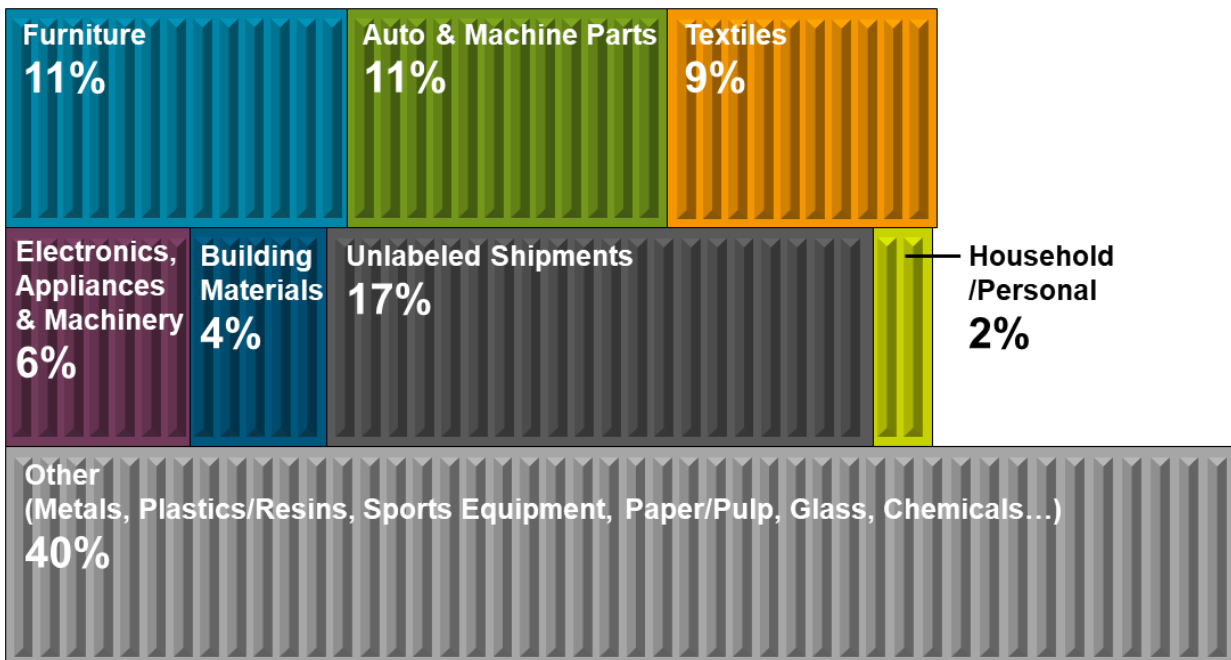


Source: Prince Rupert Port Authority Performance Statistics (2004-2018)

Container traffic carried 10.4 million metric tonnes and represented 39% of the Port's cargo throughput, the remainder (61%) was transported as bulk commodities.<sup>2</sup>

The Port's laden container traffic is mainly imports, with 568,995 laden TEUs imported, and 207,111 laden TEUs exported in 2018, representing 73% and 27% of the total respectively. **Figures 1-2** and **1-3** illustrate the top commodities' shares for each of imports and exports.

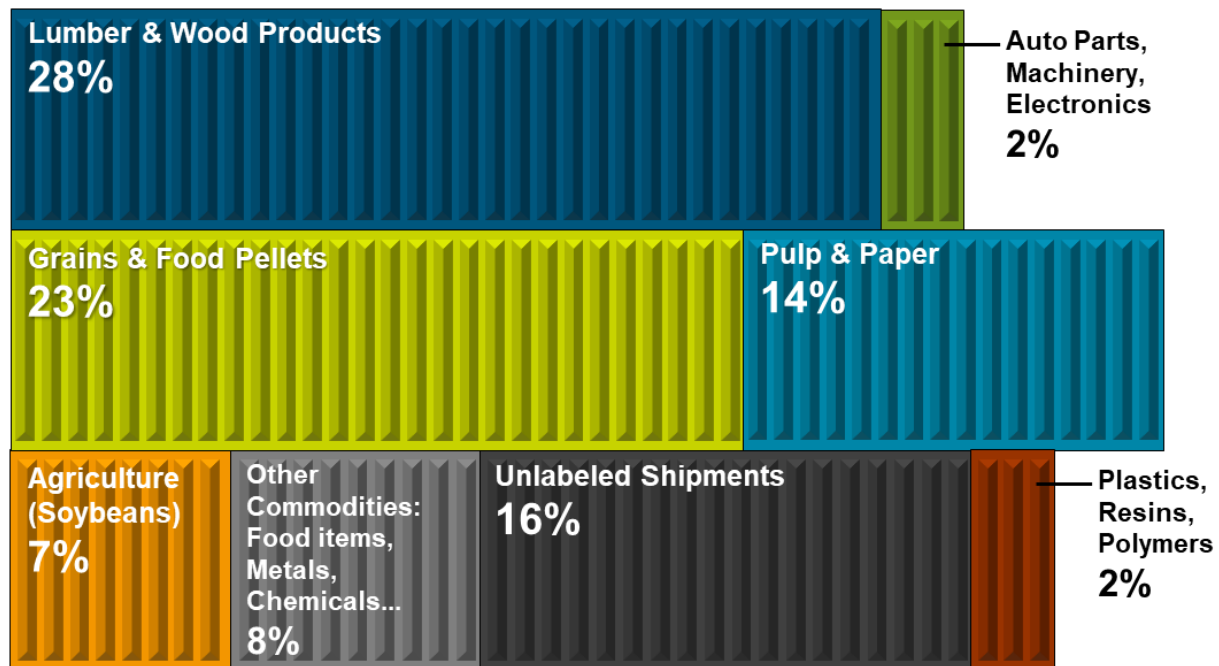
**Figure 1-2: Top Container Import Commodities (5,68,995 laden TEUs), 2018**



<sup>2</sup> Container traffic of 10.4 million metric tonnes includes empty containers weighing 2.6 million metric tonnes.

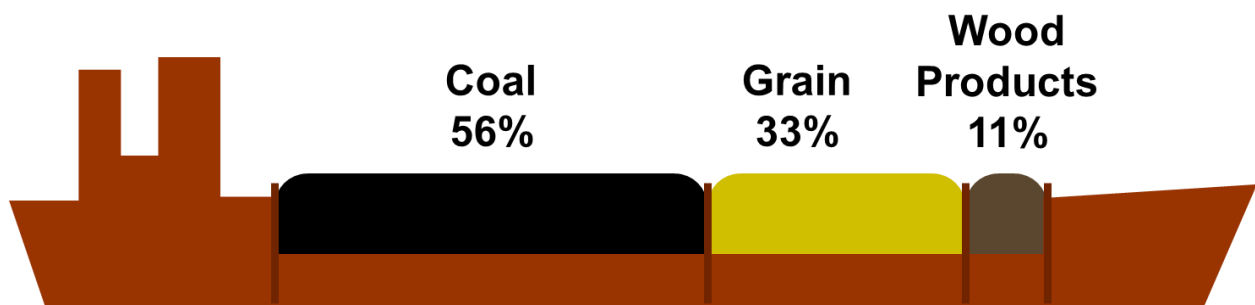


**Figure 1-3: Top Container Export Commodities (207,111 laden TEUs), 2018**



Bulk traffic at the Port carried 16.3 million metric tonnes of primarily grain, coal, and wood products, illustrated in **Figure 1-4**.<sup>3</sup>

**Figure 1-4: 2018 Bulk Traffic Breakdown, 16.3 Million Tonnes**



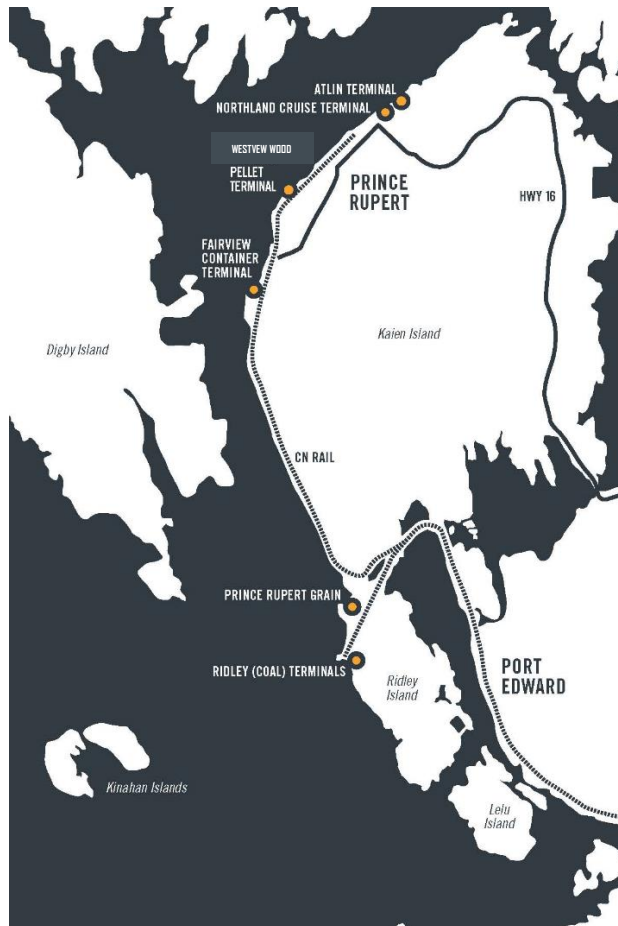
<sup>3</sup> Less than 1% of bulk traffic includes bulk wax and other commodities.

## 1.4 Prince Rupert Industry and Economy

A map of the Port of Prince Rupert is shown in **Figure 1-5**. In 2018, Prince Rupert had a population of approximately 12,800, which is down 2.2% from nearly 13,100 in 2011. The total labour force in Prince Rupert amounts to an estimated 6,650 people.<sup>4</sup> This labour is utilized in several industries, including Transportation and warehousing, retail trade and public administration. The median household income for Prince Rupert amounted to \$73,643 per annum in 2015. At the provincial level, British Columbia has a population of approximately 4.9 million and a real GDP of 280 billion in 2017.<sup>5</sup>

Port operations play a significant role in northern BC by providing the necessary transport and linkages to major industries in Canada. The Port of Prince Rupert is a major employer of related organizations which contributes to the growth of the overall economy of British Columbia.

**Figure 1-5: Map of the Port of Prince Rupert and Surrounding Area**



<sup>4</sup> Statistics Canada 2016 Census via <http://www.britishcolumbia.ca/invest/communities/british-columbia/north-coast/skeena-queen-charlotte/prince-rupert/>

<sup>5</sup> British Columbia Economic Accounts (<http://www.bcstats.gov.bc.ca/StatisticsBySubject/Economy/EconomicAccounts.aspx>)

## 1.5 What is Economic Impact?

*Economic impact* is a measure of the spending and employment associated with a sector of the economy, a specific project (such as the construction of a new facility), or a change in government policy or regulation. Economic impact can be measured in various ways. Two of the most popular ways to assess economic impact are in terms of the dollar value of industrial output produced, or in terms of full-time equivalent (FTE) jobs generated.<sup>6</sup> Other measures are gross domestic product (GDP) and value of capital used and/or created. All of these are used to express the gross level of activity or expenditure from a sector of the economy, a specific project or a change in policy or regulation. These measures can be useful in developing an appreciation of projects, investments and economic sectors.<sup>7</sup> The different measurements of economic impact, including employment, income, gross domestic product (GDP) and economic output, are explained in **Figure 1-6**.

**Figure 1-6: Measurements of Economic Impact**

<b>Employment</b> (Full Time Equivalents)	<ul style="list-style-type: none"> <li>• Full-time equivalents (FTE) or person years of employment generated. Because many jobs may be only part-time or seasonal, the number of jobs is greater than the number of FTEs.</li> </ul>
<b>Earnings</b>	<ul style="list-style-type: none"> <li>• Includes wages, salaries, and benefits associated with employment tied to the sector, project or policy/regulatory change.</li> </ul>
<b>Gross Domestic Product (GDP)</b>	<ul style="list-style-type: none"> <li>• A measure of the money value of final goods and services produced locally as a result of economic activity. This measure does not include the value of intermediate goods and services used up to produce the final goods and services.</li> </ul>
<b>Economic Output</b>	<ul style="list-style-type: none"> <li>• The dollar value of industrial output produced. Sometimes referred to as “economic activity,” it reflects the spending (i.e., capital improvement plus revenue) by firms, organizations and individuals. In the case of organizations that do not generate revenue, annual operating expenses are counted.</li> </ul>

<sup>6</sup> A full-time equivalent (FTE) of employment accounts for part-time and seasonal employment.

<sup>7</sup> Economic impact is different from a cost-benefit analysis that weighs benefits against costs.

## 1.6 Port of Prince Rupert Economic Impact

The three major components of economic impact are *direct*, *indirect*, and *induced* impacts. These distinctions are used as a base for the estimation of total economic impact of a port. Each of these three components requires different tools of analysis. Employment impact analysis determines the economic impact in terms of jobs created and salaries and wages paid out. In the case of the port, the direct, indirect, induced, and total numbers of person years created at the port are examined to produce a snapshot of the port's operations.

- **Direct impacts** account for the economic activity of the target sector itself. Direct employment impacts are measured by counting those individuals who work in a particular sector of the economy. In the case of a port, all of those people who work in marine-related capacity either on-site or off-site would be considered direct employment (e.g. cargo handling, terminal maintenance, truck drivers and train crew, equipment mechanics and repair, tug crews, government inspectors).
- **Indirect impacts** are those that result because of the direct impacts. For a port, indirect impacts encompass the economic activities of off-site firms that serve port users. Indirect employment includes the portion of employment in supplier industries which are dependent on sales to the marine transport sector. An example would be an electrical contractor that provides services to a terminal.
- **Induced impacts** are economic impacts created by the spending of wages, salaries, and profits earned in the course of the direct and indirect economic activities. Induced employment is employment generated from expenditures by individuals employed indirectly or directly. For instance, if a maintenance firm employee decides to re-model his/her home, this would result in additional (induced) employment hours in the general economy. The home renovation project would support hours of induced employment in the construction industry, the construction materials industry, etc. Induced impact is often called the household-spending effect.
- **Total** impacts are the sum of direct, indirect, and induced effects.



## 2 Methodology

### SUMMARY

- 62% of port tenants and operators responded to the employment survey.
- 95% of total direct FTEs were covered by survey responses.
- Statistics Canada, Industry Accounts Division: Input-Output Multipliers for British Columbia, 2014, were used in the analysis.

### 2.1 Introduction

InterVISTAS conducted this economic impact study during the spring of 2019. The study estimates the economic impact of PPR's operations during 2018.

To calculate the direct employment impacts, the study team surveyed all the employers associated with the operation of PPR (e.g., rail, trucking, ferry, container handling, port operations, port concessionaires, etc.). The survey produced estimates of the number of individuals employed in directly-related occupations, as well as the total amount of earnings paid to all employees. The firms surveyed as part of this study are located both on the port (on-site) and off the port site (off-site). The employment survey was used to classify the total employment and average wages paid by business type.

InterVISTAS estimates the indirect and induced effects using economic multipliers developed by Statistics Canada. InterVISTAS utilizes a proprietary model to conduct multiplier analysis and estimate indirect and induced impacts.

We used the data from the survey to calculate the associated tax impacts (government revenue) generated by the port's operations.

## 2.2 Estimating Current Economic Impact

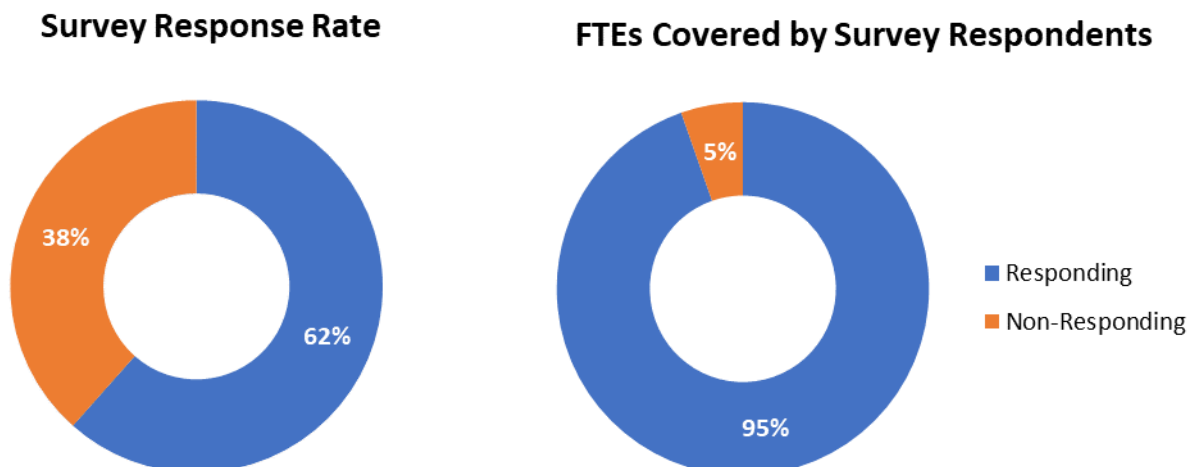
The direct employment base related to ongoing operations at PPR are measured first. Employment figures are generally more understandable by the public than more abstract measures, such as economic output or GDP. Employment figures also have the advantage of being a more accurate measure, both because the firms are more likely to provide data on employment, as opposed to information on revenues, wages and other monetary amounts, and because there is less chance of double counting economic activity.

The economic impact study then assesses the indirect and induced (or “multiplier”) employment supported by PPR’s operations, as well as economic activity in terms of economic output and GDP using Statistics Canada multipliers and ratios. The tax revenue generated annually by operations at PPR is also estimated.

## 2.3 Surveying Direct Employment

Employment attributable to ongoing PPR operations was measured by surveying 52 tenants and other related businesses and organizations economically linked to moving goods at the port throughout its Canadian supply chain. The surveyed firms included on-site and off-site businesses that fall under three categories: general,<sup>8</sup> trucking and rail. Specifics of the survey methodology are contained in the Appendices, including a description of the sampling techniques in **Appendix A**. E-mail and telephone follow-ups were conducted to ensure a strong response rate. In total, 62% of the businesses and organizations contacted responded to the survey, representing 95% of total person years covered by the survey. A summary is provided in **Figure 2-1**.

**Figure 2-1: Response Rate for PPR Economic Impact Employment Survey**



<sup>8</sup> The general survey category is comprised of a variety of firm types including but not limited to: federal government agencies, Bulk Terminal Operator, Emergency Response, Marine Surveyor, Construction, and Building Maintenance.

## 2.4 Inferring Employment

For firms where their survey was not fully completed, employment and other metrics were conservatively estimated using a proven and accepted methodology. This includes referencing the survey results for firms of similar business types or using past employment surveys. There may be firms that were not surveyed because their existence was not known. Employment for these non-surveyed firms was not estimated because there was no basis for assessment. We expect that the volume of missed employment would be minimal.

## 2.5 Estimating Indirect and Induced Impacts Using Economic Multipliers

Measurement of indirect and induced economic activity is difficult. While it might be possible to conduct a survey of such employers, the survey would need to cover thousands of firms for indirect employment. For induced employment, the entire economy would need to be scrutinised. In addition to the time and financial resources needed to conduct such surveys, the quality of responses would be suspect.

As an alternative to costly and inaccurate surveys, indirect and induced effects are typically measured using economic multipliers.<sup>9</sup> Multipliers are derived from economic/statistical/accounting models of the general economy. They come in a variety of forms and differ greatly in definition and application. Thus, great care must be exercised in choosing the appropriate set of multipliers to use<sup>10</sup>. In addition, the use of multiplier analysis is limited by several factors, these being:

- the accuracy of the structure and parameters of the underlying model;
- the level of unemployment in the economy;
- the assumption of constant returns to scale in production;
- the assumption that the economy's structure is static over time; and
- the assumption that there are no displacement effects.

For this study, InterVISTAS applied economic multipliers and ratios for the Province of British Columbia based on Statistics Canada's 2014 Interprovincial Input-Output model, the most recent available. The multipliers and ratios are based on a highly detailed accounting of provincial economic structures or relationships. The model tracks how the goods and services produced by industry are used by other industries and final users. The provincial multipliers were updated with Consumer Price Indices to account for inflation.

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<sup>9</sup> The multipliers used for the analysis are based on Statistics Canada economic multipliers for British Columbia from the 2014 Interprovincial Input-Output model, the most recent data available. These multipliers were updated with Consumer Price Indices to account for inflation.

<sup>10</sup> Multiplier impacts must be interpreted with caution since they may be illusory when the economy experiences high employment and output near industry capacity. When they are reported, it is recommended that the reader be reminded of the limitations on the use of multipliers. Mindful of these limitations, this study has undertaken multiplier analysis to estimate indirect and induced employment.

## 2.6 Study Time Frame

The employment survey was conducted between March 2019 and June 2019. The results reflect employment and operations as a current snapshot of port operations.

## 2.7 Jobs versus Full Time Equivalents

Traditionally, one measures employment by the number of jobs. However, when part-time and/or seasonal workers are used, this can be a misleading measure resulting in an overstatement of economic impact. Whenever possible, employment impacts are measured both in terms of the number of jobs and the number of full time equivalents (FTEs).<sup>11</sup> In our model, hours worked by part-time and/or seasonal employees are converted into FTEs.

## 2.8 Estimating Tax Revenues

The tax revenue contributions to the federal, provincial, and municipal levels of government that are associated with port operations are also estimated. This includes taxes paid by employers and employees (such as payroll taxes), passengers (such as sales taxes on expenditures), and PPR (such as payment in lieu of taxes). Estimated tax revenues are for calendar year 2018.

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<sup>11</sup> One person year is equal to 1,832 hours of work. See **Appendix C** for a detailed calculation of the number of hours per full-time equivalent. Person years are the same as full time equivalents (FTEs).



## 3 Port of Prince Rupert Economic Impacts

### SUMMARY

- In terms of the direct impact of port activity, the Port of Prince Rupert generated 3,700 jobs or 3,600 full-time equivalents, and directly contributed \$763 million GDP in 2018.
- Together with indirect and induced impacts (suppliers and spending in the wider economy), 8,300 jobs or 8,000 FTEs are generated by the Port of Prince Rupert across Canada, and \$1.3 billion in GDP.

### 3.1 Introduction

This section describes the direct employment at Port of Prince Rupert. Jobs and full-time equivalents (FTEs) are presented. Wages, GDP and economic output associated with this direct employment are also estimated. FTEs are broken down by full-time versus part-time and seasonal employment, employment by industry, employment by job category.





The economic impact of the Port of Prince Rupert extends beyond the port's direct operations and activities, as other sectors of the economy are dependent on these employers' businesses. This includes indirect impacts in businesses that supply the goods and services to the direct activities linked to the port, and induced impacts resulting from direct and indirect employees spending their wages in the general economy. Therefore, the total economic impact of the port includes the sum of direct, indirect and induced effects. The indirect and induced impacts were estimated using Statistics Canada's economic multipliers.

### 3.2 Direct Economic Impacts

Direct employment related to ongoing operations at PPR amounts to 3,700 direct jobs, including contract employment. After adjusting for part-time and seasonal employment, the 3,700 jobs equate to 3,600 person years.

Employees at PPR and related firms receive an estimated \$310 million in wages, providing an average of \$87,200 per person year. Employment figures are summarized in **Figure 3-1** for wages, as well as jobs and person years.

**Figure 3-1: Annual Economic Impacts of Operations at PPR**

					
Impact	Employment (Jobs / FTEs)		Wages (\$ Millions)	GDP (\$ Millions)	Output (\$ Millions)
Direct	3,700	3,600	310	763	1,477
Indirect	2,700	2,600	171	289	576
Induced	1,900	1,800	85	211	329
<b>Total</b>	<b>8,300</b>	<b>8,000</b>	<b>566</b>	<b>1,263</b>	<b>2,382</b>

Notes:

1. Totals may not sum, due to rounding.
2. Wages, GDP, and Economic Output are in 2019 prices
3. Results are based on a review of 2018 operations

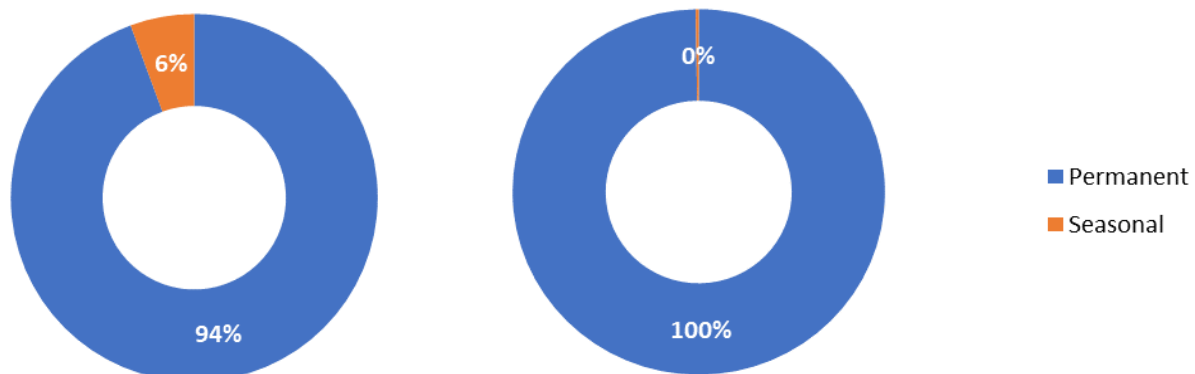
### 3.2.1 Direct Employment at PPR

PPR has a strong base of permanent employment, as shown in **Figure 3-2**. The majority of employment taking place at PPR is also full-time work, as displayed in **Figure 3-3**. This demonstrates that PPR and its related businesses are a source of stable, year-round employment.

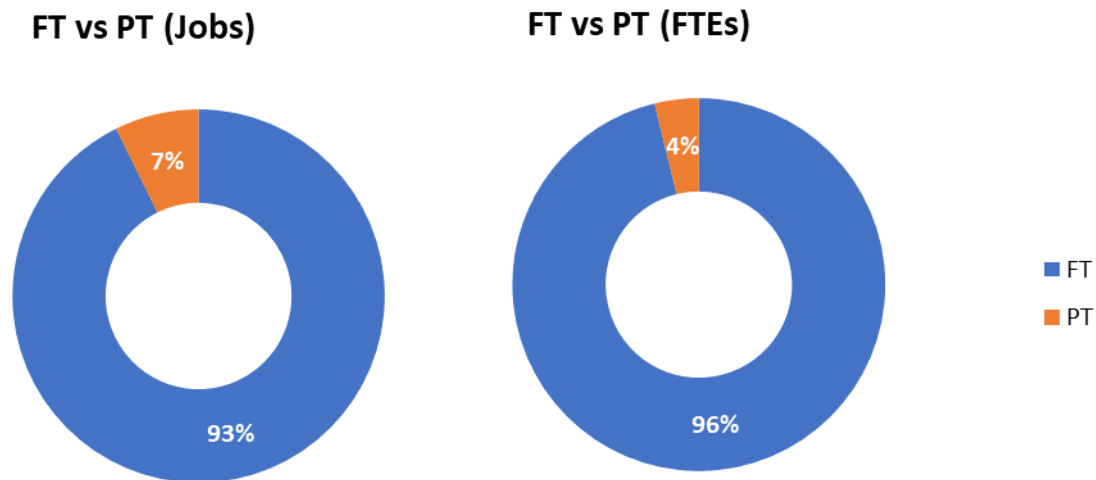
**Figure 3-2: Permanent versus Seasonal Employment at PPR**

**Permanent vs Seasonal (Jobs)**

**Permanent vs Seasonal (FTEs)**



**Figure 3-3: Full-Time Versus Part-Time Permanent Employment at PPR**



Some employers contract out services to individuals and other firms. Based on responses to the survey, it is estimated that contracted individuals and firms account for approximately 10 person years of employment. See **Appendix E** for more discussion.

### Direct Employment by Industry Type

A breakdown of direct employment at PPR, by industry type, provides insight into the different industries directly related to the port. The following summary details direct employment of each industry:

- **Rail & Trucking** account for 2,083 PYs at PPR with 57% of direct employment. Trucking
- **Terminal and Stevedoring operations** account for the second highest proportion of direct employment at PPR (869 direct jobs or 24% of direct employment). This area of employment supports the loading, unloading and checking of cargo to and from vessels, as well as the storage of these goods on the dock and in the terminal.
- **Marine Activities and Cruise Ship Related Spending** contribute a total of 296 PYs (10% of direct employment). This broad group includes tug towage operations, marine pilot activities, ship repair and maintenance, ferry operations and jobs related to cruise passengers and crew spending in Prince Rupert.
- **Logistic & Warehousing** employment contributed 108 PYs of employment, or 3% of the total direct PYs at the port.
- **Government Agencies** provide 116 PYs jobs (3% of direct employment) by providing essential services such as food inspection, border services, coast guard, fire rescue and policing.

- **Port Authority & Administration** accounts for 80 person years (3% of direct employment) and includes jobs related to the administration and running of the port itself.

A breakdown of direct employment at PPR, by industry, is illustrated in **Figure 3-4**.

**Figure 3-4: Direct Employment by Industry Type at PPR**



### 3.3 Indirect and Induced Employment Impacts of Port Operations

The previous sections discussed how direct employment related to ongoing operations at PPR was measured. However, the employment impact of the port does not end there, as other sectors of the economy are dependent on these employers' businesses. Indirect employment is generated by suppliers to the businesses directly related to the port. In addition, there may be a general stimulus to the province-wide economy when direct (and indirect) employees spend their wages. These employment effects are referred to as induced employment. Total employment effects therefore equal the sum of direct, indirect and induced effects.

#### 3.3.1 Indirect and Induced Employment

Indirect employment is employment in industries that supply or provide services to the port industry. Based on an analysis of the results of our survey of employers and the application of the regional economic multipliers, it is estimated that 2,600 indirect person years are related to PPR's operations. In other words, 2,600 person years are indirectly generated in industries that supply the businesses directly related to PPR. Wages associated with the total indirect employment are estimated at \$171 million per annum.





Induced employment is employment created because of expenditures by individuals employed both directly and indirectly by businesses related to the port. It represents the demand for goods and services generated by wage earnings from economic activity directly related to the port. Induced employment attributable to PPR is estimated at 1,800 person years, generating \$85 million per annum in earnings.

### 3.4 Total Employment

Ongoing PPR operations generate a total of 8,000 person years and \$566 million in wages, including induced and indirect effects.

**Figure 3-6** summarizes the direct, indirect, induced, and total impact of employment and wages in the surrounding regional economy attributable to ongoing operations at PPR.

**Figure 3-5: Annual Direct, Indirect, Induced and Total Employment Impacts of PPR**

					
Impact	Employment (Jobs / FTEs)		Wages (\$ Millions)	GDP (\$ Millions)	Output (\$ Millions)
Direct	3,700	3,600	310	763	1,477
Indirect	2,700	2,600	171	289	576
Induced	1,900	1,800	85	211	329
<b>Total</b>	<b>8,300</b>	<b>8,000</b>	<b>566</b>	<b>1,263</b>	<b>2,382</b>

**Notes:**

1. Totals may not sum, due to rounding.
2. Wages, GDP, and Economic Output are in 2019 prices
3. Results are based on a review of 2018 operations



*In total, including those businesses directly serving the port, together with the businesses that supply the goods and services to port activity (indirect impacts) and spending of employees in the wider economy (induced impacts), the Port of Prince Rupert supports **8,000 full-time equivalents**.*



## 4 Tax Impacts

### SUMMARY

- The Port of Prince Rupert is also an important generator of taxation revenues, with over \$125 million paid by employers and employees, as well as the port authority, to all levels of government.
- The majority of taxes collected (66%) accrue to the federal government, estimated to be \$83 million.
- The provincial government received an estimated \$33 million in tax revenues (26% of total).
- Municipal governments also benefit through the collection of property taxes and payments-in-lieu of taxes amounting to approximately \$9.3 million (7% of total).

### 4.1 Introduction

This part of the report documents the current contribution to government revenues resulting from current operations at PPR and associated economic activity. This includes revenues received by federal, provincial and municipal governments.

Tax revenue consists of contributions paid by the port employers and employees to the different levels of government. They include income and payroll taxes and social insurance contributions (such as employment insurance premiums). This also includes payments in lieu of taxes paid by the PPRA and property taxes paid by tenants to the municipal government.

For each category, taxes paid to the federal, provincial and local levels of government are separately identified.

The purpose of this section is to present the tax revenue contributions resulting from the activity attributable to PPR. As with all such studies, a conceptual decision must be made as to how broad a definition of economic activity should be used in measuring the impacts. For this study, a relatively narrow definition has been taken, for example, the following have not been included:

- Taxes associated with indirect or induced employment (i.e. multiplier effects).
- Consumption taxes (e.g., GST and PST) paid by the port employees when they spend their income.
- Excise or import taxes on cargo.
- Taxes paid by the port users outside of the port.

It would be exceedingly complex to broaden the scope of the tax base in this analysis to include taxes generated by indirect and induced employment. The level of detail collected on direct employment by the survey is critical to the tax analysis while such information is not available for the indirect and induced

employment. This being the case, impacts and speculation about the general economy would be complex and averages would not necessarily be precise or accurate. Therefore, the tax analysis in this report is limited to revenues attributable to direct employment only.

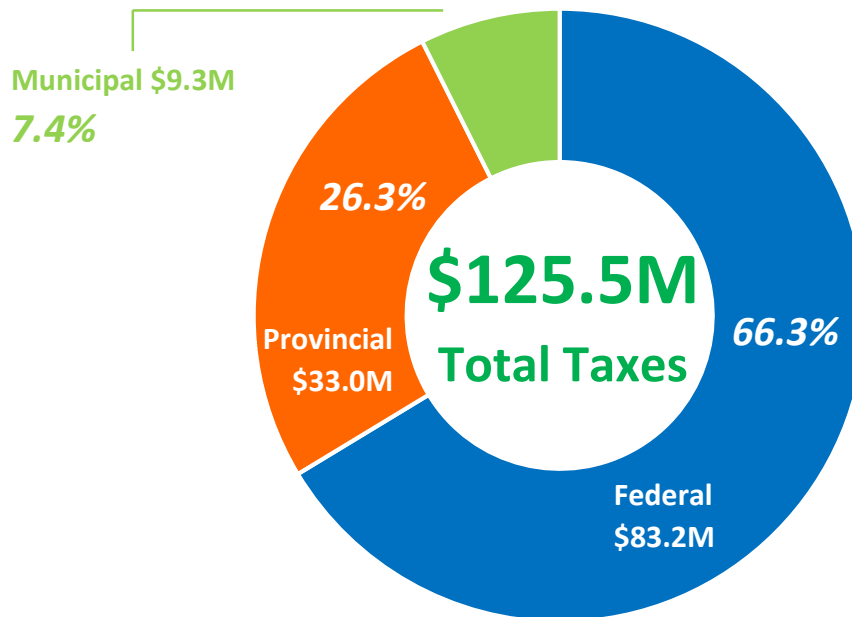
## 4.2 Tax Contributions by Level of Government

Ongoing economic activity at PPR generates tax revenue for all levels of government. In 2018, total tax contributions from PPR-related direct employment to all levels of government were over \$125 million.

**Figure 4-1** provides a breakdown of tax impacts by level of government.

- The federal government was the largest recipient of tax revenue, receiving approximately \$83 million (66.3% of total tax revenue impacts). The vast majority of that total is attributable to taxes paid by employers and employees such as income tax, corporate income tax, EI contributions and CPP contributions.
- The provincial government received \$33 million (26.3% of total tax revenue impacts). This total is from income taxes, corporate income tax, workers compensation dues, and the PST paid by passengers on various products and services.
- The municipal governments collected the remaining \$9.3 million in tax revenue (7.4% of total tax revenue impacts) from the port authority and its tenants in the form of property, water/sewer and business taxes. This includes payments in lieu of tax (for vacant federal crown land) and a transfer from the BC Government to local government to recompense for a property tax cap applicable to major terminals.

**Figure 4-1: Annual Estimated Tax Revenues of PPR by Level of Government**



### 4.3 Summary of Tax Contributions by Tax Payer

Ongoing economic activity at PPR generates tax revenue from different tax payers is presented in **Figure 4-2**.

**Figure 4-2: Estimated Tax Revenue, by Level of Government and Taxpayer**

Taxpayer	Federal (\$million)	Provincial (\$million)	Municipal (\$million)	Total (\$million)
PRPA	3.0	-	4.1	7.1
Employers or Employees	80.2	32.9	5.2	118.3
Cruise Passengers & Crew	0.04	0.06	-	0.1
<b>Total</b>	<b>83.2</b>	<b>33.0</b>	<b>9.30</b>	<b>125.5</b>

Note: Totals may not sum due to rounding. Detailed discussion of the tax envelopes is provided in **Appendix F**.

## 5 Cruise Ship Spending Impacts

### 5.1 Introduction

#### SUMMARY

- In 2018, the Port of Prince Rupert handled roughly 10,100 cruise passengers, up over 40% from passenger volumes in 2016 of roughly 7,100.
- Total spending by cruise passengers and crew in Prince Rupert amounts to approximately \$832,000 in 2018.
- The Prince Rupert cruise industry generated 10 direct FTEs of employment earning approximately \$309,000 in wage, generating \$404,000 in GDP and \$832,000 in direct economic output, in 2018.

Prince Rupert is one of five cruise ports in B.C. which includes: Prince Rupert, Vancouver, Nanaimo, Victoria, and Campbell River. The Atlin Terminal is located in the Cow Bay area and welcomes cruise ship visitors every year. It offers retail shops, office space, gift shops, and the Port Interpretive Centre. The terminal is equipped with floating docks that house small explorer-class ships and large private yachts. The Northland Cruise Terminal can also be found in Cow Bay, which is near the downtown activities available to cruise passengers. Cruise passengers use the terminal to discover many of the available shore excursions such as: bus, boat and seaplane sightseeing, kayaking, saltwater fishing and native cultural experiences.

In 2018, the port received 24 ship calls, each of which saw an average of 404 passengers. Most of the cruise lines visiting Prince Rupert handled between 200 and 900 passengers.

### 5.2 Cruise Ship Visitor & Crew Expenditures

Average crew and passenger visitor spending per ship call is estimated at nearly \$34,700.<sup>12</sup> This generates employment at the port and supports many local businesses in retail, food and beverage and ground transportation. **Table 5-1** displays the employment and wage impact of Prince Rupert's cruise ship industry operations in 2018.

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<sup>12</sup> Source: The Economic Contribution of the International Cruise Industry in British Columbia, 2016. Table BC-3 and BC-4 show the total passenger and crew expenditures, by category for Vancouver, Victoria and Other Ports (which include Nanaimo and Prince Rupert). Total estimated spending by cruise ship passengers and crew amounted to approximately \$832,500 at the Port of Prince Rupert.

**Table 5-1: Direct Impacts from Cruise Ship Visitor Spending (2018)**

			
Impact	Employment (FTEs)	Wages	Visitor Spending
Direct	10	\$309,000	\$832,000

Notes: Wages and Visitor Spending are in 2019 prices.

## 6 Value of Trade Analysis

### 6.1 Introduction

With five main terminals in operation at PPR that handle containers, logs, grain, coal, wood pellets and cruise passengers, the Port of Prince Rupert has established itself as a significant gateway for international trade, connecting British Columbia, Canada and the North American market to Asia Pacific and the world. This section presents an estimate of the value of trade through PPR in 2018.

The analysis includes both export and import goods travelling through the Port. It is also noted that detailed container data is incomplete. The Port reports the quality of data has worsened in recent years with more blank or incomplete records being filed. This has resulted in a larger-than-usual “Other” category for container-shipped goods.

### 6.2 Methodology

This section outlines the methodology used in analysing the value of trade at the Port of Prince Rupert.

#### 6.2.1 Data Sources

Several information sources were used in the analysis. A brief description of each is provided in the following sections.

#### Port of Prince Rupert Performance Statistics

The PRPA publishes performance statistics monthly. The Port’s performance statistics for 2018 were summarised to determine the annual traffic volume of bulk goods exported through the Port of Prince Rupert by the type of product exported or imported.<sup>13</sup>

#### Port of Prince Rupert Container Data

In addition to the performance statistics, the Port Authority also provided detailed information of containerized goods shipped through the port for 2018.<sup>14</sup>

This data was summarised and categorised to determine the volume of container traffic (in twenty-foot equivalent units or TEU) by type of product.<sup>15</sup> In this year’s dataset, there was an unusually large number of TEUs reported without descriptions of container contents. The Port Authority has observed an increasing number of shipments have been missing contents descriptions, which decreases the quality of

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<sup>13</sup> This summary can be found in the tab entitled “Bulk Traffic” in the Value of Trade Analysis Excel spreadsheet.

<sup>14</sup> This summary can be found in the tab entitled “Container Traffic (TEU)” in the Value of Trade Analysis Excel spreadsheet.

<sup>15</sup> Containerized goods were categorized into broader product type categories based on descriptions provided in the data. As some descriptions were very general, goods were classified into categories that best fit their description.



the container data. The shipments missing descriptions have been included in the “other” category, resulting in a higher than usual figure.

## Commodity Prices

Given the product categories derived from the summary of annual traffic volumes and the summary of container traffic, research and analysis were conducted to determine average prices (in CAD) per tonne for each type of product in 2018.<sup>16</sup> A conservative approach was taken that assumes the same average price for bulk and containerized commodities. The sources for the commodity prices used in the analysis are outlined in **Appendix H**.<sup>17</sup> All dollar figures have been adjusted for inflation to 2019 dollars using the Bank of Canada Inflation Calculator.

## WISERTrade Foreign Trade Database

InterVISTAS made use of data from the WISERTrade Foreign Trade Database to determine the average price per tonne for commodities wherein average price data was not available. The WISERTrade Foreign Trade Database includes U.S. trade statistics from the U.S. Census Bureau Foreign Trade Division.

Although Statistics Canada has international trade data available for Canada, it should be noted that the weight data provided by Statistics Canada should be used with extreme caution for various reasons. Firstly, the dataset has incomplete weight information, and weight data is not available for numerous entries. Secondly, the unit of measure associated with the weight data differs across various commodity types, ranging from becquerels to litres to metric tonnes.<sup>18</sup> As a result of concerns about the accuracy of the volume measure, InterVISTAS used U.S. trade statistics from the WISERTrade Foreign Trade Database to derive the average value per tonne for certain commodities. Since Canada and the U.S. are generally exporting commodities to the same markets, the average value per tonne of U.S. exports is likely similar to that of Canadian exports. Thus, this methodology was used to determine the average price per tonne for commodities wherein average price data was not available online.

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<sup>16</sup> The annual average exchange rate from the Bank of Canada was used to convert commodity prices obtained in U.S. dollars. (<http://www.bankofcanada.ca/rates/exchange/exchange-rates-in-pdf/>).

<sup>17</sup> The prices per commodity type are summarised in the tab entitled “Commodity Prices” in the Value of Trade Analysis Excel spreadsheet.

<sup>18</sup> Previously, Statistics Canada had produced weight files, which determines weight estimates based on specific calculations and analysis. Such data are no longer produced by Statistics Canada.

## 6.3 Value of Trade Analysis: Exports and Imports

### 6.3.1 Bulk Traffic

The total annual value per bulk commodity is estimated given the annual bulk traffic volumes and the average annual commodity prices per tonne for 2018 by multiplying the total annual tonnage by the average annual price per tonne for each product type for each year. Summing the total annual value of each commodity type then generates the total value of bulk goods exported and imported through the Port of Prince Rupert for 2018.<sup>19,20</sup> These figures have been adjusted for inflation to 2019 dollars.

### 6.3.2 Container Traffic

In analysing the total value of container traffic moving through the Port of Prince Rupert, three scenarios (high, middle and low) were analysed to show the range of potential values dependent on the average load per container, i.e. the average tonnes per TEU, as the average load of containers vary. The assumptions used to estimate the average tonnes per TEU for each of the three scenarios are shown in **Figure 6-1**.

**Figure 6-1: Assumptions on Average Tonnes per TEU**

Scenario	Average tonnes/TEU
High	18 tonnes
Middle	14 tonnes
Low	10 tonnes

Notes: The assumptions on average tonnes per TEU were determined based on the average load per TEU indicated in related literature and data reviewed by InterVISTAS.

The total container traffic in tonnes was estimated for each of the three scenarios by converting the container traffic volume from TEU to tonnes using the assumptions above.<sup>21</sup>

The total annual value of containerized goods per type of product is then estimated given the annual container traffic volumes in tonnes and the average annual commodity prices per tonne for 2018. This

<sup>19</sup> A high and low analysis was not conducted for the value of bulk traffic, as it is assumed that market prices prevail for these commodities.

<sup>20</sup> A summary of the value of trade of bulk traffic at the Port in 2018 dollars is provided in the tab entitled "Bulk - Value" in the Value of Trade Analysis Excel spreadsheet.

<sup>21</sup> The total container traffic in tonnes is shown in the tab entitled the "Container Traffic (Tonnes)" in the Value of Trade Analysis Excel spreadsheet.

was done by multiplying the total annual tonnage by the average annual price per tonne for each product type.<sup>22</sup> The values for container goods have been inflated to 2019 dollars.

### 6.3.3 Total Traffic

The value of trade of both bulk and container goods are summed together for each of the three scenarios to determine the value of trade of the total traffic at the Port of Prince Rupert. The total traffic is provided for each of the three scenarios in the container value analysis and shown in 2019 dollars.<sup>23</sup>

## 6.4 Summary of Findings

### 6.4.1 Value of Trade Analysis

The analysis of the value of trade at the Port of Prince Rupert conducted by InterVISTAS reveals that in 2018, the total exports (including bulk and container traffic) moving through the port is estimated to be between \$7.7 billion to \$10.4 billion (2019 dollars), given the three scenarios for estimating the value of container traffic. Total imports are estimated to be between \$31.0 billion to \$55.9 billion (2019 dollars). **Figure 6-2** summarises the total value of trade at the Port for each of the three scenarios analysed for 2018 in 2019 dollars.

**Figure 6-2: Total Value of Trade Summary (including commodities and bulk), 2018**

Scenario	Total Value of Trade Exports (2019 Dollars, Billions)	Scenario	Total Value of Trade Imports (2019 Dollars, Billions)
Low	\$7.8	Low	\$31.7
Middle	\$9.2	Middle	\$44.3
High	\$10.6	High	\$57.0

<sup>22</sup> Summaries of the value of trade of container traffic at the Port for each of the three scenarios in 2018 dollars are provided in the tables entitled "Container - Value", in the Value of Trade Analysis Excel spreadsheet.

<sup>23</sup> The value of trade of total traffic for each scenario is summarised in the "Summary – Scenarios" tab in the Value of Trade Analysis Excel spreadsheet provided.

## 6.5 Recommendation

After a review of the value of trade analysis results for each of the three scenarios, InterVISTAS recommends the result from the “Middle Scenario” for exports and “Low Scenario” for imports to the Prince Rupert Port Authority, wherein the total value of trade at the Port of Prince Rupert in 2018 is \$9.2 billion for exports and \$31.6 billion for imports.

This recommendation is based on a comparison of the value of trade analysis results to the statistics reported by Port of Vancouver (PoV), which exports similar types of commodities to similar markets.

### 6.5.1 Exports

When comparing the traffic of loaded containers that are exported at the two ports, the Port of Prince Rupert (with a total of 207,111 export loaded TEUs in 2018) comprises approximately 18% of the PMV’s export volume of loaded containers (equivalent to a total of 1,119,590 TEUs in 2018).<sup>24</sup> Similarly, when comparing the total tonnage and the total dollar value of loaded containers exported from the ports, the results from the “Middle Scenario” reveal that the Port of Prince Rupert comprises approximately 20% and 24%, respectively, of the total tonnage and the total dollar value of loaded containers exported at PMV.<sup>25</sup> The results from the other scenarios show a much greater variation in the ratio of the Port of Prince Rupert’s and PMV’s traffic statistics, as shown in **Figure 6-3**. Thus, the similarities of the ratio of the total value and total TEU of container traffic of the Port of Prince Rupert in comparison to that of Port of Vancouver indicates that the results from the “Middle Scenario” best estimates the value of trade of container traffic at the Port of Prince Rupert.

### 6.5.2 Imports

When comparing import traffic at the two ports, the Port of Prince Rupert (568,995 TEUs) reaches approximately 33% of PMV’s laden import container volume (1,743,399 TEUs). The “Low Scenario” tonnage and value for the Port of Prince Rupert are 47% and 189% of the respective values loaded at PMV. Results for all three import scenarios are shown in **Figure 6-4**.

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<sup>24</sup> Port of Prince Rupert Performance Statistics, YE Dec 2018 and Port of Vancouver Cargo Statistics Report, YE Dec 2018.

<sup>25</sup> Port of Vancouver Cargo Statistics Report YE Dec 2018.

**Figure 6-3: Comparison of Port of Prince Rupert with Port of Vancouver Container Traffic Statistics, Export Loaded Containers**

Comparator (2018)	Port of Vancouver	Port of Prince Rupert			Ratio of Port of Prince Rupert to Port of Vancouver		
		High	Middle	Low	High	Middle	Low
<b>Tonne/TEU*</b>	9.3	18.0	14.0	10.0	18.0	14.0	10.0
<b>Total Container Exports TEU</b>	1,119,590	207,111	207,111	207,111	18.5%	18.5%	18.5%
<b>Total Container Tonnage (millions)</b>	14.6	3.7	2.9	2.1	25.5%	19.9%	14.2%
<b>Total Container Value** (billions, 2019 dollars)</b>	\$20.3	\$6.1	\$4.8	\$3.4	30.4%	23.6%	16.9%

Sources: Port of Prince Rupert Performance Statistics YE Dec 2018, Port of Vancouver Cargo Statistics Report YE Dec 2018, InterVISTAS Analysis for Port of Prince Rupert  
Notes:

\*Port of Vancouver (PMV) tonne/TEU ratio is based on the ratio of total container tonnage and total TEUs of loaded containers at PMV, while Port of Prince Rupert tonne/TEU ratio is based on the assumptions used in InterVISTAS' value of trade analysis.

\*\* Port of Vancouver (PMV) Total Container Value is calculated using the ratio of the total value of traffic at PMV (\$200 billion in 2018, as per PMV's annual report) and the total tonnage at PMV (147,093,499 as per PMV statistics).

**Figure 6-4: Comparison of Port of Prince Rupert with Port of Vancouver Container Traffic Statistics, Import Loaded Containers**

Comparator (2018)	Port of Vancouver	Port of Prince Rupert			Ratio of Port of Prince Rupert to Port of Vancouver		
		High	Middle	Low	High	Middle	Low
<b>Tonne/TEU*</b>	9.3	18.0	14.0	10.0	18.0	14.0	10.0
<b>Total Container Imports TEU</b>	1,743,399	568,995	568,995	568,995	32.6%	32.6%	32.6%
<b>Total Container Tonnage (millions)</b>	12.1	10.2	9.0	5.7	84.9%	66.0%	47.2%
<b>Total Container Value** (billions, 2019 dollars)</b>	\$16.7	\$56.9	\$44.3	\$31.6	340.5%	264.8%	189.1%

Sources: Port of Prince Rupert Performance Statistics YE Dec 2018, Port of Vancouver Cargo Statistics Report YE Dec 2018, InterVISTAS Analysis for Port of Prince Rupert  
Notes:

\*Port of Vancouver (PMV) tonne/TEU ratio is based on the ratio of total container tonnage and total TEUs of loaded containers at PMV, while Port of Prince Rupert tonne/TEU ratio is based on the assumptions used in InterVISTAS' value of trade analysis.

\*\* Port of Vancouver (PMV) Total Container Value is calculated using the ratio of the total value of traffic at PMV (\$200 billion in 2018, as per PMV's annual report) and the total tonnage at PMV (147,093,499 as per PMV statistics).



## Appendix A: Employment Survey

### Identification of the Survey Population

A total of 52 firms received employment surveys for the PPR economic impact study. The different types of employment surveys distributed to tenants located on-site at PPR and directly related employers located off-site include: General Survey, Rail Survey and Ground Transport Survey.

**Figure A-1: Total Number of Firms Surveyed**

Type of Survey	Number of Firms Surveyed	Number of Responding Firms	Response Rate
General	51	31	61%
Rail	1	1	100%
<b>Total</b>	<b>52</b>	<b>32</b>	<b>62%</b>

### Questionnaire Design

The basic questionnaire was designed to obtain information, and to be as clear and easy to understand as possible for respondent firms. The basic questionnaire provided to port tenants contained questions in the following areas:

#### General Information

- Name of firm, address
- Contact person's name and title
- Phone number
- Email address
- Firm located on site
- Principal business activity

### **Trucking Activity to/from the Port**

- Name(s) of trucking firm(s)
- Local and non-local round trips count

### **Total Employment Numbers**

- Total employees (February 2019)
- Full-time permanent employees
- Part-time permanent employees
- Full-time seasonal employees
- Part-time seasonal employees
- Average hours and weeks for part-time and seasonal employees

### **Payroll and Wage**

- Total payroll excluding benefits; or
- Average wage per employee

### **Business Related to PPR**

- Proportion of firm's business revenues related to PPR (2018)

### **Goods Movement**

- Total Port throughput in tonnes
- Laden and empty container TEUs

### **Employment by Location**

- A selection of job locations, from local to nation-wide, was presented

### **Employment by Trade**

- A selection of job trades was provided to categorize employment

### **Outsourcing and Contracting Out**

- Number of individuals on contract
- Average hours and weeks for individuals on contract
- Number and names of firms on contract
- Average annual hours for firms on contract

### **Future Employment Base at the Port of Prince Rupert**

- Whether the firm's employment is expected to increase, decrease or remain the same over the next five years

### **Capital Investment**

- Current and future capital investment

### **Property Taxes & Other Taxes**

- Total property taxes paid (2018)

### **Comments or Questions**

- Space provided for respondent comments or questions about the survey.

## **Conducting the Survey**

The survey was built using the online platform SurveyGizmo, and an offline PDF version was offered as well. A link to the survey was mailed out electronically by Inter VISTAS Consulting, with a cover letter from PPR. The letter explained the purpose of the study, the confidentiality of responses and encouraged members of the port business community to participate.

Following the initial electronic mail-out of the survey link and throughout the following weeks, non-responding firms were contacted by telephone to follow-up on the completion of the survey. Inter VISTAS staff managed the survey follow-up for onsite tenants and offsite firms. Firms were encouraged to complete the survey and new copies of the e-mail were offered if the originals were lost. Some survey responses were collected via a telephone interview with firms.

## Appendix B: Sample Survey

April 2019

To all Members of the Port of Prince Rupert Business Community:

**Re: Port of Prince Rupert Economic Impact Study 2019**

A critical factor in winning community and government support for initiatives that benefit all port-related businesses is our ability to demonstrate the significant economic contribution of the port to our community and province. Thus, the Prince Rupert Port Authority has commissioned InterVISTAS Consulting to undertake an economic impact study of its current on-going operations. This study was first undertaken in 2009, 2014 and 2016, and we are seeking your cooperation to undertake an update to this important study in 2019.

I would like to ask you to participate in this online employment survey. In order to keep this initiative on time and on budget, we request that you submit your firm's completed survey as soon as possible, so that InterVISTAS can compile the results without delay or additional cost. The survey can be completed via one of the following methods:

- By completing this survey online:  
<https://www.surveymzmo.com/s3/4906700/PRPA-EI-Study-Employment-Survey-2019>
- By completing this offline copy and returning it by email or fax to  
[Noel.Szelewski@intervistas.com](mailto:Noel.Szelewski@intervistas.com), or 604-717-1818 (Attn: Noel Szelewski)

When completing the online survey, you can save your progress and return later by clicking the "Save and continue later" bar at the top of each page.

We appreciate that some of the information requested in the survey may be of a sensitive nature to your firm. Please be assured that the Prince Rupert Port Authority will not view your completed survey. Only survey totals will be provided to the Prince Rupert Port Authority in the final report, and it will not reveal figures for any individual firms.

The economic impact survey is under the supervision of Doris Mak, Vice President, Special Projects at InterVISTAS. Should you have any questions regarding the study, please contact her at 1-877-717-6246, ext 1838. If you have a question about the survey, please contact Noel Szelewski, Senior Project Manager, at 1-877-717-6246, ext 1808.

Should you have any questions or concerns about the study or if you would like more information on the purpose and scope of the project, please contact Ken Veldman, Vice President, Public Affairs & Sustainability at Prince Rupert Port Authority at 250-627-2526.

Thank you for your co-operation in this important study. We all look forward to your participation and the study's results.

Sincerely,



Ken Veldman  
Vice President, Public Affairs & Sustainability

**PRINCE RUPERT PORT AUTHORITY**  
200 – 215 COW BAY ROAD, PRINCE RUPERT, BRITISH COLUMBIA CANADA V8J 1A2  
TEL 250 627 8899 FAX 250 627 8980 EMAIL [pcorp@rupertport.com](mailto:pcorp@rupertport.com)

**ADMINISTRATION PORTUAIRE DE PRINCE-RUPERT**  
200 – 215 CHEMIN COW BAY, PRINCE RUPERT, COLOMBIE-BRITANNIQUE CANADA V8J 1A2  
TEL 250 627 8899 FAX 250 627 8980 EMAIL [pcorp@rupertport.com](mailto:pcorp@rupertport.com)

## Contact Information

*\*Required Question*

**Name of Company\*:**

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**Address of the Company\*:**

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**Contact Person\*:**

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**Phone Number (in 123-456-7890 format)\*:**

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**Email\*:**

---

**Is your company located on-site?**  
(i.e., on Port of Prince Rupert lands)\*

☐ Yes

☐ No



## Q1. Type of Business

Please indicate your principal business activity. If you are involved in more than one of the businesses below, please choose the one that best describes your business (i.e., contributes the largest proportion of revenues).

- |  |   |
|--|---|
| <input type="radio"/> Automobiles                  | <input type="radio"/> Ship Chandler                               |
| <input type="radio"/> Berthing Tugs                | <input type="radio"/> Shipping Agent - Exporter:<br>_____         |
| <input type="radio"/> Break-bulk Terminal Operator | <input type="radio"/> Shipping Agent - Importer:<br>_____         |
| <input type="radio"/> Bulk Terminal Operator       | <input type="radio"/> Stevedoring                                 |
| <input type="radio"/> Container Terminal Operator  | <input type="radio"/> Tug/Tow/Barge                               |
| <input type="radio"/> Cruise                       | <input type="radio"/> Waste Disposal/Ship Cleaning                |
| <input type="radio"/> Customs Broker               | <input type="radio"/> Trucking                                    |
| <input type="radio"/> Dredging                     | <input type="radio"/> Rail  |
| <input type="radio"/> Freight Forwarder            | <input type="radio"/> Producer                                    |
| <input type="radio"/> Government Agency            | <input type="radio"/> Warehouser                                  |
| <input type="radio"/> Marina                       | <input checked="" type="radio"/> Other - Please specify:<br>_____ |
| <input type="radio"/> Pilotage                     |   |
| <input type="radio"/> Ship Broker                  |   |
| <input type="radio"/> Ship Building & Repair       |   |

## Q2: Trucking Activity to/from the Port of Prince Rupert

Does your firm use trucking services to transport goods to/from the Port of Prince Rupert?

☐ No ☐ Yes

If Yes, please complete the following table on trucking activity related to your firm. If your firm operates trucks and does not contract out trucking services to another firm, please indicate this.

	Name of Trucking Firm	Trucking Firm Contact Information	Average number of <u>Local</u> round trips from Port terminals per week	Average number of <u>Non-Local</u> round trips from Port terminals per week
Firm 1				
Firm 2				
Firm 3				

## Q3: Number of Employees

Please state the number of permanent & seasonal staff employed by your company in 2018 at the Port. This should include employees both on-site at the Port and off-site (only where off-site employees are involved with directly providing service to the Port, e.g. administrative employees at an off-site location).

Please break down the employment into permanent, seasonal, full-time and part-time. *This should not include employment for work done on contract.\**

	Permanent Employees Full Time	Permanent Employees Part Time	Seasonal Employees Full Time	Seasonal Employees Part Time
Number of Employees				


Please indicate how many hours per week **part-time employees** worked in 2018, as well as how many weeks **seasonal employees** worked in 2018, on average.

	Number of Weeks per Year	Number of Weekly Hours
Permanent Part-Time		
Seasonal Part-Time		

## Q4: Annual Payroll

Please state the total gross payroll paid by your company in 2018 for the employees included in Question 3 at your company.

This figure should include all full-time, part-time and seasonal employees. If you are unable to estimate payroll for 2018, please provide figures for your last financial period, and indicate which period that was.

 Total payroll includes gross (pre-tax) wages or salaries, including overtime pay, commissions, allowances and bonuses.

**Total Payroll (2018):**

**Financial Period (if not 2018):**

\_\_\_\_\_

\_\_\_\_\_

**Alternatively**, if you are unable to answer this question, please provide an estimate of the average annual wage/salary per employee (including overtime pay, commissions, allowances and bonuses), or select one of the options below.

**Average annual wage/salary per employee**

\_\_\_\_\_

**OR, Provide an Average Salary Range**

- ☐ Less than \$20,000 per year
- ☐ Between \$20,000 and \$40,000 per year
- ☐ Between \$40,000 and \$60,000 per year
- ☐ Between \$60,000 and \$80,000 per year
- ☐ Between \$80,000 and \$100,000 per year
- ☐ More than \$100,000 per year

## Q5: Business Related to the Port of Prince Rupert

For the total number of employees indicated in Question 3, how much of this is attributable to the Port of Prince Rupert? That is, please estimate the percentage of your employment involved in port-related activities.

*For example, a freight forwarder or customs broker might attribute only 20% as that is the proportion of their business that involves shipping out of the Port of Prince Rupert (the other 80% of their business utilises truck or rail for carriage of shipments to other exit and entry points). Alternatively, if your firm is located onsite at the port or if your firm's existence is completely dependent on the Port's operations, please indicate a 100% relationship.*

Please estimate the amount of your employment that is related to the Port of Prince Rupert.

% Port-Related Employment in 2018\* \_\_\_\_\_

**A.** For the percentage of your business related to port operations, please provide a breakdown of revenues related to domestic coastal trade versus international trade.\*

	Proportion (%) of Revenues
Related to <u>Domestic Coastal Trade</u>	
Related to <u>International Trade</u>	

\*\*\* Total should sum up to 100% \*\*\*

**B.** For your **marine operations**, are you primarily an import or export terminal, or both? Please provide the percentage related to imports versus exports.\*

	Proportion (%) of Operations
Related to <u>Imports</u>	
Related to <u>Exports</u>	

\*\*\* Total should sum up to 100% \*\*\*

## Q6: Goods Movement

Does your firm transport its own commodities or containers to the Port?

*The purpose of this question is to assist us in attributing employment to specific commodity types and the container trade*

☐ **No**

☐ **Yes**

If Yes, what was your firm's total port throughput in 2018? If your firm transports its own containers, please provide the total port throughput in terms of laden TEUs versus empty TEUs.

	Throughput
Total Port Throughput <i>in tonnes</i>	
Total Port <u>Laden</u> Container Throughput <u>in TEUs</u>	
Total Port <u>Empty</u> Container Throughput <u>in TEUs</u>	

## Q7: Employment by Location

Please provide a breakdown of the total jobs in Question 3 by location and identify the percentage of employment dedicated to your commodities transported to or through the port, or number of jobs, at each location.

*For example, a company might have 50 employees located in Prince Rupert, but only 10 of them perform port traffic related activities.*

	Total Number of Employees in Each Location	% of Employees Related to the Port
<b>Local:</b> Prince Rupert & Prince Edward		
<b>Other Northwestern BC:</b> Kitimat, Terrace, Smithers		
Greater Prince George		
Other Northern BC		
Other BC		
Other Canada		



## Q8: Employment by Trade

In order to reflect the diversity of employment associated with the Port, please provide us with a breakdown of your total employees, by position.

		Number <u>or</u> % of Employees
<b>General</b>	Managerial or Clerical	
	Sales or Customer Service	
<b>Seaport and Related Support Trades</b>	Pilots	
	Stevedores	
	Warehouse Labour	
	Construction or Maintenance Trades	
	Seamen & Officers	
	Inspectors or Security Agents	
<b>Ground Transportation</b>	Drivers or Delivery	
	Dispatchers or Call Centre	
<b>Other Trades</b>	Shipper	
	Freight Forwarder or Customs Broker	
	Engineer or Mechanic	
	General Labour (i.e., production)	
	Other, please specify	
	Other, please specify	

**NOTE: THE SUM OF EMPLOYEES BY TRADE LISTED IN QUESTION 8 SHOULD EQUAL THE NUMBER OF TOTAL EMPLOYEES IN QUESTION 3.**

## Q9: Outsourcing and Contracting Out

Since we do not want to exclude any employment from the Port, we would like you to briefly comment on whether your firm contracts out any important services.

### A. Individuals on Contract:

If you pay some individuals through a contract, as opposed to through payroll, please indicate the number of such employees, how many hours per week worked in 2018, as well as how many weeks worked in 2018, on average.

	Number of Contract Employees	Number of Weeks per Year	Number of Weekly Hours
Contract Employees			

### B. Firms on Contract:

If you outsource or contract out any work to other companies (e.g., cleaning services, IT, ground handling, etc.), please complete the following table, indicating the functions you outsource to third party companies, and provide an estimate of the annual contracted hours of work completed in 2018. Also, please specify the company's name(s) and indicate whether they are located at the port (i.e. located on-site). This will allow us to avoid any double counting of work performed by other companies which may also be surveyed as a part of this study.

*Please do not include contract services to trucking firms answered in Question 3.*

	Function	Name of Firm	Located On-Site?		Number of Hours Performed by the Company in 2018
			Yes	No	
1			( )	( )	
2			( )	( )	
3			( )	( )	
4			( )	( )	
5			( )	( )	

## Q10: Future Employment Base at the Port of Prince Rupert

Over the next 5 years, do you expect your firm's employment base to:

- ☐ **Increase**
- ☐ **Not Change**
- ☐ **Decrease**

**Increase** by approximately how many employees?

\_\_\_\_\_

Why is an increase expected?

**Decrease** by approximately how many employees?

\_\_\_\_\_

Why is a decrease expected?

## Q11: Capital Investment

### A. Current Capital Investment:

Please estimate approximately the current value of your facilities and capital investments that are intended to service traffic at the Port.

By current value we mean the amount you estimate it would cost to replace your facilities and capital today.

**Current Value of Facilities and Capital Investment**

---

### B. Future Investments:

Please estimate the total amount that you expect to invest in your facilities and capital used to transport your commodities to/from the Port (land, buildings and equipment) over the next five years.

**Expected value of investment on facilities and capital over the next five years:**

---

Can you comment briefly on the type of capital investment that will be undertaken by your company in the near-term?

## Q12: Property Taxes paid in 2018

Please indicate the amount of property taxes paid by your firm in 2018, *if your firm is located at the Port of Prince Rupert.*

**Total Property Taxes Paid (2018):**

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## Comments or Questions

If you have any comments or questions about the survey, please write them here:

---

## Thank You!

Thank you for your participation in this survey.

Please return the completed survey either by fax or email:

**Fax to: 604-717-1818, ATTN: Noel Szelewski, RE: Port of Prince Rupert EI**

**Email: [noel.szelewski@intervistas.com](mailto:noel.szelewski@intervistas.com), Subject: Port of Prince Rupert EI**

You will receive an email confirming receipt of your completed survey.

If you have any questions, please call Noel Szelewski, at 1-877-717-6246, ext 1808.

## Appendix C: Calculation of Person Years

The following are details of calculations for the average number of hours per person year or full-time equivalent (FTE).

**Table C-1: Full-time Equivalent Hours per Year**

Calculation of FTE hours per year:		
	365	days per year
Less:	(104)	weekend days
	(11)	legal holidays
	(15)	average vacation days
	(6)	sick leave
	229	days per person year
	*8	hours per work day
	<b>1,832</b>	<b>hours per person year</b>

Workdays vary anywhere from 6.5 to 8 hours; however, in order to be conservative, an 8 hour workday was assumed.<sup>26</sup> Similarly, numbers of vacation and sick leave days may also vary.

<sup>26</sup> Essentially, we are using a measure of paid hours per year. Using a measure of productive hours per year with 6.5 hour workdays (8 hours less 1 hour for lunch less two 15 minute work breaks) would give 1,489 hours per person year. Using this lower figure would result in inferring a greater number of FTEs from seasonal and part-time jobs. Using the 1,832 figure, we infer a lower number of FTEs.

## Appendix D: Inferred Employment

Because not all employers could fully respond to our requests for information in the survey, we statistically inferred some employment data to replace that which otherwise would be missing. This allows us to estimate the total amount and type of employment, which provides the basis for other estimates of economic impact.

In general, InterVISTAS' approach bases these inferred estimates on information provided by responding firms for each business type and validated against information from other publicly available sources of data.

The employment data in this report was compiled from a combination of two sources:

1. Employment reported by employers on surveys submitted to InterVISTAS.
2. Employment and other data were inferred for employers who did not provide a completed survey response. Inferred employment was based on employment information from those firms in each business type that did respond to the survey. The mean employment of respondents in each business type was calculated, excluding outliers, and then conservatively adjusted downwards. For instance, those firms with especially large employment levels were excluded from the "mean without outliers" to obtain conservative results. This "adjusted mean" employment for each business type was then applied to those firms who did not respond to the survey.



## Appendix E: Contract Employment

Some firms contract out services that they do not have expertise in providing or when there are cost advantages to doing so. For example, many port firms contract out janitorial, elevator and maintenance services. The employment survey asked firms to identify whether they contracted out some of their work, and to estimate the number of annual hours involved.

Contract work was separated into two distinct categories in the employment survey: 1) individual “employees” paid through a contract, rather than via payroll, and 2) contracting out services to other firms.

The employment results for individuals on contract were derived by counting the number of individual positions for the number of *jobs* and dividing the total hours of employment by 1,832 to estimate person years. The employment results for firms on contract were derived by dividing the total hours of employment by 1,832 to estimate person years.

At PPR in 2018, there were approximately 10 person years of contract employment.

# Appendix F:

## Tax Revenues Attributable to Port Employers (2018)

### Introduction

This appendix describes the employment and other assumptions on which tax revenue calculations are based. As well, the approaches used to estimate employer and employee contributions to local, provincial and federal governments are presented. All estimates are for the 2018 calendar year, unless otherwise stated.

Some of the taxes pose conceptual questions about how much, or if any, tax revenue from a particular source should be attributed to firms serving PPR. These questions are highlighted and simplifying assumptions are put forth.

### Employment at PPR

The majority of tax calculations in this report depend on direct employment and total wages. The total direct employment, in jobs, used for these calculations is 3,682 jobs. The total payroll is estimated at \$310 million.

### Personal Income Tax

**Tax base and rates.** Under the *Income Tax Act* federal income tax is paid on taxable income at a rate that increases with taxable income.

Provincial income tax was formerly calculated as a percentage of federal tax, but most provincial governments have begun collecting taxes on a sliding scale.

### Estimation Method and Results

Because the tax rate is progressive, the tax paid by a group of employees depends on the distribution of income among those employees. Unfortunately, the distribution of income is not known, and average incomes must be used.

Each employee is assumed to pay tax as a single tax filer. Estimated income tax payable is \$43.4 million in federal tax and about \$17.2 million in provincial tax.

The average tax rates used are derived from the more detailed calculations of taxes payable shown in **Table F-1**. In those calculations, assumptions have been made about income from non-employment sources, tax deductions from income (e.g., RPP and RRSP contributions), and tax credits applied against tax otherwise payable (e.g., CPP, EI and charitable contributions). Average credits are calculated from Revenue Canada, *General Income Tax Forms, 2018*.

**Table F-1: British Columbia Single Tax Filer Income Tax Calculation – 2018**

BC - British Columbia Single Tax Filer Income Tax Calculation																				
<b>Income</b>																				
Employment	\$	5,000.00	\$	10,000.00	\$	15,000.00	\$	20,000.00	\$	25,000.00	\$	30,000.00	\$	35,000.00	\$	40,000.00	\$	45,000.00	\$	50,000.00
TOTAL	\$	5,000.00	\$	10,000.00	\$	15,000.00	\$	20,000.00	\$	25,000.00	\$	30,000.00	\$	35,000.00	\$	40,000.00	\$	45,000.00	\$	50,000.00
<b>Deductions</b>																				
RRSP	\$	117.61	\$	37.76	\$	30.78	\$	37.35	\$	51.42	\$	88.57	\$	157.01	\$	269.35	\$	426.97	\$	641.38
RRP	\$	988.37	\$	211.45	\$	154.62	\$	188.04	\$	239.84	\$	322.95	\$	427.87	\$	534.97	\$	704.94	\$	948.18
Carrying Charges	\$	385.78	\$	124.39	\$	68.50	\$	52.12	\$	49.25	\$	60.40	\$	83.30	\$	109.32	\$	149.40	\$	206.64
Union	\$	1,193.00	\$	199.52	\$	114.79	\$	99.93	\$	103.60	\$	113.33	\$	128.47	\$	145.30	\$	160.08	\$	203.34
TOTAL	\$	2,684.76	\$	564.12	\$	368.69	\$	387.44	\$	444.11	\$	585.25	\$	796.64	\$	1,058.93	\$	1,441.39	\$	1,989.55
<b>Taxable Income</b>	\$	2,365.24	\$	9,435.88	\$	14,631.31	\$	19,612.56	\$	24,555.89	\$	29,414.75	\$	34,203.36	\$	38,941.07	\$	43,558.61	\$	48,010.45
<b>Credits</b>																				
Basic Federal	\$	11,809.00	\$	11,809.00	\$	11,809.00	\$	11,809.00	\$	11,809.00	\$	11,809.00	\$	11,809.00	\$	11,809.00	\$	11,809.00	\$	11,809.00
Basic Provincial	\$	10,412.00	\$	10,412.00	\$	10,412.00	\$	10,412.00	\$	10,412.00	\$	10,412.00	\$	10,412.00	\$	10,412.00	\$	10,412.00	\$	10,412.00
CPP	\$	3,750.56	\$	937.76	\$	690.18	\$	637.57	\$	593.31	\$	667.64	\$	809.83	\$	920.08	\$	1,097.76	\$	1,309.02
EI	\$	2,029.86	\$	561.78	\$	346.98	\$	286.08	\$	261.58	\$	282.40	\$	328.89	\$	368.39	\$	432.81	\$	509.07
Charity	\$	29.33	\$	3.44	\$	10.97	\$	22.78	\$	34.71	\$	48.67	\$	64.90	\$	76.76	\$	86.81	\$	99.03
Fed. Total	\$	17,609.36	\$	13,817.90	\$	13,817.90	\$	13,817.90	\$	13,817.90	\$	13,817.90	\$	13,817.90	\$	13,817.90	\$	13,817.90	\$	13,817.90
Prov. Total	\$	16,206.36	\$	11,920.98	\$	11,460.13	\$	11,338.43	\$	11,307.61	\$	11,410.77	\$	11,615.63	\$	11,777.23	\$	12,029.33	\$	12,329.73
Federal Tax Credit Rate	15%		15%		15%		15%		15%		15%		15%		15%		15%		15%	
Provincial Tax Credit Rate	5.06%		5%		5%		5%		5%		5%		5%		5%		5%		5%	
Federal Credits	\$	2,640.50	\$	1,997.70	\$	1,928.57	\$	1,910.31	\$	1,905.69	\$	1,921.17	\$	1,951.89	\$	1,976.13	\$	2,013.96	\$	2,059.01
Provincial Credits	\$	820.04	\$	603.20	\$	579.88	\$	573.72	\$	572.16	\$	577.38	\$	587.75	\$	595.93	\$	608.69	\$	623.88
<b>Tax Payable</b>																				
Federal - Bracket 1	\$	354.79	\$	1,415.38	\$	2,194.70	\$	2,941.88	\$	3,683.38	\$	4,412.21	\$	5,130.50	\$	5,841.16	\$	6,533.79	\$	6,990.75
Federal - Bracket 2	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Federal - Bracket 3	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Federal - Bracket 4	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Federal - Bracket 5	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Federal Total	\$	354.79	\$	1,415.38	\$	2,194.70	\$	2,941.88	\$	3,683.38	\$	4,412.21	\$	5,130.50	\$	5,841.16	\$	6,533.79	\$	6,990.75
Basic Federal	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
BC - British Columbia - Bracket 1	\$	119.68	\$	477.46	\$	740.34	\$	992.40	\$	1,242.53	\$	1,488.39	\$	1,730.69	\$	1,970.42	\$	2,067.61	\$	2,067.61
BC - British Columbia - Bracket 2	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
BC - British Columbia - Bracket 3	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
BC - British Columbia - Bracket 4	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
BC - British Columbia - Bracket 5	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
BC - British Columbia Total	\$	119.68	\$	477.46	\$	740.34	\$	992.40	\$	1,242.53	\$	1,488.39	\$	1,730.69	\$	1,970.42	\$	2,067.61	\$	2,067.61
Basic Provincial	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
TOTAL TAX PAYABLE	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-	\$	-
Average Rate of Tax	0.0%		0.0%		2.9%		7.4%		10.0%		11.4%		11.4%		11.3%		11.3%		11.3%	
Federal	0.0%		0.0%		1.8%		5.3%		7.2%		8.5%		9.3%		10.4%		10.9%		11.0%	
Provincial	0.0%		0.0%		1.1%		2.1%		2.7%		3.1%		3.1%		3.1%		3.1%		3.1%	

## Corporate Income Tax (Federal and Provincial)

All corporations are liable to pay federal income tax under the *Income Tax Act*. The tax rate varies by type and size of company and by province. Provincial governments also levy a corporation income tax on any company having a permanent establishment in that province.

### Estimation Method and Results

1. To calculate tax liability precisely is very difficult. It requires knowledge of the total tax base, and the proportion of the tax base attributable to the provinces. Therefore, an approximate method has been used.
2. In British Columbia, the federal corporate income tax collected per employee was \$2,596 and the provincial corporate income tax collected per employee was \$1,688 in 2018.
3. Assuming all companies pay tax at the average rate per employee calculated above, the 2018 corporation income tax liability of the PPR employment sector is estimated to be \$9.0 million toward federal revenues and \$5.8 million toward provincial revenues. The estimated total corporate income tax revenue is roughly \$14.8 million as shown in **Table F-2**.

**Table F-2: Estimated Corporate Income Tax Paid by Firms within PPR**

Government	Revenue (\$Million)
Federal	8.990
Provincial	5.847
<b>Total</b>	<b>14.837</b>

## Employment Insurance Premiums

**Tax base and rates.** In 2018, employees in Canada paid employment insurance (EI) premiums equal to 1.66% of earnings up to a maximum of \$858 per year. (Maximum insurable earnings are \$51,700). Employers paid EI premiums equal to 1.4 times employee premiums.

### Estimation Method and Results

The employee premium rate is applied to total payroll costs for employees earning less than \$51,700 per year. The maximum contribution was used for employees earning more than \$51,700 per year. Estimated employee payments were approximately \$3.2 million in 2018.

The employer rate is applied to the employee payments. Estimated employer payments were \$4.4 million in 2018.

## Canada Pension Plan Contributions

**Tax base and rates.** In 2018, employee contributions for the Canada Pension Plan (CPP) were 4.95% of pensionable earnings. Pensionable earnings are actual earnings less \$3,500 to a maximum of \$52,400.

The maximum annual employee contribution is \$2,593.80. The employer contribution is the same as the employee contribution.

### Estimation Method and Results

The employee contribution rate is applied to average payroll for employees who are earning less than \$55,900 a year. The maximum contribution was used for employment earning more than the maximum pensionable earnings.

Estimated employer and employee contributions are approximately \$9.5 million each, for a total of just over \$19.0 million.

## Workplace Compensation Board of British Columbia (WCB)

**Tax base and rates.** Employers in each province are required to make contributions to the WCB to help offset the cost of on-the-job injuries. Employers are classified into industry groups. The contribution rate for each group is based on the injury costs associated with all companies in that group. The group contribution rate varies widely among industries and provinces. Some major companies are not included in the general “rateable” method of contribution but simply pay the actual cost of their claims plus an allowance for WCB administration costs. As it is not generally known which firms contribute in this manner, nor the value of their claims, an estimate based on reported payroll has been made for all firms.

**Conceptual issues.** It is possible that some companies are self-insured and their payments could be viewed as a business expense rather than a tax. However, we have chosen to include their contribution because they are required to be part of this government-mandated program.

### Estimation Method and Results

The contribution rates for each employment classification at the port have been applied to the total payroll for that group. PPR employees paid an estimated \$8.2 million to the WCB in 2018.

## Medical Services Plan (MSP)

### Tax Base and Rates

Health care premiums for single filers in British Columbia in 2018 were:

British Columbia- \$37.50 per month

### Conceptual Issues

Premiums must be paid by any person registered with the health care plan, whether they are employed or not. Therefore, premiums are not directly related to employment. Nevertheless, many employers pay premiums on behalf of their employees. Therefore, premiums are included as a tax contribution.

### Estimation Method and Results

Many employees may be covered by premiums paid by or on behalf of a spouse. Therefore, an employee may not need the coverage offered by an employer. For any group of employees, it is difficult to know how many have coverage through a spouse. Therefore, we have assumed that all employees are

covered as a result of employment, but that the premium required is only the rate for single persons. The estimated MSP contribution by PPR employment is \$1.7 million.

## Marine Navigation Service Fees

The Marine Navigation Services Fee (MNSF) was officially introduced in 1996 as a user fee for navigational services provided by the Canadian Coast Guard. Subsequently revised on July 1, 1997, and again on October 1, 1998, the MNSF is assessed on all vessels operating in Canadian waters with the exception of fishing vessels, "government ships" and pleasure craft as defined by the MNSF Fee schedule. Barges operating in Canadian waters in the Western Region are exempt from payment of the MNSF.

As such, the MNSF applies to foreign flagged vessels, including cruise ships and tugs serving port waterways in 2018. There were 503 ship arrivals in 2018 at Port of Prince Rupert. Approximately 17 tugs were in operation in PPR waters. With this level of activity, total MNSF fees at Port of Prince Rupert are estimated to amount to \$1,080,946.

## PILT & Property Taxes Collected to Government

Governments levy property taxes to help them finance local services. The Prince Rupert Port Authority did not pay property taxes; however, they did pay \$2.5 million in PILT (payments in lieu of taxes). In addition to the PILT, the municipality receives a grant from the province to offset property tax revenue, valued at \$1.6 million. Other property taxes paid by the PPR tenants are estimated to be \$5.2 million.<sup>27</sup> Total payments to the municipality amount to \$9.3 million in 2018.

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<sup>27</sup> Data on property taxes paid by PPR, Port of Prince Rupert tenants are current as of 2016.

## Appendix G: Glossary of Terms

**Breakbulk:** Breakbulk cargo is commodity cargo that must be loaded individually in a ship's cargo. The goods can be packaged in bags, cases, crates, drums, barrels, or kept together by baling and placed onto pallets. Typical breakbulk commodities include paper, lumber, steel, and machinery.

**Bulk:** Bulk cargo is commodity cargo that is transported in large quantities and unpackaged. Typical bulk commodities include coal, grain, and chemicals.

**Container:** A container is a standardized re-sealable box used to transport goods. Containers are designed in standard sizes so that it can be loaded and sealed intact onto container ships, railroad cars, planes and trucks. A common size for containers is 20 feet by 8 feet by 8 feet, also known as a Twenty-foot Equivalent Unit (TEU).

**Contract Work:** Any work which is done for a company by an individual who is not on the payroll or work done for a company by another company. Generally speaking, firms will contract out work in areas in which they do not have expertise or when there are cost advantages to doing so.

**Direct Employment:** Direct employment is employment that can be directly attributable to the operations in an industry, firm, etc. It is literally a head count of those people who work in a sector of the economy. In the case of the port, all of those people who work in a marine related capacity would be considered direct employment.

**Economic Activity:** (also Output, Production) The end product of transforming inputs into goods. The end product does not necessarily have to be a tangible good (for example, knowledge), nor does it have to create utility (for example, pollution). Or, more generally, the process of transforming the factors of production into goods and services desired for consumption.

**Economic Output:** (also Economic Activity, Production) The end product of transforming inputs into goods. The end product does not necessarily have to be a tangible good (for example, knowledge), nor does it have to create utility (for example, pollution). Or, more generally, it is defined as the process of transforming the factors of production into goods and services desired for consumption.

**Employment Impact:** Employment impact analysis determines the economic impact of employment in terms of jobs created and salaries and wages paid out. In the case of the port, the direct, indirect, induced and total number of jobs or person years created at the port is examined to produce a snapshot of port operations.

**Full Time Equivalent (FTE):** (also Person Year) One full time equivalent (FTE) year of employment is equivalent to the number of hours that an individual would work on a full time basis for one year. In this study, we have calculated one full time equivalent year to be equivalent to 1,832 hours. Full time equivalent years are useful because part time and seasonal workers do not account for one full time job.<sup>28</sup>

**Gross Domestic Product:** (GDP, also value-added) A measure of the money value of final goods and services produced as a result of economic activity in the nation. This measure is net of the value of intermediate goods and services used up to produce the final goods and services.

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<sup>28</sup> *The Dictionary of Modern Economics*, David W. Pearce, General Editor, The MIT Press, Cambridge Mass., 1984



**Ground Transportation:** Ground Transportation at the port includes any vehicles which transport passengers from the port to the cities or from the cities to the port. This would include taxicab service, limousine service and shuttle service.

**Indirect Employment:** Indirect employment is employment which results because of direct employment. For the port, it would include that portion of employment in supplier industries which are dependent on sales to the air transport sector. In some cases, contract work would be considered indirect employment.

**Induced Employment:** Induced employment is employment created because of expenditures by direct and indirect employees.

**Multiplier Analysis:** Analysis using economic multipliers in which indirect and induced economic impacts is quantified. Essentially, a multiplier number is applied to the "directly traceable economic impact" to produce indirect, induced and total effects (see Multiplier.)

**Multiplier:** Economic multipliers are used to infer indirect and induced effects from a particular sector of the economy. They come in a variety of forms and differ in definition and application. A multiplier is a number which would be multiplied by direct effects in order to calculate indirect or induced effects. In the case of the port, as in many other cases, multipliers can lead to illusory results, and thus must be used with great care.

**Seasonality:** Seasonality results when the supply and demand for a good is directly related to the season in which is consumed. For example, ski resorts experience changes in net income as a result of seasonality. Ports and port services also experience seasonality as a result of vacation times for families (typically during the summer) and/or temperatures abroad (typically at Christmas time). As a result of seasonality in demand for flights, some air carriers increase frequency of flights to certain areas during the busy season.

**Tenant:** A firm which pays a lease to a leasing company or to the port authority directly.

**Value-Added:** (also GDP) A measure of the money value of final goods and services produced as a result of economic activity in the nation. This measure is net of the value of intermediate goods and services used up to produce the final goods and service.

## Appendix H: Sources for Commodity Prices

Commodity	Sources/Assumptions
Alfalfa Pellets	WISERTrade Database (US Vessel Exports data) for "Alfalfa (Lucerne) Meal And Pellets"
Animal Skins	WISERTrade Database (US Vessel Exports data) price for "Raw Hides & Skins Of Bovine Or Equine Animals"
Auto/Machine Parts	WISERTrade Database (US Vessel Exports data) average price for auto/machine parts
Barley	Agriculture and Agri-Food Canada, Canada: Outlook for Principal Field Crops, May 17, 2019. <a href="http://www.agr.gc.ca/eng/industry-markets-and-trade/canadian-agri-food-sector-intelligence/crops/reports-and-statistics-data-for-canadian-principal-field-crops/canada-outlook-for-principal-field-crops-2019-05-17/?id=1558535128253#a4">http://www.agr.gc.ca/eng/industry-markets-and-trade/canadian-agri-food-sector-intelligence/crops/reports-and-statistics-data-for-canadian-principal-field-crops/canada-outlook-for-principal-field-crops-2019-05-17/?id=1558535128253#a4</a>
Barley, Feed	WISERTrade Database (US Vessel Exports data) for "Barley,"
Building Materials	WISERTrade Database (US Vessel Exports data) average price for building materials
Canola (seed)	Canola Council of Canada, average prices for year for Canola Seed, <a href="http://www.canolacouncil.org/markets-stats/statistics/current-canola-oil,-meal,-and-seed-prices">http://www.canolacouncil.org/markets-stats/statistics/current-canola-oil,-meal,-and-seed-prices</a>
Canola Meal	Canola Council of Canada, average prices for year for Canola Meal, <a href="http://www.canolacouncil.org/markets-stats/statistics/current-canola-oil,-meal,-and-seed-prices">http://www.canolacouncil.org/markets-stats/statistics/current-canola-oil,-meal,-and-seed-prices</a>
Cars	WISERTrade Database (US Vessel Exports data) average price for vehicles
Chemical Compounds & Minerals	WISERTrade Database (US Vessel Exports data) average price for chemicals
Coal	WISERTrade Database (US Vessel Exports data) average price for Anthracite Coal, Not Agglomerated

Commodity	Sources/Assumptions
Coal, Metallurgical	WISERTrade Database (US Vessel Exports data) average price for Bituminous Coal, Not Agglomerated
Coal, Thermal	Focus Economics, Thermal Coal Price Outlook: <a href="http://www.focus-economics.com/commodities/energy/thermal-coal">http://www.focus-economics.com/commodities/energy/thermal-coal</a>
Electronics	WISERTrade Database (US Vessel Exports data) average price for electrical equipment
Furniture	WISERTrade Database (US Vessel Imports data) for "Furniture"
Grain Pellets	WISERTrade Database (US Vessel Exports data) for "Pellets Of Wheat And Of Other Cereals"
Grains	Albertawheat.com, 1CWRS 13.5, Dec 2018 price
Household/Personal	WISERTrade Database (US Vessel Exports data) average price for household items
Machinery	WISERTrade Database (US Vessel Exports data) average price for machinery
Medical Supplies	WISERTrade Database (US Vessel Exports data) for "Medical, Surgical, Dental Or Vet Inst, No Elec, Pt"
Metals	WISERTrade Database (US Vessel Exports data) average price for aluminium, copper, steel
Misc. Food Items	WISERTrade Database (US Vessel Exports data) average price for food items
Oats	Agriculture and Agri-Food Canada, Canada: Outlook for Principal Field Crops, May 17, 2019. <a href="http://www.agr.gc.ca/eng/industry-markets-and-trade/canadian-agri-food-sector-intelligence/crops/reports-and-statistics-data-for-canadian-principal-field-crops/canada-outlook-for-principal-field-crops-2019-05-17/?id=1558535128253#a4">http://www.agr.gc.ca/eng/industry-markets-and-trade/canadian-agri-food-sector-intelligence/crops/reports-and-statistics-data-for-canadian-principal-field-crops/canada-outlook-for-principal-field-crops-2019-05-17/?id=1558535128253#a4</a>
Office Supplies	WISERTrade Database (US Vessel Exports data) average price for office supplies

Commodity	Sources/Assumptions
Oil	WISERTrade Database (US Vessel Exports data) for "Oil (Not Crude) From Petrol & Bitum Mineral Etc."
Other	WISERTrade Database (US Vessel Exports data) for all U.S. exports
Petroleum Coke	Ministry of Energy, Mines and Petroleum Resources (MEMPR) Statistics
Plastic/Plastic Scraps/ Chemical Resin, Polymer, Etc.	WISERTrade Database (US Vessel Exports data) average price for plastics
Pulp/Paper	WISERTrade Database (US Vessel Exports data) average price for pulp and paper
Shipping Materials	WISERTrade Database (US Vessel Exports data) price for "Containers (Boxes, Bags Etc), Closurers Etc, Plast"
Soybeans	Agriculture and Agri-Food Canada, Canada: Outlook for Principal Field Crops, May 17, 2019. <a href="http://www.agr.gc.ca/eng/industry-markets-and-trade/canadian-agri-food-sector-intelligence/crops/reports-and-statistics-data-for-canadian-principal-field-crops/canada-outlook-for-principal-field-crops-2019-05-17/?id=1558535128253#a4">http://www.agr.gc.ca/eng/industry-markets-and-trade/canadian-agri-food-sector-intelligence/crops/reports-and-statistics-data-for-canadian-principal-field-crops/canada-outlook-for-principal-field-crops-2019-05-17/?id=1558535128253#a4</a>
Textiles	WISERTrade Database (US Vessel Exports data) price for "Worn Clothing And Other Worn Textile Articles"
Wax	WISERTrade Database (US Vessel Exports data) for "Other Mineral Waxes, Nesoi"
Wheat	Albertawheat.com, 1CWRS 13.5, Dec 2018 price
Wood Products - Cut Lumber	Timber Pricing Branch, Ministry of Forests, Lands & Natural Resource Operations: Based on conversion for wood chips. Month of December 2018. <a href="https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/coast-log-reports/1mc_dec_18.pdf">https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/coast-log-reports/1mc_dec_18.pdf</a>

Commodity	Sources/Assumptions
Wood Products - General/Unspecified	Timber Pricing Branch, Ministry of Forests, Lands & Natural Resource Operations: Based on conversion for wood chips. Month of December 2018. <a href="https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/coast-log-reports/1mc_dec_18.pdf">https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/coast-log-reports/1mc_dec_18.pdf</a>
Wood Products - Logs	Timber Pricing Branch, Ministry of Forests, Lands & Natural Resource Operations: Based on conversion for wood chips. Month of December 2018. <a href="https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/coast-log-reports/1mc_dec_18.pdf">https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/coast-log-reports/1mc_dec_18.pdf</a>
Wood Products - Processed	Timber Pricing Branch, Ministry of Forests, Lands & Natural Resource Operations: Based on conversion for wood chips. Month of December 2018. <a href="https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/coast-log-reports/1mc_dec_18.pdf">https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/coast-log-reports/1mc_dec_18.pdf</a>
Wood Products - Wood Chips	Timber Pricing Branch, Ministry of Forests, Lands & Natural Resource Operations: Based on conversion for wood chips. Month of December 2018. <a href="https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/coast-log-reports/1mc_dec_18.pdf">https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/coast-log-reports/1mc_dec_18.pdf</a>
Wood Products - Wood Pellets	Timber Pricing Branch, Ministry of Forests, Lands & Natural Resource Operations: Based on conversion for wood chips. Month of December 2018. <a href="https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/coast-log-reports/1mc_dec_18.pdf">https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/forestry/timber-pricing/coast-timber-pricing/coast-log-reports/1mc_dec_18.pdf</a>



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