

Victoria International Airport (YYJ) 2017 Economic Impact Study



Photo Credit:
Victoria Airport Authority

Victoria Airport Authority

PREPARED BY
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Executive Summary

The Victoria International Airport (YYJ) contributes significantly to employment and economic development in both the local community, as well as throughout Vancouver Island and the Province of British Columbia (BC) as a whole. This study examines the current economic impacts generated from the operations of the Victoria International Airport and all businesses operating on Victoria Airport Authority (VAA) land, based on a review of the business in 2017.

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. In this case, economic impact refers to the economic contribution associated with the ongoing activities of the Victoria International Airport and all Victoria Airport Authority tenants, subtenants and associated firms located off-airport.¹ The economic contribution of the airport and VAA's tenants to the community is termed the *economic impact of YYJ*. The three major components of economic impact are classified as *direct, indirect and induced impacts*.² Together, they provide a snapshot of how the business of the airport can impact the local and provincial economy.

YYJ is an economic mainstay for the Vancouver Island communities and BC. The impact of the airport is reflected in the 2,500 direct full-time equivalents (FTEs)³ of employment that are supported or facilitated by YYJ, and the \$170 million in direct wages paid. Including indirect and induced impacts, YYJ generated a total of 4,200 FTEs of employment and \$270 million in total wages throughout the province in 2017.



Photo Credit: Victoria International Airport website

¹ Some Victoria Airport Authority tenants and subtenants operate businesses that are not airport/aviation related, but are included in the study as non-airport/non-aviation firms that reside on airport authority land.

² Direct impacts account for the economic activity of the target sector itself. Indirect impacts are those that result because of the direct impacts, which involve employment in downstream industries that arise from the presence of YYJ. Induced employment is generated from expenditures by individuals employed directly or indirectly by the airport.

³ FTE = full-time equivalent of employment. For purposes of this study, one full-time equivalent of employment corresponds to 1,832 hours of work annually. See **Appendix C** for further details.

Ongoing Economic Impacts

The current economic impact of Victoria International Airport, which includes the impact related to the Victoria Airport Authority's ongoing operations, is summarized in **Figure ES-1**.⁴ *Direct* economic impact measures the employment and economic impact directly associated with the airport. This includes employment of all airport terminal building tenants, VAA land tenants, subtenants, and also relevant employment of firms that are located off airport. *Indirect* and *induced* impacts are multiplier impacts in the wider economy stimulated by the airport's activities (e.g., other businesses that supply goods and services to the airport and spending by airport employees).

Emphasis is placed on the direct economic impacts as these are based on data from the employment survey and are clearly identifiable. The multiplier impacts are derived from Statistics Canada economic multipliers for British Columbia.⁵

The *direct* impacts of YYJ in 2017 are estimated to be 2,800 jobs (equivalent to 2,500 *direct* FTEs or person years of employment), earning approximately \$170 million in *direct* wages. Direct employment generates \$230 million in *direct* GDP and \$540 million in *direct* economic output annually.

Total impacts are calculated by adding together the *direct*, *indirect* and *induced* impacts. Including indirect and induced multiplier impacts, current economic impacts of YYJ include a *total* of 4,700 jobs or 4,200 FTEs. *Total* earnings of all employees amounts to \$270 million in wages. Furthermore, YYJ's operations contributed an estimated \$420 million and \$880 million in *total* GDP and *total* economic output, respectively, to the provincial economy.

In addition, beyond the direct, indirect and induced economic impacts, YYJ contributes positive effects to the region that can be more difficult to quantify. The airport also facilitates employment and economic development in the regional economy through increased trade, attracting new businesses to the region and encouraging investment. It supports long-term economic growth by providing linkages between the regional and national economy through increased employment, greater connections to business markets and greater access to resources. This yields additional benefits to direct users and generates further positive impact on the performance and economic activity of the region.

InterVISTAS surveyed stakeholders to review the impacts of the airport on the surrounding businesses and community. The responses range from the significance of YYJ in transporting company personnel to the involvement of the airport in community-building. Overall, YYJ is an important facilitator of economic development, and contributes to the region's attractiveness and competitiveness.

Ongoing Economic Impacts of YYJ


Annual *Direct* Impacts:

- 2,800 jobs
- 2,500 full-time equivalents
- \$170 million in wages
- \$230 million in gross domestic product (GDP)
- \$540 million in economic output

⁴ The results of this study are based on a review of 2017 operations.

⁵ The indirect and induced economic impacts are calculated using the latest available Statistics Canada multipliers for the Province of British Columbia (2013), adjusted for inflation. Multiplier impacts must be interpreted with caution since they may be illusory when the economy experiences high employment and output near industry capacity.

Figure ES-1: Annual Ongoing Economic Impact of Victoria International Airport, 2017



Impact	Employment		Wages (\$ Millions)	GDP (\$ Millions)	Output (\$ Millions)
	Jobs	FTEs			
Direct	2,800	2,500	\$170	\$230	\$540
Indirect	1,100	1,000	\$60	\$100	\$200
Induced	800	700	\$40	\$90	\$140
Total	4,700	4,200	\$270	\$420	\$880

Note: Totals may not sum due to rounding.

Annual Tax Contributions

Victoria International Airport is also an important generator of taxation revenues to all levels of government. Total taxes paid on an annual basis, by airport employers and employees, are estimated at \$81 million per year. Approximately 15% of taxes was paid by air passengers, 82% was paid by airport employers, VAA tenants and their employees, and the remaining 3% by Victoria Airport Authority.

The majority of taxes accrue to the federal government at 73% overall, while the provincial government receives 21% of tax revenue generated by YYJ. The municipal government also benefits from YYJ through the collection of property taxes amounting to over \$5 million paid by YYJ and its tenants.

Figure ES-2 provides a summary of the taxes collected.

Annual Tax Impact of YYJ

Total Tax Contribution:

- \$81 million

Federal Government:

- \$59 million (73% of total)

Provincial Government:

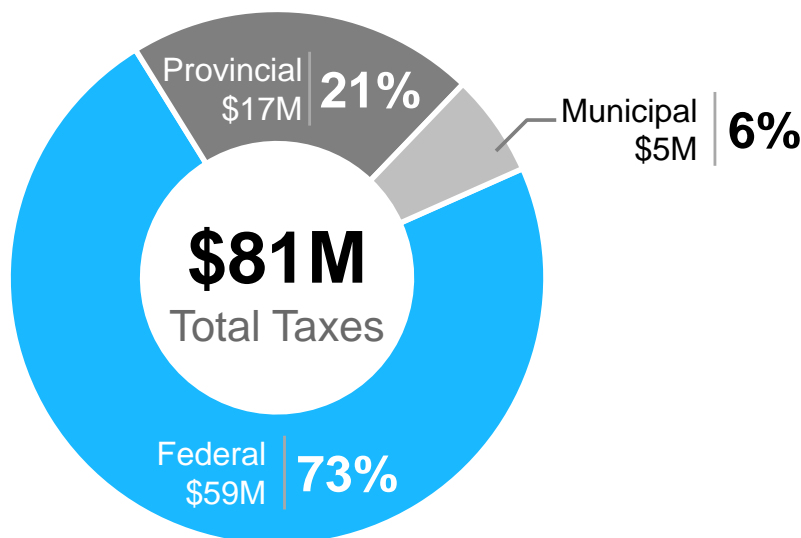
- \$17 million (21% of total)

Municipal Government:

- \$5 million (6% of total)

Note: Results are based on 2016 tax rates.

Figure ES-2: Estimated Annual Tax Revenues from Victoria International Airport, 2016



Note: Taxation impacts are based on 2016 tax rates.

One-Time Economic Impact of Capital Expenditures

There are additional one-time economic impacts associated with the Victoria Airport Authority's capital expenditure program. These impacts are considered separately from the airport's ongoing operations because capital spending can vary significantly over time and on a project-by-project basis.

Using economic multipliers, the economic impact of these capital expenditures can be estimated. Based on the analysis, YYJ's capital expenditures in 2016 generated approximately 80 *direct* FTEs or person years of employment and \$8 million in *direct* wages, as shown in **Figure ES-3**.⁶

Economic Impacts of Capital Expenditure at YYJ

2016 Capital Expenditure:

- \$24 million

2016 Direct Economic Impacts:

- 80 FTEs or Person Years
- \$8 million in wages

Figure ES-3:
One –Time Economic Impact of Capital Expenditures at Victoria International Airport, 2016

Impact	Employment		Wages (\$ Millions)	GDP (\$ Millions)	Output (\$ Millions)
	Jobs	FTEs			
Direct	90	80	\$8	\$11	\$24
Indirect	60	50	\$4	\$5	\$10
Induced	40	30	\$2	\$4	\$7
Total	190	160	\$13	\$20	\$41

Note: Totals may not sum due to rounding.

⁶ It is assumed that all capital expenditures occur in the Province of British Columbia.

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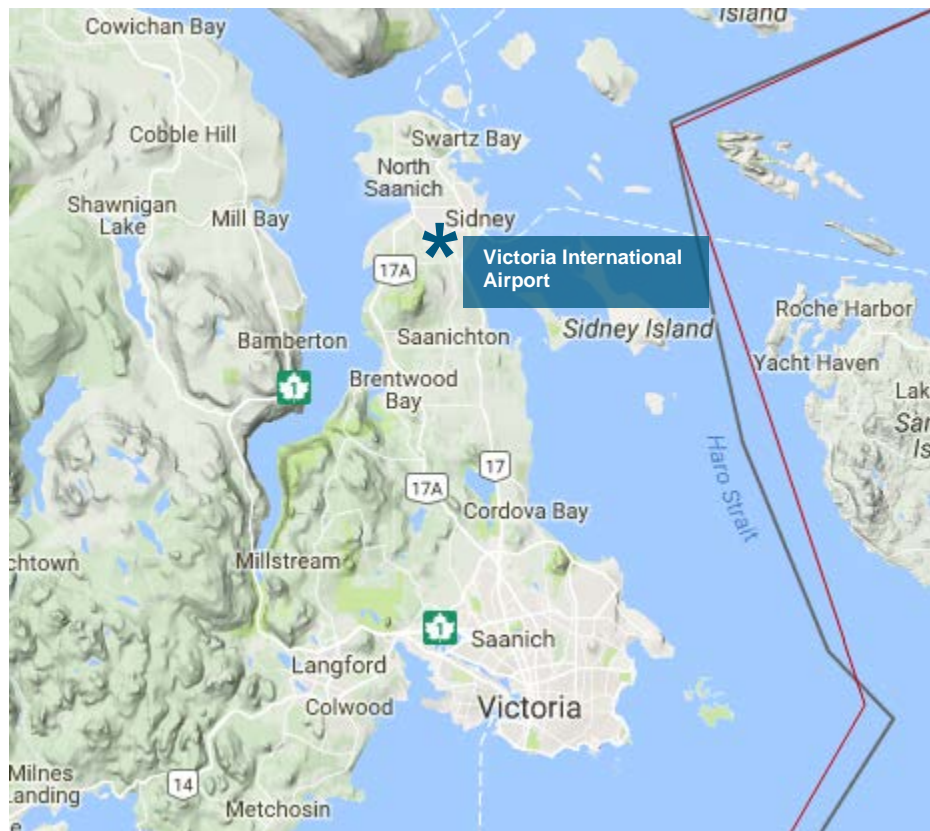
1 Introduction

Victoria Airport Authority (VAA) commissioned InterVISTAS Consulting Inc. to conduct an economic impact study of the Victoria International Airport (YYJ), based on its operations in 2017. The purpose of this study is to document the economic contribution of the airport and related businesses to the community and the province. The economic impact of other firms and businesses operating on VAA land is also estimated.

1.1 Victoria International Airport

As shown in **Figure 1-1**, Victoria International Airport is located on the southern tip of Vancouver Island on the Saanich Peninsula. The Greater Victoria region as a whole is comprised of 13 municipalities with a combined population of almost 400,000.

Figure 1-1: Map of Victoria International Airport and Surrounding Area



Source: Town of Sidney

Victoria International Airport was originally established in 1939 as a military airport, the Patricia Bay Air Station. In 1997, control of YYJ was transferred to the Victoria Airport Authority, a community-based non-share capital corporation that manages YYJ's operations and developments. Today YYJ is the tenth largest airport in the country based on passenger volumes.

YYJ is ranked among the lowest cost airports in the country, has been recognized twice by Airports Council International as being the Best Regional Airport in North America for Airport Service Quality, and despite having invested over \$150 million in capital for airport development is debt-free.

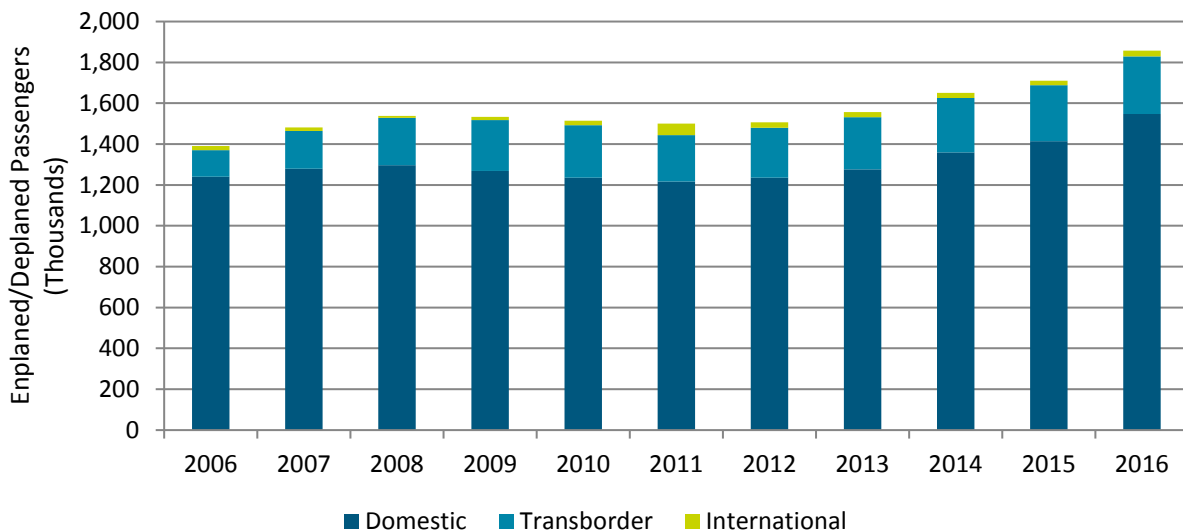
YYJ is a major contributor to the Vancouver Island economy – generating employment in sectors such as air service facilities, hospitality, manufacturing and ground transport. YYJ provides essential infrastructure that links Victoria and other Vancouver Island communities to the world, making it an important component of Canada’s tourism and trade-related industries.



1.2 Passenger Traffic

Figure 1-2 illustrates passenger traffic at Victoria International Airport from 2006 to 2016. Traffic remained stable with the economic downturn from 2008 to 2011, but in the past five years increased 23% from 1.5 million to over 1.8 million in 2016. Traffic is expected to surpass 2 million passengers in 2018 and approach 3 million passengers by 2030. Traffic growth has been driven by new air services, a strong regional economy and favourable exchange rates.

Figure 1-2: Air Passenger Traffic at YYJ, 2006-2016



Source: Victoria International Airport Annual Reports

1.3 Industry and Economy of Vancouver Island



Vancouver Island

- **Population:** 799,400 (Vancouver Island, 2016)
- **GDP:** \$14.9 billion (Victoria CMA, 2013)
- **Median Household Income:** \$70,283 CAD (Victoria CMA, 2016)
- **Largest Industries:** Technology, tourism, forestry, fishing, and mining.

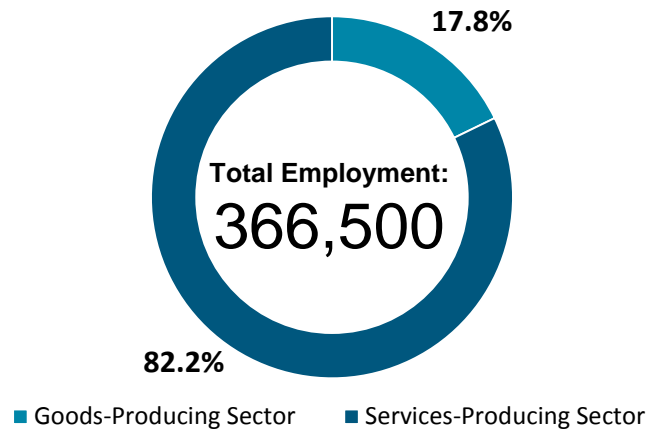
Vancouver Island covers an area of approximately 84,200 square kilometres, and had a population of 799,400 at the end of 2016. Despite the region's strong population growth in recent years, Vancouver Island was able to lower its unemployment rate to 6.0% in 2016, down from 6.3% in 2015. This is largely caused by an increase in jobs in the tourism, construction, public administration and real estate industries located in Victoria and Nanaimo.⁷

Vancouver Island's economy may be broadly categorized into goods-producing industries and services-producing industries. Services-producing industries account for roughly 82.2% of total employment, which is 2.1% higher than British Columbia's 2016 average rate. The remaining 17.8% of Vancouver Island's employment is centered on the goods-producing sector. Vancouver Island's employment may be further separated into a diverse range of industries, including tourism, technology, manufacturing, agriculture, aquaculture, and forestry.

Figures 1-4 and 1-5 contain data from the Chartered Professional Accountants of BC, and explore employment levels in the Vancouver Island/Coast Development region.

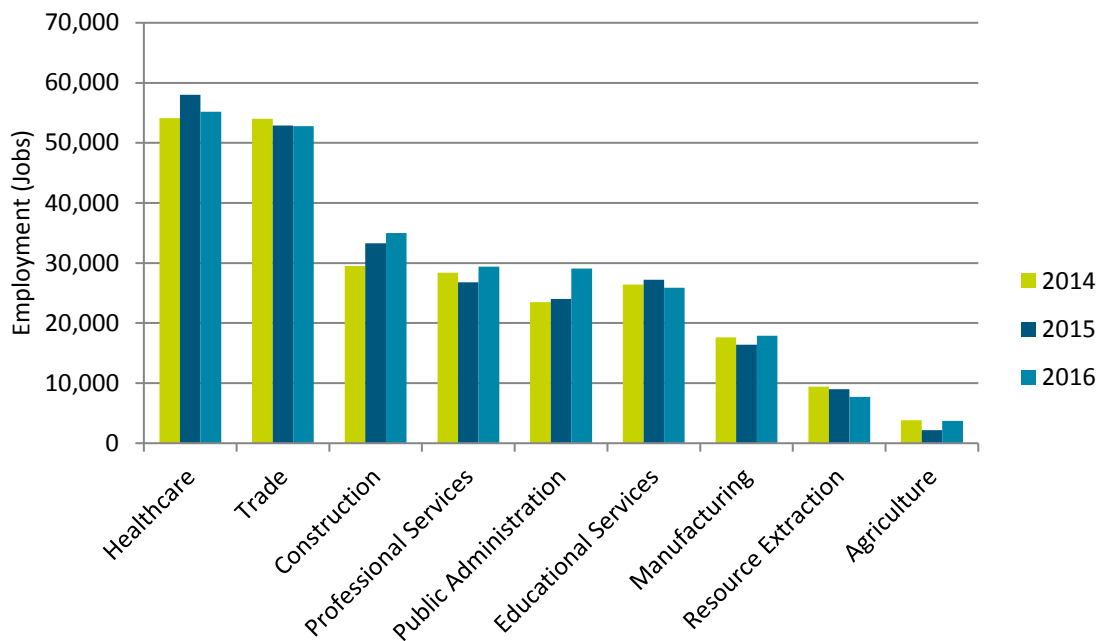
⁷ Source: 2016 State of the Island Economic Report, Vancouver Island Economic Alliance

Figure 1-4: Vancouver Island/Coast Development Region's Economy by Employment



Source: Regional Check-Up 2017, Chartered Professional Accountants of BC

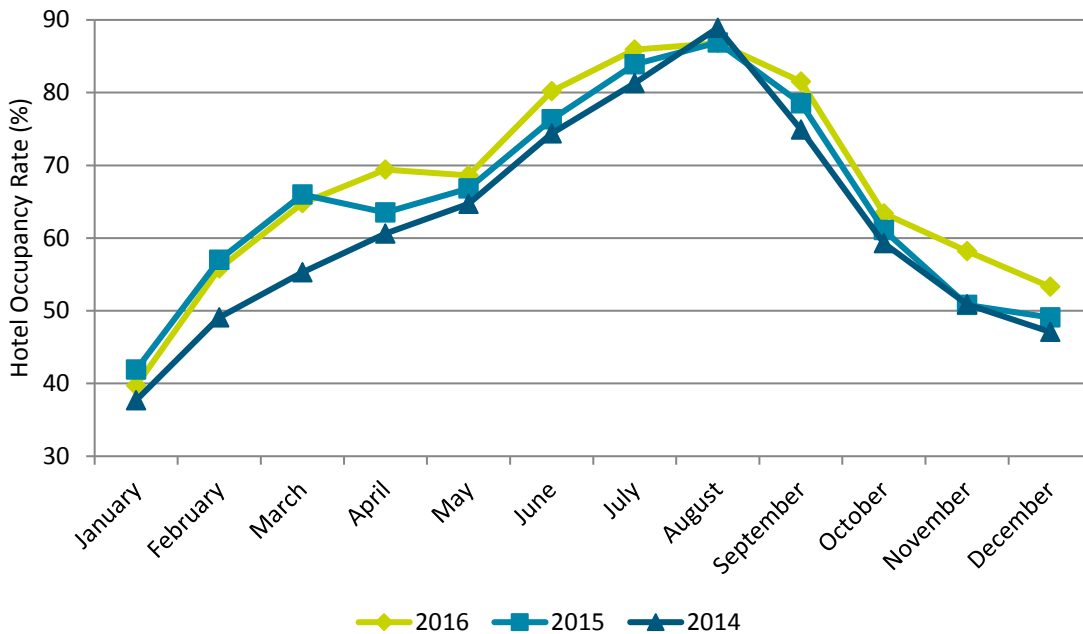
Figure 1-5: Breakdown of Select Vancouver Island/Coast Development Region Industries



Source: Regional Check-Up 2017, Chartered Professional Accountants of BC

Since the Canadian dollar has remained relatively weak against the USD over the past five years, it has made Canadians more inclined to take vacations in their own country. This has caused an uptick in domestic leisure visitors to the area, as well as an increase in foreigner visitors looking to take advantage of the favourable exchange rate. Although the weak Canadian dollar has made imports more costly, it has also enabled Canada's tourism industry to thrive. This is evident in **Figure 1-6**, where monthly Vancouver Island hotel occupancy rates from 2014 to 2016 are displayed.

Figure 1-6: Monthly Comparison of Vancouver Island Hotel Occupancy Rates, 2014-2016



Source: Destination British Columbia

Greater Victoria itself features a number of key demographic trends. At over half of Vancouver Island's population, its economy is a key determinant of economic activity around the island. It is important to note that the region has a strongly aging population. The median age in the Victoria CMA is 45, nearly four years above the national figure. However, even given its higher proportion of retirees, it manages to match national median household income values. Further details can be found in **Figure 1-7**.

Figure 1-7: Comparison of Population, Age and Income, 2006, 2011, 2016

	Victoria CMA	British Columbia	Canada
Population			
2016	367,770	4,648,055	35,151,728
2011	344,615	4,400,057	33,476,688
2006	330,088	4,113,487	31,612,897
Median Age (Years)			
2016	45.0	43.0	41.2
2011	44.2	41.9	40.6
2006	43.1	40.8	39.5
Median Household Income (Canadian dollars, nominal)			
2016	\$70,283	\$69,995	\$70,336
2011	\$61,553	\$60,333	\$61,072
2006	\$60,071	\$59,416	\$60,270

Source: National Household Survey Data, Statistics Canada

1.4 Economic Impact of YYJ

YYJ contributes directly to employment in the Vancouver Island region, as well as the provincial and national Gross Domestic Product (GDP) at large, through its business and commercial activities and operations. More importantly, it also acts as an economic catalyst, facilitating the growth of regional businesses and industrial sectors. The economic contribution of the airport and VAA's tenants to the community is termed the *economic impact* of YYJ.⁸

1.4.1 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 equivalents (FTE) generated.⁹ 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.¹⁰ The different measurements of economic impact, including employment, wages, gross domestic product (GDP) and economic output are explained in **Figure 1-8**.

This study examines the economic impact of YYJ on the provincial economy. One of the most important components of the YYJ economic impact is given particular attention here: *Employment Impact*. Other economic impact measures such as wages, GDP and economic output are also considered and presented.

⁸ This includes all airport terminal building tenants, VAA land tenants, subtenants, and also relevant employment of firms that are located off airport.

⁹ A full-time equivalent (FTE) or person year of employment accounts for part-time and seasonal employment.

¹⁰ Economic impact is different from a cost-benefit analysis that weighs benefits against costs.

Figure 1-8: Measurements of Economic Impact

<p>Employment (Jobs & Full-time Equivalents)</p>	<ul style="list-style-type: none"> •The number of full-time equivalents (FTEs) or person years of employment generated by a particular source. Because certain jobs may only be part-time or seasonal, the number of jobs is generally greater than the number of FTEs.
<p>Wages</p>	<ul style="list-style-type: none"> •The wages, salaries, bonuses, benefits and other remuneration earned by the associated workforce.
<p>Gross Domestic Product (GDP)</p>	<ul style="list-style-type: none"> •A measure of the value added by labour and capital services used to produce final goods and services, 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.
<p>Economic Output</p>	<ul style="list-style-type: none"> •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.

1.4.2 Categories of Economic Impact

The three major components of economic impact are *direct, indirect, and induced impacts*, as described below. These distinctions are used as a base for the estimation of the total economic impact of YYJ. 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. In the case of the airport, the direct, indirect, induced, and total numbers of person years created at the airport and at other businesses on VAA land are examined to produce a snapshot in time of YYJ operations.¹¹

Direct Impact

Direct impacts account for the economic activity of the target sector itself. For instance, all employment that is directly related to the operation and management of YYJ, including businesses located onsite at the airport and on VAA land. As well, airport-dependent businesses located offsite would be considered

¹¹ This includes employment of all airport terminal building tenants, VAA land tenants, subtenants, and also relevant employment of firms that are located off airport.

direct employment. Thus, the direct employment base includes airline employees, fixed base operators, aircraft maintenance, ground handling, customer service, airport authority staff, etc.

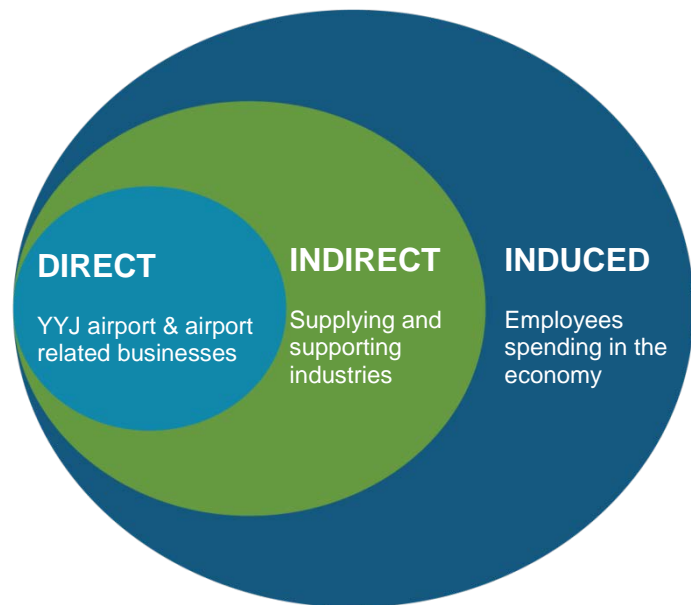
Indirect Impact

Indirect impacts are those that result because of the direct impacts. This involves employment in downstream industries that arise from the presence of YYJ. For instance, indirect employment includes the portion of employment in supplier industries which are dependent on sales to the air transport sector, e.g. food wholesalers that supply food for catering on flights.

Induced Impact

Induced employment is generated from expenditures by individuals employed directly or indirectly by the airport. For instance, if an airline employee at YYJ decides to renovate her home, this would result in induced employment hours in the general economy as the renovation would support hours of employment in the construction industry, the construction materials industry, etc. Induced impact is often called the “household-spending effect”.

Figure 1-9: Categories of Economic Impact Generated and Facilitated by YYJ



Total impacts are the sum of direct, indirect, and induced effects. These three categories of impacts are summarised in **Figure 1-9**.

2 Methodology

2.1 Introduction

InterVISTAS conducted this economic impact study during the summer and fall of 2017. The study estimates the economic impact of YYJ's operations in 2017.

The study is based on data collected from an employment survey of all employers associated with the operation of YYJ (e.g. airlines, general aviation businesses, security services, onsite retailers, etc.) and all tenants operating on VAA land, which is used as an input to assess the direct impacts of operations at the airport and on VAA land. The survey produced estimates of the number of people employed in directly-related occupations, as well as the total amount of earnings paid to these employees. The employment survey was used to classify the total direct employment and average wages paid by business type.

InterVISTAS estimates the indirect and induced effects using economic multipliers developed by Statistics Canada that are derived from models of how the Canadian national and provincial economies operate. InterVISTAS utilizes a proprietary economic model in order to conduct multiplier analysis and estimate indirect and induced impacts.¹²

Data collected from the employment survey is also used to calculate the associated tax impacts (government revenue) generated by the airport's operations.

2.2 Estimating Current Economic Impacts

The direct employment base related to ongoing operations at YYJ is first measured.¹³ 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.¹⁴

The economic impact study then assesses the indirect and induced (or "multiplier") employment supported by YYJ's related operations, as well as economic activity in terms of economic output and GDP using Statistics Canada's economic multipliers. The estimated tax revenues generated annually by operations at YYJ are also estimated.

¹² The indirect and induced economic impacts are calculated using the latest available Statistics Canada multipliers for the province of British Columbia (2013), adjusted for inflation. Multiplier impacts must be interpreted with caution since they may be illusory when the economy experiences high employment and output near industry capacity.

¹³ This includes employment of all airport terminal building tenants, VAA land tenants, subtenants, and also relevant employment of firms that are located off airport.

¹⁴ For example, revenues reported by an air carrier would double count revenues received by caterers. The caterer's revenue is an expense for the airline.

Survey Response Rate

- 96% of tenants responded to the survey
- 99% of total direct full-time equivalents covered by the survey

Study Time Frame

- 2017 operations

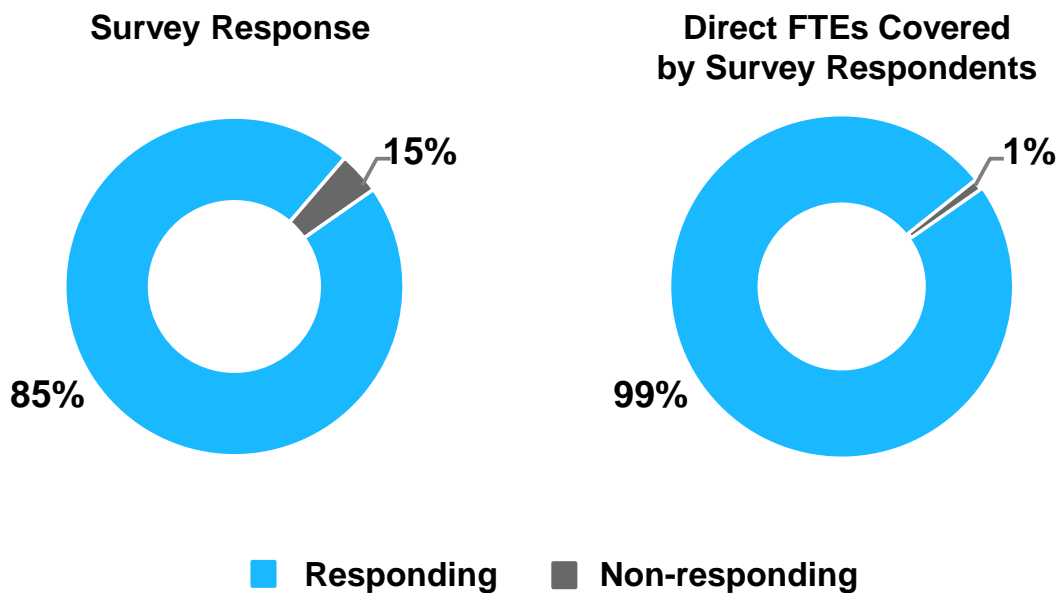
Economic Multiplier Source

- Statistics Canada (Industry Accounts Division): Input-Output Multipliers for British Columbia, 2013

2.3 Surveying Direct Employment

Employment attributable to ongoing YYJ was measured by surveying nearly 110 tenants and subtenants located at YYJ, on VAA land and other businesses economically linked to the airport. Specifics of the survey methodology are contained in the Appendices. **Appendix A** shows a breakdown of survey responses by firm type. A sample copy of the survey is provided in **Appendix B**. Telephone follow-ups were conducted to increase the response rate. In total, 96% of the businesses and organisations contacted responded to the survey, representing 99% of total direct person years or FTEs of employment covered by the survey. A summary is provided in **Figure 2-1**.

Figure 2-1: Response Rate for YYJ Employment Survey



2.4 Inferring Employment

Employment was “inferred” for firms that did not respond to the survey by using a proven and accepted methodology.¹⁵ This includes using other sources of employment information, such as past employment surveys or using survey results for firms of similar types. A conservative approach was taken when using other survey or employment information to infer for non-responding firms.

There may be firms which were not surveyed simply because it was not known that they existed. We do not include an estimate of employment for such non-surveyed firms because there is no basis for an assessment. In any event, we expect most of these to be very small in terms of missed employment (See **Appendix E**).

¹⁵ The methodology employed in this study to infer for non-respondents is also used by the federal government for estimating the national income and product accounts.

2.5 Estimating Indirect and Induced Impacts with Economic Multipliers and Ratios

Measurement of indirect and induced economic activity is difficult. While it may be possible to conduct a survey of downstream employers, the survey would need to cover thousands of firms in order to completely cover indirect employment. For induced employment, the entire economy would need to be scrutinized. 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 and ratios*. Multipliers are derived from 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. In addition, the use of multiplier analysis is limited by a number of 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.

Statistics Canada economic multipliers and ratios (2013) for the Province of British Columbia were used for the analysis.

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, with emphasis nonetheless placed on the direct economic impacts as these are based on data from the employer survey and are clearly identifiable.

For this study, InterVISTAS applied economic multipliers and ratios for the Province of British Columbia based on Statistics Canada's 2013 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.

2.6 Jobs vs. 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), also called person years.¹⁶

2.7 Estimating One-Time Capital Expenditure Impacts

The airport's capital expenditure program also generates significant impacts to the regional economy. The capital expenditures include spending on construction, which supports employment, earnings, GDP, and economic output. Using the Statistics Canada multipliers, the economic impacts of the airport's capital expenditures in 2016 are estimated.¹⁷ The one-time economic effects of an airport's capital development are considered separate from an airport's ongoing operations because the capital spending can vary significantly over time and on a project-by-project basis.

2.8 Estimating Tax Revenue Impacts

The tax revenue contributions to the federal, provincial and municipal levels of government that are associated with airport operations are also estimated.¹⁸ This includes taxes paid by employers and employees (such as payroll taxes), passengers (such as sales taxes on expenditures), and VAA (property tax and the federal airport ground lease).

¹⁶ One full-time equivalent job is equivalent to 1,832 hours of work. See **Appendix C** for a detailed calculation of the number of hours per full-time equivalent job. Person years are the same as full time equivalents (FTEs).

¹⁷ It is assumed that all capital expenditures occur in the Province of British Columbia.

¹⁸ Taxation impacts are based on 2016 tax rates.

3 Economic Impact of YYJ's Ongoing Operations

SUMMARY

- Annual operations at YYJ and other VAA tenants support approximately 2,800 direct jobs, 2,500 direct FTEs, and \$170 million in direct wages.
- Direct employment related to operations of YYJ and VAA tenants includes 94% permanent jobs and 6% seasonal jobs.
- Indirect employment impacts of YYJ and VAA tenants include 1,000 indirect FTEs and \$60 million in indirect wages across the province.
- Induced employment impacts of YYJ and VAA tenants include 700 induced FTEs and \$40 million in induced wages across the province.
- Total employment impacts of YYJ include 4,200 FTEs and \$270 million in wages across the province.

3.1 Direct Economic Impacts

This section describes the employment, in terms of both jobs and FTEs or person years of employment, and estimated payroll attributable to employers *directly* related to ongoing operations at Victoria International Airport and other tenants operating on VAA land, including the West Sidney Business Park.

This section also examines the employment due to ongoing operations at YYJ in more detail. Employment is broken down by:

- Full-time versus part-time and seasonal employment;
- Employment by industry; and
- Employment by job category.

Every arrival of a flight at YYJ generates employment hours for individuals with jobs involved in handling passengers, their baggage, cargo and the aircraft. This employment includes customer service, airline crew, ground handling, cleaning, maintenance functions, etc. It also includes some overhead labour (e.g., clerical and administrative staff), and the associated employment of ground transportation firms and accommodation providers that service passengers of the airport. The direct impacts also include the employment of all firms operating on VAA land.

Direct employment related to ongoing operations at YYJ amounts to 2,800 direct jobs.¹⁹ After adjusting for part-time and seasonal employment, the 2,800 jobs equate to 2,500 FTEs or person years of direct employment.

Direct employment at YYJ receives an estimated \$170 million in wages, resulting in an average of \$68,000 per FTE. This compares to the average national wage of \$49,700 per FTE per annum.²⁰

In addition to employment and wages, the airport directly contributes a total of \$230 million to provincial GDP and over \$540 million in direct economic output. The direct economic impacts are summarized in **Figure 3-1**.

Figure 3-1: Direct Economic Impacts at YYJ, 2017

Impact	Employment		Wages (\$ Millions)	GDP (\$ Millions)	Output (\$ Millions)
	Jobs	FTEs			
Direct	2,800	2,500	\$170	\$230	\$540

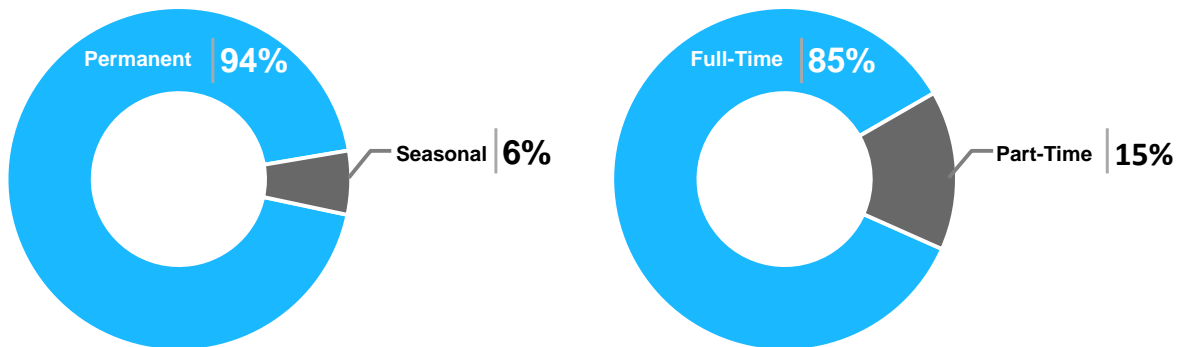
3.1.1 Direct Full-time, Part-Time, Seasonal and Contract Employment

A total of 2,800 direct jobs or 2,500 FTEs are attributable to YYJ's operations. Based on information provided in the survey, 94% of the jobs are permanent jobs while seasonal employment represented only 6% of jobs. Approximately 85% of all direct jobs are full-time positions. This demonstrates that YYJ and VAA tenants are a source of stable, year-round employment. The breakdown of permanent and seasonal jobs by full-time and part-time positions is presented in **Figure 3-2**.

¹⁹ This includes employment of all airport terminal building tenants, VAA land tenants, subtenants, and also relevant employment of firms that are located off airport.

²⁰ Statistics Canada, CANSIM, Table 281-0027, Earnings, average weekly, by industry (All industries), 2016, calculated for annual earnings.

Figure 3-2: Job Characteristics at YYJ, 2017



Contract Employment

Some employers contract out services to individuals and other firms. It is estimated that approximately 130 jobs, equivalent to roughly 30 FTEs, are accounted for by contract individuals and firms.²¹

3.1.2 Direct Employment by Industry

A wide range of businesses operate on VAA land, including the West Sidney Business Park. The West Sidney Business Park supports over 100 jobs. The various business types associated with the VAA can be grouped into the following categories:

- **Commercial Airlines & Air Carriers** includes all of the employment related to commercial service and other air carrier operations. This includes all staff employed by the airlines, such as ticket agents, gate agents and based crew. This category accounts for 600 jobs (21%) of direct employment.
- **Aviation Support Services** includes employment related to ground handling, aircraft maintenance, fixed base operators, airport operator and air traffic services. Employment related to aviation support services represents 600 jobs (21% of direct employment) at YYJ.
- **Other Manufacturing** includes all employment at firms on VAA land that manufacture non-aviation related products. This includes fabricated metal products, plastic products, chemicals and furniture, which account for approximately 400 jobs or 14% of total jobs on VAA land.
- **Government and Military Services** account for employment related to government agencies and departments operating at YYJ, as well as military operations based at YYJ. Examples of this employment include CBSA staff and the DND 443 Maritime Helicopter Squadron. This category accounts for roughly 300 jobs, or 11% of total onsite employment.
- **Aircraft Manufacturing** includes the employment associated with aircraft manufacturing firms situated on VAA land. They account for approximately 300 jobs, or nearly 11% of total employment.

²¹ See Appendix F for more details.

- **Ground Transportation and Car Rental** accounts for taxi and limo services, as well as all of the car rental firms associated with YYJ. The employment amongst these firms sums to almost 200 jobs, nearly 7% of the total jobs at the airport.
- **Food & Retail** employment accounts for employees associated with airport retail outlets, sit-down and fast food restaurants, and catering. This category of business type sums to 100 jobs, representing 4% of direct employment.
- **Other** employment includes employment of other VAA tenants, such as daycare facilities, construction and engineering firms, etc. These firms account for nearly 300 jobs or approximately 11% of YYJ's total direct jobs.

A breakdown of direct employment at VAA by business type is illustrated in **Figure 3-3**.

Figure 3-3: Direct Employment by Occupation at Victoria International Airport, 2017



3.2 Indirect and Induced Economic Impacts

The previous sections discussed how direct employment related to ongoing operations at YYJ was measured. However, the employment impact 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 airport. In addition, there may be additional impacts to the province-wide economy when direct (and indirect) employees spend their wages. These employment effects are referred to as induced employment. Total employment impacts therefore equal the sum of direct, indirect and induced effects.

The indirect and induced impacts were estimated using Statistics Canada's economic multipliers and ratios for the Province of British Columbia.²²

3.2.1 Indirect Impacts

Indirect impacts are generated by industries that supply or provide services to the firms located at YYJ. Based on an analysis of the results of the employer survey and the application of the economic multipliers, it is estimated that 1,000 *indirect* FTEs are related to ongoing operations at YYJ in 2017. This indicates that 1,000 FTEs are indirectly generated in industries that supply the businesses at the airport. Labour wages associated with the indirect employment is estimated at \$60 million per annum. Indirect GDP contribution is estimated at \$100 million per year, and economic output at \$200 million annually.

3.2.2 Induced Impacts

Induced impacts are generated because of expenditures by individuals employed both directly and indirectly by the airport's businesses. It represents the demand for goods and services generated by wage earnings from economic activity directly related to the airport. *Induced* employment attributable to YYJ is estimated at 700 FTEs. Induced employment is estimated to generate \$40 million per annum in wages. Induced GDP and economic impact contributions amount to approximately \$90 million and \$140 million, respectively, each year nationwide.

3.3 Total Provincial Impacts

Ongoing YYJ operations including direct, indirect and induced effects generate 4,700 total jobs (equivalent to 4,200 FTEs) and \$270 million in wages throughout British Columbia. Including multiplier effects, operations at the airport support \$420 million in total GDP and \$880 million in total economic output.²³

— “ —

Our firm uses YYJ to transport company personnel as often as four times each month.

- Victoria Airport Authority
Stakeholder

— ” —

²² The multipliers used for the analysis are based on Statistics Canada economic multipliers and ratios for British Columbia from the 2013 Interprovincial Input-Output model, the most recent data available. These multipliers were updated with Consumer Price Indices to account for inflation.

²³ The indirect and induced economic impacts are calculated using the latest available Statistics Canada multipliers for the province of British Columbia (2013).

Figure 3-4 summarizes the direct, indirect, induced and total employment and wages in the provincial economy attributable to ongoing operations at YYJ, as well as annual GDP and economic output contributions.

Figure 3-4: Annual Total Ongoing Economic Impacts of YYJ in British Columbia, 2017

Impact	Employment		Wages (\$ Millions)	GDP (\$ Millions)	Output (\$ Millions)
	Jobs	FTEs			
Direct	2,800	2,500	\$170	\$230	\$540
Indirect	1,100	1,000	\$60	\$100	\$200
Induced	800	700	\$40	\$90	\$140
Total	4,700	4,200	\$270	\$420	\$880

Note: Totals may not sum due to rounding.

4 Tax Impacts on Ongoing Airport Operations

4.1 Introduction

The ongoing operations of YYJ, as well as the associated economic activity in the region, generate a significant amount of tax revenue for the federal, provincial and municipal levels of government. Tax impacts are estimated separately from economic impacts, as the tax revenues generated by the airport's operations are different from its economic output. Tax impacts include income taxes and sales taxes, while economic output measures the spending of firms and individuals. This section summarizes the government revenues resulting from current YYJ operations.

Revenue impacts are presented based on who is making the payment:

- **Taxes paid by employers and employees.** These are taxes paid by the airport employers and employees. They include income and payroll taxes, social insurance contributions (such as the employment insurance premiums) and the federal and provincial fuel taxes.
- **Taxes paid by passengers.** Visitors pay various taxes and fees. For example, these include taxes on personal expenditures at YYJ such as taxes on food and beverages, taxes on airline tickets and taxes on single night hotel stays by connecting passengers and overnight flight crews, as well as the Airport Improvement Fee (AIF).
- **Taxes paid by VAA.** VAA pays taxes in the form of property taxes. VAA also makes a federal ground lease payment to the federal government.

“

Without YYJ, there would be fewer local businesses, fewer visitors in the area, as well as less sponsorship and participation in community-building.

*- Non-profit Organization
in Victoria*

”

For each of the tax revenue sources, taxes paid to the federal, provincial and municipal levels of government are identified separately.²⁴

The purpose of this section is to present the government tax revenue impacts resulting from economic activity that can be attributed directly to the VAA. As with all economic impact studies, a conceptual decision has to 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 paid by employees when they spend their income/wages and benefits.

²⁴ For the most part, this study **estimates** (some tax envelopes were measured directly, e.g., tenant property taxes) taxes paid from information on the passengers, employers and employees at the airports. In a few situations, such as the corporate income tax paid by employers, an approximate method was used to estimate taxes paid. In every case conservative methods were used. No major tax has been excluded.

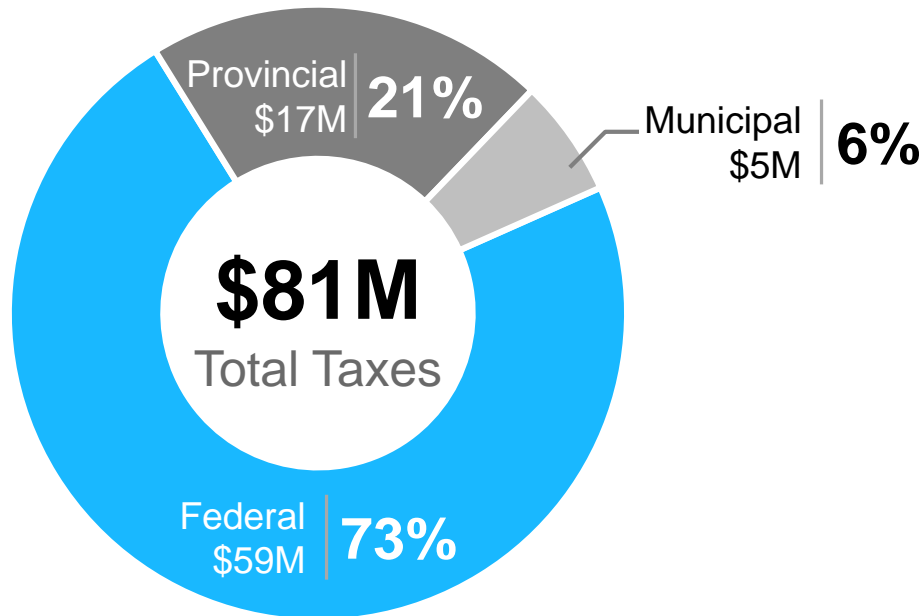
- Taxes paid by airport users outside of the airport.
- Property taxes paid by employees.

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 administered by InterVISTAS is critical to the tax impact analysis; however, such information is not available for the indirect and induced employment. Estimating the tax impacts associated with indirect and induced employment would be a complex process, requiring speculation about the general economy and resulting in averages that would not necessarily be accurate. Therefore, the tax impact analysis in this report is limited to government revenues generated from direct employment associated with airport operations only.

4.2 Tax Contributions by Level of Government

Ongoing economic activity at YYJ generates tax revenue contributions for all levels of government. In 2016, total tax contributions from YYJ-related *direct* employment to all levels of government are estimated to be in the order of roughly \$81 million. The federal government is the largest recipient of tax revenue, receiving \$59 million (73% of the total), as seen in **Figure 4-1**. The provincial government received a tax revenue contribution of \$17 million (21% of the total), while the municipal government received \$5 million in tax revenues (6% of the total).

Figure 4-1: Annual Estimated Tax Revenues of YYJ by Level of Government, 2016



Note: Taxation impacts are based on 2016 tax rates.

A complete summary of tax contributions by YYJ passengers, VAA and other employers and employees is provided in **Figure 4-2**.

Figure 4-2: Annual Estimated Tax Revenues of YYJ by Tax Payer, 2016

Taxpayer	Federal (\$ Millions)	Provincial (\$ Millions)	Municipal (\$ Millions)	Total (\$ Millions)
Passengers	\$11	\$1	\$0.01	\$12
VAA²⁵ and Other Employers/Employees	\$48	\$16	\$5	\$69
Total	\$59	\$17	\$5	\$81

Note: Taxation impacts are based on 2016 tax rates. Totals may not sum due to rounding.

²⁵ Includes \$1.5 million in Federal Ground Lease Payments and \$0.9 million in municipal property taxes paid by VAA.

5 Economic Impacts of One-Time Capital Expenditures

In addition to the employment and other economic impacts of ongoing YYJ operations, there are also economic impacts associated with the VAA's capital expenditures. The capital expenditures include spending on construction, equipment and raw and finished materials, all of which support employment, GDP and economic output. In total, \$24 million was spent in 2016.²⁶

A part of the direct impact arose from capital improvement that occurred at the airport in 2016. The economic effects of an airport's capital development are considered separate from an airport's ongoing operations because the capital spending can vary significantly over time and on a project-by-project basis.

This spending supported 160 FTEs of total employment along with \$13 million in earnings and \$20 million in value added.²⁷ The total economic impact of the airport's 2016 capital expenditures is summarized in **Figure 5-1**.

Figure 5-1: Total Economic Impact of YYJ's Capital Improvements in 2016

Impact	Employment		Wages (\$ Millions)	GDP (\$ Millions)	Output (\$ Millions)
	Jobs	FTEs			
Direct	90	80	\$8	\$11	\$24
Indirect	60	50	\$4	\$5	\$10
Induced	40	30	\$2	\$4	\$7
Total	190	160	\$13	\$20	\$41

Note: Employment figures (jobs and FTEs) are rounded to the nearest hundred. Totals may not sum due to rounding.

²⁶ Victoria Airport Authority, 2016 Annual Report, p.38-39.

²⁷ It is assumed that all capital expenditures occur in the Province of British Columbia.

6 Summary of Results

6.1 Economic Impacts

Ongoing operations at YYJ support a *total* of 4,200 FTEs or person years of employment and \$270 million of wages in British Columbia, when multiplier impacts are included. Of this employment, 2,500 FTEs or person years of employment are *directly* related to the airport.²⁸ Because employment related to the airport and VAA tenants extends far beyond YYJ, the total also includes both indirect (approximately 1,000 FTEs) and induced (700 FTEs) employment.

The VAA contributes to the provincial economy as well. The significance of the airport and VAA tenants is demonstrated by the *direct* economic impact of the airport on GDP and economic output in British Columbia, measured at \$230 million and \$540 million, respectively. Including indirect and induced impacts, the *total* impacts are approximately \$420 million and \$880 million, respectively, province-wide. **Figure 6-1** summarizes these 2017 economic impacts in total.

Figure 6-1: Annual Total Ongoing Economic Impact of YYJ in British Columbia, 2017

Impact	Employment		Wages (\$ Millions)	GDP (\$ Millions)	Output (\$ Millions)
	Jobs	FTEs			
Direct	2,800	2,500	\$170	\$230	\$540
Indirect	1,100	1,000	\$60	\$100	\$200
Induced	800	700	\$40	\$90	\$140
Total	4,700	4,200	\$270	\$420	\$880

Note: Totals may not sum due to rounding.

There are also economic impacts associated with the airport's spending on capital improvements, approximately \$24 million in 2016 alone.²⁹ This investment generated another 90 direct jobs and \$8 million in direct earnings.³⁰ The total economic impact of the airport's 2016 capital improvements is summarized in **Figure 6-2**.

²⁸ This includes employment of all airport terminal building tenants, VAA land tenants, subtenants, and also relevant employment of firms that are located off airport.

²⁹ Victoria Airport Authority, 2016 Annual Report, p.38-39.

³⁰ It is assumed that all capital expenditures occur in the Province of British Columbia.

Figure 6-2: Total Economic Impact of YYJ Spending on Capital Improvements, 2016

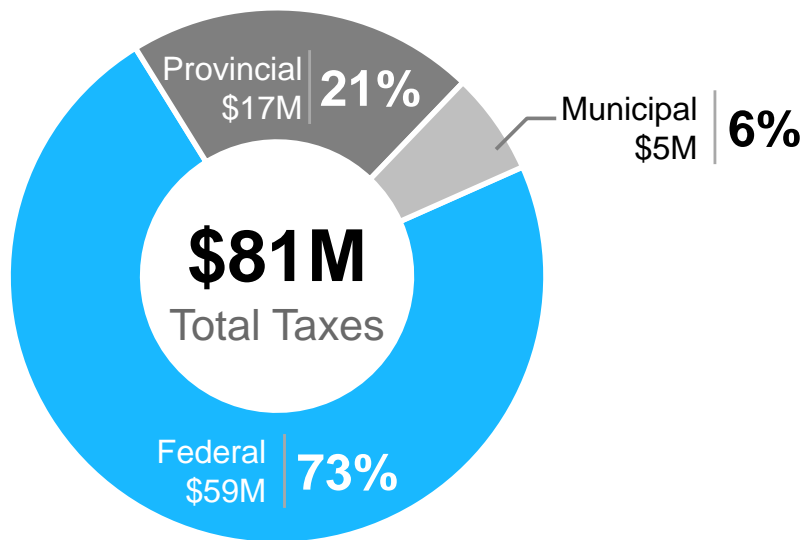
Impact	Employment		Wages (\$ Millions)	GDP (\$ Millions)	Output (\$ Millions)
	Jobs	FTEs			
Direct	90	80	\$8	\$11	\$24
Indirect	60	50	\$4	\$5	\$10
Induced	40	30	\$2	\$4	\$7
Total	190	160	\$13	\$20	\$41

Note: Employment figures (jobs and FTEs) are rounded to the nearest hundred. Totals may not sum due to rounding.

6.2 Annual Tax Contribution

The VAA is also an important generator of taxation revenues to all levels of government. Total taxes paid on an annual basis, by the VAA, employers and employees are estimated at roughly \$81 million per year. The majority of taxes collected accrue to the federal and provincial governments at 73% and 21%, respectively. The municipal government also benefits from the VAA, such as through the collection of property taxes amounting to \$5 million, as shown in **Figure 6-3**.

Figure 6-3: Annual Estimated Tax Revenues of YYJ, 2017



Note: Taxation impacts are based on 2016 tax rates.

Appendix A: Employment Survey

Identification of the Survey Population

A total of 110 firms received employment surveys for the YYJ economic impact study including VAA tenants, offsite firms, hotels and ground transportation firms directly related or dependent upon the airport. VAA provided a list of tenants and, together with InterVISTAS, identified the offsite employers, hotels and ground transportation firms closely tied to airport operations.

Figure A-1: Total Number of Firms Surveyed

Type of Firm	Number of Firms Surveyed	Number of Responding Firms	Response Rate
ATB Tenant	21	21	100%
Land Tenant	27	27	100%
Subtenant	54	51	94%
Ground Transport	3	3	100%
Accommodations	5	4	80%
Total	110	106	96%

Questionnaire Design

The basic questionnaire was designed to be effective in obtaining information and, equally importantly, to be as clear and easy to understand as possible for respondent firms. The basic survey was provided to employers at the airport and VAA land. Other surveys were developed for hotel employment and ground transportation employment. The basic questionnaire provided to VAA tenants focused on questions in the following areas:

General Information

- Name and address of firm
- Contact person's name and title
- Phone and fax numbers
- Email and website address
- Type of business and the proportion related to the airport and/or air service

Total Employment Numbers (for calendar year 2017)

- Total employees
- Total annual payroll excluding benefits
- Number of onsite employees
- Number of offsite employees

Part-time and Full-time Employment

- 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

Employment by Trade

- A selection of job trades was provided to categorise employment

Outsourcing and Contracting Out

- Number of individuals on contract
- Number and names of firms on contract

Taxes

- Property taxes paid in the previous year (2016)

Copies of the surveys are provided in **Appendix B**.

Conducting the Survey

The survey was mailed out electronically by InterVISTAS Consulting with a cover letter from VAA Vice-President of Operations and Development, James Bogusz. The letter explained the purpose of the study, the confidentiality of responses and encouraged members of the airport business community to participate.


Following the initial electronic mail-out of the surveys and throughout the following weeks, non-responding firms were contacted by telephone to follow up. Firms were encouraged to return the survey and new copies were offered if the originals were lost. The replacement surveys were emailed once again or sent via fax. Some survey responses were collected via a telephone interview with firms.

Analysis of the Results

The survey results were compiled into an MS Excel spreadsheet.


Appendix B: Sample Survey

Page 1



Victoria International Airport

Economic Impact Study
Employment Survey



The figures you provide in the following sections are **strictly confidential**. Only aggregate survey totals will be published in the final report.

Please complete this survey as soon as possible. In addition, please note that you are asked to provide values for the **calendar year 2017**, unless otherwise noted.

For the purposes of this study, it is important that the figures you provide are as accurate as possible. However, where it is not possible to provide precise information, we would appreciate estimates rather than no response at all. When answering the questions below regarding your business, please include all related subsidiary businesses.

Name of Company: _____

Address of Company: _____

Contact Person: _____ Phone number: _____

Email: _____

Q1. Principal Business Activity

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

Air Carriers

<input type="checkbox"/> 1. Scheduled Canadian Carrier	<input type="checkbox"/> 5. Air Taxi
<input type="checkbox"/> 2. Scheduled Non-Canadian Carrier	<input type="checkbox"/> 6. Cargo Carrier
<input type="checkbox"/> 3. Charter Carrier	<input type="checkbox"/> 7. Courier / Integrator
<input type="checkbox"/> 4. Helicopter	<input type="checkbox"/> 8. Other: _____

Other Business Types

<input type="checkbox"/> 9. Airport Operator	<input type="checkbox"/> 18. Aviation Related Manufacturing
<input type="checkbox"/> 10. Freight Forwarder, Cargo Agent, etc.	<input type="checkbox"/> 19. Aviation Related Training
<input type="checkbox"/> 11. Warehousing	<input type="checkbox"/> 20. In-flight Catering Company
<input type="checkbox"/> 12. Customs Broker	<input type="checkbox"/> 21. Security Services
<input type="checkbox"/> 13. Aircraft Maintenance, Repair and Overhaul	<input type="checkbox"/> 22. Airport Retail Outlet, Restaurant, etc.
<input type="checkbox"/> 14. Airport Ground Handler	<input type="checkbox"/> 23. Government Agency/Department
<input type="checkbox"/> 15. Fuelling Company	<input type="checkbox"/> 24. Car Rental
<input type="checkbox"/> 16. Fixed Base Operator	<input type="checkbox"/> 25. Taxi, Bus, Limousine, Shuttle
<input type="checkbox"/> 17. Aircraft Parts Supplier	<input type="checkbox"/> 26. Hotel/Accommodations Provider
	<input type="checkbox"/> 27. Other: _____



Q2. Business Related to Victoria International Airport (YYJ)

Please estimate the proportion of your company's business revenues that is related to activities at Victoria International Airport (YYJ).

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 YYJ (the other 80% of their business uses truck or rail for carriage of shipments to other exit and entry points). Alternatively, if your firm is located onsite at YYJ or if your firm's existence is completely dependent on YYJ's operations, please indicate a 100% relationship.

Airport	% Related Business Revenue (2016)
YYJ	%

Q3. Employment at Your Company Related to YYJ

Please provide the number of permanent & seasonal staff currently employed by your company. Please only report employees involved with operations related to Victoria International Airport. This should include employees both on-site at Victoria International Airport and off-site (only where off-site employees are involved with directly providing service to Victoria International Airport, e.g. catering employees at an off-site location). *Airlines only: for pilots and flight crew, please report their employment figures only if they are based at Victoria International Airport.*

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

Location	PERMANENT EMPLOYEES		SEASONAL EMPLOYEES	
	Full-Time	Part-Time	Full-Time	Part-Time
YYJ				
Off-Site				

Please indicate how many hours per week part-time employees work on average.

	Number of Weeks per Year	Number of Weekly Hours
Part-time Employees		

For seasonal employees in general, please indicate how many weeks per year and how many hours per week seasonal employees worked on average.

	Number of Weeks per Year	Number of Weekly Hours
Seasonal Employees		



Q4. Payroll and Wages

Please state the total gross payroll paid by your company for the employees included in the question regarding Employment at Your Company Related to YYJ.

This figure should include all full-time, part-time and seasonal employees. If you are unable to estimate payroll for the calendar year 2017, please provide figures for your last financial period, and indicate which period that was.

Total Payroll (calendar year 2017):	\$
Financial Period (if not 2017):	

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

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 Salary/Wage per Employee: \$ _____ per annum.

Or: Estimate of the average annual salary range per employee:

- Less than \$20,000
- \$20,000 - \$39,999
- \$40,000 - \$59,999
- \$60,000 - \$79,999
- \$80,000 - \$99,999
- \$100,000 or more



Q5. Employment by Occupation

Please estimate the number of employees included in the question regarding Employment at Your Company Related to YYJ that are in the following occupation categories.

The figures entered below should sum to the same total as Question 3.

Employment by Occupation		Number of Employees
General	Managerial/Supervisory	
	Administrative & Clerical	
	Craft Trades (Electricians, Steam Fitters, etc.)	
Airline & Airline Servicing Trades	Pilots	
	Flight Attendants	
	Aircraft & Vehicle Mechanics	
	Customer Service Agents	
	Aircraft Servicing	
Support Trades	Security Guards	
	Drivers / Delivery / Couriers	
	Call Center / Reservations/Dispatchers	
	Food Service Workers	
Government & Regulatory Trades	Air Traffic Control	
	Law Enforcement Officers	
	Security Agents (e.g. TSA)	
	Aviation Safety / Inspection Officers	
Retail Trades	Sales / Cashiers	
	Food & Beverage Staff	
Other (Please specify)		



Q6. Outsourcing and Contracting Out

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

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, as well as how many weeks worked per year, on average.

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

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 total contracted hours of work per annum. Also, please specify the company's name(s) and indicate whether they are located at the airport (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.

Function	Name of Firm	Located On-site? (Check if Yes)	Number of Hours Performed by the Company in 2016
<i>Example: Cleaning services</i>	<i>Spic and Span Cleaners</i>	<input type="checkbox"/>	<i>100 hours per year (2 hours per week)</i>
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	



Q7. Future Employment

We would like to be able to estimate forecasted employment levels for the end of 2017. Please help us by indicating the number or proportion of additional employees your firm plans to hire at YYJ by the end of 2017, over and above your current employment.

	Increase	Decrease	Unchanged	Number of Additional Employees
Additional Employment (2017) <i>Estimated New Employees since May 2017</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Alternatively, if you are unable to answer this question, please provide an estimated percentage growth in employment in 2017.

% Anticipated Growth in Workforce in 2017	%
--------------------------------------------------	---

Q8. Business Revenue Related to Air Cargo

We would like to be able to document the impact of air cargo services. Please help us by indicating the proportion of your business revenues that is related to servicing air cargo at YYJ.

% Business Revenue Related to Air Cargo (2017):	%
--------------------------------------------------------	---

Note: The percentage entered should be the same or less than that entered in Question 2.

Q9. Provincial & Local Taxes

Please indicate the amount of property and/or other provincial and municipal taxes paid by your firm in British Columbia in 2016.

Property Taxes Paid in British Columbia (2016):	\$
Other Provincial & Municipal Taxes (2016):	\$



Additional Comments

Please use the space below to provide any additional comments.

Additional Comments

Thank you.

Please return this survey to:
vyi.econimpact@intervistas.com

If you have any questions, please call
or Doris Mak / Celina Estrella at 1-877-717-6246.

Appendix C: Calculation of Full-time Equivalent or Person Years of Employment

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

Figure 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
	1,832 hours per person year

Workdays vary anywhere from 6.5 to 8 hours; however, in order to be conservative, an 8 hour workday was assumed.³¹ Similarly, numbers of vacation and sick leave days may also vary.

³¹ 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: Summary of Direct Jobs and Person Years

Figure D-1: Direct Jobs and Person Years

	Jobs	FTEs or Person Years of Employment
Surveyed employment ¹	2,660	2,460
Inferred employment for non-respondents ²	10	10
Contract employment ³	130	30
Total	2,800	2,500

Notes:

1. Refer to Appendix A
2. Refer to Appendix E
3. Refer to Appendix F
4. Rounded figures are presented throughout the report

Appendix E: Inferred Employment

Because not all employers responded 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. This approach is conservative in that we assumed that the non-responding firms are smaller than responding firms.

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 inferred for employers who did not provide a 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 F: 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 airport 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 a FTE or one person year of employment. The employment results for firms on contract were derived by dividing the total hours of employment by 1,832 to estimate FTEs or person years.

There were approximately 130 jobs equivalent to 30 person years of contract employment supplied by firms doing work for YYJ firms and VAA tenants, and contract employees working for firms at YYJ and VAA land.

Appendix G: Tax Revenues Attributable to VAA Employers

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 using 2016 rates, 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 YYJ and VAA land. These questions are highlighted and simplifying assumptions are put forth.

Employment at VAA

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 2,800 jobs. The total payroll is estimated at nearly \$170 million.

Personal Income Tax (Federal and Provincial)

Employees who work for employers located at YYJ are taxed on their income and, as a result, contribute to federal and provincial tax revenues.

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

Estimation Method and Results

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

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.

The average tax rates used are derived from the more detailed calculations of taxes payable shown in **Figure G-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, 2017*.

Each employee is assumed to pay tax as a single tax filer. Estimated income tax payable is \$22 million in federal tax and about \$8 million in provincial tax.

Figure G-1: British Columbia Single Tax Filer Income Tax Calculation

British Columbia Single Tax Filer Income Tax Calculation											
	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000	100,000		
Income											
Employment	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000	100,000		
TOTAL	20,000	30,000	40,000	50,000	60,000	70,000	80,000	90,000	100,000		
Deductions											
RRSP	571	495	616	678	1,548	1,927	2,408	3,222	3,964		
RPP	38	94	293	695	1,056	1,388	1,960	2,118	2,420		
Union	54	63	116	210	294	362	474	502	535		
Carrying Charges	105	113	139	202	242	284	353	441	511		
TOTAL	768	766	1,165	1,785	3,140	3,960	5,194	6,283	7,431		
Taxable Income	19,232	29,234	38,835	48,215	56,860	66,040	74,806	83,717	92,569		
Credits											
Basic Federal	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474	11,474		
Basic Provincial	10,027	10,027	10,027	10,027	10,027	10,027	10,027	10,027	10,027		
CPP	627	672	945	1,343	1,650	1,749	1,797	1,894	1,942		
EI	289	283	377	523	603	630	645	672	688		
Charity	25	49	76	99	126	143	170	189	210		
Fed. Total	12,414	12,478	12,873	13,439	13,853	13,996	14,086	14,230	14,314		
Prov. Total	10,967	11,031	11,426	11,992	12,406	12,549	12,639	12,783	12,867		
Federal Tax Credit Rate	15%	15%	15%	15%	15%	15%	15%	15%	15%		
Provincial Tax Credit Rate	5%	5%	5%	5%	5%	5%	5%	5%	5%		
Federal Credits	1,862	1,872	1,931	2,016	2,078	2,099	2,113	2,134	2,147		
Provincial Credits	555	558	578	607	628	635	640	647	651		
Tax Payable											
Federal - Bracket 1	2,885	4,385	5,825	6,792	6,792	6,792	6,792	6,792	6,792		
Federal - Bracket 2	0	0	0	645	2,547	4,567	6,495	8,456	9,962		
Federal - Bracket 3	0	0	0	0	0	0	0	0	522		
Federal - Bracket 4	0	0	0	0	0	0	0	0	0		
Federal - Bracket 5	0	0	0	0	0	0	0	0	0		
Federal Total	2,885	4,385	5,825	7,438	9,339	11,359	13,288	15,248	17,276		
Basic Federal		1,023	2,513	3,894	5,422	7,261	9,260	11,175	13,113	15,129	
BC - Bracket 1	973	1,479	1,916	1,916	1,916	1,916	1,916	1,916	1,916		
BC - Bracket 2	0	0	74	797	1,462	2,169	2,844	2,916	2,916		
BC - Bracket 3	0	0	0	0	0	0	0	838	1,178		
BC - Bracket 4	0	0	0	0	0	0	0	0	690		
BC - Bracket 5	0	0	0	0	0	0	0	0	0		
BC Total	973	1,479	1,991	2,713	3,378	4,085	4,760	5,670	6,700		
Basic Provincial		418	921	1,412	2,106	2,751	3,450	4,121	5,023	6,049	
TOTAL TAX PAYABLE	1,441	3,435	5,307	7,528	10,012	12,710	15,295	18,136	21,177		
Average Rate of Tax	7.5%	11.7%	13.7%	15.6%	17.6%	19.2%	20.4%	21.7%	22.9%		
Federal	5.3%	8.6%	10.0%	11.2%	12.8%	14.0%	14.9%	15.7%	16.3%		
Provincial	2.2%	3.2%	3.6%	4.4%	4.8%	5.2%	5.5%	6.0%	6.5%		

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.

Government agencies are not subject to corporate income tax, nor are public authorities.

Estimation Method and Results

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 province. Therefore, an approximate method has been used.

In British Columbia, the federal corporate income tax collected per employee was \$2,300 and the provincial corporate income tax collected per employee was \$1,200.

Assuming all companies pay tax at the average rate per employee calculated above, the corporation income tax liability of the YYJ employment sector is estimated to be \$6 million toward federal revenues and \$3 million toward provincial revenues. The estimated total corporate income tax revenue is roughly \$9 million.

Employment Insurance Premiums

In 2016, employees in Canada paid employment insurance (EI) premiums equal to 1.88% of earnings up to a maximum of \$955 per year. (Maximum insurable earnings are \$50,800). 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 \$50,800 per year. The maximum contribution was used for employees earning more than \$50,800 per year. Estimated employee payments are about \$2 million.

The employer rate is applied to the employee payments. Estimated employer payments were about \$3 million.

Canada Pension Plan Contributions

Tax Base and Rates

In 2016, 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 \$54,900. The maximum annual employee contribution is \$2,544.30. 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 \$54,900 a year. The maximum contribution was used for employment earning more than the maximum pensionable earnings.

Estimated employer and employee contributions are about \$6 million each, for a total of \$12 million.

Workers' Compensation Board Contributions

Employers in British Columbia are required to make contributions to WorkSafeBC, the provincial workers' compensation board, 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.³² 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 WorkSafeBC 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.

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.

³² Subject to Experience Rating Adjustment for individual companies.

Estimation Method and Results

The contribution rates for each employment classification at YYJ and VAA land have been applied to the total payroll for that group. YYJ and VAA tenants' employees paid an estimated \$2 million to WorkSafeBC.

Medical Services Plan (MSP)

Tax Base and Rates

Health care premiums for single filers in British Columbia were \$75 per month.

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 YYJ and VAA land employment is close to \$3 million.

Aviation Fuel Tax

The federal and provincial governments levy taxes on aviation fuel. The aviation fuel tax rates are shown in **Table G-2**.

Figure G-2: Fuel Tax Rates, 2017

Federal	British Columbia
\$/Litre	
\$0.04	\$0.0938

Estimation Method and Results

The amount of taxable aviation gasoline (Avgas) sold at YYJ in 2016 was approximately 583,200 litres.³³ The total Avgas tax revenues at YYJ amount to approximately \$78,000. Of this total, about \$23,000 went to the federal government and the government of British Columbia collected \$54,000.

The fuel sold is also subject to the 5% tax rate payable to the federal government. The total tax revenues from Avgas sales at YYJ amount to \$13,000.

³³ Amount of taxable aviation gasoline (Avgas) sold was provided by the Victoria Airport Authority. This figure does not include the amount of jet fuel sold at YYJ. As the information on jet fuel sales at YYJ was not available, the jet fuel tax revenues at YYJ are not estimated.

Property Taxes

Governments levy property taxes to help them finance local services. Property taxes paid by VAA amounted to \$914,969 in 2016.³⁴ Additionally, VAA tenants paid close to \$4 million in property taxes.³⁵ In total, \$5 million in property taxes were paid to the municipal government by the airport authority and its tenants.

Federal Ground Lease Payable in 2016

VAA also made federal ground lease payments to the Federal Government in 2016, amounting to \$1.5 million.³⁶

³⁴ Victoria Airport Authority. 2016 Annual Report.

³⁵ Property taxes paid by VAA tenants were provided by the Victoria Airport Authority.

³⁶ Victoria Airport Authority. 2016 Annual Report.

Appendix H: Tax Revenues Attributable to Airport Users

YYJ Passengers in 2016

In 2016, nearly 1.9 million passengers enplaned and/or deplaned at YYJ. **Table H-1** shows the passenger movements used in this study including breakdown into sectors and percentage of connecting passengers at YYJ.

Figure H-1: Passenger Movements at YYJ, 2016

Sector	Enplaned plus Deplaned, 2016
Domestic	1,547,108
Transborder	282,742
International	26,571
Total	1,856,421
<i>Daily Average</i>	<i>5,086</i>

Source: Victoria Airport Authority. 2016 Annual Report.

GST on Air Fares, Insurance Surcharges and the Airport Improvement Fee (AIF)

Tax Base and Rate

The 5% Goods and Services Tax (GST) applies to all tickets purchased in Canada and includes all domestic, transborder and international flights.

VAA charges all passengers originating their journey at YYJ an Airport Improvement Fee (AIF) that is collected for the sole purpose of funding capital improvements at the airport. GST is levied on the fee.

Conceptual Issues. Taxes levied on the air fare should be shared among airports in Canada associated with the journey. The estimation method builds in a sharing assumption (50% YYJ and 50% other Canadian airports).

Estimation Method and Results

GST is levied on all air fares; however, due to the sharing assumption stated above, only 50% of the estimated taxes per departing passenger are attributable to YYJ. Total tax on airfares is estimated to be more than \$8 million.

VAA collected nearly \$14 million through the AIF in 2016. Tax revenue on this amount collected by the Federal government is approximately \$680,000.

GST on Air Traveller Security Charge

The Canadian Government enacted the Air Traveller Security Charge (ATSC) on April 1, 2002 to help fund security improvements at airports across Canada, as a result of the terrorist attacks on September 11, 2001. There is a flat rate fee of \$7.48 for each chargeable enplanement for domestic travel, \$12.71 for transborder travel, and \$25.91 for international travel.

Tax Base and Rate

The GST applies to the domestic and transborder ATSC.

Estimation Method

The volume of origin/destination traffic at YYJ was determined. It was assumed that 50% was origin traffic at YYJ. Each origin passenger pays the ATSC. A total of \$750,000 in taxes was collected on the ATSC in 2016.

GST on Aeronautical Revenue

The GST rate is applied to aeronautical fees.

Estimation Method and Results

Based on the information provided by VAA, aeronautical revenue received was \$7 million in 2016. Total tax collected is estimated at \$350,000 GST.

GST on Rental Revenue

The GST rate is applied to rent collected.

Estimation Method and Results

Based on the information provided by VAA, net revenue from rent was \$3 million in 2016. Total tax collected is estimated at \$150,000 GST.

GST on Other Revenue

The GST rate is applied to other revenue earned by the VAA.³⁷

Estimation Method and Results

Based on the information provided by VAA, other revenue amounted to close to \$800,000 in 2016. Total tax collected is estimated at \$40,000 GST.

³⁷ A conservative estimate applying only GST rates is used, as most other revenue is exempt from PST.

GST on Concession Revenue

Tax Base and Rate

The GST rate applies to parking and restaurant meals, while the GST and PST rates apply to car rental fees and retail concession purchases by travellers at the airport.³⁸

Estimation Method and Results

Total taxes based on concession revenue of over \$9 million (including parking, car rental and airport restaurant/gift shop sales) are approximately \$1.8 million GST and \$85,000 PST.³⁹

Tax on Accommodation Costs

Tax Base and Rates. The 5% Goods and Services Tax (GST) and 8% Provincial Sales Tax (PST) applies to accommodation costs by non-local visitors to Victoria staying in hotels.

In addition, a hotel tax of 2% is also levied on accommodation expenditure in the District of Saanich.

The average daily room rate forecast for 2016 was \$157.00.

Estimation Method and Results

In order to estimate the total accommodation costs of non-local visitors in Victoria, the average daily room rate was applied to the estimated total crew layover nights and connecting passenger nights determined from the hotel survey conducted. The total accommodations expenditure amounted to an estimated \$1 million, with revenue from total crew layover nights accounting for \$870,000 and revenue from total connecting passenger nights accounting for \$620,000.

PST and GST based on the expenditure for airline crew accommodation of \$870,000 is approximately \$110,000, while the hotel tax is estimated to be \$17,000. PST and GST based on accommodation costs of \$620,000 by connecting passengers is approximately \$80,000, while the hotel tax is estimated to be \$12,000.

Tax on Ground Transportation

The GST rate applies to taxi, limousine and bus transportation.

Estimation Method and Results

Based on the information provided by surveyed ground transportation firms, ground transportation revenues was \$6 million in 2016. Tax on these expenditures is estimated at \$310,000.

³⁸ The Provincial Passenger Vehicle Rental Tax of \$1.50 per day is not included, as information on length of lease of a vehicle is not available.

³⁹ The Victoria Airport Authority provided a breakdown of the concession revenue by type of purchase for appropriate application of GST and PST rates. Concession revenue does not include taxi and bus revenue, as these are estimated separately.

Appendix I: Glossary of Terms

Air Traveller Security Charge (ATSC): A fee collected by the Federal Government from air travellers to help fund security improvements at Canadian airports. The fee varies by region of travel and is charged to the passenger per enplanement.

Airport Improvement Fee (AIF): A fee collected by the airport authority from passengers to help with funding capital improvements at the airport. In some regions of Canada, this is also referred to as the Passenger Facility Charge (PFC).

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 airport, all of those people who work on airport property and in an aviation 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 airport, the direct, indirect, induced and total number of jobs or person years created at the airport is examined to produce a snapshot of airport 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.⁴⁰

Gross Domestic Product: (GDP, also value-added) A measure of the value added by labour and capital services used to produce final goods and services, 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.

Ground Transportation: Ground Transportation at the airport includes any vehicles which transport passengers from the airport to the cities or from the cities to the airport. This would include taxicab service, limousine service and hotel van service. Valet services as well as skycaps are included in this category.

⁴⁰ *The Dictionary of Modern Economics*, David W. Pearce, General Editor, The MIT Press, Cambridge Mass., 1984

Indirect Employment: Indirect employment is employment which results because of direct employment. For the airport, 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 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 airport, 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. Airports and airport 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 airport 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 services.



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